



Grazier

► by Kindra Gordon

Praising Gamagrass

Kansas commercial Angus producers Joe and Peggy Smith typically have had to purchase hay to get their herd of about 200 Angus cow-calf pairs through the winter at their Sycamore Springs Ranch near Elk City. They often were spending \$10,000 to \$14,000 annually on supplemental hay.

But in 2003, despite drought conditions, the Smiths produced enough hay on their land to avoid purchasing forage this winter. Their land base and herd size has remained the same as the days when they were buying hay, but they are now harvesting a native grass variety called Iuka IV eastern gamagrass.

Gamagrass

Eastern gamagrass, a warm-season perennial, can grow as tall as its relative corn, with forage quality testing from 12%-22% crude protein (CP) and averaging 65% total digestible nutrients (TDN). The high-protein forage offers yields that can range from 2 tons to 10 tons per acre, depending on soil type, fertility and precipitation.

Joe first learned about gamagrass in 1997 when he was searching for an alternative to replace his alfalfa fields. Prolonged drought in the 1990s and the shallow limestone soils on the Smith's ranch had shortened the productivity and life span of the alfalfa stands they relied on to produce winter hay for the herd.

So, that same year, Joe planted 50 acres of the Iuka IV eastern gamagrass variety. Within two years of growing in drought conditions, the gamagrass had established a healthy stand, while 50 acres of matua brome, which Joe also planted in 1997, was not able to survive.

He was convinced that eastern gamagrass was the solution to the farm's lack of forage production. In 1998, Joe's son, Andy, also returned to the operation, and from 1999 to 2002, the remaining 175 acres of the Smith's farm ground was planted to registered Iuka IV eastern gamagrass seed.

Family venture

Today, Joe and Peggy continue to operate the ranch, while Andy and his wife, Valerie, have purchased land of their own and established a separate herd of about 65 Angus-based commercial cows. Andy and Valerie also run a small herd of registered Angus, which they are working to expand.

But the father-son duo still works

together on their eastern gamagrass venture. In addition to harvesting the hay, they've worked some of the acres into their summer grazing system and have harvested much of the gamagrass for certified seed.

Andy reports that during summer 2003, they produced 350 tons of hay from about 200 acres of gamagrass. Most of the hay came from the first cutting, with a limited number of acres cut a second time for hay. "This is the first time in several years that hay will not have to be purchased for our herds," Andy says.

The history of gamagrass

Eastern gamagrass is not a new forage. "It's a native grass that was part of the prairie when the buffalo roamed," says Glen Snell, a retired range management specialist formerly with the Soil Conservation Service [now Natural Resources Conservation Service (NRCS)].

Dating back to the 1940s and 1950s, Extension and agricultural researchers would notice a plant that seemed to bounce back faster and survive in a variety of soils and climatic conditions, Snell reports. It was eastern gamagrass.

Thus, a research effort was established to try to develop this native plant for forage purposes. More than 500 gamagrass samples were collected from seven states, and research was conducted at several locations in the United States, including the United States Department of Agriculture-Agricultural Research Station (USDA-ARS) Southern Plains Range Research Station near Woodward, Okla. *Pete* was the first registered name given by The National Variety Review Board to an eastern gamagrass variety that was developed and

released in 1979. But the need for chilled seed and the often poor first-year germination results limited the plant's acceptance.

Then, in 1995, the Iuka IV variety — the only other registered gamagrass variety to date — was released. Iuka IV was developed by Pratt County, Kan., farmers Dale and Jerry Mott through four generations of genetic selection specifically for better germination, Snell says.

"The process used to develop Iuka IV eliminated the slower germinating plants from being included in the gene pool. As a result, Iuka IV can be established in a dry, unworked seedbed in the fall, and it will germinate the following spring," Snell says. He also reports that five years of yield trials at the Woodward Station have shown that Iuka IV outyields the *Pete* variety by 19%.

Today, the Iuka IV gamagrass variety is gaining popularity. Snell and the Smiths offer certified seed for sale and report more than 170 successful plantings established in 21 states.

Managing gamagrass

► Eastern gamagrass performs well from northern Nebraska to southern Texas, and eastward to the Atlantic. It matures earlier than most warm-season grasses and is ready to be grazed in the Southern Plains by mid-May.

