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RATIONALE OF CROPPING PATTERN IN MADHYA PRADESH STATE

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CROPPING PATTERN

It is believed and rightly so, that due to various developmental measures taken by Government since post-war plan period producers have become more price conscious and have been utilising their scarce resources like land to their best economic advantage. The present study seeks to depict as to how far such changes had been effected in the cropping pattern of Madhya Pradesh State during the period from 1950-51 to 1958-59.

A study of the present distribution of the cropped area among different agricultural crops and variations in the cropping pattern in M.P. from the triennium ending 1952-53 to the triennium ending 1958-59 revealed that due to reclamation of culturable waste land, net area sown increased by 2,851 thousand acres or by 8 per cent from an average of 35,417 thousand acres in the triennium ending 1952-53 to 38,268 thousand acres in the triennium ending 1958-59. The gross area sown increased by 3,581 thousand acres or by 9 per cent from 39,205 thousand acres to 42,786 thousand acres during the corresponding period. The difference of 1 per cent between the increase in gross and net cropped area is accounted by the area under double cropping. The latter formed 9.7 per cent of the gross area under the crops in the first triennium and it increased to 10.6 per cent in the second triennium. As such it might be said that the producers were adopting, by and by, the more intensive method of cultivation.

It was generally agreed that due to huge outlay and developmental measures taken under the Five-Year Plans, tremendous changes had taken place in the village economy. Agriculture was no more a way of life but it had been slowly becoming a commercial profession for agriculturists. It was found that out of the total area cropped during the triennium ending 1952-53, area under foodgrains accounted for 83 per cent and non-foodgrains for 17 per cent. The former, however, increased to 85 per cent in the triennium ending 1958-59, whereas the percentage of cropped area under non-foodgrains declined by 2 per cent. The area under the two main sub-groups of commercial crops, *i.e.*, oilseeds and fibres remained constant at 14.6 per cent of the total area cropped in both the trienniums. That means, there was no change in the position of commercial crops in the total land under the plough in the period under study. There was a precipitous fall in the area under 'non-foodgrains other than oilseeds and fibres' from 2.1 per cent to 0.5 per cent. Therefore in Madhya Pradesh people were not found to have leaned more towards the sowing of commercial crops in preference to food crops. It was further discerned that among foodgrains the percentage acreage occupied by all crops dropped in the two periods under study except in maize, wheat, gram and *tur*. Among non-foodgrains, except groundnut there was no gain in position of any other crops.

N. B. Detailed Tables have not been given in this paper to save space.

Out of the actual increase of 4.2 million acres in the cropped area under foodgrains, oilseeds and fibre crops during the two trienniums, 68.2 per cent went to cereals, 16 per cent to pulses, 2.2 per cent to other foodgrains, 12.3 per cent to oilseeds and 1.3 per cent to fibres. Area under non-foodgrains other than oilseeds and fibres showed a decline of 640 thousand acres. The main crop under the latter crop-group was fodder. Of the total increase in the area sown, nearly 50 per cent went to wheat alone, which was followed by groundnut, rice, gram, small millets, minor pulses, linseed, maize, sugarcane, cotton and others.

During the two trienniums, the area under cereals increased by 12 per cent, pulses by 8 per cent, other foodgrains 18 per cent, oilseeds 14 per cent and fibres 3 per cent. In the rest of the crops (of which fodder was the main crop) there was decline in area sown by 75 per cent. Coming to individual crops, it was noticed that among cereals while the area under jowar and bajra remained stationary, the area under rice, maize, wheat, barley and small millets increased by 4 per cent, 16 per cent, 42 per cent, 2 per cent and 9 per cent respectively. Among pulses there was increase in area sown in all kind of pulses varying from 6 to 11 per cent. Among foodgrains other than cereals and pulses all increased except fruits and vegetables. The latter showed a decline of 4 per cent. Among oilseeds only sesamum had declined and the fall in its area was as much as 21 per cent. Thus in the two trienniums under study the percentage increase was the highest in wheat among cereals, *tur* under pulses, condiments and spices under other foodgrains, groundnut under oilseeds, cotton under fibres and opium under non-foodgrains other than oilseeds and fibres.

ZONAL VARIATIONS IN THE CROPPING PATTERN

The State could be divided into 5 contiguous zones[1] according to the major crops grown in them as follows:

Zones		Districts in Each Zone
I. Rice Zone	—	Sidhi, Shahdol, Surguja, Mandla, Bilaspur, Raigarh, Balaghat, Drug, Raipur and Bastar.
II. Rice-Wheat Zone	—	Panna. Satna. Rewa, Jagdalpur and Seoni.
III. Wheat Zone	—	Vidisha, Sagar, Damoh, Sehore, Raisen, Hoshangabad and Narsinghpur.
IV. Cotton-Jowar Zone	—	Mandsaur, Ratlam, Rajgarh, Ujjain, Shajapur, Jhabua, Dhar, Indore, Dewas, West Nimar and East Nimar.
V. Jowar-Wheat Zone	—	Morena, Bhind, Gwalior, Datia, Shivpuri, Guna Tikamgarh, Chhartarpur, Betul and Chhindwara.

