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Evaluation Study of the High Yielding Varieties Programme

REPORT FOR THE RABI 1968-69

—Wheat, Paddy and Jowar

Programme Evaluation Organisation
PLANNING COMMISSION
GOVERNMENT OF INDIA
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PREFACE

The High Yielding Varieties Programme launched from the agricultural year 1966-67 paved the way for achieving a breakthrough in food production. The new wheat varieties, both exotic and those subsequently evolved in the different agricultural research stations of the country (combining the principal characteristics of the exotic with the indigenous) have boosted the yield of this crop to an appreciably high level compared to the local varieties. The varieties released for the principal kharif crops *viz.* paddy, maize, jowar and bajra, have also established their yield superiority over the last few years, although a breakthrough in terms of coverage of area is yet to be achieved in regard to these crops.

Because of the importance of this programme to the national economy, the PEO initiated, at the instance of the Planning Commission, a current appraisal of this programme commencing from the kharif season of 1967. In the first year of study *viz.* 1967-68, four reports two each for kharif and rabi seasons were prepared in order to present the findings and suggestions in time to the concerned Ministry at the Centre and in the States. It was encouraging that the Central Ministry of Agriculture took prompt action on the first year's report and also requested for the continuation of the study during 1968-69. Accordingly, the study was repeated during the last agricultural year also. Based on the field study in 44 selected blocks spread all over the country, a report for kharif, 1968 was presented in June 1969. The present report for the Rabi, 1968-69 covered in all 32 blocks for wheat, paddy and jowar. The study in a modified form is being continued for the third year in succession during 1969-70 also, focussing attention on the problems of financing of capital and current inputs by the same sample group of farmers as were canvassed during 1967-68 and 1968-69 agricultural years.

The main orientation in this report is the same as in our study of kharif, 1968. All the major aspects of the programme such as planning, programming, organisation of input suppliers, agricultural research and extension, extent of adoption by participant farmers, cash expenditure on inputs, yield levels, disposal of surplus incomes by selected respondents and problems of both participants and non-participants have all been analysed on the same lines as in our earlier reports. An attempt has also been made in this report to review the programme on the basis of field observations over the last two years besides comparing performance with the corresponding season of the year 1967-68.

While the findings and suggestions speak for themselves, it may be observed that although a significant breakthrough has been achieved in respect of wheat in physical terms of area coverage, a qualitative breakthrough in terms of reaching the recommended levels of adoption by farmers is yet to be achieved. The yield data presented in the report, inspite of its limitations, reveal a somewhat disturbing trend. Compared to rabi, 1967-68, the average yield of wheat per hectare showed a marginal decline during 1968-69. Thus there seems to be vast scope for a qualitative improvement in the programme specially through intensifying the

extension effort. Better levels of adoption, particularly in terms of adoption of recommended doses of fertilizers in combination with the other improved practices (package) need to be canvassed more vigorously if the problems of poor off take of fertilizers, etc. are to be overcome. Although agricultural research in the country has made considerable progress within the last 3-4 years, there appears to be considerable scope for accelerating the pace of research specially in regard to crops mainly dependent upon rainfall in the dry belts. However, the overall performance has been encouraging as revealed in our studies over these two years; but the mounting demand on the food front leaves little scope for complacency.

In bringing this study to a successful conclusion we have received guidance, cooperation and active assistance at the field level, from a number of official and non-official agencies, both at the Centre and in the States, including the large number of cultivators. Such cooperation and assistance are gratefully acknowledged. It is hoped that this report will be found useful by all concerned.

This report has been prepared by the analysts of the Agricultural Economics Division.

November, 1969.

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CONTENTS

SUMMARY OF FINDINGS & SUGGESTIONS

1. This is in continuation of our study of the H.Y.V.P. for the agricu'-tural year 1968-69, for the kharif season of which a report was presented in June, 1969. This report is for rabi 1968-69 covering wheat, paddy and jowar. The aspects covered are the same as in the kharif season. This study was carried out in 32 development blocks and 96 sample villages covering 876 participant and 160 non-participant cultivators. The various aspects of the programme and the comparative performance have been analysed in six chapters.

Salient features

2. The seasonal conditions in Rabi, 1968-69 in the wheat growing States of Punjab, Haryana, U.P. and Rajasthan were generally favourable except for partial drought conditions in certain areas. In the paddy growing regions of the southern and eastern states, acute drought conditions prevailed in certain parts of Tamilnadu while flood/cyclonic conditions prevailed in some districts of West Bengal and Andhra Pradesh. The seasonal conditions in the jowar growing tracts of Maharashtra and Mysore were generally favourable.

3. Inspite of such favourable seasonal conditions rabi cultivation reportedly suffered, to some extent, because of problems of inadequate and untimely irrigation in Rajasthan, stoppage of canal water in the crucial months, frequent failure of power, etc. in Bihar, delayed irrigation in Orissa and non-adherence to irrigation schedules by farmers in Mysore. On account of such natural conditions and problems of irrigation, rabi cultivation suffered a setback in some of our selected districts in these States and targets fixed could not be fulfilled.

4. There were no major policy changes in the implementation of H.Y.V.P. during this season. In order to increase the coverage under these varieties, canal fed areas were also considered relevant for the programme in U.P., besides continuation of the policy of encouraging larger cash purchase of inputs by farmers. In Bihar, however, there was no special importance attached to H.Y.V.P. as observed at the implementation levels. With the advent of H.Y.V.P. in 1966-67, planning, programming and implementation of agricultural production programmes received better attention, care and a more scientific approach. This approach needs to be not only maintained but also improved upon in the light of new experiences. It is relevant to mention in the light of experience of this rabi season that the planining authorities at the State level should devote greater attention to problems of irrigation illustrated earlier, specially advance assessment of availablility of irrigation water for rabi, timely intimation to farmers and assessment of the potential created under the minor irrigation sources.

5. Inter-departmental coordination between Agriculture, Cooperation and Development departments had witnessed considerable improvement since the introduction of H.Y.V.P. in the observed areas. However, lack of proper coordination between the agriculture department on the one hand and the irrigation and Hydel departments on the other, was reported to have adversely affected the agricultural programmes in the States of U.P.,

Rajasthan and Orissa to some extent. There seems to be urgent need to lay down proper working arrangements for achieving effective coordination between such key departments right from the State level down to the village.

6. The rabi season's experience confirmed our observation of the earlier reports that the new varieties such as IR-8, TN-I. varieties of paddy and CSH I and CSH II varieties of jowar had fared much better during the rabi season than in the kharif. In rabi, 1968-69, a few new paddy varieties *viz.* Jaya, Padma and Hamsa and CR-28-25 had also been released for trials in Tamilnadu, A.P. and Orissa. A new jowar variety 'Swarna' was also under trials. S-227 and S-308 had become the most popular wheat varieties in all the wheat growing States during this season and the pure Mexican varieties introduced earlier had been practically replaced. In Maharashtra however, the programme was confined to non-Mexican and locally recognised high yielders.

Research

7. Agricultural research, specially for wheat, had made considerable progress over the last few years. Efforts were made both at I.A.R.I., Delhi and in the regional research stations to evolve suitable varieties by combining the high yielding characteristics of the exotic types with the indigenous characteristics of the local varieties such as better colour, finer quality of the grain, etc. In fact the most popular wheat varieties at present in use were evolved in the different research stations of the country. The data collected from selected research stations, during this study, showed that there was need to equip these stations with modern equipments such as green room, quality testing laboratory, electronic micoscope, computer, etc. besides posting adequate technical staff such as plant pathologists, entomologists, etc. There was also need for accelerating the 'feed back' process from the field to the research stations in the light of experiences in cultivation under different conditions.

Soil testing

8. The soil testing programme was observed to the weak and thinly spread out in many of our selected areas. There was no appreciable increase this year in the number of soil samples sent for testing in the selected blocks compared to last year. The proportion of samples for which results were received also declined. The number of sample participants reporting soil-testing was negligible. Thus more vigorous measures are called for to intensify the soil testing programme in order to have meaningful results in terms of soil regions as also helping individual farmers with specific recommendations regarding fertiliser application, etc.

Trials/Demonstrations

9. In one-third of the sample wheat blocks of this season, no demonstration programme was reported. This programme was insignificant in the paddy and jowar blocks. Since trials/demonstrations constitute one of the most important extension methods, it is needless to emphasise that the long term interest of the programme is bound to suffer seriously for want of a vigorous demonstration programme on a continuing basis. With the prospects of newer varieties being released in the coming seasons, this aspect needs much greater attention.

Training

10. The detailed training programme envisaged at different levels in the initial year of the programme had become somewhat routinised and such training camps were reportedly held at different levels during this season also. The Centrally-sponsored training programme was in the process of being initiated and strengthened in some of the southern States. But no such institutional training was envisaged in a good number of States specially wheat growing States. This programme needs suitable review at higher levels in order to make the training programme more systematic and effective.

Audio-visual

11. In regard to audio-visual publicity, there was lack of a unified approach as a number of agencies were carrying out the programme according to their own priorities. There is need to bring about a coordinated effort specially at the district and lower levels. Field experience showed that available facilities had not been put to effective use due to number of problems such as non-availablity of upto-date films, operators for projectors etc. The broadcasts of the A.I.R. on H.Y.V.P. had, however, proved to be the most effective medium.

Achievements

12. There was significant improvement in the levels of achievement in regard to wheat and paddy during this season. The targets set for wheat in the relevant States had been overfulfilled as in the last year's rabi season (1967-68). For paddy, targets had been nearly achieved except in Andhra Pradesh, while achievements of targets for jowar continued to be low.

Input supplies

13. *Seed.*—As in the earlier season, the bulk of seed requirements were met through 'natural spread' both for paddy and wheat. But the extent of 'treated seed' supplied through such spread was very small for both these crops compared to departmental and cooperative supplies. This aspect needs urgent attention as use of 'untreated seed' specially for paddy is likely to increase the vulnerability of the new varieties to severe pest attack. Seed processing centres have been started in a number of States but there is considerable scope to expand such facilities. Generally, supplies were adequate and timely and no shortages were reported from the observed areas.

14. *Fertilisers.*—Supplies of chemical fertilisers of all the three types were not only adequate but were in excess of requirements in all our selected areas except in the two districts of Orissa. However, some problems of distribution such as non-availability of preferred varieties, part-time functioning of distribution depots in certain States, absence of adequate storage capacity etc. persisted even during this season also, resulting in poor offtake. One of the most important reasons for such poor offtake appeared to be the non-adoption of recommended doses of fertilisers by cultivators. Private trade continued to dominate in fertiliser distribution in the State of A.P., Madras and West Bengal, while in many other States

this was gaining ground, resulting in an appreciable fall in the sale of these through cooperatives and governmental agencies. Besides, adulteration of fertilisers supplied by private agencies was reported in some States. This development points to the need for evolving suitable checks on the private dealer's stocks. There also appears to be need to regulate and rationalise the system of fertiliser distribution between public and private channels.

Credit

15. The liberalisation of cooperative credit as in the earlier years continued during this season also. There were no dearth for cooperative credit. But the problem for expansion of cooperative credit were the same as brought out in earlier reports *viz.*, relatively large proportion of defaulting cooperatives and members, defunct societies and procedural delays. However, the measures taken for effective recovery of overdues in States like A.P., U.P. and Punjab had considerably reduced the portion of overdues. Reduction of institutional credit from 80 to 50 per cent in U.P., conversion of S.T. loans into M.T. loans in the drought affected areas and proposals to expand the branches of Central Bank to each block in Tamilnadu were the main features of cooperative credit policy during the season. State Bank of India had launched farm finance schemes on a pilot basis in some of the selected districts of U.P. and Tamilnadu. The commercial banks had yet to make headway in this field in the other States.

16. The increase in credit in the selected blocks during rabi, 1968-69 compared to last year's rabi was of the order of about 12.8 per cent. Cooperative credit constituted about 88.6 per cent in the total of about Rs. 530 lakhs disbursed during this rabi season. There was also improvement in the disbursement of allotted funds both through cooperatives and the departments during this season. The average amount disbursed per beneficiary through Cooperatives registered a decline mainly due to the increase in the number of loanees whereas there was a marginal increase in the average amount disbursed by the department.

17. Slightly less than one-third of the sample participants reported borrowings for cultivation of H.Y. varieties. Cropwise larger proportion of wheat participants (41.3 p.c.), compared to paddy (26.9 p.c.) and jowar (16.6 p.c.), reported borrowings. The participants reporting borrowings for cultivation of other than H.Y. variety crops was negligible. The average amount borrowed per participant for H.Y. crops was less (Rs. 539) compared to other crops (Rs. 816) mainly due to lower acreage under the former. More than half the amount borrowed by participants (53.5 p.c.) was accounted for cooperatives and next in importance was block and departmental credit (30 p.c.). The proportion availing the credit facilities was observed to be markedly more among the medium and bigger cultivators compared to smaller cultivators.

18. The departmental loans were given in kind while the cash component of cooperative credit varied considerably from State to State and was generally higher for paddy (40.3 p.c.) compared to wheat (17 p.c.). Relatively, the cash component was quite less (10 to 16 p.c.) in the selected areas of Punjab, U.P., Kerala and Orissa. The need for increasing the cash component was stressed in our earlier reports mainly because of the heavy costs of labour and other items of expenditure. Thus there is a case for review and revision of the existing system.

19. All the three crops were relatively free from pest/disease attack during this season in many of our selected areas. However, a few stray and mild attack of pests/diseases was reported from the selected districts of Punjab for wheat and West Bengal for paddy. Aerial spraying had been intensified in Tamilnadu while the plant protection organisation was considerably strengthened in one of the selected districts of U.P. While there was no dearth for pesticides and equipment, a sizeable proportion of the latter were reported to be out of order in some of the observed areas. Since this problem seems to be persisting, suitable repair facilities at local levels needs to be organised on a priority basis.

Participants and adoption

20. About 55 percent of the cultivators growing these three crops in the season in the sample villages reported adoption. The rate of participation was very high for wheat (73 p.c.) compared to paddy (54 p.c.) and jowar (12 p.c.). Except for a slight decrease in wheat participants in Bihar, the rate of participation increased in all the relevant States for these crops. It was also encouraging that this increased participation was noticed in all the size groups of operational holdings, although larger proportion of bigger cultivators had taken up these varieties. However, the adoption of hybrid jowar was lower than that for wheat and paddy mainly due to problems of irrigation, greater risk element in the cultivation of these varieties because of their susceptibility to pests/diseases, problems associated with annual replacement of seed and higher costs of cultivation.

21. The H.Y. crop areas as a proportion to the selected crop area was the highest for wheat (66 p.c.) compared to paddy (51 p.c.) and jowar (17 p.c.). The average area coverage though larger in the case of bigger cultivators, the proportion of crop area covered under these varieties was almost of the same order among all size groups for wheat, whereas this showed an increasing trend with decreased holding in regard to paddy and jowar.

22. As in the earlier years, V.L.W. was reported to be the main agency for promoting adoption of these varieties. The proportion adopting on the advice of the fellow-cultivators was also significant for all these crops. Although a good proportion of paddy and wheat participants reported seeing demonstrations, their proportion reporting adoption due to demonstration was quite less for wheat. While paddy and wheat varieties became popular because of large scale 'natural spread', the need for effective demonstrations for jowar cannot be ignored.

Awareness of practices

23. The recommended practices relating to preparatory cultivation were relatively better known to the participants of jowar and wheat compared to paddy. For the latter crop such awareness was better in regard to seed rate only. The recommended doses of fertilisers (N+P+K) were known to about half of the jowar participants compared to about 43 p.c. of paddy and 27 p.c. of wheat participants. But knowledge of the recommended N+P in combination was known to larger proportions of participants of these crops. Knowledge of preventive plant protection measures was better known to jowar participants (97 p.c.) compared

to paddy (78 p.c.) and wheat (12 p.c.). In regard to wheat, the lesser chance of pest attack must be responsible for this state of awareness. The recommended practices regarding interculture and irrigation (for wheat and jowar only) were fairly known to the participants. In regard to jowar the extension effort appears to be not a limiting factor for adoption. But for ensuring wider adoption there seems to be need for solving the basic problems such as provision of medium term credit for augmenting irrigation facilities, some kind of crop insurance to cover the cultivation risks and timely and adequate supply of inputs and credit.

Adoption of recommended practices

24. In the initial stages of a programme great stress is laid on increasing physical coverage; but no less important is the extension work to ensure adoption of the improved practices and inputs which alone can ensure the anticipated level of yields. In the earlier studies as also in this, a detailed examination of the levels of adoption of these practices was attempted to focus the attention of the implementing agency to facilitate identification of problem areas and remedial action. For many of these practices, the adoption levels improved from season to season since the launching of this programme but there is ample scope to improve upon the existing levels of adoption.

Preparatory operations

25. Preparatory ploughing to the recommended extent was observed to be better adopted during the current rabi compared to last year rabi for all the three crops. Relatively, participants with larger operational holdings used tractors and iron ploughs compared to smaller cultivators resulting in more efficient ploughing for the former. However, the intensive type of cultivation and multiple cropping that is being increasingly advocated necessitates propagation of the use of these time-saving implements among all classes of cultivators resulting in efficient preparatory operations.

Application of chemical fertilisers

26. The application of nitrogenous fertilisers was reported for almost all the plots of the selected participants for paddy and wheat. But the average dose applied was of the order of about four-fifths of the recommended dose for paddy and half the recommended dose for wheat. In the case of jowar, for about seven-tenths of the plots only, the application was reported at about a third of the recommended dose. Regarding the application of phosphatic fertilisers, the average dose applied was slightly better for all the three crops, but the proportion of plots for which such application was reported was lesser at about 51 percent for wheat, 40 percent for paddy and only 11 percent for jowar. The application of potassic types was on a much smaller scale than for the above two types.

Sowing and interculture operations

27. The use of treated seed was universal for hybrid jowar due to the need for replacement annually. Hence there was not much scope for 'natural spread' of these varieties. However, for wheat and paddy due to substantial natural spread of these varieties, the use of treated seed was limited. There is urgent need for expansion of seed processing and certification facilities to ensure the use of treated quality seed. The seed rate

was generally observed to be below the recommended range for both wheat and jowar. The recommended shallow placement of seed was by and large followed for wheat except in the selected areas of U.P. while for jowar this practice was not adhered to any significant extent.

28. In regard to paddy cultivation, while raised bed nurseries were not popular in the selected areas of Tamilnadu, Kerala and West Bengal, the application of chemical fertilisers and adoption of plant protection measures was quite significant at the nursery stage. Late transplanting was reported from all the selected areas but to a larger extent from Tamilnadu and West Bengal mainly due to problems of irrigation. Interculture operations as recommended were reported to have been taken for all the crops in the selected areas except to a relatively lesser extent for wheat in Bihar and for paddy in Orissa and Kerala.

Plant Protection measures

29. The preventive plant protection measures were reported relatively more extensively for jowar and paddy crops compared to wheat. The attack of pests and diseases was more for jowar (for about two-thirds of the plots) and paddy (for about half the plots) compared to that for wheat (for about a tenth of the plots only). The curative P.P. measures were taken in almost all cases of such pest attack with good results for all the three relevant crops. The wheat varieties are thus relatively less susceptible to pests and diseases while the susceptibility appears to be more for jowar and paddy varieties warranting adoption of more intensive preventive measures.

Irrigation and Water management

30. Minor and smaller irrigation sources are more amenable to effective water management and it has been suggested in the earlier reports that areas served by such sources should be given better weightage in selection of areas for H.Y. varieties. About half the selected participants reported owning minor irrigation sources and relatively larger proportion of participants reported such ownership for jowar and wheat compared to those for paddy. Only less than 2 percent of the plots under the H.Y. varieties reported lack of irrigation. The main source of irrigation was canals followed by tubewells and wells. Relatively larger proportion of plots under canals reported inadequate irrigation compared to plots under other sources.

31. Regarding water management in terms of the required number of minimum irrigations at crucial stages of crop-growth, the position was relatively satisfactory, in the selected areas of Punjab and Haryana for wheat. In the selected areas of other States, the number of irrigations as recommended was reported by lesser number of plots possibly due to timely rainfall. For jowar there appeared to be inadequate irrigation to a relatively larger extent in the selected areas of Maharashtra. For paddy the recommendation regarding maintaining water levels at various stages of crop growth had not become popular, partly due to inadequate appreciation of the practice by the participants and partly due to the unsuitability of the irrigation systems for adopting such water management practices.

Adoption of 'Package' of practices

32. The adoption of the various practices was recommended in combination and since it was difficult to consider the adoption of these practices in various combinations and at various levels of adoption, only four items of practices were considered for analysis. These practices were seed treatment, use of chemical fertilisers, preventive plant protection measures and interculture operations, which constituted the core of the recommended 'Package'. The adoption of all these four practices in combination was quite satisfactory in the case of participants for jowar (about 56 percent) compared to those for paddy (about 17 percent) and wheat (about 9 percent). Even regarding the application of nitrogenous and phosphatic fertilisers in combination with or without potassic types, the proportion adopting was higher for jowar (63.6 percent) compared to that for paddy (61.2 percent) and wheat (about 54 percent). Thus, the adoption of 'Package' of practices was not very encouraging specially for the two principal food crops of paddy and wheat and this qualitative aspects of cultivation of these varieties needs much greater attention of the extension agencies.

The yield levels

33. The average yields for the high yielding wheat varieties of all the selected participants worked to 24.63 Q. per hectare, slightly less than the yield of last rabi season (of 26.56 Q.). In regard to paddy varieties the average yield was slightly more during the current rabi at 44.36 Q. per hectare compared to last rabi (42.18 Q.). For both these crops the average yields were higher in the I.A.D.P. areas compared to other areas. Regarding hybrid jowar this season's average yield was 16.20 Q. per hectare compared to last rabi average yield of 21.92 Q. Among the various varieties introduced, Lermarojo lost ground to Kalyan S-227, S-308 and P.V.-18 varieties of wheat while IR-8 paddy became more popular.

Cash expenditure on inputs

34. The per hectare cash expenditure on inputs for the cultivation of these varieties was the highest for jowar (Rs. 1445) compared to that for paddy (Rs. 1187) and wheat (Rs. 580). But for all these three crops, the main items of expenditure were chemical fertilisers and labour charges. In addition, the expenditure on seeds was also important for wheat and jowar while significant amounts had to be incurred for plant protection measures in the case of jowar and to a smaller extent for paddy cultivation.

Expenditure on Farm assets, etc. by the Wheat Participants

35. Expenditure incurred on the farm assets and other specified items was collected from the selected participants of wheat only during this season, as similar data for paddy, jowar and maize participants collected during the kharif season study was analysed in the kharif, 1968 report. The reference period for this data was the year ending March 1969 and the items on which information was collected were (a) productive farm assets (b) financial investments and expenditure on items like specified consumer goods, (c) social and religious functions and (d) education of children and tourist type travel.

36. The expenditure on the above items was reported by 95.3 percent of the participants and the average amount per reporting participant worked out to Rs. 5890. Of this total expenditure, about 85 percent was accounted by own finance of the participants, 11 percent from borrowings from private sources, 1·7 percent from government agencies and 2·6 percent from cooperatives. Productive farm assets was the largest item of expenditure accounting for 47·6 percent of the total. Next in importance were expenditure on durable consumer goods and social and religious functions, each accounting for about 15 percent of the total expenditure. About 14 percent of the expenditure was accounted by debt repayment and lending while the share of tourist travel and education came to 7·3 percent. Only about one percent of the expenditure was by way of investment in institutions like cooperatives, corporations and L.I.C.

37. The expenditure on farm assets was reported by 75·8 percent to Rs. 3526. Of this expenditure amount for reporting participant came to Rs. 3526. Of this expenditure more than fourfifths (80·7 percent) was from own funds of the participants themselves while borrowings from private sources constituted 11·5 percent and the remaining from the finance provided by the cooperative and departmental agencies. Of the expenditure on agriculture assets, 33·6 percent was accounted by land improvement and farm buildings, 20·3 percent by irrigation, 23·1 percent by farm machinery and 22·9 percent by livestock. Of the financial investments in order of the amounts invested, fixed deposits came first, followed by that of life insurance, savings certificates and lastly shares. It is significant that about three quarters of the participants reported expenditure on farm assets. Own finance accounted for about 85 percent of expenditure. The institutional finance catered more to the big and medium cultivators and hence there is need to orient farm credit policy more in favour of smaller cultivators specially medium term credit.

Extent of acceptance of the varieties

38. Among the selected participants about 95 percent were willing to continue the wheat varieties and this proportion was relatively lesser for paddy (81 percent) and Jowar (about 75 percent). For those who wanted to discontinue the cultivation of these high yielding varieties, the main reasons were the costly cultivation expenses in terms of larger in-puts and lack of irrigation facilities. For paddy and jowar the higher susceptibility to pests/diseases for these varieties was also an important reason. Among the selected non-participants limited to wheat only, about 47·5 percent intended adopting the H.Y. wheat varieties fro mthe next season. Thus, by and large, the future course of adoption for these varieties continued to be encouraging.

CHAPTER I

SALIENT FEATURES OF RABI, RESEARCH, EXTENSION, ETC.

Introduction

1.1. A report was presented in June, 1969 based on the field data of the kharif season of 1968. The present report covers data on wheat, paddy and jowar grown during 1968-69 rabi season. This is the second year of our detailed evaluation study of H.Y.V. programme which was undertaken at the instance of the Planning Commission on a continuing basis from the kharif season of 1967. Each of the five reports prepared for these two years, season and cropwise, was forwarded to the Ministry of Agriculture for necessary follow-up action. While initiating action on the findings and suggestions of the first year's report, the Ministry requested for the continuation of the Study during 1968-69 agricultural year also, and for slightly enlarging the scope of the study so as to cover certain other aspects, such as the extent of self-financing resorted to by farmers themselves. The kharif-1968 report covered this important aspect besides a few others like research efforts, training of farmers, audiovisual publicity, soil testing etc. The study in a modified form is being continued for the third year in succession during 1969-70 also focussing attention on the problems of financing of capital and current inputs by the same group of farmers as were canvassed during the years of 1967-68 and 1968-69.

1.2. The coverage in this report is the same as the kharif, 1968 report and an attempt has been made to highlight the problems of this season in cultivating high yielding varieties for the three relevant crops, as also to draw useful comparisons between the current season and the rabi season of last year viz. 1967-68. The objectives and methodology of field investigation for this year were the same as in the previous season. While the sample of districts remained the same, the selection of blocks underwent changes mainly because of the changes in the targetted areas for this season. It was also considered that a fresh sample of bolcks would make the study more broad-based. The detailed lists of the selected districts and blocks may be seen in Appendix No. 1. The instruments of observation were the same as in the kharif season of 1968. The study covered in all 32 blocks, 96 villages, 876 participants and 160 non-participants.

1.3. The main focus in this report is to bring out the salient features of the programme during the rabi season by way of noting changes in the policy, planning, organisation, etc. without repeating the structural details. An effort has also been made to sum up and review the programme in the appropriate sections over the last two years. The comparisons in the report with the corresponding previous season should serve to highlight the progress made/setbacks, if any, on particular aspects. The report contains in all six chapters and the analysis is done on the same lines as in the kharif, 1968 report.

Salient features of the Rabi Programme

1.4. The seasonal conditions of rabi, 1968-69 in the wheat growing tracts of Punjab, Haryana, U.P. and Rajasthan were generally favourable except for uneven rainfall in certain areas. In spite of somewhat drought

conditions in some of the selected districts, the cultivation of the high yielding wheat varieties was quite widespread because of the extension of tubewell irrigation in wheat growing areas. In the paddy growing tracts of southern and eastern States, either acute drought conditions or floods/cyclonic conditions prevailed and in consequence affected the crop to a considerable extent. For instance, severe drought conditions were reported in North Arcot, Chingleput and parts of South Arcot districts of Tamilnadu State. In the selected district of North Arcot only one paddy crop could be raised according to field reports, where normally three crops are grown in a year; and even this single crop was restricted to about one-third of the normal paddy area in the district. In Krishna district of Andhra Pradesh, severe cyclone caused considerable damage to the standing rabi paddy crop. At the time of the occurrence of the cyclone, it was reported that only about 30 percent of the sown area was harvested and there was severe damage to the standing crops in the remaining areas. Flood and lack of drainage continued to be serious problems in the Midnapur district of West Bengal.

1.5. While the adverse natural conditions affected the progress of the H.Y.V. programme in certain areas, some man-made problems also emerged affecting the smooth progress of the programme in certain other States such as Rajasthan, Bihar, Orissa and Mysore. In Sriganganagar of Rajasthan, inadequate and untimely irrigation posed the biggest problem for rabi cultivation. In Gaya district of Bihar, stoppage of water due to desilting of canals during the crucial months of the season, resulted in the loss of summer paddy crops. In this district, frequent failure of supply of electricity also was reported to have affected the functioning of the State tubewells, resulting in infrequent supply of irrigation water to rabi crops. Release of water from the Hirakud dam was delayed in Sambalpur district of Orissa because of the non-payment of water rates by the cultivators. In Cuttack, the other selected district of this State, due to shortage of water, irrigation was to be curtailed by as much as to two-thirds of the originally targetted area. Disappointed by this, the cultivators had consumed the seed; but later announcement that water would be made available for a limited area reportedly created huge demand for seeds which could not be met by the authorities. In Raichur district of Mysore, the closure of canals was announced well in advance but the cultivators did not pay heed to this and thus sowings were not completed in time. This resulted in non-fulfilment of the targetted areas. In this area, the ayacut localisation pattern for growing mainly light irrigated crops was to a large extent ignored by the cultivators by resorting to paddy cultivation. In the other jowar growing districts of Maharashtra, the seasonal conditions were reported to be normal during the present rabi season.

Planning and Coordination

1.6. The policy regarding the high yielding varieties programme did not undergo any major change during this season in the relevant States for this study. In regard to the fixation of targets, selection of areas, cultivators, etc. the criteria and principles laid down (as narrated in our earlier reports) remained more or less the same during this season also. In U.P., however, canal fed areas were also taken into account while fixing targets during this season unlike in the previous year. This was done in order to cover larger areas under the high yielding varieties. The policy of distribution of inputs progressively on cash purchase basis

continued in U.P. As observed in our 1967-68 agricultural year's report as well as kharif, 1968 report, selective approach by way of identifying participants, preparation of village plans, input cards to cultivators etc. was given up in many of the States because of large scale 'natural spread' of the varieties. Our field report for the selected district of Bihar for this season revealed that no special importance was attached to high yielding varieties programme as evidenced by the inertia of the implementing authorities at the district and block levels.

1.7. It was pointed out in our earlier reports that with the advent of H.Y.V.P., planning, programming and implementation of agricultural production programmes received better attention, care and a more scientific approach. The process of target fixation had become more flexible particularly at the levels of district and block in the light of past experience and mutual consultation with the implementing authorities. This approach not only needs to be maintained in future years but also improved upon in the light of the new experience that is bound to accrue as the programme spreads to larger areas. For instance, in our last year's rabi report for paddy crop, it was observed that in view of the excellent performance of some of the paddy high yielders, such as IR-8, under controlled irrigation, efforts need to be concentrated with greater vigour in such areas in order to further enhance the yield of this crop. Even in canal irrigated tracts, areas not affected by problems of drainage need to be carefully isolated for propagation of these varieties. Planning authorities at the State level should devote greater attention to such aspects, as the advance assessment of availability of irrigation water in the rabi season, timely intimation to farmers in the case of lack or inadequate water supplies and assessment of the potential created under the fast developing minor irrigation sources in the programme areas.

1.8. In regard to coordination between the departments concerned with this programme, past experience had shown that three major departments, *viz.* Agriculture, Cooperation and Development had functioned with better understanding in most areas by way of issuing joint circulars, conducting joint inspections etc. as laid down at the higher levels of administration. The committees constituted at the State and district levels to achieve such coordination were also reported to be functioning effectively according to our field observations. In A.P. the constitution of district development boards under the chairmanship of the Collector was reported to have generally toned up the administration at this level. Similarly, the functioning of the district fertilizer committee in Punjab was another notable feature of effective coordination in the context of this programme. However, inadequate or lack of coordination persisted in regard to irrigation and hydel departments in certain States. For instance, in some districts of U.P. the departments of irrigation and hydel were yet to coordinate their efforts with the agriculture department. This was also reported from the observed areas of Rajasthan and Orissa. Such experiences had shown that the irrigation and hydel authorities, at least in these States, did not seem to identify themselves sufficiently with the agricultural development programmes. These two departments hold the key for successful agriculture in areas already endowed with irrigation and also matter considerably in developing the potential of both major and minor irrigation. Therefore, it is of utmost importance that at the highest levels of State administration, proper procedure for bringing these departments also under the coordinated system of functioning needs to be worked out. Not merely that, similar arrangements

should be thought of right down to the village, if problems of the nature observed were to be minimised, if not altogether eliminated.

Research and Extension

1.9. In our earlier reports for the last agricultural year as also in the report for kharif, 1968, the various technical aspects relating to the main characteristics of the high yielding varieties of the relevant crops were discussed in detail, mainly to focus attention on the limitations of some of these varieties arising from the principal genetic factors. For instance, in our reports for the two seasons of 1967-68, such limitations for the currently popularised paddy and hybrid varieties of jowar and maize were brought out on the basis of our field observations. The non-suitability of some of the paddy varieties in the canal irrigated tracts with problems of drainage, susceptibility of almost all these varieties including hybrid millets, to severe pest/disease attack specially in the kharif season, better performance of the paddy and jowar varieties in the relatively dry rabi season, adjustments needed in the cropping pattern because of the shorter duration of these varieties compared to local varieties, poor dormancy of some of the paddy varieties, etc. were pointed out mainly to facilitate better planning and implementation of the programme. In our report for kharif, 1968, an effort was also made to assess the research effort for the high yielding kharif crops. The problems arising out of the characteristics of these varieties continued even during this season; but it may be useful to reiterate that, so far as the performance of the paddy and jowar varieties is concerned this season's experience also showed that varieties such as IR-8 and TN-1 fared better during rabi than in the kharif season. Another notable feature of this season was that some new high yielders evolved recently such as Jaya, Padma, Hamsa and CR-28-25 were recognised as such and were tried in the States of Tamilnadu, A.P. and Orissa. While it is too early to assess their performance, the initial experience of some of these was reported to be good. Similarly, a new jowar variety known as 'Swarna' was reported to have been evolved but it was still under trials. Thus IR-8 and TN-1 among the paddy varieties and CSH-I and CSH-II of hybrid jowar continued to dominate the rabi programme.

1.10. In regard to wheat varieties, the varieties released upto the last rabi season continued during this rabi also but with increased preferences for particular varieties depending upon their performance during earlier years. Thus, S-227 and S-308 were in greater demand and also accounted for larger area coverage this season in all the relevant States except Maharashtra where varieties other than Mexican were popularised under this programme. As observed in our last year's rabi report for this crop, pure Mexican varieties had been practically relegated to the background. PV-18, K-65 and K-68 the three other varieties had their importance this season also on a restricted scale. It may also be reiterated that most of the wheat varieties were relatively free from pest/disease attack and hence their popularity among the cultivators was largely governed by the quality of the grain coupled with higher yields. Judged from this angle, the emergence of S-227 and S-308 appeared timely and opportune. The wheat farmers, especially in Punjab and parts of U.P. seemed to be in favour of still better varieties and were on the look out for the 'triple dwarf' variety which had received some premature publicity. Even during this season there were instances in some of our selected districts when farmers resorted to purchase

of seeds at exorbitant prices for the so-called new varieties often getting cheated in the process. In the following paragraphs, a brief account is given of the current research effort and the progress made thereby in evolving new varieties.

1.11. Seven agricultural research stations (two each from Punjab and U.P. and one each from Bihar, M.P. and West Bengal) were chosen for the enquiry during rabi, 1968-69. Of these, three started functioning before 1950-51 while the remaining started after 1950-51. The agricultural research station, Ludhiana in the campus of Punjab Agricultural University was shifted from Jullunder to Ludhiana in the year 1963 when this place assumed considerable importance for carrying out agricultural research work. Gurdaspur agricultural station, was functioning as a sub-station under the agricultural research station, Ludhiana and all the aspects of the research programme were carried out here but in a limited way.

1.12. Among the different aspects covered under the research programme, adequate stress was being laid on the breeding aspects of the programme in all these research stations. However, wheat research station in Kalyani, West Bengal, was mainly engaged in the collection of different wheat varieties from different States for purposes of adaptive research within the State. Improved NP varieties of wheat evolved at the I.A.R.I. were tested at Mithapur regional research station and some of the suitable varieties were also released by this station in addition to evolving some high yielding strains. Various agronomical, pathological and entomological aspects were reportedly taken into consideration and covered under the research programmes of all these stations. Agronomic practices to ascertain sowing time, seed rate, spacing, desirable fertiliser doses and its time of application, suitable cultural practices to be followed, etc. were undertaken in almost all the research stations.

1.13. In our kharif, 1968 report, while discussing the research programme it was observed that jurisdiction in terms of administrative boundaries was not relevant for the research activities. However, in terms of the importance of crops in a given region and also in terms of varying soils, rainfall, irrigation and other agro-climatic conditions, the area coverage of a research station could be defined. In fact, the programme of research in almost all the stations for this particular crop covered wheat growing tracts of the entire State. In Kalyani research station, West Bengal, there was no jurisdiction fixed. Even the trials and experiments in this station had to be undertaken on Government seed farms due to non-allotment of any land to the research station for this purpose. The agricultural research station, Gurdaspur was engaged in studying the problems of sub-mountaneous regions with more humidity and thus was oriented to special needs of a particular region. It is this type of specialised and somewhat adaptive research within a region for a crop we had in mind while recommending (in our kharif, 1968 report) to the experts in the field, certain amount of decentralisation based on the specific problems and needs of a sub-region.

1.14. Attempts were made to collect data regarding the different types of research functionaries posted in the research stations during the period 1966-67 to 1968-69. From the data collected in this regard, it appeared that all the research stations except in Madhya Pradesh reported inade-

quacy of research staff for categories other than breeders. In Kalyani research station in West Bengal, inadequacy of breeders was also reported besides agronomists and plant pathologists.

1.15. Of the seven agricultural research stations, five stations had evolved some high yielding strains. Some high yielding double and triple dwarfs in F-5 generations had been selected in Kalyani wheat research station, West Bengal and the more promising among them were expected to be evolved within a couple of years. In Pantnagar, experiments for making improvements on S-308 under different climatic conditions were undertaken and the improvement over S-308 was named as RR-21; but the varietal release committee did not accept RR-21 as a separate variety since it was considered to be the same as Sonalika. Varieties evolved and released by some of these research stations since 1950-51 and reasons for non-release of any evolved variety are presented in Appendix table.

1.16. A number of characteristics were taken into account in evolving high yielding **wheat varieties in the research stations visited** during this enquiry. For instance, the breeders took into account such characteristics as dwarf varieties of early duration, bread type, resistance to drought and pests/diseases. In the agricultural research station, Gurdaspur, efforts were made to concentrate on the evolving of 1 gene, 2 gene and 3 gene dwarfs possessing higher yield potential than Kalyan Sona. For evolving high yielding strains, both the selection and hybridisation methods were reported in almost all these research stations. However, in Ludhiana, several methods, *viz.* selection, hybridisation, mutation, etc. were adopted; but for evolving PV-18, Kalyan and Sonalika, only selection method was adopted. In Mithapur research station, back-cross as well as multiple hybridisation methods had been adopted.

1.17. Intensive efforts were afoot in all the research stations except one in Punjab, to combine the high yielding characteristics of exotic varieties with the superior characteristics of indigenous varieties, keeping in view the introduction of disease/pest resistance, finer grain and shorter duration. The various cross combinations were in different stages of trials in the respective research stations. Therefore, it is difficult to comment on the performance of these varieties at this juncture. In one of the stations of U.P., four types of crosses *viz.* straight crosses, three-way crosses, back crosses and double crosses were attempted to combine the high yielding characteristics of exotic varieties with the superior qualities of the indigenous varieties. These cross combinations were also under trials over the last few years. The above account bears ample testimony to the vigorous attempts made in recent years to intensify the research efforts in evolving the new strains having high yielding potentialities. The varieties released so far for general cultivation, as is well known, fared well under the research stations, seed farms and cultivators field conditions.

1.18. The various package of practices recommended for the varieties evolved in the research stations were based on the performance of trials and experiments conducted in the respective research stations. K-65 and K-68 were also reported to have been tried under actual farm conditions before release for general cultivation. But recommendations based on the performance of trials and experiments in research stations only, may not fully reflect the problems of different agroclimatic conditions obtaining in

different parts of the country. Therefore, it may be reiterated that while the initial recommendations have to be based on the performance of the experiments conducted under the research conditions, there is room for improvement in the levels of recommendations on the basis of performance under cultivators field conditions. This will facilitate an effective dialogue between research and extension functionaries and will also accelerate the feed-back process to the research station which is basic to a programme of dynamic and problem-oriented research.

1.19. The type of facilities, equipment etc. made available to research stations and the adequacy or otherwise for the research work were also examined broadly. Almost all the research stations reported inadequate laboratory facilities and pointed out the need to provide quality testing laboratory, green room and equipments like electronic microscope, computer etc. The research station in West Bengal needed permanent land to conduct trials and experiments. One of the research stations in U.P. also felt the need for suitable land over the hills for growing summer nursery. It was observed that almost all these stations needed adequate research staff especially for handling items like plant pathology, entomology etc.

1.20. Our enquiry did not reveal any major field problems that were referred to many of the research stations for further research or investigation. However, problems such as cultivators willingness to grow tall wheat in rainfed and semi-irrigated land in M.P. and evolving of suitable new varieties for different agro-climatic conditions, extent of irrigation to be provided for different soils, proper time of sowing under different climatic conditions—were some of the problems referred to U.P. research stations for further research.

