

Would it not therefore be a boon to this part of the country if our Agricultural Department evolve suitable strains for the purpose referred to? Is it too much to expect that boon to be within a measurable distance of realization, now that a special paddy breeding station has been recently started in this Central Institute? I hope not.

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### **Certain aspects of cultivation in the Godavari District.\***

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Leaving aside from our consideration the hill or agency tracts the Godavari District may be broadly divided into :—

- (1) the Deltaic portion and
- (2) the Uplands.

The Deltaic portion is chiefly characterised by the presence of heavy soils formed by the Godavari. In the upland portion, light soils red sandy loam predominate with an appreciable extent of red alluvium formed by the hill streams and a small river that flows in the district—namely the Yelleu.

The Uplands are well drained and the Delta suffers from ill drainage. This district is favoured by an annual rainfall of about 40 inches and the South West monsoon accounts for more than 26 inches. The North East monsoon gives about 12 inches but spends itself in a very few days, while in the other, rainfall is more evenly distributed. The Upland tracts which receive their rain along with other portions are, however, able to sow and raise their chief rainfed crops earlier than the Delta which grows wet paddy mostly. In the North East monsoon season, both tracts raise pulses. In the Uplands, themselves, villages nearer the hills get their rain earlier than other parts.

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The differences in the texture of the soils and drainage and in the receipt and distribution of rainfall in the two monsoon seasons determine the nature of the crops put in, and their time of planting. For example, gingelly is sown in the Uplands in May and June and in the Delta in January. Ragi is sown in June, July in the Uplands and in November in the Delta. Sugarcane planted after about the 15th of March in the Delta is not profitable while the Uplands planting may be done up to July 1st. In high level wet lands in the Uplands such dry crops as dholl, cotton, gogu, gingelly, thenai, are grown in fields in the midst of other wet fields or contiguous to them, while in the Delta such a practice is considered wasteful and condemned. Parts of the Uplands adjoining the hills which get rain earlier grow cumbu while preference is given to a mixture of gingelly and red gram, sown a little later, in portions further down, and some dry paddies as yeradem and gelama are sown dry in lands under tanks and in the low lying portion of villages on the banks of Godavari.

Land tenure—There are three kinds of tenure: (1) Zamindari (2) Proprietary or Inam (3) Ryotwari. Except in the case of lands held by the Zamindar in his private capacity and of temple and other Inam lands held in trust by him all lands have been, since the passing of the Madras Estate Land Act of 1908, in the occupation of ryots whose interest in the land they cultivate has been secure and who cannot be evicted except under very special circumstances but it cannot be denied that the rent paid to the Zemindar by the occupant is not very high, in very special cases amounting up to about Rs. 35 an acre. If the lands are situated in villages irrigated by the Godavari canals water rate for the first crop is borne by the zamindar and for the second by the occupant. In the case of sugarcane and such other crops as occupy the ground more than one season half is borne by the occupier and the other half by the zamindar.

In the case of Inam lands, occupiers have less interest and it is a refreshing contrast to turn from the Inam lands cultivated by a person to his own lands where he pens his cattle, ploughs and plants in season. In the case of Inam lands rents vary from Rs. 25 to Rs. 60 according as paddy or sugarcane is cultivated.

In the case of ryotwari lands, where the cultivator is the master of his own lands, the crops are generally good and are better cultivated.

Irrigation :—Well irrigation is practically nil in the district. A few wells in the Amalapur taluk which is in the heart of the delta are being utilised for baling water to coconut plantations in summer where the canal is either very low or closed for silt clearance. But low lift appliances as the picottah and what is known as Karem,—a palmyra split lengthwise and scooped out and attached by a string to a long lever which works it—and baling of swing baskets are common. In upland tracts, in two or three villages we occasionally come across mhotes. The mhote in such cases is not used for raising ordinary garden crops but for fruit gardens.

The Godavari canal system is not unfamiliar at least through reputation and the canals designed are useful both for navigation and irrigation. These canals as they are navigable bring up the produce to important trade centres as Rajahmundry, Cocanada Nidadavole and Ellore and serve as equalising agencies in the prices and distribution of produce; for example, one bag of 166 lbs of paddy can be sent over a distance of 30 or 40 miles at one anna a bag without largely increasing the congestion of traffic in Railway centres which are already getting stocked over much in harvesting seasons.

In regard to irrigation the Godavari canals flow for over 10 months in the year and are thus practically helpful in raising two crops in suitable situations, in the deltaic part of the district, but

it is not to be presumed that the Delta ryot is perfectly satisfied with the present irrigational facilities. In a part of the district which is benefited by the Yajeru, several villages have, from a common canal to take water for their fields. Here water is taken by turns by each village or group of villages and except when an impetuous and inexperienced man meddles, the work of distribution is very smoothly and very satisfactorily done. There is no unequal distribution and no hitch amongst residents of a village. There are a number of rainfed tanks in the uplands which get their supply mostly in the South West Monsoon. These irrigate the variable extent of wet crops on lands under them and when the monsoon fails is late or insufficient, portions of wetlands thereunder grow cholam or Bengal gram. The deposition of rainfall in the South West Monsoon is such in this District that Cumbu and Ragi which are treated as rainfed crops or broadcast in many other parts of the Presidency, are transplanted here.