1. See Agricultural Atlas of Madhya Pradesh, p. 26.

It may be noted that an increase or decrease in the area under different crops in the triennium ending 1958-59 over the triennium ending 1952-53 in the State as a whole was not necessarily accompanied by similar increase or decrease in the crop zones too. The magnitude of the rise or fall was not also the same. For example, the area under cereals increased more than the State average (12 per cent) in cotton-jowar zone (14 per cent) and wheat producing tract (30 per cent). Among cereals, the increase in rice in rice zone was 4 per cent, *i.e.*, the same as in the State but the increase was 11 per cent in cotton-jowar zone. Rice did not find favour in wheat tract but the area under wheat increased in all the tracts. The major increase in wheat had taken place in cotton-jowar and jowar-wheat belt by 53 per cent and 51 per cent respectively. The increase in main wheat zone was only by 45 per cent. The area under jowar was constant in the State but decreased by 79 thousand acres, *i.e.*, by 5 per cent in the jowar-wheat zone. In rice producing zone the area under jowar increased by 55 per cent. Among pulses, there was decline in the area only under minor pulses, specially in rice-wheat zone (20 per cent) and wheat zone (9 per cent). There was a heavy reduction in the area under fruits in the main fruit belt lying in the cotton-jowar belt by 54 per cent. In oilseeds the sowing of groundnut was discouraged in the main rice and wheat-rice tracts. It however, showed an increase varying from 41 per cent to 76 per cent in the other three tracts. Sesamum was gradually yielding place to wheat in jowar-wheat belt and to groundnut in cotton-jowar belt. The increase in area under linseed was above the State average (12 per cent) in rice, rice-wheat and jowar-wheat zones, being 21, 29 and 18 per cent respectively. Cotton increased by 44 per cent in jowar-wheat belt against an average of 4 per cent increase in the State and in the main cotton-jowar belt.

RATIONALE OF CHANGES IN THE CROPPING PATTERN

It was said that the yield rate per acre and gross value of the produce had a great say in shaping the policy decisions of agriculturists and in the allocation of their land to different crops. It was found that the yield rate of all major crops increased in the two trienniums except in small millets, minor pulses, castorseed, sesamum, rape and mustard seed and linseed, the percentage decline in the latter case being 41, 12, 25, 7, 1, and 5 respectively. Yet the area under small millets had increased by 9 per cent, minor pulses by 6 per cent, castorseed by 10 per cent, rape and mustard seed by 2 per cent and linseed by 12 per cent. It was only in sesamum that there was a decline in area by 21 per cent. The increase in area under small millets was mostly effected in rice growing tract. The main reason advanced in favour of small millets by leading cultivators, was that the sowing of small millets served as an insurance against low rainfall. It was sown mostly on high land with poor soil. Moreover, the new area, even though it was on plain, was sown for first 3 to 5 years with small millets before it was transferred to rice crop. Therefore, in spite of its gross value being even less than one-third of rice, the area under it increased in the two trienniums. As such the possibility of shift from small millets to rice in rice growing tract was very remote. It was only in jowar and wheat growing tract that such a shift was possible.

The yield per acre of minor pulses (*khesari, urad, moong, masoor* and *kulthi*, etc.), was even less than one-third of *tur* and was approximately 40

per cent of gram. The gross value was also 50 per cent of gram and less than one-third of *tur*. The question arises as to why then producers preferred to put area under minor pulses and were expanding the area under it. It may be noted that the area under minor pulses had declined by 9 to 20 per cent in rice-wheat and wheat growing tracts only. The increase in the area had taken place in all other tracts. The main reason of increase in jowar producing belt was that pulses like *moong* and *urad* which were mostly grown in this tract were sown as mixed crops with jowar. If the rainfall is less than normal, these two crops thrive well. However, there is a case for transfer of area from *urad* and *moong* to rice crop in rice growing tract. *Masoor* is sown mostly in wheat producing belt of Madhya Pradesh. It serves as a cash crop for producers in this belt. The average price of *masoor* during 1956-58 was Rs. 21 per maund which was more than the average price of gram and wheat by 75 per cent and 40 per cent respectively. Therefore, cultivators met their cash requirements by selling *masoor*. *Khesari* is mostly '*Utera*' crop and is broadcast in the fields in which paddy is standing just a month before the crop is to be harvested. It is sown on double cropped area and hence does not occupy any additional land.

