Guar – good prospects in the monsoon belt

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The Integrated Rural Development Programme (IRDP) Mardan offers support to communities in the Mardan area in the North West Frontier Province of Pakistan. In seeking ways to make the already hard-pressed farmland more productive without further aggravating the fragile ecology, IRDP has come upon a plant which could greatly change rainfed farming.

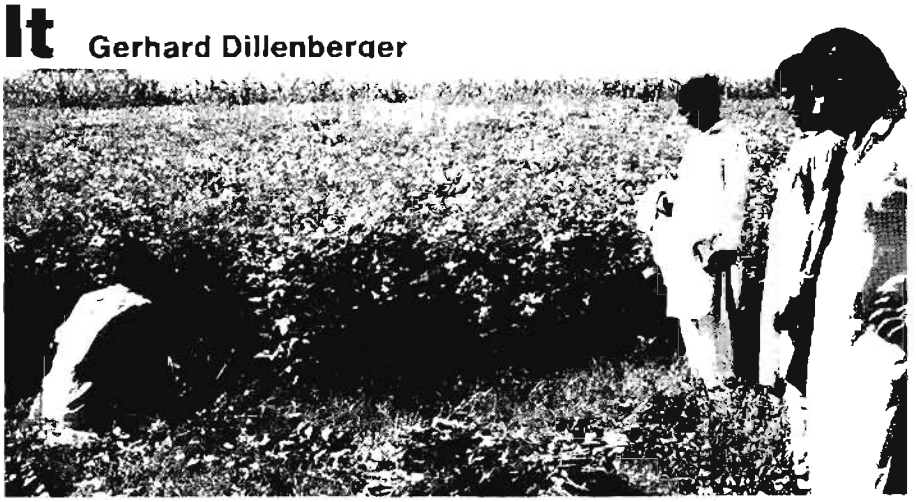
A multipurpose plant which could ideally supplement local farming systems is guar (*Cyamopsis tetragonoloba* (L.)), also known as cluster bean. This erect annual herb, which reaches a height of 1-2 m when mature, is not at all new to the Indian subcontinent; in fact, it originates from there. Guar growing is quite common in the Punjab and Sind, but it had never been grown as far north as Mardan. The local Pathan farmers and extension staff knew little, if anything, about the crop. Only a few people who had gone to work temporarily down-country were aware that guar was eaten there as a vegetable.

Guar grows from July to September and thrives on the monsoon rains. During that period, precipitation in the rainfed areas of Mardan normally ranges from 350 to 700 mm, which is sufficient for the crop to mature. In any case, as guar is a hardy plant – no major disease or pest has yet been reported – and very drought resistant, failure is very unlikely.

A nutritious forage

Since it is common practice in the area to fallow the rainfed land during the monsoon, growing guar does not compete with other crops; it simply replaces the fallow. Its hairy, nettly leaves protect it to some degree from being browsed by free-grazing livestock. Camels accept guar in both fresh and wilted state as fodder, but other ruminants prefer it as hay. Guar hay is rich in protein, in which the common animal diet (wheat straw, maize stalks, range grasses) is highly deficient. Dry guar can be kept for months and can be fed to animals when fresh fodder is not available on the rainfed farm, e.g. during May and June.

Growing fodder on rainfed land not only results in more productive and healthier livestock but also has important ecological benefits. A gradual adoption of stall-feeding could give the badly degraded vegetation in the hilly areas a better chance to recover. In this forest pasture, which makes up about one third (ca 25 000 ha) of the IRDP project area, trees and shrubs for fuel and palatable herbs and grasses for fodder have become scarce because of deliberate cutting and grazing. Attempts to rescue the hills will gain support not only from growing fodder on arable land but also from integrating trees and shrubs into the farming system so that more fuelwood can be grown on the farms.



Cutting of Guar during a field day. Local Pathan farmers and extensions staff virtually knew nothing about the crop. The crop was introduced into an area where it was not common before. Photo: Gerhard Dillenberger.

A tasty vegetable

Guar also yields nutritious food which fetches a good price in the markets down-country. The pods are used as vegetables, and taste like French beans. They can be cooked fresh or can be dried and conserved for later use. Growing guar can thus help improve the nutritional status of the local people.

In addition, producing guar grain as a cash crop may be of future interest to the local farmers. Guar seed contains a gum (mannogalactan) which is of commercial and industrial importance and for which there is a world market.

A soil ameliorator

A very important fringe benefit in guar growing is its nitrogen-fixing ability. Guar is self-sufficient in nitrogen and, despite its short-season character (80-110 days), a crop of guar can considerably reduce expenditures on nitrogen fertiliser for the subsequent crop, e.g. wheat or mustard. The organic matter content of the soil also benefits from including guar in the rotation. Moreover, by providing groundcover during the usually high-intensity monsoon rains, guar also helps control erosion.

Finding the best fit

In the 1988 monsoon season, IRDP introduced guar in four locations in the project area on an experimental basis. The results were encouraging. The next year, the crop was demonstrated in 15 project villages on 2-ha plots. In 1990 the awareness and readiness was such that IRDP could bring in 6000 kg of seed from Punjab, sufficient to expand guar to some 200 ha involving about 500 farmers.

The project and the farmers are now trying to find how best to fit the crop into the farming system. Ways must be found of resolving the conflict of guar growing with the practice of letting livestock graze freely during the monsoon. Many farmers are reluctant to invest labour in stall-feeding the – until now – low-producing animals. The extension staff is therefore initially stressing the use of guar as a vegetable. The soil improvement aspect is taken up during the following cropping season. The best timing for cutting the crop as fodder must still be found. If it is over-mature when harvested, then it has to be chopped before it can be fed. However, some farmers use the dry, over-mature guar stalks as fuel.

Guar appears to have considerable potential for farming in the monsoon belt of North West Pakistan. The crop fits well into the existing rotational niche during the monsoon, and its widespread cultivation would result in a substantial increase in cropping intensity in the rainfed areas. Guar has a multitude of beneficial uses, e.g. fodder, vegetable, grain and soil improvement. IRDP does not regard it a miracle crop but rather as a chance for a change toward more sustainable agriculture. ■

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