

## Scope for the Cultivation of Cabbage in the Plains of Madurai District of Madras State \*

by  
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**Synopsis:** Though cabbage is a crop of the hills, it has been successfully grown in the plains of Madurai district in a total area of about 2,000 acres. The crop is found to be cultivated more successfully in the Hot - Weather season from February — March than in the North - East monsoon, when the crop is very badly affected by heavy rains and pests and diseases. The main season of cultivation of cabbage is an otherwise fallow period and does not intervene with the normal systems of cultivation adopted. The yield is as much as 18,000 lb to 30,000 lb per acre of cabbage and a net income of Rs. 1,220/- is obtained per acre.

**Introduction:** While the demand for such vegetables like the cabbage is increasing constantly, its cultivation is limited generally by agro-climatic conditions obtaining in particular localities. Thus cabbage (*Brassica oleracea* Var *capitata* fralba) grouped under the 'Cole' crops is a cold season vegetable, its cultivation usually confined to the hills where climatic factors are conducive for the growth and productivity of the crop. The optimum cool moist climate required by the cabbage crop are obtained at elevations of 3,000 feet and above like the Nilgiris and the Kodaikanal hills in Madras state.

However, due to the interest evinced by enthusiastic farmers especially in the plains of Madurai district and more particularly in the *taluks* of Dindigul, Periyakulam and Nilakottai, the crop has been fairly successfully grown in the plains. At present it is estimated to be grown in an area of nearly 2,000 acres in the Madurai district alone and the growers consider it a very good commercial crop fetching a very sizable income. The cultivation methods followed in the plains of Madurai district are enumerated in this article.

**Cultivation system adopted in Madurai District:** (i) *Season:* Though the crop can be raised throughout the year, the crop raised during October–November suffers from heavy rains as well by the attack of pests and diseases, and the crop planted during February–March brings good yield and income.

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\* Received on 30–11–1964 [for consideration for A. H. S. Sarma award for Agricultural Extension - 1964].

(ii) *Varieties*: There are many varieties cultivated in the district of which 'Drum Head' is commonly grown. The seed materials are obtained from private firms in Bangalore.

(iii) *Soil*: The soils are mostly red loamy, sometimes sandy with good drainage facilities. Heavy clays and alkaline lands are cultivated with cabbage. The cabbage crop is usually followed by a tomato, *ragi* or onion crop.

(iv) *Cultural practices*: (a) **NURSERY**: The land is ploughed five to six times with a country plough till a good tilth is obtained. The seeds are sown in raised beds of convenient sizes. About seven cents of nursery is required for planting one acre and the plot is manured with four cartloads of compost. Beds are formed and eight ounces of seed is sprinkled over the beds. Sometimes sand is mixed with the seed and then sown to get a uniform spread on the beds. The seeds are covered by broadcasting ash. The beds are then irrigated slowly just to prevent the seeds from being drifted away. On the third day after sowing, life irrigation is given and thereafter the beds are irrigated every three days depending upon the rainfall during the period. Manuring the nursery with groundnut cake at one lb for each cent of nursery along with irrigation water is also done by some cultivators and this aids in obtaining good robust seedlings. The seedlings remain in the nursery for about 35 to 40 days and they are then pulled out and transplanted.

(b) **PREPARATORY CULTIVATION OF THE MAIN FIELD**: The field is given six to eight ploughings and brought to a fine tilth before planting. Beds of convenient sizes depending upon the irrigation sources.

(c) **MANURING**: A basal dressing of 30-40 cartloads of farm yard manure or compost per acre is applied before the last ploughing. A top dressing of one to one and a half bags (160-240 lb) groundnut cake either alone or mixed with about 50 lb ammonium sulphate per acre is given in a single dose about a month after transplanting. The manure is applied around the plants at a distance of about six inches from the base of the plants.

(d) **TRANSPLANTING**: Seedlings are planted only in lines on beds with a spacing of 1' to 1½' eitherway. The nursery is irrigated just before lifting the seedlings so that the seedlings could be pulled out easily with out any damage to the root system. The field is given a soaking irrigation before transplanting. Poorly developed seedlings are rejected. Seedlings are planted in the holes made with fingers and the soil around is pressed and compacted.

(e) IRRIGATION: Life irrigation is given about three days after planting and the crop is generally irrigated during evening hours. Since the crop requires frequent irrigations in the absence of rains, subsequent irrigations are given at intervals of about four days.

