

## Fenugreek

### An Ancient Forage with a New Twist

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In order for sustainable agriculture to thrive, monoculture crop production will need to be re-focused. The introduction of alternative high yield and quality annual forage crops to the Northeast would lead to more extended rotations which are known to produce a number of beneficial rotation responses. A plausible alternative forage crop for the Northeast is fenugreek. Fenugreek, *Trigonella foenum-graecum* L., is an annual legume and has diverse environmental and economic potential as a forage plant.

#### General characteristics

Fenugreek is an erect annual herb native to southern Europe and Asia. Undoubtedly, fenugreek is one of the oldest cultivated medicinal plants and is widely grown today as a food, condiment, medicinal, dye, and forage plant.

Fenugreek leaves are alternate and consist of three ovate leaflets. White flowers appear in early summer and develop into long slender green pods. Mature brown pods contain 20 small yellow seeds. The stalks grow to be 2 ft (60 cm) tall.

Production does well in areas where temperatures range from 8 to 27° C and have an annual precipitation of 16 to 60 in and a soil pH of 5.3 to 8.2. The plant thrives in full sun on rich, well-drained soils. Growth is slow and weak in cold temperatures and wet soils. As a leguminous plant, fenugreek needs little if any nitrogen fertilizer.

The maple aroma and flavor of fenugreek has led to its use in many baked goods and imitation maple syrup. Seeds are also ground and used in curries. Young seedlings and other portions of fresh plant material are eaten as vegetables. Fenugreek is also used as a livestock feed.

As a medicinal plant, fenugreek has traditionally been considered a carminative, demulcent, expectorant, laxative, and stomachic. The plant has also been employed against bronchitis, fevers, sore throats, wounds swollen glands, skin irritations, diabetes, and ulcers cancer. Fenugreek has been used to promote lactation and as an aphrodisiac. Fenugreek seeds have been used as an oral insulin substitute, and seed ex-

tracts have been reported to lower blood glucose levels in laboratory animals.



#### Crop characteristics

Fenugreek is probably better known as a spice and medicinal plant; however, it has been used since ancient times as forage. The word fenugreek actually means “Greek Hay” and it garners several of the characteristics of high quality forage. According to research conducted in Canada, fenugreek is a high yielding annual legume that matches or exceeds alfalfa in forage quality. Fenugreek is only cut once during the growing season and can be harvested for hay or silage. Interestingly,

fenugreek does not lose quality as it matures. One cutting of fenugreek has been reported to yield between 5 and 8 dry matter t acre<sup>-1</sup>. Crude protein content of fenugreek cut at 15 and 19 wk and of early bloom alfalfa (19.8, 15.7, and 18.2%, respectively) was not different. The *in vitro* dry matter digestibility of fenugreek cut at 15 and 19 wk of growth (66.5 and 66.2%) was greater than that of early bloom alfalfa (59.2%). Feeding trials conducted in Canada reported similar average daily gain and dry matter intake when steers were fed alfalfa or fenugreek silage. At this time fenugreek has not been investigated as a feed for dairy cattle.

Fenugreek can tolerate a shorter growing season than silage corn and therefore allows for more flexibility in planting date. In addition, its harvest window is longer than corn silage or alfalfa, thus harvest risk can be spread through the season. This allows for better utilization of labor and equipment on limited resource farms. Since the one-cut of fenugreek could theoretically be harvested anytime during the summer, late season grow back of fenugreek could also serve as a winter cover crop. Since fenugreek is an annual its potential as a pasture plant is limited. However, it has been reported to grow well in combination with alfalfa.

#### Environmental Benefits

Environmentally, fenugreek could help in preserving the integrity of agricultural land by reducing

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soil erosion. Compared to continuous corn, hay crops can reduce soil loss by about 90%. Reduction of soil erosion is a key component of soil conservation and improved water quality as large amounts of phosphorus can be transported off the farm through soil loss. In addition, the roots of legumes help break up compacted soil layers and are effective soil builders. The ability of fenugreek to fix its own nitrogen lowers its fertility requirement during its production and also in the following year's crop. At this time, fenugreek has no major insect or disease problems. Rotation into fenugreek will also break some pest cycles such as that of corn rootworm. Fenugreek is a family of plants not currently grown in the Northeast and therefore will increase diversity in our cropping systems. Other anecdotal evidence reports that fenugreek also reduces manure odor. This may be an important attribute of this forage since livestock odor is a major air quality issue among rural residents.

#### **Potential in the Northeast**

Unfortunately, at this time forage fenugreek seed is not available commercially. The proposed release date for forage fenugreek varieties is 2005. However, a study will be conducted this summer to evaluate the yield and quality of the soon to be available forage fenugreek varieties. Stay tune for the results of the 2004 fenugreek trial.

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## **Seasonal Dairying: In Sync With Nature**

*By Ted Yandow  
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I began practicing management intensive grazing about 1985. Grass farming lends itself to seasonal dairying. Articles in the Stockman Grass Farmer about the benefits of seasonal dairying also raised my interest. For example, freshening cows in the spring when the grass was new cut back on the need for grain.

The deep motivation for seasonal dairying is to be in sync with nature. Springtime is naturally a time for new life. A calf, born in the spring sun, grazing and nursing a cow eating the most nutritious grass, is perfect.

Prior to 1990 I was milking about a hundred cows year round in a carousel parlor that was a big problem. I had to replace it, so I decided to calve all at once in the spring and rebuild the milking parlor the next win-

ter. I chose a New Zealand style parlor and we built it that winter. Just before construction I loaned the 13 cows that were still milking to my brother, and the rest I dried off.

Since then I have struggled to remain spring seasonal, but never fully accomplished it. One reason is that I couldn't see selling cows just because they didn't breed at the right time. If a farmer wants to be seasonal, he will have to be open to losing some of his favorite cows (perhaps the highest producing ones) and cull for seasonal breeding and calving. Of course, you can breed these cows and sell them as milkers to a non-seasonal dairy. This means raising more replacements.

One of the biggest challenges in seasonal dairying is the reduced income in the winter months. For this reason, I have never dried off all the cows in the winter. This points to the need for financial planning. Here on the Yandow farm, we are starting the Holistic Management® planning process, and hope that the financial planning will allow us to look far enough ahead, and stay on course, so as to be a more fully seasonal dairy.

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