

every day the company's transactions do not fall short of two wagon loads of bunches the total value of which in a year may go up to Rs. 36,000. Charges per month in the shape of rent, establishment, allowances and contingencies run up to Rs. 500 a month or Rs. 6,000 a year.

With a starting capital of Rs. 8,000, the expenses for a year are :—

Interest at 12 per cent.	...	Rs. 1,152
Income tax	...	300
Profession tax	...	50
and establishment charges	...	6,000

Total Rs. 15,502

The value of the produce contracted is Rs. 36,000 ; total expenses Rs. 15,502. Net profit realized is Rs. 20,498 or roughly Rs. 20,000. Briefly the profit is sometimes estimated at Rs. 20 for every wagon of fruit obtained.

If planters could combine into a co-operative society, it is just possible that this trade becomes more steady and stable and the profits that find their way into the pockets of the middlemen reach the cultivator directly and considerably ease the situation of indebtedness even if it cannot enrich him.

Work of the Paddy Breeding Station, Aduturai.*

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It is only by a proper appreciation of fundamental facts that a scientist can visualise, before he begins any work, its possibilities nay, more than that, its limitations. The most important of these facts are:—

- (1) that the paddy plant is as much a living organism as any one of us.

*A paper read at the ryots' conference at Aduturai.

(2) that it reacts to its environment, that is to say, it is influenced by its surroundings, such as sunlight, heat, cold, rain, wind and other climatic factors, as well as the soil and the quantity and quality of food in it. It is subject to attack by animals as well as disease producing germs. A warning is necessary against the dangers and the disastrous consequences to the plant population of underfeeding, overcrowding and illventilating and the illeffects of these conditions are as pronounced as on the human population and finally

(3) that most of the visible and invisible characters of plants are inherited and are handed down from generation to generation. To give concrete examples height, various colours met with in plants, period of maturity, size of grain, number of seeds on a plant, power to resist, or susceptibility to diseases and a score of other characters both useful and useless for man, are inherited. As no two children of the same parents are alike, either in their physical get up or their mental traits, so also no two individuals in a variety of plants are exactly similar. There are definite laws governing the inheritance of characters in plants but the time at my disposal is not enough to explain them in any detail. It may however be stated here that it is by taking advantage of these laws that scientists in various parts of the world have been able to combine valuable characters in plants, so much so, that plant breeding work has assumed enormous importance in all highly organised agricultural countries, as the results obtained in various directions by this method have been most gratifying. Plant-breeding work on paddy in this Presidency was first started about the year 1913 at Coimbatore by Mr. F. R. Parnell. Now in his place there is Mr. R. O. Iliffe, as Paddy Specialist, for directing work on the various breeding stations of this Presidency. The work carried on at the Paddy breeding station at Coimbatore lies in two main directions. (1) the isolation of strains from existing varieties on crossbred progenies, and (2) the study of the inheritance of characters of the paddy plant to find out their economic relationship in breeding work. Several strains of paddy were evolved at Coimbatore, which found their way quickly into various tracts but it was soon evident that these strains when introduced into tracts with divergent climatic and soil conditions, did not always give encouraging results. Evidence of such behaviour began to accumulate and pointed unmistakably to the fact that we have to take into account the effect of varying environ-

ments on these strains and that it is always risky to recommend, in such cases, one and the same strain for universal adoption by the ryots of this presidency with any degree of confidence. It is the recognition of this very important aspect of the problem that led to the establishment of sub-stations, like the one we have here, in the chief paddy growing centres, for evolving strains of paddy from the existing local varieties either by single plant selection or hybridization of suitable individuals to get improved types.

The Aduthurai Paddy breeding station was started only in the year 1922 but the great amount of preliminary work done on the Manganallur farm in previous years enabled us in these few years to put out seven strains from the important varieties of the Tanjore district like Red sirumani, White sirumani, Kuruvai, Nellore samba, and Ottadan. The increased yields of these strains range from 10 to 25 % over those of the original unselected varieties, as the following table will show.—

No.	Variety.	Duration in days.	Percentage of increase over original variety.
Aduturai 1.	Red Sirumani.	180	16
Aduturai 2.	White „	165	10
Aduturai 3.	Early Kuruvai..	95	Advantage of earliness.
Aduturai 4.	Ordinary „	105	12
Aduturai 5.	Nellore Samba.	185	25
Aduturai 6.	Red Ottadan	210	13
Aduturai 7,	White „	210	13

These strains have other valuable characters such as earliness, freedom from red rice and uniformity in growth and maturity.

