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An African Pearl Finds a Home in the U.S.



Pearl millet, a crop native to the harsh growing conditions of Sub Saharan Africa, is now finding a new home in the U.S. Although pearl millet has been grown for livestock forage in the U.S. for over 100 years, new uses for pearl millet and genetic improvement of the crop have recently caused pearl millet grain production to blossom.



INTSORMIL, in collaboration with the USDA-ARS and the University of Georgia, by breeding new hybrids and identifying new uses has provided a transfusion for pearl millet production in the U.S. The collaboration has resulted in the production of high quality grain in spite of the stressful growing conditions commonly faced by southern U.S. producers. Interest in pearl millet is increasing because it (1) has low production costs, (2) grows well in poor dryland and sandy soils, (3) uses less fertilizer, (4) is resistant to nematodes and (5) has a short growing season.

There is an increasing market demand for pearl millet in the U.S. Diverse local market opportunities exist in the recreational wildlife, poultry and pet food industries. Current grain production is unable to meet the demands of the massive poultry industry. It is

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INTSORMIL Management Entity: University of Nebraska, 113 Biochemistry Hall, P.O. Box 830748, Lincoln, NE, 68583-0748, USA

Phone: (402) 472-6032 Fax: (402) 472-7978 E-mail: SRMLCRSP@UNL.EDU

Web site: <http://intsormil.org>

likely that ethanol production will be another high-volume market for the grain in the future. Thus, pearl millet offers new opportunities to growers and agribusiness in the U.S. and potential benefits to the economy and environment.

Through the INTSORMIL pearl millet research network within Africa, cultivars and experimental germplasm have been acquired for evaluation in the U.S. These accessions are proving to be valuable sources of new traits for the U.S. These traits will also provide security for future production as U.S. hybrids are highly susceptible to many exotic pests and diseases. "Considering the increasing demands on water resources, pearl millet is an ideal alternative to thirsty soybeans and corn in southern production settings," according to Jeff Wilson. Wilson is one of a team of USDA-ARS and University of Georgia scientists at UGA Tifton working on the improvement of pearl millet. Because pearl millet is a native of Sub Saharan Africa, it can produce a crop without irrigation and even in a dry year, pearl millet can yield 60 bushels of high protein grain per acre. With its short growing duration pearl millet fits in many double-cropping and rotation systems.



PEARL MILLET FOR THE RECREATIONAL WILDLIFE INDUSTRY: HUNTING AND AGRI-TOURISM- Total hunting expenditures in Georgia are about 30% greater than the value of the state's peanut harvest and expenditures for game bird hunting are estimated at over \$37.6 million annually. Because it is a superior supplement for game birds, pearl millet has quickly caught the attention of the outdoor sports industry, whose success relies on providing an exceptional hunting experience for bobwhite quail, turkeys and doves.

Georgia growers annually produce 5 million pen-raised bobwhite quail for release by the recreational wildlife and agri-tourism industries to compensate for the loss in native quail populations due to shrinking habitat and food sources. Bobwhite quail prefer to eat pearl millet over other grains and chick mortality is reduced and chick weight gain increased. In field settings, pearl millet is a preferred habitat cover and it is also used as a supplemental feed to support larger game populations in commercial wildlife areas when food is scarce.



PEARL MILLET FOR THE POULTRY INDUSTRY- Georgia-grown pearl millet may soon displace Midwestern corn and soybeans in the feed that nourishes the state's \$4.8 billion poultry industry. When measured by poultry growth responses and energy costs associated with formulating



rations, pearl millet is superior to corn. Because of the enhanced growth and rapid weight gain provided by pearl millet in broiler rations, substituting 25% pearl millet into broiler diets could save Georgia's poultry industry \$5 million per year in feed costs. Use of locally-grown pearl millet also helps protect the environment. Supplementing rations with locally-grown grain instead of imported corn can reduce the phosphorus which enters Georgia by 8000 tons each year.

PEARL MILLET FOR THE ETHANOL INDUSTRY- The Energy Policy Act of 2005 calls for the U.S. to double its production of ethanol. Pearl millet is compatible in plants configured for corn fermentation and thus the potential for pearl millet as a feedstock for ethanol production is extremely promising. A by-product of ethanol fermentation is the distiller's dried grains with solubles (DDGS) (protein, fat, and fiber) used for animal feed. The greater value of the DDGS from pearl millet results in a higher profitability when ethanol is produced from pearl millet compared to corn. Also, pearl millet takes only 24 hours to ferment in contrast to 36 hours required for corn, resulting in a potential increase in gross returns of 25%.



PEARL MILLET FOR THE PET FOOD AND SPECIALTY GRAINS INDUSTRY- In addition to the recreation, poultry and bioenergy markets, pearl millet is also being used by the pet food industry for dog food and bird seed and in exotic, specialty and organic food grain markets. Growers are not yet able to meet the demand for domestic needs, let alone the requests for exports.



PEARL MILLET POTENTIAL- Pearl millet has great potential for the southeastern U.S. It is well-adapted to the production constraints of the region. Adoption into cropping systems would provide solutions to significant environmental concerns. The grain would contribute to the needs of major industries in the region, and it would contribute to diversifying rural production and economies. However, many obstacles to crop adoption and market expansion exist. INTSORMIL research efforts are addressing these challenges with the goal of increasing profitability of pearl millet production for the grower and value to the consumer.

For further information regarding this article contact:

Jeffrey P. Wilson, USDA-ARS, Crop Genetics & Breeding Research Unit, UGA Coastal Plain Experiment Station, Tifton, GA 31793-0748, Phone: 229-386-3189, Fax: 229-391-3701, E-mail: jwilson@tifton.usda.gov, Website: <http://sacs.cpes.peachnet.edu/cgbr/>