

Lord Curzon Lecture :

## Increasing Agricultural Production \*

by

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### Part IV. SOME SUGGESTIONS

There must be intensive work accompanying the execution of the ideas, once accepted, and a sincere desire to work for the country and the nation. We must shed our easy going ways and divorce ourselves from Red Tape. More than anything else we must have confidence in our capacity. The suggestions are along the following lines :

1. Bringing new area under cultivation with some slight changes in our cropping pattern.
2. Introduction of new crops and varieties.
3. Change in our food habits.
4. Change in our mental outlook.

An examination of the area distribution of crops in India for 1960-'61 indicates that cereals occupy 63 per cent of the cultivated area and only 37 per cent by the others. This may look desirable on account of our present food situation, but a slight reduction under cereals must be attempted because we are confident of increasing our acre yields. A three per cent reduction must be done ; this three per cent reduction must be taken over to increase the area under sugarcane, which has also to be considered as an important food crop. Sugar is still a luxury product in India and this energy-giving food must be made available to the growing generation which has to be built to participate in international competitions on a par with other nations. Further, if we are able to reduce *the cost of production* by increased yield and by mechanisation, there is a good scope for increasing exports of sugar after meeting our demands. Along with cereals, we must have also in view the development of our industries ; the sugar industry has a major position in india's economy and if we do not think with a far-range vision, we may after some years be in need of this valuable commodity. Thus, 60 per cent under cereals and 40 per cent under other crops with about eight to nine per cent under sugarcane will place our agricultural economy on a very sound basis. This may not be done immediately, but this should be ideal and we should set ourselves to reach in five years.

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Of the cereal area of 220 million acres, the following percentage distribution is noted: Rice 37.2, *jowar* 19.2, maize 4.8, *bajra* 13.6, *ragi* 2.5, minor millets 5.5, wheat 14.4 and barley 3.5.

The area under rice, *jowar* and wheat are fair and representative. But the areas under maize and *ragi* must be increased if possible by reducing the present areas under minor millets. These minor millets give very low yields per acre and although they are now confined to the poorer lands, they are not economic in the sense that the yield will not be commensurate with the labour and time involved in them. They are not so responsive also to fertilisers or to irrigation, as maize and *ragi* are. Under new irrigation projects and wherever underground water is being utilised, areas under maize and *ragi* should considerably increase. Maize specially, is a cereal which should find a place in our regular diet. Africa and South America completely depend on maize as their main basic cereal and with rice and wheat, maize occupies a prominent place among the world cereals. Even in rice producing and rice consuming countries like Thailand and Burma, maize is a great favourite with the people, and that is one reason why they are able to increase their exportable surplus of even rice. Maize as a cereal has several advantages. It has the shortest duration among the major cereals of the world, coming to maturity in 80 to 90 days. It is not season-bound and can be raised during all the months of the year. It can be grown well with rainfall, although with irrigation, it gives a much higher yield.

Growing maize in all domestic gardens can be included as an item of propaganda by the Agricultural Department in their campaign for growing vegetables in city house gardens. Fortnightly or tri-weekly sowing in two or three rows (depending on the area available) of about 15 to 20 feet long may be arranged to give continuous supply of corn cobs for breakfast for a small family. The rows may be 2 to 2½ feet apart and the plants may be sown 1 foot apart in the rows. When the plants are nearing harvest, that is about 2½ months after sowing, the interspace between the rows may be dug up and a fresh sowing done. In this way, almost in the same area, maize can be grown throughout the year.

Closely associated with a change in the cropping, should be a search for new areas to be brought under cultivation. With the urge for increasing food production, *poromboke* lands under Government are being released for cultivation. In Salem and North Arcot districts, 91 land colonisation societies are doing good work on these *poromboke* lands, and about 10,000 acres, of which 25 per cent are under wet cultivation, are being developed. All this is good news, but there are limits to such extension of cultivable area. With many cities expanding industrially, areas which were formerly rural and under crops like rice, are becoming urban, and covered by houses, offices

and factories. With the industrial expansion of the country, competition between agriculture and industry for land is bound to increase, and as a consequence, cultivable waste land will become less available for agriculture. This is inevitable, for industries are as important for national development and advancement as agriculture is for feeding the millions.

