Rapporteur’s Report on Oilseeds and Pulses

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The subject ‘Oilseeds and Pulses’ was chosen with a view to inviting research papers pertaining to the large number of policy issues, as listed in the synopsis. In terms of the number of papers accepted for discussion (92), the response was quite encouraging. However, the distribution of these papers, themewise, has been quite uneven and some important aspects have been completely left out from investigation. The papers under the subject could be grouped under three heads:

(i) Growth and stability in oilseeds and pulses,
(ii) Costs, returns and extent of technology adoption in oilseeds and pulses, and
(iii) Marketing and processing aspects of oilseeds and pulses.

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GROWTH AND STABILITY IN OILSEEDS AND PULSES

The contribution on this theme was the largest in number. In most of the papers in this group, an attempt has been made to measure the growth rates in area, production and productivity of selected oilseed(s) and/or pulse(s) and/or the crop group as a whole using secondary data for selected state(s), while a few papers present country level studies disaggregated in terms of states. There are a few district/regional level studies also. The growth rates are estimated mostly with the help of semi-log equation. In many papers, the statistical significance of the growth rates is not shown. While analysing growth rates only, a few papers have examined the related and important issue of instability and its sources. In examining instability, several authors of the papers have worked directly on observed data without detrending it, thus making the findings subject to serious methodological weakness. The time-series data have been analysed by splitting the periods in terms of decades or pre-green revolution and post-green revolution periods. For policy purposes, however, it would be useful to focus our observations primarily on post-green revolution period.

Oilseeds

Krishan Kanta Kaushik has analysed for the country the recent changes in the nature and causes of growth and instability of crop production in general and oilseeds in particular during the period 1968-69 to 1991-92, divided into two sub-periods of 1968-69 to 1979-80 (period I) and 1980-81 to 1991-92 (period II), using index numbers for area, production and

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productivity. A.J. Singh and Sarbjit Dhaliwal have examined the growth performance of individual oilseed crops across states and for the country as a whole during the post-green revolution period divided into two sub-periods. They have also analysed the impact of Technology Mission on the growth performance of oilseeds; production potentials of different oilseeds on the basis of yield approach and made estimates of demand and supply for oilseeds under alternative scenario using the simple growth rate approach.

It emerges from the above two papers that production and productivity of total oilseeds in the country during the post-green revolution period have been significantly more compared to those in the pre-green revolution period. Period II of the post-green revolution period (1980 onwards) exhibited relatively higher growth in oilseeds than that in period I. The growth in rapeseed and mustard and sesame have been the highest in period II. The performance of groundnut and castor also improved in period II but there has been deceleration in the productivity of groundnut. The performance of linseed deteriorated in the recent period (period II) compared to the earlier period (period I). Thus increase in production of total oilseeds in the pre-green revolution period was largely due to increase in the area, while the improvement in productivity has been largely responsible for increased production of oilseeds in the post-green revolution period. However, the productivity of several oilseed crops has been either stagnant or decelerating in the recent period (period II). Similar type of results also flow from the paper of O.P. Singh et al. Kaushik found that the magnitude of instability in the production of total oilseeds increased during the recent period and has been the highest, followed by pulses in whose case it declined during the recent period. Yield instability appears as the major cause of production instability. Thus at the country level, it has been a case of growth with instability in oilseeds.