1.21. The potentialities of varieties evolved and released were reported to be quite high and still better results could be obtained with the application of the recommended package of practices and assured irrigation facilities. Varieties released in Punjab had a widespread acceptance by the cultivators and all the wheat growing areas were felt to be suitable for growing these varieties. The varieties have become popular with the cultivators as evidenced by large scale cultivation of these in recent years. K-68 variety evolved and released from Kanpur was reported to have occupied the third position in the all-India Coordinated trials. K-68 and K-65 suitable under irrigated and rainfed conditions were said to have given very good results in almost all the areas of U.P.

1.22. The above analysis shows that attempts were made in almost all the research stations in crossing the high yielding characteristics of exotic wheat varieties with the superior characteristics of indigenous ones. While considerable headway has already been made in the field of agricultural research, it is but proper to equip the research stations with adequate and modern equipment of the type listed earlier so that the programme of wheat research in the country could open up new vistas hitherto unknown.

Extension

1.23. *Soil testing*: In our study of this year, the programme of soil testing in the selected areas was included as this was considered an essential factor in promoting a scientific attitude among the farmers and rational use of fertilisers. Systematic soil sampling in a given area will also facili-

tate formulation of manurial schedules for specific soil and crop regions instead of too very general and omnibus type of recommendations advocated at present. Since more vigorous efforts are made to carry out the message of soil testing through mobile laboratory and providing facilities at the block level, it was considered that it would be useful to throw some light on the existing state of affairs in this regard. Our experience of kharif, 68 was somewhat disappointing as the programme had not received adequate emphasis in the observed areas. Fixing certain number of soil samples to be taken as a target for the block, sending the same to the laboratory for testing and not bothering so much about the results when they were received from the laboratory—were indicative of certain amount of casualness in the approach to this programme at the block and village levels. A more serious lacunae was in the delayed receipt of results and lack of proper follow up of the results even where these were received.

1.24. Our field experience of this rabi season was not very much different from that of kharif of this year in this respect. In one of the selected blocks of U.P. State, it was reported that the soil test results were simply filed in the block office after obtaining the signatures of the V.L.Ws. that the results had been duly noted by them. In another block of this State the results were received late when the sowings for rabi season were over. The results in this case did not also contain specific recommendations. In one of the selected blocks of West Bengal, it took considerable time for the samples to reach their destination, and much worse, no results were communicated either to the block office or cultivators. In many other areas, the programme was reported to be very weak.

1.25. In order to present a quantitative picture on this programme, data were collected at the block and participant cultivator levels. These are presented in appendix tables 1.2 to 1.4. Only seven out of the fifteen wheat blocks reported this programme whereas ten out of thirteen paddy blocks reported. Soil samples being taken during 1968-69. In only one out of four jowar blocks the programme was reported. The number of villages covered showed a substantial increase during 1968-69 in wheat blocks whereas it declined in paddy blocks as compared to the previous season. But the samples sent for testing showed only small increase over the last year in both the paddy and wheat blocks. Another disconcerting feature was that the proportion of samples for which results were received declined compared to last year (85·1 percent to 67·5 percent for wheat blocks; 92·2 percent to 69·2 percent for paddy blocks). The data collected from the participant cultivators present much more depressing picture as can be seen in appendix table Nos. 1.3 and 1.4. The number of participants reporting that their soils were tested declined from 8 to 6 in the paddy blocks and from 16 to 8 in wheat blocks over the period 1966-67 to 1968-69. This further confirms our finding of kharif 1968 that the soil testing programme is weak and thinly spread out in many areas. More vigorous measures are required to have any meaningful results in terms of soil regions as also from the angle of immediate benefits to individual cultivators. It is also necessary to ensure proper follow up of the soil test results at the farmers' level.

Trials/demonstrations

1.26. In the various reports brought out so far on this study since last year, it has been emphasised that a systematic programme of trials/de-

monstrations under field conditions is essential to impart the knowledge of various recommended practices to cultivators convincingly. Since the commencement of H.Y.V.P., a series of national demonstrations are being laid in the different crop regions but their number is somewhat limited. Our field reports showed that while national demonstrations had gone some way in educating the cultivators, considerable scope was there to take the message of the new strategy into the interior areas. The data presented in appendix table 1.5 revealed that in five out of fifteen selected blocks of wheat during this rabi, there was no programme of trials/demonstrations. But in the remaining blocks reporting this programme there was an appreciable increase in the number of these held during 1967-68, compared to the year before the introduction of these varieties. In regard to both paddy and jowar blocks, this programme was rather insignificant both in terms of number of blocks reporting the programme and also in the number of trials/demonstrations laid during rabi, 1967-68. While it was not possible to examine this aspect in full at the block level, it appears that the long-term interest of this programme is bound to suffer seriously for want of a vigorous programme of trials and demonstrations on a continuing basis. This is all the more necessary in view of the possibilities of a good number of varieties being released specially for wheat and paddy crops in the coming seasons.

1.27. *Training*: Training of both officials and farmers in the new strategy has been stressed since the inception of H.Y.V.P. in the wake of this programme, detailed guide-lines were prepared on the methods and levels at which training should be organised for different categories of officials as well as farmers. Accordingly, training camps at the State, district, block and village levels were organised before the commencement of each season. This progrogramme had been more or less routinised as the novelty had worn out over the last few seasons. Our field reports showed that such routine exercises were held during this rabi season also. But since last year, a detailed programme of institutional training was envisaged mainly for farmers and rural women. In our Kharif, 68 report the broad features of this programme in the States where this was being implemented, were detailed. Our rabi experience did not reveal much to add to what was stated earlier. The institutional training programme for farmers was in its initial stages and the centres were in the process of being equipped. But there was no such programme reported in a good number of States, specially in the wheat growing States. This needs a review at higher levels as there does not appear to be full acceptance in many States of this centrally-sponsored scheme of training. The progress of training of officials as well as farmers as reported in our selected blocks and villages, may be seen in appendix tables 1.6 and 1.7.

1.28. *Audio-visual*: Extension education implies effective conveying of new ideas, techniques and methods through suitable propaganda and publicity. This assumes greater importance in a predominantly illiterate community which needs education through visual and other demonstrable techniques. Since the introduction of high yielding varieties, intensive propaganda and publicity measures through literature, such as printed leaflets, radio broadcasts, film shows, exhibitions etc. were contemplated in programme areas. In our study of this year, the type of organisation entrusted with such functions at the district and lower levels as also the effectiveness of such measures were broadly examined.

1.29. The organisation for this programme was the same in rabi programme areas as detailed in our report for kharif, 1968. The Agricultural Information Units in the I.A.D.P. districts continued to play effective role in organising film shows, distributing printed leaflets, organising kisan melas etc. The Punjab Agricultural University campus at Ludhiana and Hissar were reported to have carried out vigorous extension campaigns through the above mentioned methods in the selected districts of Ludhiana in Punjab and Hissar in Haryana. In many of the non-IADP areas also this programme was conducted in an *ad hoc* fashion by the district public relations organisation, field publicity organisation of the Information and Broadcasting Ministry and the social welfare departments in some cases. But as observed in our kharif, 1968 report there was no evidence as to the pooling of the available resources at the district level in order to carry out a systematic and coordinated programme. It was not so much the lack of equipment, but the available equipment was not put to proper use for want of operators and lack of films on the programme, etc. in some of our selected areas. For instance, the projector in Muzaffarnagar (UP) was reportedly lying idle for want of operator and mobile van. A similar situation was reported from the selected block Sindhnur in Mysore. The available films on agriculture were reported to be out of date in Midnapore district of West Bengal. Similar situation was also observed in one of the selected districts of Kerala. In this State it was also mentioned that the commentary on the high yielding films was only in English and Hindi which the local people were unable to understand.

1.30. Such experiences of this season also confirmed our earlier finding that in regard to audio-visual publicity at the district and lower levels, the efforts put forth so far did not indicate a unified approach. Therefore, some serious thinking needs to be done so as to give a new direction to the originisational pattern of this aspect of the publicity programme particularly at the district level in order to promote coordinated effort. However, it may be pointed out that the most effective medium so far had been the broadcasts of the All India Radio which had an ever increasing reception because of the spread of transistor radio-sets on a large scale in the countryside.

Targets and achievements

1.31. The following abstract gives the details regarding the targets and achievements for the three relevant rabi crops in the selected States during this as well as last year's rabi season:

T. I. 1 : **Percentage achievements of targets during Rabi—1968-69.**

(Area in' ooo' hectares.)

Name of the Crop	Area targetted for Rabi 1967-68	% area achieved	Area targetted for Rabi 1968-69	% Area achieved
(1)	(2)	(3)	(4)	(5)
1. Wheat	2573·4	101·8	3589·2	119·4
2. Paddy	665·1	52·0	752·3	76·3
3. Jowar	292·9	9·9	324·8	14·4

There was definite improvement in the levels of achievement both in regard to wheat and paddy during this season. In regard to jowar the over-all achievement continued to be low. In respect of wheat the targets were over-fulfilled as was the case in the last year's rabi season. As may be seen from appendix table 1.10 in the States of Punjab, Haryana and U.P. the targetted area had been for exceeded during this rabi season compared to last year. In regard to paddy the targets were exceeded only in West Bengal whereas in Mysore and Orissa, these had been nearly achieved. Only in A.P. the performance was low with about half the targetted area being achieved. But this analysis shows that Rabi paddy is gaining ground in all the relevant States mainly because of the more favourable seasonal conditions for the cultivation of the new varieties. This is true for hybrid jowar also. Similar data collected from the selected blocks are presented in appendix table 1:11 according to package and non-package blocks. The achievement in package blocks of wheat had exceeded the targets to a larger extent during this rabi season compared to non-package blocks whereas the non-package blocks had fared better in regard to paddy crop both during this as well as last year's rabi.

CHAPTER II

INPUT SUPPLIES

2.1. As in our earlier reports on this study, data were collected at the various levels regarding the arrangements contemplated for effecting supplies of essential inputs such as seed, fertilisers, pesticides, credit etc. to programme areas. In the initial years after the introdction of the programme, there were a number of problems in regard to such supplies and these were highlighted in our earlier reports so as to facilitate proper remedial action. Similar data collected for rabi, 1968-69 are analysed in the following paragraphs.

Seeds

2.2. The arrangements for multiplication and distribution of seeds in most of the States continued to be the same as in the earlier years. One notable feature which was brought out in the last year's report as well as in the report for kharif, 1968 was that the bulk of seed requirements both for wheat and paddy, were largely met locally and through 'natural spread'. In regard to hybrid jowar, however, such 'natural spread' could not take place because of the need for annual replacement of seeds. But for the natural spread in the case of wheat and paddy, the targetted areas would not have been achieved by the implementing agencies. In physical terms, the achievements were significant in all the relevant areas for all the relevant crops. But in qualitative terms, it was difficult to say whether the quality of seed supplied was of the requisite purity. In table 2·4 data on the distribution of cases of seed supplies sourcewise reported by participant cultivators, are presented. The following abstract gives the data on the extent of treated seed obtained by sample participants:

T.II. 1: *No. of cases of supplies of treated seed to participants, sourcewise*

Name of Crop	Name of the agency	Total No. of cases of seed supply	% obtaining		
			in cash	in time	Treated seed
(1)	(2)	(3)	(4)	(5)	(6)
Wheat	Block/Deptt.	213	97·7	100·0	67·6
	Coops./Panchayats	44	97·7	100·0	84·1
	Regd. growers.	1	0·0	100·0	0·0
	Others	898	49·3	77·6	29·7
	All agencies.	1156	60·0	82·6	38·8

(1)	(2)	(3)	(4)	(5)	(6)
Paddy	Block/Deptt.	85	97·7	89·4	70·(
	Coops./Panchayats	13	84·6	100·0	23·
	Regd. growers	6	100·0	100·0	16·
	Others	373	21·9	53·6	18·
	All agencies.	477	38·2	61·8	27·
Jowar	Block/Deptt.	79	72·2	98·7	100·
	Coops./Panchayats	2	100·0	100·0	100·
	Others	3	100·0	100·0	100·
	All agencies.	84	73·8	98·8	100·

2.3. It is significant that the bulk of seed supplies were obtained by t sample participants through private sources classified under 'others' catego for both paddy and wheat. This confirms the observation made earli that the natural spread was on a large scale during this season in rega to both these crops. It also shows that the scope for such natural spre for hybrid jowar was extremely limited because of the reasons alrea mentioned. But the fact remains that in regard to both wheat and padc the extent of 'treated seed' suplied by private agencies was very small co pared to such supplies made by the department and cooperative agenci It is this aspect that needs careful attention at this juncture when the p gramme, especially for wheat, is expanding very fast season after season.

2.4. In tables 2.1 to 2.3, data collected at the State, selected block a villages on the quantities of seed supplied during this rabi season as v as last year's rabi are presented. The following abstract gives the prop tion of supplies reported by different agencies in the sample villages :

T.II. 2: *Extent of seed supplies in sample villages*

Name of the crop.	Year (Rabi season).	Total Qty. (in Qtls.)	% distributed by				O
			Block/ Deptt.	Coop./ Panchayat	Regd. growers	Progres- sive culti- vators	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	
Wheat	1967-68	462·2	46·2	24·0	0·0	23·1	
	1968-69	1312·9	50·2	12·2	0·0	26·0	
Paddy	1967-68	401·1	70·9	0·0	0·0	0·8	
	1968-69	415·8	71·6	0·6	0·0	3·7	
Jowar	1967-68	9·4	67·0	6·6	0·0	0·0	
	1968-69	12·6	65·2	9·5	0·0	0·0	

NOTE : Data collected at the village level through VLWs contain an element of reporting specially for non-instituional supplies.

Even according to this analysis, the percentage share of local spread (progressive cultivators and others) in the total quantity of seed supplied in the sample villages, was quite considerable in both these seasons for these crops. This is likely to go up in the coming years because of increasing demand for these varieties. It would not be possible for any governmental agency or a single institution to cater to the full requirements of seeds of popular varieties. Therefore, arrangements for testing, processing and certification, need to be created at local levels along with a vigorous campaign to educate the cultivators on the need for preventive measures such as seed treatment.

2.5. As observed in our kharif, 1968 report a beginning had been made in many States to start seed processing centres. Good progress in this regard was observed in Maharashtra. In A.P. such seed processing centres had begun catering to the needs of individual cultivators also. The need seems to be for the expansion of such facilities so as to make them available within the easy reach of the average cultivator. The agro-industries corporation, the cooperatives and even the private industry can take up such work on commercial basis. However, it may be reiterated that suitable checks by way of seed legislation, proper arrangements for certification by the department etc. will have to be ensured.

2.6. Generally, the seed supplies to programme areas were adequate and timely. In most of the States near self-sufficiency had been reached in regard to seed production except in the case of the hybrid varieties for which the National Seeds Corporation continued to be the principal agency for production. Thus dependence on external agencies was reduced considerably in most of our selected districts. In exceptional cases, such as in Krishna district of A.P., seeds of Taichung Native-I variety had to be procurred in bulk from neighbouring districts due to local shortage during this rabi season. The Panchayat Samitis reportedly advanced funds for such procurement. In this case also the National Seeds Corporation was prepared to meet the entire needs had there been commitment by the State Government to the Corporation for such supplies.

Fertilisers

2.7. The improved supply position of chemical fertilisers mentioned in our earlier reports, continued during rabi, 68-69 also. In many of our selected blocks, supplies of chemical fertilisers of all the three types were not merely adequate but were also in excess of the requirements. Supplies were also timely in many of these areas. Data presented in tables 2.5 and 2.6 regarding the fertilisers supply during this as well as last year's rabi amply bear evidence to the above observations. However, in one State, namely, Orissa, the fertiliser supply position was reported to be unsatisfactory during this rabi. For instance, our field report from Sambalpur district described the position thus:

"The most serious bottleneck that has been faced by the cultivators during the current rabi season is the acute shortage, untimely supply and dis-organised state of distribution of the same in the area.....As a result the rabi operation was further delaved. Phosphatic fertilisers were in acute shortage during this period....Big and influential cultivators got the lion's share. The lower and middle category of cultivators suffered most." In the other selected district, Cuttack, of this State, similar scarcity

of fertilisers was reported. In this case private dealers were reported to have created artificial scarcity by withholding supplies till January, 1969 thereby delaying the transplantation till February, 1969.

2.8. Barring this instance, the supply position in regard to fertilisers in the remaining areas was quite satisfactory as stated above. But there were certain other types of problems impetading the distribution programme some of which were also highlighted in our earlier reports. In a few of the selected districts of Punjab, the preferred varieties such as CAN and Urea were in acute shortage. Di-Ammonium Phosphate which had become popular among the cultivators in Orissa, was not available. Part-time functioning of distribution depots in some of the districts of Haryana and Punjab affected distribution during this season. Transfers of Cooperative Supervisors in charge of distribution and closure of depots during the peak season adversly affected the distribution of both fertilisers and seeds in one of the districts of U.P. Lack of sufficient storage capacity also adversely affected fertiliser take-off during this season in some of the U.P. districts. By far the most important reason for poor off-take of fertilisers was reported to be non-adoption of recommended doses by cultivators.

2.9. In kharif, 1968 report the role of private trade in fertiliser distribution consequent on the decision to permit free sales had been discussed to some extent. While such liberalised supplies through private trade had substantially improved the availability of these, this had brought in certain evils. Our field reports from some of the selected districts of Andhra Pradesh, Uttar Pradesh, Orissa and West Bengal for this season showed that adulteration had been resorted to by private traders and complaints to this effect were made by farmers. While commenting on the liberalised supply of fertilisers through private traders, we had cautioned that proper supervision and control by way of checks on the stocks of private dealers should be arranged. In view of what had already happened within this short period of free sale, systematic and suitable checks seem imperative. It may also be necessary to insist on the issue of cash bills by private traders as this was reportedly not done in some areas. As observed in our report for kharif, 1968, private trade is dominating the field of fertiliser sales in the States of Andhra Pradesh, Madras and West Bengal. In many others, these were gaining ground. Sales through cooperatives and Government depots had considerably fallen in such areas and, therefore, we may reiterate our kharif, 1968 suggestion that there is need to regulate and rationalise the system of fertiliser distribution between public and private channels.

Credit

2.10. Since the introduction of H.Y.V.P., a series of liberalised measures were initiated by the Cooperative Departments in most of the States. In the initial years, the Reserve Bank of India also allotted special credit limits for financing the high yielding varieties programmes. However, such special credit limits for this programme were discontinued by the Reserve Bank of India since 1968-69 but supplementary credit was provided whereever normal credits were inadequate to meet the demand. The liberal terms envisaged for cooperative finance such as raising of M.C.L. of individual cultivators, issue of crop loans, enhanced rate of crop finance, issue of credit to non-defaulting members even if the cooperative was in default etc., continued during 1968-69 rabi season also. Besides such cooperative

credit, taccavi loans in kind through the department/block were made available on a liberal scale specially to meet the needs of non-members of cooperatives in many States. Commercial banks also had come into the picture in some of our selected areas.

2.11. Our field reports for rabi, 1968-69 showed that in many of our selected areas there was no dearth for cooperative credit. Special measures taken in many States for recovery of overdues had yielded good results and in States like Punjab, U.P. and A.P. overdues had been reduced about 25 to 30 percent. In Bihar, however, the position of overdues was pretty high and distress warrants were reported to have been issued on a large scale in Gaya district for recovery of overdues. The major bottleneck for expansion of cooperative credit appeared to be relatively large proportion of defaulting cooperatives and members, defunct societies and procedural delays which still seem to persist inspite of liberalised steps taken. The key note of credit policy in U.P. was a kind of credit squeeze by reducing the proportion of credit requirements met by institutional agencies from 80 percent to 50 percent. This was stated to be partly due to shortage of resources on the one hand and partly because of relative prosperity in recent times which enabled the farmers to meet about half of their requirements on their own. As a corrollary to the above, credit limit to an individual member was reduced from 8 to 5 times of the sharecapital in this State. In Tamilnadu State because of drought conditions prevalent in certain districts conversion of s.t. loans into m.t. loans on the basis of village officers' certificate was permitted. Another policy decision in Tamilnadu was of opening of branches of Central Cooperative Banks in all the 372 development blocks as against 121 blocks covered so far. Lack of adequate number of trained personnel was reported to be the main bottleneck in this process of expansion.

2.12. Our field reports of this season indicated that the State Bank of India had started financing agriculture in some States. In four districts of U.P., both s.t. and m.t. loans were advanced by this bank to non-members of cooperatives with upto 10 acres holding. These advances were guaranteed by the State Government subject to a limit of Rs. 50 lakhs per district. Also in Coimbatore district of Tamilnadu, the State Bank of India had started issuing m.t. loans only for sinking wells and installation of pumpsets. Barring these two areas, we did not come across any major headway made by commercial banks in other areas for financing farm operations.

2.13. Appendix tables 2.8 and 2.9 present data regarding the supply of credit in the selected blocks and for the selected participants. For the selected blocks as a whole, the amount of credit made available increased by about 13 p.c. to Rs. 530 lakhs during the current rabi compared to last year's rabi season. Of this amount cooperatives accounted for about 88.6 p.c. and the remaining by departmental agencies including block. Relatively the departmental finance was observed to be important in the selected blocks of Bihar, Mysore, U.P. and West Bengal. The disbursement as a proportion to allotted funds improved in the case of both cooperative and departmental agencies. There was also a marginal increase in the average amount disbursed per beneficiary in the case of departmental loans but in the case of cooperative credit the average amount decreased from about Rs. 585 to Rs. 382 mainly due to the increase in the number of loanees.

Data regarding the financing for high yielding varieties programme were not separately available at this level and efforts were made to collect such data at the participant level.

2.14. Of the selected participants, about 30 p.c. reported obtaining loans for the cultivation of H.Y. varieties. This proportion was relatively more for wheat (41.3 p.c.) followed by that for jowar (26.9 p.c.) and lastly for paddy (16.6 p.c.). The proportion of participants obtaining loans for growing crops other than high yielding varieties was quite less, ranging from about 1 p.c. for jowar participants to about 5 p.c. in the case of wheat participants. Of the total amount borrowed to the extent of Rs. 1.71 lakhs by these participants, about 83.3 p.c. was reported to have been utilised for the cultivation of high yielding varieties. However, the average amount so utilised per reporting participant was Rs. 539 for the H.Y. crops compared to Rs. 86 for other crops because of the smaller area under the high yielding crop within the total gross cropped area for the participants. There was also an appreciable increase in the number of participants as also the amount reported borrowed during the current rabi compared to last rabi. For further Statewise and cropwise details, appendix table 2.9 may be seen.

2.15. Regarding the sources of finance, cooperative credit accounted for about 53.5 p.c. and next in importance was block and departmental agencies (about 30 p.c.) and lastly private agencies. The extent of financing by the departmental and private agencies for other than H.Y. crops was quite limited. On the other hand, the cooperative credit though mainly used for H.Y. crops was to some extent utilised for raising other crops also. Thus, the departmental finance was available relatively to more participants (about 15.9 p.c.) but the average amount per participant was less (about Rs. 368) compared to that for cooperative credit (about 13.7 p.c. of the participants availing at an average of Rs. 761 per participant). Only about 3.4 p.c. of the participants borrowed from other sources and the average came to Rs. 947 per borrower as can be seen from the summary table below:

T. II.3: *Percentage of particulars borrowing and the average amount per borrower, agency-wise*

Agency.	H. Y. Crops.		Other crops.		All crops.	
	% of participant borrowing	average amount	% of participant borrowing	Average amount	% of participant borrowing	Average amount
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Block/Deptt. agency	15·3	376	0·6	785	15·9	368
Coop. agency.	10·6	790	3·1	661	13·7	761
Others	3·1	685	0·3	3307	3·4	947
All agencies (net.)	30·1	539	4·0	816	34·1	571

The proportion availing the credit facilities was observed to be markedly more among the medium and bigger cultivators compared to smaller cultivators. The average amounts borrowed per participant also reflected such a trend of much higher amounts borrowed by the medium and bigger cultivators as can be seen from the summary table below:

T. II.4: *Percentage of participants obtaining credit by size group of holding*

Credit agency	P.C. obtaining credit-1, Average amount-2	Small cultivators		Medium cultivators		Bigger cultivators	
		H.Y. crops	Others crops.	H.Y. crops.	Other crops	H.Y. crops.	Other crops.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Block agency . .	1	0·6	0·3	1·7	Nil	10.3	Nil
	2	178	200	204	—	460	—
Department . . .	1	8·9	0·3	15·1	0·7	12·9	Nil
	2	202	85	299	167	8645	—
Cooperative . . .	1	4·4	1·9	16·8	4·0	13·6	3·2
	2	241	721	739	404	944	1411
Others . . .	1	2·2	Nil	4·7	Nil	0·6	1·9
	2	327	—	827	—	500	3307
All agencies. . .	1	16·1	2·5	38·3	4·7	37·4	5·2
	2	229	576	552	367	776	2122

2.16. Broadly, the loans granted by the Block Department were in kind while the loans from private agencies were mainly in cash. In the case of cooperative credit, the cash component varied from area to area and was generally higher in the case of loans reported by selected participants for paddy (40·3 p.c.) compared to wheat participants (17·0 p.c.). Relatively the cash component was quite less and was around 10 to 16 p.c. only in the selected areas of Punjab, U.P., Kerala and Orissa. The need for increasing the cash component of cooperative loans was stressed in our earlier reports in view of the heavy costs of labour and other items of expenditure and our enquiry of this rabi season also confirms the need for suitable review of the system of institution loaning. Regarding the interest rates on loans, the departmental and cooperative loans were charged generally 10 p.c. interest or less while the loans from private agencies were at higher rates. Further details may be seen in the appendix table 2.10.

Plant Protection

2.17 Preventive as well as curative plant protection measures are a part of the package of practices advocated for the cultivation of high yielding varieties. The level of adoption of both these types of measures by

participant cultivators is discussed in a later chapter. In this section, the general field conditions prevalent in this season, the availability of pesticides and equipment and problems of a general nature are discussed.

2.18. Our field reports from wheat blocks showed that relatively the wheat crop was free from pests/diseases in most of our areas. Only in Amritsar district of Punjab attack of fungus disease for Kalyan variety was reported in some places. Similarly, a mild attack of armyworm, particularly in areas adjoining potato fields where urban compost had been used, was also reported. Thus there were no large scale attack of pests/diseases during this season for this crop. In paddy blocks, serious attack of gallmidge and stemborer was reported in West Bengal. The former type of pest was reported to be unknown hitherto in this State. Stemborer and rice bug attack was also reported from Kerala. Generally, the occurrence of pests/diseases during this rabi season was less for this crop in most of our selected areas. No serious pest attack was reported for hybrid jowar in our selected blocks.

2.19. Some of the special features of the plant protection programme, were that aerial spraying on a considerable scale was taken up in Coimbatore and Thanjavur districts of Tamilnadu. In U.P. the plant protection organisation had been strengthened considerably in recent years. For instance, in the selected district of Basti, extension officers for Plant Protection had been posted during this rabi season in each of the 29 blocks. Our field report for this district stated that the revenue earned by sale of pesticides increased from Rs. 95,000 last year to Rs. 1,50,000.....this year mainly because of the plant protection units efforts in each block. Use of pesticides in this district had become quite popular as a majority of the cultivators had taken up preventive measures either in the form of seed treatment or basal application of pesticides. The organisational pattern in this area and the resultant impact on the level of adoption of preventive measures appeared to be worthy of emulation in other areas.

2.20. The supply of pesticides was adequate in many of our selected districts but adulteration of pesticides was reported from certain areas. The total number of equipment such as sprayers dusters were adequate but in some selected districts a good proportion of them were said to be out of order. For instance in Trichur district of Kerala, from one-fourth to one-third of such equipment was reported to be not in working order either due to mechanical trouble or for want of spare parts. About half of the 415 sprayers in the selected block of Sambalpur district (Orissa) were said to be out of order. In Raichur district of Mysore also, a similar situation was reported. While highlighting this problem in our rabi, 1967-68 report we suggested that suitable repair facilities should be provided at local levels, as otherwise launching effective P.P. measures becomes difficult specially during emergencies.

CHAPTER III

THE PARTICIPANT CULTIVATORS AND THE ADOPTION OF RECOMMENDED PRACTICES

3.1. In this chapter attempt has been made to analyse the extent of adoption of the high yielding varieties by the cultivators in terms of area coverage and levels of actual adoption of the recommended practices in the cultivation of wheat, paddy and jowar which are the relevant crops for this season. The overall trends only noticed in the levels of adoption, etc. are high lighted in this analysis while detailed data are presented in the appendix, state-wise and according to size-group of operational holding of the participants.

The participants

3.2. In all, 876 participants were selected for this season comprising 448 for wheat, 350 for paddy and 78 for jowar. Of these, one participant each for wheat and jowar and 7 participants for paddy discontinued cultivation after sowing the high yielding varieties mainly due to drought conditions and/or lack of irrigation.

3.3. About 55 percent of all the cultivators growing these crops reported adoption of these varieties. This proportion was larger for wheat (about 73 p.c.) than that for paddy (about 54 p.c.) and jowar (about 12 p.c.). Compared to last year's rabi, the proportion increased during this season in all the relevant states for these three crops except for a slight decrease in Bihar for wheat. It was heartening to note that this increased partipation was evident in all size groups of operational holding of the cultivators, even though larger proportion of participants in the larger size groups of holding had taken up these varieties. However, the adoption of hybrid jowar was lower than that for wheat and paddy mainly due to problems of irrigation, greater risk element in the cultivation of these varieties because of their susceptibility to pests/diseases, the problems associated with the replacement of seed annually and higher costs of cultivation. This was also revealed by the fact that relatively a larger proportion of sample participants were bigger cultivators.

3.4. The average area under the H. Y. varieties for the selected participants worked out to 1·70, 0·66 and 0·86 hectares, respectively, for wheat, paddy and jowar. For these selected participants the average area coverage under the varieties was about a third in the earlier rabi season. As a proportion to the area under the selected crop also, the H. Y. coverage was the largest for wheat (about 66 p.c.) followed by that for paddy (about 51 p.c.) and jowar, (about 17 p.c.). According to the sizes of operational holding of the participants, the average area coverage, though larger in the case of bigger cultivators, the proportion of crop area covered under H. Y. varieties was almost of the same order for all sizes for wheat while for the other two crops, the proportion showed increasing trend with decreased holding.

3.5. The V.L.W. was reported to be the main agency responsible for the adoption of the varieties by participants. The proportion adopting on the advice of the fellow-cultivators was also quite significant for wheat and paddy as can be seen from the summary table below:

T.III. 1: *Percentage distribution of participants by agency approaching for taking H.Y. Varieties*

Agency approaching	P. C. distribution of participants for		
	Wheat	Paddy	Jowar
(1)	(2)	(3)	(4)
1. V.L.W.	44·6	43·0	37·2
2. Other block functionaries.	5·9	4·4	2·6
3. Panchayat/Cooperative	1·5	0·6	2·6
4. Cultivators.	33·4	28·8	3·8
5. Others.	9·8	8·8	44·9
6. None approached, but on :			
(a) seeing demonstrations	0·9	8·2	6·4
(b) hearing from radio	3·3	3·6	0·0
(c) reading printed matter	0·6	2·7	2·6
TOTAL	100·0	100·0	100·0

3.6. The proportion of participants reporting adoption on seeing the demonstrations was quite low for wheat. But the participants reporting seeing demonstrations was relatively more for wheat (about 23 p.c.) next to paddy only (about 43 p.c.), while for jowar this was about 8 p.c. This reflects partly the popularity and the consequent natural spread of wheat and paddy varieties as observed in the earlier chapter while for hybrid jowar, demonstration programme on a more extensive scale appears necessary for popularising the varieties. More than nine-tenths of the cases of 'seeing the demonstrations' were reported in the cultivators' fields for both wheat and paddy. In the case of jowar three out of 6 cases were seen in cultivators' field and the other three in the institutional and other farms.

Awareness Regarding Recommended Practices

3.7. The importance of adoption of the various recommended practices in the cultivation of high yielding varieties in order to obtain good results needs no emphasis. The awareness of such recommended practices is a precondition for the actual adoption and the extent of this awareness among the participants, in some measure indicates the extent of extension efforts undertaken. At the preparatory stage the recommended practices include preparatory ploughing, use of a specified seed rate and proper spacing to be kept while sowing; in regard to paddy, the method of raising nurseries

also forms part of this stage. Relatively these practices were reported to be well known by the participants for jowar and wheat while in regard to paddy, except for the seed rate, the awareness regarding the other aspects was less satisfactory.

3.8. The application of chemical fertilizers was probably the most crucial recommendation in the cultivation of H.Y. varieties. In this regard also jowar cultivators were better informed than the other two groups. The application of nitrogenous (N), phosphatic (P) and potassic types in combination as suggested was reported to be known to about half the jowar participants compared to about 43 p.c. of paddy and about 27 p.c. of wheat participants. Leaving aside potassic types, application of which was somewhat optional in some areas, the knowledge regarding the other two types in combination was reported by 64 p.c. of jowar participants compared to about 54 p.c. each for wheat and paddy participants. It has already been pointed out earlier in this report that one of the most important reasons for poor offtake of fertilizers was non-use of recommended doses of fertilizer. The fact that only a little over half of the participants for the two major food crops knew such recommendations explains such a situation.

3.9. The basal application of pesticides appears to be known in Rajasthan, Mysore, U.P. and Punjab to a few participants. The preventive plant protection measures were relatively better known among the participants of jowar (about 97 p.c.) and paddy (about 78 p.c.) while in the case of wheat it was extremely limited (only about 12 p.c.), probably due to less susceptibility of the H.Y. wheat varieties to pests and diseases even when compared to local varieties. The recommended practices relating to interculture operations were also relatively quite well known. Regarding the irrigation practices while the awareness was quite satisfactory for wheat and jowar, for paddy the practices recommended as to the levels of water to be maintained at various stages of crop growth were not well known. The broad levels of awareness as discussed above conceal wide variations from state to State for the same crop. As seen in para 3.3, the extent of adoption of hybrid jowar was relatively low compared to the other two crops, but the extent of awareness of the recommended practices among the participants for this crop was better. This shows that the extension effort is not a limiting factor for adoption. There seems to be need for solving the basic problems such as provision of medium term credit for augmenting irrigation facilities, some kind of crop insurance to cover the cultivation risks and timely and adequate supplies of inputs and credit to promote larger adoption.

Adoption of recommended practices

Preparatory Stage

3.10. Preparatory ploughing upto 6 times according to soil types, etc. is recommended for wheat and jowar, the depth of ploughing upto 6 inches is indicated. For ploughing operations, tractor, iron plough and desi plough were all reported to have been used in the selected areas. Against the broad recommendations, tractor ploughing even once and ploughing with iron plough upto 4 to 6 times was regarded sufficient. Accordingly, preparatory ploughing to the required extent was observed to have been given for about 79 p.c. of the wheat plots while this ratio was 32 p.c. for paddy and 11 p.c. for jowar plots. The proportion of such plots increased

with increased operational holding sizes of the the participants mainly due to greater use of tractor and iron plough in their cases.

3.11. Regarding ploughing to a specified depth (relevant for wheat and jowar in particular) the proportion of plots ploughed upto 10 centimetres depth or more came to about 84 p.c. and 95 p.c. respectively for these two crops. These proportions were inclusive of plots ploughed for more than 15 cms. depth to the extent of 11.5 p.c. and 59.5 p.c. respectively for wheat and jowar. Thus, the adoption of recommended depth of ploughing was better compared to the recommendation regarding number of ploughings, specially for jowar. Compared to last year's rabi, the preparatory ploughing was more satisfactory during the current season for all the three crops. In view of intensive cultivation and multiple cropping that is advocated, the importance of propagating the use of tractor and other simple improved tools among all classes of cultivators for efficient and time-saving agricultural operations cannot be over emphasised. The use of roller plank was quite popular for preparatory operations for wheat and jowar while basal application of presticides was not very much prevalent in many of the selected areas except U.P.

Application of chemical fertilizers

3.12. Application of chemical fertilizers as per recommendation is basic to the cultivation of high yielding crops. Nitrogenous fertilizers upto 750 Kg. per hectare in terms of ammonium sulphate was recommended for wheat while for paddy and jowar the recommendation was about 500 to 650 Kg. and 375 to 500 Kg. respectively. Modifications to suit specific soil types and irrigation conditions were also indicated. For instance, for irrigated jowar, double the normally recommended dose could be applied while in respect of wheat, the dose could be reduced by 10 to 15 p.c. for lands growing leguminous crops or left follow during the preceding season. The application of nitrogenous fertilizers was to be in split doses, half as basal dose and the remaining, in further split of doses at the time of interculture operations. Phosphatic fertilizers was recommended upto about 375 kg. per hectare in terms of super phosphate or slightly above for all the three crops even though a lesser dose of upto 250 kg. was considered sufficient for unirrigated jowar. The recommendation of potassic fertilizers was not uniform and was to be applied in some of the tracts where soils were deficient in potash. The general recommendation was upto 250 kg. in terms of muriate of Potash for wheat and 60 to 75 kg. for the other two crops.

3.13. At the basal stage no-chemical fertilizers were reported to have been applied for about 22 p.c. of the plots each for wheat and paddy and for about 30 p.c. of jowar plots. The application of straight fertilizers was observed to be more common and the application of fertiliser mixtures to a significant exent was reported for wheat from U.P. and for paddy from Kerala, Tamilnadu and to a lesser extent from West Bengal and for jowar from Maharashtra. Significant variations in the extent of application was observed in the selected areas from State to State and among the owner cultivators, tenants, etc. The level of application of the three types of fertilizers is broadly examined in the following paragraphs.

Nitrogenous fertilizers

3.14. The basal application of nitrogenous fertilizers in straight form was reported for about 69 p.c. of wheat plots while this proportion was

less at about 57 p.c. for paddy and a mere 13 p.c. for jowar. But taking into consideration the application of fertilizer mixtures which usually contain 'N' the proportion of plots increased to 75 p.c. 78 p.c. and 67 p.c., respectively, for wheat, paddy and jowar. The proportion of plots getting 245 kgs. or more per hectare worked out to about 16 p.c. for wheat, 21 p.c. for paddy and 6 p.c. for jowar. In addition, the proportion getting fertilizer mixtures to the same extent as above came to 3 p.c., 12 p.c. and 44 p.c. for the three crops, respectively. The average dose of nitrogenous type applied was the least for wheat (155 kg.) compared to that for paddy (232 kg.) and jowar (156 kg.).

3.15. Top dressing with chemical fertilizers was also reported for all those three crops at the stage of interculture operations. In regard to wheat for about 76 p.c., of the plots, top dressing was reported including about 39 p.c. of them with a dose of more than 244 k.g. per hectare. The average dose applied for all the plots worked out to 228 k.g. About 93 p.c. of the paddy plots reported top dressing at an average dose of 236 k.g. per hectare. For jowar, however, the proportion reporting top dressin gwas relatively less at about 64 p.c. and the average dose was 130 k.g.

3.16. The application of nitrogenous fertilizers as a whole was reported for 94·4 p.c. of the wheat plots, in all, at an average dose of 343 kg. of ammonium sulphate per hectare. About 43 p.c. of the plots, obtained 369 kg. or more including about a tenth of them getting 618 kg. or more. In the case of paddy also, nearly all the plots reported such application at an average dose of 390 kg. For jowar, however, the proportion of plots receiving such application was less at about 69 p.c. at an average dose of 163 kg. This lower proportion was mainly due to use of fertilizer mixtures at the basal stage particularly in Maharashtra, as explained earlier. The average dose applied was relatively less in the selected areas of Bihar and Rajasthan for wheat, Tamilnadu and West Bengal for paddy and Maharashtra for jowar. The average dose applied was broadly found to be increasing with increased operational holding of the participants. The levels of application of nitrogenous fertilizers for wheat and paddy was relatively better in the package areas as can be seen from the summary table below. Although the proportion of plots receiving such application was higher in the case of owner cultivators, tenants had given higher average doses for both these crops.

T.III. 2.—*Levels of application of nitrogenous fertilizer (in terms of Ammonium Sulphate in Kgs. per hectare for the participants)*

(Dose in Kgs. per hectare).

Area/type of cultivators.	Wheat participants [Paddy participants.]			
	P. C. of plots given	Average dose.	P. C. of plots given	Average dose.
(1)	(2)	(3)	(4)	(5)
All areas	94·4	343	98·1	390
Package areas	97·0	392	99·6	436
Owner cultivators.	94·9	338	100·0	380
Tenant cultivators	88·8	385	88·9	445

Phosphatic and Potassic fertilizers

3.17. These two types are recommended to be applied at the basal stage only. The proportion of plots receiving application of phosphatic types was the highest for wheat (51·4 p.c.) followed by those for paddy (40·1 p.c.) and jowar (10·8 p.c.). The average dose applied worked out to 249 Kg.. 270 kg. and 176 kg. of super phosphatic per hectare for the wheat, paddy and jowar plots, respectively. The application of potassic fertilizers was on still lesser scale as may be seen from the following abstract.

T.III. 3: *Levels of application of phosphatic and potassic types by the selected participants.*

(Dose in Kgs. per hectare.)

Type of fertilizers.	Area/cultivators.	Wheat		Paddy		Jowar	
		P.C. of plots	Av. dose	P. C. of plots	Av. dose	P. C. of plots	Av. dose.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. Phosphatic (in terms of super in Kgs. per hectare)	1. All areas . . .	51·4	249	40·1	270	10·8	176
	2. Package areas . .	63·7	261	48·4	282	X	X
	3. Owner cultivators. .	52·6	245	46·8	276	X	X
	4. Tenant cultivators. .	37·8	302	18·1	237	X	X
2. Potassic (in terms of muriate of potash per hectare.	1. All areas . . .	20·9	54	24·4	63	8·4	105
	2. Package areas . .	34·2	42	20·2	62	X	X
	3. Owner cultivators. .	21·9	54	27·5	59	X	X
	4. Tenant cultivators .	10·2	57	15·7	85	X	X

Sowing and interculture operations

3.18. The use of 'treated seed' only is advocated and to a large extent, the institutional distribution of seed is undertaken after treating the same. The use of treated seed was observed to be universally adopted in respect of jowar mainly due to the need for replacement of seed every year. Besides seed distribution was mainly attended to by departmental agencies. On the other hand, for wheat and paddy there had been increasing coverage of high yielding varieties due to natural spread through exchange among the cultivators, accounting for more than three-fourth of cases of seed supply during the season. This aspect of 'natural spread' and the problem of arranging seed treatment for cultivators was highlighted in the earlier reports (as also in Chapter II of this report) emphasizing the need for

increasing the facilities for seed processing. For the total wheat and paddy sowings, about 39 p.c. and 28 p.c., respectively consisted of treated seed, while the remaining was untreated.

