

GINGER CULTIVATION IN AND AROUND KALUVOY

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Agricultural Demonstrator.

Cultivation of ginger is to be seen round about Kaluvoy village of Atmakur Taluk; but is not extending further; the soils and the undulatory nature of the land here are said to contribute to the successful cultivation of ginger. The crop does not seem to come up well on mere plains. It requires *Kondachaluva nela* as they put it—i.e., hill-side villages with rich loams having good drainage facilities and water supply for 10 months in the year.

Preparatory Cultivation. The land is ploughed 10 to 12 times to get good tilth; ridges are then formed lengthwise 14 inches apart. The field is next divided into beds of uniform size of 4 yards \times 18 yards for forming irrigation channels lengthwise and breadthwise. Thus each bed will have about 10 ridges 18 yards in length. This is the usual method adopted; but there will be variations seen in the size of beds depending on the contours of the field.

Planting. Planting is generally done in May or beginning of June. Ginger removed fresh from the field is not used for seed-purposes; but is allowed to wither for a month or two in shade. During this period it is kept in heaps which are disturbed now and then; one or two days before planting, this seed ginger is cut into pieces having two or three internodes.

At first a mixture of *agathi* (*Agathi grandiflora*) and greengram (*Phaseolus mungo*) seeds are dibbled at the top of the ridges with 12 inches spacing, the seed rate of *agathi* and green-gram being 20 and 14 lbs. respectively per acre. Water is then let in and the space between the ridges is flooded. Next day when soil gets into the right condition, (i.e., without getting sticky) ginger is planted on one side of the ridges in a line with the points, where *agathi* and green gram seeds are dibbled and also on one side of the irrigation channels with the same spacing; The seed rate for a ginger crop is 40 to 50 maunds per acre. After planting is over, manuring is done, generally on the same day, by top dressing with about 50 cartloads of cattle manure or sheep manure or mixture of both per acre. The sowing of *agathi* and green-gram is to give enough shade to the tender ginger crop, which takes about one month for complete germination; by this time *agathi* and green-gram grow sufficiently thick to give the requisite shade. Depending on weather conditions irrigation is generally given once in a week until the crop matures.

After-Cultivation. Hand weeding is commenced generally 10 days after planting and is done frequently until the crop is about 4 months old, by which time the crop covers the ground and there is no necessity for hand weeding.

After one month, the green-gram is pulled out and fed to cattle, as *agathi* alone would do well to give the required shade to ginger crop. After two months, thinning and topping are done in *agathi* lines to regulate the shade; by frequent toppings, *agathi* plants are not allowed to grow more than a man's height. Just at the time when the thinning of *agathi* plants is begun, "*Thangedu leaf*" (*Cassia auriculata*) is brought in sufficient quantities and spread between the lines of *agathi* and ginger plants. After these leaves are dried up, the *thangedu* stalks are removed and the dried leaves are worked into the soil by hand hoeing and earthing up between the lines.

Harvesting. After ten months i. e., about the month of March, the crop can be removed, the maturity of the crop being noticed by the drying of the leaves. The crop is to be removed soon after the leaves are dried (i. e., in about 15 or 20 days); otherwise the rhizomes become unfit for seed purposes, as they begin to germinate again. If it is allowed to germinate again (as is done actually in some places) it has to be kept for six months more i. e., till the month of October, when the yield will be nearly doubled. The yield of 10 months crop is about 400 maunds of green ginger or 10,000 lbs. per acre; while the yield of 16 months crop is about 19,000 lbs. of green ginger per acre.

The local merchants purchase the produce at about Rs. 2 per maund and export the green stuff, as it is, to Northern Circars; but no curing is done here nor is it known in these parts.

The gross income for the grower from a short term crop, i. e., 10 months crop is about Rs. 800; while that of a long term crop is about Rs. 1500 per acre in all normal years. The cost of cultivation for 10 months crop, as given below, shows a total expenditure of Rs. 250 per acre, including cost of seed and manure thereby giving a net income of Rs. 550 per acre; while in the case of 16 months crop the net profits are expected to be about Rs. 1150 for in this case, the grower has no other expenditure except keeping on the crop under well irrigation during summer, for which item a liberal sum of Rs. 100 has been allowed under cost of cultivation.

General. The Rhizomes of long term crop are said to be unfit for seed purposes. Ginger is also cultivated in Kothur village on Cuddapah borders in Rajampet taluk and the produce there is said to be the best for seed purposes. Hence the growers at Kaluvoy renew the seed once in 3 or 4 years with fresh supplies from Kothur a distance of 15 miles from Kaluvoy.

Cost of cultivation of short term crop of Gingelly per acre.

Preparatory cultivation.

Ploughing 12 times—24 pairs at Re. 1/- per pair.	...	24	0	0
Forming ridges—one pair at " "	...	1	0	0
Forming beds and irrigation channels—2 men at 6 annas				
per head	0	12	0
		<hr/> 25 12 0		

Manures and manuring.

50 cartloads of cattle manure at Re. 1/- per cartload	...	50	0	0
Spreading the above—6 men at 6 as. per head.	...	2	4	0
			52	4 0

Seeds and sowing.

Dibbling agathi and greengram—2 men at 6 as. each	...	0	12	0
Cost of 10 seers of agathi and at 10 seers per rupee.	...	1	0	0
Cost of green-gram 6 seers at 12 seers per rupee.	...	0	8	0
Cutting ginger and planting—6 men at 6 as. per head.	...	2	4	0
Cost of ginger seed 50 maunds at Rs. 2/- per maund.	...	100	0	0
			104	8 0

After-cultivation.

8 weedings including thinnings	...	10	0	0
Cost of 20 headloads of "Thangedu" at 2 as. per headload.	...	2	8	0
			12	8 0

Irrigation.

Tank irrigation supplemented with well irrigation during summer (8 well-irrigations at Rs. 3/- per irrigation).	...	24	0	0
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Harvesting.

Digging tubers at Rs. 15/- per acre.	...	15	0	0
Contingencies	...	16	12	0
		Total Rs.	250	0 0

Research Notes.

A remarkable emergence of a Pempheres parasite.

An unexpected emergence of a large number of Braconid parasites (*Spathius* Sp.) from a cage of wilting cotton stalks under observation was discovered for the first time on 20th March 1936. This Braconid is already known to be a definite parasite of the larval stages of the cotton stem weevil—*Pempheres affinis*, F. and the same has been observed and collected from several places like Coimbatore, Ramnad district and Erode. The emergence continued for over a month and a half though irregularly and in diminishing numbers. About five hundred parasites have thus been collected.

It was strongly suspected at the time that an alternative host was involved in this mass emergence. But no satisfactory and conclusive evidence in regard to its true host relations was forthcoming at the time. As a result of careful studies and actual collection of the host stages and adults it is now definitely seen to be a specific parasite of a Bostrychid—*Sinoxylon sudanicum* Lesne.

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Mendelian Segregations for Juiciness and Sweetness in Sorghum Stalks.

In a previous article* juiciness and sweetness in the stalks of sorghum have been reported to be independent, heritable characters. A number of segregations for these characters have been noted for each separately and in combination. A factor D is responsible for dry pithy stalks; d produces juicy stalks. A factor X results in "not sweet" stalks; x results in sweet stalks. D and X are independent in inheritance. The Mendelian segregations obtained are presented below:

* Rangaswami Ayyangar, G. N., Juiciness and Sweetness in Sorghum Stalks.

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