RESEARCH HIGHLIGHT: A low-input Green Revolution for marginal lands of South Asia

Tens of thousands of the poorest farmers in marginal areas of South Asia are benefiting from the products of a new, low-input Green Revolution. Participatory crop research has brought new, high yielding varieties to regions that have been untouched, for the past thirty years or more, by the products of modern plant breeding. Not only do the new varieties yield up to 50% more than the local cultivars, but they do so without any additional inputs.

Figure 1. Farmers assessing rice varieties in a client-oriented breeding programme in India.

Farmers in marginal areas of South Asia have benefited little, if at all, from better crop varieties that could produce higher and more stable yields. Most of the varieties they grow are very old and low-yielding but unfortunately solutions are not readily available. Most modern crop varieties are not suitable to low-input, rainfed conditions or have inferior quality grain that makes farmers reject them. DFID-funded participatory crop research is changing this.

Using radical departures from conventional breeding methods, new crop varieties have been bred in half the time normally required to produce a new variety and test it in farmers' fields. Farmers are involved in the selection process which takes place in environments that closely match the target environments - the farmers' fields - using farmers' levels of inputs and where the crop is exposed to the stresses (drought, low

fertility, micro-nutrient deficiency) commonly encountered in the field. The long lag phase in classical breeding of about 7 years between product development and marketing is avoided by immediately testing new varieties with farmers thus increasing the returns on the investment to plant breeding.

- The research is funded by the DFID's Plant Sciences Research Programme. Work in India has been co-funded by DFID India and the Government of India.
- It has involved many farmers, institutes, NGOs and NARs in Nepal, India and Bangladesh.
- Numerous farmer-preferred crop varieties have been identified using PVS and client-oriented breeding has resulted in the recommendation for, or official release of, two maize varieties and five rice varieties.

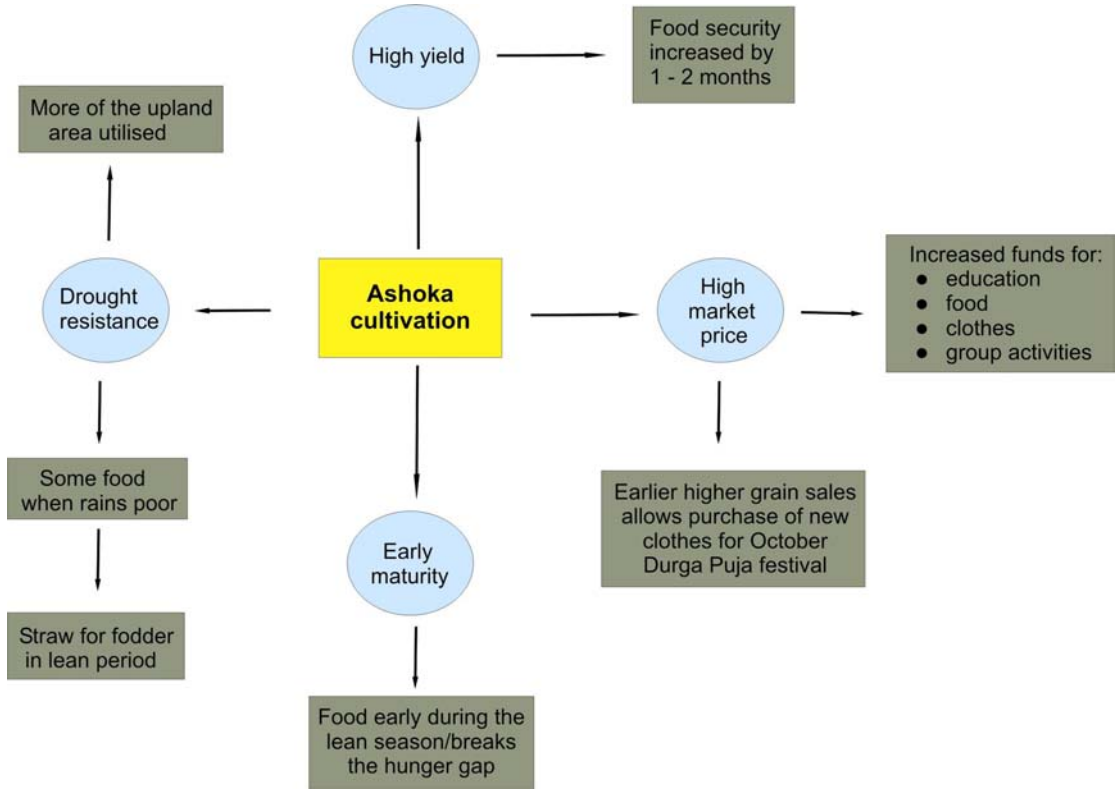

Figure 2. Effects of cultivating Ashoka rice varieties on farmers' livelihoods in eastern India. Ashoka rice varieties were the product of a DFID PSP-funded client-oriented breeding program.