Among oilseeds, castorseed is not an important crop of Madhya Pradesh. However, the increase in its area from less than 500 acres to 11 thousand acres in cotton-jowar tract required some investigation. In fact it was found that yield of castorseed was only 157 lbs. per acre in this tract against 231 lbs. per acre in rice tract and 302 lbs. per acre in jowar-wheat tract. As such there is no use practising the sowing of this crop in this belt.

Rape and mustard seed is mostly sown in rice producing belt and jowar-wheat zone. The gross value of this produce was more than that of gram and wheat and hence its area had increased in jowar-wheat belt. This is mostly sown as mixed crop with gram and wheat.

Linseed is a competitive crop with *khesari* as both are sown as '*Utera*' crop. Linseed, however, fetched more than double the price of *khesari*. It was being encouraged by the Agriculture Department under the Linseed Extension Scheme. Therefore, its area increased mainly in the rice growing tract. In wheat growing tract linseed required less water and is harvested earlier than *Holi* festival. The cultivators meet the festival requirement by selling this crop before *Holi*. Yet there is no economic justification for sowing this crop as pure crop in this belt when both its yield per acre as well as its gross value are lower than that of both wheat and gram. The yield of linseed was less than 50 per cent of gram and wheat in all the tracts of Madhya Pradesh.

The percentage fall in the area under sesamum was more than the percentage fall in its yield. The yield per acre had fallen by 7 per cent but the area had fallen by 20 per cent during the period from 1950-51 to 1958-59. Sesamum is grown in all the tracts of Madhya Pradesh. The fall in area might be due to less return from this crop. The per acre gross value of the yield of sesamum was lower than the per acre gross value of rice, wheat, jowar, bajra, maize, gram and all oilseeds except linseed. It was reported by some agricultural officers that it did not find favour to be sown as mixed crop too as it was, of late, generally attacked by an insect called white-ants and therefore it fetched less return. Sesamum is gradually being replaced by groundnut in cotton-jowar belt and by other crops in other belts.

The yield of rice is certainly higher than other crops. The gross value of rice per acre was also higher than that of all other crops but sugarcane. Yet it could not be expected to be extended in all parts of Madhya Pradesh because of topographical, soil and climatic factors. These factors played a great part in the allocation of land among different crops. The eastern part of Madhya Pradesh has a warm climate. The land is plain. Rainfall is more than 50" in a year. The soil is also red and yellow most suited for rice. Hence rice is mostly grown there. Similarly wheat is mostly grown in the central part, cotton and groundnut in south-west and jowar in west and north-west Madhya Pradesh. The area under rice had, however, increased by 11 per cent in cotton-jowar zone and by 6 per cent in jowar-wheat zone. It was because in the former zone the producer's income had increased too much on account of more prices being received from the sale of cotton and groundnut and hence the consumer's preference had shifted from coarse gain like jowar to rice and wheat. It was one of the main reasons that the increase in area under jowar was insignificant in this belt. The low lying lands assured of rain-water or water from other sources of irrigation were put under rice.

The gross value of the per acre yield of wheat was Rs. 86 and of jowar Rs. 87. The difference in their prices being nominal, the people preferred to eat more of wheat and hence there was an increase in area under wheat in jowar-wheat producing belt and decrease in the area under jowar. The increase in the area under wheat was mostly associated with increase in area under irrigation and thereby with an increase in its yield. It was found that the net area under irrigation in wheat zone, cotton-jowar zone and jowar-wheat zone had increased by 40 per cent, 25 per cent and 10 per cent respectively. The area under wheat had also increased in these three zones between the two trienniums under study. The introduction of C 591 and rust-resistant Hybrid 65 varieties also played a great part in the diversion of area under jowar and sesamum to wheat in jowar-wheat producing belt of Madhya Pradesh. The per acre yield of these improved varieties was found to be more by 15 to 20 per cent over *desi* wheat called *Pissi* here. Hybrid maize brought a revolution and its acreage increased by 16 per cent.

As regards sugarcane, its acreage was found to have increased only in those regions where there was increase in net area irrigated. Sugarcane naturally could be sown only in areas where perennial water could be assured. Similar was the case with condiments and spices.

Among oilseeds, groundnut found much favour with the agriculturists as per acre gross value of the yield was the highest in this crop group. Its gross value was even higher than that of wheat and therefore even in wheat belt it was being encouraged.

Cotton is a competitive crop with groundnut. Increase in its acreage was only 4 per cent as against 69 per cent increase in groundnut firstly, because the per acre gross value of the produce of the former was lower by 28 per cent than the latter and secondly, because it was more susceptible to the vagaries of nature as its crop season lasted much longer than the groundnut. Since the black soil of Malva was most suitable for this crop, increase in its area in this tract (Zones IV and V) was natural. The area under cotton in Zones I, II and III could be easily replaced by other crops. The yield per acre in Zones I, II and III combined was only 60 lbs. against 92 lbs. in the Malva tract.