

The seed which is very small takes 7 days to germinate, two days later than for *Varagu*. Unlike *P. scrobiculatum*, the seedlings are green and have no purple pigment anywhere in the plant. Before flowering the plants are spreading and almost prostrate. The panicle-bearing tillers become erect at flowering. Unlike *Varagu* the internodes are hollow and much exposed. At ripening stage they have a golden yellow colour. The nodes are glabrous and not swollen. The flag is the broadest leaf in the plant. The upper surface of leaves is rough and the lower is smooth. The leaves are arched and not bent. The plants have five to six heads with long well emerged straight peduncles. Occasionally their fullness leads to goose-necking. The panicle has a general resemblance to that of a well grown *Chloris barbata*. It consists of a number of fingers (or branches) arranged in irregular whorls along a short axis. An average earhead may have about 40 fingers. The bulk of these arise from the two bottom whorls, the rest of them being distributed to those above, mostly in twos and threes. Each finger may have about 100 flowers. The spikelets are arranged alternately in clusters of one to three. The spikelets are very small, the length in each being four to five times the width. The glumes are prominently ribbed and dry to a straw colour. The structure of the spikelet is like any other *Paspalum*. The flowers of this wild ally open from 1—30 a. m. and the anthesis continues up to 7 a. m. The greatest anthesis energy is within the first hour after opening. It takes four to five days for a panicle to complete its flowering.

This wild *Paspalum* scores over *P. Scrobiculatum* in a number of points, viz., more herbage, free earheads, greater drought resistance, larger number of seeds per head and absence of sterility. A cross with this wild ally is indicated as a potential source of improving the Kodo millet, if the difficulties in the manipulation of this close and delicate cleistogamous flower could be overcome.

References.

1. Kiesselbach, T. A. (1926). False Polyembryony in Maize. *American Jour. Bot.* 13: 33-34.
2. Youngmann, W. and Roy, S. C. (1923). Pollination Methods among the lesser millets. *Agr. Jour. India.* 18: 580-583.

HILL VILLAGES OF TIRUPATTUR TALUK.

By U. B. MOHAMED ABBAS, B. Sc. Ag.

Agricultural Demonstrator, Tirupattur, N. A.

Introduction. A portion of the Eastern Ghats is situated in Tirupattur Taluk, N. Arcot district in two separate blocks viz. the Yelegiris and the Javadhi hills. The entire length of the mountain range is 45 miles in the taluk. The Yelegiri has a range of 13 miles and is situated a mile and a half from Jalarpet Railway Station, while the Javadhis with a range of 32 miles run continuously from north to

south forming a boundary on the eastern side of the taluk. The height of the hills above the sea level ranges from 2,700 to 3,900 feet. The total extent of the mountain range can be classed as (a) Reserved Forests 33,641 acres, (b) Patta lands 10,924 acres, (c) Grazing grounds 22,713 acres. *Kambugudi* the highest plateau in the Javadhi range is 3,900 feet above sea level and is 24 miles from Tirupattur town. There is a travellers' bungalow in the middle of the plateau with a good motorable road leading to it.

There are 43 villages in all, 12 in the Yelegiris and 31 in the Javadhi with a total population of 14,245 according to the latest census. Each village has 15 to 50 houses and most of them can only be reached by foot paths while a few have bridle paths. There are a few travellers' bungalows scattered here and there on the top of the Javadhi and the Yelegiri hills. The scenery from the top of the hills is very picturesque. Some parts of the hills are covered with dense vegetation and wild animals like bison, sambar, cheeta, bears and deer are found.

Climate. Owing to the favourable height of the mountain range the climatic conditions on the top of the hills are very good. The temperature ranges between 60 and 90°. The rainfall is also not very heavy, being only about 35 inches per annum and major portion of this is received during the north-east monsoon season (October to December).

People and their habits. The inhabitants of these hill villages belong to aboriginal tribes known as *Malai-yalis*. Recently a few non-malai-yali villages have also sprung up in favoured localities, by migration of the cultivating classes of the neighbouring plains. The *Malai-yalis* call themselves as Gownders and have no sub-castes. They worship both Vishnu and Siva. Each village has a Kali or a Dhurga temple. Vishnu and Siva temples are few and are held in common for all the neighbouring villages. The requirements in life of these primitive people are very few. There is no shop in any of these villages. The few things they require are salt, kerosene, matches, betel leaves, nuts, mud pots and clothes. Clothes they purchase once a year at the time of Pongal, one of the two festivals they celebrate. The rest they obtain from the neighbouring weekly shandies of the plains. The barber, black-smith, carpenter and other artisans come from the plains at regular intervals in the busy season, complete their work in the village and return to the plains. Every village has a family of Adi-Dravadas of the plains whose services are utilised during marriages, festivals and funerals and in return they are paid in kind annually.

A group of villages have a headman in common and he with the help of a Panchayat, a committee to which every house of the village contributes a member, settles the disputes and the fines and penalties collected go to the village common good fund which is utilised for the

celebration of Pongal or Kali festival. The people have two festivals viz. Pongal celebrated for ten days in the month of January and the other Kali or Dhurga festival celebrated in the summer months. Marriages are also regarded as public functions since all the villagers are related to one another and so every one takes part in the function. The marriage expenses are met by the bridegroom or his party and may cost about Rs. 100 besides 15 to 20 bags of paddy or ragi. Some of the villages are very malarial but the original inhabitants are highly immune to it.

