UF UNIVERSITY of FLORIDA
IFAS Extension

Agronomy Notes

Dec 2011 Volume 35:12

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Small Grain Planting Into Pasture or Behind Row Crops

Small grains for grain or grazing can be planted after row crops or into bahia or bermuda grass. However, best yields for forage or grain will be either after row crops where deep tillage (chisel plow) has been done or behind bermuda grass. Small grains planted into bahiagrass are often delayed in producing forage, and yield less grain and forage unless it is turned or chisel plowed which destroys the stand. Most growers will want to use a no-till drill to plant into the perennial grass to keep from destroying the grass for early spring growth. Growers should consider using only the bermuda grass fields to overseed since yields are often doubled over planting into bahia grass pastures. These fields should be grazed heavily by late March so that bermuda grass will resume growing in April.

Wheat yield planted with a no-till drill behind soybean, bahia , and bermuda grass was 36, 21, and 47 bushels/A, respectively, and was increased to 53, 37, and 50 bushels/Aif these fields were chisel plowed prior to planting. This shows that planting small grains no till into bermuda grass for grain without any tillage could be an attractive option with forage yields following the same trend.

Small Grain Germination as Impacted by Days Mixed with Fertilizer

After row crop harvest, many producers mix small grain seed with fertilizer for spreading and harrowing on fields . Sometimes rain events will occur forcing the seed to stay on the spreader trucks for several days while the fields dry out. We looked at impact of several fertilizer materials on wheat, oats and rye in combination with:

1. Ammonium nitrate (34-0-0)
2. Triple superphosphate (0-46-0)
3. Muriate of potash (0-0-60)
4. Homogenized blend (5-10-15)
5. Blend (10-20-30) of urea, triple superphosphate, muriate of potash

Oats were fairly tolerant of all fertilizer materials due to protection by the lemma and palea, which cover the seed, for a period of 2 weeks while wheat and rye are not. Muriate of potash, ammonium nitrate or homogenized fertilized had almost no effect on wheat or oat germination even when kept with fertilizer for 28 days. After 2 days, rye germination dropped lower than for the other two small grains, indicating that more sensitivy to fertilizer material than either oats or wheat. Germination of rye and wheat dropped to near zero when kept in a 0-46-0 fertilizer-seed mixture for 4 days. Small grain may be allowed to be in fertilizer-seed combinations for 24 hour period with little or no detrimental effect on germination. Triple super phosphate (0-46-0) alone and in blends may cause a large reduction in germination of rye and wheat after the initial 24 hour period. Homogenized blends, muriate of potash, and ammonium nitrate had little or no effect on germination of oats or wheat even after 28 days but did decrease germination of rye below the control level. Rye appears to be the most sensitive of the three small grains to mixing with fertilizer. Fertilizer-seed combinations where rye is mixed in should be spread within 24 hours after mixing because of the potential for reduced germination.

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Peanut Seeding

Peanut farmers are looking to maximize yield, grade and profit and often adjust crop inputs to achieve these results. Peanut seed represents about 18% of variable input cost per acre at recommended seeding rates (6 seed per foot of row). Some farmers are reporting that higher seeding rates in twin row patterns can increase yield compared to recommended rates. Reported seeding rates of up to 200 lb per acre (9.6 seeds per foot of row @ 700 seeds/lb) will increase seed cost per acre more than 50%. To determine if increased seeding rates are justified, replicated field studies were set up under dry land and irrigated conditions at the WFREC in Jay, FL to measure yield of peanuts established using increasing seeding rates.

Peanuts (Florida 07) planted at various densities using twin row pattern. Double planting with a 4.5-inch offset using the GreenStar™ guidance and auto-trac feature of the tractor was used to created twin rows.

Peanuts dug at 133 days after planting using the GreenStar™ auto-trac feature.

