Further Support for the Use of Lablab in Dry Areas

Dawn Berkelaar

The article by Dov Pasternak about lablab (in this issue) reminded me of material in ECHO's files from many years ago. Reimar von Schaaffhausen, working in São Paulo, Brazil, sent articles and letters over the years about the valuable role that lablab (and pigeon pea [*Cajanus cajan*]) have played in providing feed for livestock during the dry season. The information is summarized in the next several paragraphs.

Von Schaaffhausen wrote to Martin Price on May 31, 1990, after an article on pigeon pea was printed in *EDN*. He wrote, "It has been little recognized that it has another remarkable property. It can solve the forage problem in developing countries in warm or tropical regions just by making a little change in the method of harvesting the beans. If cut near the ground as is usually done, the plant does not return. If it is cut over knee high, the stems sprout vigorously, giving more harvests without replanting. Even more important is the fact that the leaves stay green and highly nourishing for the farm animals kept for food, work or transport, even during the dry season when grasses are dry….[The seed of *Lablab purpureus*] can be used for the same purposes as pigeon pea, for food, feed from the green leaves during drought, and soil improvement. Both beans may help to improve the living conditions of the rural population in countries with periodical drought by supplying high protein forage in the critical dry season."

A friend in Angola originally sent lablab seeds to von Schaaffhausen, but it was cows that alerted him and colleagues to the potential of lablab as a dry season feed. The cows broke through a fence and started eating lablab that was being grown for evaluation as a green manure/cover crop.

Both lablab and pigeon pea grow a deep taproot (one lablab plant had roots more than 3 meters deep after six months!), so the plants are able to access water and nutrients from deep in the soil. If a plant is cut at least 50 cm from the ground, new leaves and branches will grow from the woody stem. Extra branches can be chopped and used for mulch. New leaves and branches will also sprout if cattle graze or browse directly on the plants. If managed in this way, a lablab plant can be grown year-round for several years before replanting.

If you plant lablab or pigeon pea for cut-and-carry forage, one idea is to cut a few plant tops at a time, so that you have a continuous supply. Plants should be left to regrow for between one to three months before harvesting again. With close spacing within a row (10 to 50 seeds/m), stems will stay thinner and plants will not get woody.

In a Developing Countries Farm Radio Network program (Package 13, Item 4), von Schaaffhausen outlined three methods for growing pigeon pea (or lablab).

1. The legume is intercropped with another crop. Sometimes one row is planted between a few rows of corn or sorghum; at other times a handful of lablab/pigeon pea seed is mixed with four or five handfuls of maize seed before planting. The legumes, says von Schaaffhausen, grow slowly at first, but will start to grow more quickly around the time the maize is harvested.
2. The legume is alley cropped with other plants. Lablab or pigeon pea is planted in rows 3 to 4 meters apart, following the contour if the land is sloped. Within each row, seeds are planted 2 to 10 cm (1 to 4 inches) apart. This method is good if you want the lablab or pigeon pea to grow in a more perennial fashion.
3. The legume is alley cropped in a pasture. In this case, you would need to keep livestock away from the lablab or pigeon pea for the first couple of months, until the plants were well established. During the rainy season, livestock tend to eat the grass first; the lablab and/or pigeon pea are a welcome source of feed when the dry season comes.

Von Schaaffhausen summarized an experiment he did over 98 days between July and October, 1974, during which no rain fell. Thirty two-year-old Zebu bulls and 10 crossbred cattle were grazed in a grass pasture containing strips of pigeon pea over 1/3 of the area. The animals were given nothing extra to eat except salt and trace elements. Animals were weighed at the same time each morning. On average, over the course of the experiment, they gained 16 kg per month (0.54 kg per day); their individual weight gains ranged from 43 kg to 83 kg. In that area, grass-pastured animals usually took four to five years to reach slaughter weight. By contrast, the animals in the experiment reached slaughter weight in less than three years.

A note about cultivars: von Schaaffhausen commented in a letter to Dr. Price that lablab varieties differ greatly in size, color, photosensitivity, drought resistance and soil requirements; more than 50 varieties of lablab exist. In an article in Economic Botany, he mentioned that flowering depends more on photoperiod than on temperature, and that cultivars ripen when days get shorter. In São Paulo, that is around May, two months after the maize harvest. Pods of the cultivars used in Brazil do not shatter, so seed was easy to collect. Flowers of the variety used in São Paulo are white; the beans are black with a white hilum. Lablab beans for human consumption must be cooked longer than many other beans. They have a high lysine content (lysine is an essential amino acid lacking in grains).

For more information, see an article by Reimar von Schaaffhausen published in a 1963 issue of *Economic Botany*: "*Dolichos lablab* or hyacinth bean: its uses for feed, food and soil improvement" (Volume 17, pages 146-153).

In Roland Bunch's new book, *Restoring the Soil (subtitle: A Guide for Using Green Manure/Cover Crops to Improve the Food Security of Smallholder Farmers),* he mentioned a system similar to the one described by von Schaaffhausen (in *Restoring the Soil,* the system is listed as S24). Bunch commented, "During the last 20 years, large-scale lowland cattle ranchers in southern Honduras have begun intercropping lablab beans with their maize, so that the cattle will have a plentiful, green, very palatable and high-protein fodder throughout the 6-month dry season."

In correspondence related to this article, Roland shared, “I got to know a lot of people working on gm/ccs in Brazil in the 1980s and 90s….The Brazilians originally worked a lot with lablab, but in Santa Catarina, at least, they quit using it because of severe problems with aphids.

“However, here in Africa there are several major differences with Brazil. First of all, most of the climates we are working with are drier than Santa Catarina, so aphids are just not much of a problem. Secondly, in many countries (Kenya, Uganda and Tanzania, at least), lablab beans are a very common and appreciated food. Thus, people will put up with more problems than they would in Brazil in order to produce them. Lastly, we now know of some very cheap, non-toxic ways of controlling aphids, so they need not cause much of a problem [see next paragraph]. As a result, lablab beans are one of the two or three most popular gm/ccs for using in conservation agriculture here in Africa.

“Any good desiccant [drying agent] will get rid of aphids, because they require a good deal of moisture to survive. The most successful and least expensive one that farmers used in Honduras was plain old wheat flour. They mixed it with water, and sprayed it on their crops. When the flour dried out, it operated as a desiccant. I would guess that for African farmers, cassava flour would work just as well, but people would have to try it out.”

