

A Note on the Cultivation of *Ragi* in the Vizagapatam District

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Among the millets grown in the Vizagapatam District *ragi* occupies a prominent place. It is raised over an area of 2,70,000 acres and forms part of the food for 75 per cent of the population. It is grown all the year round, either in the wet, garden or dry land; consequently its grain is available at all times for the payment of wages in kind.

Seasons. The rainfall during the three seasons in which *ragi* is cultivated is as follows:—

<i>Punasa</i> (May—August)	21'22 inches
<i>Pedda</i> (August—December)	17'18 "
<i>Pairu</i> (December—April)	4 50 "

In the wet and garden lands *ragi* is grown in the two seasons *punasa* and *pairu* either preceding or succeeding the main season crop. Occasionally on the wet lands, when the main or *pedda* season is a failure, a long duration variety of *ragi* (*pedda chodi*) takes the place of the main crop, paddy. As a rain-fed crop (in the dry lands) *ragi* is grown in the *punasa* season in taluks north of Vizagapatam, while in the southern taluks (including Vizagapatam) it is sown as a main season crop.

Varieties. The *ryots'* classification of the *ragi* varieties is based upon the following characters:—

(a) *Pigmentation*:—

Pigmented plant—*Nalla chodi*.

Non-pigmented plant—*Tella chodi*.

Glumes, pale-green giving the panicle (both purple and green) a whitish tinge—*Tella chodi*.

Glumes, green—*Desivati chodi*.

(b) *Seed colour*:—

Reddish brown—*Tella godhumalu*.

Blackish brown—*Nalla godhumalu*.

(c) *Panicle shape*:—

Long, open; short, open—*Rinja chodi* (long, open—*Pedda rinja*, short, open—*Chinna rinja*).

Incurved, fisty, top curved—*Mudda chodi*.

(d) *Duration*:—

Long duration—*Pedda chodi*.

Short duration—*Chulakana, theлика-or korra chodi*.

(e) *Season*:—

Early—*Punasa chodi, tholakari chodi*.

Main—*Pedda chodi*.

Late—*Pairu chodi*

(i) *Method of planting or condition of the field:—*

Planted behind a country plough—*Solu chodi*

Planted in slushy field—*Burada chodi*

Planted in stubbles—*Koyyagutu chodi*

The *punasa ragi* is of short duration (90–95 days) which can be harvested in time for the main season crop of paddy, chillies etc. Varieties grown in the *pairu* season in the northern taluks are also of short duration since sufficient water is not often available for growing longer duration varieties. These latter are grown in the *pedda* season under rain-fed conditions and also in the *pairu* season in the southern taluks where assured water supplies exist.

Cultivation

Seed beds. These are generally well prepared. Manuring is done heavily, cattle penning being the most common practice. Alternatively, heavy doses of farmyard manure are applied. Seeds are sown in beds at the rate of 7 to 8 lb. in an area of 4 to 5 cents to plant out one acre of field. A peculiar feature is that nurseries are raised even for the rain-fed crop. A series of these are usually sown at intervals with the help of preliminary showers, and when sufficiently heavy rains are received for transplanting, the nurseries at the correct stage of development are utilized, the others being discarded. The only instance when transplanting is not adopted is in the case of *ragi* grown in certain high levelled wet lands during the *punasa* season, either alone or mixed with *gogu*.

Preparatory cultivation. In general, the fields intended for the *punasa* crop get good preparatory cultivation; usually five to six ploughings starting with the showers received in the last week of March or the first week of April. In the case of the main season *ragi* on the dry land or the *pairu ragi* in wet or garden land the time at the disposal of the ryot is short, and the field gets hardly three or four ploughings.

Manures and manuring. Manuring for the *punasa* crop is generally by sheep penning (1,000–3,000 sheep per acre) or less commonly farmyard manure is applied at doses ranging from ten to fifteen cart loads. For the *pairu* crop, farmyard manure is more generally used. The rain-fed *ragi* is also manured, but less heavily than the wet or garden land *ragi*.

Planting. In wet and garden lands, wherever there are assured supplies of water for flow irrigation, the crop is planted in small beds, but where water is limited the planting is done in long beds each strip being separated by a shallow irrigation channel. The *punasa* crop is planted from the last week of May to the first week of June, and if good rains are received and the fields are sufficiently wet, no irrigation is given at the planting time. In the absence of sufficient rains, however, the fields are irrigated and planted. The spacing given is from 6 to 8 inches, and two or three seedlings are planted in each hole.

The *pairu* plantings extend from the first week of December to the end of January. During this season the time of planting in each field depends upon the time of harvest of the previous crop, and it is common to see crops in adjacent fields in different stages of maturity. The *pairu ragi* does not tiller much and therefore the spacing adopted is closer, 5 to 6 inches either way. This also helps to conserve moisture and smother weeds as in this season the crop is not generally weeded or hoed.

On the dry lands the planting is done in ploughed furrows. The fields are kept levelled after the preparatory cultivation, and when good rains are received planting is done behind the country plough, bunches of four or five seedlings being dropped at every 6 or 8 inches. In case the crop is grown as a mixture with a pulse, the pulse is broadcast to begin with, the seeds getting covered up as the plough is worked for planting the *ragi* seedlings.

Irrigation The *punasa* crop is raised mostly with the help of rains supplemented by a few irrigations when necessary, but the *pairu ragi* has to be supported almost entirely by irrigation. When the crop is planted in small beds as when water supply is plentiful, watering is done by flow irrigation but when planted in long strips the water is led through irrigation channels to pits dug here and there in the field and splashed on to the crop with a ladle-like implement known as *surittē* or *cheti* (or *chunchu*) *gooda*. Watering by this method has naturally to be done at closer intervals than in the case of flow irrigation.