Fantastic perhaps it may seem, but there is a place available, where this competition is not likely to occur, at least for many more years to come. India has a long coastline, nearly 2,000 miles, from Calcutta on the east upto Cape Comorin in the south, then turns up to Gujarat on the west. All along this coast, there is a stretch of sandy soil, with some shrubs and xerophytic plants here and there. In most places, this sandy stretch is about a mile or two in width, but in some places it extends to five miles or more inland. *Why not make use of this sandy stretch for future extension of agriculture?*

In Bapatla taluq, of Guntur district of Andhra State, crops are being grown on such sandy soils. "Duruvu" cultivation is in fact a feature of this tract. "Duruvu" is the local name to the wells which are scooped out of the sand to obtain water for irrigation. Each "Duruvu" commands an area of two to three cents each. Splash irrigation is the practice and the splashing is given three times a day, morning, noon and evening. The crops grown are brinjal, chillies, *gogu*, some cucurbitaceous vegetables and nurseries of rice and tobacco. Occasionally, a cereal crop like *ragi* is also raised. Heavy doses of fertiliser, usually ammonium sulphate are applied being dissolved in a pot of water and sprinkled into the crop by hand.

Although the water table is high, in order to allow the farmer to go down into the well and bring up the pots of water, a comfortable slope is given; this is necessary on account of the sandy nature of the soil, which would otherwise cave in. The yields are economically high and keep the farmer and his family in comfort. For example, farmers get as much as 2,000 pounds of *ragi* per acre. On the farm attached to the Agricultural College, Bapatla, the same sandy soil is found and in the very first year of trials, MTU. 9 rice variety gave nearly 2,000 pounds per acre. In subsequent years, yields upto 3,000 pounds were obtained. 3,000 pounds of green leaf and 80 pounds of ammonium sulphate were the manures applied.

Before the scheme of bringing the coastal sands is put into operation, a preliminary survey of underground water and supply is indicated. Already in Madras, the Ground Water Cell engineers are doing valuable work with UN Technical assistance. Their help and advice may be sought in this connection. The water table is likely to be reached five to ten feet from the surface, and the supply will be adequate.

There is also an impression that underground water near the sea shore may be salty and may not be fit for irrigation of crops. This impression is not quite correct nor is it supported by evidence. The famous verse of Avvayar wherein she has stated, that while the sea is enormous, its water is not suitable even for taking a bath, but a small spring in the neighbourhood will have sweet and drinkable water may be recalled. During the years 1946 to 1949, the water of over a hundred wells in Bapatla Chirala and Chinnaganjam in Guntur district, all within three to five miles from the sea were examined. Occasionally, wells with 100 to 200 parts of salts per hundred thousand were found but there were many with only 30 parts and less. The Railway Station well at Chinnaganjam, an important watering station on the Southern Railway, had only 25 parts per hundred thousand and this place was just two to three miles from the sea. The chief salt in all these wells was sodium chloride, and this is also an encouraging factor as the chloride ion is a very mobile ion and will easily drain away on the porous sandy soil. There is, therefore, absolutely no chance of alkalinity developing by using the water for irrigation.

In Madras State, the work should start with Ramanathapuram district and if found successful, on a small area, may be extended to other areas. Madras has always been in the forefront in a number of schemes connected with increasing crop yields, and here is a glorious opportunity to show our mettle. Even if the Government is not in a position to finance the scheme, the students and staff of this College, can form colonies in this area, and show that the idea can be realised.

**New crops suggested:** Among the crops to be introduced and extended on a large scale, Soybean and *Glycine maxim* can be suggested for rapid multiplication. Some early experiments several years ago by the Agricultural Department did not give encouraging results and somehow interest was lost in it. Failure were due to sowing the seed imported from abroad without inoculation of the specific bacterial culture. All legumes do not thrive in new areas in the first few years for want of the specific bacteria in the soils; soybean is no exception. This can be remedied in the new trials hereafter, by arranging for bacterial culture to be made available to farmers by the Agricultural Bacteriologist.

