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IFAS Extension

Agronomy Notes

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Contestant in the Florida State Fair in Tampa.

Photo by Tyler Jones, UF IFAS Communications

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Forage

Weed Control

Miscellaneous

Pasture Management: Getting the Most for the Least

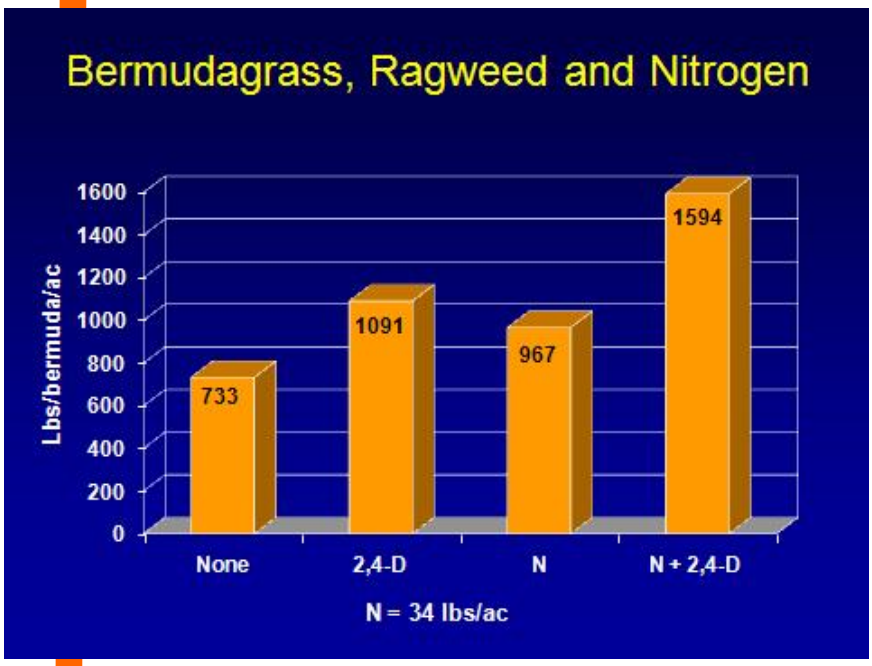
Agriculture commodity pricing has been on a rollercoaster for the last two years. Crop prices have achieved record high levels and acreage has soared. To counter the increased demand, fertilizer prices have doubled at least twice along with fuel prices. Not a big deal when growing $5 per bushel, but this dramatically impacts the cattle producer since beef prices have hardly moved.

So how can we manage pastures to maximize productivity while minimizing cost?

Essentially, we have five options:

1. Spray herbicides
2. Fertilize
3. Spray and fertilize
4. Mow
5. Do nothing

Let's examine the cost benefit of each of these options.



The chart (figure 1) shows that spraying 2,4-D (1 qt/A) or applying 34 lb of nitrogen will increase grass yield by 230 to 350 pounds per acre. Applying nitrogen and herbicide together more than doubles grass production. However, if fertilizing and spraying is too expensive, which should we chose? Depending on what source of fertilizer is used, 34 lb of nitrogen can cost between $20 and $40/A. On the other hand, a herbicide plus application cost will run between $8 and $25/A, depending on which herbicide and application rate is used. Considering that either of these will improve grass yield, a herbicide application is likely to be the most cost effective.

Obviously we know that pastures will need fertilizer and lime to continue productive growth. So when do we do it? Weed control in pastures will generally not be required every year. So, clean up the weeds in year 1 and plan to start on a fertility program in years 2 and 3. This process will increase the competitiveness of the grass and, in turn, suppress weed growth. A healthy pasture is the best form of weed control. But we must remove the weeds present before this process can occur.

Mowing is another technique commonly used by pasture managers. Depending on equipment size and driver skill, mowing can cost between $8 and $15/A. Is this money well spent? Figure 2 indicates that mowing will generally not result in improved grass production. This is because mowing rarely kills weeds, but rather just sets them back and delays their regrowth. Therefore, mowing can cost almost as much as a herbicide application, but may not provide any weed control or improved grass production. With mowing it is important to remember that fuel no longer cost $0.75/gal. At one time mowing was very inexpensive and any benefit from it was gain. But, we simply don't have the luxury of performing cheap mowing anymore.

Lastly, we can always choose to do nothing and let the grass and weeds compete.

