

# Modern Trends in Indian Agriculture

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**Introduction :** When the implementation of the various suggestions included in the Second Five Year Plan has just begun in the country, it is but proper that the Department of Agriculture should take into account the modern trends in Indian Agriculture. Naturally any research plan, more so of that of Agriculture, should have as its ultimate object the fulfilment of the various aspects of national development incorporated in the current five year plan. India being mainly an agricultural country, her prospects depend chiefly on the sound plan of agricultural research.

With the end of March, 1956 the first five year plan period was successfully covered. The level of food production in 1955-56 has increased by 15% when compared with that of 1949-50. In the first plan period irrigational facilities, supply of manures and seeds of high yielding strains of cereals and reclamation of land were considered and improved considerably in the country. In the second five year plan, the following targets are aimed at in agricultural production :—

Commodity	Unit	Estimated Production in 1955-56	Targets of additional production.	Estimated production by 1960-61	Percentage increase
Food grains	Million tons	65.0	26.0	91.0	40.0
Oilseeds	do	5.5	1.5	7.0	27.3
Sugarcane (Gur)	do	5.8	1.6	7.4	27.6
Cotton	Million bales	4.2	1.3	5.5	31.0
Jute	do	4.0	1.0	5.0	25.0

How it is possible to achieve these targets and how the modern trends in Indian Agriculture are favourable for this great achievement are briefly discussed in this paper.

**Increased Production in Crop Yield :** The main crux in agriculture is a steady maintenance of high and profitable level of crop production. It, in turn, involves various factors like proper maintenance of soil fertility, evolution not only of high yielding but also

disease resisting strains of food and commercial crops, improvement of irrigational facilities, adoption of improved agronomic practices and prevention of heavy damage to crops by sudden and violent changes in weather.

**Soil Fertility:** 'Good soil means good crop'. This is an old adage. Maintenance of soil fertility implies foremost the maintenance of soil structure and then replenishing the soil with the essential plant nutrients that have been depleted from the soil due to the previous cropping.

The structure of the soil can be maintained only if all the causes of soil erosion are successfully controlled. The problem of prevention of soil erosion is now being actively solved in twenty-two States in close collaboration with the Central Soil Conservation Board. Four Regional stations have been set up for intensive research and imparting training to technical personnel. Well-planned work is already progressing in this line. In the second five year plan an amount of rupees twenty-five crores have been provided for soil conservation work. A detailed and comprehensive programme, drawn up already envisages the possibility of effectively adopting soil conservation measures over a total area of three million acres of different types of land.

An indispensable adjunct to successful conservation is judicious afforestation. The Russians have already instituted a twenty year programme and they are at it now. In India also creation of shelter belts has already been taken up. The importance of afforestation is already gaining ground and the farmers are realising that they must know their forests. In the second five year plan an amount of Rupees Twenty-five crores has been allotted for this purpose with the intention of having afforestation in an area of 6,00,000 acres.

In short, the problem of soil conservation has gained great importance in the trends of modern Indian Agriculture.

Apart from the protection to the structure of the soil, supply of adequate manurial ingredients to the soil is very essential. Intensive research in this direction is engaging the attention of agricultural research workers in every State in India.

The mass-scale production of the various manures and fertilisers is also engaging the attention of the Central Government. The production of ammonium sulphate and superphosphate have respectively

increased from 46 and 55 thousands of tons in 1950-51 to 380 and 100 thousands tons in 1955-56 as a result of the adoption of the measures included in the first five year plan. These limits will further increase respectively to 1600 and 600 thousands tons in 1960-61, i. e., at the end of the second five year plan period. When the production is stepped up, timely availability of fertilizers can be actually had at reasonable costs, perhaps well within the means of the ordinary farmers.

Designing of effective agricultural implements to maintain the fertility of soil in an advantageous condition for successful crop production is also being considered in agricultural research.