Singh and Dhaliwal found that the growth rates of production of groundnut accelerated in the recent period for Andhra Pradesh, Karnataka, Orissa and Tamil Nadu and deteriorated for Gujarat, Haryana, Kerala, Punjab and Uttar Pradesh. In the case of rapeseed and mustard, the production performance improved for Assam, Gujarat, Haryana, Orissa, Punjab, Rajasthan and West Bengal and deteriorated for Bihar, Madhya Pradesh and Uttar Pradesh. The production performance of linseed improved only for Orissa. Growth rates of production of sesame improved for Jammu and Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Orissa and Rajasthan and deteriorated for Punjab, Uttar Pradesh and West Bengal. Castor production improved for Maharashtra and Tamil Nadu and deteriorated for Andhra Pradesh, Bihar, Gujarat, Karnataka, Madhya Pradesh and Orissa. The improvement in production of oilseed crops in the recent period has been more due to area expansion while growth in productivity has decelerated except in rapeseed and mustard. Such results are corroborated by the analysis of impact of Technology Mission on Oilseeds. Similar results are noted by S.K. Lal et al. for groundnut and rapeseed-mustard belt in the country.

These results are, by and large, confirmed by papers dealing with the study of selected oilseed crop(s) in selected states(s).

A.C. Gangwar et al. have reported shifting status of rapeseed and mustard and groundnut across major contributing states. Andhra Pradesh overtook Gujarat and occupied the first place in terms of groundnut production and area in the nineties compared to that in the seventies. In rapeseed and mustard, Rajasthan overtook Uttar Pradesh during the nineties. Area growth generally contributed more towards production growth than the productivity. The variability appeared to be more in rapeseed and mustard than in groundnut.
L.R. Sharma and S.C. Tewari found for Himachal Pradesh declining growth in area, production and productivity of total oilseeds as well as individual oilseed crops, except an increase in the area of rapeseed and mustard, with increased instability during 1966-67 to 1989-90 compared to the pre-green revolution period.

J.P. Singh et al. have reported increase in area, production and productivity of rapeseed and mustard in Haryana but fall in area and production of groundnut, linseed and other oilseed crops at a high rate coupled with large variability in area, production and productivity during the post-green revolution period. V.P. Mehta and D.K. Grover showed that in Haryana the area effect contributed the least in all the periods in the wet zone while in the dry zone the yield effect registered positive effect on value of production. The area, production and productivity of oilseeds increased significantly in the dry zone whereas in the wet zone the area declined significantly. In the dry zone, the variation in production has been the highest during the post-green revolution period.

J. Rai et al. have reported for Uttar Pradesh positive growth in area, production and productivity of oilseeds in the eighties whereas it was negative in the seventies. Rapeseed showed the most impressive growth followed by til (sesamum) and groundnut.

Jawahar Thakur and D.K. Sinha have observed that the production technology of the major oilseed crops and their yield in Bihar improved substantially in the green revolution era leading to increase in oilseed production but the yield improvements failed to reverse the negative growth in area under the crops due to higher risk in oilseeds. Somewhat similar results are reported for Bihar by Hem Chandra Lal Das.

A study by K.A. Varghese and D.P. Yadav for Rajasthan has revealed impressive growth in area, production and productivity of rapeseed and mustard, groundnut and sesamum in the eighties compared to the seventies with decreased instability in rapeseed and mustard and groundnut (except in its yield) and increased instability in sesamum. Impressive growth of rapeseed and mustard for arid Western Rajasthan is reported by K. Anantha Ram et al. but such growth was lower than the state level growth. S.K. Gupta and M.C. Athavale observed that the area was the dominant factor for increase in production of soybean in Madhya Pradesh, Uttar Pradesh and Rajasthan, and for sunflower in Karnataka, Maharashtra and Andhra Pradesh. In Tamil Nadu, sunflower growth was found to be negative.

S. Tripathy and M.V. Srinivasa Gowda found that during 1970-71 to 1989-90, groundnut production in Orissa registered an impressive growth primarily due to significant expansion in area. The productivity of groundnut remained almost stagnant at both state and district levels, though the eighties showed better yield than the seventies. The instability in groundnut decreased during the eighties. Salik Ram in his growth analysis for Orissa state and its districts has also reported inter-district variations and larger growth in rabi groundnut and rabi oilseeds area and production than in kharif.