Peanuts (Florida 07; 699 seeds/lb) were planted using twin row pattern (10 inch twin-row spacing) at 4.81, 6.02, 7.22, 8.42, and 9.63 total seeds per foot of row. Irrigated plots were 4 rows (36 inch) wide by 360 ft long and planted on May 24, 2011. Dry land plots were 4 rows (36 inch) wide and 244 ft long and planted on June 10, 2011. Standard production practices were followed outside of variations in seeding rate. Plant stands were measure two weeks after planting. Irrigated plots were dug at 133 days after planting and dry land plots were dug at 139 days after planting. Plots were harvested and weighed using a modified grain cart.

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Peanut Seeding ...(Continued from previous page)

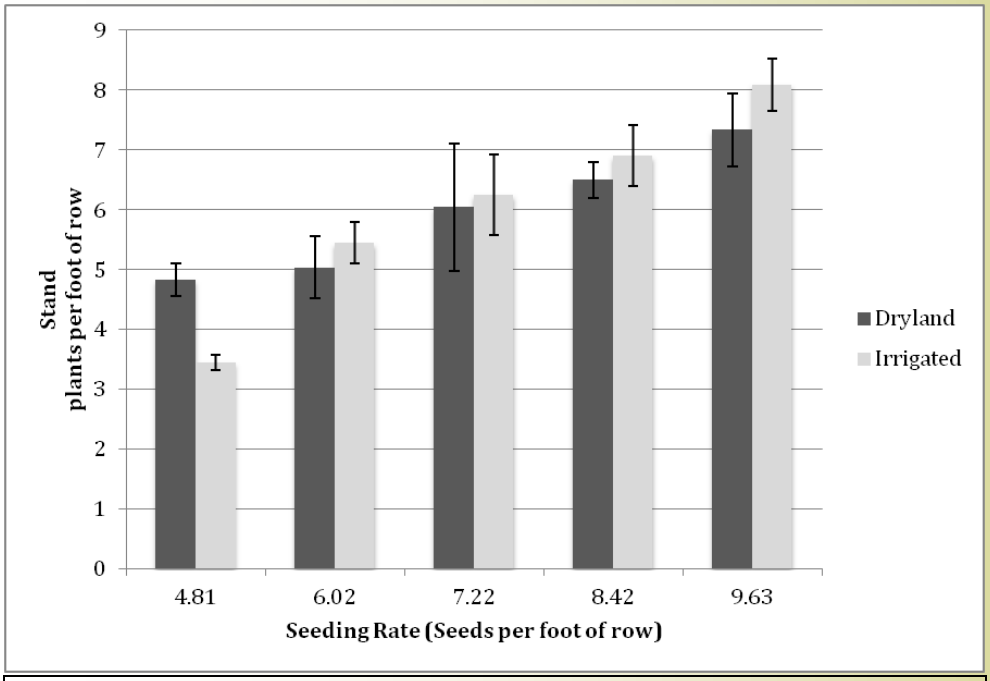

Figure 1. Plant stands for peanuts established using increasing seeding rates. Error bars indicate standard deviation.

Results indicate that increasing seeding rates increased plant populations up to 8.1 plants per foot of row (Figure 1).

However, higher plant populations did not increase yields (Figure 2.) In fact, yield from the lowest seeding rate was not significantly different from the any of the seeding rates tested. Yield for irrigated peanuts were greater than dry land peanuts, but seeding rate had no effect on yield. Given these results, it is not recommended to increase seeding rates above 6 seeds per foot of row. The increase in seeding cost is unlikely to be recovered with higher yields.

