RESEARCH HIGHLIGHT: Rice-fallow Rabi Cropping in Nepal *terai*

In most rainfed areas of Nepal, land is left fallow after the harvest of rice and even in irrigated areas there is a window of about 70-75 days when land is left fallow after the harvest of wheat. Short duration legumes such as mungbean can be grown during this fallow period. Indeed, farmers have been looking for suitable short duration catch crops that can mature in less than 80 days and were aware of mungbean but the single existing local variety was highly susceptible to mungbean yellow mosaic virus (MYMV), was low yielding with small grains, needed multiple picking and the product was of low quality.

A collaborative DFID PSP-funded project[§] has resulted in the official release of two varieties, VC6372 (as 'Prateeksha') and NM 94 (as 'Kalyan') by the National Seed Board (NSB) of Nepal for general cultivation in the *terai* and foot hills of Nepal. The two new mungbean varieties are the first to be released in Nepal after a gap of nearly 31 years since the release of the local variety, Pusa Baishakhi 1. The new mungbean varieties are high yielding, with resistance to MYMV and other diseases, nearly 80% of the pods can be harvested in three pickings and perform well across production environments.

The most important developments that facilitated the release of these two varieties of mungbean were changes in the requirements of the varietal release proposal of Nepal. These changes were the result of a sustained policy dialogue by CAZS-NR and LI-BIRD together with the Nepal Agricultural Research Council (NARC), NSB and private sector companies. The regulation allows NGOs and private sector organizations to be fully involved in crop improvement programmes and the seed trade.

A number of functional community-based seed producer groups have been developed, strengthened, federated into farmer Cooperatives and registered with the concerned district-level authority in several districts. These are the institutions that would carry out seed production and distribution in the villages and that would contribute to the sustainability of project outputs.

An independent outcome assessment in 2005 revealed that over 70% of participating farmers continued to grow the new varieties of mungbean. On average, cultivation of mungbean on 1 ha of fallow rice land generated more than 145 days of working opportunity and more than $165 in terms of wage labour. Two-thirds of this employment opportunity is available to poor women farmers, particularly for weeding, picking and threshing. The benefit:cost ratio for Prateeksha was 2.45:1 and for Kalyan was 2.46:1 compared with only 1.47:1 for Pusa Baishakhi 1. No other crops are feasible during this period of time that can give such a high benefit:cost ratio.

The introduction of mungbean also has important implications for improving the production potential of the rice-based cropping system in Nepal and elsewhere.

[§]Participating organisations included: National Grain Legumes Research Programme (NGLRP), Rampur, Chitwan, Nepal, Forum for Rural Welfare and Agricultural Reform for Development (FORWARD), Chitwan, Nepal and CAZS-Natural Resources (CAZS-NR), University of Wales, Bangor, UK

Experimental evidence suggests that the yield of rice following a mungbean crop increased by 17%, without any additional inputs other than the incorporation of the mungbean crop residue into the soil.

Box 1: **A Nepalese farmer's experience of rice-fallow rainfed rabi cropping.**

Mrs. Sita Hamal, a female farmer and an active member of Srijana Women Group from Gajeda VDC in Kapilvastu, reported that mungbean cultivation is a completely new introduction in rice-fallows in her village. Until recently, rice land in the village was used for grazing after the rice harvest and the land remained completely fallow for more than six months in the post-rainy season. With the initiation of the rice-fallow rabi cropping project in Kapilvastu, many farmers have now been able to produce a fairly good yield (1.5 t ha^{-1}) of mungbean and earn cash income by selling surplus grain. According to Sita Hamal, mungbean has become a bonus crop in her village and she felt that it had a beneficial effect on the soil fertility and hence on the succeeding crop of rice. She, including other members of the women group, believed that the introduction of mungbean during the spring season in rice-fallows has increased the yield of the succeeding rice crop by 20-30%. This experience was also supported by the other local farmers of her village. Mr. Devi Ram Khanal, a progressive farmer who has been actively involved in participatory technology development trials and other activities also supported this view and added that the value of their land in Buddhi VDC, Kapilvastu had increased with the increase in the adoption of rainfed crops, vegetables and other cash crops.