Now, taking the cost of feeding cows it would be interesting to see what the cost of producing 1 lb. of milk would be, from poor milkers and heavy milkers. This works out as given below :—

		RS	A	P	
5 lb. cow produces milk at	...	0	1	0·6	per lb.
10 ,,	...	0	0	7·9	,,
15 ,,	...	0	0	6·0	,,
20 ,,	...	0	0	5·0	,,
25 ,,	...	0	0	4·6	,,
30 ,,	...	0	0	4·2	,,

It would now be seen how it is more economical to keep the best doer than the poor milker. Working on similar lines it will be found that the best type of animal, be it buffalo, work animal, sheep or goat, the most profitable is the best 'doer'.

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RURAL STUDIES—MADATHUPALAYAM VILLAGE, COIMBATORE DISTRICT

By P. GOPALARATNAM, L. Ag.
Assistant to Cotton Specialist

Madathupalayam is a hamlet situated to the north-west of Avanashi and is separated from it by a large area of cultivated land. As part of the Union, the village is entitled to the conveniences of roads, lighting and sanitary upkeep. The Avanashi tract has itself long been noted for its tobacco crop, and recently it has become the proud home of cambodia cotton under irrigation.

An account of the village which is given below, epitomises the conditions of the inhabitants and the crops in this region.

The extent of this hamlet is a little over 200 acres. The village is a level plain situated in a valley and enjoys fairly copious subterranean water supply. The place is characterised by the presence of red soils of shallow depth which are nowhere deeper than a foot, but are underlain by gravel of varying size, which facilitates free drainage. The shallow depth, however, is corrected by an annual dumping of tank silt, which is a regular feature of the preliminary cultivation of the lands.

The tract enjoys an annual rainfall of about 28″, the major portion of which is received during the north-east monsoon. The month of October, in general, records the largest portion of the precipitation. The heat in summer is tempered by occasional showers which, when they fall, contribute to the success of the irrigated crops grown during this season. There are two breaks in the year when no rain falls. The first period starts with January, and the second with June, and these help in the maturing and the harvesting of the crops that are grown.

The dwelling houses number less than a hundred and vary from *pukka* tiled houses to an apology for a hut. The Vellala Gounders are the sons of the soil and form the major portion of the population. The chucklers are

an indispensable adjunct to the Gounders and form the next largest community. An *Andy*, a carpenter, a blacksmith, two barbers and twenty *valyans* bring up the total. There is no potter or washerman attached to the village but they are secured from the neighbourhood. The village does not possess any school to give tuition either by day or night, and the ryots' children go to Avanashi for their education. Very few in the village know to read or write.

The Goundan is self-reliant, thrifty, and minds his own business but generally is indifferent to the adoption of new methods. He raises his crops, and his wife manages the household, and works in the field. A small vegetable garden and a cow or a buffalo are looked after by her. She gathers the harvest, disposes of the vegetables, milk, butter and ghee at the shandy near or, in case of demand, at her own house. With the money realized, and supplementing, at will, the income which her husband gets from the crops he raises, she maintains the whole family.

The chucklers are dependents on the Gounders and individual families get attached to each holding. The men serve the cultivators throughout the year while their women occasionally render help in odd works on the farm. The *Andy* is the village priest. He daily worships in the village temple. He also does pooja at the shrines in the several farmsteads. Further he has to meet the daily requirements of plate-leaves for the Gounder families in the village, for which he gets 48 *vallams* (two m. m.) of grain annually from each family. The carpenter mends the wooden ploughs and attends to repairs of mhote pulleys, frames and other odd jobs for which he is paid at two *vallams* of grain for each mhote or a pair of animals working in a year. The smith repairs and renews all the worn-out iron parts of implements and in return gets 20 *vallams* of grain from each farm. The wood and iron materials however are supplied by the land-owner. The *valayan* keeps ward and watch in each garden area but takes no further part in its activities. His remuneration is 8 *vallams* of grain and one goat or sheep every year, but is however obliged to make good, at his own cost, the value of any property lost. The *chuckli* is the *mamool* distributor of water when the mhote is working and does sundry other pieces of work including the stitching and mending of leather buckets, ropes, etc., for which alone he is paid extra.

