

Double Cropping and Development of ADT 27 Paddy in Thanjavur District (Tamil Nadu)*

by

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Introduction: The challenge of stepping up agricultural production was indeed accepted by the Tamil Nadu Agriculture Department as a developmental programme despite a variety of age old hurdles. "Intensive cultivation", "conversion of single crop into double crop" and "extending area" were but a few favourite phrases which found their place in various plans dating back to "Grow more Food Campaign" in India. But the fact has remained that in Thanjavur District, the "rice bowl of Tamil Nadu" notwithstanding intensive propaganda for double-cropping, the area remained static at the level of three lakh acres out of a net area of 12 lakhs till 1967 *kuruvai* season. An attempt is made in this paper to highlight the different aspects and the methods employed as also the related factors that could be intimately associated with the success in the Developmental Project.

The date of opening Mettur Dam: The primary factor that has a profound influence on the area under double-cropping is the date of opening of the Mettur Dam. A shrinkage in area from 3.26 lakhs acres to 2.70 lakhs acres is experienced by a delay within a critical period of 32 days. It is seen that June 19th is the best time for opening and delay by even a day has resulted in significant decrease in area (Figure 1). Closely associated is the water level obtaining at Mettur Dam in the year, showing that water level at the time of opening has a sustained effect on area. The effect of time of opening was notable only in *kuruvai* (June to October) compared to *samba* (July to February) and *thaladi* (August to February) crop. Thus, the late receipt of water constitutes the limiting factor and an important reason for the poor response of farmers to resort to and much less in increasing double cropping area.

Seed material and its multiplication: The need for a suitable seed material had long been felt to replace the then existing varieties like ADT 3 and ADT 20 with low potentialities giving poor returns particularly when caught in heavy rains that normally occur during flowering stage. The search for selection with a combination of criteria of "early maturity", "high yield" and "heavy fertiliser responsiveness" was successful in a new selection 2914, evolved at the Regional Research Station, Aduthurai, out of hybrid progenies of a cross between *japonica* 'Norin 8' and *indica* 'GEB 24'. The selection was released as a strain in 1965 as ADT 27 after a number of trials. With

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profuse tillering, it had the short duration of 105 days and was also more resistant to lodging. It had a better milling percentage of 65.8 compared to ADT 20 with 64.6%.

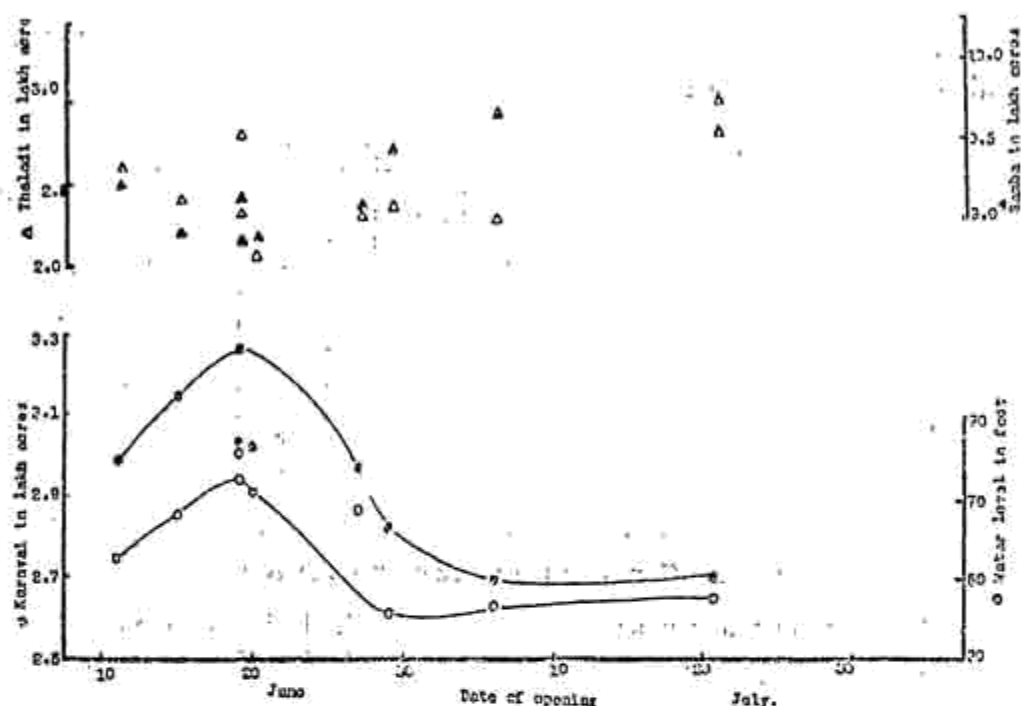


FIG. 1. Effect of time of opening Mettur Dam and water level on area under rice in Thanjavur District in different years.

