

## The Groundnut and the Food Crisis

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Among the many causes that have contributed to the present food crisis, the insidious encroachment of commercial crops, on the acreage of food crops, is undoubtedly one of the most important. Though the encroachment has been going on for more than three decades its effect in food production was felt acutely only during the war, when imports of rice from Burmah and other countries were cut off. Active Government propaganda had to be done to curtail the acreage under money crops, and sometimes even by temporary Government enactments. It remains to be seen, how far the temporary success attained by these measures will endure, when favourable conditions for imports of food grains return.

**Introduction and spread of groundnut.** Among the commercial crops which had made in-roads into the acreage of the food crops, the groundnut is by far the most important. It is now established as one of the foremost cash crops of India and particularly of the Madras Province. The groundnut crop is not indigenous to India. There are no wild or allied species growing and there is no reference to it in any of the Puranic or ancient Literature. The names by which groundnut is known in the different languages of India are only suggestive of its habit of forming pods underground and do not indicate any ancient knowledge of the crop. Brazil in South America is now accepted as the original home of the plant. The credit for the first introduction of groundnut into India is said to belong to the Portuguese Jesuit Fathers who followed Vas-Co-Da-Gama shortly after he landed on the west coast of India towards the end of the 15th century. Thereafter for well over three centuries it remained as an unimportant crop, its cultivation being practically confined to back yards of houses in stray parts of the country. With the increased demand for vegetable oils in European countries in the early part of the 19th century the demand for groundnuts rose steadily and in its wake its cultivation began to expand. The first reference to its cultivation in Madras was in the year 1850, when about 4,000 acres were recorded as being under groundnut in South Arcot. It then began to spread to other districts and by the beginning of the twentieth century the acreage under groundnuts in the Madras Province stood in the neighbourhood of 2 lakhs of acres. The pace of expansion quickened afterwards, with occasional slowing down during war years reaching the peak acreage of 4.7 million acres in 1937-38. Thus in the course of three decades and a half, the acreage had increased by nearly 25 times. No other commercial crop had recorded such

tremendous expansion during such a short period. The chief attributes which endeared the crop to the dry land ryots are the following: 1. The crop comes up well in almost all types of soils including soils considered to be sub-marginal for other crops. 2. The crop lends itself to easy cultivation and can be raised without much capital outlay. 3. The crop always assures a good margin of profit. Marketing is never a problem as traders and itinerant merchants seek after the produce even in the remotest villages.

**Displacement of millets by groundnut.** The phenomenal expansion of the area under the groundnut crop could have taken place only at the expense of other crops. Consideration of the soil and climatic requirements and the season of its cultivation viz., between July-August and November and December immediately suggests that millets are the crops displaced by the groundnut. It is important to remember that next to rice, millets constitute the staple food of a good portion of the population of the Province. A perusal of the acreage figures of the past 25 years shows that during the period from 1920 to 1944 the area under millets in the Province had gone down by about 2 million acres, while that under groundnuts had increased by 2.7 millions. Comparing the position as it existed about 10 years ago and as it stands to-day it may be seen that consequent on the decrease in acreage, the production of millets in the Province has gone down by as much as 19 per cent. What this means in actual practice can be realised when it is seen that the quantity involved viz., 7 lakhs of tons is sufficient to feed about 2½ million adults in normal times and over 6 millions at the present scale of rationing in force in statutory rationed areas. This falling off in the production of millets would have necessarily driven people accustomed to it, to take to a rice diet, thus increasing the pressure on the already deficient supplies of rice. It cannot be denied that these changes are the natural consequences of the encroachment of groundnut on areas previously under food crops.

**Groundnut crop as a soil improver.** So far only the evil consequences arising from the wide spread introduction of groundnut have been dealt with. The crop has not been without its good points also. In a number of ways groundnut has played a significant role in alleviating the food crisis to some extent, though it is not possible to substantiate the same by facts and figures. This may be contrasted with purely commercial crops like tobacco which has not contributed anything to lessen the effect of the food crisis, but has only aggravated the situation.