Crops.—The two chief money crops of this village are cambodia cotton (*Gossypium hirsutum*), and tobacco (*Nicotiana tabacum*). The grain crops, which are next in importance, are ragi (*Eleusine cordcana*), and cholam (*Sorghum vulgare*). A smaller area is occasionally put down to cumbu, (*Pennisetum typhoideum*) tenai (*Setaria italica*) and pulimanji (*Hibiscus cannabinus*).

Gardenland.—The area under this class of land which is all irrigated from wells is 120 acres and is distributed amongst 57 cultivators. There are two ryots holding 30–40 acres each, while the rest of the land is owned by others. Instances of 8–12 partners for a single acre are not wanting. There exist two dozen wells, some are fitted with two mhotes and some with three. An appreciable portion of this area is raised with dry crops or even with paddy (*Oryza sativa*) in the rainy weather. Two-thirds of the area is on an average put down to ragi or cotton in each holding, while cholam and other crops occupy the rest of the area.

Cambodia is raised from October to May and is followed by ragi. This in turn may be succeeded by a tobacco crop or by cambodia itself. If the succeeding crop is tobacco it is immediately followed by cholam and ragi without any rest for the land. The growing of tobacco permits a cereal like cholam being cultivated in the interval between tobacco and rag

In every holding there are a few cocoanut trees and palmyrahs which meet the needs of the household and are also tapped largely

Dryland.—Dry crops in this village are not of great importance except for a large number of types of cholam each of which is a favourite with a particular ryot. As many as ten types of cholam are raised in this locality. Cholam is often sown mixed with one pulse or another, viz., horse-gram (*Dolicus-biflorus*), green-gram (*Phascolus mungo*), and black-gram chiefly (*Phascolus mungo var. Radiatus*, Hook). Pulses are also cultivated as pure crops in long narrow strips. The area of dry land is 85 acres and the soils are red, and are about 8-10 inches deep with a layer of *kankar* underneath. White babul (*Acacia leucophloea*) is the only tree found thriving best in the soil.

Cropping.—Cotton. Cotton is of recent introduction in the gardenland area of the village. Mr. Vittaldas Sait of Tiruppur, a big dealer in cotton, is reported to have brought cambodia seed from the South and distributed it to a few cultivators some 15 years ago. From this small beginning cotton has made much progress, displacing the wheat crop which was a favourite for several decades. Cambodia crop has adapted itself to the local conditions and the quality of the crop has so much improved that the cotton of the tract has acquired a distinct reputation to be called by a special trade name 'Tiruppur cambodia'. The crop follows ragi which is very well manured. After the harvest of ragi, the cotton seeds are sown broadcast and covered by ploughing and cross-ploughing with the country plough. If, on the other hand, it does not immediately follow another crop, the land receives rest for 10–12 weeks. Two or three ploughings are given at intervals and the seeds are broadcast as before and covered. It is the experience of the local ryots that ploughing the land in the dry state does harm to the crop raised, up to an extent of 15 per cent. In the absence of any rain at the time of sowing, every ryot makes it a point to irrigate the land before commencing the preliminary cultivation. The seed rate varies from 30–50 lb. an acre and the high seed rate seems to have been fixed upon for the reason that any chance for failure will create blanks which cannot be advisedly filled up later. The seeds sown germinate fairly well and finish up in a week's time. The number of irrigations depends upon the kind of soil and the prevailing climatic conditions of the place, but are generally more than in any other part of this District. The crop grows luxuriantly and by about the beginning of January commences to produce flowers. The picking of kapas commences from about the end of February and the final picking comes off somewhere about the first week of June. The average acre yield is 1,000 lb. The major pests such as stem weevil (*Pempheres affinis*) and spotted boll worm (*Earias*) have their toll, as is the case in any other cotton-growing area. Unlike for other crops, wages for collecting kapas are paid in cash and the rate for an adult woman varies from 3 to 4 as. a day. The quantity of kapas collected per head ranges from 20 to 50 lb. per day depending upon the age of the crop and the skill of the picker. As the kapas is collected the produce is stored and disposed of to local dealers who transport

it to the Cotton market at Tiruppur where the whole produce is auctioned at regulated conditions. The rate per *Pothi* of 260 lb. of kapas is a variable factor and the present rate stands at Rs. 28. The expenditure on the crop averages about Rs. 30 per acre excluding irrigation charges which come to a little over Rs. 25. The very high cost of cultivation is due to hand-weeding necessary in the earlier stage of the crop. A major portion of the cotton area at Madathupalayam has been brought under seed-farms by the Agricultural Department, and the whole management was transferred to the Co-operative Department last year. It is a noteworthy practice in this village that annually the fences are repaired just before picking commences for the season. During the cotton season the cultivator and the permanent coolies watch the crop during the night, by taking turns.

