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Cotton Seed

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The extension of World War II to South East Asia at the end of the year 1941 and the initial reverses of the Allies leading to the loss of the chief rice growing countries in that theatre, contributed to the steady deterioration in the stock and supply position of food in India. The Government were forced to take emergent and concerted measures to retrieve the difficult food situation in the quickest possible time. In accordance with this general policy, the Madras Government intensified the food drive now familiar to all as the "Grow more Food Campaign". The plan for stepping up production consisted among other items of (a) area increase by bringing in the cultivable wastes then lying uncultivated (b) legislation to curtail non-food crops (c) extension of irrigational sources both as canals and wells (d) supply of power for pumping water and essential needs of the Agriculturist in the shape of manure, seeds and tools at controlled rates and (e) liberalisation of price structure for food grains and checking the inflationary tendencies of commercial crops like cotton through price controls. The achievements of the campaign have been the subject matter of periodical reviews by the Government on the one hand and criticisms of the rate-payers on the other. The fact that we are alive to day and that starvation deaths have been few proves that the crisis has been tided over. Our thanks are due to the rationing system which saved us from collapse in the period of emergency. It cannot, however, be said that the health of cattle received the same amount of consideration as human beings. It shall be my endeavour in this paper to review the various legislative measures promulgated to discourage growth of cotton in this province and the effects they had on the position of cotton seed as a rich source of protein for stockfeed.

In the pre-war years, the annual cotton area and production in Madras fluctuated round about 2·4 million acres and 5·5 lakhs of bales of 400 lb. of lint. The cotton seed production was estimated at roughly 2·0 lakh tons, of which barely 16,000 tons were used for planting purposes, leaving the bulk of it for consumption as cattlefeed. Restrictions on the cultivation of cotton except as a mixture with food crops in specified proportions were imposed from time to time since the year 1943, first on short staple varieties like *mungari* in Ceded Districts, later on the red cotton in the Circars, and finally on medium staple qualities of all deshi cottons on rainfed lands. In March 1946, total ban was extended to the southern districts where the irrigated *masipattam* Cambodia-one of the

very best long staple varieties in the whole of India was being grown. The imposition of price controls with a trading margin for each specified variety and the introduction of a New Indian Cotton Contract in 1944, helped the buyers to a very large extent by keeping down the prices at or near the floor levels fixed for each style of cotton. The cumulative effects of all such artificial controls stepped down the statistical position of cotton in the province to 1·6 million acres, 3·4 lakhs bales of lint, and 1·2 lakh tons of cotton seed in the year 1946—47. Doubts have been expressed whether the whole of the land released from cotton amounting to 0·8 million acres annually, went under food crops like millets grown in rotation in these rainfed areas. Recent statistics collected by the Indian Central Cotton Committee, Bombay, showed that only a small part of it was diverted to food, a major part of it to other commercial crops like groundnut, tobacco and the balance remained fallow. It was even stated that in certain tracts millets were fed to cattle when acute scarcity for cotton seed was experienced. The estimates might be viewed as exaggerated figures but still the fact that millets did not entirely displace the cotton and therefore failed to contribute materially to increase food production remains uncontroverted. There was, however, an apparent deterioration in the supply and production figures of raw cotton needed for clothing and cotton seed for cattle food.

As per the census of 1940, the cattle wealth of the province for oxen and buffaloes which supply the power needed by farmers for agricultural operations or village transport, and which supplement our resources of human food in the shape of milk or beef is as follows:

	Serviceable Stock.	Young Stock.	Unserviceable Stock.	Total Stock.
Oxen	11,321	3,807	869	15,997
Buffaloes	3,942	2,032	148	6,122
Total	15,263	5,839	1,017	22,119

