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RAPPORTEUR'S REPORT

ON

SLOW GROWTH CROPS—PULSES, OILSEEDS AND COARSE GRAINS—TECHNOLOGICAL, ECONOMIC AND ENVIRONMENTAL CONSTRAINTS

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As the Synopsis for this subject had outlined, the papers were expected to focus upon the following aspects of slow growth crops: (*i*) Analysis of area, production and yield over time and across agro-climatic regions. Comparative advantages or disadvantages of these crops vis-a-vis other crops; (*ii*) Production of these crops according to the size classes of farms; (*iii*) Demand and supply situations in the past and future upto the year 2000. Supply response of these crops to prices. Gaps between the farm level yields and experimental yields; (*iv*) Reasons behind slow growth; (*v*) Different programmes for increasing production; (*vi*) Processing of these crops; (*vii*) Who contributes to the production of these crops; and (*viii*) Policy implications for encouraging the growth of production of these crops. Policy options for meeting domestic demand through imports and permit substitutions of slow growth crops with more remunerative crops.

In all, 34 papers have been accepted for discussion on this subject. In spite of this large number, except for two papers, the remaining papers cover only the following two aspects of slow growth crops: (*i*) Analysis of area, production and yield of these crops over time as well as across different States, and (*ii*) Different programmes for increasing their production.

There is only one paper each on future projections of supply-demand imbalances of coarse grains and one on the processing of pulses.

ANALYSIS OF AREA, PRODUCTION AND YIELD OF SLOW GROWTH CROPS

The papers have focused mostly upon pulses and oilseeds. Few papers have studied coarse grains.

Pulses

Kusum Chopra's study brings out sharp contrasts in growth in the area and production of pulses between *kharif* and *rabi* seasons and also among States. Wherever *kharif* pulses are important there has been an upward trend in area and production during the period 1950-51 to 1976-77, while the opposite is the case where *rabi* pulses are important. The study further points out that where the percentage of total irrigated area to total cropped area is high, there has been a decline in the share of pulses in total cropping

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pattern. The inter-State analysis done by V. G. Rao and V. S. Satyapriya reveals that since the late sixties, that is, during the post-green revolution period, the productivity of pulses has remained either stagnant in some States or has declined in other States. In a majority of the States, area allocations are not clustered around a single pulse category.

The above findings are further supported by the papers of I. S. Chatha and Joginder Singh; P. S. Grewal and B. S. Bhullar; K. K. Jain *et al.;* D. S. Nandal and R. K. Khatkar; and R. N. Pandey and A. C. Gangwar. These papers also find that in the States like Punjab and Haryana, where the percentage of total irrigated area in the total cropped area is the highest in the country and also where the green revolution has made a big headway, the area under pulses has been declining. In contrast to this, S. S. Acharya and G. S. Gupta find that in States like Rajasthan with less area under irrigation, the production of pulses grew at the rate of 1.72 per cent per annum during 1956-57 to 1980-81, and the main contribution to production came from gram whose production experienced a rate of growth of 2.14 per cent. For a State like Maharashtra, where also the irrigated area is less, S. B. Dangat shows that there has been an increase in the area under gram and *tur* during the past 30 years. For Karnataka, however, R. S. Deshpande and H. Chandrashekar show a different picture. By using the decomposition analysis for the growth of output, they find that area and crop pattern effects have negatively contributed to the growth in production, while the yield effect has contributed substantially to the growth of pulses.

Oilseeds

R. K. Pandey and Shanti Sarup show that during 1968-69 to 1978-79 acreage experienced a downward trend in major oilseeds growing States. They find that high fluctuation in production in oilseeds is caused by high fluctuation in yields. The following papers focusing on different States however show a different picture.

Basavaraj Humbarwadi *et al.* show that during 1962-63 to 1980-81, in Kolar district of Karnataka the area under groundnut increased at 5.2 per cent per annum while the productivity declined at about 2.3 per cent. They find that the supply response of groundnut to price has been insignificant, and the allocation of area for groundnut depends upon rainfall. For West Bengal, Nakshatra Kumar Roy finds that the area under mustard in traditionally mustard growing districts has declined while in districts where assured irrigation exists there is a substantial increase in area, and this shift has occurred at the cost of area under wheat. High prices and better yields in the irrigated areas are major reasons behind this shift towards mustard. In contrast to this, Jiban Kumar Ghosh finds that in Murshidabad in West Bengal, the area under potato increased substantially in the place of mustard. Jain *et al.* and Chatha and Joginder Singh show that during the post-green revolution period the area under oilseeds decreased in Punjab. In Haryana, however, Himmat Singh *et al.* show that the area as well as yield of oilseeds increased over the years. Still, in the advanced districts of Haryana, similar

to Punjab, Pandey and Gangwar show that the area under oilseeds has been decreasing. Similar is the finding of Nandal and Khatkar.