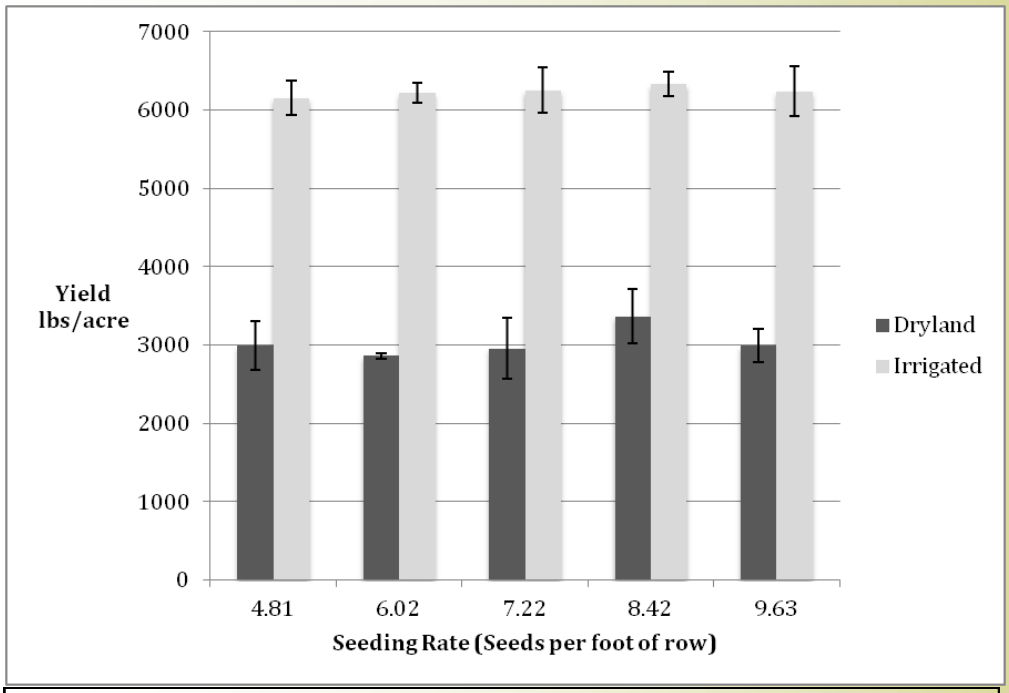

Figure 2. Yield for peanuts established using increasing seeding rates. Error bars indicate standard deviation .

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Managing Ryegrass Stands

Seedlings of annual ryegrass have the greatest rate of growth among cultivated cool-season grasses but growth and development of these seedlings will vary depending on environment conditions and management practices. Knowing growth temperature, moisture, stubble height, and nutrition requirements of annual ryegrass helps implementing sound management practices.

Be familiar with the daily temperature requirements. Growth rate of annual ryegrass peaks approximately at 64 to 70°F average daily air temperatures. While growth is optimum at these cool temperatures, growth is restricted when temperatures drop to 40°F or near freezing. If temperatures turn too warm (sustained over 75°F), ryegrass will be affected by fungal diseases just like in late spring. However, if cool temperatures resume as is usually the case, in many situations re-growth will occur. Using daily temperature should be the guide to planting and fertilization. If under a warm spell, suspend N fertilization, as it will tend to fuel presence of foliar fungal diseases.

Be familiar with moisture and nutrient needs. Annual ryegrass has a high requirement for soil moisture. It is adapted to poorly drained soils because of the adventitious roots that are on or near the soil surface. In terms of soil nutrients, N is usually the most limiting affecting ryegrass growth and yield. Because of the good response to N fertilization, pH of soils for ryegrass production should be kept above 5.5. If overseeded, N application should be delayed after first frost to prevent N uptake by the warm-season grass. Nitrogen should be applied at 50 lb/acre after seedling emergence, and once or twice after that depending on growing conditions. All other nutrients should be applied according to soil test recommendations.

Be familiar with the height requirement before utilization. Annual ryegrass is tolerant of frequent and intense harvesting or grazing defoliation. Utilization can start when plant growth is around 6 to 8 inches. Optimum cutting stubble height is 2-3 inches. However, cutting or grazing ryegrass below 2 inches results in stand loss and slow re-growth. High yields are usually obtained when harvesting at 3 inches every four weeks. If grazing, stubble height should be kept at 3 to 4 inches, and a 3 to 4 week rest period under rotational stocking allows for a higher stocking rate.

Under proper growing environment conditions and management high production should be expected.

Ryegrass production under prepared seedbed.

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The changing herbicide landscape

Each year herbicide manufactures make changes to their product portfolios. Below are a few of the changes with which we should become familiar.

