

Manurial Experiments on Rice in W. Godavari (District Trials)

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To maintain the food supply for an ever-increasing population, every endeavour will have to be made for conserving soil fertility. The productive power of soils is steadily reduced when successive crops are grown and no adequate manuring is made. The chief food crop in Madras, paddy, (occupying nearly 11 million acres in the State) removes from an acre of soil, 48 lb. of Nitrogen, 23 lb. of Phosphoric acid and 41 lb. of Potash. Nitrogen and Phosphoric acid are the two important elements that are required for paddy, as our soils are sufficiently rich in Potash. The main sources of manure for agricultural purpose is farm-yard manure, compost, green manures, "Patti mannu", and oil cakes. The availability of these manures to the area cropped is insufficient. To meet our immediate needs, the only way is to go in for chemical manures—ammonium sulphate and superphosphate—which supply the two main elements required for the paddy crop.

The results of a large number of field experiments showed that concentrated nitrogenous manures and phosphatic fertilisers have given increased yields of paddy. They are advocated to be applied in conjunction with organic manures, like cattle manure, green manure, compost and tank silt.

In a review of the experiments conducted since 1930, the Department of Agriculture have clearly shown that increased yields of paddy are secured by judicious doses of fertilisers.

Measures taken by the Agricultural Department in increasing production, through manuring paddy: The Madras Government sanctioned a Scheme to supply chemical manures to a tune of 60 lakhs of rupees through interest-free loans for manuring first crop paddy in all districts, where water supply is assured. The Scheme commenced with the manuring period of the first crop paddy in ten districts.

The benefits derived by the ryot were :

1. 100 lb. of ammonium sulphate and 50 lb. of Superphosphate valued at about Rs. 25/- are supplied for each acre.
2. A maximum amount of Rs. 200/- is given to a ryot if he possesses eight acres.
3. Superphosphate is supplied at half cost.
4. Manures are supplied through manure depots within a short distance of each village

5. Loans are free of interest, repayable in March, 1951, after the harvest and sale of the 1st crop paddy.
6. Ryots who took loans in cash and in kind previously, were not debarred from the manure loans.

The normal area under paddy in West Godavari is 7,00,000 acres irrigated and 39,700 acres rain-fed. The average yield is 2,000 lb. per acre. Manuring of paddy on a limited scale. An intensive drive to give the maximum help to the ryot in a short time was launched. 7,557 ryots were supplied with 2,066 tons ammonium sulphate and 327 tons of superphosphate on loans. Besides the above, nearly 6,000 ryots were supplied with 1,471 tons of ammonium sulphate and 98 tons of superphosphate on cash payment between July last week and October. The total cost worked out to 15 lakhs and covered 700 villages, with an area of 80,000 acres.

To assess the increased yield obtained by the application of chemical manures alone and in conjunction with organic manures over no manure, experimental plots were laid out at the rate of 5 villages per each firka to a total number of about 150 experiments. A summary of results of these experiments is given below. They are in conformity with the yield obtained from the manured fields, other than the experimental plots, all over the district.

1. Ammonium sulphate at 100 lb. with superphosphate at 50 lb. per acre an increased yield of 3 to 5 bags per acre. [Each bag of paddy weight 150 lb.].
2. Ammonium sulphate alone at 100 lb. per acre recorded 2 to 3 bags per acre.
3. Superphosphate alone at 100 lb. per acre and cakes at 320 lb. per acre, gave 1 to 2 bags increased yields in rich soils.
4. One bag of cake and 50 lb. of ammonium sulphate gave 3 bags of increased yield.
5. Green leaf (60 bundles each weighing 50 lb.) when applied with 100 lb. of ammonium sulphate gave 5 bags increase.
6. Application of ammonium sulphate at 100 lb. and superphosphate at 50 lb. in alkaline and saline lands gave 4 to 8 bags increased yields.
7. In areas where there was a good vegetative growth but poor-sized earheads with chaffy grains, superphosphate alone when applied at doses of 25 to 100 lb. per acre gave increased yields of 2 to 5 bags. In such lands the application of superphosphate alone is better than ammonium sulphate alone or a mixture of ammonium sulphate and superphosphate.
8. The percentage in increased yields due to chemical manuring was comparatively higher in loamy and sandy soils than in black *regur*, the difference in increased yield being 2 to 4 bags.

9. Chemical manures applied twice in equal doses, one at the time of weeding and the other at the time of boot stage gave one bag increased yield over plots manured with the same quantity of manures in one dose, at the time of weeding.
 10. Application of ammonium sulphate of 100 lb. even at boot stage, to *Basangi* crop (M. T. U. 3) gave an increased yield of 240 lb. to 320 lb.
 11. The emergence of the panicle and flowering was uniform and was completed a weeks earlier in the manured plots than in unmanured plots.
 12. Plots manured a week before they were submerged due to heavy rains recorded 2 to 3 bags increased yields over unmanured plots.
 13. Seedlings raised from manured nursery are of good growth but do not contribute to increased yield if the main field is left unmanured.
 14. Application of chemical manures at 100 lb. ammonium sulphate and 50 lb. superphosphate recorded a net profit of Rs. 18/- to Rs. 50/- per acre.
 15. Every pound of ammonium sulphate applied resulted in 3 to 7 lb. increased yields of paddy.
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