In the Delta, owing to the facilities for irrigation and high prices of paddy, the poorer lands also have been gradually brought under cultivation to the detriment of the health of cattle which find gradually diminishing grazing areas and little or no standing or moving room. In consequence, almost all the cattle of the delta are being sent after the transplanting of paddy is over in September to the forest areas in the uplands or to upland villages where private grazing grounds are available. There good grazing is available for about three months in the rainy weather and the rate of mortality is sometimes 10 per cent. With diminished vigour of cattle returning, the loss to the ryot is not negligible; a pair of animals is kept on at Rs. 2/- a month. Latterly it has become an unsatiable desire of rich and influential ryots in the delta to advance varying amounts and mortgage at hypothecation bonds to needy upland ryots who own grazing areas and thus secure grazing for a number of years, keeping their watchman on these lands when the animals are

there. Thus the grazing area available is fairly sufficient though the quality has been deteriorating and the care taken in looking after cattle has been getting less and less.

*Wetland:*—In the wetlands in the Delta, the chief crops grown are paddy and sugarcane. Paddy is grown in two seasons which are well defined. The first season or the main crop season, extends from June to November and the second crop season extends from middle of January to middle of May. The whole area is planted out in the main crop season while in the second season 20% or less is transplanted. The varieties grown in the second crop season weigh bulk for bulk less than those raised in the main crop season, are inferior in quality and are generally disposed of as wages in kind to working classes and sold for export.

Palagummasari—a main crop season variety—occupies the ground a little more than five months and in point of duration is intermediate between Rasangi which is harvested at the end of October and Konamani which will not be cut until about a month later. It is a heavy yielder and the quality of the rice is good. When this is put in and the black gram or green gram is sown in the standing crop, a few days before harvest, sufficient length of time is secured for the growth of the pulse crop which gives Rs. 20/- to 30/- money return per acre, with facilities for planting second crop paddy in February. Therefore this variety occupies a relatively large tract where second crop is raised or is possible.

Konamani and Atragada which take about six months each to ripen are preferred in places where single crop lands predominate, where water supply is extended for a longer period, though interspersed with periods of dry weather and where transplantation has necessarily to be prolonged over a longer period owing to want of coolies and irrigation of seed beds. The

quality of the rices is good. The area under Konamani is greater than that under Atragada.

In poor classes of wet lands, Akkullu, a pretty long term paddy is grown and this is considered to be the least exhaustive of the paddies known locally. The quality of paddy is good and the variety finds a ready sale. In the wet lands in the standing crops of wet paddy in the main crop season, it is customary in places suited for their growth to grow sun hemp, horse gram, black or green gram, either alone or mixed. These, except sun hemp, are harvested for grain and sun hemp is cut in February and fed to cattle mixed with dry paddy straw. When gingelly is grown in wetlands with the last irrigation a pulse known as Thegapasalu (creeping green gram) is sown about the middle of April or earlier and ploughed in at puddling time. As the second crop paddy is harvested in the middle of May and water has to be drained off about ten days earlier there is not very much scope for sowing a green manure crop in second crop lands. Main crop seed beds are almost always raised dry and second crop seed-beds after puddling. Sowing sprouted seed is almost the rule in the second crop season which is never done for the main crop seed-bed. Seed-beds are very carefully manured with cattle penning or sheep penning or penta if on single crop lands, while on double crop lands seed-beds raised are more a mockery and excite pity.

*Sugarcane* :—Occupies very well marked tracts in the district and is grown in villages where the soil is better drained. It is planted out in February mostly and cut about 11 months after. Unlike in other parts of the Presidency canes when about four months old are wrapped with their own leaves in the green state and this operation continues for another five months. In the second wrapping bamboos are planted to support a clump of canes and the cane leaves are turned over to keep them in position. The system of wrapping and bamboosing keeps men engaged for a longer period in the district than elsewhere and labour is more regularly distributed and the chief peculiarity connected with cane cultivation here is what is known as profit sharing which is the rule. Land owner plants the canes. Thenceforward share holders do all operations as weeding and

hoeing, wrapping, purchasing bamboos and oilcake manure at their cost and applying and pressing the juice and preparing jaggery ; of course, the landowner advances money and realises at harvest time about 12 per cent. interest. The produce is shared half and half, the landlord supplying mill and accessories, cattle, watchman and man feeding the oven while jaggery is being made.

The coolies are thus attached to the land. The landlord finds an easy and safe investment for his capital, without trouble gets about Rs. 150 to 200 an acre and the coolies employment and profits ranging from Rs. 50 to 150 an acre.

Ratooning is not very common. Jaggery is made not into small cubes as in Coimbatore nor in balls as in South Arcot but in slabs about  $2\frac{1}{4}$  feet  $\times$   $1\frac{1}{4}$  ft.  $\times$  4", weighing about 4 to 5 maunds. Certain tracts produce only one quality of jaggery while the others produce another. In the rainy season these slabs cut into six and bundled in palmyra baskets are arranged in an ill-ventilated room in layers of 2 and 3 and cowdung cakes and rice husk are slowly and gradually burnt on rainy or cloudy days when the smoke arising is considered to envelope and keep off moisture thus preventing the slabs from getting soft.

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The nourishing qualities and medicinal uses of sugar are so well known for India that the following may be of interest ;—

Sugar excites the secretions of the stomach, increases digestion of albuminous matters and of nutritives containing iron and lime, a fact which proves that under proper conditions sugar is a remedy against anaemia, chlorosis and in scropula. This explains the love of a great many children for sugar in the lump, who afterwards as they grow older avoid plain sugar or sugar by itself, almost entirely. It seems to be a sort of instinct with children