Tobacco.—The other money crop is tobacco. It is, as already said, grown after ragi. Seedlings are raised in a nursery specially prepared for the purpose and planted in October when two months old. After the harvest of ragi, well-to-do ryots pen sheep at 2,000–3,000 per acre, plough, prepare the land and form beds after which the seedlings are transplanted about 2 feet apart. The practice of planting tobacco seedlings in ragi stubble does not obtain in the village. The varieties grown are locally known as *Yerumaikappal* and *Barakappal*. They are respectively long-and-narrow and broad-leaved types. Both the types are chiefly used for chewing purposes. The crop requires greater attention than the other crops from the time of planting right up to the day of disposal of produce. Irrigations are given frequently so as to keep the soil free of cracks. The crop is cut in the evening, allowed to lie in the field overnight. In the morning the cut plants are gathered into small heaps and left for a day when they are stringed and dried in the sun and shade for about 3 weeks. 750–1,000 lb. of cured leaf is on an average obtained from an acre. The value of the cured leaf varies from Rs. 150–200 per Baram of 500 lbs. (local unit). In cases where the crop does not receive any manure directly, it is benefited by the residual effect of the heavy application of manures to the preceding crop of ragi. The belief is strongly held that tobacco should not succeed cholam. Apart from the parasite *Bodu*, the crop is in some years badly infested with plant-lice, when the spraying of contact poisons like tobacco decoction seems to have some beneficial effect.

Ragi.—In order of importance ragi comes next and is mainly used for consumption. This receives careful attention from the cultivator. Land is very well prepared and all the available manure such as tank silt, village rubbish, cattle manure, is applied and in addition sheep also are penned whenever available and possible. Nurseries are prepared at intervals and the seedlings are planted when 3 to 4 weeks old, from about the middle of June till the end of July at intervals of a week, so that the crop might be economically raised and may escape the downpour of rain in October. (The cropping is so adjusted that the latest crop of ragi will be harvested before October.) It seems peculiar in this village that the disbursement of the wages for this crop which are always paid in kind, is deferred until after it is harvested. The ragi stalks are dried, stacked and fed to cattle in due course of time. Of late, some ryots are preparing ragi-silo under the advice of the local agricultural demonstrators. The yield of the crop varies from 1,500 to 2,000 lb. grain per acre.

Cholam.—Summer cholam occupies about 50 acres every year. It follows tobacco or seasonal cholam and is sown broadcast and covered with country plough. In this village manure is not applied to cholam for the following two reasons, viz., the insufficiency of manure, and the practice of applying it in heavy doses to the ragi crop. The thinnings of cholam are not wasted but when available are used for transplanting in the gaps. It is the common and time-honoured custom for poor cultivators to resort to the system of collecting the thinnings from the neighbouring rich ryots and plant them in their own so as to save the cost of seed. The two varieties grown during the season are yellow and white-grained. The white gives a greater output per acre and occupies a larger area. This cereal is sown rather thick with a view to obtain thin stalks for feeding purposes. The crop comes to harvest in July. The acre yield varies from 1,000–1,200 lbs. of grain and about a ton of straw.

Paddy.—In years of good rainfall, raising the paddy crop in garden land is in vogue. The varieties grown are *Anaikomban* and *Samba.* Nurseries are raised in July or August and the seedlings transplanted in September or October. The seed rate is 10 *vallams* to transplant an acre, and the seedlings are planted in bunches. Yield varies from 2,300–3,000 lb. (about 15–20 *salagais*) of paddy and 2–3 cartloads of straw.

Details of cost of cultivation of the five crops treated above are found in the annexure.

Usually labour is paid in kind and a man gets one *vallam* a day and a woman ¾ *vallam.* Juveniles get half the quantities of their respective adults. During cotton season, wages are invariably paid in cash at 4 as. a man, 3 as. a woman. In respect of labour the village is self-contained.