Most of the above papers show that there is substantial difference between the potential and actual yields of oilseeds. Arun S. Patel shows how such potential has been further tapped in Gujarat by growing groundnut in *rabi* and summer seasons.

Other Slow Growth Crops

The papers exclusively written for other coarse grains are few. R. V. Dadibhavi finds that in Karnataka the rate of growth of jowar was less in the post-green revolution period than that of foodgrains as a whole and also less than its growth in the pre-green revolution period. S. K. Chakravorty's paper on millets in Orissa brings out that *ragi* experienced very high increase in area and production, because in new irrigated areas *ragi* can be grown during the off-season after paddy. In another interesting case study on jowar, Ila Chakravarti and Vimlesh Verma study the impact of high-yielding varieties of jowar in Chittorgarh in Rajasthan. They find that farmers belonging to all size classes shifted from groundnut to jowar cultivation. Such shift was more pronounced on small farms and they have benefited relatively more than the medium and large farmers.

DIFFERENT PROGRAMMES FOR INCREASING PRODUCTION OF SLOW GROWTH CROPS

Few papers have focused on this topic. All of them arrive at the conclusion that there is substantial gap between potential and actual yields, and if recommended package of technology and cultural practices is followed by farmers, it is not too difficult to bridge this gap. This has particularly been emphasized for oilseeds in the papers written by S. M. Soham; S. D. Chamola; V. K. Madalia; E. C. Rajayan and C. Arputharaj; Pandey and Sarup; and A. Nageswara Rao and Y. Eswara Prasad.

The case study of N. S. Jodha and R. P. Singh highlights in a well-outlined logic various factors which constrain the growth of coarse grains. They find that the major constraint is low return to these crops due to the nature of demand they face and the consequent poor resource base that they attract. Jodha and Singh then suggest that policies and programmes should focus on changing the farmer's approach to these crops, development of appropriate technologies and diversification of demand for these crops in terms of animal feeds, processed foodstuffs for rich and varied markets. P. Rangaswamy examines data from two centres under the All India Co-ordinated Research Project for Dryland Agriculture for three crops, namely, jowar, bajra and gram. He finds positive association between adoption rates and profitability of the new technology in dryland areas, and concludes that low value of crops and traditional attitudes of farmers need not necessarily be a constraint to the development of a viable technology.

The paper by Katar Singh and Ranjana recommends development of oilseeds co-operatives along the lines of AMUL. This approach involves organization of vertically integrated co-operatives around a single commodity which have producer-elected leadership, decentralised decision-making, and professional managers and technicians. This strategy has already been implemented by the National Dairy Development Board for groundnut in the Saurashtra region of Gujarat State. The paper shows that this strategy holds a great promise for oilseeds.

OTHER ASPECTS OF SLOW GROWTH CROPS

S. Narayanan and K. R. Rao suggest that the methodology for estimating demand for coarse grains should take into account the fact that the demand for these grains increases as income increases upto a certain level and then starts falling. Then by estimating separate income elasticities of demand for low and high income groups in the rural and urban areas, the paper shows that the falling per capita demand of the high income groups is overtaken by the rising demand of the low income groups.

C. S. Raghuvanshi *et al.* show that there exist economies of scale in the processing industry for pulses. Even though the effective capacity utilization is only 50 to 70 per cent of the installed capacity due to lack of availability of raw material, the mills are earning profits.

ISSUES FOR DISCUSSION

The above discussion raises several questions about the slow growth crops.

1. If the spread of irrigation and consequent increase in area under high-yielding varieties of cereals are going to decrease the area allocated to pulses, what will be supply-demand imbalances in future ?
2. Should we discourage such area shifts through price incentives in the short run and by investing resources for developing high-yielding varieties for pulses in the long run ?
3. Or should we search for comparative advantages through importing pulses, *e.g.*, from countries in the East Africa ?
4. What are the cost-benefits of vertically integrated co-operatives for oilseeds based on Amul pattern ?

It will be useful if the above questions will also be discussed at the Conference.