

verted into productive grasslands with no erosion. In many areas the original desert grassland plant communities have changed in this century from grass to shrubs, trees, and cacti. In these areas Lehmann lovegrass may be the only perennial grass able to compete with the woody vegetation and persist over time, producing herbaceous forage for livestock and wildlife and providing cover to protect soils from erosion.

Lehmann lovegrass has its place in southern Arizona's rangelands. It is here and land managers need to learn to take advantage of it where it presently occurs and try to limit its encroachment into the native grassland areas to protect their richness, diversity, and productivity.

### Literature Cited

- Cable, D.R. 1965.** Damage to mesquite, Lehmann lovegrass and black grama by a hot June fire. *J. Range Manage.* 18:326-329.
- Cable, D.R. 1971.** Lehmann lovegrass on the Santa Rita Experimental Range, 1937-1969. *J. Range Manage.* 24:17-21.
- Cox, J.R. 1984.** Temperature, timing of precipitation, and soil texture effects on germination, emergence, and seedling survival of South African lovegrasses. *J. of South African Bot.* 50:159-170.
- Cox, J.R., and G.B. Ruyle. 1986.** Influence of climate and edaphic factors on the distribution of *Eragrostis Lehmanniana* (Nees) in Arizona, USA. *J. of the Grass. Soc. of South Africa.* 1:25-29.

- Frasier, G.W., D.A. Woolhiser, and J.R. Cox. 1984.** Emergence and seedling survival of two warm season grasses as influenced by the timing of precipitation: a greenhouse study. *J. Range Manage.* 37:7-11.
- Martin, M.H., and J.R. Cox. 1984.** Germination profiles of introduced lovegrasses at six constant temperatures. *J. Range Manage.* 37:507-509.
- McClaren, Mitchel P. and M.E. Anable. 1991.** Spread of introduced Lehmann lovegrass along a grazing intensity gradient. *Journal of Applied Ecology* (In press).
- Roundy, B.A., R.B. Taylorson, and L.B. Sumrall. 1991.** Germination responses of Lehmann lovegrass to light. *J. Range Manage.* (In press).
- Ruyle, G.R., P.R. Ogden, and R.W. Rice. 1988.** Defoliation patterns of cattle grazing Lehmann lovegrass. *App. Agric. Res.* 4:177-181.
- Schickedanz, Jerry G. 1974.** Seasonal growth, development, and carbohydrate reserves of three native grasses in response to seasonal moisture and nitrogen fertilization. PhD. Diss., University of Arizona, Tucson, Arizona.
- Sumrall, L.R., B.A. Roundy, J.R. Cox, and V.K. Winkel. 1991.** Influence of canopy removal by burning or clipping on emergence of *Eragrostis lehmanniana* seedlings. *Internat. J. Wildland Fire.* (In press).
- USDA-Soil Conservation Service. 1989.** Arizona Technical Range Site Descriptions MLRA 41-3.
- USDA-Soil Conservation Service 1976.** National Range Handbook.
- USDA-Soil Conservation Service 1988.** *The soil survey of eastern Pima County, Arizona.* Unpublished.



Dan Shepherd sells eastern gamagrass seed, buffalo meat and pecans from a store on his farm. Photo by David Eaheart.

Dan Shepherd did not expect the dark green patch of grass he noticed across the ditch would lead to a profitable seed business back in 1980 when Missouri experienced one of its worse droughts. Above-normal temperatures day-after-day quickly scorched Shepherd's cool-season grass pastures. His buffalo were quickly running out of something to

## Mystery grass turns into business

David Eaheart

graze on his Clifton Hill, Missouri, farm.

He had been experimenting with switchgrass, a warm-season grass, but he wasn't happy with it. It just wasn't performing up to his expectations. He noticed across the ditch a small patch of grass had mysteriously appeared and was withstanding the blistering drought.

Shepherd had trouble identifying this unknown grass. After some research it was finally identified as eastern gamagrass. Shepherd looked for more information and learned it was a palatable forage for livestock and high in protein. Best of all this native, perennial, warm-season grass was suited for deep, fertile soils with good moisture conditions and might work on his farm. It was obviously withstanding the drought.

Shepherd decided to plant a pasture to eastern gamagrass. Seed was located at the Soil Conservation Ser-

vice Plant Materials Center (PMC), Manhattan, Kansas. Since seed was in short supply, he decided to plant a few extra acres to raise some seed.

Today, Shepherd raises more than 550 acres of the grass and sells seed in the United States, Mexico and Canada.

It is not uncommon for his customers to visit the farm to discuss eastern gamagrass production. Shepherd runs the seed business from a new building on the farm, which houses a store and office. The building also serves as headquarters for his buffalo meat and pecan enterprises. Visitors to the farm learn from Shepherd's experience and see directly the results of his management and production practices.

Shepherd notes that gamagrass requires some management to maintain a healthy stand. Nitrogen boosts the production of the grass the most of any practice. Shepherd works with

government agencies, such as the Soil Conservation Service, and the University of Missouri on research for the best management of eastern gamagrass. Initial research indicates that 100 pounds of nitrogen to an acre produced the highest forage yields with both a four- and six-week harvest. The eastern gamagrass has averaged more than six tons to the acre dry matter yield.

Based on research, the first cutting should be in the boot stage for hay and silage. It should not be cut below eight inches, which allows for regrowth. The grass will normally reach this height in mid-May in Missouri. After a six-week rest period, the grass can be grazed or left for additional regrowth. It is suggested not to graze the grass below 12 inches.

Seeding rate is about seven to eight pounds of pure live seed an acre. A good stand is usually achieved in the first year, but a couple of years is required for a usable stand. Once the pastures are well-established, they will produce about 200 pounds of clean seed to the acre at an 85% to 90% pure live seed rate.

The eastern gamagrass is ideal for Shepherd's buffalo herd. The peak performance for the grass is during July, which coincides with the breeding season for his buffalo.

The gamagrass hay has about a 15% protein level and provides high



*The deep, fibrous root system of eastern gamagrass helps prevent soil erosion. Photo by Darrel Dominick.*



*Eastern gamagrass hay can have protein levels of 15%. Photo by Darrel Dominick.*



*The peak performance of eastern gamagrass is during buffalo breeding season in July. Photo by Darrel Dominick.*

quality hay for the buffalo as well as a small beef cowherd. Shepherd is pleased with the buffalo's performance on the gamagrass. The cows really get slick looking.

Besides complementing his buffalo herd, eastern gamagrass is also beneficial to wildlife. It provides cover protection for quail, pheasant and deer. Eastern gamagrass also helps prevent soil erosion. Since this is a perennial grass with a deep fibrous root system it helps minimize soil and maintain good water quality. Shepherd plants some of his steep hillsides with eastern gamagrass

seed. These hillsides are usually seeded in the junk seed he will not sell.

Shepherd works hard at promoting eastern gamagrass. As a past president of the National Buffalo Association, he spreads the word about eastern gamagrass to other producers. He also advertises in ranch and grazing magazines and newspapers.

Shepherd sees tremendous potential for eastern gamagrass. His efforts help make other farmers recognize the potential for this warm-season grass.