The cattle of the village are either Kangayams or *Natu-madu* (local breed). A pair is required to manage a unit area of 2½ acres garden and 6 acres dry land as the cultivation in garden land is rather intensive. Groundnut cake and cotton seed are given to milking animals, and as for the quantity there is no hard and fast rule, but these rations are regulated by the quantity of milk obtained. Besides, cows and one or two she-buffaloes are also maintained by each ryot. Each cultivator owns a flock of sheep and a few goats which he pens in his field.

Assessment in the village varies from Rs. 1-2-0 to Rs. 1-11-0 per acre.

In the case of absentee landlords the land is either leased or given on *varam.* The lease amount varies from Rs. 50-100 per acre, and if given on varam, 50 per cent of the gross receipts is realized. In either case the assessment is borne by the landlord. The owner has to finance his tenant for the purchase of cattle, and the capital which along with the interest is recovered in yearly instalments. At the present day the *varam* system alone is paying to the tenants, as the prices have considerably fallen. If, for any reason, the cotton crop is let on lease, the tenant has to pay rent in cash which varies from Rs. 60–80 per acre, depending on the fertility of the soil.

The price of garden land ranges from Rs. 750–1,000 and that of dry land from Rs. 350–500 per acre.

My thanks are tendered to the Cotton Specialist, M. R. Ry. V. Ramanatha Ayyar Avl., for kindly deputing me to Avanashi for a period of eight months to conduct the experiment on the time of sowing cotton, which facilitated my enquiry into the conditions of the village.

ANNEXURE

Cost of Cultivation of Crops per Acre.

A. *Cambodia* (irrigated)

	Rs.	A.	P.
Carting tank silt 30 cartloads (5 pairs and 5 men) ...	6	4	0
Ploughing with country plough (2 pairs and 2 men) ...	2	8	0
Cost of cotton-seed 1½ maunds at Rs. 1-8-0 a maund ...	2	4	0
Sowing seed by broadcasting (¼ man)	0	1	0
Covering the seed with country plough and marking beds (1¼ pair and 1¼ men)	1	9	0
Forming beds and levelling (6 men)	1	8	0
Hand-weeding twice (30 men)	7	8	0
Hoeing (6 women)	1	2	0
Mammuty hoeings two (14 men)	3	8	0
Irrigations 10 (20 pairs and 20 men)...	25	0	0
Guiding water (10 men)	2	8	0
Picking kapas (20 women)	3	12	0
Total ...	57	8	0

B. *Tobacco.*

Ploughing and cross-ploughing (4 pairs and 4 men) ...	5	0	0
Cost of penning sheep (2,000–3,000 sheep)	15	0	0
Covering the manure by ploughing and marking beds (2¼ pairs and 2¼ men)	2	13	0
Forming beds and levelling (6 men)	1	8	0
Cost of tobacco seedlings required	6	8	0
Supplying and transplanting seedlings (4 men and 2 women).	1	6	0
Hand-watering twice (8 men)	2	0	0
Total irrigations 12 (24 pairs and 24 men)	30	0	0
Guiding water (12 men)	3	0	0
Topping and suckering four times (4 men)	1	0	0
Cutting plants and heaping (4 men and 1 woman) ...	1	3	0
Labour for curing (15 men)	3	12	0
Total ...	73	2	0