A pilot project on 200 acres was initiated to demonstrate the outstanding performance of ADT 27 to make it acceptable to the farmer. The results were encouraging and hence a seed multiplication-cum-demonstration project was organised in 1965 *kuruvai* season in an area of 5000 acres. Full package of practices were adopted. In the project 441 farmers were associated. In spite of late receipt of water and adverse weather conditions, an average yield of 3857 lb (1753 kg) per acre was recorded which exceeded district average by 50%. The impact of demonstration was indeed so great that a large scale spread of this strain over two lakh acres in 1966-67 and over 5 lakhs in 1967-68 was achieved.

Double cropping: The adverse conditions in 1966 and the related experience with ADT 27 in fact opened up new avenues towards "Double-cropping". During 1966, in spite of raising the *kuruvai* crop late in August, farmers were able to raise two crops. This gave an idea of making a double crop pattern in single crop '*samba*' lands a practical possibility. The traditional cropping pattern and the new double cropping pattern are represented in Fig. 2. ADT 27 could be raised as the first crop in July so that the second crop with medium duration could be planted in mid-November. This conversion programme of raising one short duration crop and another medium

duration crop within the same period during which a long duration 'samba' crop is taken, involves no additional requirement of water. Thus, with ADT 27 as the first crop, the second crop that follows will be ASD 5 (140 days), CO 32 (135 days) or CO 29 (110 days) depending upon the delay in harvest of the first crop. On this strategy, the "double-cropping" programme was organised on a massive scale.

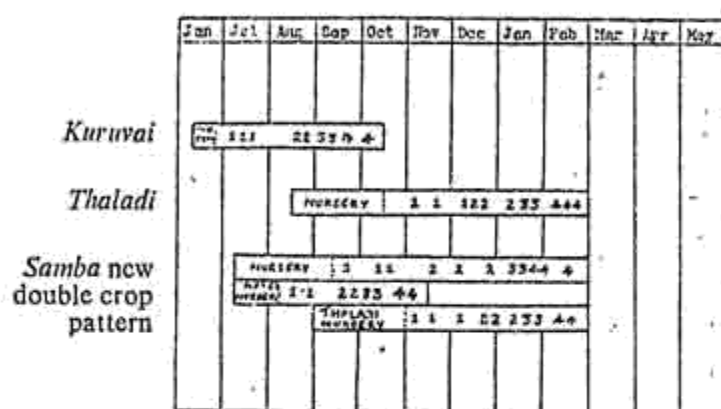


FIG. 2. Crop rotation in Cauvery Delta Area.

1. Period of transplanting.
2. Period of boot leaf stage.
3. Period of flowering
4. Period of ripening.

The programme: An ambitious target of converting 6 lakhs of acres out of 9 lakhs acres of single crop lands, besides the traditional 3 lakhs of acres was the objective for the year 1967-68. Indeed as much as 5.27 lakhs acres were achieved as against the target of 9 lakhs acres. An achievement of such a magnitude, no doubt, entails successful handling of a variety of situations and factors the important of which are enumerated hereunder:

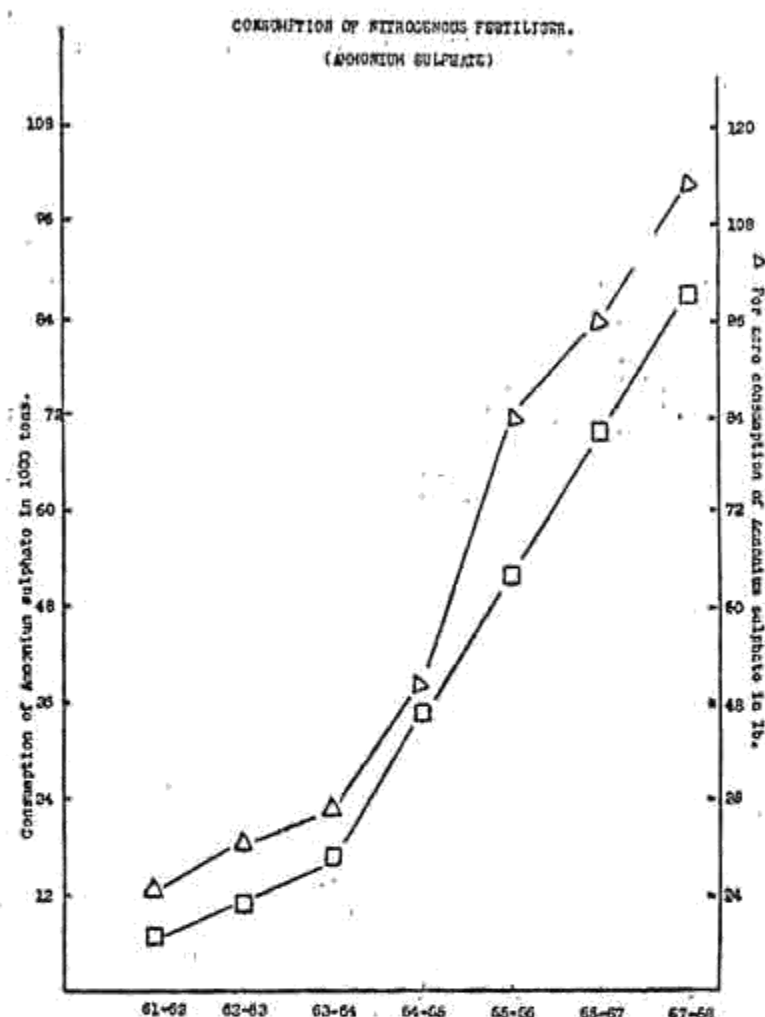
a) **Mass contact:** Necessary publicity, mass contact and training of 9000 farmers were considered essential and accordingly carried out for ready acceptance of the programme to begin with.