It is indeed a source of gratification for us to see that the demand for the several strains has been several times the quantity that could be grown on the limited area of the station, thereby showing clearly that the superiority of these strains has been well established and the demand is certain to increase day by day. To take as an example, the demand for the two kuruvai strains, for the next

season's sowing, has, by now, exceeded 30,000 lbs. but the quantity that is available for distribution is only 8,000 lbs., thus leaving an unsatisfied demand, even, now at 20,000 lbs. You will readily admit that it will not be possible, with so many experiments to conduct for the limited area of this station to meet the ever growing demand for seed, and that, if we are to realise our hope of seeing the one million acres of Cauvery delta cropped completely with improved strains of this station, within the shortest possible period, some organisation or agency should come into existence for large scale multiplication and distribution of such seeds. There should be either Government managed seed farms or preferably private gentlemen to act as seedsmen like Suttons of England or Vilmeria of France. The ideal would be to have Agricultural Co-operative Societies like the Sivagnanam Society of Lalgudy for multiplication and distribution of seed. Signs are not wanting that there are in this district gentlemen who are unostentatiously working like Suttons and Vilmorins. Some of the outstanding names in this connection are those of Rao Bahadur K. S. Venkatarama Aiyar of Negapatam, Messrs. Rajagopala Aiyangar of Titte, G. R. Muthuswami Aiyar of Ganapathy Agraharam, Nemam Natesa Aiyar, Regupathy Rao of Elanthangudi, Kunnam Subramania Aiyar, Kasturi Ranga Mudaliar of Thrizhandur, Mulangudi Gopalakrishna Aiyar, Ambal Meenakshisundaram Pillai, and Nageswara Aiyar of Anakuppam. These gentlemen, taken together, crop about 1,300 acres with the Aduturai strains and distribute seed to their neighbours. Even supposing that only 50 % of the produce of these 1,300 acres is used for sowing, the area covered with their seed would be not less than 250,000 acres in the coming year. If every village can contribute a Rajagopala Aiyangar or a K. S. Venkatarama Aiyar or a Meenakshisundaram Pillai, none would have to wait many years, to realise one's hope of seeing every acre of wet land cropped with improved strains of Paddy. So an appeal is made earnestly to the leading mirasdars that are assembled here to, at least, grow for trial some of the Aduturai strains and if found successful, to multiply the seeds and distribute them later on to their less enlightened brethren in their villages. If leading mirasdars of different taluks come forward to grow these strains in large quantities for distribution to others, it might be possible to come to an agreement by which fresh seed of these strains is yearly supplied to them from the breeding station, in preference to the claims of others.

The strains under trial on the station at present include selections from Korangu samba for blast resistance, a small sized Nellore samba strain for Trichinopoly District, selections from progenies of white sirumani crosses with round grained varieties for increased yield and earliness. Besides these, a large number of single plants from Java x Sirumani crosses, Anaikomban x Sirumani crosses. Poonkar, Chitrasali, and second generation of korangu samba crosses with Nellore samba and sirumani are being studied for final selection of suitable strains from them.

In conclusion, attention may be drawn to one important point. How is it that the paddy plant in Spain is able to produce an average of 6,000 lbs. of grain per acre while in the Cauvery delta the average is only 1,800 lbs.? Is it not within the possibility of Indian ryot to raise this average? It will be possible to double the average yield per acre for the Cauvery delta if one goes about one's own business in a systematic manner. This deliberate statement is made because, the Central farm at Coimbatore has been able within the course of the last 15 years to raise the yield of paddy from the low figures of 2,500 lbs. to some where about 4,500 lbs. an acre by steadily building up the fertility of the land by systematic manuring and use of iron ploughs in the cultivation of the land, and growing selected strains of paddy. By spending on an average of Rs. 12/- per acre on manuring and using iron ploughs like meston and konkan, on this breeding station, and in spite of the fact that the major portion of the area is devoted to experimental work, the average yield per acre has been raised from 1,800 lbs. to 2,400 lbs. during the past three years. This season's crop is still on the ground and you have had an opportunity of seeing it this morning. A higher average yield is expected this season than in previous years. As far as the nature of the work would permit, exactly the same cultural and manurial treatments as the agricultural demonstrators are persuading you to adopt in your own lands are being followed here, the output of paddy from the one million acres in the Cauvery delta can be doubled, if all the mirasdars consent to take to the improved methods advocated by the department. And then they can take legitimate pride in having been instrumental in bringing about such economic prosperity to the country at large.