The groundnut crop has indirectly helped to increase the production of food crops by not depleting the fertility of the land on which it is raised to the same extent as is done by some of the other crops. This factor is of very great significance particularly in the case of dry lands which only very seldom receive adequate manuring. The conservation of soil fertility

is brought about in two ways. One is by preventing soil erosion and the other is by increasing the fertility status of the soil by the addition of root and leaf residues which the crop leaves behind in the soil. Soil erosion especially sheet erosion caused by water occurs in many parts of the Province and there is no denying the fact that it is gradually reducing the productivity of the land.

Among the biological measures of erosion control, the cultivation of a suitable cover crop occupies an important place. The habit of growth of the groundnut plant, particularly of the spreading variety, is well adapted to protect the soil against erosion. The crop completely covers the land in about 2 month's time after sowing and thus protects the soil against the direct beating action of the rain and also offers mechanical obstruction to the flow of water. A study of the comparative erosive efficiency of a number of dryland crops carried out at the Agricultural Research Station, Hagari has shown that the spreading variety of groundnut has the maximum anti-erosive value particularly in the top 1" layer of soil, which is most susceptible to erosion. It was also revealed in another experiment that the losses of water and soil are reduced by as much as 50 per cent by raising a groundnut crop

The root residues of the groundnut which are left in the soil after the plants are removed have a manurial value because of the numerous bacterial nodules which are present in the root system. The aggregate effect of the two factors mentioned above is that groundnut crop leaves the land more fertile than would have been the case if other crops were raised. This is reflected in the higher yields of the cereal crops that follow groundnut. This has been observed to be the case by a number of workers in India. At the Agricultural Research Station, Tindivanam, cereals following a groundnut crop have yielded even cent per cent more than cereals following cereals. At the Hebbal Farm in Mysore State, *Ragi* following groundnut is reported to have registered a 30 per cent increase. In view of these findings it is certain that the groundnut crop would have indirectly helped to increase the production of millets from the existing area, though no exact figures can be adduced in support of the contention.

The widespread practice of growing groundnut mixed with other food crops like *Cholam*, *Cumbu*, *Varagu*, *Thenai*, read gram etc., would have also resulted in increased production of food grains from the area occupied by the groundnut. Such cropping has been proved to be more remunerative than growing a crop of groundnut alone and the ryots should be advised to adopt this practice universally in times of food crisis in order to augment the production of food grains.

Groundnut cake as manure. Coming next to the consideration of increased production of food grains for which groundnut has been directly

responsible reference may be made to the part played by groundnut cake. This has made good to a considerable extent the deficiency of artificial nitrogenous manures like ammonium sulphate which became scarce during war-time. Among oil cakes groundnut cake is the richest organic nitrogenous manure containing as much as 8 per cent nitrogen and is always the cheapest available on the market. Considerable data had already been accumulated on the response of different crops, especially of paddy, to manuring with groundnut cake and it was a comparatively simple matter to persuade the ryots to take to it. Thanks to the measures taken by the Government like prohibiting the export of groundnut kernels and cake from the Province to outside areas, monopoly procurement of the whole production of the cake in the Province and arranging for its distribution to the ryots at controlled prices through Departmental agency, it was possible to get the maximum benefit out of the available quantity. The annual production of groundnut cake in the Province is estimated at nearly 2½ lakhs of tons and even if it is assumed that only about 2 lakhs of tons would have been used for manuring paddy, the increased production resulted would have been, at a conservative estimate, of the order of 2 lakhs of tons of paddy. This calculation is based on the increased yields obtained on the Agricultural Research Stations by the application of groundnut cake as manure. The increased yield of vegetables which are also usually manured with groundnut cake would also have been substantial. In the absence of this rich and cheap source of nitrogenous manure the Grow More Food Campaign would not have been able to make any appreciable headway.

