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NATIONAL WELL-BEING & AGRICULTURAL IMPROVEMENTS

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We have, in common, with the rest of the world, been passing through an unprecedented economic depression for the past two years. Following, as it did, on the heels of post-war years of high prices and apparent prosperity, the effect of the depression seems to have been magnified more than it would have appeared under normal pre-war conditions. No two economists are agreed either as to the real causes for the depression or with regard to its remedy. Some say that it is due to over-production of commodities more than is justified by world demand, some say that its cause is to be traced to reparations and war debts, while others say that it is due to the combined effect of world-wide over-mechanisation of the means of production resulting in unemployment of man and animal labour and the natural increase of world's population. It seems to me that all the above factors either singly or in combination have contributed in varying degrees to the present depression. It is reported that the International Statistical Institute estimates that between the years 1920 and 1928, 125,550,000 had been added to the world's population. The Indian contribution to this increase has been in the neighbourhood of 25,000,000. The remedies suggested for getting over the economic ills of the world are also of various kinds, removal of tariff walls, organisation of exchanges on a new basis like the bartex sponsored b the London Chamber of Commerce, 'Erne' proposed by Dr. Fowler in India, actual barter of commodities between nations as the exchange of American wheat and cotton for Brazilian coffee, and Russian petrol for Egyptian cotton and international agreements imposing restrictions on the production of commodities like sugar in Java, Cuba and Europe, rubber in Dutch East Indies, Malaya and other rubber producing countries.

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While over-production and over-mechanisation may be the causes for the unemployment and economic depression in other countries of the world, India's ills, on the other hand, have been, in normal times, and are to a great extent, even in this period of depression, due to under-production and non-mechanisation, particularly of its basic industry of agriculture. Under-production and over-population, I believe, have combined more than anything else to keep down the standard of life of the average Indian. In other words, the cost of production per acre of any staple crop in terms of its yield is so high in India, that countries not so well placed as India as regards climate and soil for crop production have been able to dump their produce on the Indian market and even to threaten to oust the indigenous produce in this competition. Australian wheat and Java sugar are examples. These countries have been able to do so by the application of scientific knowledge and methods for higher crop production and cutting down cost all along the line by efficiency in operations. To make the point clear, I may tell you that Java produces on an average, 65 tons of cane from an acre while India's average is about 35 tons from the same acre. We, at the same time claim, that India has the largest area under sugarcane and suitable for its cultivation. What lee-way we have yet to make, to come on a par with Java in this respect, needs no stressing from me. The same case holds good more or less, in respect of all other crops that enter into competition with other countries in the world's market.

Coming nearer home, we have the case of Tanjore rice unable to compete with that of Burma or Indo-China in the Ceylon market for the same reasons, as amply proved by Mr. N. S. Kulandaiswami Pillai, the Deputy Director of Agriculture of this Circle, in his recent report on his enquiry into the prospect of Tanjore rice in that island. A reduction of a rupee in the cost of production, or an extra yield of a rupee from every acre of paddy in the Tanjore Delta, would mean a saving of a million rupees every year. If the mirasdars of Tanjore owning this million acres of rice fields save this amount in a year, they may charter a steamer of their own and transport their rice more cheaply to Ceylon and the West Coast.

So anything made to raise the standard of production of Indian agriculture means simply the raising the standard of life of 75 % of the people of India, and indirectly that of the remaining 25 % of the population also, as almost all the other industries in the country derive their strength from this basic industry. India is forging ahead with other industries in a remarkable way now, and as more and more industries get established, to that extent, we may foresee that many millions now engaged in agriculture would be diverted to such industries. This diversion should be welcomed as it would, in addition to relieving the undue pressure of popula[illegible] land surely stimulate

and strengthen the industrial outlook of the people and make them more industrially-minded than they have been in the past. But this diversion of agricultural labour to industries will have consequences of far-reaching effect on the traditional methods of production employed in agriculture. One sure result would be the use of more and more labour-saving and efficient implements in crop production, in other words, mechanisation of production to an appreciable extent, though not to the extent of managing a 1000-acre farm by a couple of men with the help of machinery. Such drastic mechanisation is not generally adaptable to Indian conditions and even if possible, does not seem to be desirable. This partial mechanisation would be enough to create a huge industry of agricultural implement manufacture. There should be many more Kirloskar Brothers to cope with the demand. This solitary example is enough to show what healthy reaction, agricultural development on improved lines will have on the industries of the country.

The first concern of agriculture should, of course be, to produce a sufficiency of food crops to support the huge population of men and domestic animals in the country. This itself would task the resources of the agricultural industry to a great extent and more than this, the demand of industry for raw materials in sufficient quantity, and of high grade in quality, would be certain to increase as years go on. This means, again, adoption of all possible methods of production, and production of commodities of the highest grade in quality. Let me now briefly touch upon the various methods that we can adopt for improving the productive capacity of our soils and crops

Soil management itself is a problem of such vast magnitude and importance that no *mirasdar* can ignore it if he is desirous of getting profitable returns out of his land. The land should be laid out in proper way for facilitating irrigation, and still more, its drainage. Neglect of draining fields at the proper time has caused, in many a case, utter failure of the crops grown on them. Most destructive diseases of crops also appear when this operation is neglected. Red-rot of sugarcane is a typical instance.