After-cultivation. The *pairu* and *pedda* season crops do not get any after-cultivation, the *punasa ragi* of the wet and garden lands is alone cultivated. The first hoeing to the crop is given a week or ten days after planting, as soon as the field comes into condition. Hoeing and weeding are continued at intervals until the crop tillers well and covers the field.

Harvesting and threshing The early crop grown in wet lands is harvested by gathering the earheads. The straw is allowed to be grazed by cattle and anything that remains is ploughed in. Threshing is done by cattle. The dry land and garden land crops are also harvested and threshed in the same way. The *pairu* crop, however, is harvested into sheaves and threshing is done by beating with sticks.

The highest yields of *ragi* are obtained from the wet and garden land *punasa* crop—from 1,500 to 2,000 lb. of grain per acre. The *pairu* crop yields 1,000 to 2,000 lb., while a crop on the dry lands gives 800 to 1,000 lb. if sown alone, and less still if it is a mixture.

The economics of *ragi* cultivation under the various conditions are given below:—

(The rates adopted are for an acre under pre-war conditions.)

1. Wet land or garden land—early (*Punasa*) *ragi*.

(a) *Sown crop.*

	Rs.	A.	P.
Preparatory: ploughing with country plough 4 times	8	0	0
Manures and manuring: 10 cart-loads	...	5	0
Sowing: 6 lb. of seed and covering	...	2	4

			Rs. A. P.		
After-cultivation: 1 hoeing	...	...	2	8	0
Harvesting	...	...	3	0	0
Threshing (4 cattle, 2 men and 2 women)	...	...	1	4	0
Total...			22	0	0
Yield of grain—1,200 lb.	...	...	48	0	0
Net income	...	...	26	0	0
(b) Transplanted crop.					
Nursery	...	...	2	7	0
Preparatory cultivation: 5 ploughings	...	...	10	0	0
Manuring	...	...	5	0	0
Planting (10 women)	...	...	1	4	0
Irrigation	...	...	5	0	0
After-cultivation: 1 hoeing	...	...	2	8	0
Harvesting	...	...	3	0	0
Threshing	...	...	1	4	0
Total...			39	7	0
Yield of grain—1,500 lb.	...	...	60	0	0
Net income	...	...	29	9	0
			30	0	0
2. Summer or <i>Pairu ragi</i>					
Nursery	...	...	3	8	0
Preparatory: 5—6 ploughings	...	...	8	0	0
Manures and manuring: sheep penning for 2 days	...	...	4	0	0
Irrigation: (14 irrigations with <i>suratce</i> or 4 with <i>mhote</i>)	...	...	5	0	0
After-cultivation	...	...	1	14	0
Harvesting	...	...	0	15	0
Threshing	...	...	4	0	0
Total...			27	5	0
Yield of grain—1,200 lb.	...	...	36	0	0
Straw	...	...	4	0	0
Total...			40	0	0
Net income	...	...	12	11	0 or
			13	0	0
3. Dry land <i>ragi</i> .					
Nursery	...	...	3	6	0
Preparatory cultivation	...	...	3	0	0
Manures and manuring	...	...	5	0	0
Planting	...	...	1	8	0
After-cultivation: 1 hoeing	...	...	1	8	0
Harvesting and threshing	...	...	10	0	0
Total...			21	10	0
Yield of grain—750 lb.	...	...	25	0	0
Straw	...	...	5	0	0
Pulse—200 lb.	...	...	12	8	0
Total...			42	8	0
Net income	...	...	20	6	0 or
			20	0	0

A brief account of the improved strains under distribution in this district is given below :—

Season.	Punasa (May to August).		Panna (December to April).		Padan-Banin (August to December).
1. Strain No.	A. K. P. 525	B. B. L. 5.	V. 33.	V. 8.	E. C. 593.
2. Place of origin.	Moida.	Bobbili.	Vizianagaram.	Vizianagaram.	Coimbatore.
Irrigated or rain-fed.	Irrigated.	Irrigated.	Irrigated.	Irrigated.	Rainfed.
4. Duration in days.	90	95	95	100	110
5. Average acre yield of grain in lb.	2,750	2,500	1,500	1,400	1,675
6. Places where the strain is spread- ing.	In all places except Cheepurupalli and Palakonda taluks.	Sompeta, Choda- varam, S. Kota, Ankapalle and Salur taluks.	Chodavaram, Anaka- palle, Yellamanchili, Narasipatam, Salur and Bobbili taluks.	S. Kota and Bobbili taluks.	In all places and mostly in Southern taluks.
7. Chief character- istics.	An all-green plant of medium height erect and profusely tiller- ing in habit.	An all-green plant, erect 4-5 tillers.	An all-green plant vigorous growing and giving 4-5 tillers, erect.	An all-green plant, erect, short stature, good tillering habit.	An all-green plant vigorous growing and giving 4 to 5 tillers, erect.
(a) Plant colour and habit					
(b) Panicles	Incurved medium, Medium R. brown, tasty.	Big incurved, Medium R. brown, tasty.	Big incurved, Medium-blackish brown.	Medium-incurved, Medium-blackish brown.	Top incurved, big, Big-reddish brown, tasty.
(c) Grain					
8. Special features.	Short duration suit- able for wet land in Punasa and Padan- Banin. Straw smooth and good for fodder.	Panicles are attrac- tive to ryots.	Shorter in duration than V. 8 and the performance is con- sistently good.	Gives good yields when the season is favourable.	Though longer in duration by 8 to 10 days compared to local types the yield is high. Hence in dry land it is not a disability.