b) **Seeds:** A quantity of 18,000 tons of seed was to be provided as the next step. One third of this was estimated to be available with cultivators and only 12,000 tons were to be arranged by the Department. Heavy rains at harvest time in 1966 created unexpected difficulties and 5000 tons of seed that were to be procured were not available. Hence alternate arrangements were made to grow the seed in Madras region by transferring a part of procurement from 1966 *kuruwai* crop. Flexible approach was adopted in procurement consistent with off-take trend, so much so over 4500 tons were distributed.

c) **Fertiliser:** Evaluation on fertiliser demand was made on the basis of "Off-take trend" and it was helpful to work out the figures for each month, division and block. Consumption of nitrogenous fertilisers increased sharply

to a remarkable degree. For instance, the figure for total consumption of nitrogenous fertiliser shot up from 38,784 tons in 1964-65 to 86,643 tons in 1967-68 (Fig. 3).

Fig. 3



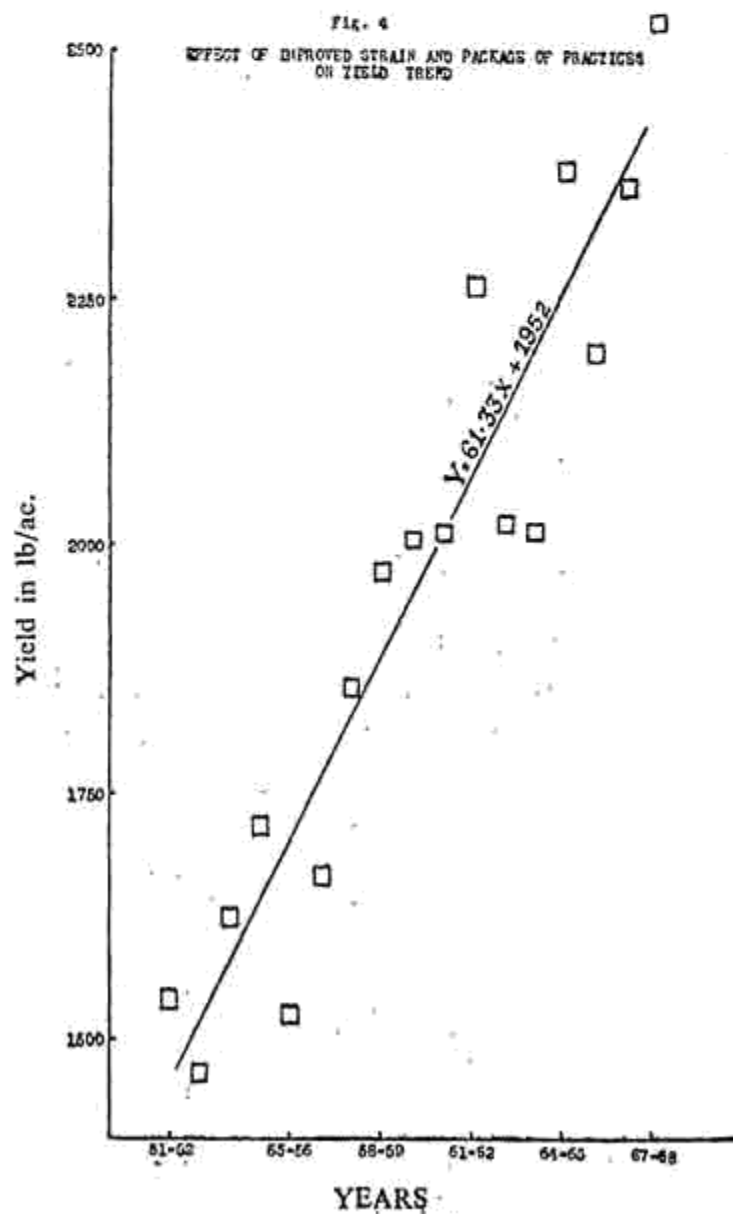
d) *Farm Plan*: A simplified farm plan was prepared well ahead of time for all participants to ensure supply of production inputs in kind or cash to all farm plan holders (Table). The co-operative unions prepared annual

