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2007 Annual Report of the Southeastern Pearl Millet Consortium

In This Issue

Southeastern Pearl Millet Consortium Meeting.....	1
Global Markets.....	1
Conservation Tillage.....	2
Not Too Much, Not Too Little (Nitrogen).....	2
Weed Management in Dryland Systems.....	3
Insect Control.....	3
Resisting Grain Molds.....	3
Soil Carbon and Greenhouse Gases.....	4
Production Systems for Organic Poultry Feed.....	4
Making Better Onions.....	4

Southeastern Pearl Millet Consortium Meeting

The 5th annual meeting of the Southeastern Pearl Millet Consortium was held at **Fort Valley State University** on November 16, 2007. **Mark Latimore**, Interim Dean of the College of Agriculture, Home Economics and Allied Programs, opened the meeting presided over by **Surinder Gulia**.

Participants focused on advancing production through improved management and production systems, breeding, and economics. Priorities were identified to target the needs of current and future markets in the wildlife, ethnic food, poultry, and ethanol industries.



New hybrids and a ready poultry market are driving pearl millet production in Brazil. Grain will be hitting export markets in 2008.

Global Markets

Mention “Brazil” and soybeans, beef, and ethanol come to mind. Soon you will have to add pearl millet to that list.

Pearl millet production has been rapidly expanding in Brazil. Marketers have been probing the openness of U.S. markets to a million tons of pearl millet in 2008.

Quarantine restrictions are the only barrier to this influx from Brazil, which is making an early move to capture global export markets for this high-quality grain.

Representatives from industry, extension, education, and research met at **Fort Valley State University** to discuss priorities for meeting the needs of Georgia’s agribusiness.

Conservation Tillage

Conservation tillage has presented challenges to pearl millet production. Effective management practices are being examined by **Dory Franklin**, **Dinku Endale**, and **Harry Schomberg** (USDA-ARS Watkinsville), **Clint Truman** (USDA-ARS Tifton), and **Bryan Maw** (UGA Tifton).

Getting a good stand is key. Seeding rates should be increased over current recommendations. Establishment is improved if the cover crop residue is lighter, and some growers have grazed the cover prior to burn-down. The drill must have adequate weight for good penetration through the residue and into the soil.

The jury is still out on row spacing. Spacing of 14 to 21 inches appears to give better overall results. Lodging can be greater in 7 inch rows, but stands can be more erratic with wider spacing.

Conservation tillage of pearl millet can be successful with careful management. The field of Tifgrain 102 below was sown with 8 lbs seed/acre in 14" rows into rye cover on June 1, 2007. Callisto pre-emerge was applied before rain. The crop was fertilized with 2 tons poultry litter/acre.

Not Too Much - Not Too Little

The cost of nitrogen fertilizer is forcing growers to consider alternative production options. Nitrogen use studies being conducted by **Andrea Maas** (USDA-ARS Tifton) will help develop decision support tools for pearl millet based on nitrogen cost and yield goals.

Within the range of nitrogen levels studied (0 to 160 lbs N/ac), N uptake increased linearly, however this was not necessarily translated to a linear increase in yield.

Pearl millet will generally express the greatest response to N on deep sandy soils with good moisture. A crop grown on heavier soils will probably need less N than current recommendations, particularly under limited moisture situations such as occurred in 2007. Organic matter from cover crops and green manures may reduce the need for large quantities of inorganic N.

Growers must assess their production environments. If they fit into one of the lower N situations they may want to try a lower rate (such as 60 lbs N/ ac) on part of their crop to assess yield performance and cost of production.



For more information on pearl millet production or markets, call the USDA-ARS Crop Genetics and Breeding Research Unit, Tifton GA (229) 386-3353.

Mention of trade names or commercial products in this report is solely for the purpose of providing specific information and does not imply recommendation or endorsement by the U.S. Department of Agriculture.



Weed control by pre-emergence application of Callisto is effective when followed by rain (top) but not effective with 5 weeks of drought after application on dry soil (bottom).

Weed Management in Dryland Systems

A dryland production systems project in Berrien County has discovered a wrinkle in the effectiveness of Callisto (a **Syngenta** product) for grass weed control.