There are three village Panchayat Elementary Schools for all the 43 hill villages. The one on the Yelegiri is due to the efforts of a few Anglo-Indian families that have settled there and the other two are for the children of Reddiur and Naickenoor villages on the Javadhi inhabited by people migrated from the neighbouring plains. It will thus be seen that there is not even a single school for the *Malai-yali* villages. The postman visits some of the villages once a week and the staff of the Health Department twice a year.

Occupation. The people depend mainly on agriculture and partly on cooly work they do to the Forest Department. An average ryot has 5 to 10 acres of dry land and there is very little of wet land. There are very few wells fit for irrigation purposes, so the people have little or no chance of raising a crop except with the help of rainfall. Major portion of the annual rain-fall is received in the north-east monsoon season i.e. October to December which is the main agricultural season. The soil on the slopes and the plateau is either red loam or sandy loam with a good mixture of kankar or sandstone to a depth of 6 inches or even up to one foot with soft stone and rock underlying it. The soil has therefore very little retentive power but responds well to heavy manuring.

Ragi, cumbu, samai, varagu, tenai, cholam, castor, groundnut, mustard and wheat are raised as rainfed crops. Besides these crops, some ryots have a few plantain and jack trees. Wherever there is facility for irrigation from jungle streams, or small tanks, paddy and sugarcane are raised. In the southern portions of the Javadhi hills near Nellivasal, coffee is grown under the shade of jack trees and it fetches Rs. 50 to 150 from about 10 cents (about 100 plants) of land. With the advent of the south-west monsoon, the fields are prepared and if the season happens to be good, cumbu mixed with cholam is sown and red gram dibbled in lines. Other millets except ragi are also sown in June—July. Groundnut is also sown at the same time. In August, after a good rain, ragi is sown and castor dibbled. A few ryots sow short duration paddy also. In September—October, wheat and mustard are sown. The rain-fed crops are intercultivated only once with a country plough.

From September onwards harvest of crops begins. Cumbu is the first crop to come off the field while castor comes last. Coffee plants flower in May—June and the berries are harvested in December—January. Ryots who have wells fit for irrigation, cultivate paddy thrice in the year. Besides paddy, cholam, ragi, sugar cane, are also grown under irrigation. Every ryot has a few heads of cattle and they form a source of income. During the period the crops are on the field, the ryots graze their livestock in the forests for which they pay 8 annas per cow or bullock per annum.

The probable income of a ryot who has 10 acres of dry land with a pair of work animals, 10 calves and 6 jack trees with 5 members in the family is shown in the *appendix*. In an average year a ryot may get Rs. 10 as net profit. If he happens to be thrifty, he may save some money, acquire land from the Government, clear the forest and bring it under cultivation. To purchase and clear the forest and bring it under cultivation, it costs him about Rs. 40 per 10 acres. The savings are used for the purchase of young calves and not for the purchase of jewels, nor does he waste it on drink. Money lenders were rare and the hill tribes never used to borrow as a rule but nowadays they come down to the neighbouring plains and borrow.

Except for the two forest roads which touch a few villages, the others have to be reached only by means of bridle paths which are very rugged. They are so bad in some places that even the pack animals find it difficult to negotiate them. Hence the ryot never brings down his bulky produce like ragi and cumbu to the neighbouring shandies for sale, but has to get his groundnut, mustard, jack fruit and coffee. The hill tribes are badly in need of a fair weather road, medical aid and elementary education.

Conclusion. The following are a few agricultural improvements that can be effected with success:—

- a) distribution of improved strains of crops grown there e. g. E. C. 593, *Surangi* cumbu, Adt. 3 paddy etc.
- b) introduction of light iron ploughs of cooper 25 type.
- c) demonstration of better methods of cultivating crops e. g. wheat and coffee.
- d) introduction of money crops e. g. potato and pine apple.
- e) inducing ryots to grow fruit trees e. g. mangoes, oranges, pomegranates, jack, and cashew nuts. These trees come up very well.
- f) stationing breeding bulls with the village Panchayats for the improvement of hill cattle.

The writer's thanks are due to Mr. M. Kanti Raj, Assistant Director of Agriculture, Vellore for the encouragement and suggestions given in preparing this article.

APPENDIX

Income in kind and cash.		Expenditure in kind and cash.	
1. Ragi	4 acres	500	m. m.
2. Cumbu	2 acres	200	" "
3. Groundnuts	3 acres	1,800	" "
4. Castor dibbled with ragi	...	200	" "
5. Dry paddy	½ acre	200	" "
6. Red gram dibbled with cumbu	200	" "	" "
7. In the remaining portion he has his chillies (dry) plantains, mustard and other things which he uses for himself.			
8. By the sale of 5 heads of cattle @ Rs. 12 each	Rs. 60-0-0		
9. By the sale of groundnuts (1800 m. m.) @ Rs. 3/- 200 m. m.	Rs. 30-0-0
10. By the sale of Jack fruits	Rs. 6-0-0
11. Do. Do. Castor	Rs. 10-0-0
12. By engaging himself or some member of the family as cooly to the forest department.	Rs. 3-0-0		Rs. 5-0-0
			Rs. 26-0-0
			Rs. 10-0-0
			Rs. 2-0-0
			Rs. 1-0-0
			Rs. 90-0-0
			Rs. 90-0-0

Net income is Rs. 10-0-0