Cultivation of soil at the proper time and with the suitable implement, is of such vital importance to the growth of crops that the fact cannot be over-emphasised. This fact, though known to many, is not generally adopted. It is easy to imagine that, as the roots of plants are the real organs concerned in gathering nutritive materials for building up a plant from the soil, all facilities afforded for their easy spread in the soil in all directions will be reflected in the final produce from a crop. That this is the result has been amply proved by the increased yield of paddy, cholam, cotton and other crops obtained by deep plo[illegible]th improved iron ploughs. An increase

of two *kalams* of paddy per acre is a certainty by the adoption of this improvement suggested by the agricultural department

Seed rate. The adoption of a higher or lower seed rate than is normal for a crop will pull down its final yield. It has been amply demonstrated that, in the case of paddy, *mirasdars* are using at least double the seed rate that is required for raising a normal crop. Ryots generally use 36 madras measures per acre in the case of *kuruvai* and 24 madras measures in the case of *samba*, while the department advocates only half of this as more than sufficient for planting an acre. There are 11 million acres of paddy land in this Presidency and a universal adoption of this seed rate for paddy would result in a saving of at least 5½ million rupees even in these days of low prices for paddy. It is really a criminal waste if we realise the fact that more than 150 million madras measures of paddy are thrown away in the fields when it would have fed a million people for more than 6 months.

Manuring: When we harvest and sell a crop off a field, it means that we have impoverished the soil to that extent. So, if we are to maintain and increase the crop producing capacity of a soil, we must put back the plant food removed in the shape of crops, through suitable manures. Different crops require different combinations and quantities of manures. So great care will have to be exercised in the choice and dose of manures given to a crop. It has been proved by actual experiments that crops respond, under South Indian conditions, to the application of phosphatic and nitrogenous manures when given in combination with organic matter. A net increase of at least 2 *kalams* of paddy is quite possible by the adoption of the manurial combinations and doses advocated by the department.

Use of improved strains of seed: Anything from 10 to 25 % increase in crop yield is possible by the use of improved strains of seeds of various crops evolved at the Agricultural Research stations in the Presidency. The paddy strains evolved at the Agricultural Research station at Aduturai, have replaced the ordinary varieties in more than 2 lakhs of acres in Tanjore and Trichinopoly districts. And it is only a question of a few years more, before the whole area under paddy would be planted with improved strains in these two districts.

Rotation of crops: Wise rotation of crops is a great necessity both for the maintenance of soil fertility, as well as for avoiding the risks resulting from relying on a single crop, in times of depressed prices. It is always a sound plan "not to put all your eggs in one basket". The lesson that the Malaya rubber planter and Tanjore rice grower have learned in this regard is a sufficient warning for all.

Side lines of agriculture like dairying, poultry-farming, bee-keeping, and fish breeding should as far as possible be combined with agriculture for greater profits.

Reducing cost of production is another method that can be adopted for successful farming. This may be achieved in various directions. It is, indeed a question of farm economics. Practical methods for adoption are (1) the better preservation of cattle manure, (2) conversion of all waste products into composts for use as manure, (3) use of efficient implements, (4) cutting down maintenance and feeding charges by using fewer and better type of animals for agricultural purposes.

Preparation of produce for the market and its transport are other directions in which enormous improvement is possible in Indian agriculture. Take for instance the case of plantain grown extensively in your district. As it is an extremely perishable product and as the crop comes on the market all at a time, the price of fruit falls to an alarming extent, to make the cultivation of this crop almost an unprofitable business. There are two ways of getting over the difficulty. One is speedier transport of the fruit to North Indian markets, perhaps, under cold storage. In this direction, the Director of Agriculture is personally interesting himself and I understand, has an idea of taking a representative of the Trichinopoly Plantain Growers' Association to North India with him for studying the market facilities there in co-operation with the Agricultural departments of the various North Indian Provinces.

Another direction in which I am trying to solve in a small way this problem of slump in plaintain trade is by trying to convert plantain fruits into 'figs' by sun-drying the fruits under proper sanitary conditions. Plantain figs of excellent quality and flavour are now being made on the Agricultural Research Station at Aduturai. The dietetic value including the vitamin content of these figs, will be tested shortly. From the figures so far gathered, I find that a 100 lb. bunch of plantain when dried gives 15 lbs. of fig and that well prepared figs keep well for more than a year. From the above it is clear that we can reduce considerably the freight on fruits by marketing them as figs and also regulate the supply throughout the year. It would also enable us to send the product to foreign markets. Plantain fig making can be easily introduced as a cottage industry. The precautions to be taken are that the fruits will have to be dried under fly-proof conditions and that no attempts should be made to make figs during damp and cloudy weather, as they easily get mouldy under such conditions.

In conclusion, I assure the mirasdars of Tanjore and Trichinopoly that no improvement is advocated by the department for adoption that has not been put to rigorous tests on the Research stations and request them to make use of those improvements for raising the level of crop production in the country.