

Pastures of Gold Provide Beauty, Forage

The golden flowers are beautiful, so beautiful in fact that they might distract from perennial peanut's more practical features: it's a high-quality, long-lived legume with little to no need for nitrogen fertilizer.

But University of Florida researchers Ann Blount and Cheryl Mackowiak, being scientists, did what scientists do best. They took a good thing and made it better, following the lead of colleagues Tito French, Gordon Prine and Ken Quesenberry. In 2008, UF/IFAS researchers will be ready to release three new varieties of rhizoma peanut, two for forage and one as an ornamental.

Blount and several colleagues on the Gainesville campus have been working with perennial peanut since the 1970s. When Mackowiak, a soil scientist, arrived at the North Florida Research and Education Center four years ago, she joined the team. The new forages the researchers are getting ready

to release will help farmers diversify their perennial peanut plantings to protect them from diseases. Today, a variety called Florigraze dominates the planted acreage. Perennial peanut is vegetatively propagated, meaning that all the acreage planted in Florigraze is genetically the same. And that means any disease that can damage one plant might damage the entire acreage of plants.

The key to mitigating the problem is broadening the plantings with new varieties for genetic diversity, Blount said.

Perennial peanut is particularly useful in the Southeast, where alfalfa does not thrive. The legume is native to South America and is well adapted to the sandy soils of the southern United States. It is used for hay, pasture, creep grazing, silage, ornamental ground cover, conservation cover and living mulch in citrus groves. In Florida, perennial peanut has a

Forage breeder, Ann Blount (right), shows the above-ground high quality perennial peanut (foreground). Cheryl Mackowiak (left) displays below-ground rhizomes that help carry the plant through short-duration nutrient and water deficits.





unique role because there is no other perennial warm-season legume that rivals its quality, long life and variety of uses.

"This plant is a great fit for Florida," Blount said. "It's the only perennial legume that is truly successful and that really works for our environment."

A plant virus has hurt yields in the past, but the plant has an amazing capacity to recover. Blount and Mackowiak know of some fields that are 20 to 30 years old.

And because perennial peanut is long-lived, it develops a deep and extensive root mass, Mackowiak said. The root system allows perennial peanut to extract moisture and nutrients from an area of soil both deep and wide, enabling it to survive dry spells and grow with less fertilizer. The plant requires no application of nitrogen and, in fact, is good at removing excess nitrogen from soil. Perennial peanut is a particularly good fit for dairy farms using sprayfields because perennial peanut removes excess nitrogen from the soil while providing a high-quality forage.

Perennial peanut's ability to remove nitrogen from soil was what got Mackowiak interested in the plant. Mackowiak had worked at Kennedy Space Center on bioregenerative systems for life support in space. Using plants to recycle nutrients like nitrogen was an important part of her work.

"It seemed smart to look at a plant that didn't require nitrogen fertilization but could take up nitrogen if it was available," Mackowiak said.

The research and extension team also has conducted other tests, studying row spacing and herbicide applications. Once they found the right planting practices and herbicide applications, establishment concerns became less of an issue.

Blount said perennial peanut is still a novel plant with about 25,000 production acres planted in the Southeast. There is a big initial investment before there is economic return due to slow establishment.

But once the fields are established, the economic return is great, and the price of perennial peanut hay has steadily increased. A recent economic report indicated that even at a conservatively low price of \$100 per ton and four tons per acre yield, perennial peanut would net over \$400 per acre, making it more profitable than many other Florida field crops.

The eye-pleasing plant also makes a great ornamental as ground cover because it is drought tolerant and has low fertilization requirements. Its dark green leaves and yellow flowers give it its nickname "pastures of gold."

At a recent field day in North Florida, Mackowiak and Blount showed off perennial peanut, and Blount said many observers were "wowed." As interest increases, the scientists hope research funding does, too.

"Mostly it's been sweat equity," Blount said. "We have a passion for perennial peanut because we know it works. And it's physically beautiful, just beautiful, like a field of gold." ■