(f) AFTER CULTIVATION: Weeding is done thoroughly with human labour. The first weeding is done two to three weeks after transplanting and the second weeding at about the sixth week. A third weeding is given whenever found necessary.

(g) PLANT PROTECTION: The important pests of cabbage in the plains are (i) the cabbage green semilooper, *Plusia ni* Hb., (ii) the plant lice, *Myzus persicae* S., and (iii) the leaf-eating caterpillar, *Prodenia litura* F.

(i) *Plusia ni* Hb.: This semilooper caterpillar was noted for the first time in the district, causing serious damage to the crop by Vasantharaj David (1960). The green semilooper measures about  $1\frac{1}{2}$  inches when full grown, and has light white dorsal and lateral stripes with three pairs of prolegs. The larvae eat away the leaves of seedlings and transplanted plants and only the midribs of the plants are left behind. It is very active from September to April and is reckoned to be the major pest of the crop in the district.

For the control of the pest, dusting of DDT. 5 per cent or spraying of 0.025 per cent parathion (1 oz in  $12\frac{1}{2}$  gallons of water) or 0.2 per cent DDT (1 lb of 50 per cent WP in 25 gallons of water) or Endrin 0.02 per cent (1 oz in  $6\frac{1}{4}$  gallons of water) is adopted.

(ii) *Myzus persicae* S.: The *aphid* is seen in large numbers on the undersurface of the leaves sucking the plant sap. In severe cases the plants are stunted in growth with ill-developed foliage and head. Seedlings as well as the transplanted crop are affected. It is virulent during October—December.

Spraying parathion 0.025 per cent is adopted to control the *aphid*.

(iii) *Prodenia litura* F.: The larvae feed on the leaves leaving only the midrib and veins, and it is not as destructive to the crop as that of the semilooper pest. It causes serious damage by boring into the heads of cabbage plants and thereby makes the produce unfit for marketing and consumption. Although it is prevalent althrough the year, it is serious only during October—December.

Spraying DDT 0.02 per cent or parathion 0.025 per cent is adopted for controlling this pest.

#### DISEASES :

(i) '*Damping-off*' disease: In the nursery the seedlings are affected by the damping-off disease. This is controlled by spraying one per cent bordeaux mixture.

(ii) *Leaf spot disease*: This disease occurs on the crop at about three to six weeks after transplanting. The leaves get dried up and the plant loses its vigour and dies in due course. This is prevalent during January–April. Spraying one per cent bordeaux mixture or wettable copper fungicide is adopted. Severely affected plants are also removed and destroyed.

The crop receives atleast four sprayings, two in the nursery and two or more in the transplanted crop.

(h) HARVESTING: The crop is ready for harvest in about 110 to 120 days after transplanting. Harvesting is done in two to three stages: the plants which come to maturity early are cut and removed first with one or two outer whorls of leaves to protect the head. Then they are bagged and marketed at Madurai.

(i) YIELD: The average yield of the crop is about 150 bags (18,000 lb approximately) per acre. As high as 250 bags (30,000 lb approximately) per acre are also obtained in good crops during April–May harvest.

(j) MARKETING: The crop is cultivated with the utmost attention and the produce marketed through the commission agents at Madurai at remunerative prices. Out of the total produce, 15 per cent goes to Kerala and 35 per cent to Tirunelvely and the rest alone sold for local consumption. The Madurai market receives in addition cabbages from Kodaikanal, Theni and Mettupalayam also. The standard quantity per gunny bundle packing is 45 kg/bag. The sales are done by the pre-harvest contract method and also through the commission agents.

(k) COST OF CULTIVATION: The average cost of cultivation based on an enquiry made in five holdings is given in Table I.

TABLE I  
(Average of five holdings)

Expenditure	Rs.	Receipts	Rs.
i. Preparatory cultivation	84	By sale of 150 bags of cabbage at Rs. 12/- per bag	... 1,800
ii. Seeds and sowing ...	15		
iii. Transplanting ...	15		
iv. Manures and manuring	180		
v. Irrigation ...	150		
vi. After cultivation ...	36		
vii. Plant protection ...	60	Total receipts	... 1,800
viii. Harvesting, packing, etc. ...	40	Total expenditure	... 580
Total ...	580	Net profit / acre	... 1,220

## REFERENCE

Vasantharaj David. B.

1960 *Plusia (Phytometra) ni* Hb. (Noctuidae) as a pest of Cabbage, *Brassica oleracea*, in South India. *J. Bombay nat. Hist. Soc.* 57 (3): 679-81.