**Food value of groundnut kernels.** During the war-period—it is true to some extent even at the present time—besides the inadequacy of food materials which people are accustomed to take in bulk, there was also an acute shortage of fats, Dhall and other protective foods either through short supply or because of high prices which placed them beyond the purchasing power of the masses. When the chief culinary fats in the Province viz., gingelly and coconut oils were scarce and were very costly, the poor people were able to take to groundnut oil which was available at comparatively cheaper rates. Thus the fat requirements of that class of the population which is most susceptible to malnutrition during times of food crisis, were met by groundnut oil. Further in times of food scarcity poor people naturally turned to groundnut, not so much for satisfying their requirements of bulk food, but to avoid starvation. One important factor to note here is that no persuasion whatsoever was required to make people take to it, because they were already accustomed to its use; it was only necessary to make it readily available to them. Government realised the intrinsic food value of groundnut kernels in times of food crisis and arranged for its distribution through ration shops. This to a certain extent helped towards reducing malnutrition among the people. Groundnut kernel is recognised as a rich and cheap source of vegetable protein.

It contains from 25 to 33 per cent of protein, 10 to 20 per cent of carbohydrates and 40 to 50 per cent of fats. Based on protein content alone 1 oz. of roasted groundnuts contains nearly as much protein as that of 1  $\frac{1}{2}$  oz. of dhal, 1  $\frac{3}{4}$  oz. of mutton, 2  $\frac{1}{2}$  oz. of eggs or 8 oz. of milk. The protein is easily digestible, has a high nutritive value approaching nearly that of milk, meat and eggs, and contains most of the basic amino acids which are considered biologically essential like arginine, histidine, lysine and cystine. Besides, groundnut kernels contain vitamins A, B-1 (thiamine) and some important members of the B-2 group like riboflavin, nicotinic acid and pyridoxine. The kernel is also a good source of phosphorus and a fair source of iron. For these reasons, groundnut has proved beneficial in protecting the health of the people particularly of the lower classes who do not possess the wherewithal to go in for costly protective foods like milk, eggs etc.

**Place of groundnut in Provincial Economy.** Considering the *pros* and *cons* regarding the cultivation of the crop, the question whether the widespread introduction of groundnut was a blessing or otherwise, cannot be answered straight-away. The answer will most probably depend upon the particular circumstances under which the question is asked. In times such as the present, when an acute scarcity for food grains is felt, there is ample justification for the all round clamouring for the reduction in the area of commercial crops and for increasing the area under food crops. In times of prosperity and abundance of food materials, the need for cash will be the more important factor and the majority opinion will be in favour of allowing its unrestricted cultivation. At all times a proper and balanced view of the whole situation is quite essential.

In 1938-39 the year prior to the outbreak of World War II when the export of groundnuts was allowed without any sort of governmental restrictions the value of groundnut and groundnut products exported from Madras Province reached the all-time-high figure of 10 crores of rupees. Moreover in recent years many important industries depend upon groundnut and groundnut products for raw materials. The Vanaspathi Industry in particular which has shown a phenomenal expansion in the course of a decade and half is the most important single consumer of groundnut oil. In 1945 the industry had consumed as much as 1,63,000 tons of oil and it is very likely that the consumption might have gone up still further at the present time. Manufacture of glue for plywood factories from groundnut cake has been proved to be an economic feasibility and progress in this direction is sure to take place in the near future. Satisfactory methods for the manufacture of wool-like synthetic fibre, from groundnut protein have been worked out both in England and the United States of America, and it is only a question of time when the production of this artificial fibre will be started on an industrial scale in India as well.

**Future lines of action.** The question one will ask justifiably under these recircumstances is "how then are we going to reconcile the claims of groundnut with vast future potentialities and those of food crops on the resources of our cultivated area which do not admit of any considerable expansion in future". The answer is that in view of the over-riding necessity to augment the production of food, the time has come when the *laissez faire* policy so far adopted towards the expansion of money crops should be given up and some sort of restriction should be enforced. For meeting the increased demand for groundnuts that is likely to arise in future, attempts can and should be made to increase the production from the existing acreage by the evolution and the spread of improved varieties. It is in this sphere that the plant-breeder can play his part in preventing the occurrence of food crisis in future. The Oilseeds section which is actively pursuing breeding work on groundnuts, has already to its credit three improved strains which have given on an average about 25 per cent increase in yields over the local varieties. If these strains were to completely replace local varieties the production of groundnuts from the existing acreage itself could be increased considerably. Another way of increasing the production of groundnuts is to extend the area in places where it would not compete with food crops.