Pre-emergence application of Callisto (3 oz/ac) provides effective weed control when planting and herbicide application is followed a rain (top photo above) but was ineffective when rain did not occur until five weeks after herbicide application (bottom photo above). If irrigation is not available, it is important to delay planting until you are likely to receive rain. Although highly effective for the control of grass weeds, Callisto is not registered for use on pearl millet and is only being used for experimental purposes.

In this project headed by **Tim Strickland** (USDA-ARS Tifton), dryland fields planted with conservation tillage in the 1st week of June after a rain yielded about 1500 lbs / acre in the severe drought of 2007.

Insect Control

Options to manage chinch bugs, corn earworms, sorghum webworm, and stinkbugs are limited at this time. **David Buntin** (UGA Griffin) has determined that cypermethrin is the most effective compound among the labeled products.

Mustang Max (an **FMC** product) and Respect (a **BASF** product) and similar products are labeled for use on pearl millet. These products have a 14 day pre-harvest interval (phi) for grain and stover. When grown for forage grazing there is a 0 day phi.

For other options to manage these pests, see http://www.ent.uga.edu/pmh/Com_Grain_Millet.pdf on the internet

Resisting Grain Molds

Pearl millet is already resistant to pre-harvest aflatoxins and fumonisins. But to further protect the quality of the grain, advanced inbreds were screened for resistance to *Fusarium* grain molds by **Stephen Nutsugah** (Savannah Agricultural Research Institute, Ghana) during a visit to Tifton.

High-yielding experimental inbreds differed in resistance. Grain mold resistance was found in inbreds that also have resistance to leaf blight and chinch bug. Improved grain mold resistance will add value to new hybrids.



Stephen Nutsugah, a researcher from Ghana, visited Tifton to develop grain mold resistance assays in a project funded by USDA-FAS.



Soil Carbon and Greenhouse Gases

The J. Phil Campbell Sr. Natural Resource Conservation Center (USDA-ARS Watkinsville) hosted 40 USDA-ARS scientists and toured the pearl millet hybrid and tillage experiments during the GRACEnet Workshop held October 2-4, 2007.

GRACEnet (Greenhouse gas Reduction through Agricultural Carbon Enhancement network) is a new research program initiated by ARS to identify and develop agricultural strategies that enhance soil carbon sequestration and reduce greenhouse gas emissions.

Research by **Tim Strickland** and **Clint Truman** (USDA-ARS Tifton) have found that levels of soil carbon increase when pearl millet is grown in conservation tillage systems.

The hybrid and tillage experiments at the J. Phil Campbell Sr. Natural Resource Conservation Center in Watkinsville are identifying superior varieties and dryland production practices for the piedmont. Watkinsville is one of five evaluation sites in Georgia.



Tifgrain 102 (a **Plantation Seed Conditioners'** product) and experimental pearl millet hybrids were on display at the **Sunbelt Ag Expo** Field Day in Moultrie on July 10, 2007. Pearl millet cultivation and markets were discussed with 300 agribusiness professionals. Look for expanded trials in the Expo field day on July 15, 2008!

Production Systems for Organic Poultry Feed

The use of synthetic methionine in organic poultry feed is scheduled to be phased out in October 2008. Analyses suggest that pearl millet has methionine levels that can meet dietary requirements.

Craig Kvien, Emily Cantonwine, and Scott Tubbs (UGA Tifton) were awarded a Southern SARE grant to examine organic peanut/pearl millet production. The project "Transition strategies in organic peanut and grain cropping systems" is being conducted with cooperators **Carroll Johnson** and **Jeff Wilson** (USDA-ARS Tifton).

Making Better Onions

Sour skin of Vidalia® onions is caused by a bacterium that lives in the soil, patiently waiting for the next crop of onions.

Ron Gitaitis (UGA Tifton) has found that growing a summer crop of pearl millet before planting onions reduces populations of the bacterium compared to a traditional rotation with corn or a fallow.

Under favorable conditions for disease, the number of onions with sour skin is reduced, and marketable yield increased when onions were double-cropped with pearl millet.