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AGRICULTURE

Agriculture and allied activities are the principal means of livelihood of the overwhelming majority of people in Swanirvar's work area, so it is a good idea to remember a few specific features of this region before we talk about our agricultural work.

We are not part of the most populous area of our district but since it has a density of population more than 6.5 times that of India we are reasonably overpopulated. The soil is fertile and water is available for irrigation throughout the year, so agriculture is highly developed, with most lands under triple cropping, and none less than double. There is little fallow land. There is extensive, even indiscriminate, use of chemicals - fertilisers, pesticides, weedicides, etc. The soil receives no bio-inputs. Productivity peaked about 5 years ago, and has begun declining in many areas since then. There are no really big landowners. Most are middle farmers, and only 5-10 per cent of the landowners have sufficient agricultural land to get an income from it to make a comfortable living. Half or more of landowners have small plots of land and for them farming is not profitable. About 40% of families in the area have no land at all. The almost universal use of hybrid varieties has affected all sections of the rural people, particularly owner-farmers by adding to the cost of inputs, and consumers by the toxic residue in the produce. The environment has been badly affected by the over extensive use of water and application of chemicals.

In our efforts to popularise a programme of agriculture that will be economically as also ecologically sustainable and at the same time ensure food security, we have always worked as part of a State-level network with the Calcutta-based organisation better known by its abbreviated name of Service Centre as convenor. The network has a member organisation in almost every district and Swanirvar is one of the eight regional resource centres. The targets and the strategies to meet those targets are decided at meetings of the network.

Thus our agricultural work, while making adequate allowance for local needs and conditions, is part of a larger movement. This year, after long deliberation in which the partners played a very important role, this Sustainable Agriculture , Network considerably modified its approach and methodology of work and we have been imbued with fresh enthusiasm. We quote below, in some cases in slightly altered language, the present key strategies of the network.

Crop diversification can be a way of solving the twin problems of seasonal problems of shortage of food and of unremunerative employment. This diversity can be obtained by (i)

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introduction of plants suitable for marginal soils and specific agro-climatic conditions; (ii) reintroduction of traditional plants which have been rejected by farmers because of their low market price but which have high nutritional value and/or can better withstand periodic stresses; (iii) working out various plant combinations/rotations/relays. Periodic and/or emergency shortages can be met with the cultivation of beans, roots and tubers. There can be other strategic foods also.

The problems of soil erosion and the resultant decline in productivity are to be tackled mainly through increased production and use of green manures, biofertilisers, and cover crops. Also, perennial shrubs and trees have to be integrated into the agricultural system. A number of soil and water conservation techniques will have to be given field trials.

Even middle aged people can easily remember the varieties of rice they had grown and eaten, but the introduction of hybrid varieties as an essential constitute of the green revolution and their quick popularisation have led to a loss of these traditional varieties. This is true of many fruits also. This problem of genetic resource erosion can be addressed through seed saving and seed exchange activities and through seed multiplication programmes. We shall have to involve farmers, research institutions, and specialised resource centres in this work.

The ever increasing use of toxic chemicals in farming affects the health of both grower and user but it is dangerous in other ways also. It reduces the population of many beneficial insects and micro organisms, interferes in the retention of a proper pest-predator balance, and thus leads to pest resurgence and crop losses. Farmers have to be taught about selection of more suitable crops and varieties, cultural practices, and botanical compounds that they themselves can prepare easily.

For all this work it is imperative to make local resource surveys and to revive traditional knowledge and practices. Extensive documentation is an essential step if much is not to be forever lost, as the use of many herbs may already have been.

With the present change of emphases, our agricultural workers are now primarily extension workers and they also collect data on various things. They have formed 14 farmers' groups in 12 villages with an average membership of 22, and are expected to be in constant touch with these small or marginal farmers during all stages of agriculture. For this our workers should be abreast of new developments and findings. Selected workers visited experimental farms in

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other districts and attended training courses to learn more about new methods of paddy cultivation, residual moisture crops and how to become more effective extension workers. We so had resource persons coming to Swanirvar to talk to our workers and, in some cases, to selected farmers too.

The farmers in our group are the spearhead of our programme but our workers also move from village to village to hold 2/3-hour-long sessions with other farmers on various techniques and methods of sustainable agriculture, and to answer questions. We call these study circles. In our area the annual agricultural calendar is divided into three parts -Kharif, Rabi and pre-Kharif - and obviously there are seasonal modifications to every such technique or method. Another very important function of these meetings is to make it possible for our workers in their turn to gain knowledge and ideas from farmers, who are repositories of traditional lore and handed-down wisdom. Altogether 204 such study circles were held, with 16 farmers present on an average at each.

Not all who come to such meetings are converted. Some, like the eggplant grower whose body shows scars from the pesticides he sprays on his crop, may be convinced but cannot afford to give up their short-term gains. Some would like to wait and watch what happens to those who change their ways. Some would adopt some of our recommendations, and hold out on others. But all in all, things are changing. We shall not give as we used to in the previous years, figures of how many farmers used what in how much land but the number of innovative farmers and the number of experiments are both growing. There is obviously a very long way to go before any overall change can be discerned but nobody ever went a mile without taking a first small step.