3.19. The seed rate used was generally, below the recommended range for both wheat and jowar (69.2 per cent and 63.0 per cent, respectively). Compared to last rabi, the proportion using recommended seed rate range increased for jowar while for wheat, the reverse trend was observed. Shallow placing of seed is recommended which was to a large extent followed in wheat sowings except in U.P. where relatively deeper sowings were reported. In regard to jowar sowings, the seed placement was relatively at greater depth upto 10 cms. in Mysore.

3.20. In respect of H.Y. paddy, raised bed nurseries are recommended with application of fertilizers and regular plant protection sprayings. Such raised seed beds were reported to a significant extent from the selected areas of Kerala and Tamilnadu and to a lesser extent from West Bengal. But fertilizer application and preventive plant protection measures were reported for about 66 per cent and 40 per cent of the nurseries, respectively. Timely transplanting operations were reported in more than 71 per cent of the cases. Late transplanting, to a certain extent, was reported from all the relevant States but to a larger extent from the selected areas of Tamilnadu and West Bengal.

3.21. Regular and frequent interculture operations were recommended to ensure controlling weeds, uniform spread of plants, etc. For almost all the relevant plots under the three crops, interculture operations were reported except in the selected areas of Bihar growing wheat and to a smaller extent in the selected areas of Kerala and Orissa growing paddy. Top dressing with nitrogenous fertilizers is also recommended at this stage and this was discussed in an earlier section.

Plant Protection Measures

3.22. Prophylactic plant protection measures are recommended for protecting all the high yielding crops and such measures include seed treatment and treatment of standing crops by spraying, dusting, etc. with various recommended pesticides. Data collected in the sample villages showed that the area coverage under plant protection measures for paddy and jowar marginally increased during this rabi compared to last rabi. The proportion of relevant high yielding crop area covered by preventive measures increased from about 72 to 80 per cent for paddy and from 87 to 89 per cent for jowar. Similarly increased coverage was reported under curative measures also for these two crops. On the other hand, the proportion of area covered by such measures for wheat decreased during the current rabi compared to last rabi, though in absolute terms the acreage increased, due to significant area increase under the crop. This was partly reported to be due to lesser incidence of pests/diseases in the selected areas for wheat crop during the current season.

3.23. For about 31 per cent of the plots of the selected participants, preventive measures were reported for wheat while this proportion was upto about 70 per cent for paddy and 78 per cent for jowar. The attack of pests/diseases was reported for less than a tenth (9.2 per cent) of the

wheat plots only while for paddy and jowar this proportion was about one-half (49·7 percent) and two-thirds (66·3 percent). respectively. Relatively, the pests attack was more in U.P. for wheat, mainly localised in Muzaffarnagar district and to a smaller extent in the selected villages of Sitapur district; in Kerala, Tamilnadu and Orissa for paddy and in both Maharashtra and Mysore for jowar. The curative plant protection measures were relevant only for such plots reporting pests/diseases, attack. A large proportion of affected plots for all the three crops in the selected areas reported such curative treatment and with good results.

Irrigation facilities and Practices

3.24. The minor and smaller irrigation sources are more amenable for effective water management compared to major irrigation sources. This aspect was stressed in our earlier reports particularly in the context of adoption of specific irrigation practices recommended for the high yielding varieties. Thus, it was advocated that while selecting the areas for propagating these varieties, proper weightage should be given for selection of areas served by minor sources also along with areas served by major sources, such as canals. Ownership of irrigation sources was reported by 414 out of 876 selected participants (about 47 percent). This proportion was larger for jowar participants (about 77 per cent) compared to those for wheat (about 56 percent) and paddy (about 29 percent). In all, 590 own sources were reported and of those, 427 were wells including 130 of them fitted with electric motors or oil engines. Private ownership of tanks was limited to about 40 sources in all, reported from the selected areas of Orissa and West Bengal. 116 tube wells were owned by the wheat participants in Haryana, Punjab and U.P. while a solitary case of such ownership was reported from West Bengal. The extent of acquisition of those sources over the last two years is presented in the appendix table.

3.25. Regarding actual irrigation, only for less than 2 percent of the plots did not report any irrigation. The major source of irrigation for all the three crops was canals accounting for 43·6 percent of wheat plots, 61.3 per cent of paddy plots and 57.5 per cent of jowar plots. The next important source was tube wells for wheat and wells with or without pumpsets for paddy and jowar. In quite a few cases, more than one source served the same plot to ensure sufficient irrigation in case of shortage of water. Thus, adequacy of irrigation was reported for about 78 percent of the irrigated plots and this proportion was higher in the case of paddy plots (89.5 percent(compared to those of jowar (87.5 percent) and wheat plots (73.6 percent). Sourcewise, insufficiency of water for larger proportion of plots was reported for canals (27.3 per cent) and walls without engines (23.3 percent) in comparison to those for tanks (16.1 percent), wells with engines (17.1 percent) and tube wells (18.2 percent).

3.26. Irrigation at crucial stages of crop growth is recommended as essential for giving good results for the high yielding wheat crop. Thus, 5 to 7 irrigations are suggested including irrigation at crown-root initiation stage, late tillering, flowering and dough stages. Against a minimum of five irrigations as above, about three-fifths of the wheat plots got less than this number, particularly in the selected areas of Bihar, Maharashtra, Rajasthan and U.P. Only in Punjab and Haryana the position was relatively

better in this respect. In the case of hybrid jowar, irrigation as and when required (ranging from 3 to 6 times) during the crop period is suggested. Only for a tenth of the plots, irrigation twice or less was reported, mainly from Maharashtra.

3.27. The specific water management practice recommended for the high yielding paddy varieties consists of maintaining water level at about 2.5. cm. only till flowering stage and thereafter at about 5 cm. upto the time the grain is hardened. These recommendations, though reported to be known to about half the selected participants, the actual adoption was not encouraging. While this may be partly due to lack of appreciation of the recommendation, the more important problem for adopting the practice particularly under canal and other major irrigation systems appeared to be the system of letting out water, its timings, the method of irrigation such as flooding fields etc.

Adoption of 'Package' of Practices

3.28. The various recommended practices were examined in detail in the preceding paragraphs. But these various practices are recommended in combination for adoption. Since it was difficult to consider all the individual recommendations in various combinations, 4 important items *viz.* seed treatment, application of chemical fertilizers, preventive plant protection measures and interculture operations, which constitute the 'core' of the 'Package' were chosen for this analysis. For those using chemical fertilizers, further analysis regarding the application of N, P and K types in various combinations was attempted. The participants reporting adoption of the input/practice in question irrespective of the level or extent of adoption was considered relevant for tabulation.

3.29. The adoption of all the four practices in combination was quite satisfactory in the case of participants for jowar (about 56 percent) compared to that for paddy (about 17 percent) and wheat (about 9 percent). The proportion of participants not adopting any of the four items was also relatively more for wheat (about 4 percent) compared to that for paddy (about 2 percent) while in the case of jowar no such case was reported. Relatively larger proportion of participants reported non-adoption of any of these four from the selected areas of Bihar and Haryana for wheat; and Kerala and Orissa for paddy. Conversely, relatively lesser proportion of participants reported adoption of all the four items in the selected areas of Bihar, Haryana, Maharashtra and U.P. for wheat; Kerala, Madras and Mysore for paddy.

3.30. Regarding the relative adoption of the specified four practices in the I.A.D.P. areas, in the case of wheat, non-adoption of any one of the four practices was reported while all the four practices in combination was reported to a lesser extent. In the case of paddy the performance in this regard in those areas was not encouraging. Between the owner and tenant cultivators, however, the adoption was better among the owners for paddy but in the case of wheat, the reverse was observed. The extent of adoption of those practices was noted to be showing an improving trend with

the increased operational holding of the participants for all the three crops as below.

T. III. 4: *The extent of adoption of the Package' of practices according to the size of operational holding of the participants.*

*Size group of opertional holding in hectares.	Percentage of participants adopting the parctices for					
	Wheat crop		Paddy crop		Jowar crop	
	all the four	None of the four	All the four	None of the four	All the four	None of the four
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Below 1·012 . . .	0·00	5·71	6·09	3·48	100·00	0·00
2. 1·012 but below 2·023 .	0·00	9·09	20·93	2·32	25·00	0·00
3. 2·023 but below 4·047 .	7·69	4·81	18·39	2·30	40·00	0·00
4. 4·047 but below 8·094 . .	14·29	2·38	25·64	0·00	50·00	0·00
5. 8·094 but below 20·234 .	14·61	2·25	38·46	0·00	70·83	0·00
6. 20.234 and above . .	6·67	0·00	33.33	0·00	77·78	0·00
All sizes.	9·43	4·01	15·65	2·72	55·84	0.00

*These size groups are followed in other summary tables also by mentioning the size groups number but not the actual ranges of classification.

3.31. Regarding the application of the three types of chemical fertilizers, N, P and K, in various combinations, relatively larger proportion of participants reported all in combination for wheat (17.4 percent) compared to those for paddy (about 14 percent) and jowar (about 6.5 percent). However to these proportions can be added, the users of fertilizer mixtures (which generally contain all the three types) in which case the proportions improved to about 23.6 percent for wheat, 39.0 percent for pad dyand 62.3 percent for jowar. In quite a number of cases the application of potassic types was not so very necessary and the recommendations were not specific. Thus, if the application of nitrogenous and phosphatic types only are considered, the adoption increased to 54.0 percent for the participants of wheat, 61.2 percent for paddy and 63.6 percent for jowar. The proportion of participants applying the recommended chemical fertilizers as above was relatively more in the package areas (73.33 percent) and among the owner cultivators (55.23 percent) for wheat. But in the case of paddy the proportion was relatively less (59.86 percent) in package areas while the owners fared better (64.31 percent) compared to tenants (50.00 per cent). There was however improved

adoption with increased operational holding of the participants in the case of paddy only as can be seen from the summary table below.

T. III. 5: *Extent of application of recommended fertilizers by size group of operational holding of Participants.*

Size group	P. C. of participants applying (NPK or NP or grades)		
	Wheat	Paddy	Jowar
(1)	(2)	(3)	(4)
1.	57·13	48·69	100·00
2.	56·36	59·30	75·00
3.	42·30	68·97	40·00
4.	57·84	74·36	60·00
5.	57·31	84·61	75·00
6.	73·34	100·00	77·77
All sizes.	54·00	61·22	63·63

In conclusion it may be observed that the adoption of 'package', of practices as per recommendations is not so very encouraging specialy for the two principal food crops wheat and paddy. Thus, there has not been a qualitative break through as yet in the adoption of high yielding varieties although in physical terms the spread of these varieties specially for wheat, has been remarkable. It is this aspect that needs much greater attention particularly of the specialists in agricultural extension.

CHAPTER IV

THE YIELD LEVELS

4.1. Data regarding the actual grain harvested by the selected participants for the high yielding varieties was collected after the completion of threshing operations for the season. For the non-high yielding varieties of the selected crop, the yield data was not attempted for paddy and jowar mainly because of the delay in their harvests due to longer crop duration compared to the high yielding paddy and hybrid varieties of jowar. However in respect of wheat, yield data were collected for the local varieties also grown by the selected participants for purposes of comparison of yields. The yield data were collected by interview method only and hence may be interpreted with caution.

4.2. The average yield for 826 harvests of the high yielding wheat varieties of the selected participants worked out to 24.63 quintals per hectare (or 9.97 Qtls. per acre). This average was slightly less than that of last rabi season's average yield of 26.56 quintals per hectare. This marginal decrease in yields compared to last rabi was noticed in all the relevant States for wheat. In regard to high yielding paddy, the average yield for 431 harvests was 44.36 quintals per hectare, slightly more than last year's rabi average of 42.18 quintals. This increasing yield levels were noted in all the selected areas for the study. But again for hybrid jowar, the average yield for this season was relatively less at 16.20 Quintals compared to 21.92 Quintals per hectare during the last rabi season.

4.3. Cases of very good yield levels were reported from many of the selected areas for the relevant crops. However, among the selected participants, the average yield was observed to be increasing with increased operational holding of the participants, though this tendency was less pronounced in the case of hybrid jowar compared to wheat and paddy. The average yields for both wheat and paddy were better in the package areas while the performance of owner cultivators was better than those of tenants only for paddy as may be seen below:—

T.IV.1 *Average yields for all areas package areas owner cultivators and tenant cultivators for H.Y. wheat and paddy varieties (Quintals/hectare)*

Area/cultivators	Average yield for	
	Wheat	Paddy
(1)	(2)	(3)
1. All areas	24·63	44·36
2. Package areas.	31·14	49·25
3. Owner cultivators	24·45	45·92
4. Tenant cultivators.	26·11	35·49

4.4. Regarding the relative yield levels of high yielding and local varieties of wheat, about two thirds (298) of the selected participants reported sowing local varieties also along with the high yielders. For those participants the average yield worked out to 23·65 quintals per hectare for high yielders and 15·89 quintals for the local varieties or increase of 48·83 percent for the high yielders over the local varieties. The relative increase in yields was observed to be more in Punjab (73.16 p.c.) followed by that in Rajasthan (46.06 p.c.), Haryana (38.51 p.c.), U.P. (21.23 p.c.) and lastly Bihar (10.39 p.c.). However, in many of the selected areas, it was difficult to get non-participants of the required number indicative of near saturation reached in the adoption of high yielding varieties in the wheat tracts.

4.5. During the last year's rabi Lormo Rojo was the most important variety accounting for about 43 p.c. of the sowings for which the harvesting was reported. However, during the current rabi, this variety accounted for about 18 percent only while kalyan S-227 was the main variety accounting for about quarter of the harvests. P.V.-18 and S-308 varieties also became more popular accounting for about 15 p.c. each of the harvests. The highest average yield per hectare was claimed by kalyan variety (30.5 Q) closely followed by S-308 (29.0 Q). For the other extotic varieties also, the average yield was round about 20 Q, or slightly more and the performance of these exotic varieties was better compared to local varieties recognised as high yielders.

4.6. Among the paddy varieties, I.R-8 variety became more popular accounting for about 49 p.c. of the harvests compared to its proportion of about 36 p.c. during last rabi season. The proportion of T.N-1 harvests came down from about 44 p.c. to 22 p.c. during the current season. The local varieties recognised as high yielders accounted for about 28 p.c. of the harvests during this rabi, mainly ADT-27 and the Coimbatore varieties in Tamilnadu State. The Jaya and Padma varieties, claimed to be superior to the existing high yielders, were reported from Orissa only in 6 harvests. Regarding the yield levels, the newly released Jaya Padma far exceeded even IR-8 with an average yield of 66.08 quintals per hectare, the highest average. But the total harvests were too small and confined only to Orissa and hence it is difficult to assess their potentialities at this stage. Next to these two varieties, IR-8 continued to give good results with an average per hectare yield of 51.45 Q. Compared to last year's rabi, the average yield was, however, lower for T.N.-1 variety with 38.92 Q. this season as against an average yield of 42.28 Q. On the whole, the yield levels during the current rabi were marginally better compared to last rabi.

4.7. Other things being equal (Natural conditions, irrigation, etc.) the yield levels are, to a large extent, dependent on the levels of inputs and the adoption of various improved practices. But the variations in soil and climate etc., are considerable even within a State and hence it is difficult to quantify and bring such factors into the analysis, unless it is a experiment under careful design conducted as in the Research Stations. However, subject to the above constraints, the yield levels within limits may stand comparison within a State according to the level of in-puts applied or adoption of the practices. These data are presented in the appendix in two atbles, one regarding the yield levels according to the application of chemi-

cal fertilisers in various combinations and the average dosage applied; and the other table regarding the yield levels for various combinations of the selected four items of practices. Broadly, the average yields recorded were higher in the case of application of the three types of chemical fertilizers, the combination followed by that of application of nitrogenous and phosphatic types together. The levels of yields with reference to the adoption of four items of improved practices in various combinations revealed that broadly higher yields were associated with the adoption of larger number of practices in combination.

4.8. The extent of adoption of various recommended practices is reflected, to a large extent, in the cash expenditure incurred per hectare for the various in-puts. Information on cash expenditure incurred on specified items of cultivation was collected from the sample participants separately for the selected high yielding crops and all other crops combined. All items of expenditure incurred on the material inputs such as seed, fertilizers, pesticides etc., inclusive of hire charges paid during the season, were covered. Payments due for the season even though not actually incurred were also included. The value of own supplies of material and labour were, however, not covered because of problems of imputing the value. For similar reasons, depreciation and interest charges were also excluded.

4.9. The average expenditure, as above, per hectare, worked out to Rs. 580 in the case of high yielding wheat varieties, slightly less than that for the last rabi (Rs. 605). Relatively the per hectare expenditure on seed and irrigation and marginally for fertilizers was more in the current rabi, while the expenditure on labour was less compared to last rabi. For high yielding paddy varieties the average expenditure per hectare worked to Rs. 1187 (last rabi Rs. 824) and for hybrid jowar at Rs. 1445 (last rabi Rs. 929). In regard to both these crops, the increase in expenditure was noticed for all the individual items. The per hectare expenditure was higher in package areas compared to other areas in the case of H.Y. wheat cultivation while for paddy the difference was marginal only. The summary table below gives the per hectare expenditure for various items in package areas, non-package areas, etc.

T.IV. 2.—*Per-hectare expenditure on various items in the cultivation of high yielding wheat & paddy varieties and hybrid jowar.*

Item of expenditure	Wheat			Paddy			Hybrid Jowar
	Package	Non-package	All areas	Package	Non-package	All areas	All areas
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Seed . .	112·4	99·6	103·0	39·3	56·3	45·5	146·8
Fertilisers . .	256·5	219·4	229·6	446·3	449·0	447·3	601·9
Plant protection . .	0·2	0·7	0·5	57·1	61·0	58·61	140.9
Labour charges . .	137·9	118·4	123·8	485·8	449·0	472·7	479·9
Irrigation . .	69·7	77·8	75·6	43·7	66·7	52·1	42·7
Other charges . .	68·0	39·8	47·4	115·6	101·8	110·7	33·1
TOTAL .	644·7	555·7	580·0	1187·8	1183·8	1186·9	1445·3

4.10. Of the total, the expenditure on fertilizers and labour charges claimed the major portion in the case of all the crops while the next important item was seed in respect of jowar and wheat. Expenditure on plant protection measures was the highest for hybrid jowar followed by that for paddy while for wheat it was quite insignificant at less than a rupee per hectare. The per hectare expenditure was observed to be increasing with increased operational holding of the participants to some extent for all the three selected crops as can be seen from the summary table below:—

T.IV. 3.—*Average expenditure in Rs. on inputs per hectare for growing H.Y. crops by size-group of operational holding of the participants.*

Size group	Average expenditure in Rs. per hectare for growing H.Y. varieties		
	Wheat	Paddy	Jowar
(1)	(2)	(3)	(4)
1	547·8	1074·4	1077·4
2	566·1	1041·3	1013·4
3	516·7	1062·6	930·6
4	586·4	1065·0	849·3
5	577·7	1500·0	877·0
6	630·6	2262·7	2245·0
All sizes	580·0	1186·9	1445·3

The gross value of the harvested produce, arrived at by multiplying the quantity of grain harvested with the harvest prices in the selected areas, also revealed an increasing trend with increased per hectare expenditure. For further details, the appendix tables may be referred.

CHAPTER V

EXPENDITURE ON FARM ASSETS ETC. BY THE PARTICIPANTS (WHEAT)

5.1. During the kharif, 1968 study of this programme, data were collected regarding the disposal of incomes by the selected participants for the relevant crops, viz., paddy, bajra, jowar and maize. Similar data for wheat crop only were collected during the current rabi season. The reference period for this data was the year ending March, 69 and the items on which data were collected were (a) productive farm assets, (b) financial investments and expenditure on items like specified semi-durable consumer goods, (c) social and religious functions, (d) education of children and (e) travel. Items excluded were expenditure on household consumption, non-farm business and gold and other ornaments.

5.2. The expenditure on the above specified items was reported by 426 or 95.3 p.c. of the participants for wheat, to the extent of Rs. 25·12 lakhs. The average expenditure per reporting participant worked out to Rs. 5898. Compared to this, 90.5 p.c. of the participants selected during the kharif season reported such expenditure at an average of Rs. 4295 per reporting participant. In all the relevant states, this proportion was more than nine-tenths, although relatively the average expenditure was higher in the selected areas of Maharashtra and Rajasthan. In these two States the bigger cultivators predominate among the participants relatively to other States and observed to be going in more for acquiring land and farm buildings. In Maharashtra the participants being mainly big land-lords and their cultivation of crops by no means limited to wheat, their expenditure was also quite high. It was also worth noticing that all these selected participants reported heavy debt liquidation which came to about Rs. 1.62 lakhs out of 4.03 lakhs, *i.e.* 40 percent of the expenditure. The proportion reporting and the average expenditure per reporting participant were noticed to be increasing with increased size of operational holding of the participants—the proportion ranging from 81·3 p.c. in the lowest size group to 100·0 p.c. in the highest size group with the average expenditure ranging from Rs. 821 to Rs. 26,151 as can be seen from the table below :—

T.V. 1.—*Percentage of participants reporting expenditure and the average amount per participant by size group of operational holding*

Size group	P. C. reporting expenditure	Average expenditure
(1)	(2)	(3)
1	81·58	821
2	95·24	1940
3	94·69	2786
4	98·45	6586
5	96·63	9812
6	100·00	26151
All sizes	95·30	5898

5.3. Regarding the sources of finance for the above reported expenditure, about 85 p.c. was accounted by own sources and another about 11 p.c. by private sources comprising mainly professional and agriculturists/money lenders. The share of cooperative agencies and Governmental finance came to 2.65 p.c. and 1.70 p.c., respectively. The share of own finance was relatively more in the selected areas of Haryana, Punjab, U.P. and Rajasthan. On the other hand the private agencies share was relatively more in Bihar and Maharashtra. The cooperative finance was quite an important source in Maharashtra accounting for about 14 p.c. of the reported expenditure; while Government finance on relatively larger extent was reported from Haryana and to same extent from U.P. Analysis according to the pattern of expenditure reported by the participants would be more meaningful as the relative shares of each of the sources of finance can be assessed. However, the broad pattern of financing the expenditure for the cultivators of various size-groups of operational holding was quite revealing. The extent of own financing increased with increased operational holding while borrowings from private sources showed the reverse trend. The availability of credit from departmental and cooperative agencies for the smaller cultivators was also relatively limited as can be seen from the summery table below:—

T.V. 2.—*Percentage distribution of total expenditure by sources of finance for the participants of various size groups of holding.*

Size group	P. C. distribution of expenditure by sources		
	Dept. & Coop.	Private	Own
(1)	(2)	(3)	(4)
1.	—	22·73	77·27
2.	4·70	12·45	82·85
3.	6·36	13·09	80·55
4.	3·90	10·23	85·87
5.	4·35	11·86	83·79
6.	3·95	6·22	89·83
All sources.	4·35	10·72	84·93

The Pattern of expenditure

5.4. Productive farm assets was the largest item of expenditure accounting for Rs. 11.95 lakhs out of Rs. 25.12 lakhs, *i.e.* about 47.6 p.c. of the reported expenditure. Next in importance were expenditure on "durable consumer goods" and "social and religious" functions, each accounting for about 15 p.c. of the total expenditure. The expenditure on miscellaneous items included debt repayment and lending operations besides tourist travel and education. An amount of Rs. 3.52 lakhs constituting about 14·0 percent of the expenditure was accounted by

debt repayment and lendings while the share of tourist travel and education came to 7.3 percent or Rs. 1.84 lakhs. Only about one percent of the expenditure (Rs. 0.27 lakhs) constituted the share of investments in institutions. The abstract below presents the above information.

T.V.3.—*Number of participants reporting expenditure and its pattern.*

Item of expenditure	No. reporting	P.C. to total participants	Amt. in Rs. (lakhs)	Avg. Amt. per reporting participant	Percentage distribution by item
(1)	(2)	(3)	(4)	(5)	(6)
Productive farm assets . .	339	75·84	11·95	3073	47·58
Durable consumer goods . .	211	47·20	3·78	1792	15·05
Social & religious functions .	172	38·48	3·75	2181	14·93
Institutional investment . .	41	9·17	0·27	656	1·07
Misc. items	334	74·72	5·37	1607	21·37
Debt. repayment . . .	134	29·98	3·05	2279	12·16
Lending	14	3·13	0·48	3389	1·89
Tourist travel and education .	303	57·79	1·84	607	7·32
TOTAL . . .	426	95·30	25·12	5898	100·00

Expenditure on Productive farm assets

5.5. The sub-items covered under the farm assets were (i) land and farm buildings including their acquisition, construction and improvement, (ii) expenditure on irrigation including acquisition, installation or sinking of tube wells, pump sets and irrigation wells (iii) acquisition and/or installation of other agricultural machinery and equipment and (iv) expenditure on acquiring livestock including draught, milch and other animals. As noted earlier, about three-quarters of the selected participants reported expenditure on those agriculture assets, and the average amount per reporting participant worked to Rs. 3,526. Relatively larger proportion of participants reported expenditure on these assets from the selected areas of Haryana, Maharashtra and Punjab while relatively larger average expenditure per reporting participant was from Maharashtra and Rajasthan. The proportion as well as the average expenditure and the sources of finance per reporting participant was observed to be increasing with

increased operational holding of the participants as can be seen from the following abstract:—

T.V.4.—*Proportion of participants reporting expenditure on productive farm assets and the average expenditure by size group of operational holding.*

Size group	P. C. reporting expenditure	Avg. amt. in Rs. per reporting participant	P.C. distribution of finance by sources		
			Govt. and Coop.	Private	Owner
(1)	(2)	(3)	(4)	(5)	(6)
1	47·37	407	—	10·19	89·81
2	74·60	1075	10·43	19·09	70·48
3	75·22	1363	12·30	18·51	69·19
4	82·17	3714	7·96	12·94	79·10
5	79·78	5920	7·52	8·55	83·93
6	80·00	17313	5·29	8·86	85·85
All sizes	75·84	3526	7·82	11·47	80·71

5.6. Regarding the sources of finances, slightly more than four-fifths (80.7 p.c.) was from own funds and thus proportion was relatively much less for Maharashtra (about 45 p.c.) and larger for Bihar (88.6 p.c.) and Rajasthan (97.9 p.c.). For both these States there was no finance provided by cooperative or departmental agencies. However, the average expenditure for Bihar was the least compared to other States and this small amount to a larger extent had to come from own sources. On the other hand finances from private agencies, cooperative and governmental agencies accounted for respectively 11.5 p.c., 4.4 p.c. and 3.5 p.c. While Government source was reported from Punjab, Haryana and U.P. only, for Maharashtra the Cooperative agency was very significant providing up to 41.3 p.c. of the finance required for the farm assets.

5.7. Among the selected participants 60 belonging to Punjab and U.P. were from the package areas and 40 of the participants from the selected areas of Haryana, Punjab and Rajasthan were tenants. For the package areas the proportion of participants reporting expenditure on agriculture assets (85 p.c.) and the average amount spent per reporting participants (Rs. 4654) were both higher than the overall figures. In the case of tenants compared to owner cultivators, the proportion reporting expenditure was less but the average amount was more. Itemwise, the expenditure on agriculture assets is discussed according to sources of finance, etc.

The summary table below gives the number of participants and the average amount of expenditure, itemwise for agriculture assets.

T.V.5: *Participants and the average amount spent on various agriculture items.*

Item	All areas		Package areas		Owner cultivators.		Tenant cultivators.	
	No.	Average amt.	No.	Average amt.	No.	Average amt.	No.	Average amt.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Land	28	7404	4	7550	25	7593	3	5833
Land improvement .	101	368	18	175	97	376	4	170
Irrigation . . .	86	2818	14	2998	83	2883	3	2400
Farm Bldgs. . .	39	4053	7	1329	36	4307	3	1000
Livestock . . .	234	1174	25	1505	211	1212	23	789
Machinery . . .	90	3073	15	7675	81	2616	9	717
All Agr. assets . .	339	3526	51	4654	310	3498	29	3832
Sample participants. .	447	X	60	X	407	X	40	X

(i) *Land, land improvement and farm Buildings*

5.8. In all, 28 participants only reported acquisition of land and the average expenditure per reporting participant came to Rs. 7404. This expenditure constituted about 8.3 p.c. of the expenditure on all specified items and 17.3 p.c. of the expenditure on agriculture assets. On the other hand, expenditure on land improvement was reported by a larger number of participants (101) but the average expenditure was only Rs. 368 per reporting participant, constituting only 3.1 p.c. of the expenditure on all agriculture items. The expenditure on acquisition, construction or additions to farm buildings to the extent of Rs. 1.58 lakhs, was reported by 39 participants—the average expenditure being Rs. 4053 per reporting participant. The amount so spent constituted about 13.2 p.c. of the amount spent on all agriculture assets. Thus, in all, these three items *viz.*, land, land improvement and farm buildings accounted for about a third (33.6 p.c.) of all the agriculture expenditure.

5.9. The proportion of participants reporting expenditure on various items and the average amount per reporting participant are presented in detail statewise in the appendix. Broadly, the proportion reporting and the average amount were observed to be increasing with increased operational holding of the participants for all these three items. In the package areas relatively the proportion reporting expenditure on these items was marginally more but the average amount was less for land improvement and farm buildings and more for land acquisition. On the other hand,

among owner cultivators and tenants, larger proportion and higher average expenditures were observed for owner-cultivators for land improvement and farm buildings while for land acquisition the proportion was marginally more for tenants though the average per reporting case was less.

5.10. Regarding the sources of finance, own sources accounted for the major part of the expenditure on all these items and was about 85.0 p.c., 76.5 p.c., and 90.6 p.c., respectively for land acquisition, land improvement and farm buildings. The share of cooperative and departmental agencies was significant in the case of land improvement (17.1 p.c.) and quite marginal for farm buildings (1.4 p.c.) while for land purchase the remaining about 15 p.c. was totally financed by private agencies. The table below gives the source of finance and the extent of finance of each of them for the three types of assets.

T.V.6. *Expenditure on farm lands and buildings by source of finance in selected areas.*

Selected areas/ cultivators.	Item of Expenditure.	Total Exp. (in Rs. lakhs)	P. C. distribution by source		
			Block & Deptt.	Private	Own
(1)	(2)	(3)	(4)	(5)	(6)
All areas	Land	2·07	Nil	15·0	85·0
	Land improvement	0·37	17·1	6·4	76·5
	Farm Buildings	1·58	1·4	8·0	90·6
Package areas	Land	0·30	Nil	3.3	96.7
	Land improvement	0·03	Nil	Nil	100.0
	Farm Buildings	0·09	21·5	Nil	78·5
Owner cultivators	Land	1·90	Nil	15·9	84·1
	Land improvement	0·37	17·5	6·4	76·1
	Farm Buildings.	1·55	0·1	8·2	91·7
Tenant cultivators	Land	0·17	Nil	5·7	94·3
	Land improvement	0·01	Nil	Nil	100·0
	Farm Buildings	0·03	66·7	Nil	33·3

From the table above it is clear that own finance was more predominant in the package areas particularly for acquiring land and land improvement. Relatively more self-financing was evident for tenants compared to owner cultivators, while owner cultivators could secure more borrowed finance due to obvious reasons.

(ii) *Expenditure on Irrigation*

5.11. Expenditure on irrigation sources was reported by 19.2 p.c. or 86 participants to the extent of Rs. 2.42 lakhs and Rs. 2818 per reporting participant. This amount constituted 20.3 p.c. of the total expenditure on agricultural assets. Relatively, the proportion of participants reporting the expenditure and the average expenditure thereto was observed to be more in the package areas and also for the owner cultivators compared to

tenants. Of this expenditure under irrigation, Rs. 1.41 lakhs or 58.2 p.c. was accounted by installation of tubewells reported by 50 participants while another 29 participants reported acquiring pumpsets at a cost of Rs. 0.72 lakhs. Expenditure on sinking of wells was reported by only 15 participants to the extent of Rs. 0·29 lakhs.

5.12. Self-financing for irrigation was to the extent of 64.5 p.c. of the total amount while the cooperative and departmental agencies accounted for 30.5 p.c. of the expenditure and the remaining 5 p.c. was from private sources. The extent of own finance for the installation of tube wells was relatively higher (about 79 p.c.) compared to that for pumpsets (about 47 p.c.) and sinking wells (about 40 p.c.). On the other hand the cooperative and departmental agencies share was more than 50 p.c. for installation of pumps and sinking of wells. The summary table below gives the extent of expenditure and the sources for the three items of irrigation among the selected participants.

T.V.7: *Expenditure on irrigation by sources of finance.*

Source of finance	Tube Wells		Pumpsets		Sinking wells.	
	No.	Amount	No.	Amount	No.	Amount
(1)	(2)	(3)	(4)	(5)	(6)	(7)
All areas						
1. Coop. & Deptt.	7	21,296	10	37,100	4	15,500
2. Private . .	4	9,100	1	1,100	4	1,925
3. Own . .	39	1,10,575	18	34,275	7	11,500
4. All sources. .	50	1,40,971	29	72,475	15	28,925
Package areas						
1. Coop. & Deptt.	1	3,000	1	5,000	—	—
2. Private . .	—	—	—	—	1	100
3. Own . .	9	32,000	2	1,875	—	—
4. All sources .	10	35,000	3	6,875	1	100
Owner cultivators						
1. Coop. & Deptt.	6	18,296	10	37,100	4	15,500
2. Private . .	4	9,100	1	1,100	4	1,925
3. Own . .	38	1,07,775	17	32,875	7	11,500
4. All sources. .	48	1,35,171	28	71,075	15	28,925
Tenant cultivators.						
1. Coop. & Deptt.	1	3,000	—	—	—	—
2. Private . .	—	—	—	—	—	—
3. Own . .	1	2,800	1	1,400	—	—
4. All sources. .	2	5,800	1	1,400	—	—

(iii) *Agriculture Machinery and Equipment*

5.13. About a fifth of the participants reported expenditure for acquiring agriculture machinery to the extent of about Rs. 2.77 lakhs at an average of Rs. 3073 per reporting participant. The expenditure on this item constituted 23.1 p.c. of the expenditure on all agriculture items. The proportion reporting (25 p.c.) and the average amount (Rs. 7675) were relatively more in the package areas while among the owner cultivators and tenants relatively, the average expenditure was more for the former while the proportion reporting was marginally higher for tenants. About 89 p.c. of the expenditure on this item was met from own sources while the share of private and official agencies came to 8.4 p.c. and 2.5 p.c., respectively. The summary table below gives the number of persons and expenditure by sources of finance.

T.V.8: Expenditure by sources of finance

Selected areas, cultivators	No./-amount	Sources of finance			
		Coop. & deptt.	Private	Own	All sources
(1)	(2)	(3)	(4)	(5)	(6)
All areas.	No. .	2	11	81	90
	Amt. .	7,104	23,157	2,46,267	2,76,528
Package areas . . .	No. .	0	1	15	15
	Amt. .	—	17,900	97,225	1,15,125
Owner cultivators. . . .	No. .	2	10	72	81
	Amt. .	7,104	5,257	1,99,572	2,11,933
Tenant cultivators . . .	No. .	0	1	9	9
	Amt. .	0	17,900	46,695	64,595

(iv) *Livestock*

5.14. The largest number of participants (234) constituting 52.3 p.c. reported expenditure on livestock and the average expenditure per reporting participant worked out to Rs. 1171. The proportion reporting the expenditure was relatively more among the tenants but the average amount spent was less. The total amount spent on acquiring the livestock was about Rs. 2.74 lakhs constituting 22.9 p.c. of the expenditure an all agriculture items. Of the expenditure on livestock, more than three fifths (63.7 p.c.) was accounted by draught animals for which only assistance from the departmental agencies and cooperative agencies was available to a small extent (2.2 p.c.). Otherwise own finance accounted for about 78.3 p.c. of the expenditure on livestock and the remaining accounted by private borrowings.

Expenditure on durable consumers, Social functions, education and Tourist travel

5.15. The items of expenditure, relatively non-productive for which data were collected were on durable consumer goods, social and religious occasions and for education and tourist travel. The durable consumer goods

in this context were bicycles and motor cycles, gramophone and other musical equipment, furniture and household utensils and construction and maintenance of residential buildings. The proportion of participants reporting expenditure on the durable consumer goods and social and religious occasions constituted 47.2 p.c. and 38.5 p.c. respectively while such expenditures on the two items constituted 15.1 p.c. and 14.9 p.c. of the total reported expenditure, respectively. The main sources for these two items of expenditure was own finance and private borrowings while the share of cooperative or departmental finance was naturally quite insignificant. Expenditure on tourist travel and education was reported by 303 participants (67.8 p.c.) and the average expenditure per reporting participant worked out to Rs. 607 only. The expenditure on tourist travel and education amounted to Rs. 1.84 lakhs, constituting about 7.3 p.c. of the total expenditure on all items.

Financial Investments and debt repayment

5.16. Data collected regarding the extent of institutional investments and other related financial dealings of the selected participants excluded liquid cash balances or investment in jewellery, etc. as in the kharif season study. In all, 157 participants or 35.1 p.c., reported expenditure on financial investments to the tune of Rs. 3.80 lakhs. Of this amount 80.4 p.c. or Rs. 3.05 lakhs was towards repayment of borrowing by 134 participants. Relatively heavy debt repayments were noticed in the selected areas of Maharashtra. An examination of the sources of finance for all items of expenditure indicated preponderance of cooperative and departmental sources and this heavy debt repayment, thus, was in the nature of liquidation of seasonal loans. The lending operations, on the otherhand, were reported to a lesser extent amount to Rs. 0.47 lakhs by 14 participants only.

5.17. Institutional investment by way of fixed deposits, life insurance, savings certificates and share of cooperatives, corporations or companies was reported by 41 participants only (about 9.2 p.c. of the participants) to the extent of Rs. 0.27 lakhs. Relatively larger proportion reported this investment in Maharashtra only. In order of the amount invested, fixed deposits came first, followed by that of life insurance, savings certificates and lastly, shares.

5.18. The above analysis on disposal of surplus incomes by sample participants is significant in that about three quarters of them reported expenditure on production farm assets and almost all the participants also reported expenditure on one or the other of the specified items. Another interesting feature of this analysis is that of the total expenditure, about 85 p.c. was accounted by own finance and such financing accounted for about four-fifths of the investment on productive farm assets. The share of departmental and cooperative agencies was only about 8 p.c. of the expenditure on farm assets and constituted only less than 5 p.c. of all the expenditure on all items. However, relatively the availment of credit facilities was better among the medium cultivators closely followed by bigger cultivators; but smaller cultivators had lesser share of such borrowed finance. There appears to be need, for orienting farm credit policy in favour of smaller farmers specially in regard to medium term credit required for livestock, machinery and improved tools and land development. This

appears to be all the more necessary as the affluent class of farmers are in a better position to reinvest their farm surpluses in such assets as evidenced to some extent in this analysis.

CHAPTER VI

VIEWS ON PERFORMANCE AND THE EXTENT OF ACCEPTANCE OF THE HIGH YIELDING VARIETIES

6.1. There was wide variation, as seen earlier, in the performance of the various high yielding varieties in the selected areas. An effort was made to elicit information from the selected participants regarding their experience on the cultivation of these varieties. Two important aspects according to their priority were tabulated. For all the wheat varieties, the higher yield potential was stressed together with the non-lodging characteristic of these. Only for Lorma Rojo and some other exotic varieties the respondents did not feel that they were capable of increased yields. The shorter duration for the locally recognised high yielders was also reported to some extent. Inferiority of grain and low market price were also indicated for Lorma Rojo and Sonora varieties.

6.2. On the otherhand, for paddy varieties besides higher yield, the shorter duration and non-lodging characteristics were mentioned on the positive side while on the negative side the heavier costs of cultivation and more susceptibility to pests/diseases were indicated. The newly released Padma and Jaya varieties grown only by six participants mentioned the shorter duration as the most beneficial characteristic rather than the higher yield. In regard to hybrid jowar also, larger proportion of cultivators reported higher yields and shorter duration, but larger cultivation expenses, inferior grain quality and high susceptibility to pests/diseases were also mentioned.

6.3. Regarding the problem faced in growing these high yielding varieties, inadequate credit, untimely supplies of fertilisers and seed were also reported by a large proportion of participants for wheat and paddy in many of the selected areas. Shortage of required labour was also reported, particularly from Haryana, Punjab and U.P. for wheat; A.P., Kerala, Tamil Nadu and Orissa for paddy and Mysore for jowar. The main problem with jowar appeared to be poor germination o fseed even though this problem was reported, to some extent, for wheat and paddy also in some of the selected areas. Marketing of the produce appeared to be significant only in Kerala for paddy.

6.4. Among the selected participants, relatively a larger proportion (about 95 p.c.) for wheat were willing to continue the cultivation of high yielding varieties compared to those for paddy (about 81 p.c.) and jowar (about 75 p.c.). Relatively larger proportion of participants indicated discontinuing the cultivation of these varieties in the selected areas of Bihar and U.P. for wheat, Tamil Nadu and Mysore for paddy and Maharashtra for jowar. The reasons for discontinuing for these participants included physical constraints such as lack of irrigation and the duration of the crop not fitting into the existing cropping pattern as well as lack of finance and other reasons as can be seen from the appendix table.