R.L. Shiyan and B.K. Jha have observed non-significant growth in area and productivity of groundnut and sesamum in Gujarat during the post-green revolution period. Area and price interaction emerged more powerful for production of total oilseeds while the influence of the interaction of area, yield and price was quite pronounced in the increased production of castor and rapeseed and mustard.

S.M. Mundinamani and S.B. Mahajanashetti have reported wide variations in area, production and productivity across major oilseed growing districts of Karnataka. The growth in oilseed production of the state was mainly due to expansion in area in recent years.
D.L. Sale et al. found wide variations in the area and production of oilseed crops across the regions of Maharashtra during the last three decades. The state experienced marginal gains in production of total oilseeds largely due to area expansion. The oilseeds situation in the state improved a lot during the late seventies and eighties because of increased production of sesameum, safflower, sunflower and summer groundnut due to additional area. Similar results for Maharashtra are reported by R.K. Rahane and G.G. Joshi, P.R. Waghmare and B.N. Katepallewar and S.L. Deshpande et al. Farm size-groupwise analysis of growth in oilseeds did not receive the due research attention by the authors. Also missing was the examination of the strengths and weaknesses of the Technology Mission on Oilseeds in terms of its multi-dimensional objectives.

**Pulses**

B.L. Kumar, using the data from four agricultural censuses, 1970-71, 1976-77, 1980-81 and 1985-86, has examined the changes in the pattern of cultivation of pulses by different size-groups of holdings in the country. The analysis showed that over the 15 years (1971-86), there has been an absolute decrease in the area under pulses from 21.11 million hectares to 20.91 million hectares. This is largely due to a sharp decline in the area under both irrigated and unirrigated pulses on large holdings and also due to a decline in the unirrigated area of medium holdings. Although there has been an increase in the relative share in the total area under pulses in smaller holdings (below 4 ha), the same is not commensurate with the increase in their area operated and irrigation facilities available to them. A universal decline in the share of pulses in gross cropped area of every size-group throughout the period under study is a matter of serious concern. A steady decline in the area under unirrigated pulses suggests the need for revamping of efforts to popularise pulses cultivation in dryland agriculture. Lack of significant breakthrough in the productivity of pulses is cited as the reason for diversion of area from pulses to other water intensive cash crops.

The deteriorating position of pulses in the country is also corroborated by the paper of V. Prasad et al. who found that there have been negative growth rates of area and production of pulses in the country in the sixties, and negative growth in production and yield of pulses in the seventies. It was only in the eighties that the growth rate of production became positive because of positive rate of growth in productivity. The analysis shows that pulses have lagged behind both cereals and oilseeds in area and productivity gains in the post-green revolution period.

The disquieting pulses scenario in the country is also confirmed through the paper of I. Narender et al. Using the data for two points in time (1967-70 and 1987-90), it is observed that the yield of total pulses increased marginally from 580 kg/ha (1967-70) to 619 kg/ha (1987-90). During the same period, while gram yield has marginally declined by -0.5 per cent, tur and other pulses registered an increase of 7.9 per cent and 17.9 per cent respectively.

The inter-state profile of productivity revealed that maximum increase in productivity of total pulses was witnessed in Tamil Nadu, followed by Madhya Pradesh, Gujarat, Andhra Pradesh, Maharashtra, Rajasthan and Bihar. Karnataka and Punjab experienced a decline in the yield of pulses.

A.K. Vasisht and S.K. Goel, on the basis of principal component analysis, have found that 1970-71 to 1972-73 came out to be poor while 1987-88 to 1990-91 were good for all
the pulses crops in terms of their productivity performance. Among the states, Madhya Pradesh and Maharashtra came out to be under moderate category and Uttar Pradesh under good category for most of the pulses crops. Rajasthan was important forgram while Orissa was important for moong cultivation under good category.