A recent survey has shown that there is considerable scope for introducing the groundnut in the *modan* lands of Malabar and in the single and double crop wet lands of Tanjore, Kistna and other districts. The extension of the area can be so programmed that it will not materially affect the existing area under food crops, especially paddy, while it will fit into the usual calendar of cropping adopted by the ryots. An increased production of paddy can also be expected as paddy rotated with groundnut yields more and appreciable quantity of green haulms that will become available, can be used with advantage as green manure for increasing the yield of the succeeding crop of paddy. These possibilities have actually been demonstrated at the Agricultural Research Station, Pattukottai, in Tanjore District. When the above sources are tapped the production of groundnut can be increased considerably without in any way affecting the production of food grains.

With the twin objective viz., industrial progress of the country and self sufficiency in food, the Oilseeds section will never rest content until it is able to produce as an old adage puts it, two groundnuts where only one was produced before, by evolving still higher yielding strains with better quality of produce and suited for growing under different climatic and soil conditions. When by such methods it becomes possible to increase the production of groundnuts sufficiently to cater to the demands likely to arise in future without further extension of acreage we can claim to have solved one at least of the many factors that gave rise to the present food crisis and which would again be a source of anxiety in any future emergency, if not tackled in time.

**Conclusion.** The Groundnut though primarily an oilseed and a money crop, is also a food crop enriching the soil. Its role in the present food crisis is more on the beneficial side. This unique position may not, however, be shared by other money crops; hence encouragement tempered with caution should be our watchword in dealing with the money crops. As Sir. S. V. Ramamurthi, erstwhile Advisor and one time Director of Agriculture, Madras in his preface to the 'Monograph on Rural Problems of Madras' by Sri S. Y. Krishnaswamy has rightly pointed out, "the first lien on the land and water of the province, as indeed of all India is to provide food for the people, then work for them and last only trade".



### Gleanings

**Rice may be sown from Aircraft.** The use of aircraft for sowing seed seems likely to be widely adopted in Australia since experiments have shown how much time can be saved when large areas have to be sown. Both in Queensland and Western Australia, aircraft have been used to sow pastures, and the method has also been used near Tamworth, in New South Wales, for sowing wheat. In this experiment the aircraft flew 40 feet above the ground, and the seed was distributed at the rate of 4 acres to the minute. It is proposed to test the method for sowing rice. Aerial sowing offers several advantages. Many Australian grain farms are very large. If sowing has been delayed through seasonal conditions, it becomes important for the work to be carried out as quickly as possible, and aerial sowing is a practicable method to use in such cases when the amount of labour and equipment to do the work by other means in a short time may not be available. It is also possible to complete sowing from the air on land that is too water-logged for mechanical equipment to be used. In fact, it was the sodden condition of an area in Queensland after heavy rains that led to the first experiment there in aerial sowing, and which indicated the possible value of the method to rice-growers. Rice-growing in Australia is highly mechanised, and the use of heavy machines on land recently irrigated has long been a problem that aerial sowing may help to solve.

**Tree-planting Encouraged.** Former servicemen who have undergone special training courses before setting on the land in Victoria are being encouraged to do everything possible to convert their holdings into model farms. One form of this encouragement has come from a movement known as the "Save the Forests Campaign", which promotes and assists tree-planting both for practical and aesthetic reasons. This year the movement has supplied 20,000 trees to servicemen farmers to plant on their properties, and hopes to make 50,000 available next year. The farmers have responded enthusiastically to the idea, and applications for trees greatly exceed the number that could be supplied. The seedling trees are delivered to the farmers in tubes ready for planting out, and are supplied free of cost. The only conditions are that the young plantations will be fenced during the early growing period, that the land will be ploughed before planting, and that planting and after-care will be carried out in accordance with advice supplied to ensure that the plantations prosper. Tests have shown that the trees grow much more rapidly on land that has been ploughed than when they are planted in holes on land that has not been prepared. [Agriculture Newsletter : No. AGN/207].