As nutrients we recommended and farmers used Dhaincha, azolla, compost, liquid compost, rock phosphate, rhizobium, azotabactor, and PSB. These last three are made in our own laboratory. Altogether 21.75 kg of rhizobium, 85.6 kg of azotabactor, and 72.3 kg of PSB were supplied, for use in approximately 8,32, and 27 acres of land respectively. To conserve water and soil, we carried on a campaign against water-guzzling Boro rice, recommending instead wheat, various legumes, and pulses. A short-duration paddy was introduced, and a deep-water paddy popularised. Soyabean and groundnut were grown as oilseeds. Rice seeds were "treated" for better conservation. For plant protection, many types of botanical pesticides were used. Integrated pest management became more popular. After being taught how to select and properly preserve seeds, farmers are depending less on nurseries, and as their skill and self-confidence grow, this dependence might become totally unnecessary. Grafting of fruit trees is

leading to better quality yields, and our workers have gone to Purulia to teach the method there.

In 1992-93 we had demonstrated in local marketplaces a pedal pump to lift ground water but this did not sell well. This year another NGO came to us with an improved design of this pump and sought our help in taking this to farmers. This we did and the pump, priced at Rs 410; was bought by 10 farmers who all report that they made a good choice.

NUTRITION GARDEN

There are altogether 333 of them in 10 villages but we still do not know what unequivocally intelligible and at the same time comprehensively descriptive name to give to these sources of food and medicine that we want all families to have. Kitchen garden does not indicate the innovative planning that lies behind every such garden; home garden is vague; nutrition garden does not encompass herbs. But our workers seem to prefer this last term, so we shall call these plots, cultivated to provide year-round nutrition from vegetables grown without any chemical aid and accommodating certain herbs needed to tackle the usual illnesses in a family, by that name. Our target groups are families who do not have any land and, almost certainly because of that, never have enough money to buy vegetables from the market. The ill effects are obvious; in ten villages we surveyed we found 372 children in various stages of malnutrition. This also makes them less resistant to the sundry agents of illness, and so we also encourage the cultivation of both prophylactic and remedial herbs.

So far this programme had been a part of our larger set-up in agriculture, but this year we wanted to give more emphasis to this and a separate section was formed with a new team of workers. A three-day residential training was given to them in July. Even from earlier our workers had been talking to women in various villages at meetings which we call study circles and 222 such meetings were held this year, with 2933 women participating.

Not that all of them joined the programme. As a matter of fact, response could have been better. There are two reasons why this was so. First, having a worthwhile nutrition garden calls for some hard physical labour, if not daily then quite regularly. Second, people prefer ready cash to benefit in kind, and women are no exception to today's money-oriented motivation. They would rather do something elsewhere to savour the feel of money in a knot in the sari, than work at home to save the later spending of that money. Study circles and constant home visits try to convince them of, among other things, the possibility that the birds in the bush may

be plumper than the one in hand.

The other things about which we talk to them include the need to utilise all unused land near a house to grow vegetables, using domestic waste as irrigation and fertiliser, to plant according to a schedule that will give something to the kitchen throughout the year, to tell them of the medicinal properties of plants that are already around us and to grow these or new ones when we supply the seeds or plants, some of these new ones being those that were once plentiful here.

In 10 villages we have formed 28 groups, with an average of 14 women in each, to popularise the concept through mutual discussion. They have been able to reach even families who have no land at all to spare, but are now growing something or the other on roofs or on machans. Every regular garden will have some leafy vegetable, papaya or plantain, drumsticks, tubers, beans, legumes, eggplant, chilli. Among the new varieties we have helped introduce are a type of spinach, beans, cassava, long white eggplant etc. Once these new crops grow, their seeds are used in the next season by more people. Various techniques of preparing natural fertilisers and pesticides are used with success.

The members of the women's groups treated 318 people with herbs for toothache, dysentery, common cold, diabetes, dysmenorrhea and other menstrual problems, mumps, insect bites, old wounds, burns and cuts, gastro intestinal malfunctioning, etc.

With our own laboratory producing spawn, mushroom cultivation took off this year in a big way, after quite a few false starts in the previous years. Altogether 153 women and 64 men grew mushrooms, and in their 8 villages the total production was 197.375 kg, individual production varying from 200 gm to 1.4 kg. This followed 13 training sessions of between 30 minutes and 90 minutes, with 284 trainees, not all of whom took or could be given spawn. Some had two good crops, some an indifferent third, and in our climate we could not hope for more. The most encouraging feature of the mushroom crop was that new material was experimented with as bed for the spawn and in most cases they proved successful, This means costs will further come down and, what is more, stuff that is locally and easily available will now be used. These were, straw from the Aman crop, bark from supari trees, a mixture of Aman straw and dried water hyacinth, a mix of Aman straw and dried banana stalk.

In the course of all work, certain things always happen that are a surprise. Happily there are no unpleasant surprises to report, but among those in the pleasant variety are the enthusiasm women showed in learning grafting techniques to improve the quality of a fruit tree's yield, the wide acceptance of herb-based remedies, mapping and planning of the better-performing

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gardens, and a survey of all plants and trees in these gardens.

Since the women's groups are spreading out to unexpected areas we have asked them to do a study of two things that might prove to be very useful. One is to make an exhaustive list of all the plants whose leaves are eaten. Many of these do not come to the market and there may be some which are used in a very restricted area within a district. Most of these plants are not grown, they grow by themselves and with extension of cultivation some of them are dying out. We would like seeds to be preserved. Who knows what hidden sources of nutrition these may possess and what they can yield if produced on a large scale?

Similarly, many very poor people, among them the tribals who can be found in certain villages of our area, have been used to surviving in lean seasons, when they have the money to buy very little, on a variety of tubers and such things that grow in the wild and are often not known as edible by the general population. Can it be that these have reserves of nutrition? Our workers have learnt that many of these uncommon foods have been lost over the decades and we would like to have a compendium before it is too late.