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INTRODUCTION OF IMPROVED *RAGI* (*ELEUSINE CORACANA*) STRAINS IN CHITTOOR AND N. ARCOT DISTRICTS

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Introduction. In the Season and Crop Report for 1932-33, the area under *ragi* was as shown below :—

District.	Irrigated.	Rainfed.
Chittoor	57,981 acres	106,538 acres.
N. Arcot	71,213 ,,	27,348 ,,

The various districts of the Presidency arranged according to the area under irrigated ragi are Vizagapatam, which with its 119,655, acres tops the list, followed by Coimbatore, Anantapur, Nellore, N. Arcot, Cuddapah, S. Arcot, Chittoor, Chingleput, Madura, Ramnad, Trichinopoly, Salem, Ganjam, Tinnevelly, Kurnool and Tanjore. According to the above N. Arcot holds the fifth and Chittoor the eighth place in the Presidency.

The various districts of the Presidency arranged according to the area under rainfed ragi are Vizagapatam with its 387,997, acres which tops the list followed by Salem, Ganjam, Chittoor, Coimbatore, Trichinopoly, Ramnad, E. Godavari, N. Arcot, S. Arcot, Anantapur, Chingleput, Bellary, Madura, Malabar, Tanjore and Guntur. According to the above list, Chittoor holds the fourth and N. Arcot the ninth place in the Presidency.

2. **Cultivating seasons.** Irrigated ragi is sown in two seasons, viz., December—February and May—July. Rainfed ragi is sown in July—September.

3. **Varieties grown.** The following are the varieties grown :—

a) Irrigated. (i) N. Arcot—*Karun suruttai, Vellai suruttai, Kulla ragi, Vella pandian.*

(ii) Chittoor— *Kudumu ragi, Mutta ragi, Tella gidda ragi, Nalla gidda ragi,* and *Addiga ragi.*

(b) Rainfed

(i) N. Arcot— *Perun kevuru, and Karun Suruttai.*

(ii) Chittoor— *Pedda ragi and Gidda ragi.*

The average yield of the local irrigated ragi is about 2000 lb. per acre, while that of the local rainfed ragi is about 700 lb. per acre.

4. **Introduction of improved strains.** E. C. 593, an improved irrigated ragi strain evolved at the Millets Breeding Station, Coimbatore, was tried in January 1933, in each central village in both the districts. The stand and yield of the introduced strain impressed the ryots in all the places wherever it was tried. During May—July sowing

in 1933 there was a great demand for the seed. In December '33—February '34 sowing season the area under the strain increased in each village and so also in May—July season of 1934. The strain has already commenced to have a natural spread and it has a very bright future in both the districts. The following figures reveal the superiority of the strain :—

Taluk.	Yield of local (in lbs. per acre)	Yield of strain E. C. 593 (in lbs. per acre)	Difference in lbs. in favour of strain.
(i) Wallajah	2120	2400	280
	1874	2385	511
	1985	2300	315
	2025	2200	175
	1975	2400	425
(ii) Palamaner	1890	2240	350
(iii) Gudiyattam	3060	3882	822
(iv) Chittoor	1636	1900	264
	1925	2139	214
(v) Tirupattur	2750	3750	1000
(vi) Cheyyar	1860	2700	840
(vii) Tiruttani	1612	2454	842
	24,712	30,750	6,038
Average	2059	2564	503

Increase in favour of strain is 24·4 per cent.

The strain is liked for the increased yield of both grain and straw. It does better than the local varieties in both the growing seasons and more particularly in December—February planting season.

5, **Conclusion.** A suitable strain to replace the local irrigated ragi strains has been found. It has appealed to the ryot in spite of its defects viz , a delay of 10 to 15 days to come to harvest and requiring two more irrigations when compared with the local strains, the increase in yield more than compensating these defects. The writer has seen a few cases where the strain had a stand of about five feet in well manured fields. In the case of rainfed ragi, trials are under progress with H—22, an improved strain evolved by the Mysore Agricultural Department and which is extensively grown in Mysore territory bordering Palamaner and Madanapalli taluk, of Chittoor district.

A SHORT NOTE ON TOBACCO DECOCTION AS AN ECONOMIC SPRAY MATERIAL FOR PADDY THRIPS

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Among the various kinds of insect pests that the paddy crop is subjected to in the early stages of its growth—Thrips—known scientifically as *Thrips oryzae*, Williams, though probably the smallest in size, among the pests of paddy, is by no means insignificant from the point of view of the damage it is capable of doing. Under certain conditions

of weather the pest multiplies itself in large numbers and causes very serious injury to paddy seedlings, the damage manifesting itself in the rolled up needle-like leaves of the plants and rather parched up appearance of the whole seed bed; in extreme cases the damage is so complete that the whole seed bed is destroyed and fresh seedlings have to be raised for transplantation. In Coimbatore the attack limits the area that can be planted with the seedlings and therefore the insect deserves more than ordinary attention. Since the attack is confined to seed beds which are small and compact the insect can however be easily tackled.

