CHAPTER ELEVEN
FACTORS BEHIND SUCCESSFUL ADOPTION OF THE NEW FARM TECHNOLOGY — A case study of fourteen successful adopters.

The analysis in chapters nine and ten brings out the rather disappointing fact that the effective utilisation of the new farm technology by the farming community in the state has so far remained fairly limited. It has been observed that despite adoption of H.Y.V.s by a large number of farmers, the area sown with H.Y.V.s comprised only about a quarter of the total area under rice of the sample farms. Further majority of the farmers adopting H.Y.V.s have not been able to use with them the complementary inputs such as chemical fertilizers, in adequate quantity. However, the picture emerging from the field study has some silver linings too. For example, there were instances of farmers sowing their entire rice acreage with H.Y.V.s. Similarly table X.2.1 of the previous chapter shows that 18 of the 160 sample farmers cultivating H.Y.V.s of rice had applied chemical fertilizers on their H.Y.V. rice crop at sufficiently high rates of 80 kg.s or more per hectare. (80 kg.s per hectare happens to be the general recommended dose of chemical fertilizers for H.Y.V.s of rice in the state.)

The present chapter is based on a closer look into the cases of a handful of sample farmers who had adopted the H.Y.V. seed — fertilizer package with a reasonable degree of success. The object of this exercise of special examination of the selected cases was twofold — (1) verification of the main conclusions drawn so far in the study, and (2) gathering
additional insight into the problems of adoption of new technology by farmers.

The group selected for this study comprised of fourteen farmers each of whom satisfied the double criterion of (a) planting at least 30% of rice acreage with H.Y.V.s and (b) using chemical fertilizers with H.Y.V.s at the rate of 80 kg.s or more per hectare. Eight of these farmers were from Diputa circle. Of the remaining six, four were from Barapujia and one each from Joysagar and Hajo. The broad findings from the scrutiny of these cases are summarised under the following items.

(1) The fourteen farmers constituted a diverse lot by the size of their operational holdings, tenurial status and also by their individual educational backgrounds. The size of operational holdings of the farmers varied from one hectare at the lowest to 8.04 hectares in the highest. Four of these farmers had leased in land as parts of their operational holdings. In three of these cases land leased in comprised more than 50% of the size of operational holdings. The least educated of the fourteen farmers was barely literate and had only a few years of formal education of primary standard. At the other end, two of the farmers had graduation degree after successful completion of college education.

(2) The farmers were, however, a more uniform group regarding their individual contacts with the extension workers. All but one of the fourteen farmers had active contacts with the Village Level Extension Workers of their
respective localities. In fact, eleven of them had personal contacts with the Agricultural Extension Officer of their respective circles. The lone farmer who claimed to have not known the extension worker posted for his locality, had also reported that he was induced to use chemical fertilizers for the first time in 1983 by an extension worker. Apparently this farmer had effective contacts with the extension workers who served the locality till a few years back from the time of our field study. Thus all the fourteen farmers were benefited by their association with the personnel of agricultural extension service at one time or the other, in the course to their present level of utilisation of the new farm technology.

(3) Eleven out of the fourteen farmers had irrigation facility of some sort in their farms. The three farmers who did not have such facilities were among the four farmers of the group who did not cultivate H.Y.V.s of rice in the dry 'ahu' season.

(4) Eight of the fourteen farm households derived their income partly from farming and partly from non-farm sources such as salaried job and small business. However the other six households depended entirely on farming for their income. Hence non-existence of a non-farm source of income does not seem to be a serious handicap in adopting the seed-fertilizer package. (It is believed in some quarters that farm families having non-farm source of income such a salaried job, enjoy a distinct advantage over the others in acquiring purchased
inputs like chemical fertilizers and pesticides for effective utilisation of the new technology.)

(5) It is interesting to note that irrespective of farm size and sources of income of farm households, in all fourteen cases, the operational costs of farming were financed by the farmers entirely from their internal resource. However, installation of irrigation pumpsets in the farms has in general been financed by credit institutions through the Assam State Minor Irrigation Development Corporation Limited, the agency which supplied and installed the pumpsets. Thus the farmers seem to be capable of meeting the working capital requirements for the use of the new farm technology from their internal sources, provided of course their fixed capital investments (in land development, installation of irrigation facilities, purchase of implements ... etc) are supported with credit supply by financial institutions.

(6) Only in four cases farmers resorted to mechanised ploughing. Two of these case were of comparatively large farms of size 8.04 and 6.43 hectares. The other two were medium size farms of 2.41 and 3.21 hectares. Things like combine harvesters were not found in use in any of the fourteen farms. The fear that adoption of the new farm technology would be accompanied by labour displacing mechanisation of farm operations, thus seems to be unfounded for a state like Assam, where the farm size in general is much smaller than in states like Punjab and Haryana. ( The
relatively large farm size in these states makes the use of tractors and combine harvesters attractive to the farmers.)

(7) In thirteen of these cases, the dose of fertilizer application with H.Y.V. rice was between 80 kg.s and 120 kg.s per hectare. The remaining farmer used fertilizer at the much higher dose of 185.63 kg.s per hectare. Accordingly this farm recorded the highest yield rate of 43.47 quintals of H.Y.V. rice per hectare, which is comparable to the yield rates achieved in the experimental plots of Regional Rice Research Institute at Titabor of the Assam Agricultural University. However another farmer achieved only a marginally lower yield rate of 42.07 quintals per hectare using a much lower dose of chemical fertilizers of 109.72 kg.s per hectare. The average yield of H.Y.V. rice of the all fourteen farms was 27.28 quintals per hectare, which is quite commendable. The farm which recorded the lowest yield rate of only 17.33 quintals per hectare, was in fact affected by floods in the year of our field survey. The normal yield of H.Y.V. rice in that farm was reportedly above 30 quintals per hectare.

Conclusion :- The above observations confirm our earlier findings that factors like the farm size, tenurial status of a farmer or educational standard of a farm household have little to do with adoption of the new farm technology by farmers, and that it is the availability of agricultural infrastructures such as irrigation and extension service, which enables farmers to utilise the technology effectively.

***************