S.R. Narappanavar has examined the growth of gram which accounts for more than two-thirds of rabi pulses. The author found that the growth in area under gram during 1961-62 to 1988-89 was positive only in Region 3 (Gujarat, Maharashtra, Karnataka, Madhya Pradesh and Rajasthan). Gram production recorded a negative growth in Region 1 (Assam, Himachal Pradesh, Bihar, West Bengal, Orissa, North Eastern Frontier States) and Region 4 (Uttar Pradesh, Punjab and Haryana). Gram yield increased significantly only in Regions 1 and 4.

L.R. Sharma and S.C. Tewari have reported declining growth of pulses with increased instability in Himachal Pradesh. Jawahar Thakur and D.K. Sinha found negative growth in area and production of pigeonpea, gram and total pulses in Bihar during 1960-61 to 1989-90. The authors found non-significant technological shift in pulses production process in the post-green revolution period. Similar results for Bihar are reported by R.P. Sinha who found that only moong and masoor have registered growth in area, production and productivity because of lower instability in the crops. Ashutosh Shrivastava and C.L. Thakur while examining the performance of pulses in Madhya Pradesh during 1980-81 to 1989-90 found that the production of gram increased due to area increase with stagnant productivity. Tur production increased due to improvement in productivity though the area under the crop decreased. For total pulses in the state, the area showed a decline, however, total production increased due to productivity improvements.

S.P. Upadhyay and N.N. Sharma have observed that the output of pulses in Uttar Pradesh declined during 1970-73 to 1978-81 but it increased during 1978-81 to 1986-89. The findings suggest that the negative growth in the output of pulses in the first period in all the regions of Uttar Pradesh except in the southern region was primarily on account of the decline in area. During the second period the positive growth in output of pulses was mainly due to the productivity increase. The authors have reported substitution among crops within the pulses group in favour of higher productivity.

O.P. Chhiokara et al. have reported for Haryana maximum decline in the area under gram which constitutes 90 per cent of the area under pulses in the state. V.P. Mehta and D.K. Grover have reported high rate of decline in gram area in the wet zone and non-significant increase in gram area in the dry zone of the state.

The paper by J.M. Dhaka revealed that production of all the kharif pulses except urad declined in Rajasthan mainly due to decrease in productivity during the post-green revolution period. Tur production increased due to the increase in area despite significant negative growth in productivity. The position of gram remained stagnant. A high degree of variability in the productivity of pulses was found. The relatively lower variability in gram was even more than that in wheat.

K.C. Borah and S.K. Dutta have reported significant inter-district variations in the area, production and productivity of pulses which improved considerably but remained much below the all-India level. However, the growth of pulses production is found to be largely more due to area expansion than due to productivity improvements. Kandarpa Kr. Barman and Padmalochan Hazarika reported similar findings on growth of pulses in Assam and observed that instability in pulse production has been mainly due to instability in area under
pulses.

Debuddut Behura and Durgesh Nandini Ray have reported inter-district variations in the growth of area, production and productivity of pulses in Orissa during 1980-81 to 1991-92 and also the instability therein. The growth rate in the productivity of pulses in Orissa is found to be non-significant. R.K. Panda has reported that for the period 1981-90, *arhar* and *moong* were the two important pulses crops which showed high productivity potential in Orissa. Pulses production declined in the agriculturally developed coastal region but increased in the other three backward regions which are relatively dry.

R.L. Shiyani and B.K. Jha found stagnation in area, production and productivity of gram but significant increase in area and production of *arhar* in Gujarat.

G.R. Patil found moderate growth in area and productivity of pulses in Karnataka during 1980-81 to 1990-91. The area under Bengal gram, *tur* and greengram showed positive growth rate while blackgram, horsegram and other pulses showed negative growth rate in area. However, all pulses except Bengal gram and horsegram registered positive growth rates of productivity in the state. The author has observed conspicuous variation in the growth of pulses across the 19 districts of the state.