N. B:- The figures are in thousands.

Fifty million people resident in the province depend on these animals for the maintenance of their health and prosperity in a very large measure. The condition of the cattle cannot be said to be in any way satisfactory. Let us see what we did in return to what the animals gave us during the food campaign and what they are still expected to give in the postwar period. We diverted groundnut cake to manurial purposes; we banned polishing of rice beyond a point and thereby curtailed the bran supply; we reduced cotton seed production; we worked them more but were unable to provide the required quantity of concentrates for their proper upkeep. It was a hundred percent food plan for human

beings, and cattle were ignored. If at all we did anything, we gave them more straw during the food campaign. The condition of cattle consequently deteriorated to a very marked degree, their capacity for hard work was lowered, and the category of unserviceable stock swelled up in recent years. The index for the cost of cattle labour has increased fourfold and in certain areas, it has made the rich farmers machine-minded. Indian Agriculture is centuries old and our tenancy system coupled with land fertility status and manurial resources will not be conducive to large scale machanisation. We will have to depend increasingly on cattle for agricultural purposes in regions where new irrigation projects or well-sinking campaigns are contemplated. The scheme of livestock development in the province includes the production of more cattle and better cattle, and it cannot be implemented unless a co-ordinated development in the matter of fodder and concentrates is also provided for. The sooner we formulate plans for the well-being of cattle, the sounder will be our future prosperity.

The average daily requirements of animals as worked out from the maintenance rations prescribed in the nutritional studies conducted at Coimbatore are 0·825 lb. protein + 0·475 lb. fat for work animals and 1·550 lb. protein + 0·844 lb. fat for young calves below three years. On this basis the annual requirements of protein and fat for the whole cattle of Madras excluding unserviceable stock, will amount to 35,27,000 tons and 19,84,000 tons respectively if they are to be maintained in a healthy and fit condition. In the above calculations it has been presumed that carbohydrates will be fully met from the available plant residues and grazing areas. The following tabular statement gives our estimated resources under the two categories for 1946—47 as worked from the chemical analysis of various feeds. It is apparent that we are short of both by a huge amount.

Kind of feed.	Quantity in tons.	Percentage contents. Protein	Fats	Total quantity in tons. Protein	Fats
1. Cotton seed	1,20,400	20·5	20·4	24,682	24,562
2. Groundnut cake	7,61,000 (a)	47·9	9·4	95,800	18,800
3. Gingelly cake	47,000	39·5	9·0	18,565	4,230
4. Coconut cake	15,000	21·6	7·9	3,240	1,185
5. Rice bran	4,85,000	14·2	17·5	68,870	84,875
6. Dholl husk	10,000	7·7	0·8	770	80
7. Fodder of all kinds & grazing	63,306,000	2·0	1·0	12,66,120	6,33,060
				14,78,047	7,66,792

(a) It is estimated that only about 2,00,000tons will be available for cattle feeding even if liberal allowances are made for other invisible quantities fed as leguminous fodder or taken during periods of grazing.

It will be apparent from the above statement that cereal straws and grasses are low in protein and as such the stockfeed must invariably be of a balanced ration containing adequate quantities of protein-rich concentrates. Any one who sees the average condition of cattle in the villages will bear testimony to the fact that it is far from satisfactory. Unless concerted measures are taken to increase the over-all production of every kind of concentrate to the level of minimum requirements as defined by the nutritional standards the cost of maintenance will be high and the return not commensurate with the outlay. Other countries are progressively reducing the cost of production of agricultural crops and India has no other way of meeting this challenge except by building an efficient cattlewealth.

Cotton seed has long been recognised by the farmers as one of the most abundant sources of protein of very high quality from the nutritional standpoint. In view of its importance as stockfeed, breeding research in Texas has been recently directed towards development of cotton varieties producing seed only. Any increase in cottonseed production will therefore help in building up a better health of Indian cattle.

During the war years we have practically reached the limit of expansion in cropped area and all our future plans must, therefore, be framed on getting more per acre through increased irrigation facilities, application of artificial manures to all crops adopting remunerative systems of agronomy including intensive cultivation, and use of improved high yielding varieties. In the case of cotton, a developmental plan to produce eight and half lakhs of bales every year in the course of another ten years, has been drafted and partly given effect to. It will make the province self-sufficient regarding textiles and its contribution towards the stockfeed deficit is estimated at 1,83,200 tons of cotton seed equivalent to 37,600 tons of protein and 37,400 tons of fat. There will be still a huge gap between production and requirements. The fodder and grazing committee have plans for improving the quality and increasing the production of fodder and grasses and it will be in the fitness of things if they include in their plans the measures needed to produce the full target of protein requirements for the entire cattle population of the province.