6.5. The future course of adoption and coverage of high yielding varieties not only depends upon the continuance or otherwise of the cultivation of these varieties by the existing participants but also to a larger extent depends on the progressive coverage of the current non-participants. For the agriculture year 1968-69, for paddy and jowar a selection of non-participants was also made to ascertain their problems for adoption during the kharif season. As the study was continued in the same areas for rabi also for these two crops it was felt that there was no need to repeat this part of the enquiry. Thus, during kharif 1968, 353 non-participants for paddy and 89 for jowar were interviewed and almost all these selected non-participants reported knowledge regarding the high yielding varieties. The main reason for their non-adoption during the season was due to lack of irigation facilities and finance to invest in the heavier doses of inputs required. However among these relevant non-participants, about half for paddy and one-fifth for jowar intended adopting the varieties from the next season onwards.

6.6. Wheat, being a rabi crop, a sample of non-participants for the H.Y.V.P. was drawn during this seasons study to enquire into their problems and their intentions regarding adoption. In all 160 non-participants were selected and as a group they had relatively smaller cultivation holdings compared to the participants. Thus, half of the non-participants reported about 2 hectares or less of holding (about 5 acres or less). The middle sized cultivators having about 2 to 8 hectares formed 42.8 p.c. among the non-participants compared to 54.2 p.c. among the participants. However, all the selected non-participants reported knowledge regarding the H.Y. wheat varieties. The largest proportion reported the source of knowledge as radio and printed literature (76.1 p.c.), closely followed by block or dept. agency (47.2 p.c.), trials/demonstrations (25.2 p.c.), progressive cultivators and cooperative agency (5.0 p.c.) each. Of the non-participants reporting seeing trials|demonstrations about nine-tenths reported the same during last rabi or current rabi.

6.7. Almost all the non-participants reported having observed the performance of the high yielding varieties in their areas and in fact they were quite interested and were closely following the same. On the actual performance, the non-participants reported on such favourable characterisics of the varieties as higher yields (about 95 p.c.) less susceptibility to pests/diseases (about 48 p.c.), short duration (74. p.c.) and non-lodging (about 44 p.c.). The only adverese factors high-lighted were on poor germination of seed (about 60 p.c.) generally and to a lesser extent on the susceptibility to pest/diseases and longer duration particularly from U.P. Longer duration was also reported by non-participants from Maharashtra which probably was attributable to local varieties recognised as high yielders.

6.8. The favourable impression prevalent among the non-participants is in tune with the general performance of the wheat high yielders in the relevant states. But the reasons for their non-adoption during the current season, in spite of this was ascertained. About 55 p.c. of the non-participants reported non-adoption because of lack of irrigation facilities while about a fifth of them reported lack of finance for meeting the higher costs of cultivation of the varieties. The duration of the varieties not suitable

in the existing cropping pattern was also reported by about a third of the selected non-participants in Bihar. Lack of local preference for the taste of the produce was reported from the selected areas of Haryana and U.P. only.

6.9. Regarding the intending adoption from the next season onwards, 47.5 p.c. of the selected non-participants indicated adoption of the high yielding wheat varieties from next rabi. Of the remaining, the main problem for adoption was reported to be lack of irrigation facilities (about 61 p.c.). Higher costs of cultivation and lack of taste for the produce were the bottlenecks for adoption for about a tenth of the non-participants for each of these reasons. The proportion intending adoption was increasing with increased operational holding size of the non-participants. In conclusion it may be observed that the high yielding wheat varieties have already covered large areas in the relevant states and the future adoption tends to reach near saturation of the area under the crop, subject to the only constraint of availability of irrigation in the selected areas. In regard to high yielding paddy varieties also larger adoption and coverage are likely in the near future, but for jowar the high costs of cultivation and the greater risk involved through pests/diseases, may prove to be the main bottlenecks for large scale adoption for quite sometime unless some intensive breeding work brings forth varieties better than the existing ones. It has been pointed out earlier that one such variety *viz.* 'Swarna' considered better than CSH-I & CSH-II is under trials.

APPENDIX No. I

LIST OF SELECTED BLOCKS AND DISTRICTS

State	Name of selected Block, cropwise		
	Wheat	Paddy	Jowar
(1)	(2)	(3)	(4)
Andhra Pradesh	—	Akividu (West Godavari)	—
	—	Bantumilli (Krishna)	—
Bihar	Obra (Gaya)	—	—
Haryana	Sonepat (Hissar)	—	—
	Tohana (Rohtak)	—	—
Kerala	—	Wadakancherry (Trichur)	—
		Alathur (Palghat)	—
Madras (Tamil Nadu)	—	Thanjavaur (Thanjavaur)	—
	—	Thandrampet (North Arcot.)	—
	—	Kodumudi (Coimbatore).	—
Maharashtra	Kopargaon (Ahmednagar)	—	Baramati (Poona)
	—	—	Bharshi (Sholapur)
	—	—	Ambad (Aurangabad)
Mysore	—	Bhadravati (Shimoga)	Sindhanur (Raichur)
Orissa	—	Kendrapara I (Cuttack)	—
	—	Bargarh (Sambalpur)	—
Punjab.	Cholasaheb (Amritsar)	—	—
	Samrala (Ludhiana)	—	—
	Moga II (Ferozepur)	—	—
	Nabha (Patiala)	—	—
Rajasthan	Raisingh Nagar (Sriganganagar)	—	—
Uttar Pradesh	Khallilabad (Basti)	—	—
	Kandhla (Muzaffar Nagar)	—	—
	Hathras (Aligarh)	—	—
	Rampur Maniharan (Saharanpur)	—	—
	Pahla (Sitapur)	—	—
	Mau Aima (Allahabad)	—	—
West Bengal.	—	Purbasthali (Burdwan)	—
	—	Khanakul (Hooghly)	—
	—	Sabong (Midnapur)	—

APPENDIX No. 2

SAMPLING DESIGN

The study is to be organised in a sample of 59 blocks representing the various crops included in the High Yielding Varieties Programme and the various States participating in the programme. The block sample has been allotted to the various crop and in respect of the each crop to the various States broadly in proporion to the area targets fixed by the Government of India in consultation with the State Governments for the Fourth Plan period. One block has been allotted for every 5 lakh acres approximately and crop-state combinations where the target is less than 2,50,000 acres have been ignored.

As a complete frame of the blocks with the relevant details regarding targetted areas is not available, the sample of blocks has been selected in two stages. At the first stage requisite sample of districts for each crop-state combination has been selected with, probability proportional to area targetted for the relevant crop. The selection has been made by the method of systematic sampling with probability proportional to size. At the second stage, one block has been selected from each of the selected districts with probability proportional to the area targetted.

In respect of each of the sampled blocks, a list of villages participating in the programme for the relevant crop is to be prepared and a sample of 3 villages is to be selected with probability proportional to area targetted. If the areas targetted for 1968-69 are not available or available only for the kharif season but not rabi, the data relating to performance in 1967-68 may be used either in full or in part to cover the rabi season.

In respect of each o the selected villages, a list of cultivator households participating in the programme for the relevant crop for the year 1968-69 is to be prepared and arranged in the descending order of the size of holding. For this purpose, all households cultivating the relevant crop irrespective of the size of holding and whether cultivation is the household's principal occupation or subsidiary, are to be regarded as cultivator households. From the list so prepared, a systematic sample of about 10 households is to be drawn by the method of systematic sampling with equal probability. Cultivators engaged in the cultivation of the relevant crop but not participating in the high yielding varieties programme may be similarly listed in the descending order of the size of holding and a sample of about 5 may be drawn by the method of systematic sampling with equal probability.

The study for the rabi season was conducted in 15 blocks for wheat covering 6 major wheat growing States. For this study the selection of participants and non-participants was attended to as described in the paragraphs above. For the four kharif crops i.e. paddy jowar, maize and bajra, the study was sought to be continued in the same selected area of kharif study provided there was adequate coverage under the programme. On the above basis the study could be conducted in 13 out of 24 paddy blocks and 4 out of 6 selected jowar blocks. For those two drops, a fresh selection of the participants in the villages was made while the study relating to non-participants was not repeated.

APPENDIX No. 3

STATISTICAL TABLES

NOTE

Some of the tables for the selected participants are presented by classification of the sample according to size group of operational holding. The size groups are 6 in number as given below and these may be noted while consulting the tables.

Size group of operational holding.	Holding in hectares	In acres approximately
1	2	3
	1—Below 1·012	Below 2·5
	2—1·012 but below 2·023	2·5 but below 5·0
	3—2·023 but below 4·047	5·0 but below 10·0
	4—4·047 but below 8·094	10·0 but below 20·0
	5—8·094 but below 20·234	20·0 but below 50·0
	6—20·234 and above.	50·0 and above.

List of Appendix tables

S. No.	*Tab. No.*	
1	1·1	Particulars of high yielding wheat varieties evolved and released and reasons for non-release of evolved varieties for selected-stations.
2	1·2	Number of villages where soil samples were taken, results obtained and their distribution by the time-lag in the selected blocks.
3	1·3	Particulars of soil samples taken from the farms of the selected participants agency-wise.
4	1·4	Particulars of participants reporting soil samples.
5	1·5	Trials/demonstrations conducted in the selected blocks for high yielding varieties.
6	1·6	Training camps held and number of participants attending them in the selected blocks.
7	1·7	Number of selected villages reporting training programme and number trained, crop-wise.
8	1·8	Staff strength and transfers of extension personnel in the selected blocks.
9	1·9	Number of selected villages reporting visits of extension personnel.
10	1·10	Targets and achievements of area under H.Y.V.P. in the selected states, cropwise.

S. No.	Tab. No.	
11	1·11	Targets and achievements of area under H.Y.V.P. in selected blocks, cropwise.
12	1·12	Land utilization particulars and area under H.Y.V.P. in the selected blocks, cropwise.
13	1·13	Land utilization particulars and area under H.Y.V.P. in the selected villages, cropwise.
14	2·1	Quantity of H.Y. seed indented and received from outside the State and total quantity actually distributed in selected states.
15	2·2	Quantity of H.Y. seed obtained, of which procured locally and total quantity distributed in selected blocks.
16	2·3	Quantity of H.Y. seed distributed in selected villages.
17	2·4	Distribution of cases of obtaining H.Y. seed by sources, mode of supply, etc. for selected participants.
18	2·5	Quantity of chemical fertilizers distributed in the selected blocks.
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20	2·7	Distribution of depots functioning in the selected blocks for the supply of agricultural inputs.
21	2·8	Supply of credit in the selected blocks.
22	2·9	Number of selected participants and the amount of credit obtained from various sources.
23	2·10	Particulars of loans disbursed by various agencies by rates of interest (a) during rabi, 1967-68. (b) during rabi, 1968-69
24	3·1	Percentage proportion of participants in each size-group of operational holding of the cultivators & the number of participants selected.
25	3·2	Distribution of selected participants by year of first adoption and the average area under H.Y. varieties, etc., during rabi 1968-69.
26	3·3	Distribution of participants who have seen trials/demonstrations by the year of seeing and where seen.
27	3·4	Percentage of participants reporting awareness of improved practices: (a) at preparatory stage of cultivation (b) basal application of chemical fertilizers (c) Other improved practices.
28	3·5	Distribution of plots by depth and number of ploughings at preparatory stage.
29	3·6	(a) Distribution of plots according to basal doses of nitrogenous and phosphatic fertiliers, crop-wise. (b) Distribution of plots according to basal doses of potassic fertilizers and grades, cropwise.
30	3·7	No. of plots and the average dose of chemical fertilizers applied at basal stage for (a) all areas for wheat, paddy and jowar. (b) Package areas for wheat and paddy. (c) Owner cultivators for wheat, paddy and jowar. (d) Tenant cultivators for wheat and paddy.

S. No.	Tab. No.	
54	5·5	Number of participants and amount on loaning operations and debt repayment for wheat crop.
55	5·6	Participants reporting expenditure on various items by sources of finance. (a) for all participants and all areas. (b) for all participants in package areas. (c) for owner participants in all areas. (d) for tenant participants in all areas.
56	6·1	Percentage of participants reporting particular views regarding the performance of high yielding (a) paddy varieties and hybrid jowar (b) high yielding wheat varieties.
57	6·2	Percentage of participants reporting specific problems on various aspects of H.Y. Programme.
58	6·3	Percentage of participants offering specific suggestions for improving high yielding varieties programme.
59	6·4	Percentage of participants desiring/not desiring to continue high yielding varieties and reasons for not continuing.
60	6·5	Number of selected non-participants reporting reasons for non-adoption of H.Y. wheat varieties during current rabi season.
61	6·5(a)	Number of selected non-participants intending adoption/not intending adoption of H.Y. wheat varieties from the next season and the reasons thereto.

TABLE 1.1 : *Particulars of H. Y. Wheat varieties evolved and released and reasons for non-release of evolved varieties for selected stations.*

Sl. No.	State	Name of the research station	Varieties evolved after 1950-51		Varieties released after 1950-51	Reasons for non-release.	Remarks
			No.	Varieties			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Bihar . .	Mithapur	3	HBR-2, HBR-3, HBR-13.	Nil.	Under test	NP varieties evolved at IAPI were tested and some of these varieties viz. NP 798, 799, 710, 761, 835, 852, 884 were released.
2	Madhya Pradesh.	Powerkheda .	10	HY-11, HY-25, HY-38, HY-65, HY-227, HY-633, HY-32, HY-34, HY-5, HY-23.	All the varieties except HY-5 & HY-23	Sattering character of HY-5, Mottling in grain (HY-23).	HY-25 and HY-38 were withdrawn be cause these were found to be susceptible to black Moth & smut.
3	Punjab. .	Ludhiana .	6	C-281, C-273, C-306, PV-18, Kalyan, Sonalika	C-306, PV-18, Kalyan, Sonalika.		*No information is available as to the release of C-281 and C-273.
4	Do. .	Gurudaspur .	4	C-285, C-286, C-303, WG-139	C-285, C-286	C-303 & WG 139 could not be released as mexican varieties entered the field & excelled yield of C-303 and WG-139.	C-303 is reported to be approved variety in U.P.
5	Uttar Pradesh	Kanpur. .	19	K-53, K-54, K-65, K-68, K-55, K-56, K-57, K-58, K-59, K-60, K-61, K-62, K-63, K-66, K-67, K-101, K-102, K-103, K-104,	K-53, K-54, K-65, K-68.	K-55 to K-63 and K-66 & K-67 were not considered fit for general cultivation due to low yield. K-101 to K-104 were reported to be under trial.	

TABLE 1.2: *No. of villages where soil samples taken, results obtained and their distribution by time lag in the selected Blocks*

State	No. of selected blocks.	Year	No. of blocks reporting	No. of villages covered	Soil samples sent	Of which results given (%)	Distribution of results by time lags.		
							1 month	2—3 months	more than 3 months
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
				WHEAT					
Bihar	1	1967-68	1	50	33	39·4	0	0	13
		1968-69	0	..	..	..	..	..	..
Haryana	2	1967-68	0	..	..	..	..	..	..
		1968-69	1	25	450	100·0	NA	NA	NA
Maharashtra	1	1967-68	0	..	..	..	..	..	..
		1968-69	1	9	10	70·0	7	0	0
Punjab	4	1967-68	0*	..	..	..	..	..	..
		1968-69	0*	..	..	..	..	..	..
Rajasthan	1	1967-68	0	..	..	..	..	..	..
		1968-69	1	52	284	100·0	284	0	0
Uttar Pradesh	6	1967-68	3‡	124**	1945	85·9	83	441	1147
		1968-69	4	206	1328	49·5	360	4	293
All States.	15	1967-68	4	174	1978	85·1	83	441	1160
		1968-69	7	292	2072	67·5	651	4	293
				PADDY					
Andhra Pradesh	2	1967-68	2	56	1479	95·7	0	1230	186
		1968-69	2	63	1942	92·8	1069	296	438

TABLE 1.2—contd.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
			PADDY—contd.						
Kerala	2	1967-68 . .	1	24	450	100·0	0	450	0
		1968-69 . .	2	93	636	23·6	0	150	0
Mysore	1	1967-68 . .	1	43	160	71·9	0	115	0
		1968-69 . .	NA	NA	NA	NA	NA	NA	
Orissa	2	1967-68 . .	2	54	243	63·8	6£	—£	—£
		1968-69 . .	2	39	222	0·0	0	0	0
Tamil Nadu . . .	3	1967-68 . .	3	92	556	100·0	124	192	240
		1968-69 . .	3	113	596	83·6	175	323	0
West Bengal . . .	3	1967-68 . .	2	138	626	87·5	148	294	106
		1968-69 . .	1	78	148	0·0	0	0	0
All States . . .	13	1967-68 . .	11	407	3514	92·2	278	2281	532
		1968-69 . .	10	386	3544	69·2	1244	769	438
				JOWAR					
Maharashtra . . .	3	1967-68 . .	1	1	6	100·0	0	6	0
		1968-69 . .	0	..	..	..	..	..	..
Mysore	1	1967-68 . .	NA	NA	NA	NA	NA	NA	NA
		1968-69 . .	1	20	105	98·1	103	NA	NA
All States . . .	4	1967-68 . .	1	1	6	100·0	0	6	0
		1968-69 . .	1	20	105	98·1	103	..	..

*In Punjab (wheat) there are no data available for two Blocks for both the relevant years.

**In U.P. (wheat crop) for one Block there is no data for the no. of villages covered (col. 5 in the table).

‡Not available for one block in U.P. (wheat).

£In Orissa (Paddy) the time lag distribution of a batch of soil samples totalling 149 is not available, hence only 6 soil samples have been shown in the table.

NOTE :—In almost all the Blocks where the results of soil samples were made available, the follow up action were taken in the form of (communication of advice to the individual concerned. However, this was not followed in the blocks namely Khalilabad, Rampur, Maniharan U.P.); Bantumilli (Andhra), Sabong (West Bengal) and Ambad (Maharashtra.).

TABLE 1.3 : *Particulars of Soil Samples taken from the farms of selected participants, agency wise.*

State	Year of taking soil samples	Agriculture Dept/Universities				Other agencies			
		No. of S.S. taken	No. for which results given with time lag			No. of S.S. taken	No. for which results given with time lag.		
			3 months or less	3-6 months	Total		3 months or less	3-6 months	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
				PADDY					
A.P.	1966-67	1	0	1	1	2	0	0	0
Kerala.	1966-67	1	0	0	0	1	0	0	0
	1968-69	0	..	..	..	2	0	0	0
T. Nadu	1967-68	1	1	..	1	3	1	0	1
	1968-69	0	..	..	..	2	0	0	0
Orissa	1966-67	0	..	..	..	2	1	0	1
	1967-68	0	..	..	..	2	0	1	1
West Bengal	1966-67	0	..	..	..	1	0	0	0
	1968-69	0	..	..	..	2	0	1	1
All States	1966-67	2	..	1	1	6	1	..	1
	1967-68	1	1	..	1	5	2	..	2
	1968-69	0	..	..	..	6	0	1	1
				JOWAR					
Mysore	1967-68	1	0	0	0	1	1	0	1

TABLE 1.3—contd.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
				WHEAT					
U. P.	1966-67	3	0	1	1	11	0	2	2
	1967-68	4	0	0	0	10	2	0	2
	1968-69	4	0	0	0	4	0	0	0
Haryana	1967-68	0	..	..	..	1	3	0	1
Rajasthan	1966-67	0	..	..	..	2	0	0	0
	1967-68	0	..	..	..	1	0	0	0
All States.	1966-67	3	0	1	1	13	0	2	2
	1967-68	4	0	0	0	12	3	0	3
	1968-69	4	0	0	0	4	0	0	0

TABLE 1.4 : *Particulars of participants reporting Soil Samples*

State	Total reporting S. S. for all three years	Year of S. S. reported	No. reporting S.S. taken	No. reporting resulted communicated	
				Total reporting	No. reporting advice followed.
(1)	(2)	(3)	(4)	(5)	(6)
		PADDY			
A.P.	2	1966-67	3	1	..
Kerala	4	1966-67	2	0	..
		1968-69	2	0	..
Tamilnadu	5	1967-68.	4	2	2
		1968-69	2	0	..
Orissa.	3	1966-67	2	1	..
		1967-68	2	1	..
West Bengal	3	1966-67	1	0	..
		1968-69	2	1	..
All States	17	1966-67	8	2	..
		1967-68.	6	3	2
		1968-69	6	1	..
		JOWAR			
Mysore	2	1967-68	2	1	..
		WHEAT			
Haryana	1	1967-68	1	1	..

TABLE 1.4—contd.

(1)	(2)	(3)	(4)	(5)	(6)
Rajasthan	2	1966-67	2	0	..
		1967-68	1	0	..
Uttar Pradesh	30	1966-67	14	3	2
		1967-68	14	2	1
		1968-69	8	0	..
All States	33	1966-67	16	3	2
		1967-68	16	3	1
		1968-69	8	0	..

TABLE 1.5 : *Trials and demonstrations conducted in the selected blocks for HY varieties*

State	No. of selected blocks.	No. of blocks reporting trials and demonstrations		No. of trials and demonstrations held	
		Before the year of introduction	During Rabi 1967-68	Before the year of introduction	During Rabi 1967-68
(1)	(2)	(3)	(4)	(5)	(6)
WHEAT					
Bihar	1	0	1	..	53
Haryana	2	..	2	..	215
Maharashtra	1	0	0	..	..
Punjab	4	1	3	68	55
Rajasthan	1	0	1	..	13
U. P.	6	1*	3*	20	139
All States.	15	2	10	88	475
PADDY					
Andhra Pradesh	2	0	1	..	12
Kerala	2	1	0	1	..
Mysore	1	0	1	..	34
Orissa	2	2	1	35	31

TABLE 1.5—contd.

(1)	(2)	(3)	(4)	(5)	(6)
Tamil Nadu	3	1**	2	20**	28
West Bengal	3	0	0	..	..
All States	13	4	5	56	105
JOWAR					
Maharashtra	3	0	2	..	83
Mysore	1	0	0	..	..
All States	4	0	2	..	83

*In U.P., one Block selected for wheat crop., data is not available.
**In Tamil Nadu, one Block selected for paddy, the data refers to both the seasons of Kharif and Rabi.

TABLE 1.6 : *Training camps held and No. of participants attending these in the selected Blocks.*

State	No. of selected blocks	No. of blocks reporting in		No. of training camps held in		No. attending camps			
						Officials during		Cultivators during	
		1967-68	1968-69	1967-68	1968-69	1967-68	1968-69	1967-68	1968-69
(1)	(2)	(3)	(4)	(5)	(6)	(7)	8)	(9)	(10)
Andhra Pradesh	2	1	1	2	1	56	3	20	..
Bihar	1	1	1	1	1	2	2	N.A.	N.A.
Haryana	2	2	2	30	25	51	51	1740	1105
Kerala	2	1	1	2	5	25	5	45	80
Maharashtra	4	1	2	2	3	60	55	130	177
Mysore	2	2	2	3	3	65	45	944	1570
Orissa	2	1	1	2	1	14	6	71	320
Punjab	4	4	3	35	35	74	70	1850	1335
Rajasthan	1	1	1	2	2	61	63	250	220
Tamil Nadu	3	1	3	1	6	18	175	10	2146
U. P.	6	6	6	7	9	209	572	8654	23641
West Bengal	3	1	2	1	3	21	57	73	247
All States	32	22	25	88	94	656	1104	13787	30841

TABLE 1.7 : *No. of selected villages reporting training programme and No. trained crop-wise*

State	No. of selected villages	Rabi 1967-68			Rabi 1968-69		
		No. of villages reporting	No. of cultivators trained	No. of cultivators trained per hundred cultivating households in villages	No. of villages reporting	No. of cultivators trained	No. of cultivators trained per hundred cultivating households in villages
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			WHEAT				
Bihar	3	0	..	..	0	..	..
Haryana	6	1	20	41·7	0	..	..
Maharahstra	3	0	..	..	0	..	..
Punjab	12	5	302	55·1	5	107	23·9
Rajasthan	3	2	10	21·7	0	..	..
U. P.	18	17	656	39·8	18	964	53·9
All States.	45	25	988	43·1	23	1071	47·9
			PADDY				
Andhra Pradesh	6	0	..	..	0	..	..
Kerala.	6	4	141	35·2	1	20	15·6
Mysore	3	0	..	..	0	..	..
Orissa	6	0	..	..	2	80	20·0

TABDE 1.7—contd.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Tamil Nadu . . .	9	0	..	..	1	3	1·5
West Bengal . . .	9	0	..	..	1	6	57·1
All States.	39	4	141	35·2	5	125	16·5
OWAR							
Maharashtra . . .	9	0	...	..	0	..	..
Mysore	3	2	25	13·2	1	100	81·3
All States.	12	2	25	13·2	1	100	81·3

TABLE 1.8 : *Staff strength and transfers of extension personnel in the selected block.*

State	No. of selected blocks	Posting—P & Transfer—T	Postings and transfers of extension staff, categorywise								
			A.E.O.			Other Agrl. staff			V. L. W.		
			Year before introduction	1967-68	1968-69	Year before introduction	1967-68	1968-69	Year before introduction	1967-68	1968-69
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Andhra Pradesh	2	P	8	7	7	4	4	4	46	39	39
		T	2	2	2	0	0	0	0	0	0
Bihar	1	P	2	2	2	0	0	0	21	21	21
		T	1	2	0	0	0	0	0	3	7
Haryana	2	P	6	7	7	12	8	8	20	20	20
		T	0	7	4	0*	4	2	0	4	12
Kerala	2	P	3	5	4	6	16	14	20	20	15
		T	1	2	1	1	3	5	1	8	2
Maharashtra	4	P	10	9	11	38	48	50	150	79	80
		T	6	2	7	2	1	13	71	4	6
Mysore	2	P	2	4	4	0	0	0	20	19	18
		T	1	0	0	0	0	0	2	4	0
Orissa	2	P	4	6	6	8	8	7	34	41	42
		T	1	1	1	3	4	1	1	1	1
Punjab	4	P	11	14	14	5	13	14	50	48	46
		T	3	1	2	2	2	2	6	0	4
Rajasthan	1	P	1	2	1	0	0	0	57	58	20
		T	0	1	0	0	0	0	8	38	0

TABLE 1.8—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Tamil Nadu	3	P	5	6	7	8*	13	13	29	45	45
		T	2	4	5	5*	3	5	4	8	9
U.P.	6	P	18	22	26	5	8	11	20	29	38
		T	3	12	11	0	5	1	0	7	3
West Bengal	3	P	9	9	9	6	6	6	41	44	44
		T	3	0	4	1	0	0	0	0	3
All States	32	P	79	93	97	87	126	127	308	463	428
		T	23	34	37	14	18	29	29	77	47
			(29·11)	(36·6)	(38·1)	(16·1)	(14·3)	(22.8)	(9·4)	(16·6)	(11·0)

*Data not available for one block each of Haryana and Tamil Nadu respectively.

NOTE:—1. In Maharashtra, Agricultural officers are included in the category of AEO and VLWs & Asst. VLWs are taken together. Other agricultural staff refers to Agri. Asstt.

2. A.D.O. are included in AEO in U.P.

3. Asstt. A.E.Os. are included in AEO in West Bengal.

4. There are no V.L.Ws. in two blocks of Maharashtra and three blocks of U.P. respectively.

5. Figures in brackets are percentage of transfers to postings.

TABLE 1·9 : *Number of selected villages reporting visits of extension personnel.*

State	No. of selected villages		No. of villages reporting visits of				Average number of visits by			
	Total	Having VLW H. qrs.	B.D.O.	E.O. (Ag.)	E. O. (Coop)	VLW (Other than) H. qrs. villages	B.D.O.	E.O. Ag.	E.O. (Coop)	VLW (Other than) VLW H. qrs. Villages)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Andhra Pradesh . . .	6	3	5	5	5	2	10·20	22·80	11·40	46·50
Bihar	3	1	3	3	3	2	2·33	2·33	1·00	36·00
Haryana	6	2	5	5	4	4	3·40	6·40	6·25	15·00
Kerala	6	4	6	6	Nil	2	2·50	11·83	N.R.	19·50
Maharashtra	12	10	11	10	12	2	2·09	2·09	2·50	5·00
Mysore	6	1	5	6	5	5	2·60	2·00	3·40	5·60
Orissa	6	3	4	6	5	3	2·25	3·83	3·20	10·67
Punjab	12	1	9	11	11	10	3·89	4·27	4·91	11·80
Rajasthan	3	Nil	2	2	Nil	3	2·00	4·00	N.R.	7·00
Tamil Nadu	9	2	8	8	8	7	4·87	9·87	4·12	43·00

TABLE 1.9—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Uttar Pradesh . . .	18	7	15	14	12	11	3·40	6·57	4·08	23·27
West Bengal . . .	9	2	5	7	5	7	1·60	2·57	4·00	10·29
All States . . .	96	36	78	83	70	58	3·49	6·41	4·34	19·00

NOTE : 1. In Andhra Pradesh and Punjab, one village each is block headquarters.

2. No. post of E.O. (Coop) in Rajasthan & Kerala.

3. A.E.O. (Package) is also included under col. 5 for Kerala.

TABLE 1·10 : *Targets and achievements of area under H.V.P. in the selected states, cropwise*

(Area in '000 hectares)

State	Area targetted during Rabi 1967-68	Area achieved as % to area targetted	Area targetted in Rabi 1968-69	Achievements as % to area targetted
(1)	(2)	(3)	(4)	(5)
WHEAT				
Bihar	240·0	75·9	272·8	110·5
Haryana	80·9	100·0	1800·8	143·8
Maharashtra	80·9	22·0	242·8	3·9
Punjab	607·0	102·9	667·7	151·5
Rajasthan	123·4	101·6	202·3	94·3
Uttar Pradesh	1360·2	110·1	2023·4*	124·3*
All States	2573·4	101·8	3589·2	119·4
PADDY				
Andhra Pradesh	291·4	25·3	161·9	52·2
Kerala	80·9	21·7	141·6**	86·1**
Mysore	14·2	105·7	42·0	98·1
Orissa	66·1	79·1	107·8	95·9
Tamil Nadu	182·1	89·9	258·5	69·3

(1)	(2)	(3)	(4)	(5)
West Bengal	30·4	83·7	40·5	110·0
All States	665·1	52·0	752·3	76·3
	JOWAR			
Maharashtra	283·3	6·6	283·3	9·9
Mysore	9·6	109·3	41·5	45·1
All States	292·9	9·9	324·8	14·4

* The data includes area targetted and covered under U.P. varieties of wheat.

** The data for 1968-69 is of Mundakan season (Rabi) only.

TABLE 1·11 : *Targets and achievements of area under H.V.P. in the selected blocks, crop-wise.*

(Area in hectares)

State	Districts	Blocks	Package /non-package	1967-68 Rabi		1968-69 Rabi	
				Targets	%age of targets/ achieved	Targets	%age of targets/ achieved
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		WHEAT					
Bihar	Gaya	Obra	NP	2023·4	104·9	2225·8	100·2
Haryana	Hissar	Sonepat	NP	207·2	196·9	1618·7	128·8
	Rohtak	Tohana	NP	404·7	384·5	3035·1	118·2
Maharashtra	Ahmednagar	Kopargaon	NP	1619·6	1·1	4451·5	27·0
Punjab	Amritsar	Cholasaheb	NP	8093·7	60·0	12140·6	91·7
	Ludhiana	Samrala	P	11735·9	85·2	16187·4	102·7
	Ferozepur	Moga II	NP	12140·6	114·1	18210·9	100·0
	Patiala	Nabha	NP	6475·0	112·4	20234·3	105·0
Rajasthan	Sriganganagar	Raisinghnagar	NP	8093.7	96.2	12950·0	101·9
U. P.	Basti	Khalilabad	NP	5584·7	89·7	7515·0	90·4
	Muzaffarnagar	Kandhla	NP	4856·2	132·1	9712·5	100·2
	Aligarh	Hathras	P	7198·1	103·7	12828·5	102·6
	Saharanpur	Rampur Maniharan	NP	Nil	..	10117·1	104·3
	Sitapur	Pahla	NP	2306·7	55·9	5463·3	71·4
	Allahabad	Man Aima	NP	1821·1	75·6	3075·6	89·3

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
All States . . .			P	18934·0	92·3	29016·0	102·7
			NP	53626·6	104·4	110750·4	96·6
			P+NP	72560·6	101·2	139766·4	97·9
		PADDY					
Andhra Pradesh . . .	W. Godavari	Akividu . . .	P	6475·0	56·8	7276.3	127·4
	Krishna	Bantumilli . . .	NP	1416·4	32·1	2428·1	120·1
Kerala . . .	Trichur	Wadakanchery . . .	NP	Nil	..	Nil	..
	Palghat	Alathur . . .	P	5260·9	14·2	6070·3	34·2
Mysore . . .	Shimoga	Bhadravati . . .	NP	809·4	102·3	2266·2	113·0
Orissa . . .	Cuttack	Kendrapara . . .	NP	372·3	103·3	2243·2	136·0
	Sambalpur	Bargarh . . .	P	4046·9	46·1	6070·3	106·7
Tamil Nadu . . .	Thanjuvar	Thanjavar . . .	P	5018·1	..	4856·2	58·3
	North Arcot	Thandrampet . . .	NP	2519·2	72·7	2387·6	75·4
	Coimbatore	Kodumudi . . .	NP	3035·1	108·0	3561·2	100·6
West Bengal . . .	Burdwan	Purbasthali . . .	P	242·8	100·0	596·9	94·9
	Hooghly	Khanakul . . .	NP	202·3	100·0	1011·7	100·0
	Midnapur (West)	Sabong . . .	NP	404·7	120·0	404·7	605·0

TABLE I.11—*contd.*

(1)	(2)	(3)	(4)	(5)	(6	(7)	(8)
All States . . .			P	21043·7	31·0	24870·0	85·3
			NP	8759·4	88·8	14302·8	124·5
			P+NP	29803·1	48·0	39172·8	99·6
		JOWAR					
Maharashtra . .	Poona	Baramati . .	NP	8093·7	18·2	237·5	28·0
	Sholapur	Barshi . .	NP	3439·8	5·9	2023·4	62·5
	Aurangabad	Ambad . .	NP	809·4	7·5	1618·7	42·5
Mysore . . .	Raichur	Sindhanur . .	P	237·5	53·1	1618·7	25·0
All States . .		. .	P	..	..	..	..
			NP	15580·4	22·2	8498·4	38·4
			P+NP	15580·4	22·2	8498·4	38·4

TABLE 1.12—*Land utilisation particulars and area under HYP in the selected blocks during rabi seasons of* 1967-68, *and* 1968-69 *crop-wise.*

(Area in Hectares)

State	Block	Weather package or non-package	Land utilisation for the latest available year			1967-68 Rabi Area under H.Y.V.		1968-69 Rabi Area under H.Y.V.	
			Net sown area	% of gross cropped area to Net sown area	% of Net irrigated area to Net sown area	Area	% to selected crop area	Area	% to selected crop area
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
			WHEAT						
Bihar	Obra	NP	21080·5	136·8	82·8	2122·2	41·8	2230·6	23·6
Haryana	Sonepat	NP	28079·5	194·1	NA	407·9	3·2	2084·1	NA
	Tohana	NP	17152·6	172·3	NA	1556·0	26·0	3587·5	NA
Maharashtra	Kopargaon	NP	87224·4	102·8	39·1	1619·6	19·3	1647·9	NA
Punjab	Cholasaheb	NP	20348·8	107·7	97·8	4976·2	72·4	11128·9	NA
	Samrala	P	27010·8	155·5	NA	10001·0	67·1	16631·0	NA
	Moga II	NP	15527·8	139·9	NA	10001·0	17·5	18210·9	NA
	Nabha	NP	20970·7	123·4	NA	7279·9	82·5	21238·7	NA
Rajasthan	Raisinghnagar	NP	169563·8	113·5	NA	7785·3	40·9	13189·1	NA
U. P.	Khalilabad	NP	24573·7	135·5	65·9	5007·2	77·0	6790·6	87·5
	Kandhla	NP	29169·4	144·7	82·1	6415·5	52·1	9727·8	NA
	Hathras	P	36766·1	156·5	NA	7468·5	46·4	13161·6	NA

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Rampur Maniharan . .	NP	38441·5	155·4	NA	4003·2	21·8	10546·9	NA
	Pahla	NP	33918·8	127·4	NA	1288·9	14·7	3897·9	NA
	Man Aima	NP	17798·9	142·5	18·4	1376·7	33·7	2746·2	67·2
				PADDY					
Andhra Pradesh .	Akividu	P	35565·8	165·0	100·0	3674·9	20·8	9268·9	48·1
	Bantumilli	NP	21367·4	186·1	99·1	455·3	3·6	2917·0	17·0
Kerala . . .	Wadakanchery . . .	NP	11659·0	138·2	28·9	315·7	5·6	439·9	8·1
	Alathur	P	19272·8	150·0	46·8	744·6	7·2	2076·0	21·6
Mysore . . .	Bhadravati	NP	28983·2	122·3	74·1	827·6	..	2560·0	NA
Orissa . . .	Kendrapara I . . .	NP	15241·7	178·6	55·8	384·5	55·7	3049·7	87·7
	Bargarh	P	27193·3	155·0	NA	1866·4	17·5	6475·0	57·1
Tamil Nadu .	Tanjavaur	P	30920·4	135·8	56·8	NA	..	2832·8	58·1
	Thandrampet . . .	NP	21194·6	130·4	36·1	1832·0	..	1800·0	NA
	Kodumudi	NP	7435·3	159·2	96·4	3278·0	..	3581·5	NA
West Bengal . .	Purbasthali	P	8498·4	120·1	43·0	242·8	33·3	566·6	40·0
	Khanakul	NP	12140·6	160·9	63·3	202·3	7·7	1011·7	33·3
	Sabong	NP	23150·1	133·9	NA	485·6	18·5	2448·4	82·3

TABLE I.12—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
				JOWAR					
Maharashtra . .	Baramati	NP	105279·5	108·8	25·8	1473·1	2·3	907·3	NA
	Barshi	NP	132131·2	103·0	6·4	204·0	0·3	1264·6	NA
	Ambad	NP	197670·9	106·0	2·5	60·7	0·1	688·0	NA
Mysore . . .	Sindhanur	NP	104638·4	107·6	NA	1724·0	19·0	404·7	NA

NOTE:—For a good number of Blocks, the data regarding Net irrigated area and area under the selected crop are not available hence. N.A. denoted for the concerned blocks in the col. 6 & col. 10 respectively.

TABLE 1.13 : *Land utilisation particulars and area under H.Y.V.P. in the selected villages, cropwise*

(Area in hectares)

State	No. of sample villages	Land utilisation of latest available year			1966-67 Rabi		1967-68 Rabi		1968-69 Rabi		
		Net sown area	% of GC area to net sown area	% of net irrigated to net sown area	Area under HYV	% to selected crop area	Area under HYV	% to selected crop area	% of selected crop to total crop area	Area under HYV	% to selected crop area
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
					WHEAT						
Bihar . .	3	681·9	178·34	—	8·1	4·78	27·5	14·11	45·39	58·7	27·05
Haryana . . .	6	3570·5	142·80	58·41	21·0	1·73	126·3	9·45	64·72	412·4	23·21
Maharashtra . .	3	3454·0	103·01	36·98	57·5	28·74	109·3	54·44	NA	155·4	NA
Punjab . . .	12	7052·9	136·22	68·64	175·2	7·14	991·1	31·30	73·53	1685·5	69·17
Rajasthan . .	3	815·4	112·31	—	28·7	14·31	40·9	19·61	NA	72·0	NA
Uattar Pradesh .	18	3592·0	147·79	66·30	90·6	7·83	517·2	32·90	65·71	733·3	44·87
All States . .	45	19166·7	134·11	53·60	381.2	7·06	1812·2	27·13	67·20	3117·3	47·65
					PADDY						
Andhra Pradesh .	6	3631·2	190·06	97·83	82·2	4·73	360·2	14·42	68·93	689·2	29·85
Kerala . . .	6	1593·2	140·72	33·43	36·0	1·37	75·3	2·84	100·00	288·1	10·83
Mysore . . .	3	617·6	127·72	58·39	NIL	NR	1·6	1·25	70·45	3·2	2·77

TABLE I.13—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Orissa . . .	6	2214·4	174·14	93·63	85·8	27·01	208·4	25·44	63·29	566·6	62·00
Tamil Nadu . .	9	3475·8	179·72	87·24	478·3	32·02	887·5	54·15	85·12	1003·2	60·17
West Bengal . .	9	1335·9	130·93	46·08	40·1	23·29	126·7	58·95	60·22	253·7	84·16
All States . .	39	12868·2	169·29	77·88	722·4	11·17	1659·6	20·87	79·06	2804·1	35·17
					JOWAR						
Maharashtra . .	9	13201.3	106·51	21·10	13·8	0·16	95·9	1·33	66·20	26·7	3·76
Mysore . . .	3	1961·9	104·60	8·95	15·0	1·66	10·1	1·91	40·83	12·1	1·57
All States. . .	12	15163·2	106·30	19·53	28·7	0·31	106·0	1·32	50·00	38·8	2·62

TABLE 2.1 : *Quantity of seed for HVP indented and received from outside the State and total quantity actually distributed in the selected States*

(Quantity in quintals)

State	Quantity indented in		Quantity received in		Quantity distributed in	
	Rabi 1967-68	Rabi 1968-69	Rabi 1967-69	Rabi 1968-69	Rabi 1967-68	Rabi 1968-69
(1)	(2)	(3)	(4)	(5)	(6)	(7)
			WHEAT			
Bihar	90000	16279	50000	13500	31860	2095
Haryana	N.A.	N.A.	N.A.	3603	2018	13780
Maharashtra	0	0	0	0	10231	5898
Punjab	0	7078	0	7078	100000	94164
Rajasthan	25000	0	13386	0	58173	N.A.
Uttar Pradesh	0	250	0	250	136198	78770*
All States.	115000	23607	63386 (55·1)	24431 (88·2)	338480	194707
			PADDY			
Andhra Pradesh	0	0	0	0	27321	N.A.
Kerala	2000	1400	500	640	700	30000
Mysore	0	0	0	0	4587	14878
Orissa	N.A.	N.A.	N.A.	N.A.	1423	N.A.