► Gamagrass has a specialized root system, which helps it adapt to almost any soil — from waterlogged to drought-stricken. The plant's roots can extend from 7 to 14 feet (ft.) into the ground, allowing it to tap into moisture other plants can't reach. It's also a good choice for buffers along streambanks because the roots of the bunchgrass will establish a firm hold and prevent soil erosion.

► Because gamagrass' protein content rivals alfalfa, the forage is well-suited to haying, green chop for silage and grazing.

► The Iuka IV variety does not require the seed be chilled at planting. During fall through February is the time to plant, since the grass seed needs to endure some vernalization to germinate. Snell says Iuka IV is easy to establish in an unworked seedbed

CONTINUED ON PAGE 116

of old crop stubble using a double-disk row-crop planter, grain drill or no-till drill. He suggests a ¼-inch (in.) to 1-in. planting depth, with a planting rate of 10 pounds (lb.) of pure live seed (PLS) per acre. Snell says any row spacing will work.

Andy admits that the biggest drawback to gamagrass is the establishment cost, which can run about \$100 per acre for certified seed. Additionally, the forage should not be harvested or grazed during the first growing season. “It’s tough to have that large initial expense for seed and then wait until the second year to get a crop,” Andy says.

► Weed control is critical during the first year of establishment because there will be a large amount of bare ground, Andy reports, adding, “It’s a relative of corn, so chemicals that are not harmful to corn will work.”

► During the second growing season, gamagrass plants will begin to form a hardy bunchgrass, and the Smith’s say to expect about 60% of potential production. By the third year, you can expect full production, with a minimum of two hay cuttings — or more if conditions permit.

► The Smiths begin cutting hay at the end of May and every 30 days thereafter. To maximize production and control weeds on their stand, they burn it every spring after the first 2-3 in. of new growth. And, they also apply nitrogen (N) annually as well as any other lacking nutrients as indicated by soil tests.

► Lastly, the Smiths recommend resting gamagrass stands 45 days before the average fall frost date to allow good regrowth going into winter. By following these management strategies, those who have worked with gamagrass say stands will last indefinitely.

For more information about Iuka IV eastern gamagrass, visit www.luka.com. Iuka IV seed is available through Glen Snell at 1-800-279-5841; Andy and Valerie Smith at (620) 633-5362; or Joe and Peggy Smith at (620) 633-5290.

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Grazing and wildlife benefits, too

In addition to being used for hay, the highly productive eastern gamagrass can also be well-suited to rotational grazing systems. Producers can calculate about one acre of Iuka IV gamagrass to every 10 acres of native bluestem in a rotational grazing plan — with even higher stocking rates on irrigated lands.

But, because eastern gamagrass is so palatable, it’s easily overgrazed. “It is the most palatable of the native grasses. It is usually not found in native pastures due to livestock preference — they will select it first and keep coming back to it,” says Jodi Cushenberry with the Montgomery County, Kan., Natural Resources Conservation Service (NRCS).

Thus, it is recommended that eastern gamagrass be grazed in pure stands in a short-duration rotation system. Animals should be moved every five days, and pastures should be rested for 30-45 days. “Grazing should be controlled to leave no less than 6 to 8 inches (in.) of stubble height,” Andy Smith, Elk City, Kan., producer, says. Closer grazing will reduce plant vigor and eventually reduce the stand.

Cushenberry adds that as a bunchgrass, eastern gamagrass is wildlife-friendly because it provides excellent cover and forage. Therefore, eastern gamagrass is well-suited to wildlife or Conservation Reserve Program (CRP) plantings, and it may be eligible for some government cost-share funds from NRCS to defray seed and planting costs. The Smiths were able to do just that on the last 30 acres of gamagrass they planted. Check with your local NRCS office for more information.

Figure 1: Fertilized Iuka IV gamagrass cut at various heights over a five-year period:

Height, inches	48	42	36	30	24	20
Crude protein, %	12.0	13.5	10.4	15.5	17.7	19.3
Total digestible nutrients, %	55.6	56.3	62.6	69.9	61.9	62.8

Source: Data collected by Pratt County, Kan., farmer Dale Mott.



► Two-week regrowth obtained with Iuka IV after cutting hay during June 2001.

► The typical amount of bare ground due to the Iuka IV being a bunch grass. A plant every 30 in. indicates a successful stand.



PHOTOS COURTESY OF ANDY SMITH



► Joe and Peggy Smith stand next to Iuka IV gamagrass plants at their Sycamore Springs Ranch near Elk City, Kan.