TABLE. *Progress in the preparation of farm plans and coverage*

Year	Number of plans prepared	Number of blocks under the programme	Area covered in lakh acres	Number of villages covered
1960-61	36,683	23	2.28	317
1961-62	53,401	26	3.43	464
1962-63	68,689	26	4.33	570
1963-64	1,05,437	28	6.92	957
1964-65	1,56,556	36	11.03	1,557
1965-66	1,72,185	36	12.22	1,752
1966-67	2,41,985	36	13.04	2,096
1967-68	2,25,543	36	14.14	2,096

credit limit cards and the flow and quantum of credit disbursed was commendable. All officers of the Agriculture, Co-operative and Revenue Departments, extension staff and about 9000 progressive farmers had gained training in the objectives and procedures. The Project Officer, Subject matter Specialists attached to the Intensive Agricultural District Programme (I.A.D.P) with the co-operation of other Specialists imparted training in important problems like crop improvement, plant protection measures and fertiliser application.

e) *Other requisites:* Plant protection as an important adjunct had made appreciable contribution. A total quantity of 4480 tons of seed were treated with organo-mercuries in 1965-66 against 503 tons in 1961-62. Large scale eradication of rats (21 lakhs) would need special mention. Other prophylactic treatments helped in the establishment of seedlings and reduced incidence of pests and diseases in the planted crop. The realisation of their

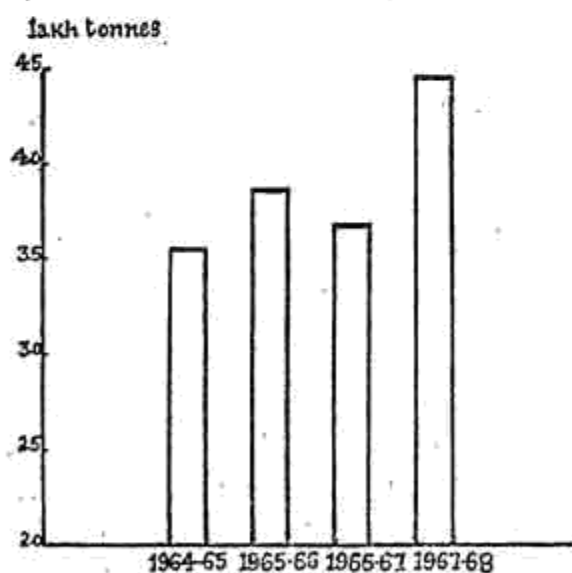


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'efficacy' is indicated by the farmers buying their own equipment. By 1967, plant protection equipments like 402 power sprayers, 83 charge pumps, 5879 hand operated sprayers, 2606 hand dusters and 756 seed treating drums were put into operation. Similarly, 36 tractors were always taken out on hire and a tractor on an average had ploughed 800 acres a year.

Thus the success in the venture has to be evaluated as combination of efforts in various spheres. Among the different factors which enabled a breakthrough in Agricultural Production, the subtle handling of the human element by way of assuring freedom from victimisation, recognition of leadership, latitude for action, flexibility of approach, cutting through red tape *etc*, played an important role. The yield per acre (apart from increased area) shot up from 1536 lb per acre in 1951-52 to 2532 lb per acre in 1967-68 due to the intensive efforts of the department (Fig. 4). The area under double cropping has been authenticated by an independent authority, Dr. Swenson of Ford Foundation who placed the figures at 5.27 lakhs acres. While it would be difficult to assess the exact yield, conservative and reliable data furnished by the Civil Supplies authorities (Fig. 5) as procurement, will no doubt serve as a guide, particularly in the light of 'procurement without tears' as a State policy

Fig. 5
Procurement of rice in Thanjavur district



wherein farmers with less than one acre were exempted from procurement. A spurt in the procurement of rice from 3.5 lakhs tons to 4.46 lakhs tons has to be regarded as a great achievement.