TABLE 2.1 —*concld.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Tamil Nadu	0	0	0	0	N.A.	56210
West Bengal	0	0	0	0	9450	17000
All States	2000	1400	500 (25·0)	640 (45·7)	43481	118088
JOWAR						
Maharashtra	0	0	0	0	1691†	2070
Mysore	25	51	25	41	1176	1986
All States	25	51	25 (100·0)	41 (80·4)	2867	4056

*Includes U.P. varieties also. The figures indicate the stock available for distribution during rabi 1968-69 only.

†The figure includes the kharif season also.

NOTE :— Figures within brackets are percentages to quantity indented for respective years.

TABLE 2·2 : *Quantity of high yielding seed obtained, of which procured locally and total quantity distributed in the selected blocks.*

Crop-wise (Qty. in Quintals)

State	No. of blocks reporting for rabi		Total quantity obtained in rabi		% of which obtained locally in rabi		Quantity actually distributed in rabi	
	1967-68	1968-69	1967-68	1968-69	1967-68	1968-69	1967-68	1968-69
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			WHEAT					
Bihar	1	1	15·00	12·00	0·0	0·0	13·00	12·00
Haryana	2	2	358·51	612·90	0·0	0·0	120·41	612·90
Maharashtra	1	1	53·50	516·40	0·0	93·2	13·25	515·81
Punjab	4	4	4638·24	3969·10	54·4	24·3	4239·24	3618·92
Rajasthan	1	1	1271·00	1200·00	100·0	0·0	1171·00	539·00
Uttar Pradesh	6	6	4164·27	4182·46	52·1	49·1	4603·27	4072·23
All States	15	15	10500·51	10492·86	56·8	49·1	10160·17	9370·86
			PADDY					
Andhra Pradesh	2	2	492·00	725·00	10·2	82·8	502·00	725·00
Kerala	2	2	494·22*	619·18	84·9*	65·3	494·22*	618·58
Mysore	1	1	498·00	1527·00	100·0	0·8	498·00	1527·00
Orissa	2	2	56·70	565·73	0.0	0.0	55·98	451·17

TABLE 2.2—*Contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Tamil Nadu	3	3	936·40	605·70	90.4	10.4	694·74	520·30
West Bengal	3	3	249·00	575·67	5·6	0·0	255·00	741·17†
All States	13	13	2726·32	4618·28	69·1	23·4	2499·94	4583·22
			JOWAR					
Maharashtra . . .	3	3	138·00	364·17	0·0	0·0	109·20	181·26
Mysore	1	1	64·64	30·00	100·0	100·0	64·64	30·00
All States	4	4	202·64	394·17	51·9	7·6	173·84	211·26

NOTE : All the blocks reoported timely supply of seeds.
*For one block of Kerala (Alathur) selected for paddy crop the data refers to both the seasons.
†In one block in West Bengal some excess quantity of seeds in Kharif '68 were distributed in Rabi 1968-69.

TABLE 2·3 : *Quantity of H. Y. V. seed distributed in selected villages.*

State	No. of sample villages	Rabi seasons of the years 67-68, 68-69	No. of villages reporting	Quantity of seed actually distributed agency-wise						Villages reporting timely supplies
				Block/ Dept.	Coop./ Panchayat	Regd. grower	Progressive cultivator	Others	Total	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
				WHEAT						
Bihar	3	1967-68	1	0·7	0·0	0·0	0·0	0·0	0·7	1
		1968-69	3	7·5	0·0	0·0	0·0	0·0	7·5	3
Haryana	6	1967-68	6	33·8	0·0	0·0	20·0	12·6	66·4	6
		1968-69	4	93·8	0·0	0·0	141·4	0·0	235·2	4
Mahrashtra	3	1967-68	2	0·0	0·0	0·0	69·3	0·0	69·3	Nil
		1968-69	2	0·0	0·0	0·0	97·9	0·0	97·9	2
Punjab	12	1967-68	11	84·6	110·8	0·0	0·2	15·0	210·6	11
		1968-69	11	418·0	81·0	0·0	48·0	140·0	687·0	11
Rajasthan		1967-68	3	36·2	0·0	0·0	0·0	0·0	36·2	3
		1968-69	3	10·6	0·0	0·0	0·0	0·0	10·6	3
Uttar Pradesh	18	1967-68	16	58·1	0·3	0·0	17·3	3·3	79·0	16
		1968-69	18	129·4	79·0	0·0	54·7	11·6	274·7	18
All States	45	1967-68	39	213·4	111·1	0·0	106·8	30·9	462·2	37
		1968-69	41	659·3	160·0	0·0	342·0	151·6	1312·9	41

TABLE 2.3—*Contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
				PADDY						
Andhra Pradesh . . .	6	1967-68	4	79·5	0·0	0·0	0·0	4·6	84·1	4
		1968-69	4	34·3	0·0	0·0	0·0	14·0	48·3	4
Kerala	6	1967-68	6	9·9	0·0	0·0	0·0	0·0	9·9	3
		1968-69	5	16·7	2·5	0·0	0·0	0·0	19·2	4
Mysore	3	1967-68	2	0·0	0·0	0·0	0·7	0·0	0·7	2
		1968-69	3	0·0	0·0	0·0	1·3	0·0	1·3	3
Orissa	6	1967-68	1	02·7	0·0	0·0	0·0	0·0	2·7	1
		1968-69	6	47·9	0·0	0·0	0·0	0·0	47·9	4
Tamil Nadu	9	1967-68	9	182·3	0·0	0·0	0·0	98·2	280·5	9
		1968-69	9	180·8	0·0	0·0	0·0	73·9	254·7	9
West Bengal	9	1967-68	8	10·1	0·0	0·0	2·6	10·5	23·2	8
		1968-69	9	17·9	0·0	0·0	14·0	12·5	44·4	8
All States	39	1967-68	31	284·5	0·0	0·0	3·3	113·3	401·1	27
		1968-69	36	297·6	2·5	0·0	15·3	100·4	415·8	32
				JOWAR						
Maharashtra	9	1967-68	7	6·3	0·0	0·0	0·0	0·6	6·9	7
		1968-69	7	8·2	0·0	0·0	0·0	3·2	11·4	7
Mysore	3	1967-68	2	0·0	2·5	0·0	0·0	..	2·5	2
		1968-69	3	0·1	1.2	0·0	0·0	..	1·24	3
All States	12	1967-68	9	6·3	2·5	0·0	0·0	0·6	9·4	9
		1968-69	10	8·3	1·2	0·0	0·0	3·2	12·6	10

TABLE 2·4 *Distribution of cases of obtaining H. Y. seed by sources of supply, mode of supply, etc. cropwise, to selected participants*

State	Agency	Total cases of supply	Percentage of cases obtaining		
			In cash	In time	Treated seed
(1)	(2)	(3)	(4)	(5)	(6)
	WHEAT				
Bihar	Block/Deptt.	4	100·0	100·0	100·0
	Others	57	40·4	71·9	7·8
	All agencies	61	44·3	73·8	8·2
Haryana	Block/Deptt.	18	100·0	100·0	22·2
	Others	183	56·3	100·0	7·7
	Coop/Panchayat	7	100·0	100·0	57·1
	All agencies	208	61·5	100·0	10·6
Maharashtra	Block/Deptt.	2	100·0	100·0	100·0
	Coop/Panchayat	2	100·0	100·0	0·0
	Others	32	50·0	46·9	21·9
	All agencies	36	55·6	52·8	25·0
Punjab	Block/Deptt.	84	100·0	100·0	36·9
	Coop/Panchayat	13	100·0	100·0	84·6

TABLE 2.4—*Contd.*

(1)	(2)	(3)	(4)	(5)	(6)
	Regd grower	1	0·0	100·0	0·0
	Others	285	58·3	97·9	15·4
	All agencies	383	68·7	98·4	22.5
Rajasthan	Block/Deptt.	19	100·0	100·0	100·0
	Others	31	80·7	96·8	90·3
	All agencies	50	88·0	98·0	94·0
Uttar Pradesh	Block/Deptt.	86	94·2	76·7	97·7
	Coop./Panchayat	22	95·5	100.0	100·0
	Others	310	35·5	48·1	55·8
	All agencies	418	50·7	56·7	66·8
All States	Block/Deptt.	213	97·7	100·0	67·6
	Coop./panchayat	44	97·7	100·0	84·1
	Regd. Growers	1	0·0	100·0	0·0
	Others	898	49·3	77·6	29·7
	All agencies	1156	60·0	82·6	38·8
	PADDY				
Andhra Pradesh	Block/Deptt.	5	100·0	100·0	100·0
	Coop./Panchayat	9	100·0	100·0	33·3
	Regd. growers	1	100·0	100·0	0·0
	Others	48	47·9	50·0	29·2
	All agencies	63	60·3	61·9	34·9

TABLE 2·4—*Contd.*

(1)	(2)	(3)	(4)	(5)	(6)
Kerala	Block/Deptt.	7	100·0	100·0	100·0
	Regd. growers	1	100·0	100·0	100·0
	Others	66	48·5	69·7	13·6
	All agencies	74	54·0	73·0	23·0
Mysore	Coop./Panchayat	2	100·0	100·0	0·0
	Others	7	42·9	57·1	14·3
	All agencies	9	55·6	66·7	11·1
Orissa	Block/Deptt.	24	95·8	87·5	50·0
	Others	64	18·8	71·9	32·8
	All agencies	88	39·8	76·1	37·5
Tamilnadu	Block/Deptt.	13	92·3	100·0	76·9
	Others	100	4·0	30·0	8·0
	All agencies	113	14·2	38·1	15·9
West Bengal	Block/Deptt.	36	100·0	83·3	72·2
	Coop./Panchayat	2	0·0	100·0	0·0
	Regd. grower	4	100·0	100·0	0·0
	Others	88	9·1	56·8	17·1
	All agencies	130	36·9	66·2	31·5

(1)	(2)	(3)	(4)	(5)	(6)
All States	Block/Deptt.	85	97·7	89·4	70·6
	Coop./Panchayat	13	84·6	100·0	23·1
	Regd. grower	6	100·0	100·0	16·7
	Others	373	21·9	53·6	18·2
	All agencies	477	38·2	61·8	27·7
	JOWAR				
Maharashtra	Block/Deptt.	72	73·6	98·6	100·0
	All agencies	72	73·6	98·6	100·0
Mysore	Block/Deptt.	7	57·1	100·0	100·0
	Coop/panchayat	2	100·0	100·0	100·0
	Others	3	100·0	100·0	100·0
	All agencies	12	75·0	100·0	100·0
All States	Block/Deptt.	79	72·2	98·7	100·0
	Coop./Panchayat	2	100·0	100·0	100·0
	Others	3	100·0	100·0	100·0
	All agencies	84	73·8	98·8	100·0

NOTE.—Wherever any data for particular agency is nil for all the columns, no entry has been made against that state.

TABLE 2·5 : *Quantity of Chemical fertilisers distributed in the Selected blocks.*

(Qty. in Metric tons)

State	No. of selected blocks	Supply of chemical fertilisers, typewise in Rabi seasons							
		Nitrogenous		Phosphatic		Potassic		Grades	
		1967-68	1968-69	1967-68	1968-69	1967-68	1968-69	1967-68	1968-69
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
				WHEAT					
Bihar	1	1283·00	398·00	525·00	86·00	7·00	4·00	Nil.	Nil.
Haryana	2	4911·76	5899·01	230·00	1078·16	21·25	42·62	Nil	Nil.
Maharashtra	1	2669·80	1689·84	395·60	408·86	Nil.	Nil.	2·20	76·60
Punjab	4	18552·00	30088·01	8425·50	13764·00	526·10	923·70	Nil.	Nil.
Rajasthan	1	5393·00	9243·00	550·00	513·00	16·00	13·00	Nil.	Nil.
Uttar Pradesh	6	10076·40	12795·15	4044·19	5919·98	856·27	690·53	Nil.	7·50
All States	15	42886·91	60113·01	14170·29	21770·00	1426·62	1672·85	42·20	84·10
		(140·17)		(153·63)		(117·26)		(199·29)	
				PADDY					
Andhra Pradesh	2	3687·00	12289·00	3802·00	4656·00	308·00	1382·00	Nil	Nil.
Kerala	2	3253·49	1080·49	761·64	1581·20	366·26	309·00	598·96	483·50
Mysore	1	2214·00	2730·00	1445·00	1704·00	313·00	494·00	423·00	573.00
Orissa	2	1475·48	2979·44	965·45	2883·37	57·86	68·49	Nil.	Nil.
Tamilnadu	3*	996·00	3156·70	441·00	1256·00	207·00	71·00	618·00	884·98

TABLE 2.5 *Contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
West Bengal	3	584·00	1246·00	95·00	439·00	42·00	136·00	Nil.	37·00
All States	13	12209·97	23481·63	7510·09	12519·57	1294·12	2460·49	1639·96	1978·48
			(192·32)		(166·70)		(190·13)		(120·64)
				JOWAR					
Maharashtra	3	768·40	3061·20	120·70	1140·20	Nil.	336·00	2872·80	540·40
Mysore	1	2163·00	3689·00	153·00	1057·10	50·07	164·16	Nil.	175·00
All States	4	2931·40	6950·20	273·70	2197·30	50·07	500·16	2872·80	615·40
			(237·10)		(802·81)		(998·92)		(21·42)

NOTE. *Data Not available for one block of Tamilnadu (Paddy).

1. Summer crop is excluded in Bihar (Wheat) for the year 68-69.
2. In Uttar Pradesh for one block (Kandhala) data relates to Khaif, rabi and zaid (Wheat).
3. One block each in Andhra Pradesh, Kerala and West Bengal data relating to the year 1967-68 refers to both the seasons of Kharif and rabi (Paddy).
4. In Maharashtra for one block (Baramati) 1968-69 data refers to both the seasons and for another block 67-68 data refers to both the seasons while for the Third block (Ambad) the data for both the years refer to both the seasons (Jowar)
5. The figures within brackets are the percentages of 1968-69 data to 1967-68 data for the respective types of fertiliser and grades.

TABLE 2.6: *Supply of fertilisers in the selected villages*

(Quantity in quintals)

Items/Particulars	Wheat	Paddy	Jowar
(1)	(2)	(3)	(4)
1. *No. of Villages*			
(*a*) Reporting data	41	32	9
(*b*) Reporting adequate supplies	32	26	9
(*c*) Reporting timely supplies	41	29	9
2. *Distribution of Nitrogenous fertilisers in Rabi*			
(*a*) Quantity during 1968-69	21625	19345	769
(*b*) % increase over 1967-68	31·77	29·92	30·78
(*c*) % for H.V.P. to total in 1968-69	90·66	64·82	82·65
(*d*) % for H.V.P. to total in 1967-68	84·11	56·54	8·33
3. *Distribution of Phosphatic fertilisers in Rabi*			
(*a*) Quantity during 1968-69	13699	11455	122
(*b*) % increase over 1967-68	92.84	410.93	60.52
(*c*) % for H.V.P. to total in 1968-69	79·87	58·56	41·22
(*d*) % for H.V.P. to total in 1967-68	56·09	53·97	7·14
4. *Distribution of Potassic fertilisers in Rabi*			
(*a*) Quantity during 1968-69	949	1011	10
(*b*) % increase over 1967-68	80·42	—14·83	Nil

TABLE 2.6—*contd.*

(1)	(2)	(3)	(4)
(*c*) % for H.V.P. to total in 1968-69	99·92	55·98	100·0
(*d*) % for H.V.P. to total in 1967-68	99·70	37·32	Nil
5. *Distribution of Grades in rabi*			
(*a*) Quantity during 1968-69	4104	3691	1263
(*b*) % increase over 1967-68	—6·13	—19·10	490·19
(*c*) % for H.V.P. to total in 1968-69	12·08	N.A.	17.24
(*d*) % for H.V.P. to total in 1967-68	19·94	N.A.	2·07

TABLE 2.7 : *Distribution depots functioning in the selected blocks for the supply of agricultural inputs during* 1967-68 and 1968-69, *agency-wise.*

State	No. of selected blocks	Total No. of Villages in the selected blocks	Years	Depots for Fertilisers				Depots for H.V. Seed					
				Co-operative	Agri. Deptt. block	Others	Total	Av. No. of Villages per depot	Co-operative	Agri. Deptt. block	Others	Total	Av. No. of Villages per depot.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
						WHEAT							
Bihar	1	119	67-68	7	0	1	8	14·9	0	21	0	21	5·7
			68-69	9	0	3	12	13·2	0	21	0	21	5·7
Haryana	2	149	67-68	67	22	0	89	1·7	37	17	0	54	2·8
			68-69	67	0	0	67	2·2	6	4	0	10	14·9
Maharashtra	1	96	67-68	3	0	0	3	32.0	3	23	0	26	3·7
			68-69	9	0	0	9	10·7	9	0	0	9	10·7
Punjab	4	375	67-68	194	0	0	194	1·9	58	3	12	73	5·1
			68-69	194	0	0	194	1·9	58	3	12	73	5·1
Rajasthan	1	256	67-68	27	0	0	27	9.5	0	30	1	31	8·3
			68-69	27	0	0	27	9·5	0	30	1	31	8·3
Uttar Pradesh	6	1004	67-68	31	36	3	70	14·3	23	34	0	57	17·6
			68-69	34	47	19	100	10·0	21	42	1	64	15·7
All States	15	1999	67-68	329	58	4	391	5·1	121	128	13	262	7·6
			68-69	340	47	22	409	4·9	94	100	14	208	9·6

TABLE 2.7—*contd*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
						PADDY							
Andhra Pradesh . .	2	109	67-68	41	1	34	76	1·4	0	4	0	4	27·3
			68-69	41	1	44	86	1·3	0	4	0	4	27·3
Kerala	2	58	67-68	19	0	15	34	1·7	8	16	0	24	2·4
			68-69	19	0	22	41	1·4	14	16	0	30	1·9
Mysore	1	124	67-68	9	0	8	17	7·3	1	0	1	2	62·0
			68-69	9	0	8	17	7·3	1	0	1	2	62·0
Orissa	2	82	67-68	19	0	0	19	4·3	0	44	0	44	1·9
			68-69	22	0	10	32	2.6	0	51	0	51	1·6
Tamilnadu	3	116	67-68	44	0	69	113	1·0	8	6	0	14	8·3
			68-69	44	0	91	135	0.9	39	6	1	46	2·5
West Bengal . . .	3	242	67-68	136	0	14	150	1·8	0	5	0	5	48·4
			68-69	64	0	30	94	2·6	0	18	0	8	13·4
All States . . .	13	731	67-68	268	1	140	409	1·8	17	75	1	93	7·9
			68-69	199	1	205	405	1·8	54	95	2	151	4·8
						JOWAR							
Maharashtra . . .	3	321	67-68	27	0	0	27	11·9	4	25	0	29	11·1
			68-69	30	0	0	30	10·7	3	59	0	62	5·2
Mysore	1	47	67-68	42	0	0	42	1·1	42	11	1	54	0·9
			68-69	37	0	0	37	1·3	37	9	1	47	1·0
State	4	368	67-68	69	0	0	69	5·3	46	36	1	83	4·4
			68-69	67	0	0	67	5·5	40	68	1	109	3·4

TABLE 2.7—*Contd.*

State	Years	Depots for pesticides					Depots for P.P. Equipments				
		Co-operative	Agri. Deptt. block	Others	Total	Av. No. of villages per depot	Co-operative	Agri. Deptt. block	Others	Total	Av. No of villages per depot.
(1)	(4)	(15)	(16)	(17	18)	(19)	)20)	(21)	(22)	(23)	(24)
					WHEAT						
Bihar	67-68	0	22	0	22	5·4	0	22	0	22	5·4
	68-69	0	22	1	23	5·2	0	22	1	23	5·2
Haryana	67-68	1	5	0	6	24·8	0	5	0	5	29·8
	68-69	1	3	0	4	31·5	0	3	0	3	49·7
Maharashtra	67-68	0	22	0	22	4·7	0	22	0	22	4·4
	68-69	1	20	0	21	4·6	1	20	0	21	4·6
Punjab	67-68	9	1	5	15	25·0	4	16	0	20	18·8
	68-69	0	4	5	18	20·8	4	19	0	23	16·3
Rajasthan	67-68	0	30	1	31	8·3	0	30	0	30	8·5
	68-69	0	30	1	31	8·3	0	30	0	30	8·5
Uttar Pradesh	67-68	15	34	3	52	19·3	1	3	0	4	25·1
	68-69	17	40	6	63	15·9	2	3	0	5	20·1
All States	67-68	25	114	9	148	13·5	5	98	0	103	19·4
	68-69	28	119	13	160	12·5	7	97	1	105	19·0
					PADDY						
Andhra Pradesh	67-68	9	3	24	36	3·0	16	92	10	118	0·9
	68-69	9	3	24	36	3·0	16	92	10	118	0·9
Kerala	67-68	20	16	5	41	1·4	6	16	10	32	1·8
	68-69	20	16	12	48	1·2	12	16	12	40	1·5

TABLE 2·7—*concld*,

(1)	(4)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Mysore . .	67-68	9	0	3	12	10·3	0	0	1	1	124·0
	68-69	5	0	3	8	15·5	0	0	1	1	124·0
Orissa . . .	67-68	0	44	0	44	1·9	0	17	0	17	4·8
	68-69	1	51	1	53	1·5	0	17	0	17	4·8
Tamilnadu . .	67-68	8	6	0	14	8·3	0	124	0	124	0·9
	68-69	8	6	0	14	8·3	0	125	0	125	0·9
West Bengal . .	67-68	0	5	0	5	48·4	0	18	0	18	13·4
	68-69	0	18	11	29	8·3	0	18	6	18	13·4
All States . .	67-68	46	74	32	152	4·8	22	267	21	310	2·4
	68-69	43	94	51	188	3·9	28	268	23	319	2·3
					JOWAR						
Maharashtra . .	67-68	5	23	0	28	11·5	0	89	0	89	3·6
	68-69	3	59	0	62	5·2	0	95	0	95	3·4
Mysore . .	67-68	42	11	0	53	0.9	5	128	0	133	0.4
	68-69	37	10	0	47	1.0	6	128	0	134	0.4
All States . .	67-68	47	34	0	81	4·5	5	217	0	222	1.7
	68-69	40	69	0	109	3.4	6	223	0	229	1·6

TABLE 2·8 : *Supply of credit in the selected blocks*

State	Agency	All crops for rabi season					
		Amt. disbursed in (Rs. in lakhs)		Disbursement as % to allotment		Average amount for beneficiary (Rs.)	
		1967-68	1968-69	1967-68	1968-69	1967-68	1968-69
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Andhra Pradesh	Cooperative	2·31	1·66	37·72	59·97	370·59	468·88
	Block/Deptt.	0·00	0·20	..	98·89	..	53·45
	Total	2·31	1·86	37·72	62·61	370·59	475·08
Bihar	Cooperative	0·00	0·00	..	0·00	..	..
	Block/Deptt.	1·22	0·51	100·00	100·00	568·43	173·40
	Total	1·22	0·51	100·00	43·77	568·43	173·40
Haryana	Cooperative	17·38	21·19	100·00	100·00	335·84	262·14
	Block/Deptt.	12·01	13·31	99·00	95·11	424·09	N.A.
	Total	29·39	34·50	99·59	98·05	359·29	N.A.
Kerala	Cooperative	13·75	20·65	65·32	87·84	316·61	276·89
	Total	13·75	20·65	65·32	87·84	316·61	276·89
Maharashtra	Cooperative	169·67	173·23	52·68	20·34	1567·88	969·15
	Block/Deptt.	0·55	3·63	17·59	108·70	323·03	335·53
	Total	170·22	176·86	50·57	39·11	1556·09	939·12
Mysore	Cooperative	13·34	2·34	100·00	50·47	968·56	N.A.
	Block/Deptt.	0·50	3·33	100·00	80·62	1666·67	N.A.
	Total	13·84	5·67	100·00	65·09	983·43	N.A.
Orissa	Cooperative	5·82	10·04	35·18	32·84	146·78	330·80
	Total	5·82	10·04	35·18	32·84	146·78	330·80
Punjab	Cooperative	135·36	195·85	100·00	98·15	129·64	187·50
	Block/Deptt.	0·06	0·00	100·00	..	83·82	..
	Total	135·42	195·85	100·00	98·15	129·48	187·50

TABLE 2.8—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Rajasthan	Cooperative	7·33	4·11	87·64	81·71	446·32	420·34
	Total	7·33	4·11	87·64	81·71	446·32	420·34
Tamilnadu	Cooperative	43·46	14·70	59·27	47·64	651·09	N.A.
	Block/Deptt.	6·33	2·54	104·93	94·03	235·77	225·54
	Total	49·79	17·24	60·28	51·38	517·74	N.A.
Uttar Pradesh	Cooperative	16·39	22·71	80·42	73·14	193·39	152·08
	Block/Deptt.	17·10	27·73	97·22	92·82	88·83	162·89
	Total	33·49	50·44	86·96	82·11	126·61	157·11
West Bengal	Cooperative	4·51	3·25	100·00	100·00	150·00	149·43
	Block/Deptt.	3·05	9·27	100·00	99·25	163·95	85·56
	Total	7·56	12·52	100·00	99·44	176·08	96·23
All States	Cooperative	429·32	469·73	78·44	81·87	585·27	381·97
	Block/Deptt.	40·82	60·52	88·49	94·65	102·92	107·87
	Total	470·14	530·25	79·31	83·64	410·89	312·50

NOTE : 1. Wherever departmental data were nil in both the years, no entry has been made for that state.

2. For one block each of Kerala, Rajasthan, Tamilnadu and West Bengal, for two blocks each of Haryana, Maharahstra and U.P for all the blocks of Punjab data pertain to both the seasons of kharif and rabi.

3. Apart from this data for 1967-68, for one block each of Kerala, Maharashtra, Mysore and Tamilnadu is for both the seasons.

TABLE 2·9 : *No. of selected participants and the amount of credit obtained from various sources*

(Amount in Rs.)

State/Size group	Agency	Rabi 1967-68				Rabi 1968-69			
		Hy. Crop.		Others crops		Hy. crops.		Other crops	
		No.	Amount	No.	Amount	No.	Amount	No.	Amount
1	2	3	4	5	6	7	8	9	10
				WHEAT					
Bihar	Block	12	4617	Nil.	..	7	3680	Nil.	..
	Deptt.	Nil	..	Nil.	..	1	400	Nil.	..
	All agencies	12	4617	Nil.	..	8	4080	Nil.	..
Haryana	Deptt.	9	2765	2	656	21	16368	Nil.	..
	Coop.	5	3800	Nil.	..	15	9074	Nil.	..
	All agencies	14	6565	2	656	36	25442	Nil.	..
Maharashtra	Coop.	Nil.	..	4	2798	Nil.	..	6	5996
	All agencies	Nil.	..	4	2798	Nil.	..	6	5996
Punjab	Coop.	20	13804	3	1555	54	45430	7	1183
	Others	Nil.	..	Nil.	..	1	500	Nil.	..
	All agencies	20	13804	3	1555	55	45930	7	1183
Rajasthan	Block	1	1400	Nil.	..	Nil.	..	Nil.	..
	Others	..	..	..	..	Nil.	..	1	4000
	All agencies	1	1400	Nil.	..	Nil.	..	1	4000
Uttar Pradesh	Deptt.	48	7426	4	424	73	19071	Nil.	..
	Coop.	1	400	3	321	9	3697	7	1433
	Others	Nil.	..	Nil.	..	4	710	Nil.	..
	All agencies	49	7826	7	745	86	23478	7	1433

TABLE 2.9—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
All States	Block	13 (3·07)	6017 (462·85)	Nil	..	7 (1·65)	3680 (525·71)	Nil	..
	Deptt.	57 (13·44)	10191 (178·78)	6 (1·42)	1080 (180·00)	95 (22·41)	35839 (377·25)	Nil	..
	Coop.	26 (6·13)	18004 (692·46)	10 (2·36)	4674 (467·40)	78 (18·40)	58201 (746·16)	20 (4·72)	8612 (430·60)
	Others	Nil	..	Nil	..	5 (1·18)	1210 (242·00)	1 (0·24)	4000 (4000·00)
	All agencies	96 (22·64)	34212 (356·38)	16 (3·77)	5754 (359·63)	185 (43·63)	98930 (534·76)	21 (4.95)	12612 (600·57)
Size groups . . .	(1) Block	1 (2·86)	175 (175·00)	Nil	..	1 (2·86)	204 (204·00)	Nil	..
	Deptt.	8 (22·86)	371 (46·87)	1 (2·86)	60 (60·00)	5 (14·29)	445 (89·00)	Nil	..
	Coop.	..	..	..	..	3 (8·54)	468 (156·00)	Nil	..
	Others	..	..	..	..	..	..	..	..
	All agencies	9 (25·71)	546 (60·67)	1 (2·86)	60 (60··0)	9 (25·69)	1117 (124·11)	Nil	..
	(2) Block	2 (3·64)	356 (175·00)	Nil	..	Nil	..	Nil	..
	Deptt.	14 (25·45)	1785 (127·50)	1 (2·86)	54 (54·00)	16 (29·09)	2553 (159·56)	Nil	..
	Coop.	1 (1·82)	131 (131·00)	2 (3·63)	525 (262·50)	4 (7·27)	1016 (254·00)	2 (3·64)	325 (162·00)
	Others	..	..	..	..	..	..	..	..
	All agencies	17 (30·91)	2266 (133·29)	3 (5·45)	579 (193·00)	20 (36·36)	3569 (178·45)	2 (3·64)	325 (162·10)

TABLE 2·9—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(3)	Block . .	2 (1·90)	313 (156·10)	Nil	..	1 (0·95)	158 (158·00)	Nil	..
	Deptt. . .	18 (17·14)	2582 (143·44)	1 (0·96)	100 (100·00)	26 (24·76)	5371 (206·58)	Nil	..
	Coop. . .	4 (3·81)	1900 (475·00)	2 (1·90)	196 (98·00)	15 (14·29)	8339 (555·23)	8 (7·61)	2253 (281·62)
	Others . .	..	..	..	..	3 (2·86)	260 (86·67)	Nil	..
	All agencies .	24 (22·85)	4795 (199·79)	3 (2·86)	296 (98·67)	45 (42·86)	14128 (313·96)	8 (7·61)	2253 (281·62)
(4)	Block . .	1 (0·79)	170 (170·00)	Nil	..	1 (0·79)	57 (57·00)	Nil	..
	Deptt. . .	11 (8·73)	27·70 (251·82)	2 (1·59)	366 (183·00)	28 (22·22)	10180 (363·57)	Nil	..
	Coop. . .	12 (9·52)	5556 (463·00)	3 (2·38)	1405 (468·33)	37 (29·37)	30297 (818·84)	6 (4·76)	1978 (329·67)
	Other . .	..	..	..	..	1 (0·79)	450 (450·00)	Nil	..
	All agencies .	24 (19·04)	8496 (354·00)	5 (3·97)	1771 (354·20)	67 (53·17)	40984 (611·70)	6 (4·76)	1978 (329·67)
(5)	Block . .	5 (5·62)	3699 (739·80)	Nil	..	3 (3·37)	2600 (866·67)	..	..
	Deptt. . .	3 (3·37)	1675 (558·33)	Nil	..	15 (16·85)	11645 (776·33)	..	..
	Coop. . .	8 (8·99)	7505 (938·12)	3 (3·37)	2548 (849·33)	18 (20.22)	16981 (943·38)	4 (4·50)	14056 (1014·00)
	Others . .	..	..	..	..	1 (1·12)	500 (500·00)	1 (1·12)	4000 (4000·00)
	All agencies .	16 (17·98)	12879 (804·94)	3 (3·37)	2548 (849·33)	37 (41·56)	31726 (857·46)	5 (5·62)	8056 (1611·20)

TABLE 2.9—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	(6) Block . .	2 (13·33)	1310 (655·00)	Nil	..	1 (6·67)	661 (661·00)	Nil	..
	Deptt. . .	3 (20·00)	1008 (336·00)	1 (6·67)	500 (500·00)	5 (33·33)	5645 (1129·00)	Nil	..
	Coop . .	1 (6·67)	2912 (2912·00)	Nil.	..	1 (6·67)	1100 (1100·00)	Nil	..
	Others . .	..	..	..	..	..	..	Nil	..
	All agencies .	6 (40·00)	52·30 (871·66)	1 (6·67)	500 (500·00)	7 (46·67)	7406 (1058·00)	Nil	..
				PADDY					
A. Pradesh	Coop. . .	0	..	1	500	2	850	1	3000
	Others . .	0	..	12	7050	18	16750	1	4000
	All agencies .	0	..	13	7550	20	17600	2	7000
Kerala	Deptt. . .	0	..	10	10825	0	..	0	..
	Coop. . .	15	9210	0	..	12	7594	1	240
	All agencies .	15	9210	10	10825	12	7594	1	240
Madras	Deptt. . .	6	1610	2	345	11	2850	4	585
(Tamil Nadu) . . .	Coop. . .	0	..	2	1600	1	300	5	6000
	All agencies .	6	1610	4	1945	12	3150	9	6585
Orissa	Coop. . .	10	5075	0	..	10	6510	0	..
	Others . .	0	..	0	..	4	540	0	..
	All agencies .	10	5075	0	..	14	7050	0	..
West Bengal	Block . .	0	..	2	125	0	..	1	200
	All agencies .	0	..	2	125	0	..	1	200

TABLE 2·9—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
All States	Block . . .	0	..	2	125	0	..	1	200
				(0·52)	(62·50)			(0·28)	(200·00)
	Deptt. . . .	6	1610	12	11170	11	2850	4	585
		(1·71)	(268·33)	(3·43)	(930·83)	(3·14)	(259·09)	(1·14)	(146·25)
	Coop. . . .	25	14285	3	2100	25	15254	7	9240
		(7·14)	(571·40)	(0·86)	(700·00)	(7·14)	(610·16)	(2·00)	(1320·00)
	Others . . .	0	..	12	7050	22	17290	1	4000
				(3·43)	(587·50)	(6·29)	(785·91)	(0·28)	(4000·00)
	All agencies . .	31	15895	29	20445	58	35394	13	14025
Size Groups		(8·86)	(512·74)	(8·29)	(705·00)	(16·57)	(610·24)	(3·71)	(1078·85)
(1)	Block . . .	0	..	1	50	0	..	1	200
				(0·85)	(50·00)			(0·85)	(200·00)
	Deptt. . . .	0	..	6	4485	2	390	0	..
				(5·08)	(747·50)	(1·69)	(195·00)		
	Coop. . . .	1	150	0	..	3	392	0	..
		(0·85)	(150·00)			(2·54)	(130·67)		
	Others . . .	0	..	5	1550	6	2190	0	..
				(4·24)	(310·00)	(5·08)	(365·00)		
	All agencies . .	1	150	12	6085	11	2972	1	200
		(0·85)	(150·00)	(10·17)	(507·08)	(9·91)	(270·18)	(0·85)	(200·00)

Table 2·9—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(2)	Block	0	..	1 (1·14)	75 (75·00)	0	..	0	..
	Deptt.	2 (22.7)	520 (260·00)	4 (4·55)	3085 (771·25)	4 (4·55)	1300 (325·00)	1 (1·14)	85 (85·00)
	Coop	3 (3·41)	675 (225·00)	2 (2·27)	1300 (650·00)	4 (4·55)	1500 (375·00)	4 (4·55)	4000 (1000·00)
	Others	0	..	0	..	1 (1·14)	100 (100·00)	0	..
	All agencies	5 (5·68)	1195 (239·00)	7 (7·96)	4460 (637·14)	9 (10·24)	2900 (322·22)	5 (5·68)	4085 (817·00)
(3)	Block	0	..	0	..	0	..	0	..
	Deptt.	2 (2·27)	390 (195·00)	1 (1·14)	2600 (2600·00)	4 (4·55)	960 (240·00)	2 (2·27)	400 (200·00)
	Coop.	12 (13·63)	5410 (450·83)	1 (1·14)	800 (800·00)	9 (10·23)	5360 (525·55)	2 (2·27)	2240 (1120·00)
	Others	0	..	5 (5·68)	3500 (700·00)	11 (12·50)	7100 (1645·45)	0	..
	All agencies	14 (15·90)	5800 (414·29)	7 (7·95)	6900 (985·71)	24 (27·28)	13420 (559·16)	4 (4·54)	2640 (660·00)
(4)	Block	0	..	0	..	0	..	0	..
	Deptt.	2 (5·13)	700 (350·00)	1 (2·56)	1000 (1000·00)	1 (2·56)	200 (200·00)	1 (2·56)	100 (100·00)
	Coop	8 (20·51)	6850 (856·25)	0	..	7 (17·95)	6252 (893·14)	0	..
	Others	0	..	2 (5·13)	2000 (1000·00)	4 (10·26)	7900 (1975·00)	0	..
	All agencies	10 (25·64)	7550 (755·00)	3 (7·69)	3000 (1000·00)	12 (30·77)	14352 (1196·00)	1 (2·56)	100 (100·00)

TABLE 2.9—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(5) . . .	Block . .	0	..	0	..	0	..	0	..
	Coop.. . .	0	..	0	..	1 (7·14)	400 (400·00)	0	..
	Others . .	0	..	0	..	0	..	1 (7·14)	4000 (4000·00)
	All agencies .	0	..	0	..	1 (7·14)	400 (400·00)	1 (7·14)	4000 (4000·00)
(6)	Block . .	0	..	0	..	0	..	0	..
	Coop. . .	1 (33·33)	1200 (1200·00)	0	..	1 (33·33)	1350 (1350·00)	1 (33·33)	3000 (3000·00)
	Others . .	0	..	0	..	0	..	0	..
	All agencies .	1 (33·33)	1200 (1200·00)	0	..	1 (33·33)	1350 (1350·00)	1 (33·33)	3000 (3000·00)
			Jowar						
Maharashtra . . .	Block . .	Nil	..	Nil	..	18	5472	Nil	..
	All agencies .	Nil	..	Nil	..	18	5472	Nil	..
Mysore	Deptt. . . .	Nil	..	Nil	..	3	2473	Nil	..
	Others . . .	Nil	..	Nil	..	Nil.	..	1	1920
	All agencies . .	Nil	..	Nil	..	3	2473	1	1920
All States	Block . . .	Nil	..	Nil	..	18 (23·08)	5472 (304·00)	Nil	..
	Deptt. . . .	Nil	..	Nil	..	3(3·85)	2473 (824·33)	Nil	..
	Other . . .	Nil	..	Nil	..	Nil	..	1 (1·28)	1920 (1920·00)
	All agencies . .	Nil	..	Nil	..	21 (26·92)	7945 (378·33)	1 (1·28)	1920 (1920·00)

(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Size groups	(1)	All agencies	Nil	..	Nil	..	Nil	..	Nil	..
	(2)	Block	Nil	..	Nil	..	1 (12·50)	152 (152·00)	Nil	..
		Deptt.	Nil	..	Nil	..	1 (12·50)	975 (975·00)	Nil.	..
		All agencies	Nil	..	Nil	..	2 (25·00)	1127 (563·50)	Nil	..
	(3)	Deptt.	Nil	..	Nil	..	1 (6·67)	670 (670·00)	Nil	..
		All agencies	Nil	..	Nil	..	1 (6·67)	670 (670·00)	Nil	..
	(4)	Block	Nil	..	Nil	..	5 (25·00)	1216 (243·10)	Nil	..
		Deptt.	Nil	..	Nil	..	1 (5·00))	828 (828·00)	Nil	..
		All agencies	Nil	..	Nil	..	6 (30·00)	2044 (340·67)	Nil	..
	(5)	Block	Nil	..	Nil	..	12 (48·00)	4104 (342·00)	Nil	..
		Others	Nil	..	Nil	..	Nil	..	1 (4·00)	1920 (1920·00
		All agencies	Nil	..	Nil	..	12 (48·00)	4104 (342·00)	1 (4·00)	1920 (1920·00)
	(6)	All agencies	Nil	..	Nil	..	Nil	..	Nil	..

(Figures in brackets in cols. 3, 5, 7 and 9 are P.C. of participants getting credit and in Cols. 4, 6, 8 and 10 are the average amount per reporting participants).

TABLE 2·10 (A) : *Particulars of loans disbursed by various agencies by rates of interest during rabi 1967-68.*

State	Agency	Amount	% of loans given in cash.	Total No. of loans taken	No. of loans according to rates of interest				
					Less than 10%	10-15%	15-20%	20% or more	Not reported
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
			WHEAT						
Bihar	Block/Deptt.	4617	0·00	12	12	0	0	0	0
	All agencies	4617	0·00	12	12	0	0	0	0
Haryana	Block/Deptt.	3421	0·00	11	11	0	0	0	0
	Coop.	3800	68·42	5	5	0	0	0	0
	All agencies	7221	36·01	16	16	0	0	0	0
Maharashtra	Coop.	2798	24·95	4	4	0	0	0	0
	All agencies	2798	24·95	4	4	0	0	0	0
Punjab	Coop.	15359	20·83	29	29	0	0	0	0
	All agencies	15359	20·83	29	29	0	0	0	0
Rajasthan	Block/Deptt	1400	0·00	1	1	0	0	0	0
	All agencies	1400	0·00	1	1	0	0	0	0
U. P.	Block/Deptt	7850	0·00	52	52	0	0	0	0
	Coop.	721	0·00	4	4	0	0	0	0
	All agencies	8571	0·00	56	56	0	0	0	0
All States	Block/Deptt	17288	0·00	76	76	0	0	0	0
	Coop,	22678	28·65	42	42	0	0	0	0
	All agencies	39966	16·26	118	118	0	0	0	0

TABLE 2·10 (a)—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
			PADDY						
All Pradesh	Coop.	500	100·00	1	1	0	0	0	0
	Others	7050	100·00	12	0	3	5	4	0
	All agencies	7550	100·00	13	1	3	5	4	0
Kerala	Block/Deptt.	10875	91·18	11	11	0	0	0	0
	Coop.	9210	20·85	16	16	0	0	0	0
	All agencies	20035	58·85	27	27	0	0	0	0
Madras (Tamilnadu)	Block/Deptt.	1955	0·00	8	8	0	0	0	0
	Coop	1600	68·75	2	2	0	0	0	0
	All agencies	3555	30·94	10	10	0	0	0	0
Orissa	Coop.	5075	4·93	10	0	10	0	0	0
	All agencies	5075	4·93	10	0	10	0	0	0
W. Bengal	Block/Deptt.	125	100·00	2	2	0	0	0	0
	All agencies	125	100·00	2	2	0	0	0	0
All States	Block/Deptt,	12905	77·45	21	21	0	0	0	0
	Coop.	16385	23.01	29	19	10	0	0	0
	Others	7050	100·00	12	0	3	5	4	0
	All agencies	36340	57·28	62	40	13	5	4	0
			WHEAT						
Maharashtra	Nil.	..	..	..	..	..	..	..	..
Mysore	Nil.	..	..	..	..	..	..	..	..

