

# Double the benefits: legumes improve both **milk and rice production**

In Bangladesh it's hard for poor farmers to grow enough forage to feed their dairy cattle because just about every bit of land is taken up with intensive rice production or the land is flooded. One answer to the problem of feed shortages is to grow forage legumes, either together with rice, or in between rice crops.

Smallholder dairy producers normally rely heavily on rice straw, roadside grasses and weeds, supplemented with a little wheat bran and oilcakes, to feed their animals. Since feed is their main expense, introducing forage legumes into the rice farming system would make cheaper, higher quality fodder available and would have a real and long-lasting impact on their livelihoods.

## Improving milk production

**Two leguminous forages, African Dhaincha (*Sesbania rostrata*) for the Boro rice season and Khesari (*Lathyrus sativus*) for the Aman rice season, fit easily into existing seasonal cropping and labour patterns.** Both legumes make good quality feed and raise milk yields of dairy cows.

A couple of other technologies also help improve milk production.

A simple method of manual box-baling, first developed for maize straw in Tanzania, was introduced so that the leguminous hay could be more easily transported and would take less storage space. Once the hay is baled, farmers can budget feed supplies more easily as it's much easier to estimate how much feed is left and how long it will last than when it's stored loose.

Farmers also learned to supplement feed supplies with urea molasses blocks. Cattle like to lick these so it's an easy way of making sure they get essential nutrients. Giving cows urea molasses blocks coupled with leguminous forage raised average milk yields by 26%.





Cows also proved to be more fertile - the number of days to post-partum heat decreased on average by 25 days.

All these technologies are simple, affordable and improve incomes. They also boost job opportunities, particularly for women, for example in preparing urea molasses blocks, drying forage, making box bales and feeding cows.

## Improving rice production

**Legumes, as well as being a quality feed for dairy cows, add nitrogen to the soil making it more fertile, which in turn boosts rice production and reduces the need for chemical fertilisers.** Growing them either together with rice, or in between rice crops, increases average rice yields by 13%.

## Becoming self-reliant

**But seed supply was a key problem to overcome. For example, some Khesari seed is available in the local market but Dhaincha seed is in short supply and only available from the Bangladesh Agricultural University.**

The answer was to get farmers organised into seed production groups. These are already producing enough seed of both Dhaincha and Khesari for their own use.

Farmers are also preparing urea molasses blocks themselves from ingredients purchased in the local market.

## Benefits for the private sector and government

**The benefits from using these simple technologies as far as poor farmers are concerned - producing more rice and milk - are obvious.** But there are benefits for the private sector and governments too.

Dairy companies and cooperatives will benefit from an increase in supplies of milk and, so, will be able to respond to growing consumer demands. The private sector could also take advantage of potential markets for nutrient blocks - farmers find these both time-consuming and tedious to make themselves - and for producing and distributing seed.

Governments too will see benefits as domestic supplies of milk replace expensive imports.

## Partners in agricultural development provide a vital link

**Farmers' lack of knowledge about the technology is the main barrier to uptake.** Here, the involvement of government extension officers and NGOs was a vital link. For example, in Bangladesh, extension workers of five different government organisations and NGOs were trained to promote forage technologies to farmers in various locations throughout the country.

To get the farmers interested, these organisations distributed extension leaflets, arranged demonstration plots and farmer field schools, and trained trainers in the field alongside the farmers who would be their clients. All these were very effective ways of promoting the forage legume technology. In particular, agricultural shows and field days stimulated a great deal of interest and requests for training from NGOs.

## For more information

For further technical information go to the RIU online database at [www.researchintouse.com/database](http://www.researchintouse.com/database) and type in **LPP08** or email [riuinto@nrint.co.uk](mailto:riuinto@nrint.co.uk)