Velpar ULW. This is a pelleted formulation of hexazinone that has been traditionally been used in site preparation procedures for pine planting. Although this product has been used for many years, DuPont has decided to discontinue production of this particular formulation. If using hexazinone in pine production is desirable, Velpar L and Velpar DF are available for use.

GrazonNext HL. Dow AgroSciences has recently changed the formulation of GrazonNext to GrazonNext HL by adding more active ingredient per gallon of product. In this case, HL stands for "high-load" or a more concentrated product. In doing this, the rate structure per acre has changed. We have tested this formulation and it appears to provide identical levels of weed control compared to the traditional GrazonNext formulation. Below is a brief chart outlining the new rate structures and other important information.

	GrazonNext	GrazonNext HL
Formulation	0.33 lb/gal aminopyralid + 2.67 lb/gal 2,4-D amine	0.41 lb/gal aminopyralid + 3.33 lb/gal 2,4-D amine
Use rates	1.5-2.6 pt/A	1.2-2.1 pt/A
Standard rate	2 pt/A	1.5 pt/A
Max rate	2.6 pt/A/yr	2.1 pt/A/yr
PPE		Same as GrazonNext + chemical resistant apron when mixing
Restrictions	7 d for haying; 0 d for grazing	Same

Pasturegard HL. Pasturegard has also been fortified to a "high-load" formulation.

	PastureGard	PastureGard HL
Formulation	1.5 lb/gal triclopyr + 0.5 lb/gal fluroxypyr	3 lb/gal triclopyr + 1 lb/gal fluroxypyr
Use rates		
Standard rate	3-4 pt/A	1.5-2 pt/A
Max rate	4 qt/A/yr	2 qt/A/yr
PPE		Same as Pasturegard, except goggles are no longer required
Restrictions	Haying 14 days; 0 days grazing for non-dairy animals.	Same

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Weed Science

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The changing herbicide landscape (cont....)

Gramoxone SL. Syngenta has recently changed their formulation to improve some of the spray characteristics. Beyond this, few changes are noted. Application rates, PPE requirements, etc. exactly the same as Gramoxone Inteon.

MSMA. EPA has determined to phase-out MSMA usage by 2013. Below are a few important issues to consider.
Turf
As of December 31, 2010, the only legal use for MSMA is for cotton. Existing stocks can be applied to turf (in accordance with the label), but no new product can be purchased for turf use in Florida.
Cotton
Use in Florida is restricted to specific counties that are listed on the product label.
One application of 2.6 pt/A is permitted for cotton that is 3" until first bloom. No applications after first bloom are allowed.
A second application of 2.6 pt/A is only permitted if pigweed escaped the initial application.
On December 31, 2013, the use of MSMA in cotton will likely expire.

Outrider. Monsanto has expanded, through supplemental labeling, the use of Outrider herbicide. Previously, it could only be applied in established bermudagrass and bahiagrass. As with the new labels, it can now be applied to established limpograss (*Hemarthria*) and stargrass. It can also be used as a rescue treatment while establishing bermudagrass, limpograss and stargrass as long as it has been planted for 30 days. The standard use rate is 1.33 oz/A.

Forages

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Overseeding and Grass Competition

During years with mild winters (as 2011-2012 is projected to be), there tends to be concern about the competition that cool-season grasses place on warm-season grasses. If the winter is mild or if the onset of spring comes prematurely, it will be necessary to eliminate the shade generated by the cool-season grasses by maintaining a low stubble height. Keeping stubble short will allow the light to penetrate the bottom of the canopy and also help the rhizomes underground that are being triggered by warm conditions to emerge and capture the needed light for photosynthesis and growth. Just a few weeks of total shade is sufficient to kill the grass underneath.

Remove the grass competition early (late February or early March if in central Florida) by keeping a low stubble height and mowing or grazing frequently. Totally removing the cool-season grass by chemical means while bermudagrass is still dormant is most effective for regrowth of the bermudagrass. In this case, the entire cool-season plant is killed, which eliminates the competition for soil and water nutrients. Mowing or grazing the grass short will also work but will slow bermudagrass regrowth because ryegrass will keep growing back and using water and nutrient sources.