TABLE 2·10 (b): *Particulars of loans disbursed by various agencies by rates of interest, etc during rabi 1968-69, crop-wise.*

State	Agency	Amount	% of loans given in cash	Total No. of loans taken	No. of loans, according to rates of interest.				
					Less than 10%	10-15%	15-20%	20% or more	Not reported
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
			WHEAT						
Bihar	Block/Deptt.	4080	9·80	8	8	0	0	0	0
	All agencies	4080	9·80	8	8	0	0	0	0
Haryana	Block/Deptt.	16368	0·00	29	29	0	0	0	0
	Coop.	9074	44·08	16	16	0	0	0	0
	All agencies	25442	15·72	45	45	0	0	0	0
Maharashtra	Coop.	5996	31·22	6	6	0	0	0	0
	All agencies	5996	31·22	6	6	0	0	0	0
Punjab	Coop.	46613	10·60	76	76	0	0	0	0
	Others	500	100·00	1	0	0	0	0	0
	All agencies	47113	11·55	77	76	0	0	0	1
Rajasthan	Others	4000	100·00	1	0	0	1	0	0
	All agencies	4000	100·00	1	0	0	1	0	0
U.P.	Block/Deptt.	19071	0·00	73	73	0	0	0	0
	Coop.	5130	10·92	16	14	0	0	2	0
	Others	710	97·18	4	0	1	0	3	0
	All Agencies	24911	5·02	93	87	1	0	5	
All States	Block/Deptt.	39519	1·01	110	110	0	0	0	0
	Coop.	66813	17·02	114	112	0	0	2	0
	Others	5210	99·62	6	0	1	1	3	1
	All agencies	111542	15·21	230	222	1	1	5	1

TABLE 2·10 (b)—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
			PADDY						
A. Pradesh	Coop.	3850	100·00	4	4	0	0	0	0
	Others	20750	100·00	21	0	9	7	5	0
	All agencies	24600	100·00	25	4	9	7	5	0
Kerala	Coop.	7834	16·59	13	13	0	0	0	0
	All agencies	7834	16·59	13	13	C	0	0	0
Madras (Tamilnadu)	Block/Deptt.	3435	0·00	15	15	C	0	0	0
	Coop.	6300	64·29	6	6	0	0	0	0
	All agencies	9735	41·60	21	21	0	0	0	0
Orissa	Coop.	6510	10·37	10	9	1	0	0	0
	Others	540	100·00	4	0	0	1	3	0
	All agencies	7050	17·23	14	9	1	1	3	0
West Bengal	Block/Deptt.	200	100·00	1	1	0	0	0	0
	All agencies	200	100·00	1	1	0	0	0	0
All States	Block/Deptt.	3635	5·50	16	16	0	0	0	0
	Coop.	24494	40·32	33	32	1	0	0	0
	Others	21290	100·00	25	0	9	8	8	0
	All agencies	49419	63·47	74	48	10	8	8	0
			JOWAR						
Maharashtra	Block/Deptt.	5472	0·00	18	18	0	0	0	0
	All agencies	5472	0·00	18	18	0	0	0	0
Mysore	Block/Deptt.	2473	9·70	3	3	0	0	0	0
	Others	1920	100·00	1	1	0	0	0	0
	All agencies	4393	49·17	4	4	0	0	0	0
All States	Block/Deptt.	7945	3·02	21	21	0	0	0	0
	Others	1920	100·00	1	1	0	0	0	0
	All agencies	9865	21·90	22	22	0	0	0	0

TABLE 3·1 : *Percentage proportion of participants in each size-group of operational holding of the cultivators and the No. of participants selected.*

State	Percentage of participants in each size-group of operational holding of the cultivators						
	1	2	3	4	5	6	All sizes
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			WHEAT				
Bihar	34·78 (4)	65·91 (9)	60.87 (7)	48·57 (4)	28·57 (6)	100·00 (3)	51·60 (33)
Haryana	33·33 (1)	30·77 (4)	41·98 (14)	48·02 (21)	71·30 (23)	100·00 (4)	50·94 (67)
Maharashtra	..	6·00 (1)	14·12 (3)	42·55 (9)	55·07 (7)	100·00 (3)	31·96 (23)
Punjab	96·77 (1)	98·67 (8)	97·74 (33)	98·65 (50)	98·45 (30)	100·00 (3)	98·28 (125)
Rajasthan	0·00	0·00	12·50 (2)	28·00 (8)	71·79 (17)	100·00 (1)	46·91 (28)
Uttar Pradesh	58·03 (32)	71·28 (41)	81·47 (55)	89·80 (37)	98·39 (6)	80·00 (1)	73·28 (172)
All States	56·70 (38)	66·19 (63)	75·92 (114)	77·81 (129)	81·91 (89)	98·04 (15)	72·76 (448)

TABLE : 3·1—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			PADDY				
Andhra Pradesh	90·25 (9)	10·00 (6)	17·48 (13)	25·00 (9)	52·78 (8)	85·71 (1)	15.47 (46)
Kerala	13·86 (14)	27·96 (11)	45·00 (23)	24·14 (9)	25·00 (1)	100·00 (2)	22·46 (60)
Madras (Tamil Nadu)	52·36 (33)	60·82 (26)	69·40 (18)	69·70 (6)	100·00 (2)	100·00 (—)	57·70 (85)
Mysore		100·00 (1)	100·00 (3)	100·00 (3)	100·00 (1)	—	100.00 (8)
Orissa	85·16 (12)	80·07 (22)	82·50 (17)	89·25 (8)	100·00 (2)	100·00 (—)	83·39 (61)
West Bengal	71·40 (50)	80·86 (22)	79·27 (14)	80·00 (4)	100·00 –	—	74·56 (90)
All States	49·06 (118)	57·47 (88)	60·28 (88)	60·17 (39)	66·10 (14)	92·31 (3)	54·20 (350)
			JOWAR				
Maharashtra	7·20 (1)	8·06 (7)	80·81 (13)	11·91 (17)	17·70 (23)	19·12 (6)	10·65 (67)
Mysore	—	100·00 (1)	100·00 (2)	100·00 (3)	100·00 (2)	100·00 (3)	100·00 (11)
All States	7·20 (1)	8·43 (8)	85·43 (15)	12·64 (20)	18·25 (25)	22·54 (9)	12·02 (78)
All crops/All States	48·87 (157)	54·21 (159)	59·22 (217)	60·34 (188)	58·25 (128)	57·78 (27)	55·36 (876)

Note : Figures in the brackets indicate actual number of participants selected.

TABLE 3.2 : *Distribution of selected participants by year of first adoption and the average area under H.Y. Varieties etc. during Rabi 1968-69*

(Area in Hectares)

State / Size group	No. adopting by year of first adoption					Average area under H.Y.V.P. during		H.Y.V. area as percent to selected crop area during	
	65-66 or earlier	66-67	67-68	68-69	Total	Rabi 1967-68	Rabi 1968-69	Rabi 1967-68	Rabi 1968-69
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
				WHEAT					
Bihar	—	5	7	21	33	0·42	0·85	29·80	48·61
Haryana	1	3	26	37	67	0·48	2·28	14·23	56·87
Maharashtra	..	1	13	9	23	0·91	1·14	63·48	81·74
Punjab	2	18	50	55	125	0·93	2·78	28·12	76·33
Rajasthan	..	5	9	14	28	0·59	2·19	23·67	66·50
Uttar Pradesh	3	22	65	82	172	0·56	0·72	44·41	55·76
All States	6	54	170	218	448	0·67	1·70	29·05	65·88
Size group (1)	..	1	9	28	38	0·02	0·16	10·64	66·07
(2)	1	7	20	35	63	0·17	0·41	28·29	58·38
(3)	..	10	37	67	114	0·32	0·83	25·74	62·58
(4)	2	19	58	50	129	0·72	1·73	27·02	61·97
(5)	1	13	41	34	89	1·27	3·32	30·17	66·80
(6)	2	4	5	4	15	2·42	6·37	36·96	79·74

TABLE : 3·2—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
				PADDY					
Andhra Pradesh	1	1	7	37	46	0·50	2·06	17·04	57·05
Ker	1	2	9	48	60	0·08	0·48	4·95	26·64
Madras (T. Nadu)	9	28	37	11	85	0·47	0·62	58·08	77·66
Mysore	..	..	1	7	8	0·02	0·38	5·08	40·26
Orrisa	1	3	13	44	61	0·16	0·51	13·31	42·52
West Bengal	..	..	63	27	90	0·12	0·23	46·77	67·86
All States	12	34	130	174	350	0·25	0.66	21·75	51·10
Size group (1)	5	12	53	48	118	0·13	0·23	48·44	77·33
(2)	3	7	28	50	88	0·12	0·39	22·31	61·54
(3)	2	7	33	46	88	0·22	0·67	14·32	42.35
(4)	1	5	12	21	39	0·53	1·44	18·81	48.57
(5)	1	2	3	8	14	1·13	3·18	22·14	46·78
(6)	..	1	1	1	3	2·36	2·91	69·99	84·41
				JOWAR					
Maharashtra	..	1	10	56	67	0·24	0·83	5·24	18·13
Mysore	..	..	3	8	11	0·35	1·06	5 34	13 01
All States	..	1	13	64	78	0·26	0·86	5·29	16·95
Size group (1)	.	..	..	1	1	..	0·20	..	100·00
(2)	..	..	1	7	8	0·02	0·43	2·23	64·36
(3)	..	..	2	13	15	0·02	0·37	2·41	37·25
(4)	..	..	3	17	20	0·04	0 49	1·80	19·00
(5)	..	1	3	21	25	0·15	0·83	2·37	13·44
(6)	..	..	4	5	9	1.66	3·06	10.35	16.34

Table 3.3 : *Distribution of participants who have seen trials/demonstrations by the year of seeing and where seen*

State	No. reporting seeing	Year of seeing and where seen							
		1965-66		1966-67		1967-68		1968-69	
		Cultivators' field	Others' field	Cultivators' field	Others' field	Cultivarors' field	Others' field	Cultivators' field	Others' field
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
				WHEAT					
Bihar	5	0	0	2	3	0	0	0	0
Haryana	26	0	1	2	1	25	2	4	0
Maharashtra	0	0	0	0	0	0	0	0	0
Punjab	28	2	0	5	0	27	0	2	0
Rajasthan	1	0	0	0	0	0	1	0	0
Uttar Pradesh	42	2	0	36	0	29	1	0	0
All States	102	4	1	45	4	81	4	6	0
				PADDY					
Andhra Pradesh	39	0	0	3	0	32	3	13	0
Kerala	32	0	0	1	0	20	4	5	1
Madras (Tamilnadu)	40	0	0	7	2	34	4	0	0
Mysore	0	0	0	0	0	0	0	0	0
Orissa	30	0	0	15	0	22	0	0	0

TABLE : 3·3—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
West Bengal	9	0	0	0	0	8	1	0	0
All States	150	0	0	26	2	116	12	18	1
				JOWAR					
Maharashtra	2	0	0	0	0	0	0	1	1
Mysore	4	0	1	1	0	0	1	1	0
All States	6	0	1	1	0	0	1	2	1

Table 3.4 (a) : P.C. of participants reporting awareness of improved practices at preparatory stage of cultivation.

State	Preparatory ploughing	Seed rate	Nursery	Line sowing	Spacing	Line sowing & spacing
(1)	(2)	(3)	(4)	(5)	(6)	(7)
			WHEAT			
Bihar	0·00	66·67	..	9·09	9·09	9·09
Haryana	94·03	100·00	..	82·09	88·06	82·09
Maharashtra	95·65	100·00	..	100·00	100·00	100·00
Punjab	98·40	96·80	..	99·20	98·40	98·40
Rajasthan	100·00	100·00	..	100·00	100·00	100·00
Uttar Pradesh	94·19	95·93	..	90·12	87·79	82·56
All States	88·84	95·09	..	86·61	86·38	83·48
			PADDY			
Andhra Pradesh	100·00	100·00	0·00	0·00	0·00	0·00
Kerala	65.00	80·00	20·00	18·33	75·00	16.67
Madras (Tamil Nadu)	0·00	72·94	67·06	70·59	62·35	62·35
Mysore	62·50	50·00	25·00	25·00	37·50	25·00
Orissa	45·90	77·05	4·92	72·13	72·13	72·13
West Bengal	80·00	96·67	11·11	74·44	74·44	74·44
All States	54·29	84·00	24·00	52·57	60·57	50·29
			JOWAR			
Maharashtra	100·00	100·00	..	100·00	100·00	100·00
Mysore	100·00	100·00	..	100·00	100·00	100·00
All States	100·00	100·00	..	100·00	100·00	100·00

Table 3.4 (b) : P.C. of participants reporting awareness of Basal application of Chemical Fertilizers.

State	N	P	K	Mixture	N+P+K	N+P
(1)	(2)	(3)	(4)	(5)	(6)	(7)
			WHEAT			
Bihar	9·09	9·09	9·09	0·00	9·09	9·09
Haryana	97·01	61·19	2·99	0·00	2·99	61·19
Maharashtra	100·00	52·17	0·00	95·65	0·00	52·17
Punjab	92·00	65·60	31·20	0·00	31·20	65·60
Rajasthan	100·00	53·57	28·57	0·00	28·57	53·57
Uttar Pradesh	61·05	53·49	40·70	15·70	40·12	53·49
All States	75·67	54·69	27·23	10·94	27·01	54·69
			PADDY			
Andhra Pradesh	80·43	71·74	47·83	..	45·65	71·74
Kerala	66·67	66·67	66·67	55·00	66·67	66·67
Madras (Tamil Nadu)	61·18	28·24	2·35	63·53	2·35	28·24
Mysore	25·00	25·00	25·00	12·50	25·00	25·00
Orissa	65·67	63·93	60·66	1·64	60·66	63·93
West Bengal	73·33	55·56	55·56	2·22	55·56	55·56
All States	67·71	53·71	43·71	26·00	43·43	53·71
			JOWAR			
Maharashtra	95·52	58·21	44·78	94·03	44·78	58·21
Mysore	100·00	100·00	81·82	36·36	81·82	100·00
l States	96·15	64·10	50·00	85·90	50·00	64·10

Table 3.4 (c) : P.C. of partic ipants reporting awareness of Other improved practices.

State	Basal Pesticides	Hoeing & weeding	Irrigation	Seed treatment	Preventive preparatory plant protection
(1)	(2)	(3)	(4)	(5)	(6)
		WHEAT			
Bihar	3·03	6·06	9·09	6·06	3·03
Haryana	2·99	98·51	98·51	7·46	2·99
Maharashtra	..	100·00	100·00	39·13	4·35
Punjab	13·60	98·40	98·40	40·00	9·60
Rajasthan	71·43	100·00	100·00	85·71	3·57
Uttar Pradesh	26·74	90·70	98·84	42·44	20·35
All States	19·20	88·84	92·19	36·38	11·61
		PADDY			
Andhra Pradesh	..	100·00	100·00	54·35	97·83
Kerala	1·67	80·00	78·33	56·67	76·67
Madras (Tamil Nadu)	..	89·41	20·00	61·18	84·71

TABLE 3·4 (c)—*Contd.*

(1)	(2)	(3)	(4)	(5)	(6)
Mysore	12·50	75·00	75·00	25·00	75·00
Orissa	..	59·02	52·46	44·26	47·54
West Bengal	..	81·11	34·44	6·67	83·33
All States	0·57	81·43	51·14	41·71	78·00
	JOWAR				
Maharashtra	..	100·00	108·00	17·91	100·00
Mysore	63·64	100·00	100·00	100·00	81·82
All States	8·97	100·00	100·00	29·49	97·44

Table 3.5 : Distribution of plots by depth and number of ploughings at preparatory stage.

State/size group	Total No. of plots	No. of plots ploughed with						Plots by depth of ploughing in centimeters			No. of plots using roller/ planks	No. having basal pesticides
		Tractor	Iron plough		Desi plough			Less than 10	10-15	More than 15		
			Less than 4 times	4 times or more	Less than 4 times	4—6 times	More than 6 times					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
					WHEAT							
Bihar	65	2	9	0	34	27	0	29	32	0	60	5
Haryana	206	67	84	72	96	21	30	0	170	5	208	4
Maharashtra	36	0	36	0	0	0	0	0	35	1	0	0
Punjab	383	83	87	286	128	9	1	60	240	74	313	8
Rajasthan	50	8	8	38	5	8	1	0	0	48	0	8
Uttar Pradesh	418	33	109	108	41	147	180	54	358	5	418	64
All States	1160	193 (16·7)	333 (28·8)	504 (43·6)	304 (26·3)	212 (18·3)	212 (18·3)	143 (12·4)	835 (72·2)	133 (11·5)	999 (86·4)	89 (7·7)

TABLE 3·5—*Contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Size groups (1)	49	1 (2·0)	8 (16·3)	2 (4·1)	3 (6·1)	25 (51·0)	18 (36·7)	4 (8·2)	44 (89·8)	0 (0·0)	49 (100·0)	14 (28·6)
(2)	107	15 (14·0)	29 (27·1)	18 (16·8)	22 (20·6)	26 (24·3)	39 (36·5)	17 (15·9)	87 (81·3)	3 (2·8)	103 (96·3)	12 (11·2)
(3)	262	18 (7·0)	54 (20·9)	110 (42·6)	55 (21·3)	74 (28·7)	61 (2·6)	30 (11·6)	201 (77·9)	26 (10·1)	228 (88·4)	18 (7·0)
(4)	369	57 (15·5)	120 (32·5)	186 (50·4)	108 (29·3)	50 (13·6)	69 (18·7)	70 (19·0)	247 (67·0)	38 (10·3)	324 (87·8)	26 (7·1)
(5)	314	80 (25·5)	99 (31·5)	166 (52·9)	92 (29·3)	33 (10·5)	25 (8·0)	19 (6·1)	207 (65·9)	62 (19·8)	250 (79.6)	11 (3·5)
(6)	59	22 (37·3)	23 (39·0)	22 (37·3)	24 (40·7)	4 (6·8)	0 (0·0)	3 (5·1)	49 (83·1)	4 (6·7)	45 (76·3)	8 (13·6)
PADDY												
Andhra Pradesh	60	38	0	0	30	6	2	0	1	0	6	0
Kerala	75	12	0	0	2	22	46	0	2	0	32	0
Mysore	9	0	5	0	6	1	0	0	9	0	1	0
Orissa	143	4	0	0	70	73	0	50	4	0	0	0
Madras (Tamilnadu)	133	2	4	39	41	8	44	0	0	0	0	
West Bengal	166	0	0	0	112	54	0	0	0	0	0	0
All States	586	56 (9·6)	9 (1·5)	39 (6·7)	261 (44·5)	164 (30·0)	92 (15·7)	50 (8·5)	16 (2·7)	0 (0·0)	39 (6·7)	0 (0·0)

TABLE 3·5 : *Contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Size/groups (1) . . .	174	9	2	6	100	45	17	3	2	0	10	0
		(5·2)	(1·2)	(3·5)	(57·5)	(25·9)	(9·8)	(2·7)	(1·2)	(0·0)	(5·8)	(0·0)
(2) . . .	156	5	1	11	61	47	33	9	2	0	9	0
		(3·2)	(0·6)	(7·1)	(39·1)	(30·1)	(21·2)	(5·8)	(1·3)	(0·0)	(5·8)	(0·0)
(3) . . .	170	12	4	18	57	58	32	20	6	0	10	0
		(7·1)	(2·4)	(10·6)	(33·5)	(34·1)	(18·8)	(11·8)	(3·5)	(0·0)	(5·9)	(0·0)
(4) . . .	58	9	2	1	35	10	8	16	5	0	8	0
		(15·5)	(3·5)	(1·7)	(60·3)	(17·2)	(13·8)	(27·6)	(86·2)	(0·0)	(13·8)	(0·0)
(5) . . .	21	14	0	3	7	1	0	2	1	0	0	0
		(66·7)	(0·0)	(14·3)	(33·3)	(4·8)	(0·0)	(9·5)	(4·8)	(0·0)	(0·0)	(0· 0
(6) . . .	7	7	0	0	1	3	2	0	0	0	2	0
		(100·0)	(0·0)	(0·0)	(14·3)	(42·9)	(28·6)	(0·0)	(0·0)	(0·0)	(28·6)	(0·0)
					JOWAR							
Maharashtra	72	4	68	0	0	0	0	0	20	48	59	0
Mysore	12	5	1	0	11	0	0	0	10	2	0	5
All States	84	9	69	0	11	0	0	0	30	50	59	5
		(10·7)	(82·1)	(0·0)	(13·1)	(0·0)	(0·0)	(0·0)	(35·7)	(59·5)	(70·2)	(6·0)

TABLE 3·5 : *Contd.*

(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Size groups	(1)	1	0	1	0	0	0	0	0	0	1	1	0
			(0·0)	(100·0)	(0·0)	(0·0)	(0·0)	(0·0)	(0·0)	(0·0)	(100·0)	(100·0)	(0·0)
	(2)	8	0	7	0	1	0	0	0	2	6	6	1
			(0·0)	(87·5)	(0·0)	(12·5)	(0·0)	(0·0)	(0·0)	(25·0)	(75·0)	(75·0)	(12·5)
	(3)	15	3	12	0	1	0	0	0	4	10	11	0
			(20·0)	(80·0)	(0·0)	(6·7)	(0·0)	(0·0)	(0·0)	(36·7)	(66·7)	(73·3)	(0·0)
	(4)	20	2	17	0	3	0	0	0	9	10	14	2
			(0·0)	(85·0)	(0·0)	(15·0)	(0·0)	(0·0)	(0·0)	(45·0)	(50·0)	(70·0)	(10·0)
	(5)	28	1	25	0	2	0	0	0	8	19	22	0
			(3·6)	(89·3)	(0·0)	(7·1)	(0·0)	(0·0)	(0·0)	(28·6)	(67·9)	(78·6)	(0·0)
	(6)	12	3	7	0	4	0	0	0	7	4	5	2
			(25·0)	(58·3)	(0·0)	(33·3)	(0·0)	(0·0)	(0·0)	(58·3)	(33·3)	(41·7)	(16·7)

NOTE : Percentages in brackets in respective columns correspond to Col. 2 which represents total No. of plots.

TABLE 3.6 (a): *Distribution of plots according to basal doses of Nitrogenous and Phosphatic Fertilizers, Cropwise.*

State	Plots using any chemical fertilisers	'N' type by doses (Kgs. per hectare of Ammonium Sulphate)				'P' types by doses (Kgs. per hectare of Super phosphate)			
		Below 173	173 to 244	245 to 368	369 & above	Below 173	173 to 244	245 to 368	369 & above
(1)	(2)	(3)	4	(5)	(6)	(7)	(8)	(9)	(10)
				WHEAT					
Bihar . . . . . (65)	54	50	0	0	0	13	15	13	9
Haryana . . . . (208)	146	111	8	19	8	1	5	6	65
Maharashtra . . . . (36)	30	2	0	2	1	0	1	0	2
Punjab . . . . (383)	293	196	18	38	5	92	28	15	61
Rajasthan . . . . (50)	32	19	9	1	1	21	4	0	0
Uttar Pradesh . . . (418)	347	167	29	60	53	38	48	91	72
All States . . . . (1160)	902	545	64	120	68	165	101	125	209
	(77·8)	(47·0)	(5·5)	(10·3)	(6·9)	(14·2)	(8·7)	(10·8)	(18·0)
				PADDY					
Andhra Pradesh . . (60)	55	11	3	14	24	12	14	18	3
Kerala . . . . (75)	51	15	3	3	4	4	0	5	4
Madras (T. Nadu) . . (133)	96	23	2	4	2	7	1	4	4
Mysore . . . . . (9)	5	1	0	0	2	1	0	3	0
Orissa . . . . . (143)	124	67	9	29	18	26	1	37	31

TABLE 3·6 (a) : *Contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
West Bengal . . . . (166)	127	60	21	19	2	34	15	9	2
All States . . . . (586)	458	177	38	69	52	84	31	76	44
	(78·2)	(30·2)	(6·5)	(11·8)	(8·9)	(14·3)	(5·3)	(13·0)	(7·5)
				JOWAR					
Maharashtra . . . . (72)	51	4	0	1	1	2	0	0	0
Mysore . . . . (12)	8	2	0	2	1	2	0	2	3
All States . . . . (84)	59	6	0	3	2	4	0	2	3
	(70·2)	(7·1)	(0·0)	(3·6)	(2·4)	(4·8)	(0·0)	(2·4)	(3.6)

NOTE : Figures in the brackets in Col. 1. indicate the total number of plots of the selected participants in each State.

TABLE 3.6 (b): *Distribution of plots according to basal doses of Potassic Fertilizers and grades, cropwise.*

State	Plots using any type of chemical Fertilizers	'K' types by doses (Kgs. per hectare of potassic)				Grades (kgs. per hectare)			
		Below 74	74—96	97—121	122 & above	Below 173	173—244	245—368	369 & above
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
				WHEAT					
Bihar	54	9	0	0	0	0	0	0	0
Haryana	146	1	3	0	0	0	0	0	0
Maharashtra	30	0	0	0	0	0	0	21	3
Punjab	293	35	1	0	0	0	0	0	0
Rajasthan	32	4	0	0	2	0	0	0	0
Uttar Pradesh	347	105	66	13	4	28	7	7	6
All States	902	154	70	13	6	28	7	28	9
		(13·3)	(6·0)	(1·1)	(0·5)	(2·4)	(0·6)	(2·4)	(0·8)
				PADDY					
Andhra Pradesh	55	9	4	1	2	0	0	2	0
Kerala	51	3	0	0	6	7	3	10	13
Madras (Tamil Nadu)	96	0	0	0	[illegible]	16	12	9	37
Mysore	5	0	0	0	0	1	0	[illegible]	-

TABLE 3·6 (a)—*Contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Orissa	124	25	3	0	8	0	0	0	0
West Bengal	127	58	13	7	4	8	2	0	1
All States	458	95	20	8	20	32	17	21	51
		(16·2)	(3·4)	(1·4)	(3·4)	(5·5)	(2·9)	(3·6)	(8·7)
				JOWAR					
Maharashtra	51	0	0	0	0	7	1	34	3
Mysore	8	3	0	1	3	0	0	0	0
All States	59	3	0	1	3	7	1	34	3
		(3·6)	(0·0)	(1·2)	(3·6)	(8·3)	(1·2)	(40·5)	(3·6)

TABLE 3.7 (a) : *Number of plots and average dose of basal application of Chemical Fertilizers under (a) all areas*

(Ave. dose in Kg./Hectare)

State/Size group	Total plots	'N' Type		'P' Type		'K' Type		Grades	
		No.	Av. dose	No.	Av. dose	No.	Av. dose	No.	Av. dose
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
				WHEAT					
Bihar	65	50	79·3	50	222·6	9	30·9	0	..
Haryana	208	146	150·5	77	395·9	4	74·1	0	..
Maharashtra	36	5	272·8	3	344·5	0	..	24	270·8
Punjab	383	257	152·5	196	220·7	36	42·0	0	..
Rajasthan	50	30	125·0	25	88·7	6	117·9	0	..
U.P.	418	309	194·0	245	284·9	188	57·1	48	180·9
All States	1160	797	155·2	596	248·8	243	54·1	72	243·4
Size group (1)	49	33	173·0	28	276·0	18	70·4	6	142·8
(2)	107	79	160·9	54	267·1	26	64·7	3	118·9
(3)	262	166	181·1	114	218·2	63	61·0	20	180·9
(4)	369	263	172·7	210	252·8	64	49·7	26	233·0
(5)	314	223	139·4	159	260·6	67	53·1	9	302·0
(6)	59	33	132·4	31	254·3	5	44·5	8	247·1
				PADDY					
Andhra Pradesh	60	52	298·5	47	251·1	16	65·5	2	247·1
Kerala	75	25	224·4	13	320·7	9	107·0	33	288·6

TABLE 3·7 (a)—*Contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Madras (T. Nadu)	133	31	102·8	16	199·9	0	—	74	397·3
Mysore	9	3	250·1	4	213·3	0	—	1	148·3
Orissa	143	123	184·3	95	360·8	36	37·6	0	..
West Bengal	166	102	142·3	60	144·6	82	55·1	11	158·6
All States	586	336	231·5	235	270·3	143	63·2	121	341·5
Size group : (1)	174	96	261·4	62	219·2	58	51·6	31	461·8
(2)	156	83	230·5	55	255·3	25	74·4	42	335·5
(3)	170	101	216·7	72	231·3	34	52·9	37	316·8
(4)	58	39	191·7	30	298·5	15	47·4	9	277·3
(5)	21	11	269·1	10	301·0	8	66·7	1	123·6
(6)	7	6	394·9	6	352·9	3	173·0	1	1235·5
JOWAR									
Maharashtra	72	6	116·4	2	67·2	0	..	45	202·4
Mysore	12	5	294·6	7	302·5	7	104·8	0	..
All States	84	11	155·9	9	176·2	7	104·8	45	202·4
Size group : (1)	1	0	..	0	..	0	..	1	247·1
(2)	8	0	..	1	160·1	1	29·7	5	247·1
(3)	15	4	362·2	1	400·3	1	98·8	5	219·4
(4)	20	3	173·0	2	280·0	2	98·8	10	226·1
(5)	28	0	..	0	..	0	..	21	251·3
(6)	12	4	105·8	5	162·1	3	119·1	3	99·6

TABLE 3.7(b): *Number of plots and the average dose of basal application of chemical fertilizers in Package areas for wheat and paddy crops.*

(Av. dose in Kg/Hectare)

State/Size group	Total plots.	'N' type		'P' type		'K' type		Grades.	
		No.	Av. dose	No.	Av. dose	No.	Av. dose	No.	Av. dose
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
WHEAT									
Punjab	112	103	191·0	88	264·9	32	42·0	0	—
Uttar Pradesh	122	78	140·6	61	241·4	48	41·3	13	124·8
All States.	234	181	179·9	149	259·5	80	41·8	13	124·8
Size group : (1)	2	0	..	0	..	0	..	0	..
(2)	9	6	86·7	6	179·4	4	44·7	0	..
(3)	52	32	190·8	24	180·1	17	51·2	5	127·5
(4)	107	84	180·4	75	267·9	17	37·3	8	123·6
(5)	56	53	162·8	38	239·2	42	41·5	0	..
(6)	8	6	274·3	6	405·3	0	..	0	..
PADDY									
Andhra Pradesh	47	41	374·1	30	247·1	13	65·2	2	247·1
Kerala	43	9	279·7	7	344·7	7	101·1	21	278·0
Madras (T. Nadu)	42	18	76·4	16	199·9	0	—	6	97·9

TABLE 3·7 (b)—*Contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Orissa	56	49	180·4	49	373·9	13	29·2	0	.
West Bengal	55	22	79·8	7	31·9	16	37·6	0	.
All States	243	139	261·7	117	282·4	49	61·8	29	250·8
Size group : (1)	39	13	446·5	10	284·7	5	33·3	2	178·4
(2)	47	24	275·3	23	263·9	5	74·1	2	290·6
(3)	96	57	222·9	46	232·5	16	40·0	20	251·3
(4)	36	28	210·0	22	308·4	12	38·5	4	266·4
(5)	19	11	269·1	10	301·0	8	66·7	1	123·6
(6)	6	6	395·1	6	352·9	3	61·8	0	..

NOTE : There are no selected package blocks in Bihar, Haryana, Maharashtra and Rajasthan for wheat crop and in Mysore for paddy crop.

TABLE 3.7(c) : *Number of plots and the average dose of basal application of Chemical Fertilizers for owner cultivators crop-wise.*

(Av. dose in Kg./Hectare).

State/Size group	Total plots	'N' types		'P' types		'K' types		Grades.	
		No.	Av. dose	No.	Av. dose	No.	Av. dose	No.	Av. dose
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
				WHEAT					
Bihar	65	50	79·3	50	222·6	9	30·9	0	..
Haryana	187	136	145·8	75	395·6	4	74·1	0	..
Maharashtra	36	5	272·8	3	344·5	0	..	24	270·8
Punjab	323	216	146·5	170	202·4	26	32·9	0	..
Rajasthan	33	19	122·3	16	89·5	6	117·9	0	..
Uttar Pradesh	418	309	194·0	245	284·9	188	57·1	48	180·9
All States	1062	735	152·0	559	244·6	233	53·6	72	243·4
Size group : (1)	49	33	173·0	28	276·0	18	70·4	6	142·8
(2)	102	78	161·4	53	265·9	25	63·8	3	118·9
(3)	237	151	182·4	110	217·5	63	61·0	20	180·9
(4)	329	235	171·7	91	252·8	60	51·4	26	233·0
(5)	296	211	139·1	52	250·6	62	50·4	9	302·0
(6)	49	27	107·0	25	222·1	5	44·5	8	247·1
				PADDY					
Andhra Pradesh	51	44	284·4	39	267·6	14	66·2	2	247·1
Kerala	25	11	158·1	8	215·7	5	115·9	14	295·5

TABLE 3·7 (c)—*Contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Madras (T. Nadu)	115	28	100·3	16	199·9	0	..	66	405·3
Mysore	9	3	323·2	4	233·8	0	..	1	148·3
Orissa	105	100	181·1	90	366·0	27	35·1	0	..
West Bengal	154	98	140·1	58	142·1	80	54·6	11	158·6
All States	459	284	216·0	215	275·8	126	59·0	94	356·1
Size group : (1)	139	87	267·6	59	217·2	55	49·4	24	455·7
(2)	119	69	195·5	51	262·7	23	71·4	34	349·9
(3)	125	77	203·1	62	233·5	24	50·9	28	325·4
(4)	54	34	170·7	27	324·4	13	45·5	6	303·7
(5)	15	11	269·1	10	301·0	8	66·7	1	123·6
(6)	7	6	379·3	3	308·9	0	..	1	1235·5
JOWAR									
Maharashtra	72	6	116·4	2	67·2	0	..	45	202·4
Mysore	12	5	294·6	7	302·5	7	104·8	0	..
All States	84	11	155·9	9	176·2	7	104·8	45	202·4
Size group : (1)	1	0	..	0	..	0	..	1	247·1
(2)	8	0	..	1	160·1	1	29·7	5	247·1
(3)	15	4	362·3	1	400·3	1	98·8	5	219·4
(4)	20	3	173·0	2	280·0	2	98·8	10	226·1
(5)	28	0	..	0	..	0	..	21	251·3
(6)	12	4	105·8	5	162·1	3	104·8	3	99·6

TABLE 3.7(*d*) : *Number of plots and the average dose of basal application of chemical fertilizers for tenant cultivators, cropwise.*

State/Size group	Total plots.	'N' types		'P' types		'K' types		Grades.	
		No.	Av. dose	No.	Av. dose	No.	Av. dose	No.	Av. dose
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
			WHEAT						
Haryana	21	10	232·0	2	405·3	0	..	0	..
Punjab	60	41	188·3	26	356·6	10	56·8	0	..
Rajasthan	17	11	135·2	9	84·5	0	..	0	..
All States	98	62	185·3	37	302·2	10	56·8	0	..
Size group : (1)	0	..	..	..	..	..	..	..	..
(2)	5	1	143·6	1	288·9	1	71·7	0	..
(3)	25	15	172·0	4	242·9	0	..	0	..
(4)	40	28	169·8	19	252·3	4	37·1	0	..
(5)	18	12	148·0	7	247·8	5	61·8	0	..
(6)	10	6	247·3	6	405·3	0	..	0	..
			PADDY						
Andhra Pradesh	9	8	376·1	8	173·2	2	61·8	0	..
Kerala	50	14	281·2	5	407·0	4	104·5	19	280·5
Madras (T. Nadu)	18	3	147·3	0	..	0	..	8	324

TABLE 3·7 (d)—*Contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Orissa	38	23	219·2	5	269·8	9	95·6	0	..
West Bengal	12	4	228·1	2	252·5	2	76·8	0	..
All States	127	55	325·2	23	237·5	20	85·3	27	291·3
Size Group (1)	35	9	156·7	3	287·4	3	105·3	7	498·9
(2)	37	14	478·2	4	217·7	2	82·3	8	272·3
(3)	45	24	266·1	10	222·1	10	58·6	9	284·2
(4)	4	5	337·5	3	152·0	2	51·9	3	239·9
(5)	6	0	..	0	..	0	..	0	..
(6)	0	..	..	..	..	..	..	..	..

NOTE : There are no tenant cultivators in the selected blocks of Bihar, Maharashtra and Uttar Pradesh for wheat crop and in Mysore for paddy crop. There are no tenant cultivators in all the selected Blocks for Jowar crop.

TABLE 3.8 : *Distribution of sowings of HYV wheat and hybrid jowar according to seed rate and method of sowing*

State/Size group	Total No. of plots	Seed rate used			Depth of seed drilling			Ave. depth in centi-meters
		Below re-commen-ded	Recom-mended	Above re-commen ded	2·5 3c.m.	5·0 c.m.	More than 5·0 c.m.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
				WHEAT				
Bihar	65	54	3	4	61	0	0	0·00
Haryana	208	122	39	47	0	208	0	5·05
Maharashtra	36	18	13	5	13	23	0	3·29
Punjab	383	221	63	99	0	363	0	4·80
Rajasthan	50	26	9	15	0	50	0	5·31
Uttar Pradesh	418	362	26	30	8	410	0	6·32
All States	1160	803	153	200	82	1074	0	5·05
		(69·2)	(13·2)	(17·2)	(7·1)	(92·6)		
Size group : (1)	49	49	0	0	5	44	0	4·80
(2)	107	102	4	1	16	91	0	4·60
(3)	262	214	29	15	22	236	0	5·05
(4)	369	260	49	60	14	355	0	5·56
(5)	314	162	62	90	19	295	0	5·05
(6)	59	16	9	340	6	53	0	4·30

TABLE 3.8—*Contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Maharashtra	72	46	15	11	0	72	0	6·07
Mysore	12	7	1	4	0	12	0	10·62
All States	84	53 (63·0)	16 (19·0)	15 (18·0)	0	84 (100·0)	0	6·57
Size group :— (1)	1	1	0	0	0	1	0	5·05
(2)	8	6	1	1	0	8	0	5·31
(3)	15	13	1	1	0	15	0	5·81
(4)	20	16	1	3	0	20	0	7·08
(5)	28	12	12	4	0	28	0	6·82
(6)	12	5	1	6	0	12	0	7·58

NOTE : There were 4 cases of non-reporting in Bihar for wheat.

TABLE 3.9 : *Methods of raising nurseries and transplanting operations adopted for high yielding varieties of paddy by the selected participants.*

State/size group	Nurseries particulars					Transplanting operations			
	Nurseries on raised seed bed	Traditional bed	Total	Nurseries reporting		Total plots	Plots by age of plants at the time of transplanting		
				Fertilizer application	Plant protection measures		Less than 20 days	20—34 days	More than 34 days
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Andhra Pradesh	..	48	48	46	48	60	3	51	6
Kerala	24	45	69	47	31	75*	..	62	11
Madras (T. Nadu)	23	75	98	34	22	131	..	75	56
Mysore	..	5	5	3	1	10*	1	6	2
Orissa	1	84	85	65	35	141	1	118	22
West Bengal	6	124	130	93	35	167*	1	96	69
All States]	54	381	435	288	172	584	6	408	166
Size group : (1)	13	134	147	79	36	175	1	112	61
(2)	12	99	111	72	41	152	1	110	41
(3)	21	90	111	81	51	171	1	120	47
(4)	5	43	48	41	29	58	..	45	13
(5)	2	12	17	11	11	21	3	14	4
(6)	1	3	4	4	4	7	..	7	..

*In Kerala, Mysore and West Bengal for 2,1,1 plots respectively transplanted, the age of plants at the time were not reported.

TABLE 3.10 : *Distribution of plots by interculture operations & top dressing*

State	Total plots	Plots for which interculture attended	Plots by top dressing given in Kgs./hectare					
			Total	Below 173	173 to 245	245 to 371	371 & above	Average dose
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			WHEAT					
Bihar	65	..	..	..	..	..	..	49·69
Haryana	208	160	157	47	15	39	56	112·80
Maharashtra	36	36	33	..	..	14	19	142·32
Punjab	383	353	331	117	28	114	72	90·38
Rajasthan	49	47	45	8	8	14	15	81·07
Uttar Pradesh	418	355	315	186	18	79	32	75·85
All States	1159	951	881	358	69	260	194	92·09
			(76·0)	(30·9)	(5·6)	(22·4)	(16·7)	
			PADDY					
Andhra Pradesh	59	59	59	5	5	19	30	123·77
Kerala	75	62	60	19	7	19	15	93·49
Madras (T. Nadu)	130	126	123	47	17	24	35	86·67
Mysore	9	9	9	..	..	1	8	263·33
Orissa	143	132	132	54	34	32	12	56·43

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
West Bengal	164	162	157	150	6	1	..	29·66
All States	580	550	540	275	69	96	100	95·32
			(93·1)	(47·4)	(11·9)	(16·6)	(17·2)	
		JOWAR						
Maharashtra	72	71	42	22	1	13	6	43·50
Mysore	11	11	11	2	1	5	3	97·85
All States.	83	82	53	24	2	18	9	52·73
			(63·9)	(28·9)	(2·4)	(21·7)	(10·8)	

NOTE : Figures in brackets are percentages to 'total plots' in col. 2.

