



## Seeds for life

*Traditional agriculture need not always be sustainable. But where agricultural rules have been constantly adapted to a changing environment, traditional principles prove to be sustainable. Starting to collect local and traditional seed varieties, Jarhdhari, a farmer in north India, revived interest in these principles. While Jarhdhari exchanges seeds and information, the farmers decide for themselves whether or not to adapt this re-gained knowledge to their own situation.*

### Biju Negi

**A**s recently as a century ago, agriculture in the hill region of Garhwal in north India was extremely rich. In 1883 this region exported about 2,500,000 kg of wheat and barley to Tibet. Animal husbandry was an integral part of the farming practice. Cattle dung along with forest biomass assiduously collected was judiciously used. Crops were grown in rotation for three seasons after which the field was allowed to remain fallow for one season. This rotation was divided and planned so well that even the land to be left fallow followed a rotational flow pattern. Monoculture was unimaginable. In fact, often two crops would be growing simultaneously in a field, in a mixed formation. Or subsidiary crops or vegetables would be planted along the edges of a plot, bounding the main crops. Moreover, there was tremendous genetic diversity within each crop. The variety to be planted was deter-

mined by the terrain, altitude, directional aspect, soil characteristics, water regime, safety from wild animals, and even by the ultimate consumption purposes or choice such as food for the sick, for lactating mothers, or what variety was better for what recipe, etc. Atkinson in the Himalayan Gazetteer (1882) mentions 48 varieties of rice and adds that there may be hundreds of other unknown varieties. Crop diseases, pests and crop failures were rare, if any.

#### **Drastic fall**

This richness of Garhwal's agriculture was clearly evident right up to the 1950s. But then the picture reversed entirely. First slowly through partial migration and later because of the Green Revolution. The Green Revolution was planned for the semi-arid plains of north India and even there its success is dubious. But in the temperate hills of Garhwal it simply played havoc with agricultural practices. Encouraging monoculture and hybrid

seeds - for which initially lucrative incentives were given - began to erode the species and genetic diversity of crops and led to an actual fall in grain as well as hay output. Chemical fertilisers caused a hardening of the soil, pesticides killed natural preys. The Green Revolution actually resulted in the arrival and attacks by pests and diseases otherwise unheard of. Equally important, the Green Revolution sought to change the people's attitude and approach to agriculture. From being sacred, it became "soul-less" and market oriented. Earlier, seeds were considered gifts of god and never sold but freely exchanged (or to be returned after harvest) among the people. Now these became a marketable commodity. "Cash came to represent the over-riding factor in agriculture, at the cost of the wholesomeness of food and life. Though individual farmers and those in relatively isolated villages had not given up all their native seeds or traditional agricultural practices, such efforts were comparatively few and scattered.

### Interrelated problems

For Vijay Jarhdhari and his wife in the village of Jarhdhar, Nagni in the Tehri district of Garhwal, resentment against Green Revolution actually started with seeing the harm chemical fertilisers and pesticides were doing to his crops and land. That was about 12 years ago. But one realisation led to another, and Jarhdhari soon saw that the problems were cyclic and widely inter-linked. Stopping the use of chemical fertilisers, Jarhdhari found that the produce of hybrid cereals fell sharply. Displeasure was already there because of their scarce fodder. The hybrid seeds produce dwarf crops which may or may not have meant more grains, but definitely meant less fodder. "In traditional agriculture, crops are grown not only for the humans but just as well for our cattle" says Jarhdhari. "Almost all our traditional cereals had long stalks. For instance, our *ghyasu* rice variety has about 140 cm long stalks and gives about 9000 kg fodder per hectare. Another traditional variety, *jhumkya*, gives even more. Compared to these, the best hybrid variety fodder output has not been more than 6400 kg per hectare."

"This fodder aspect is very important," adds Mrs. Jarhdhari. "Less fodder from crops means we have to look for fodder from other sources. This not only means spending more time on collecting it, but it also adds greatly to the pressures on our deteriorating forests."

### Problem worse than expected

However, when Jarhdhari's family decided to also stop using hybrid seeds, they were surprised and dismayed to find that the situation was far worse than one could have imagined. There were hardly any traditional seeds left - in fact, in the entire Tehri, less than 10 varieties now remained. So it became Jarhdhari's primary aim to collect, save and publicise the use of traditional seeds. Beginning with two varieties from his own village, the search has taken Jarhdhari now through a large part of the home district of Tehri and adjoining Uttarkashi district as well. His collection includes 108 varieties of rice, 80 beans, 8 wheat, 11 maize, 3 barley, 5 amaranth, 4 potato and many of other local grains and oilseeds; and this from less than half of Garhwal. "But it is not enough to simply collect seeds," says Jarhdhari. "What is more important, and in fact the best way to save these seeds, is that they should grow and thrive in our fields." Jarhdhari's family grows many of these varieties in their own fields and encourages others to do the same. Now for the last couple of years, as many as 80% of the households in his own village and also many others in the nearby villages have taken to growing traditional varieties, collected by Jarhdhari or by themselves.

The major reason for people re-adopting traditional varieties and concepts is based

on the end-results. Fodder gain from traditional varieties is distinct and substantial. But even more vital is the grain output. For example, in 1993 when rains were far less than normal, the highest yielding hybrids were *kasturi*, which gives 4000 kg/ha, *Pant-6*, yielding 5000 kg/ha and dwarf *saket* with 4000 kg/ha. Compare this with the best traditional variety outputs: *jhumkya* 6600 kg/ha, *thapachini* 6500 kg/ha, *rikhwa* 5000 kg/ha (all irrigated) and *safed ukhri* 7600 kg/ha (rainfed). All these figures come from fields in Nagni. "Add to this facts like no or minimum external inputs, both in terms of money and material, and fodder produce and it becomes clear that the hybrids, the so-called high yielding varieties, are actually nowhere near the traditional varieties," says Jarhdhari.

### Jarhdhari's campaign

Jarhdhari's search for more traditional seeds continues. He also continues to spread the message of saving traditional varieties and to supply (or barter rather) from his collection in such areas where these have vanished or are vanishing. "Save the Seed" is not an institutionalised campaign, but an informal movement. When there is relatively little to do on the farm for Jarhdhari, he visits other villages to collect seeds, but he also carries leaflets and reading materials. In informal gatherings there, he exchanges farm experiences, asks definite questions and talks about saving local seeds. Thus the message spreads, hopefully with a multiplier effect.

A few months ago, an NGO helped by renting a room for Jarhdhari to store and categorise his seeds. But there's no organisation with a formal kind of membership.

Those who have returned to local seeds and those who support the cause are considered members. People are free to contact, write-in, send seeds or ask for them. A meeting end December 1993 was attended by over 300 members, but the true measure of the campaign's progress is in villages around Nagni, where a steadily growing number of farmers are beginning to re-use local seeds.

### Farmers see the difference

With Jarhdhari having revived traditional varieties in his own area, the difference between these and the hybrids is becoming clearer and stronger. What the older people in the villages used to nostalgically lament about is now very much there for the younger generation to see and feel - the difference in fodder quality and quantity, the difference in maintenance of soil quality and fertility, the difference in the ability of crops to withstand drought-like conditions, the difference in the certainty of harvest. And above all, there is an important difference in food taste and quality. These differences are steadily stimulating more and more people to use traditional varieties.

"But in the end, it is not a matter of just saving traditional seeds," says Jarhdhari. "We have to save and revive the very principles, concepts and approaches which, working in close cooperation with nature, made traditional agriculture practices sustainable. We have to make farming in the villages in Garhwal worthwhile once again."

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