R.K. Rahane and G.G. Joshi found significant and positive growth in area, production and productivity of gram and *tur* in Maharashtra in the post-green revolution period but the productivity increase in *tur* was very moderate. By and large, similar performance of *tur* in the state and its regions is noticed by B.W. Asheturkar and A.N. Kolhal for the period 1960-61 to 1990-91. However, the productivity increase is found only in Konkan and Nasik regions.

N. Ajjan found that the share of pulses area and production in the total area and total production of foodgrains has stagnated in Tamil Nadu during 1950-71 and increased significantly during 1980-91. Productivity increase is found to be the main contributor to production rather than area expansion. Irrigation appeared to be the most important factor for increase in pulses production particularly of gram. S. Iyyampillai has observed that Coimbatore, which is perhaps the only industrially as well as agriculturally prosperous district in Tamil Nadu, has, in the eighties, recorded declining trend in pulses production activities, while Salem, South Arcot and Thanjavur have recorded an upward trend.

D. Sree Rama Raju and P. Prudhvikar Reddy, based on the estimates of the production elasticities, suggest that the production improvement programmes can be concentrated in Coastal Andhra for black gram and redgram, in Telangana for greengram and in Rayalaseema for Bengal gram.

II

COSTS, RETURNS AND EXTENT OF TECHNOLOGY ADOPTION IN OILSEEDS AND PULSES

Costs and Returns: Oilseeds

Papers received on input use, costs and returns, and technology adoption mostly relate to groundnut. The studies have used mostly primary data collected from sample farmers. In several papers, the methodology has not been described at all or has been partially ignored such as in the case of estimating contributions of each individual constraint towards total yield gap. Several papers have described constraints in the adoption of technology without empirical base. Functional analysis to examine the resource use efficiency has been done without examining the multicollinearity problem. These weaknesses in the studies are bound
to undermine the strength of the findings.

R.N. Pandey et al. found from the study of sample farms that returns from mustard and sunflower were substantially higher than their competing crops (wheat and gram) while groundnut returns were lower than that of its competing crop (maize) in Haryana. The existence of substantial attainable yield gaps were observed in the three oilseed crops because of existence of several productivity constraints such as imbalanced use of fertiliser, inadequate irrigation facilities and non-availability of crucial inputs.

K.K. Jain et al. found that human labour constituted 38 per cent of total cost of production of rapeseed and mustard in Punjab, followed by fertiliser and machine power accounting for 20 and 18 per cent respectively. Operational cost declined with the increase in farm size. Returns from rapeseed and mustard were much lower than those of competing crops (wheat, paddy, cotton). In another study by D.K. Grover and S.K. Mehta in Bhatinda at Punjab, the results showed that rapeseed-mustard crop competed favourably with wheat but carried higher instability.

R.N. Yadav et al. found in Etawah district of Uttar Pradesh that there was excessive use of human and bullock labour and sub-optimal use of fertilisers in the production of mustard. However, the test for econometric problems while estimating the functional relationship has been ignored.

M.R. Chandrakar and A.K. Koshtma found the cultivation of mustard profitable on farms under different irrigation regimes in Raipur district of Madhya Pradesh. In another study by V.N. Singh and A.A. Khan in three districts of Madhya Pradesh for the year 1991-92, mustard crop gave the highest returns under both irrigated and unirrigated situations and the per quintal cost of production was estimated to be Rs. 244 and Rs. 355 respectively.

G. Thirupathaiah and M.R. Naidu found that there was a direct relationship between farm size and total cost of cultivation of kharif groundnut in Vizianagaram district of Andhra Pradesh. Human labour, seed, manure and fertiliser constituted 58 per cent of the total cost. The analysis of National Demonstration data of Warangal district by M. Srikanth Reddy showed that irrigated groundnut cultivation requires higher per hectare cost (Rs. 4,878). On the other hand, the cost of production per quintal was lower on irrigated farms (Rs. 279) than on rainfed farms (Rs. 375).