		Rs.	A.	P.
C.	*Ragi.*			
	Ploughing with country plough twice (4 pairs and 4 men)	5	0	0
	Carting tank-silt 60 cartloads (10 pairs and 10 men) ...	12	8	0
	Covering manure by cross ploughing and marking beds (2¼ pairs and 2¼ men)	2	13	0
	Forming beds and levelling (6 men)	1	8	0
	Cost of ragi seedlings required	3	0	0
	Transplanting :—			
	Irrigation (3 pairs, 3 men and 1 man to guide water) ...	4	0	0
	For supplying seedlings and transplanting (10 women) ...	1	14	0
	Hand-weeding and hoeing (12 women)	2	4	0
	Mammuty-hoeing (8 men)	2	0	0
	Later waterings 7 (14 pairs and 14 men)	17	8	0
	Guiding water (7 men)	1	12	0
	Harvesting ear-heads and carrying (8 women)	1	8	0
	Cutting ragi-stalks, drying and stacking (6 men) ...	1	8	0
	Thrashing ear-heads and storing (2 pairs ; 2 men and 1 boy).	2	10	0
	Winnowing of grain (2 men)	0	8	0
	Total ...	60	5	0
D.	*Cholam* (irrigated)			
	Moistening the field (3 pairs ; 3 men and 1 man to guide water)	4	0	0
	Ploughing with country plough (2 pairs and 2 men) ...	2	8	0
	Cost of 16 lbs. of cholam seed	1	0	0
	Labour for broadcasting seed (⅛ man)	0	0	6
	Covering the seed by ploughing and marking beds (2 pairs and 2 men)	2	8	0
	Forming beds and levelling (6 men)	1	8	0
	Hoeings two (12 women)	2	4	0
	Irrigations 4 (8 pairs and 8 men)	10	0	0
	Guiding water (4 men)	1	0	0
	Scaring birds (1 boy for 2 months)	6	0	0
	Harvesting (4 women and 6 women to cut ear-heads and 2 for carrying)	2	4	0
	Thrashing and cleaning (2 pairs, 4 men and 2 women) ...	3	6	0
	Total ...	36	6	6
E.	*Paddy* (under wells) :—			
	Ploughing in puddle (4 pairs and 4 men)	5	0	0
	Levelling (½ pair and ½ man)	0	10	0
	Cost of seedlings required	5	0	0
	Supplying seedlings and transplating (8 women) ...	1	8	0
	Hand-weeding twice (8 women)	1	8	0
	Waterings 15 (30 pairs and 30 men)	37	8	0
	Cutting the crop and carrying (6 women, 2 men and 2 boys).	1	14	0
	Thrashing and cleaning (2 pairs, 2 men, 3 women and 1 boy)	3	3	0
	Total ...	56	3	0

RATES OF THE LOCALITY.

1 pair and 1 driver	...	...	Rs.	1-4-0	per day.
1 man	...	...	,,	0-4-0	,,
1 woman	...	...	,,	0-3-0	,,
1 Boy	...	...	,,	0-2-0	,,

N.B.—Excepting for cotton, labour is always paid in kind and the corresponding money equivalents are given in all the above cases.

NOTES ON SUGARCANE CULTIVATION IN HOSPET

BY M. V. RAGHAVA RAO, L. AG.

District Agricultural Officer, Kurnool.

Introductory.—On account of the rapid and continued fall in prices of almost all commodities any suggestion which aims at a reduction in the cost of production of the crops should be welcome to the ryot. In the following lines an attempt is made to describe the cultivation of sugarcane, an important crop in the Hospet taluk on simple yet scientific lines, and also to indicate how an appreciable saving could be effected in the initial stages.

In the Hospet taluk under the Tungabhadra channels ryots leave a portion of their sugarcane crop unharvested as 'stand-overs' for seed purposes, as the tendency of the ryot there, is to repeat a crop year after year on the same land. It is known that the top portions of canes, which are usually removed and thrown into the manure pit or fed to cattle, make excellent material for seed purposes. Generally the ryot experiences difficulty in getting all his cane crushed in time, to prepare his land for the next crop, be it the same crop or a different one. If he would only preserve the top portions from each of which two setts are easily got, then this difficulty is overcome.

Method of preservation of tops.—The tops should be spread in two or three layers under the shade of a tree on a bedding of wet paddy straw or cane trash and carefully covered over with the same material. The covering should be kept moist by sprinkling water on it once or twice during the day. At the end of a week or ten days these tops are ready for planting. The interval of 10 to 12 days during which these cane tops retain their vitality should be enough for the ryot to complete the crushing of his canes and devote his attention to the raising of nurseries therefrom.

Method of raising nurseries.—The land intended for raising nurseries should be forked well and beds of 3′ x 4′ with alternate channels should be formed and a dose of cattle manure applied. As sugarcane is a twelve-month crop and responds best to a liberal application of manure and a copious supply of water, the latter helped by good drainage, 50 cartloads of well-rotten cattle manure should be applied per acre. Then the setts are spread in the beds so that they touch one another and when the bed is full water is to be sprinkled liberally and the setts covered with about 2 inches of earth which should be made moist by sprinkling water over it gently but liberally. After two days, the field should be irrigated by allowing water to