TABLE 3.11 : *Distribution of plots by total 'N' application in terms of Kgs. of Ammonium Sulphate per hectare.*

State/size group	Total plots	No. of plots reporting	No. of plots by doses					
			Ave. dose	Below 173	173 to 245	245 to 371	371 to 618	618 & above
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			WHEAT					
Bihar	65	54	189.16	25	12	7	10	..
Haryana	208	197	398.75	24	15	55	76	27
Mabarashtra	36	33	370.88	..	..	12	17	4
Punjab	383	368	336.56	57	41	103	139	28
Rajasthan	49	48	288.25	4	6	15	18	5
Uttar Pradesh	418	394	347.28	83	36	100	133	42
All States	1159	1094 (94·4)	342·83	193 (16·7)	110 (9·5)	292 (25·2)	393 (33·9)	106 (9·1)
Size group : (1)	49	44	265·12	11	6	13	13	1
(2)	106	97	316·42	18	5	26	42	6
(3)	262	235	291·76	65	20	55	73	22
(4)	369	358	359·05	64	34	98	129	33
(5)	314	307	353·46	30	42	84	113	38
(6)	59	53	335·57	5	3	16	23	6

TABLE 3.11:—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			PADDY					
Andhra Pradesh	59	59	575·11	..	..	7	14	38
Kerala	75	71	288·69	17	7	22	15	10
Madras (T. Nadu)	130	127	238·93	45	10	35	29	8
Mysore	9	9	784·14	..	..	1	4	4
Orissa	143	142	315·48	11	21	45	53	12
West Bengal	164	161	152·76	103	14	33	11	..
All States.	580	569 (98·1)	389·59	176 (30·3)	52 (9·0)	143 (24·7)	126 (21·7)	72 (12·4)
Size group (1)	172	167	339·28	75	13	35	29	15
(2)	154	151	339·23	40	12	39	47	13
(3)	169	168	395·59	45	17	53	29	24
(4)	58	56	338·63	14	10	11	14	7
(5)	20	20	448·97	2	..	4	7	7
(6)	7	7	752·64	..	..	1	..	6
			JOWAR					
Maharashtra	72	46	119·48	26	1	11	7	1
Mysore	11	11	372.07	2	—	2	4	3
All States.	83	57 (68·7)	162·13	28 (33·7)	1 (1·2)	13 (15·7)	11 (13·3)	4 (4·8)

TABLE 3·11—*contd.*

(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Size group	(1)	1	1	123·55	1	..	..	..	..
	(2)	8	6	103·78	3	..	3	..	..
	(3)	15	12	257·29	3	..	4	3	2
	(4)	20	11	173·81	5	..	2	3	1
	(5)	27	19	144·56	13	..	3	3	..
	(6)	12	8	159·24	3	1	1	2	1

TABLE 3.12 : *Percentage of plots and the average dose of total 'N' applied in package areas for owner cultivators and tenant cultivators.*
(Dose in Kgs per hectare ammonium sulphate)

State/Size group	Plots by total 'N' application.					
	Package areas.		Owner cultivators.		Tenant cultivators	
	Percentage	Av. dose	Percentage	Av. dose	Percentage	Av. dose
(1)	(2)	(3)	(4)	(5)	(6)	(7)
WHEAT						
Bihar	..	..	83·1	189·16	..	..
Haryana	..	..	97·9	396·14	66·7	437·60
Maharashtra	..	..	91·7	370·88	..	..
Punjab	100·00	43 ·32	96·3	329·86	95·0	371·65
Rajasthan	..	..	100·0	263·59	94·1	408·29
U.P.	93·4	253·53	94·3	347·28	..	..
All States	97·0	392·31	94·9	337·99	88·8	384·94
Size group: (1)	50·0	0·0	89·8	265·12	..	..
(2)	100·0	345·95	94·1	317·26	20·0	288·69
(3)	96·2	289·16	89·0	289·44	100·0	309·15
(4)	96·3	400·51	99·9	359·17	90·0	358·01
(5)	100·0	409·18	98·3	348·27	88·9	429·12
(6)	100·0	422·01	89·8	312·34	90·0	422·01

TABLE 3·12 *contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)
PADDY						
Andhra Pradesh	100·0	638·55	100·0	551·81	100·0	772·01
Kerala	100.0	283.58	92.0	279.16	96.2	296.30
Madras (Tamil Nadu)	100·0	251·85	99·1	240·29	88·2	221·21
Mysore	..	..	100·0	512·18	..	..
Orissa	94·6	293·96	100·0	310·88	79·0	359·44
West Bengal	100·0	96·42	100·0	157·18	75·0	102·30
All States	99·6	435·97	100·0	379·65	88·9	444·44
Size group (1)	97·4	548·90	100·0	360·60	76·5	241·84
(2)	95·7	389·69	100·0	332·16	81·1	370·26
(3)	100·0	381·80	98·4	382·87	100·0	436·83
(4)	100·0	385·81	94·4	299·79	100·0	588·04
(5)	100·0	447·76	100·0	448·97	50·0	617·77
(6)	100·0	765·31	71·4	778·38	..	..

TABLE 3.13 : *Villages reporting adoption of plant protection measures and coverage thereunder during rabi seasons of* 1967-68 *and* 1968-69.

(Area in Hectares')

State	No. of selected villages	No. of villages reported to have undertake P. P. measures		Area under preventive P. P. measures		Area as % to total H.Y.V. area in		Area under curative P. P. measures in		Area as % to total area under H.Y.V. area in	
		1967-68	1968-69	1967-68	1968-69	1967-68	1968-69	1967-68	1968-69	1967-68	1968-69
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
					WHEAT						
Bihar . . .	3	2	3	19·76	86·49	23·53	24·14	Nil.	Nil.	0·00	0·00
Haryana . . .	6	Nil.	1	NR	Nil.	NR	0·00	NR	4·94	NR	1·67
Maharashtra . .	3	Nil.	Nil.	NR	NR	NR	NR	NR	NR	NR	NR
Punjab . . .	12	4	4	1010·66	1265·18	25·84	9·60	247·11	555·99	6·32	4·22
Rajasthan . .	3	Nil.	Nil.	NR.	NR	NR	NR	NR	NR	NR	NR
U.P. . . .	18	12	12	894·52	1638·31	43·56	43·65	1092·21	1534·53	53·19	40·88
All States . .	45	18	20	1924·96	2989·98	31·82	16·99	1339·31	2095·46	22·14	11·91
					PADDY						
Andhra Pradesh .	6	4	6	2174·53	4210·69	98·88	100·00	546·10	1183·64	24·83	28·11
Kerala . . .	6	6	6	355·83	1507·35	45·71	85·67	509·03	1737·16	65·40	98·74
Madras (T Nadu) .	9	9	9	4030·30	4981·66	74·37	80·35	2377·16	2560·02	43·87	41·29
Mysore . . .	3	2	2	Nil.	19·76	0·00	100·00	9·88	12·36	100.00	62·50

TABLE 3·13—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Orissa . . .	6	4	3	269·35	1191·05	20·76	41·77	133·44	Nil.	10·29	0·00
West Bengal . .	9	8	9	686·95	1346·73	88·82	86·92	439·85	961·24	56·87	62·04
Alll States. . .	39	33	35	7516·96	13257·24	71·75	79·91	4015·47	6432·17	38·32	38·77
					JOWAR						
Maharashtra . .	9	7	7	543·63	835·22	90·53	89·66	336·06	654·83	55·97	70·29
Mysore . . .	3	2	3	64·25	64·25	70·27	86·67	19·77	64·25	21·62	86·67
All States. . .	12	9	10	607·88	899·47	86·86	89·43	355·83	719·08	51·43	71·50

TABLE 3·14. *Distribution of plots by the adoption of preventive & curative plant protection measures and the extent of effectiveness*

State/size group	Plots reporting preventive plant protection as % to total plots	Plots reporting pest attack as % to total plots	Plots reporting curative plant protection as % of plots reporting pest attack	Distrbution by effectiveness		
				Effective	Partly effective	Not effective
(1)	(2)	(3)	(4)	(5)	(6)	(7)
WHEAT						
Bihar	13·51	..	0.00	0.00	0.00	0.00
Haryana	1·49	..	0·00	0·00	0·00	0·00
Mahrashtra	0·00	2·78	100·00	100·00	0·00	0·00
Punjab	54·64	8·62	30·30	60·00	40·00	0·00
Rajasthan	95·83	..	0·00	0·00	0·00	0·00
Uttar Pradesh	6·70	17·46	71·23	60·00	27·28	12·72
All States	31·02	9·23	58·88	60·61	28·79	10·60
Size group: (1)	2.63	18·37	66·67	100·00	0·00	0·00
(2)	0·00	26·42	64·29	33·33	38·89	27·78
(3)	23·48	11·45	63·33	68·18	31·82	0·00
(4)	36·88	8·94	51·52	58·82	29·41	11·76
(5)	50·77	2·23	42·86	100·0	0·00	0·00
(6)	52.00	..	0·00	0·00	0·00	0·00

TABLE 3·14—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)
			PADDY			
Andhra Pradesh	100·00	42·37	92·00	21·74	56·52	21·74
Kerala	44·62	77·73	98·28	66·67	26·67	6·66
Madras (Tamilnadu)	47·47	66·15	83·72	56·75	40·54	2·71
Mysore	77·78	44·44	100·00	100·00	0·00	0·00
Orissa	77·17	53·85	81·82	90·48	9·52	0·00
West Bengal	77·37	23·17	100·00	28·95	71·05	0·00
All States	69·76	49·66	89·24	60·69	35·11	4·20
Size group: (1)	62·99	47·09	91·36	58·11	37·84	4·05
(2)	68·99	55·19	89·41	57·50	40·00	2·50
(3)	73·13	47·93	91·36	65·34	32·00	2·66
(4)	75·47	48·28	78·57	63·64	27·27	9·09
(5)	84·21	55·00	81·82	55·56	22·22	22·22
(6)	85·71	28·57	100·00	100·00	0·00	0·00
			JOWAR			
Maharashtra	77·78	62·50	95·56	4·65	93·02	2·33
Mysore	81·82	90·91	80·00	55·56	33·33	11·11
All States	78.31	66.27	92.73	13·47	82.69	3.84
Size group : (1)	100·00	100·00	100·00	0·00	100·00	0·00
(2)	50·00	87·50	100·00	0·00	100·00	0·00
(3)	66·67	100·00	100·00	18.75	81·25	0·00
(4)	65·00	65·00	92·31	0·00	83·33	16·67
(5)	96·30	40·74	81·82	0·00	100·00	0·00
(6)	91·67	66·67	87·50	57·14	42·86	0·00

TABLE 3-15 : *Distribution of irrigation sources owned by participants and the proportion acquired since the last two years.*

State/(No. of participants)	No. reporting— 1/% acquired since last two years—2	Tube-wells	Wells with electric pump sets	Wells with oil engines	Pucca wells	Kutcha wells	Tanks	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
				WHEAT					
Bihar (33)	1	0	3	0	1	0	0	0	4
	2	0·00	33·33	0·00	0·00	0·00	0·00	0·00	25·00
Haryana (67)	1	30	0	6	6	0	0	0	42
	2	23·33	0·00	83·33	0·00	0·00	0·00	0·00	28·57
Maharashtra (23)	1	0	6	21	5	0	0	0	32
	2	0·00	16·67	9·52	40·00	0·00	0·00	0·00	15·63
Punjab (125)	1	73	2	10	65	0	0	3	153
	2	38·36	0·00	30·00	0·00	0·00	0·00	0·00	20·26
Rajasthan (28)	1	0	0	0	0	0	0	0	0
	2	0·00	0·00	0·00	0·00	0·00	0·00	0·00	0·00
U. P. (172)	1	13	2	8	94	4	[illegible]	1	122
	2	30·77	50·00	37·50	0·00	100·00	0·00	0·00	9·84
All States (448)	1	116	13	45	171	4	0	4	353
	2	33·63	23·08	28·89	1·17	100·00	0·00	0·00	17·28

TABLE 3.15—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
				PADDY					
Andhra Pradesh (46)	1	0	0	2	0	0	0	0	2
	2	0·00	0·00	0·00	0·00	0·00	0·00	0·00	0·00
Kerala (60)	1	0	0	0	24	40	0	1	65
	2	0·00	0·00	0·00	0·00	0·00	0·00	100·00	1·54
Madras (Tamil Nadu) (85)	1	0	29	3	30	1	0	0	63
	2	0·00	0·00	0·00	0·00	0·00	0·00	0.00	0.00
Mysore (8)	1	0	3	0	0	0	0	0	3
	2	0·00	0·00	0·00	0·00	0·00	0·00	0·00	0·00
Orissa (61)]	1	0	0	0	0	0	2	0	2
	2	0·00	0·00	0·00	0·00	0·00	0·00	0·00	0·00
West Bengal (90)	1	1	0	0	0	0	38	0	39
	2	100.00	0.00	0.00	0.00	0.00	0.00	0.00	2.56
All States (350)	1	1	32	5	54	41	40	1	174
	2	100·00	0·00	0·00	0·00	0·00	0·00	100·0	1·15
				JOWAR					
Maharashtra (67)	1	0	9	26	23	4	0	1	63
	2	00.0	11·11	3·85	4·35	0·00	0·00	100·00	6·35
Mysore (11)]	1	0	0	0	0	0	0	0	0
	2	0·00	0·00	0·00	0·00	0·00	0·00	0·00	0·10
All States (78)	1	0	9	26	23	4	0	1	63
	2	0·00	11·11	3·85	4·35	0·00	0·00	100·00	6·35
All States/ All crops	(1)	(117)	(54)	(76)	(248)	(49)	(40)	(6)	(590)

TABLE 3·16 : *Distribution of plots reporting sufficiency of Irrigation, source-wise*

State	Plots reporting irrigation	No. of plots under the source-1 plots reporting sufficient irrigation-2	Canals	Tube-wells	Wells with engines	Other wells	Tanks	Other sources	All sources
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
			WHEAT						
Bihar	65	1	65	..	..	..	..	..	65
		2	65	..	..	..	..	..	65
Haryana	204	1	97	110	23	4	..	2	204
		2	53	93	12	4	..	2	140
Maharashtra	36	1	26	..	10	..	..	..	36
		2	18	..	10	..	..	..	28
Punjab	383	1	146	220	62	79	..	..	383
		2	64	153	51	43	..	..	249
Rajasthan	49	1	49	..	..	..	..	..	49
		2	2	..	..	..	..	..	2
U. P.	409	1	117	148	42	140	8	24	409
		2	101	138	40	122	4	21	360
All States	1146	1	500 (43·6)	478 (41·7)	137 (12·0)	223 (19·5)	8 (0·07)	26 (0·2)	1146
		2	303	384	113	169	4	23	844

TABLE 3.16—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
				PADDY					
Andhra Pradesh	59	1	58	1	..	..	..	..	59
		2	57	1	..	..	..	..	58
Kerala	66	1	46	..	..	25	1	23	66
		2	44	..	..	22	1	20	60
Madras (Tamil Nadu)	129	1	99	..	21	9	..	..	129
		2	97	..	17	4	..	..	118
Mysore	9	1	4	..	1	..	4	..	9
		2	4	..	..	..	..	..	4
Orissa	143	1	141	..	..	..	2	..	143
		2	107	..	..	..	2	..	109
West Bengal	162	1	..	38	..	..	47	77	162
		2	..	38	..	..	45	77	160
All States	568	1	348 (61·3)	39 (6·9)	22 (3·9)	34 (6·0)	54 (9·5)	100 (17·6)	568
		2	309	39	17	26	48	97	508
				JOWAR					
Maharashtra	69	1	35	..	23	9	..	2	69
		2	32	..	21	9	..	2	64
Mysore	11	1	11	..	..	..	..	..	11
		2	6	..	..	..	..	..	6
All States	80	1	46 (57·5)	..	23 (28·8)	9 (11·3)	..	2 (2·5)	80
		2	38	..	21	9	..	2	70

TABLE 3·17 : *Distribution of plots by no. of waterings/and interval at which done for HYV wheat and hybrid jowar*

State	Total reporting irrigation		No. of waterings done				Intervals at which irrigation given				
	No.	% to total	2 or less	3—5	6—10	11 or more	Below 15 days	15 days to 1 month	1—2 months	2—3 months	3 months or more
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
					WHEAT						
Bihar . .	65	100·00	0	65	0	0	0	4	60	61	34
Haryana .	204	98·08	32	43	125	4	0	160	204	189	146
Maharashtra .	36	100·00	8	28	0	0	4	8	35	32	10
Punjab .	383	99·74	9	94	245	35	2	321	364	373	350
Rajasthan .	49	100·00	0	34	15	0	0	41	47	46	47
U. P. . . .	409	99·03	66	307	36	0	3	284	378	342	251
All States .	1146	99.22	115	571	421	39	9	818	1088	1043	838
					JOWAR						
Maharashtru .	69	100·00	8	59	2	0	15	53	68	57	10
Mysore .	11	100·00	0	1	10	0	9	11	11	11	7
All States .	80	100·00	8	60	12	0	24	64	79	68	17

TABLE 3·18 : *Distribution of paddy plots reporting maintaining water levels during different periods after transplanting.*

State	Number of plots			Distribution of plots reporting water levels for different periods in centimetres					
	Total	Reporting irrigation	Reporting water levels	upto 15 days			16-30 days		
				2·5	5·0	Above 5·0	2·5	5·0	Above 5·0
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Andhra Pradesh	59	59	59	1	4	54	1	2	56
Kerala	75	66	56	7	36	0	4	38	1
Madras (Tamil Nadu)	130	129	128	63	64	0	18	60	50
Mysore	9	9	9	9	0	0	0	0	9
Orissa	143	143	143	15	92	34	1	71	71
West Bengal	164	162	139	78	0	0	44	89	0
All States	580	568	534	173	196	88	68	260	187
				(32·40)	(36·70)	(16·48)	(12·73)	(48·69)	(35·02)

TABLE 3·18—*contd.*

State	Distribution of plots reporting water levels for different periods in centimeters					
	31 to 60 days			61 days and after		
	2·5	5·0	Above 5·0	2·5	5·0	Above 5·0
(1)	(11)	(12)	(13)	(14)	(15)	(16)
Andhra Pradesh	0	2	56	0	1	54
Kerala	17	20	15	4	14	20
Madras (Tamil Nadu)	12	36	77	10	22	75
Mysore	0	0	9	0	0	9
Orissa	0	27	116	16	79	47
West Bengal	51	85	2	125	6	0
All States	80 (14·98)	170 (31·84)	275 (51·50)	155 (29·03)	122 (22·85)	205 (38·39)

TABLE 3·19 : *Percentage distribution of selected participants by adoption of recommended practices in combination (A-Seed treatment; B-Use of chemical fertilizers; C-Preventive plant Protection measures; and D-inter-culture operations).*

State	Total No. of participants reporting	P.C. of participants reporting by various combinations of practices						
		Any one of the four	None of the four	All the four	B+C+D	Any other three in combination	B+any one other	Any other two
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
				WHEAT				
Bihar	33	66·67	21·21	0·00	0·00	3·03	9·09	0·00
Haryana	67	28·36	10·45	1·49	0·00	7·46	49·25	2·99
Maharashtra	23	21·74	0·00	0·00	0·00	17·39	56·52	4·35
Punjab	125	16·00	0·00	15·20	8·80	15·20	41·60	3·20
Rajasthan	27	3·70	0·00	59·27	0·00	37·03	0·00	0·00
U. P.	149	17·46	2·01	2·68	0·67	43·63	29·53	1·02
All States	424	21·93	4·01	9·43	2·83	24·53	34·20	3·07
Package areas	60	15·00	0·00	8·33	18·33	21·67	33·34	3·33
Owner cultivators	384	22·12	4·17	7·55	3·13	25·26	34·64	3·13
Tenants	40	20·00	2·50	27·50	0·00	17·50	30·00	2·50

TABLE 3.19—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
				PADDY				
Andhra Pradesh	43	0·00	0·00	34·88	62·79	0·00	0·00	2·33
Kerala	60	18·33	6·67	6·67	23·33	10·00	28·33	6·67
Madras (T. Nadu)	83	20·48	1·20	8·43	26·52	7·23	30·12	6·02
Mysore	8	12·50	0·00	0·00	37·50	12·50	0·00	37·50
Orissa	61	13·12	4·92	26.23	19·66	4·92	26·23	4·92
West Bengal	88	0·00	0.00	17·05	29·55	17·05	20·45	15·90
All States	343	10·80	2·33	16·62	30·32	9·04	22·15	8·74
Package areas	147	10·88	2·72	15·65	27·22	13·60	18·37	11.56
Owner cultivators	269	9·29	1·49	17·47	31·23	8·92	23·05	8·55
Tenants	74	16·21	5·41	13·51	27·03	9·46	18·92	9·46
				JOWAR				
Maharashtra	67	0·00	0·00	55·22	0·00	37·32	0·00	7·46
Mysore	10	0·00	0·00	60·00	0·00	30·00	0·00	10·00
All States	77	0·00	0·00	55·84	0·00	36·37	0·00	7·79

TABLE 3·20 : *Percentage distribution of selected participants by adoption of chemical fertilisers (N, P and K) in combinations.*

State	% of participants using specific Combination of chemical fertilisers							
	N only	P only	K only	NPK	NP	NK	PK	Grades
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
				WHEAT				
Bihar	..	..	..	3·03	72·73	..	..	..
Haryana	35·82	..	..	1·49	34·33	..	..	..
Maharashtra	13·04	4·35	..	..	4·35	..	..	52·17
Punjab	25·60	9·60	..	6·40	36·80	..	..	..
Rajasthan	14·81	3·70	..	7·41	37·04	..	..	..
U. P.	13·42	..	..	41·61	16·78	1·34	..	9·40
All States	19·58	3·30	..	17·45	30·42	0·47	..	6·13
Package	8·33	..	..	28·33	41·67	1·67	..	3·33
Owner Cultivator	19·01	3·39	..	18·50	29·95	0·53	..	5·78
Tenants	25·00	2·50	..	7·50	35·00	..	..	..
				PADDY				
Andhra Pradesh	6·98	..	..	25·58	65·12	..	..	2·33

TABLE 3.2.—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Kerala	21·67	1·67	1·67	3·33	8·33	1·67	1·67	48.33
Madras (T. Nadu)	14·46	..	..	..	8·43	..	..	61·45
Mysore	..	12·50	..	..	25·00	..	..	12·50
Orissa	9·84	..	..	18·03	50·82	4·92	..	..
W. Bengal	18·18	..	3·41	27·27	3·41	15·91	4·55	4·55
All States	14·58	5·83	1·17	13·99	22·16	5·25	1·46	25·07
Package	10·88	0·68	2·04	10·20	34·69	3·40	1·36	14·97
Owner Cultivator	12·63	0·27	1·11	14·87	26·39	6·32	1·86	23·05
Tenants	21·62	1·35	1·35	10·81	6·76	1·35	0·00	32·43
			JOWAR					
Maharashtra	5·97	..	..	..	1·49	..	..	64·18
Mysore	..	10·00	..	50·00	..	..	10·00	..
All States	5·19	1·30	..	6·49	1·30	..	1·30	55·84

TABLE 4·1 : *Distribution of harvests by per hectare yields in quintals of participant cultivators.*

State/size group	Total harvests	Harvested yield per hectare by range of yields					Average yield per hectare in quintals	Average yield per acre in quintal
		12·4 or Less	12·5 to 24·7	24·8 to 49·4	49·5 to 74·1	74·2 or above		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
				WHEAT				
Bihar	38	26	12	0	0	0	9·90	4·01
Haryana	148	10	49	86	3	0	26·65	10·79
Maharashtra	24	5	18	1	0	0	18·11	7·33
Punjab	266	45	104	116	0	1	25·89	10·48
Rajasthan	45	6	17	21	1	0	26·80	10·85
Uttar Pradesh	305	57	130	116	1	1	22·28	9·02
Size group (1)	46	7	21	18	0	0	22·90	9·27
(2)	95	27	34	34	0	0	19·27	7·80
(3)	188	48	73	67	0	0	20·08	8·13
(4)	256	39	105	109	3	0	25·19	10·20
(5)	208	21	85	98	2	2	25·74	10·42
(6)	33	7	12	14	0	0	26·16	10·59
All States	826	149	330	340	5	2	24·63	9·97

TABLE 4.1—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Package areas	134	10	52	70	0	2	31·14	12·61
Owner cultivators	761	142	300	312	5	2	24·45	9·90
Tenants	65	7	30	28	0	0	26·11	10·57
			PADDY					
Andhra Pradesh	43	4	2	13	23	1	47·33	19·16
Kerala	70	6	34	26	0	4	27·59	11·17
Madras (T. Nadu)	117	5	44	57	10	1	31·34	12·69
Mysore	9	0	1	6	2	0	44·46	18·00
Orissa	73	1	10	22	39	1	59·38	24·04
West Bengal	119	3	0	34	50	32	65·65	26·58
Size group (1)	141	7	18	57	42	17	47·57	19·26
(2)	108	5	34	34	25	10	36·73	14·87
(3)	116	0	34	41	34	7	42·41	17·17
(4)	49	7	4	17	16	5	40·61	16·44
(5)	14	0	0	8	6	0	55·16	22·33
(6)	3	0	1	1	1	0	54·44	22·04
				158	124	39	44·36	17·96

TABLE 4.1—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Package areas	186	4	52	38	76	16	49·25	19·94
Owner Cultivators	343	14	59	123	114	33	45·92	18·59
Tenants	88	5	32	35	10	6	35·49	14·37
		JOWAR						
Maharashtra	72	25	35	12	0	0	19·44	7·87
Mysore	10	10	0	0	0	0	0·30	0·12
All States	82	35	35	12	0	0	16·20	6·56
Size group (1)	1	0	1	0	0	0	17·29	7·00
(2)	8	2	5	1	0	0	13·98	5·66
(3)	15	9	3	3	0	0	13·09	5·30
(4)	20	13	5	2	0	0	16·94	6·86
(5)	27	6	18	3	0	0	17·88	7·24
(6)	11	5	3	3	0	0	15·59	6·31

TABLE 4.2 *Distribution of harvests by variety of high yielders, the average yield and the loss of produce due to various factors.*

State	Variety	Total cases	Average yield in Quintals per hectare	No. of plots reporting one reason or the other	Total cases reporting loss and extent of percentage loss due to							
					Lodging		Shedding		Pests/diseases		Delayed harvesting	
					No.	Avg. loss	No.	Avg. loss	No.	Avg. loss	No.	Avg. loss
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
				WHEAT								
Bihar	Lermarojo	22	10·63	0	0	—	0	—	0	—	0	—
	Sonara	16	9·27	0	0	—	0	—	0	—	0	—
	Total	38	9·91	0	0	—	0	—	0	—	0	—
Haryana	Lermarojo	13	22·09	1	0	—	1	0·00	0	—	0	—
	Sonara	20	21·35	0	0	—	0	—	0	—	0	—
	PV-18	17	27·87	0	0	—	0	—	0	—	0	—
	Kalyan (S-227)	43	29·90	1	1	10·00	0	—	0	—	0	—
	S-308	32	32·74	2	0	—	2	0·00	0	—	0	—
	Other exotics	23	28·44	0	0	—	0	—	0	—	0	—
	Total	148	26·64	4	1	10·00	3	0·00	0	—	0	—
Maharashtra	Other locals	24	18·09	0	0	—	0	—	0	—	0	—
	Total	24	18·09	0	0	—	0	—	0	—	0	—

TABLE 4·2—*Continued*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Punjab	Lermarojo	35	17·27	2	0	—	0	—	2	6·50	0	—
	Sonara	4	14·83	1	0	—	0	—	1	5·00	0	—
	PV-18	93	22·49	9	1	10·00	1	4·00	7	2·98	0	—
	Kalyan (S-227)	97	31·06	16	7	9·85	1	2·00	8	5·85	1	9·00
	S-308	30	28·52	3	1	15·00	1	2·00	2	3·00	0	—
	Other exotics	7	30·94	2	1	0·00	1	60·00	1	5·00	0	—
	Total	266	25·90	33	10	9·27	4	4·57	21	4·15	1	9·00
Rajasthan	Lermarojo	5	13·49	0	0	—	0	—	0	—	0	—
	Sonara	1	7·83	0	0	—	0	—	0	—	0	—
	PV-18	7	22·76	0	0	—	0	—	0	—	0	—
	Kalyan (S-227)	22	27·92	0	0	—	0	—	0	—	0	—
	S-308	8	33·16	0	0	—	0	—	0	—	0	—
	Other exotics	2	27·97	0	0	—	0	—	0	—	0	—
	Total	45	26·81	0	0	—	0	—	0	—	0	—
U.P.	Lermarojo	73	18·93	7	3	13·67	2	11·27	3	3·88	0	—
	Sonara	49	19·62	17	1	50·00	13	7·87	3	5·54	2	7·71
	PV-18	11	21·50	3	2	10·00	1	40·00	2	3·00	0	—
	Kalyan (S-227)	42	30·47	18	5	7·07	11	8·05	10	2·45	1	6·00
	S-308	57	26·24	34	7	19·20	25	20·45	17	3·17	3	7·02
	K-68	62	25·92	31	17	17·96	14	43·56	16	3·79	2	7·71
	Other exotics	11	27·43	4	1	15·00	3	18·48	3	1·56	1	6·00
	Total	305	22·29	114	36	18·03	69	20·60	54	3·33	9	7·41

TABLE 4·2—*Continued*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
All States	Lermarojo	148	17·62	10	3	13·67	3	6·88	5	5·15	0	—
	Sonara	74	20·51	18	1	50·00	13	7·87	4	5·37	2	5·37
	PV-18	128	23·45	12	3	10·00	2	5·18	9	2·98	0	—
	Kalyan (S-227)	204	30·51	35	13	9·56	12	7·66	18	4·18	2	4·18
	S-308	127	29·06	39	8	18·77	28	16·42	19	3·14	3	3·14
	K-68	62	18·51	31	17	17·96	14	43·56	16	3·79	2	3·79
	Other exotics	59	21·57	6	2	3·80	4	20·12	4	1·69	1	1·69
	Other locals	24	18·09	0	0	..	0	—	0	—	0	—
	Total	826	24·64	151	47	14·83	76	18·22	75	3·58	10	7·53
				PADDY								
Andhra Pradesh	T.N-1	7	13·02	7	0	—	5	20·75	7	41·14	5	11·50
	I.R-8	35	56·07	15	0	—	5	4·68	12	17·54	0	—
	Other locals	1	29·65	1	0	—	0	—	1	20·00	0	—
	Total	43	47·35	23	0	—	10	9·94	20	26·87	5	11·50
Kerala	I.R-8	63	27·90	31	0	—	1	5·00	30	11·08	0	—
	Other locals	7	20·29	4	0	—	0	—	4	2·88	0	—
	Total	70	27·60	35	0	—	1	5·00	34	10·52	0	—
Madras (T. Nadu)	I.R. 8	6	62·57	3	0	—	0	—	3	16·91	0	—
	Other locals	111	30·39	62	15	23·06	10	5·04	51	21·33	3	9·38
	Total	117	31·33	65	15	23·06	10	5·04	54	21·18	3	9·38

TABLE 4·2—*Continued*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Mysore	T.N-1	6	38·20	0	0	—	0	—	0	—	0	—
	I.R-8	3	50·73	0	0	—	0	—	0	—	0	—
	Total	9	44·48	0	0	—	0	—	0	—	0	—
Orissa	T.N.-1	12	60·52	6	1	2·00	1	3·00	5	10·27	0	—
	Tainan-3	1	25·95	0	0	—	0	—	0	—	0	—
	I.R-8	54	58·19	18	1	10·00	2	2·20	16	9·56	0	—
	Jaya-Padma	6	66·08	0	0	—	0	—	0	—	0	—
	Total	73	59·38	24	2	3·93	3	2·37	21	9·80	0	—
West Bengal	T.N-1	70	61·13	25	0	—	3	7·29	22	5·94	0	—
	I.R-8	49	72·72	21	0	—	8	8·93	14	7·39	0	—
	Total	119	65·66	46	0	—	11	8·20	36	6·40	0	—
All States	T.N-1	95	38·92	38	1	2·00	9	19·69	34	32·93	5	11·50
	Tainan-3	1	25·95	0	0	—	0	—	0	—	0	—
	I.R-8	210	51·45	88	1	10·00	16	4·80	75	14·52	0	—
	Jaya-Padma	6	66·08	0	0	—	0	—	0	—	0	—
	Other locals	119	30·15	67	15	23·06	10	5.04	56	20·75	3	9·38
	Total	431	44·36	193	17	21·42	35	8·88	165	20·73	8	10·76
				JOWAR								
Maharashtra	—	72	19·42	44	0	—	0	—	44	40·30	0	—
Mysore	—	10	6·30	5	0	—	0	—	5	52·00	0	—
All States	..	82	16·21	49	0	—	0	—	49	41·84	0	—

TABLE 4·3 *Average yields recorded for the combinations of various chemical fertilizers used by the selected participants and the average doses.*

(Average yield in quintals/hectare)

State	Average yield for the participants adopting combinations and doses							
	N. type only		N + P		N + K		N + P + K	
	Dosage	Yield	Dosage	Yield	Dosage	Yield	Dosage	Yield
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
				WHEAT				
Bihar	0·0	..	87·2+253·5	10·50	..	..	30·9+30·9+30·9	11·12
Haryana	163·6	28·17	130·7+327·4	26·40	..	..	273·0+405·3+74·1	43·37
Maharashtra	347·4	15·64	123·6+556·7	31·28	..	..	..	..
Punjab	113·9	24·78	153·7+240·9	28·00	..	..	188·3+251·1+39·0	33·88
Rajasthan	169·0	19·44	134·2+76·4	28·91	..	..	82·8+133·4+92·7	32·59
U. P.	155·9	20·88	239·7+267·1	23·23	161·6+38·79	23·97	193·0+267·4+56·6	23·97
				PADDY				
Andhra Pradesh	220·4	32·74	288·1+225·9	46·01	..	..	242·4+216·5+65·2	48·06
Kerala	80·8	25·80	210·0+242·6	74·75	123·6+123·6	24·71	420·1+474·2+179·9	35·53
Madras (T. Nadu)	140·1	31·48	72·9+199·9	26·76	..	..	..	..
Mysore	..	..	249·8+169·8	51·27	..	..	..	..
Orissa	148·3	24·19	184·6+322·7	62·07	145·3+50·6	34·82	184·3+401·5+31·6	60·62
W. Bengal	131·2	65·11	197·7+137·4	51·94	75·6+40·0	70·47	158·1+154·4+57·6	55·37
				JOWAR				
Maharashtra	214·0	12·75	89·7+67·2	35·93	..	..	..	..
Mysore	..	..	..	..	..	..	227·8+258·5+116·4	0·42

TABLE 4·4 *Average yields recorded by participants adopting combinations of improved practices.*

(Av. yield in quintals/hectare)

States	Average yield for the participants adopting combination of								
	All the four	None of the four	B only	A.B.C.	A.B.D.	B.C.D.	A.B.	B.C.	B.D.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
				WHEAT					
Bihar	0·00	9·32	10·40	11·98	0·00	0·00	10·33	0·00	0·00
Haryana	43·37	30·32	27·08	0·00	33·14	0·00	29·18	0·00	26·49
Maharashtra	0·00	0·00	0·00	0·00	19·79	0·00	0·00	0·00	18·19
Punjab	23·99	0·00	17·15	0·00	22·17	35·90	24·71	36·60	25·90
Rajasthan	25·01	0·00	0·00	37·58	0·00	0·00	0·00	0·00	0·00
Uttar Pradesh	25·13	11·98	12·26	0·00	25·03	32·94	17·03	0·00	16·83
				PADDY					
Andhra Pradesh	38·52	0·00	0·00	0·00	0·00	56·49	0·00	0·00	0·00
Kerala	31·11	27·40	35·29	0·00	25·87	18·31	104·33	24·71	28·52
Madras (T. Nadu)	43·32	28·02	18·56	0·00	20·56	39·61	0·00	0·00	28·71
Mysore	0·00	0·00	0·00	0·00	69·19	46·26	0·00	0·00	0·00
Orissa	56·71	61·08	59·23	0·00	59·60	59·45	0·00	0·00	63·41
West Bengal	79.62	0.00	0.00	0.00	74.28	50·93	0.00	0.00	61.11
				JOWAR					
Maharashtra	20·78	0·00	0·00	0·00	16·33	0·00	0·00	0·00	0·00
Mysore	0·37	0·00	0·00	0·00	0·15	0·00	0·00	0·00	0·00

NOTE : A : Seed treatment.
B : Application of Chemical fertilizers.
C : Preventive Plant Protection measures.
D : Inter Culture operations.

