

## **Corn's perennial relative**

Eastern gamagrass: a potential alternative to corn silage

by Susanne J. Brown

Livestock farmers annually producing "break-even" corn silage may soon find it more economically advantageous to plant perennial Eastern gamagrass, suggested a United States Department of Agriculture (USDA) soil conservationist/researcher at the Northeastern branch meeting of the American Society of Agronomy, held this past July at McGill University Macdonald Campus in Ste-Anne-de-Bellevue, Quebec.

"The heavy hitter nutritionists at Cornell University agree." The forage value of "Eastern gamagrass is good for all classes of livestock, except maybe high-end producers," said Paul Salon.

Seven years of research done at the USDA SCS Big Flats Plant Materials Center in New York State indicate Eastern gamagrass, a warm season forage similar in physiology to corn and switchgrass, is "an excellent replacement" to continually producing corn silage on marginal land, he said.

Eastern gamagrass will grow "well to moderately well in soils with a pH down to 5.2," said Salon. It flourishes in well-drained grasslands and is abundant in fertile soils.

The forage of Eastern gamagrass is highly digestible. The digestibility runs between 75 to 80 per cent. Crude protein levels average between 15 to 20 per cent, neutral detergent fiber (NDF) is 65 per cent, acid detergent fiber (ADF) is 30 per cent, and lignin is 2.5. Digestible NDF is 72 per cent.

Eastern gamagrass is higher in crude protein than corn silage, but has a significantly lower energy level because it does not produce grain, said Salon. Few seeds are produced on the plant. The majority of the plants' reproduction is from rhizomes.

"It makes good silage, but no energy," he said. So, livestock rations would need to be balanced accordingly.

### **Quick recovery**

However, any additional cost in supplemental energy needs for the ration can be quickly recovered by the reduction in production costs. Eastern gamagrass only has to be planted once, unlike corn that has to be sowed annually.

"It's a low-input crop," Salon said. And it's a "very long lasting perennial."

If a good establishment of the crop is achieved in two years, production costs can almost be guaranteed to be significantly lower than growing corn silage on the same plot of land, he said. There would be less expenditures for fuel, time and labour. And less of an outlay for machinery depreciation, soil compaction and erosion.

Eastern gamagrass also requires less herbicide than silage corn. And preliminary results of the USDA studies indicate less nitrogen is needed, said Salon.

### **So why isn't there a stampede to grow Eastern gamagrass?**

There are some disadvantages. The choice of seed varieties, quantities and qualities are currently limited, and the cost of the seed is astronomical. The most widely used commercial variety of Eastern gamagrass called "Pete" sells on average for US\$6.50/pound.

However, "the price will go down," insisted Salon.

An unique genotype of Eastern gamagrass was recently found in the wild that was producing nearly twenty times the amount of seed than regular native plants, he said. Since then, seed breeding programs have spurred forward in Oklahoma, Kansas and in New York State.

Two other drawbacks are the lack of yield in the first year, and the fact there are no herbicides registered for use on Eastern gamagrass.

It "tolerates corn herbicides," said Salon, but government approval is still pending.

### **Winterhardiness**

Eastern gamagrass is native to the Southeastern part of the United States (see Figure 1), but Salon figures it could grow in Ontario or Quebec depending on how well it could withstand a Canadian winter.

Unlike switchgrass that has its' next year's growth protected below the ground, Eastern gamagrass regrows from above ground tillers which may make it more susceptible to winter damage.

However despite its potential vulnerability to frost, there appears to be real potential for Eastern gamagrass to be grown in more Northern climates. Eastern gamagrass planted in REAP-Canada's research plots in 1992 in southern Ontario have tolerated two harsh winters and survived.

Depending on the number of heat units, starting in July a Canadian farmer could expect to harvest two-cuts per season before frost, said Salon.

"Where I am, I'm pushing a three-cut system," he said.

Farmers should allow a five to six week interval between cuts too insure the stand remains well established. And the last cut of the season should never be done after a frost, said Salon.

Yields from USDA trials average four tons to the acre from young stands grown in low pH, low fertile soils. It's expected with higher soil fertility and pH rates the tons per acre will increase, he said.

Producers interested in Eastern gamagrass and looking for a source for seed can contact Paul Salon at (607) 562-8404.

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