

Crop and Land Improvement under the Krishna East Bank Canal, (Madras State)

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With the excavation and opening of the Krishna East Bank canal in 1937 lands formerly under dry cultivation in the canal zone got converted into wet system of cultivation. In the conversion of the dry land into wet, of the ayacut under the East Bank Canal, changes in the cropping as well as changes in the condition of the soils have been brought about. In this canal ayacut, a crop of paddy is raised between June and December, followed by Sunnhemp, or pulses like green-gram, black-gram, *pillipesara* etc. In certain blocks of land, in this canal zone, as in the villages as Srikakulam, Tenuguraopalem etc., large blocks of land extending to thousands of acres get hardened in the top foot of the soil, with white alkali deposit caused by efflorescence. The pulse crop following the paddy is diminutive in size and presents a poor appearance. A number of bore wells in the area sunk for drinking water purposes have the level of water in them rising or falling with the level of water in the river Krishna. In flood time, the water level in the bores is high up while in other periods the level in the bores recedes to lower depths. In these bores, the sand substratum with the watershed is generally reached from a depth of seventy feet from the ground level. Water from this level is pushed up to 12 feet from the ground level, indicative of the subartesian nature of the watershed.

2. The alkalinity of the soil is rendered by the rise of the sub soil water. A sure way of getting rid of the alkalinity and securing good pulse crops after paddy is by construction reservoirs, or wells around these bores and pumping water therefrom, to raise a second crop of paddy between January and June. The water from the lift irrigation led on to the fields in which the II crop paddy is raised pushes down the sub soil salts and corrects the alkalinity. In course of time, the soils are rendered sweet, to enable raising pulse crops in the second season, in the normal way. Investments in regard to boring pipes, reservoir or well construction, engine and pumpset may range from Rs. 3,000/- to 6,000/- per bore; but this investment can be recovered with the returns from two crops of paddy. The net profits may easily accrue to Rs. 400/- per year, with paddy selling at Rs. 18/- a bag of 2 imperial maunds.

3. In the adoption of this system an early start of the first crop with heavy yielding medium duration types like Potti Basangi (MTU. 3) is feasible. With the early harvest of paddy, the succeeding pulse crop

has also an early lead for full development and high yield upto 6 bags (2 Imperial maunds each) per acre. The best lands of the area in this canal zone yield as much as 18 bags of paddy, with 5 to 6 bags (2 Imperial maunds) of the grams. Those who can afford the investment, progress on these lines; but holders, incapable of such investment, may adopt one or more of the following agronomical methods to reform their lands for better production. Soils that do not sustain any kind of pulse following paddy, or that support them only to diminutive stature may be reclaimed with "*Dantu Thadupu*". After the harvest of the paddy, the fields are flooded with the canal water and the water made to stand on them as long as possible, to push down the sub-soil salts for an adequate period. In this process paddy straw that can be trampled down will help reclamation in quicker measure. A second method of tackling the fields consists in raising green manure crops as *Sesbania* and *Daincha* sown in the standing crop of paddy just before harvest, either by themselves or in mixture with the pulse crops. With the harvest of the pulses, the green matter from *Sesbania* or *Daincha* can be cut and composted for application to the first crop of paddy.

4. Another method of correcting such soils lies in the paring of land "*Gallu Teeyuta*". Strips of land in the fields may be dug at alternative intervals to depths of six inches, transporting away the dug material. With the summer weathering, the pared sub-soil gets enriched in plant nutrients; and the saline soil transported from the pared regions reduces the content of salts in the fields: this ameliorative measure helps the paddy crop to progress well. This method is specially useful in high level lands where lowering of the levels for better irrigation flow is essential.

5. If the lie of the land allows the free flow of drainage water, trenches straight and across may be dug in the fields after the harvest of paddy and free flow of water allowed through them into main drains, as long as water supply is admissible from canals.