TABLE 4·5 : *Cash expenditure on inputs per hectare for H.Y.V. and all other crops on the holding of the participants*

State/size group	HYV-1 Non-HYV-2	Average expenditure per hectare on						
		Seed	Fertilisers	P.P. measures	Labour charges	Irrigation	Other costs	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		WHEAT						
Bihar	1	77·3	153·7	0·5	108·7	39·3	4·0	383·5
	2	4·7	3·5	0·0	5·7	7·9	0·0	22·5
Haryana	1	102·3	203·1	0·0	63·5	99·6	63·8	532·8
	2	3·0	1·2	91·2	0·7	3·2	1·0	100·8
Mahrashtra	1	84·0	406·7	0·2	415·1	68·5	6·9	98·2
	2	32·6	169·0	0·7	52·6	43·0	14·1	373·3
Punjab	1	96·9	232·0	0·0	99·6	80·3	54·6	564·6
	2	2·2	1·5	0·0	1·5	1·5	0·7	7·9
Rajasthan	1	163·3	281·5	3·7	221·7	14·6	8·9	693·9
	2	1·5	1·7	0·0	3·5	0·5	0·0	7·7
Uttar Pradesh	1	96·6	174·5	1·0	224·6	67·2	37·6	601·9
	2	4·2	2·2	0·0	8·9	2·0	0·5	1·9
All States	1	103·0	229·6	0·5	123·8	75·6	47·4	580·0
	2	4·7	13·8	28·4	5·9	5·2	1·7	60·8

TABLE 4·5—*continued*

(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Size group	(1)	1	122·1	247·1	1·0	56·3	79·1	41·8	547·8
		2	7·2	4·9	0·0	0·5	6·7	1·7	21·7
	(2)	1	92·7	214·2	0·7	145·3	65·2	47·4	566·1
		2	10·4	10·9	0·0	13·6	8·6	2·5	46·3
	(3)	1	89·7	179·6	0·7	116·1	84·8	45·7	516·7
		2	6·4	8·2	0·0	4·9	3·9	1·7	25·5
	(4)	1	98·6	222·4	2·5	121·8	86·0	56·8	586·4
		2	5·2	11·4	0·0	5·4	6·7	2·5	31·6
	(5)	1	109·2	244·1	0·7	115·4	68·2	39·5	577·7
		2	3·7	10·1	59·6	5·4	3·5	1·2	84·0
	(6)	1	104·0	239·9	0·7	160·4	70·9	53·6	630·6
		2	6·2	28·7	0·0	8·4	7·7	1·5	53·1
			PADDY						
Andhra Pradesh		1	46·7	571·3	106·0	61·3	69·2	158·1	1564·9
		2	20·7	40·8	5·4	79·3	11·4	19·3	177·2
Kerala		1	20·8	439·1	33·6	482·1	41·5	115·4	1150·3
		2	14·1	32·6	0·7	53·6	11·4	8·9	121·8
Madras (T. Nadu)		1	46·7	384·0	20·2	331·6	25·5	105·8	914·3
		2	9·1	20·5	0·0	9·6	0·5	4·4	44·5
Mysore		1	82·0	591·6	58·8	339·0	26·7	7·9	1106·3
		2	2·5	9·1	0·2	9·1	1·2	0·5	23·2
Orissa		1	41·8	325·9	24·5	256·7	19·8	49·4	718·8
		2	5·2	13·6	0·2	13·6	1·7	1·7	37·1
West Bengal		1	47·4	238·0	32·9	547·8	110·5	16·1	993·1
		2	5·4	7·9	0·7	14·1	2·0	0·7	31.6
All States		1	45·5	447·3	58·6	472·7	52·1	110·7	1186·9
		2	11·1	24·0	1·5	35·8	5·9	7·2	85·7

TABLE 4·5 - *continued*

(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Size group	(1)	1	47·0	364·7	41·0	436·4	71·7	113·2	1074·4
		2	8·9	18·3	0·5	27·7	13·8	8·2	78·1
	(2)	1	49·7	394·1	35·6	431·4	44·0	86·2	1041·3
		2	9·6	20·0	0·7	20·0	3·5	5.7	60·0
	(3)	1	46·0	39·9	43·7	437·9	35·3	100·1	1062·6
		2	10·6	27·4	1·0	38·3	5·7	5·7	89·2
	(4)	1	50·2	202·1	62.8	368·2	58·1	76·1	1065·0
		2	11·1	26·4	1·5	39·5	4·7	7·7	91·4
	(5)	1	34·8	528·0	89·2	630·9	56·6	159·4	1500·7
		2	14·1	29·7	3·7	60·8	6·2	15·3	130·5
	(6)	1	39·5	833·2	130·5	917·8	75·4	265·6	2262·7
		2	11·4	12·1	0·2	16·6	6·4	2·5	49·7
				JOWAR					
Maharashtra		1	48·2	256·0	96·9	366·7	0·7	7·9	776·7
		2	3·5	9·1	0·0	25·5	2·7	0·2	41·8
Mysore		1	632·6	2305·7	357·3	1036·4	249·6	157·9	4740·0
		2	1·2	1·7	0·0	3·5	2·5	1·2	10·9
All States		1	146·8	601·9	140·9	470·0	42·7	33·1	1445·3
		2	3·0	7·4	0·0	20·3	2·7	0·6	34·6
Size group	(1)	1	54·4	316·3	207·6	499·2	0·0	0·0	1077·4
		2	4·7	0·0	0·0	38·6	0·0	0·0	43·2
	(2)	1	94·1	385·7	178·2	314·3	7·2	33·4	1013·4
		2	7·2	15·3	0·2	44·0	12·1	4·9	84·5
	(3)	1	70·2	331·6	98·6	364·5	8·9	56·1	930·6
		2	5·7	11·6	0·0	38·3	11·9	1·5	69·7
	(4)	1	50·4	295·0	76·1	416·6	1·7	9·4	849·3
		2	3·5	6·7	0·2	23·4	4·7	1·2	45·2
	(5)	1	42·5	307·9	101·0	41·9	0·0	12·1	877·0
		2	2·7	8·2	0·2	21·5	2·0	0·2	35·3
	(6)	1	201·7	1015·1	197·2	596·5	100·8	52·9	2245·0
		2	2·7	5·9	0·0	14·6	1·7	0·2	25·9

TABLE 4·6 : *Distribution of participants cultivators by cash inputs and value of grass harvested produce per hectare*

Expenditure in Rs. on inputs per hectare	Total participants	P.C. of Distribution of cases by value of gross harvested produce (in Rs.) per hectare								
		494 or less	495-741	742-1236	1237-1853	1854-2471	2472-3707	3708-4942	4943 & above	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
					WHEAT					
Below — 124 . .	3	0·00	0·00	33·33	33·33	0·00	33·33	0·00	0·00	100·00
125 — 247 . .	21	4·76	9·52	23·80	23·80	23·80	9·52	4·76	0·00	100·00
248 — 494 . .	141	8·51	10·63	19·85	34·75	16·31	9·92	0·00	0·00	100·00
495 — 741 . .	140	8·57	2·14	13·57	26·42	33·57	15·71	0·00	0·00	100·00
742 — 1236 . .	117	1·70	4·27	18·80	23·07	32·47	18·80	0·00	0·85	100·00
Above 1236	25	8·00	4·00	8·00	24·00	40·00	16·00	0·00	0·00	100·00
All groups . . .	447	6·48	5·81	17·22	27·96	27·51	14·54	0·22	0·22	100·00
					PADDY					
Belo — 124 . .	..	0·00	0·00	0·00	0·00	0·00	0·00	0·00	0·00	0·00
125 — 247 . .	2	0·00	0·00	0·00	0·00	0·00	100·00	00·0	0·00	100·00
248 — [illegible] . .	18	0·00	0·00	0·00	5·55	16·66	16·66	55·55	5·55	100·00
495 — 741 . .	62	00·00	3·22	16·12	12·90	3·22	25·80	29·03	9·67	100·00
742 — 1236 . .	133	6·01	3·75	11·27	18·04	11·27	23·30	17·29	9·02	100·00

TABLE 4·6—*continued*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Above 1236	128	2·34	1·56	5·46	17·18	25·00	23·43	9·37	15·62	100·00
All groups .	343	3·20	2·62	9·32	16·03	15·16	23·90	18·36	11·37	100·00
				JOWAR						
Below — 124	..	0·00	0·00	0·00	0·00	0·00	0·00	0·00	0·00	0·00
125 — 247 .	5	100·00	0·00	0·00	0·00	0·00	0·00	0·00	0·00	100·00
248 — 494 .	7	0·00	71·42	14·28	0·00	14·28	0·00	0·00	0·00	100·00
495 — 741 .	10	30·00	30·00	20·00	20·00	0·00	0·00	0·00	0.00	100·00
742 — 1236	45	8·88	20·00	35·55	24·44	11·11	0·00	0·00	0·00	100·00
Above 1236 .	10	50·00	0·00	30·00	10·00	10·00	0·00	0·00	0·00	100·00
All groups .	77	22·07	22·07	28·57	18·18	9·09	0·00	0·00	0·00	100·00

TABLE 5·1 : *Percentage distribution of total finance by source and broad items of expenditure*

State	Items of expenditure	No. reporting expenditure	Total Amount Rs.	Percentage distribution by source				
				Own	Govt.	Coop.	Private	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Bihar	A	25(75·76)	68852	88·56	0·00	0·00	11·44	49.98
	B	12(36·36)	14480	24·03	0·00	0·00	75·97	10·51
	C	8(24·24)	30500	77·05	0·00	0·00	22.95	22·14
	D	1(3·03)	190	100·00	0·00	0·00	0·00	0·14
	E	21(63·63)	23726	100·00	0·00	0·00	0·00	17·23
	All items	31(93·94)	137748	81·22	0·00	0·00	18·78	100·00
Haryana	A	53(79·10)	185325	81·05	7·55	0·30	11·10	62·07
	B	34(50·75)	27621	83·71	0·00	0·00	16·29	9·25
	C	31(46·27)	43935	95·45	0·00	0·00	4·55	14·72
	D	2(2·99)	550	100·00	0·00	0·00	0·00	0·18
	E	52(77·61)	41130	100·00	0·00	0·00	0·00	13·78
	All items	65(97·01)	298561	86·06	4·69	0·18	9·07	100·00

TABLE 5·1—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Maharashtra	A . . .	20(86·96)	107454	44·95	0·00	41·32	13·73	26·64
	B . . .	18 (78·26)	54027	61·59	0·00	0·00	38·41	13·40
	C . . .	14 (60·87)	44020	52·07	0·00	0·00	47·93	10·5.
	D . . .	21 (91·30)	14762	23·52	0·00	76·48	0·00	3·66
	E . . .	22 (95·65)	183080	100·00	0·00	0·00	0·00	45·39
	All items . . .	23 (100·00)	403343	72·16	0·00	13·81	14·03	100·0
Punjab	A . . .	94 (78·99)	314354	84·30	2·13	1·72	11·85	50·09
	B . . .	51 (42·86)	126837	92·32	1·18	0·00	6·51	20·21
	C . . .	34 (28·57)	81023	71·30	0·00	1·85	26·86	12·92
	D . . .	4 (3·36)	7100	100·00	0·00	0·00	0·00	1·13
	E . . .	85 (71·43)	98220	99·49	0·00	0·00	0·51	15·65
	All items . . .	119 (100·00)	627537	86·79	1·31	1·10	10·80	100·00
Rajasthan	A . . .	19 (70·37)	158525	97·92	0.00	0.00	2·08	58·27
	B . . .	5 (18·52)	24450	67.28	0.00	0·00	32·72	8.99
	C . . .	4 (14·81)	31500	87.28	0.00	0·00	12·72	11.58
	D . . .	2 (7·41)	1250	80·00	0·00	0·00	20·00	0·46
	E . . .	21 (77 ·78)	56310	100·00	0·00	0·00	0·00	20·70
	All items . . .	25 (92·59)	272035	94.28	0·00	0·00	5.72	100·00

TABLE 5·1—*Contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
U. P.	A	128 (74·42)	360930	79·00	5·68	0·53	14·79	46·68
	B	91 (52·91)	130728	94·06	0·00	0·00	5·94	16·91
	C	81 (47·09)	144180	89·20	0·00	0·35	10·45	18·65
	D	11 (6·40)	3058	100·00	0·00	0·00	0·00	0·39
	E	133 (77·33)	134308	99·04	0·00	0·74	0·22	17·37
	All items	163 (94·77)	773204	87·01	2 65	0·44	9·90	100·00
All States	A	339 (75·83)	1195440	80·71	3·45	4·37	11·47	47·58
	B	211 (47·20)	378143	83·66	0·40	0·00	15·94	15·05
	C	172 (38·48)	375158	80·56	0·00	0·53	18·91	14·93
	D	41 (9·17)	26910	57·12	0·00	41·95	0·93	1·07
	E	334 (74·72)	536774	99·66	0·00	0·19	0·15	21·37
	All items	426 (95·30)	2512425	84·93	1·70	2·65	10·72	100·00

Note : 1. A—Productive farm Assets.
B—Durable consumer goods.
C—Social and religious functions.
D—Institutional investments.
E—Miscellaneous.

2. Col. 9 is the sum total of cols. 5 to 8 and 100% for all items of expenditure taken together. But the actual percentages refer to the P.C. of individual items of expenditure to all items (Col. 2).

3. Figures in brackets in col. 3 are Percentage reporting to total selected participants.

TABLE 5·2 (a): *Number and average amount spent purposewise per participant for farm assets for the HYV Wheat crop.*

State/size group	Item 1. No. 2. Avg. per reporting cultivator	Total expenditure	Land	Land improvement	Irrigation	Farm building	Live stock	Machinery	All agricultural investment
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Bihar	1	31	6	6	1	3	20	3	25
	2	4443	5358	133	2200	5000	903	214	2754
Haryana	1	65	4	10	14	3	38	18	53
	2	4593	5325	787	3271	1000	1278	3266	3497
Maharashtra	1	23	2	6	10	8	16	14	20
	2	17537	11000	1500	4360	588	1548	241	5373
Punjab	1	119	6	15	32	11	62	23	94
	2	5273	4650	308	2566	1005	1031	5424	3344
Rajasthan	1	25	1	1	0	2	13	8	19
	2	10881	50000	2000	0	32700	1263	3088	8343
U.P.	1	163	9	63	29	12	85	24	128
	2	4744	5997	205	2368	4909	1202	2678	2820
All States	1	426	28	101	86	39	234	90	339
	2	5898	7404	368	2818	4053	1171	3073	3526

TABLE 5·2 (a)—*Contd.*

(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Size groups	(1)	1	31	1	6	1	1	13	0	18
		2	821	3050	85	75	110	275	0	407
	(2)	1	60	3	13	6	2	34	8	47
		2	1940	792	121	1454	2500	937	127	1075
	(3)	1	107	6	28	15	5	57	18	85
		2	2786	3300	180	1365	380	871	1054	1363
	(4)	1	127	10	33	30	16	71	28	106
		2	6586	7750	441	3081	2603	1254	2803	3714
	(5)	1	86	5	19	29	12	50	32	71
		2	9812	16020	793	3344	1367	1682	3989	5920
	(6)	1	15	3	2	5	3	9	4	12
		2	26151	8167	225	4740	31000	1746	12600	17313

TABLE 5·2 (b). *Number and average amount spent purposewise on other than farm assets per reporting cultivator for the HYV Wheat crop.*

State/size group	Item 1. No. 2. Average per reporting cultivator	Total expenditure	Durable consumer goods	Social function	Institutional investment	Loans repayment	Giving loans	Others
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Bihar	1	31	12	8	1	6	2	19
	2	4443	1207	3813	190	1997	500	565
Haryana	1	65	34	31	2	11	1	51
	2	4593	812	1417	275	1400	3000	446
Maharashtra	1	23	18	14	21	22	0	22
	2	17537	3002	3144	703	7375	0	947
Punjab	1	119	51	34	4	23	6	76
	2	5273	2487	2383	1775	2399	2175	395
Rajasthan	1	25	5	4	2	2	1	19
	2	10881	4890	7875	625	1750	20000	1727
U. P.	1	163	91	81	11	70	4	116
	2	4744	1437	1780	278	816	2600	576
All States	1	426	211	172	41	134	14	303
	2	5898	1792	2181	656	2279	3389	607

TABLE 5·2(b)—*Contd.*

(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Size groups	(1) . . .	1	31	12	15	2	8	0	15
		2	821	386	544	200	197	0	225
	(2) . . .	1	60	31	26	4	23	1	38
		2	1940	516	1092	132	501	700	230
	(3) . . .	1	107	54	42	3	35	4	73
		2	2786	1067	1550	242	973	1113	277
	(4) . . .	1	127	67	54	18	38	4	94
		2	6586	2105	2723	341	1943	3450	648
	(5) . . .	1	86	41	31	9	25	4	68
		2	9812	2719	3499	1120	4517	5375	869
	(6) . . .	1	15	6	4	5	5	1	15
		2	26151	7901	4500	1806	14300	7000	2105

TABLE 5·3 : *Amount spent on farm assets and total expenditure, size group-wise and according to source of finnce for the HYV wheat crop.*

State/size group	Source 1. Dept. Coop. 2. Private 3. Own	Total expenditure	Land	Land improvement	Irrigation	Farm building	Live stock	Machinery	All agricultural investment
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Bihar	1	0	0	0	0	0	0	0	0
	2	25875	6000	0	0	0	1875	0	7875
	3	111873	26150	800	2200	15000	16185	642	60977
	All sources	137748	32150	800	2200	15000	18060	642	68852
Haryana	1	14550	0	3000	11000	0	550	0	14550
	2	27075	8700	0	3100	0	8425	350	20575
	3	256936	12600	4870	31700	3000	39600	58430	150200
	All sources	298561	21300	7870	45800	3000	48475	58780	185325
Maharashtra	1	55694	0	3000	39600	0	1200	604	44404
	2	56600	0	0	1500	3700	8100	1450	14750
	3	291049	22000	6000	2500	1000	15475	1325	48300
	All sources	403343	22000	9000	43600	4700	24775	3379	107454
Punjab	1	15096	0	0	9296	2200	600	0	12996
	2	67773	3500	400	4000	0	9650	19700	37250
	3	544665	24400	4215	68800	8850	53687	105056	265008
	All sources	627534	27900	4615	82096	11050	63937	124756	314354
Rajasthan	1	0	0	0	0	0	0	0	0
	2	15550	0	1000	0	0	2300	0	3300
	3	256485	50000	1000	0	65400	14120	24705	155225
	All sources	272035	50000	2000	0	65400	16420	24705	158525

TABLE 5·3—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
U. P.	1	23909	0	375	14000	0	1534	6500	22409
	2	76509	13000	960	3525	9000	25234	1657	53376
	3	672786	40975	11564	51150	49911	7536	56109	285145
	All sources	773204	53975	12899	68675	58911	102204	64266	360930
All States	1	109249 (4·35)	0	6375 (17·1)	73896 (30·5)	2200 (1·4)	3884 (1·5)	7104 (2·5)	93459 (7·82)
	2	269382 (10·72)	31200 (15·0)	2360 (6·4)	12125 (5·0)	12700 (8·0)	55584 (20·3)	23157 (8·4)	137126 (11·47)
	3	2133794 (84·93)	176125 (85·0)	28449 (76·5)	156350 (64·5)	143161 (90·6)	214503 (78·3)	246267 (89·1)	964855 (80·71)
	All sources	2512425 (100·00)	207325 (100·0)	37184 (100·00)	242371 (100·00)	158061 (100·00)	273971 (100·00)	276528 (100·00)	1195440 (100·00)
Size group (1)	1		0	0	0	0	0	0	0
	2	5786 (22·73)	0	0	75	0	671	0	746(10·19)
	3	19664 (77·27)	3050	512	0	110	2901	0	6573 (89·8)
	All sources	25450 (100·00)	3050	512	75	110	3572	0	7319 (100·00)
(2)	1	5461 (4·70)	0	125	4646	0	500	0	5271 (10·43)
	2	14500 (12·45)	0	0	250	0	9050	350	9650 (19·09)
	3	96463 (82·85)	2375	1450	3825	5000	22302	665	35617 (70·48)
	All sources	116424 (100·00)	2375	1575	8721	5000	31852	1015	50538 (100·00)
(3)	1	18954 (6·36)	0	250	6100	200	600	7105	14254 (12·30)
	2	39020 (13·09)	2300	960	1200	0	15430	1557	21447 (18·51)
	3	240090 (80·55)	17500	3830	13175	1701	33627	10317	80160 (69·19)
	All sources	298064 (100·00)	19800	5040	20475	1901	49657	18979	115851 (100·00)

TABLE 5·3—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(4)	1	32604 (3·90)	0	0	29750	0	1584	6	31334 (7·96)
	2	85588 (10·23)	20400	400	5100	11700	12183	1150	50933 (12·94)
	3	718230 (85·87)	57100	14147	57575	29950	75298	77340	311410 (79·10)
	All sources	836422 (100·00)	77500	14547	92425	41650	89065	78490	393677 (100·00)
(5)	1	36730 (4·35)	0	6000	22400	2000	1200	0	31600 (7·52)
	2	100088 (11·86)	8500	1000	5500	1000	18250	1700	35950 (8·55)
	3	706975 (83·79)	71600	8060	69075	13400	64665	125945	352745 (83·93)
	All sources	843793 (100·00)	80100	15060	96975	16400	84115	127645	420295 (100·00)
(6)	1	15500 (3·95)	0	0	11000	0	0	0	11000 (5·29)
	2	24400 (6·22)	0	0	0	0	0	18400	18400 (8·86)
	3	352372 (89·83)	24500	450	12700	93000	15710	32000	178360 (85·85)
	All sources	392272 (100·00)	24500	450	23700	93000	15710	50400	207760 (100·00)

TABLE 5.4 : *Percentage distribution of participants reporting finance for Institutional investments debt repayment and loaning*

State/size group	No. reporting financial investment	Total amount (Rs.)	Financial P. C. distribution of finance 1, P. C. distribution of persons-2	Fixed deposit	LIC	UTI	NSC	Shares	Debt repayment	Lending
1	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
WHEAT										
Bihar	7	13174	1	..	1·0	..	..	..	91·0	8·0
			2	..	14·0	..	..	..	86·0	29·0
Haryana	13	18950	1	..	..	..	1·0	2·0	81·0	16·0
			2	..	..	..	8·0	8·0	85·0	8·0
Maharashtra	23	177012	1	6·6	0·8	..	0·4	0·6	91·6	..
			2	61·0	13·0	..	70·0	9·0	96·0	..
Punjab	30	75320	1	6·1	..	..	3·3	..	73·2	17·3
			2	7·0	..	..	7·0	..	77·0	20·0
Rajasthan	5	24750	1	..	5·0	..	..	..	14·0	81·0
			2	..	40·0	..	..	..	40·0	20·0
U.P.	79	70571	1	1·0	2·0	..	1·0	..	81·0	15·0
			2	4·0	8·0	..	3·0	..	89·0	5·0
All States	157	379777	1	4·4	1·2	..	1·1	0·4	80·4	12·5
			2	12·0	8·0	..	13·0	2·0	85·0	9·0

TABLE 5·4—*Contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Size group 1	10	1974	1	20·0	..	..	..	..	80·0	..
			2	20·0	..	..	..	..	80·0	..
2	26	12752	1	1·5	2·6	..	0·0	..	90·4	5·5
			2	4·0	12·0	..	4·0	..	88·0	4·0
3	37	39244	1	1·0	..	..	0·0	1·0	87·0	11·0
			2	5·0	..	..	8·0	3·0	95·0	11·0
4	48	93761	1	2·0	1·0	..	2·0	1·0	79·0	15·0
			2	15·0	8·0	..	19·0	4·0	79·0	8·0
5	29	144514	1	6·3	0·3	..	0·4	..	78·1	14·9
			2	21·0	7·0	..	17·0	..	86·0	14·0
6	7	87532	1	5·0	3·0	..	2·0	..	82·0	8·0
			2	14·0	43·0	..	43·0	..	71·0	14·0

TABLE 5.5 : *Number of participants and amount on loaning operations and debt repayment for HYV wheat crop.*

State/Size group	Debt repayment		Lending	
	No.	Amount	No.	Amount
(1)	(2)	(3)	(4)	(5)
Bihar	6	11,984	2	1,000
Haryana	11	15,400	1	3,000
Maharashtra	22	162,250	..	..
Punjab	23	55,170	6	13,050
Rajasthan	2	3,500	1	20,000
Uttar Pradesh	70	57,113	4	10,400
All States	134	305,417	14	47,450
Size-group 1	8	1,574	..	..
2	23	11,523	1	700
3	35	34,069	4	4,450
4	38	73,817	4	13,800
5	25	112,934	4	21,500
6	5	71,500	1	7,000

TABLE 5.6(a) : *Participants reporting expenditure on various items by sources of finance for all blocks.*

Items of expenditure	Sources of finance							
	Department & Cooperative		Private		Own		All sources	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1. Land	0	0	8	31200	25	176125	28	207325
2. Land improvement.	4	6375	5	2360	96	28449	101	37184
3. Irrigation by tubewells	7	21296	4	9100	39	110575	47	140971
4. Irrigation by pumpsets.	10	37100	1	1100	18	34275	29	72475
5. Irrigation by wells.	4	15500	4	1925	7	11500	15	28925
6. Farm building	2	2200	4	12700	34	143161	39	158061
7. Livestock-Milch animals.	0	0	21	17750	90	77467	110	95217
8. Livestock-Draught animals.	5	3884	37	37391	141	133153	173	174428
9. Livestock-Miscellaneous	0	0	2	443	14	3883	16	4326
10. Machinery	2	7104	11	23157	81	246267	90	276528
11. Total agricultural investment.	30	93459	71	137126	310	964855	339	1195440
12. Durable consumer goods.	X	1510	X	60270	X	316363	211	378143
13. Social & religious functions	X	1985	X	70934	X	302239	172	375158

TABLE 5·6—*Contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
14. Institutional investment.	X	11275	X	250	X	15385	41	26910
15. Misc. items.	X	1020	X	802	X	534952	334	536774
(i) Lendings.	X	X	X	X	X	X	14	47450
(ii) Borrowings repaid.		X	X	X	X	X	134	305417
(iii) Education & travel.	X	X	X	X	X	X	303	183907
Total expenditure.	39	109249	106	269382	422	2133794	426	2512425

TABLE 5.6(b) : *Participants reporting expenditure on various items by sources of finance for package blocks.*

Items of expenditure.	Sources							
	Department & Co-operative		Private		Own		All sources	
	No.	Amount	No.	Amount	No	Amount	No.	Amount
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1. Land	0	0	1	1000	4	29200	4	30200
2. Land improvement	0	0	0	0	18	3145	18	3145
3. Irrigation by tubewells.	1	3000	0	0	9	32000	10	35000
4. Irrigation by pumpsets.	1	5000	0	0	2	1875	3	6875
5. Irrigation by wells.	0	0	1	100	0	0	1	100
6. Farm building	1	2000	0	0	6	7300	7	9300
7. Livestock-Draught animals.	0	0	4	4350	11	12800	15	17150
8. Livestock-Miscellaneous.	0	0	1	425	0	0	1	425
9. Livestock-Milch animals.	0	0	3	6250	12	13800	15	20050
10. Machinery	0	0	1	17900	15	97225	15	115125
11. Total agricultural investment.	2	10000	9	30025	48	197345	51	237370
12. Durable consumer goods.	X	X	X	6030	X	93220	31	99250
13. Social & religious functions.	X	X	X	1000	X	39540	18	40540
14. Institutional investment.	X	X	X	X	3	4706	3	4706

TABLE 5.6(b)—*Contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
15. Miscellaneous	X	X	X	X	51	111130	51	111130
(i) Lendings	X	X	X	X	X	X	5	20000
(ii) Borrowings repaid	X	X	X	X	X	X	27	60550
(iii) Education & travel	X	X	X	X	X	X	48	30580
Total expenditure	2	10000	12	37055	59	445941	59	492996

TABLE 5.6(c) : *Owner participants reporting expenditure on various items by sources of finance for all blocks.*

Items of expenditure	Sources of finance.							
	Department & Co-operative.		Private		Own		All sources	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1. Land	0	0	7	30200	22	159625	25	189825
2. Land improvement	4	6375	5	2360	92	27769	97	36504
3. Irrigation by tubewells.	6	18296	4	9100	38	107775	45	135171
4. Irrigation by pumpsets.	10	37100	1	1100	17	32875	28	71075
5. Irrigation by wells.	4	15500	4	1925	7	11500	15	28925
6. Farm buildings.	1	200	4	12700	32	142161	36	155061
7. Livestock-Draught animals.	4	3334	33	31841	128	125543	155	160718
8. Livestock-Milch animals	0	0	20	17500	81	73317	100	90817
9. Livestock-Miscellaneous.	0	0	2	443	13	3843	15	4286
10. Machinery	2	7104	10	5257	72	199572	81	211933
11. Total agricultural investment.	28	87909	65	112426	283	883980	310	1084315
12. Durable consumer goods.	X	1510	X	57510	X	297361	199	356381
13. Social & religious functions.	X	1985	X	68934	X	285739	164	356658
14. Institutional investment.	X	11275	X	250	X	15385	41	26910

TABLE 5·6(c)—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
15. Miscellaneous.	X	1020	X	802	X	496702	308	498524
(i) Lendings	X	X	X	X	X	X	12	39150
(ii) Borrowings repaid.	X	X	X	X	X	X	126	280367
(iii) Education & travel	X	X	X	X	X	X	280	179007
Total expenditure.	37	103699	100	239922	385	1979167	388	2322788

TABLE 5.6(d) : *Tenant cultivator participants reporting expenditure on various items by sources of finance for all blocks.*

Items of expenditure	Sources of finance							
	Department & Co-operative		Private		Own		All sources	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1. Land	0	0	1	1000	3	16500	3	17500
2. Land improvement.	0	0	0	0	4	680	4	680
3. Irrigation by tubewells.	1	3000	0	0	1	2800	2	5800
4. Irrigation by pumpsets.	0	0	0	0	1	1400	1	1400
5. Irrigation by wells.	0	0	0	0	0	0	0	0
6. Farm building	1	2000	0	0	2	1000	3	3000
7. Livestock-Drought animals.	1	550	4	5550	13	7610	18	13710
8. Livestock-Milch animals.	0	0	1	250	9	4150	10	4400
9. Livestock-Miscellaneous.	0	0	0	0	1	40	1	40
10. Machinery	0	0	1	17900	9	46695	9	64595
11. Total agricultural investment.	2	5550	6	24700	27	80875	29	111125
12. Durable consumer goods.	X	X	X	2760	X	19002	12	21762
13. Social & religious function	X	X	X	2000	X	16500	8	18500
14. Institutional investment.	X	X	X	X	X	X	X	X

TABLE 5·6(d)—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
5. Miscellaneous	X	X	X	X	26	38250	26	38250
(i) Lendings	X	X	X	X	X	X	2	8300
(ii) Borrowings repaid.	X	X	X	X	X	X	8	25050
(iii) Education & travel	X	X	X	X	X	X	2	4900
Total expenditure.	2	5550	6	29460	37	154627	38	189637

TABLE 6.1(a) : *Percentage of participants reporting particular views regarding the performance of high yielding paddy varieties and hybrid Jowar.*

Sl. No.	Items of performance	Percentage reporting views for various varieties						
		Paddy						Jowar
		T.N. 1	IR-8	ADT-87	Jaya Padma	Other Locals	All varieties	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Higher yield.	88·0	89·3	72·7	33·3	58·2	81·9	68·8
2	Does not lodge	8·7	20·4	4·6	0·0	6·0	14·0	2·6
3	Short duration and beneficial.	26·1	1·9	31·8	83·3	9·0	11·7	14·3
4	Straw yield is also higher.	1·1	0·5	18·2	50·0	17·9	5·3	1·3
5	No appreciable increase in yield.	4·4	3·9	4·6	0·0	23·9	7·4	11·7
6	Coarse grain/poor cooking quality/poor in taste	2·2	0·5	18·2	0·0	1·5	1·8	18·2
7	Low market price.	0·0	4·4	0·0	0·0	1·5	2·5	2·6
8	Cultivation is more expensive	9·8	27·2	13·6	0·0	11·9	19·3	13·0
9	Not much difference in the cost of cultivation.	0·0	0·0	0·0	0·0	0·0	0·0	2·6
10	More susceptible to pests or diseases.	22·8	15·5	22·7	0·0	25·4	19·1	32·5
11	Moderately/less susceptible to pests/diseases.	6·5	3·9	0·0	0·0	16·4	6·4	1·3
12	Does not suit the soil type/existing system of irrigation.	0·0	4·4	0·0	0·0	1·5	2·6	0·0
13	Straw yield is also less.	0·0	17·0	9·1	0·0	4·5	10·2	20·8
14	Straws not liked by cattle	0·0	0·0	0·0	0·0	0·0	0·0	26·0
15	Other views.	2·3	13·6	4·6	16·7	22·4	12·2	5·2
	No. of respondents reporting any of the above item.	92	206	22	6	67	393	77

TABLE 6.1(b) : *Percentage of participants reporting particular views regarding the performance of high yielding wheat varieties*

Sl. No.	Items of performance.	Percentage reporting views for various varieties.								
		Lerma	Sonara	P.V.-18	Kalyan S-227	S-308	K-66	Other Exotics	Other locals	All varieties
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	Higher yield . . .	51·0	75·0	81·0	89·7	75·8	70·6	56·3	87·5	74·0
2	Does not lodge	16·1	44·4	26·2	15·5	19·5	2·9	10·4	0·0	18·7
3	Short duration and beneficial .	2·7	1·4	7·1	7·2	9·4	5·9	14·6	29·2	7·2
4	Straw yield is also higher . .	2·0	2·8	1·6	2·1	1·6	26·5	4·2	0·0	4·1
5	No appreciable increase in yield .	20·8	5·6	7·1	4·6	7·8	14·7	18·8	0·0	10·1
6	Coarse grain/poor in taste and poor cooking quality . . .	38·3	23·6	16·7	7·2	4·7	1·5	6·3	4·2	14·8
7	Low market price . . .	27·5	8·3	3·2	0·0	1·6	0·0	0·0	0·c	6·6
8	Cultivation is more expensive .	14·8	5·6	4·0	8·8	5·5	3·0	2·1	0·0	7·2
9	Not much difference in the cost of cultivation	0·7	0·0	0·8	0·0	0·0	3·0	10·4	0·0	1·1
10	Moderately/less susceptible to pests and diseases	0·0	0·0	3·2	1·6	2·3	1·5	4·2	79·2	5·0
11	Does not suit the soil type/existing system of irrigation . . .	0·7	0·0	3·4	1·6	2·3	0·0	0·0	0·0	1·2
12	Less straw yield	2·0	2·8	8·7	7·7	9·4	1·5	6·3	0·0	5·8
13	Straws not liked by cattle. . .	7·0	1·4	0·0	4·6	0·8	0·0	0·0	0·0	1·5
14	Other views	1·3	9·7	5·6	19·1	37·5	50·0	39·6	0·0	18·8
	No. of respondents reporting any of the above item. . . .	49	72	126	194	128	68	48	24	809

TABLE 6·2 : *Percentages of participants reporting specific problems on various aspects of high yielding varieties programmes.*

State	No. reporting any problem	Inadequate-seed not easily available.	Inadequate-untimely supply of fertilizer	Non-availability of pesticides	Shortage of compost	Inadequate water in irrigation sources	Problem of germination	Attack of pests/diseases	Problem of credit	Shortage of labour	Problem of marketing
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
					WHEAT						
Bihar . . .	24	4·1	29·1	0·0	0·0	8·3	0·0	0·0	83·3	0·0	0·0
Haryana . . .	48	22·9	43·7	0·0	10·4	27·0	0·0	0·0	37·4	27·0	0·0
Maharashtra . .	20	4·9	24·9	4·9	89·9	4·9	0·0	0·0	39·9	0·0	0·0
Punjab . . .	187	8·4	40·5	1·0	2·1	51·8	1·5	4·2	29·4	8·0	0·0
Rajasthan . .	44	0·0	13·5	0·0	0·0	97·7	0·0	0·0	9·0	0·0	0·0
U. P. . . .	63	34·9	20·5	12·6	0·0	34·8	14·2	3·1	26·9	12·6	0·0
All States . .	386	13·0	38·5	2·8	6·9	46·0	3·0	2·5	31·5	9·3	0·0
					PADDY						
A. Pradesh . .	39	15·3	0·0	0·0	0·0	38·4	0·0	51·2	2·5	58·9	2·5
Kerala . . .	60	1·6	3·3	3·3	0·0	28·2	1·6	63·3	3·3	21·6	56·6
Madras (Tamil Nadu)	68	1·4	20·5	24·9	0·0	17·5	0·0	67·6	5·8	11·7	0·0
Mysore . . .	7	28·5	0·0	14·2	0·0	28·5	14·2	0·0	71·4	0·0	0·0
Orissa . . .	71	23·9	73·0	1·3	1·3	5·6	30·9	29·5	4·2	100·0	5·6
West Bengal . .	47	4·2	0·0	0·0	0·0	48·9	8·5	68·0	63·8	80·0	2·1
All States . .	292	9·8	23·1	7·1	0·3	24·9	9·5	53·7	15.4	40.7	13.7

TABLE 6·2—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
					JOWAR						
Maharashtra . .	50	0·0	0·0	5·9	7·9	5·8	69·9	69·9	0·0	0.0	9.9
Mysore . . .	9	0·0	33·3	0·0	0·0	22·2	0·0	77·7	11·1	11.1	11.1
All States . .	59	0·0	4·9	5·0	6·7	8·3	59·3	71·1	1·6	1.6	10.1

TABLE 6.3 : *Percentages of participants offering specific suggestions for improving high yielding varities programme.*

State.	Total participants	Supply of inputs be available in time	Adequate supply of inputs	Enhanced credit necessary.	Cash credit should also be made available.	Govt. should purchase allthe produce	Reasonable minimum price be fixed by the Govt.	Standard quality pesticides should be supplied	P. P. measures should be taken up on mass scale.	Cultivation of H.V. should be in compact block	Processing industries should be started/expanded
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
					WHEAT						
Bihar . . .	33	75·75	12·00	12·00	4·00	28·00	4·00	0·00	0·00	0·00	0·0
Haryana	67	85·07	24·56	24·56	14·03	1·75	0·00	0·00	0·00	0·00	0·00
Maharashtra . .	23	99·99	30·43	4·34	0·00	0·00	0·00	30·43	17·39	0·00	0·00
Punjab . . .	125	81·59	18·62	18·62	20·58	3·92	0·98	1·96	0·00	0·00	0·00
Rajasthan .	27	96·29	11·53	11·53	3·84	0·00	0·00	0·00	0·00	0·00	0·00
U.P. . . .	172	99·41	7·01	9·94	8·18	4·09	3·50	14·03	0·58	0·00	0·00
All States . .	447	90·37	14·35	14·10	11·13	4·70	1·98	8·16	1·23	0·00	0·00
					PADDY						
A. Pradesh . .	43	99·99	0·00	0·00	2·32	30·23	4·65	39·53	30·23	9·30	0·00
Kerala . . .	60	86·66	40·38	36·53	7·69	11·53	0·00	28·84	3·84	5·76	11·53
Madras (T. Nadu) .	83	93·97	20·51	11·53	15·38	2·56	0·00	20·51	3·84	25·64	0·00
Mysore . . .	8	99·99	12·50	0·00	25·00	25·00	0·00	0·00	0·00	0·00	0·00
Orissa . . .	61	99·99	63·93	24·59	4·91	0·00	1·63	3·27	0·00	0·00	0·00
W. Bengal . .	88	53·40	46·80	10·63	23·40	14·89	0·00	0·00	25·53	17·02	6·38
All States. . .	343	84·25	34·25	16·60	11·41	10·38	1·03	17·30	10·38	12·11	3·11

TABLE 6·3—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
					JOWAR						
Maharashtra . .	67	88·05	0·00	3·38	6·77	16·94	0·00	0·00	3·38	20·33	6·77
Mysore . . .	10	99·99	20·00	0·00	0·00	0·00	20·00	50·00	10·00	10·00	40·00
All States .	77	89·60	2·89	2·89	5·79	14·49	2·89	7·24	4·34	18·84	11·59

TABLE 6.4 : *Percentage of participants desiring/not desiring to continue high yielding varieties and reasons for not continuing.*

State/Size group	% age of participants intending continuing	% age of participants intending not continuing	%age of participants giving reasons for not continuing with reference to col. 3.					
			Cost of iinputs hgher	More susceptible to pests/ diseases	More labour	Lack of irrigation and drainage	Not fitting in cropping pattern	No demand
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
WHEAT								
Bihar	87·88	12·12	0·00	0·00	0·00	0·00	0·00	25·00
Haryana	97·02	2·98	0·00	0·00	0·00	0·00	0·00	0·00
Punjab	97·61	2·39	33·33	0·00	0·00	0·00	0·00	0·00
Rajasthan	96·30	3·70	0·00	0·00	0·00	100·00	0·00	0·00
U.P.	91·87	8·13	21·42	0·00	14·28	21·42	0·00	7·14
All States	94·64	5·36	16·67	0·00	8·33	16·67	0·00	8·33
Size group : (1)	92·11	7·89	33·33	0·00	0·00	33·33	0·00	0·00
(2)	87·31	12·69	12·50	0·00	12·50	25·00	0·00	0·00
(3)	93·81	6·19	14·28	0·00	14·28	0·00	0·00	14·28
(4)	96·91	3·09	25·00	0·00	0·00	0·00	0·00	25·00
(5)	97·76	2·24	0·00	0·00	0·00	50·00	0·00	0·00
(6)	100·00	0·00	0·00	0·00	0·00	0·00	0·00	0·00
PADDY								
Andhra Pradesh	83·73	16·27	0·00	28·57	0·00	57·14	0·00	0·00
Kerala	81·67	18·33	63·63	27·27	0·00	9·08	9·08	27·27

TABLE 6·4—*contd.*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Madras (Tamil Nadu)	53·84	46·16	11·42	25·71	0·00	11·42	0·00	2·85
Mysore	37·50	62·50	20·00	40·00	0·00	0·00	0·00	0·00
Orissa	90·17	9·83	33·33	50·00	33·33	33·33	0·00	16·66
All States	81·35	18·65	21·87	29·68	3·12	17·17	1·56	7·80
Size group: (1)	86·96	13·04	6·67	13·33	0·00	6·67	6·67	6·66
(2)	75·59	24·41	23·80	19·04	4·76	28·56	0·00	0·00
(3)	80·47	19·53	35·29	41·17	5·88	17·64	0·00	11·76
(4)	82·06	17·94	14·28	57·14	0·00	0·00	0·00	14·28
(5)	69·24	30·76	25·00	50·00	0·00	25·00	0·00	25·00
(6)	100·00	0·00	0·00	0·00	0·00	0·00	0·00	0·00
JOWAR								
Mysore	100·00	0·00	0·00	0·00	0·00	0·00	0·00	0·00
Maharashtra	71·65	28·35	21·05	52·63	15·78	10·52	21·05	31·57
All States	75·37	24·67	21·05	52·63	15·78	10·52	21·05	31·57
Size group: (1)	0·00	100·00	100·00	100·00	0·00	0·00	0·00	0·00
(2)	37·50	62·50	0·00	100·00	0·00	0·00	60·00	20·00
(3)	86·67	13·33	0·00	50·00	0·00	0·00	50·00	0·00
(4)	70·00	30·00	33·33	50·00	16·67	16·67	0·00	50·00
(5)	79·17	20·83	20·00	0·00	40·00	20·00	0·00	40·00
(6)	100·00	0·00	0·00	0·00	0·00	0·00	0·00	0·00

TABLE 6.5 : *Number of non-participants reporting particular reasons of non-adoption of high yielding varieties during the current season.*

State-Size group	Total No. of respondents	Total reporting reasons for non-adopotoin	Number of non-adoptions reporting reason as					Others
			Higher cost of cultivation	Involves more labour	Lack of irrigation-drainage facilities	Not fitting in the cropping pattern	Produce not liked in taste.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Bihar	16	16	1	0	3	5	0	7
Haryana	15	15	1	1	11	0	5	5
Maharashtra	15	15	3	0	10	0	0	4
Punjab	13	13	10	0	2	0	0	7
Rajasthan	15	15	6	0	15	0	0	1
Uttar Pradesh	86	85	10	6	46	0	11	40
All States	160	159 (99·38)	31 (19·50)	7 (4·40)	87 (54·72)	5 (3·14)	16 (10·06)	64 (40·25)
Size group : (1)	43	42	5	4	19	1	7	18
(2)	37	37	2	2	28	0	3	17
(3)	42	48	13	1	25	2	2	16
(4)	28	28	9	0	14	2	4	10
(5)	9	9	1	0	6	0	0	3
(6)	1	1	1	0	0	0	0	0

TABLE 6.5(a) : *Number of non-pacticipants reporting particular reasons for not proposing to adopt during the next season for H. Y. wheat.*

State/Size group.	No. of respondents	No. reporting for adoption	No. reporting proposing non-adoption	No. reporting reason for non-adoption of P.C. to total in col. 4.					
				Higher cost of inputs	Involves more labour	Lack of irrigation-drainage facilities.	Not fitting in the cropping pattern	Produce not liked in taste	Others
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Bihar	16	9	7	1	0	3	1	0	2
Haryana	15	7	8	1	1	6	0	2	3
Maharashtra	15	5	10	2	0	8	0	0	0
Punjab	13	11	2	1	0	0	0	0	2
Rajasthan	15	7	8	0	0	1	0	0	7
U. P.	86	37	49	3	5	33	0	6	15
All States	160	76 (47·50)	84 (52·50)	8 (9.52)	6 (7·14)	51 (60·71)	1 (1·19)	8 (9·52)	29 (34·52)
Size group : (1)	43	14	29	3	5	15	0	4	11
(2)	37	14	23	1	1	19	0	3	4
(3)	42	25	17	1	0	9	0	0	9
(4)	28	16	12	3	0	6	1	1	4
(5)	9	6	3	0	0	2	0	0	1
(6)	1	1	0	0	0	0	0	0	0

PROGRAMME EVALUATION ORGANISATION

(Planning Commission)

List of Publications

1. Group Dynamics in a North Indian Village (1954).
2. *Evaluation Report on First Years' working of Community Projects (May 1954).
3. *Community Projects—First Reactions (August 1954).
4. Training of Village Leaders in Bhopal (September 1954).
5. Cotton Extension in P.E.P.S.U.—A case study (1955).
6. *Evaluation Report on Second Year's Working of Community Projects (Vol. I & II) (April 1955).
7. Evaluation Report on Second Year's Working of Community Projects (Summary) (April 1955).
8. *Training of Village Artisans in Bihar (May 1955).
9. Leadership and Groups in a South Indian Village (June 1955).
10. Evaluation Report on Working of Community Projects and N.E.S. Blocks (April 1956).
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