K.L. Jadhav et al. found sub-optimal use of phosphorus and seed and excessive use of farmyard manure, nitrogen and irrigation in summer groundnut cultivation in Sindhudurg district of Maharashtra.

L.K. Mohana Rao and Ch. Venugopala Rao found that expenditure on modern inputs, productivity and net income were higher on non-tribal farms than on tribals farms in the cultivation of groundnut in Srikakulam district of Andhra Pradesh. However, farming in tribal areas also appeared profitable.

The study by M.R. Alshi and C.K. Joshi showed that in Akola district of Maharashtra the per hectare variable cost of cultivation of summer groundnut was Rs. 6,542 of which seed, and manure and fertiliser contributed 27 per cent and 23 per cent respectively.

Pulses

Usha Tuteja has assessed the impact of Intensive Pulses Development Programme implemented during 1989-90 in Haryana State. The results showed absence of any break-
through in pulses production programme. V.K. Singh et al. found that in gram cultivation in Haryana there is sub-optimal use of human labour and irrigation on small farms and excess use of bullock labour and irrigation on large farms.

R.S. Tripathi et al. found that it is profitable to grow blackgram in Tehri district of Uttar Pradesh. The authors reported excessive use of human labour and bullock power and sub-optimal or no use of manures and fertilisers and plant protection materials.

P.D. Talekar and R.P. Thakare found that in Raigad district of Maharashtra with the introduction of improved varieties of pulses crops suitable for the area and improved package of practices for these crops and expansion of irrigation, the farmers are motivated to grow pulses crops in *rabi*/summer season after rice in rainy season which was traditionally left fallow. This has resulted in higher cropping intensity on small farms than on large farms. The estimated cost of production per quintal for *wah*, *moong*, *tur*, gram and *urid* crops was Rs. 980, Rs. 739, Rs. 678, Rs. 677 and Rs. 645 respectively.

H.N. Atibudhi and J.P. Singh have estimated the cost of cultivation of pulses at Rs. 596 and Rs. 606 per quintal on small and large farms respectively in Nayagarh district of Orissa and found pulses cultivation economical. The authors reported sub-optimal use of manures and fertilisers and excess use of labour on small farms.

**Technology Adoption**

A.J. Singh and S. Dhaliwal have highlighted the vast production potentials of oilseeds on the basis of yield gap approach. It was found that tapping of yield gaps to the extent of 25, 50, 75 and 100 per cent under the currently available improved technology could augment production of oilseeds to the tune of 28.5, 57.03, 85.55 and 114.06 lakh tonnes respectively.

Y. Eswara Prasad et al. have reported that in Northern Telangana Zone of Andhra Pradesh, yield, costs incurred on critical inputs and benefit-cost ratio were comparatively higher in the case of on-farm trials of groundnut, sunflower, sesameum and greengram than on control plots. The study revealed that the extension gap for all the crops except sesameum was more whereas technology gap was higher in groundnut during *rabi* and in greengram during *kharif* season, followed by sunflower under rainfed situation. The results indicated low rate (30 to 40 per cent) of adoption of recommended technology in *kharif* groundnut, sesameum and greengram by the farmers. However, it was medium to high (60 per cent) in sunflower crop. The prime factors responsible for non-adoption of technology are reported to be lack of technical know-how, unremunerative prices, labour scarcity and non-availability of high-yielding variety seed.

K.R. Chowdry et al. have reported yield gap I of 14.60 quintals per hectare and yield gap II of 6.25 quintals per hectare in groundnut crop in Anantapur district of Andhra Pradesh. The analysis of contribution of each factor to the total yield gap indicated that optimum time of sowing alone can contribute to the extent of 64.5 per cent to total productivity. The authors have outlined the bio-physical and socio-economic constraints responsible for wide yield gaps and non-adoption of improved technology.

