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large areas with dense growth. It flowers at long intervals and dies down after fruiting. Culms are 10—20 feet high and 1—2½ inches across at the base and are in great demand locally for mat and basket making. A coarse paper is also made from it. The leaves are much eaten by elephants.

99. *Ochlandra Wightii* C. E. C. Fischer (*O. Brandisii* Gamble). Mal: *Eetta*. It occurs at low elevations. It is found at Pallode, Kallar, etc., in the Nedumangad Taluq. It resembles *O. travancorica* Gamble and the culms are put to the same use as those of *O. travancorica* Gamble.

Five other species of grasses which are not represented in the Madras Herbarium at Coimbatore were also collected during the tour. They are under study and some of them may prove to be new species. One of these known at Peermade as *Thavala* pullu is a pasture grass thriving in moist situations. It is common on the roadsides at Kottarakara and other places.

My thanks are due to Sri T. R. Naganatha Ayyar for assisting me in this investigation.

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A Note on the Cultivation of Mango Ginger in the Neighbourhood of Anakapalli (Vizagapatam District).

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Introduction The pickles form an indispensable side-dish in our diet. They are considered to be appetisers and to help in digestion. Of the several kinds of pickles in common use, 'Mango ginger' is a special favourite with the *Andhras* in the Northern Circars. In the preparation of this pickle the addition of an adequate amount of lime juice, besides the required quantities of chillies and salt, is essential to give a pleasing taste.

Mango ginger (*Curcuma Amada* Roxb.) belongs to the family *Zingiberaceae*. Like the other members of the family, the plant is a perennial herb with an underground rhizome and large erect leafy aerial branches. The plant grows wild in Bengal and on the hills.

The cultivation of the crop is mainly concentrated in and around Anakapalli, though recently it is known to have been taken up by a few *ryots* in the villages round about Rajahmundry of the East Godavari District. The details of the cultivation of this crop as practised in the neighbourhood of Anakapalli are presented in this short note.

Soil and Preparatory Cultivation Soils of high fertility with free drainage, e. g. sandy loams, are generally preferred for this crop. In the garden lands the crop is grown in rotation with *ragi* or any vegetable crop like brinjal or *bendai*, etc. The crop is also raised in wet lands with

supplemental wells. After the removal of the previous crop the preparatory cultivation commences with the thorough ploughing of the land. As many as 10 to 15 ploughings are given to bring the land to a very fine tilth. The ploughed field is then formed into beds of 5 ft. × 5 ft. Irrigation channels are formed between every set of two beds. The crop responds fairly well to manuring. Sheep penning in the field is generally resorted to besides the application of about 15 cart loads of farmyard manure.

Seed material and planting The preparatory work which commences in March comes to a close by the end of April and planting will be in progress in May or June soon after some showers are received. The seed material for planting consists of the rhizomes taken from a previous crop and preserved with care. During the harvest in March good and healthy rhizomes are carefully selected to serve as planting material for the next year's crop. A pit dug in a cool place preferably under a thatched shed is filled with the selected rhizomes and fine sand, in alternate layers. It is then closed with a wooden plank and finally plastered over with mud. This pit is opened in May and the material taken out and spread to dry before it is ready for planting. During this process of preservation the material suffers a loss of 15 to 20 per cent by weight. This seed-ginger is cut into small bits of about an inch long having two or three sprouts.

The seed beds are first watered. Bits of seed ginger are distributed, usually by a woman cooly, one at each sowing spot $1\frac{1}{2}$ ft. apart in rows and at distances of $1\frac{1}{2}$ ft. between each row. A man follows her digging at the spot with a small crowbar to a depth of 6 in. where the rhizome is left and planting it. Soon after sowing, the entire field is shaded with a thick covering of leaves (*Anona squamosa* leaves that are commonly available are used here). About 200 to 250 lb. of the rhizomes are required to plant an acre of land.

Irrigation The crop requires copious watering but along with it drainage of any stagnant water in the field is very important to get satisfactory results. On the whole the crop requires ten irrigations besides the rainfall received during the life of the crop. The practice of well irrigation with a *picotah* is very common with the *ryots*.

After care The seed begins to germinate in about a week after planting, and in about a month it grows to a foot above the ground. The shade is completely removed by this time. At this stage the first hoeing is given and the second following it after a month. A third hoeing is given a week or two after the second, if necessary. Every care is taken to keep the field free of weeds.

Harvest The crop is a short duration one being ready for harvest in about 4 to 5 months from the date of planting. The maturity of the crop is indicated by the drying up of a number of bottom leaves and cessation of all vegetative growth. The harvest commences in October and is carried on in stages, extending the period of harvest till the end of January. The

harvest consists in lifting the entire plants by digging around them with a crowbar. The rhizomes are carefully collected in a basket. The fresh rhizomes are cleaned in clear water to remove the soil adhering to them. The roots of each rhizome are removed with a knife. The produce is then dried in the shade and made ready for the market. The harvest and preparation of the produce for the market requires heavy labour. About 35 women are required to get the produce of 40 cents of land to a marketable condition.

Yield and Marketing. A good crop gives about 12,000 lb. of marketable stuff and an average yield can be taken to be 9,000 lb. per acre. There is a good demand for the stuff in the local market. A fairly large percentage of the product is exported to Madras, Nellore, Tenali, Rajahmundry, Cocanada, Vizagapatam and Vizianagram, where it finds a quick sale. The produce is packed commonly in gunnies each bag containing 240 lb. and rarely in palmyra baskets. The prices are very varying from Rs. 0—8—0 to Rs. 2—0--0 per maund of 24 lb., the variation mainly depending upon the season and demand. Generally the price is at its maximum during October and March and at its minimum during December. The vegetable dealers of Anakapalli who form the middlemen for the export trade purchase the produce directly from the growers. On an average the primary producer gets a net gain of Rs. 0—6—0 per maund while the middleman gets a net profit of Rs. 0—4—0 per maund.

Economics of cultivation The cost of cultivation comes to Rs. 130 per acre. Calculating the average yield to be 9,000 lb. valued at Rs. 0-0-6 per lb. the gross income from an acre will be Rs. 280 and the net gain Rs. 150 per acre.

Cost of Cultivation per acre—Details.

Preparatory cultivation	Rs.	15—0—0
15 cart loads of farm yard manure and sheep penning		20—0—0
Planting material and planting		30—0—0
10 Irrigations		30—0—0
After care (2 hoeings)		5—0--0
Harvesting and cleaning		25—0—0
Assessment, etc.		5—0—0
Total cost of cultivation per acre		130—0—0
Yield 9,000 lb. valued at 0—0—6 per lb.		280—0—0
Net gain per acre		150—0—0

Conclusion The average holding of a *ryot* with respect to this particular crop ranges from 30 cents to 1½ acres. Only a few *ryots* grow it on an acre scale. In view of the decent profits obtained in this crop it should be an attractive proposition for vegetable gardeners in the neighbourhood of urban areas to take up its cultivation.

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