This pest has been noted in serious pest form in several paddy tracts of this Presidency, viz., Coimbatore, Malabar, Tanjore and Chingleput. Some useful information about this pest is contained in Bulletin No. 25 of the Madras Agricultural Department and in the article "Bionomics of Thrips injurious to plants in S. India" (Agriculture, & Live Stock in India, 1932).

In July 1934, a number of varieties of paddy was sown at the Paddy Breeding Station, Coimbatore, in fields under irrigation channels. There were light showers of rain during the first week after sowing and no rains for the next fifteen days. When the seedlings were nearly 22 days old the presence of numerous rolled up leaves and a general scorched up appearance revealed an attack of thrips. Counts of the population of thrips were taken to find out the severity of the attack. About 30 plants were pulled out at random from the badly infested plots and these on examination yielded 97 adults and 541 nymphs giving an average population of 3·2 adults and 18 nymphs per plant.

The neighbouring plots that were more or less free were being invaded by the increasing population of the insect. It was found that seedlings that were comparatively older and as well as seedlings of varieties with broader and thicker leaves were practically free from damage though in the middle of the infected area.

As the seedlings were more than 10 inches high, and as the nursery beds themselves were on a slightly raised level, flooding the fields to drown the seedlings with the thrips was not practicable. Hence, spraying the plants with dilute tobacco decoction was resorted to. For the whole area of about an acre five pounds of tobacco was soaked in 5 gallons of water for 24 hours and the liquid after staining was diluted at the rate of 1 to 6 with water. Immediately after spraying a large number of insects was found to be dislodged from the plants and falling into the water dead or dying. The plants were examined about two hours after spraying and counts taken as before for the average population per plant.

For 30 plants there were 3 dead adults, no living ones, 134 live nymphs and 159 dead or dying nymphs, giving an average of no living

adult, 0·1 dead adult, 4·5 living nymphs and 5·3 dead or dying nymphs per plant. The population per plant was thus very much lower than before spraying; and even those insects that were alive were found gathered at the top of the curled leaves where the tobacco decoction could not probably reach.

The effect of the spraying was remarkable when the crop was examined again after 3 days when there were 6 living adults, 27 dead adults, 10 live nymphs and 67 dead nymphs for 30 plants giving an average of 0·2 living adults, 1 dead adult, 0·3 living nymphs and 2 dead nymphs per plant. The presence of more adults now may be due to the fact that they might have come in from untreated plots nearby or the ones found to be dying during the previous count may have recovered or some of the grown up nymphs might have moulted and become adults. While the total living population of thrips for 30 plants was 638 before spraying it was only 16 three days after spraying, thus giving a mortality of 97%.

For a total area of 1 acre of seedlings, 5 lbs. of tobacco was used at a cost of 5 annas at 1 anna per pound, and three coolies worked for a day costing 15 annas at 5 annas per head per day. Thus, the total cost of the operation comes to Rs. 1—4—0. If boys could be engaged for the work the cost would be 6 annas less, i.e., only Re. 0—14—0 per acre. Considering that it costs only 14 annas to treat an acre of seedlings the seeds from which could be transplanted over 13 acres the normal yield from which may be 39,000 pounds of paddy worth Rs. 1200 even in these days of depression and considering the efficacy of the treatment, spraying tobacco decoction may be considered to be one of the best ways of controlling thrips in paddy seed beds. And this method can be specially recommended in areas where water is not easily available to check the pest by flooding the nurseries.

The authors are thankful to the Paddy Specialist for having afforded facilities for conducting their trials at the Paddy Breeding Station.

AN ECONOMIC ENQUIRY OF THE CULTIVATION OF PLANTAINS IN THE ERODE TALUK

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Plantain is an important crop grown in the wetlands of the Erode Taluk, ranking next to paddy. The following table gives the acreage of the wetland-crops here for the year ending June 1933.

Crop.	Acreage in 1933.	Normal acreage.	Difference in acres.
Paddy	19,324	18,055	+1269
Plantains	1,782	864	+ 918
Sugarcane	509	634	- 125

It may be seen that the area under plantains has nearly doubled and with the present slump in the paddy market continuing and with