Using 142 frontline demonstrations data on different oilseed crops for the year 1991-92 in Maharashtra, S.D. Suryawanshi and Prakash Mahindre have estimated the comparative production potential and benefits from viable technology. The study revealed that by adopting the recommended technology, productivity and economic returns can be increased.
substantially in groundnut, sesame, sunflower and safflower both under irrigated and rainfed conditions.

M.G. Nema and A.M. Jaulkar found in Murar block of Gwalior district of Madhya Pradesh that the level of technology adoption was 48.4 per cent only. Except seed rate, there was lesser adoption of seed treatment, followed by plant protection, phosphorus and potassic fertilisers.

P.M. Sharma and R.P. Sharma, using experimental data on fertiliser response for mustard crop in Rajasthan, have observed large gaps between optimum and recommended, and between recommended and actual use of fertilisers. The analysis showed that application of optimum doses of fertiliser in mustard could increase yield by 50 to 80 per cent.

R.C. Verma et al., have reported large gaps in yield and profitability of taramira produced with improved technology and existing technology, based on data from frontline demonstrations at Jobner (Rajasthan).

III

MARKETING AND PROCESSING ASPECTS OF OILSEEDS AND PULSES

Papers received on marketing, processing, pricing and supply response of oilseeds and pulses mostly pertain to groundnut. Very limited attention has been paid to non-edible oilseeds. Even the studies on supply response used the traditional method suggested by Marc Nerlove without making desired improvements therein by incorporating non-price factors, relevant in the present time. Studies on marketing efficiency are also sketchy and cannot be used for generalisation. Processing and price policy aspects are also studied in a casual manner.

Pulses and Oilseeds

K.G. Agarwal, using the data collected from 200 respondent farmers from Chhattisgarh area of Madhya Pradesh, have estimated the marketable surplus of three pulses (redgram, blackgram and gram) and five oilseeds (groundnut, sesame, niger, rapeseed and mustard and linseed). The paper, however, fails to provide the method of computation of marketable surplus and reasons for variations therein. The methodology used and logic provided are too weak to derive meaningful implications from findings on variations in sale in village, weekly and regulated markets and on association between price and arrival of commodities.

Debnarayan Sarker has examined the impact of modern agricultural technology on production, productivity and marketing of pulses and oilseeds in West Bengal. The study reveals positive impact of new agricultural technology on production and productivity of pulses. No precise attempt is, however, made to examine the impact of technological improvement on marketing of these commodities. The study of V.P. Tyagi et al., pertains to the year 1984-85 on price spread and cost-price relation and hence is not of much relevance now.

Pulses

Shiv Ram Dass, using National Sample Survey data on consumer expenditure and Labour Bureau data on consumer price, has estimated the per capita monthly consumption of pulses.
Based on quadratic function the study reveals that the per capita consumption of pulses is declining over time in rural as well as in urban areas due to stagnant domestic production. The author has also estimated expenditure elasticity, price elasticity and cross-price elasticity of pulses. N.S. Viswanath has analysed the performance indicators of production and marketing of pulses in Karnataka with the help of per capita availability, growth rates in area and production and parity indices of wholesale prices over time.

S.P. Gupta and A.K. Gauraha have examined the economics of processing and marketing of pulses in Raipur district of Madhya Pradesh. The study reveals under-utilisation of processing capacity by processing units, thereby resulting in a very high cost of processing. The costs of marketing and processing are reported to be 58.73 and 41.27 per cent respectively.

B.B. Beohar and A.K. Sarawgi have estimated marketing costs and margins of arhar in Narsinghpur district of Madhya Pradesh. The shares of producer and processor in retail price of arhar are reported to be 80.33 and 12.85 per cent respectively. The weak methodology (not explained in the paper) has resulted in discrepancies in the results. For example, the share of processor is reported as 12.85 (10.31 + 2.54) per cent at one place and 11.85 (9.31 + 2.54) at another place. The study conducted by Brahm Prakash and Sushila Srivastava reveals the existence of seasonality in market arrivals and prices and negative correlation between the two for gram in Uttar Pradesh.