The best season is December to February, but experiments may be conducted to find out the proper seasons in different localities. It is very common and popular in all Asian countries in the East; during the last 25 to 30 years it has also spread in the U. S. A. where it is even supporting many industries which require soybean as raw material.

Soybean has several advantages over *Cajanus*, the chief being its duration, which is only 3 months as against the 8 months and more for *Cajanus*. It is also easier to harvest and collect the peas than in *Cajanus*. The plant is a small bush with a cluster of pods which can be taken to the threshing floor straight away and the grains gathered. It gives an average yield of 400 to 500 pounds per acre under rainfall, but with care and irrigation the yield can be pushed up to 1000 pounds. Phosphatic fertilisers help in giving an even stand of the crop after sowing and in increasing the yield. Phosphorus also gives well-developed pods.

**Change in Food habits:** Food fads are of course dangerous, but where science tells us that foods contain the necessary constituents in the same amounts, we must keep an open mind and change our habits to suit the supply. It will be very difficult or even harmful to change the old people who have been accustomed to rice all their lives. But we must catch the next generation young and develop good dietetic habits in them. It is not merely with a negative attitude that we must do so when there is scarcity of rice, but with a positive approach that the other cereals are as nutritious and people in any parts of the world are taking without any deleterious effect on their health and condition.

This is an intellectual institute, with a glorious record of science research and enlightenment. Where in the country is there a more appropriate place to originate a movement for changing food habits, a movement that once set in motion under such suspicious circumstances is bound to gather momentum and spread all over the country? It is also equally propitious that we have at Coimbatore another intellectual centre of science, the Avanashilingam College of Home Science. The Agricultural College for PRODUCTION, and the Home Science College for PREPARATION of tasty dishes - what a wholesome combination even to visualise? With understanding and co-operation between both, one can switch the menu in hostels to have different cereals on different days of the week. This will be a positive move in a healthy direction better than the negative of foregoing a meal on one day of the week. Casteism and community development are contradictions and we cannot go forward as a united nation, unless we change our mental outlook about differences in human beings by the accident of birth. This is important in all our activities, but much more so in agriculture where the farmers and the labourers have to feel that they are working not only for themselves but for the whole nation. Work under those conditions, becomes a pleasure and the efficiency is raised to a high level. Once again the Agricultural Department officers have a very great responsibility to bring about this change by their example, for they have very intimate contact with the farmers and they know how they feel. In addition to advising them on agricultural matters and

getting them seeds, fertilisers and pesticides, the departmental officers also have to study the social conditions under which the rural folk live and do all in their power to improve their condition in every way. This is not only necessary in the National interest but also is a humanitarian activity where the officers must feel in their hearts for betterment of the people all round.

These are some of the suggestions to improve our present condition. A great responsibility falls upon the Agricultural Department to increase our Agricultural Production. All our vaunted research and scientific work will be so much waste if we do not gird up our loins to meet the challenge and emerge victorious. Please do not bother about temporary shortages and do not be diverted from your main objective, that of increasing production by using the knowledge you have acquired. Justify your existence by putting forth your best and assure our countrymen that production is not wanting, set them the example by cooperating with the Government in all the temporary measures that are being taken for equitable distribution. Help to remove the scare of famine and under production in our country.

We have in India, able engineers and competent experts in the techniques of agricultural production. We have at the helm as our Food Minister, one who wishes to harness all the technical talent in the country. With our vast area and resources, it will be criminal if we disappoint him, by not putting forth our best. Let us stop all criticism of each other, but resolve to put in more work, harder work and more efficient work than before. Mr. Reston, the *New York* columnist at New Delhi, said - "India has embarked under a remarkable man from Madras, on an agricultural revolution, one of the most interesting experiments in the World today, a leap from the bullock of biblical times to the test tube of modern laboratories".

The eyes of whole world are focussed on us. Work, and more work, unremitting and undiminishing toil alone will lift us from the morass and keep our heads high among the nations of the world.

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