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Pre-emergence Application of Pendimethalin in Sugarcane

Pendimethalin is a dinitroaniline ("yellows') herbicide used for selective control of grass weeds including goosegrass and Panicum *spp.* in sugarcane in the Everglades Agricultural Area (EAA). Pendimethalin is used by many EAA sugarcane growers during the planting and harvesting season from mid-October as a preemergence herbicide.

Pendimethalin can be applied preemergence through layby in plant or stubble cane at 4.2 to 8.4 and 4.8 to 9.7 pints per acre for the water- (Prowl H2O) and oil-based (Prowl 3.3 EC and others) formulations, respectively. Pendimethalin has low water solubility and will strongly adsorb to organic matter, thus not readily leached or moved in water. The water-based formulation unlike the oil-based formulation offers exceptional convenience and crop safety benefits, including no odor, reduced staining, greater storage temperature flexibility, and a slightly lower use rate.

Preemergence application of prowl in plant cane *Photo by D. Calvin Odero .*

Pendimethalin is subject to moderate vaporization and photodecomposition. Soil incorporation by mechanical incorporation or activation by rainfall is usually required to prevent losses and increase effectiveness of this herbicide within 7 days after application. However, the water-based formulation does not necessarily require incorporation like the oil-based formulation which is of benefit to sugarcane growers in the EAA.

Injury symptoms from pendimethalin application will include short swollen coleoptiles in grasses and swollen hypocotyls in broadleaf plants. Both grasses and broadleaves may have short, stubby, secondary roots from pendimethalin injury especially when application is misplaced. To save on application cost and improve on weed control efficacy, pendimethalin can be tank-mixed with either atrazine (Aatrex and others) or metribuzin (Dimetric and others), ametryn (Evik), and 2,4-D amine.

Pesticides

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Pesticide Certification Training Available in Spanish

A significant portion of those aspiring to become certified and licensed private applicators of restricted use pesticides are not fluent in English. The Hispanic audience needing training to prepare for certification exams has historically been difficult to reach because of the language barrier. A few UF/IFAS county extension agents are fluent in Spanish and have successfully conducted face-to-face educational programming targeting the Hispanic audience. Many in this audience desire to become Private Applicators of restricted use pesticides. Private Applicators are licensed to apply restricted use pesticides by ground application for the purpose of producing an agricultural commodity on property owned or rented by the applicator or the applicator's employer.

Written and multimedia resources available in Spanish have been a long-time void of the UF/IFAS Pesticide Safety and Education Program. Recently, Cesar Asuaje (UF/IFAS Regional Extension Agent - Palm Beach County) prepared and made publicly-available several multimedia presentations targeting the Hispanic audience to assist them in preparing for pesticide applicator certification exams. Those who wish to become certified as Private Applicators must successfully pass 2 exams – the CORE and Private Applicator. The two presentations that are currently available, CORE and Private Applicator, present the material that these exams are based upon.

The presentations are free for public access via the Palm Beach County Website at http://www.pbcgov.com/coextension/. Upon entering the site, select "Agriculture" from under the "Cooperative Extension" tab. Then select "Hispanic Training" from under the "Agriculture Extension" tab. Next, select "Pesticide Certification." Look for "General Standard (CORE)" and "Private Applicator" beneath the heading, "Training Programs." Also available on this page is a very useful English – Hispanic translational glossary of terms used in the training.

Although EPA and FDACS approve training in languages other than English, all exams are mandatorily administered in English only.

Calendar of Events

To follow the link, press "Ctrl" and put cursor over link, and "click."

Dec. 5 **2011 Basic Meat Goat Production**. Gainesville, FL. For registration, contact 352-955-2402

Jan. 9-11 **2012 American Forage and Grassland Council (AFGC).** Louisville, KY
http://www.afgc.org/events.html

Feb. 5-7 **American Society of Agronomy—Southern branch.** Birmingham, AL
https://www.agronomy.org/membership/branches/southern

Feb. 29 **The second Generation (G2) of Best Management Practices (BMPs) for Crop Production.** Apopka, Fl. For information, contact 352-273-4814