**Evaluation of high yielding and disease resisting strains :** It has been the policy of the agricultural research workers in the various States to improve the yielding capacity of cultivated crops by careful breeding. Achievement has been remarkable in this direction. Of late the problem of producing disease resistant strains is being considered with all seriousness and realisation of its economic importance. The paddy Specialist of the Madras State has successfully evolved two short duration cultures 6517 and 6522 of cross Co 13 x Co 4 and one culture 6538 of cross GEB 24 x Co 4 for blast resistance. In the case of long duration varieties he has already released two blast resistant strains, namely, Co 25 and Co 26. Similarly the Millets and Pulses Specialist is engaged in evolving blast resistant ragi strains, rust resistant Tenai and so on. Likewise other crop Specialists also are actively engaged and fairly successful in evolving disease resistant strains in their respective crops. Systematic data are being collected in the Agricultural Meteorology Section, Coimbatore for the past two years on irrigated crops. Suitable field techniques are being evolved at Coimbatore. In the case of Jassids on cotton the data collected reveal tentatively that the sampling unit should include 60 plants when the incidence is severe and 90 plants when it is otherwise. This is a very useful line of work, which has to be encouraged on an all India basis. When sufficient data are collected, it may be possible to predict the incidence of major pests and diseases on crops based on the meteorological conditions as it is being done in Japan for paddy crop and in America for potato and wheat crops.

**Improvement of Irrigational facilities:** Apart from the improvement of the existing irrigational facilities - major as well as minor - the agricultural research workers are trying to assess experimentally, the

minimum water requirements of crops. Perhaps, the adoption of 'Waste Not and Want Not' theory may amply pay in this direction. If the wastage of water under field conditions is controlled and at the same time the minimum amount of water is given to the crop to grow normally, it will immensely augment the present slender water supply in irrigational sources. In the first five year period the irrigated area was increased to 67 million acres in 1955—'56 from 50 million acres in 1950—'51.

Trapping of cheap sources of power for irrigation like wind power is also slowly engaging the attention of the authorities. A provision to the tune of seven crores of rupees has been made in the Second Five Year Plan with the basic idea of installing low and medium capacity windmills in the wind swept areas. These windmills will be used for the working of pumps for the small scale irrigation from wells, ponds and streams and also for electrification in rural parts.

**Adoption of Improved Agronomic Practices:** Under this heading comes the adoption of Japanese method of cultivation of paddy. The relative study of the Japanese method when compared to farm method was in progress in eight Agricultural research stations in Madras State. This method of paddy cultivation has won the patronage of the farmers with the result that in India an area of twenty million acres had already been brought under this method in 1955—'56. In the second five year plan this area is proposed to be doubled by 1960—'61. It is felt that the extension and wide adoption of this method will substantially increase the average yield of paddy. An analysis of this method will reveal that it involves three basic principles of crop production, namely, careful selection of seed material, adequate manuring and judicious intercultivation. The first precaution gives a good start to the crop. The second one meets adequately the manurial requirements of the crop. The third and the last one creates an ideal and favourable condition in the field for the crop to grow luxuriantly. An useful trend in Indian Agriculture may be the adoption of similar improved agronomic practices for other cultivated crops as well.

**Prevention of Damage to Crops by sudden and Violent Changes in Weather:** The sudden and violent changes in weather include floods, droughts, cyclones, hurricanes, gales etc. A scheme is being worked out as to how best the Madras Agricultural Department, in close

collaboration with the Indian Meteorological Department, can help the farmers to minimise the heavy damage done at times to crops by these sudden and violent changes in weather. For effective dissemination of news and warnings to farmers the co-operation of the All India Broadcasting department is also felt as a necessity.

In the second five year plan effective flood control measures like improvement to the existing revetments, spurs and embankments as short term measure and construction of new embankments and channel improvement as long term measures have been included.

To overcome drought stimulation of clouds, known otherwise as artificial rain-making, is also engaging the attention of the Madras Agricultural Department with the co-operation of the Chief Engineer for irrigation. The preliminary experiments conducted in Nilgiris district in 1955 and 1956 indicate the possibility of getting rains whenever heavy cloud formations exist in the sky. The crop Specialists are also trying to evolve drought resistant strains of cultivated crops.