Oilseeds

P.K. Dixit and K.C. Hiremath, Dibakar Naik and B.C. Mohanty, Chhotan Singh and Roshan Lal, S. Tripathy and M.V.S. Gowda, K.A. Varghese and D.P. Yadav, and V.T. Raju et al. have estimated supply response of oilseeds (groundnut in most of the studies) in Karnataka, Orissa, major oilseed growing states, Orissa, Rajasthan and Andhra Pradesh respectively. The findings differ from state to state and from study to study. In some studies, weak relation between supply and price is reported and growers are not found responsive to yield or price risk (Chhotan Singh and Roshan Lal) while most of the studies confirm the earlier findings of response studies.

Most of the papers received on the marketing of oilseeds are concerned only with groundnut, and other oilseeds are studied by very few scholars. Anita Arya has used Koycks distributed lag model to explain the process of price formation for groundnut oil. She found groundnut market vertically integrated. The study also reveals that the size of market has positive influence on oil price, and adjustment in price takes 2 to 9 days. K.N. Ranganatha Shastry has examined the structure of groundnut market in Karnataka and found imperfections therein.

D.N. Hedgire conducted a study on production, marketing and processing of groundnut in Marathwada region of Maharashtra. The costs of marketing and processing of one quintal of groundnut are reported to be around Rs. 21 and Rs. 68 respectively.

Dibakar Naik and B.C. Mohanty found significant upward trend and seasonality in groundnut prices in Orissa. Similar findings are reported by A. Pushpavalli for Tiruvannamalai market of Tamil Nadu. She has also examined the relationship between market arrivals and prices of groundnut.

G.N. Patel and N.L. Agarwal have examined the spatio-temporal efficiency of groundnut
markets in Gujarat. They have reported the shares of the farmer, marketing cost and marketing margin as 73.43 per cent, 9.42 per cent and 17.15 per cent respectively of the processor’s sale price. The study reveals that the storage cost exceeds off-season rise in price and the spatial difference in price exceeds transport cost between primary and secondary markets in most of the cases. On the other hand, the producer’s share is reported to be 43 per cent of the retail price of oil and cake in Andhra Pradesh by Rajagopal.

K.D. Rajmane conducted a study on the economics of production, marketing and processing of sunflower in Marathwada region of Maharashtra. The study reveals that the sunflower cultivation is profitable and that the costs of marketing and processing are around Rs. 22 and Rs. 58 per quintal respectively.

IV

ISSUES FOR DISCUSSION

1. The Technology Mission was set up to implement an integrated policy to improve oilseed production technology, post-harvest technology, to strengthen services to the farmers and to ensure remunerative prices to the farmers. What lessons can be learnt from the performance of the Technology Mission in terms of its individual components and the integration among them?

2. Change in production of most of the oilseeds and pulses is greatly influenced by area effect compared to yield effect. In view of the scarcity of cultivated land and the pressing need for augmenting production, the large extent of non-adoption of existing improved technology and yield gaps, what policy measures are required to remove the constraints in technology adoption and enhance yield effect?

3. The oilseeds and pulses have experienced growth with instability. What policy measures would be required to reduce the area and yield instability in irrigated and rainfed conditions?

4. There are inter-regional shifts in terms of area under individual crops as well as in terms of total oilseeds and pulses. Whether these shifts would tend to diversify the oilseeds and pulses economy? What would be infrastructural implications of such shifts?

5. There has been marginalisation of resources in the production of oilseeds and pulses particularly with respect to land and irrigation resources. How can this process be reversed or else how can the productivity of oilseeds and pulses be increased?

6. Given the present structure of production of oilseeds and pulses, which is characterised by diversified, low volume and low density over space, what kind of marketing and processing and other institutional support is appropriate which can act as catalyst in raising production of oilseeds and pulses?