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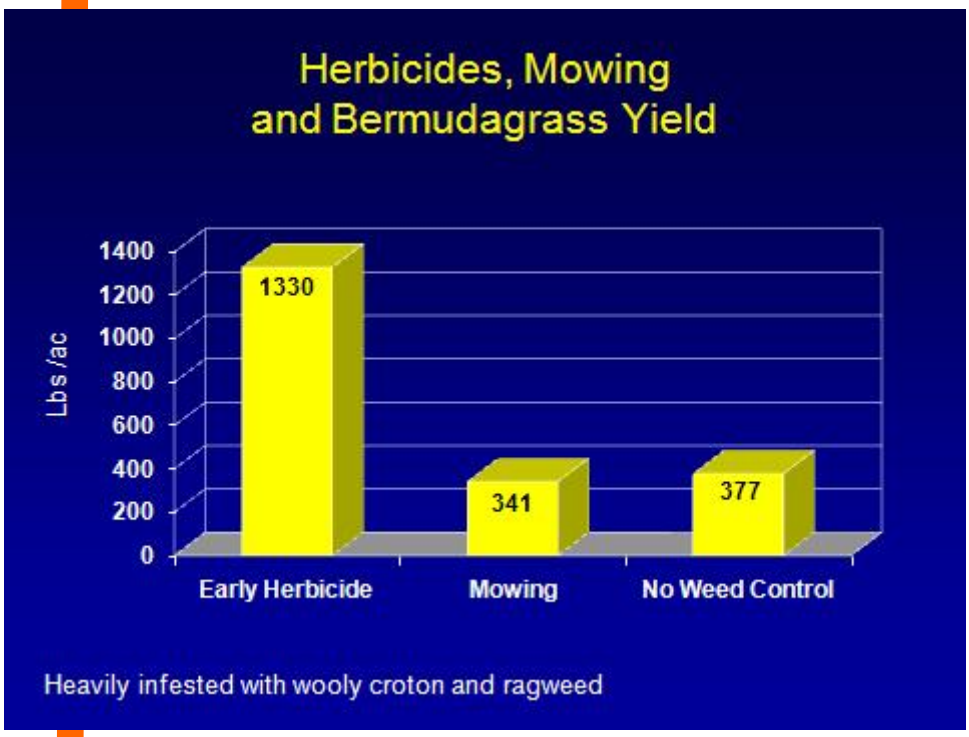
Pasture Management: Getting the Most for the Least continued…

Like all ventures, low investment generally provides low return. This method can be profitable for producers that use very low stocking rates. But, normal herds will be hurt by this process and weight gain will be slow and body condition will suffer. With marginal investments, the amount of additional weight gain the animals will achieve can easily pay for itself.

We are all aware that the best way to maximize grass production and cattle performance is to manage our pastures with proper fertility, mowing, and herbicide applications. But, if performing all these simultaneously is not affordable, we must choose a strategy to maximize our resources. It is likely that herbicide use is the most cost effective way to initially improve grass production. After weeds are controlled, a good fertility program will be needed. Lastly, large scale mowing will generally cost more than it returns. It may be necessary to limit mowing and reinvest the savings in other areas. The chart on the previous page (Figure 1) shows the Influence of herbicide (1 qt/A 2,4-D), nitrogen (34 lb/A of N), and herbicide plus nitrogen fertility on grass growth on a field infested with ragweed.



This chart above (Figure 2) shows the influence of herbicide application and mowing on grass growth on a field infested with ragweed and wooly croton.

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Good Bahiagrass Seed for Pastures

Seedbed preparation and fertilizer cost are too high to afford planting poor seed.

If you are planting seed that is not tested you don't have any means of knowing how much 'quality seed' you are getting. Seed quality information usually comes on a tag attached to the seed bag.

There are two things you need to pay attention when buying seed: the purity of your seed and the germination. The first one refers to how clean is your seed, or stated differently, how much seed of the pasture species you want is there. The second one tells you how many seeds will sprout given optimal growing conditions. Acceptable ranges for bahiagrass germination are 50 to 60% for Pensacola, 60 to 70% for Tifton 9, and 85 to 90% for Argentine.

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Split Applications of Nitrogen (N) on Wheat

Normally N is applied to wheat in the first half of February. However, on very sandy soils, N may be split into two applications. If this is the case, the second application of N should be applied in early March along with sulfur. Sulfur is critical on sandy sites and will result in higher yields if it had been a limiting factor. A total of 30-35 lbs/A of S is usually adequate and is less necessary on heavy soils that have a clay layer near the surface. March is usually too late to consider week control since most adapted wheat varieties will be headed out in late March or early April.

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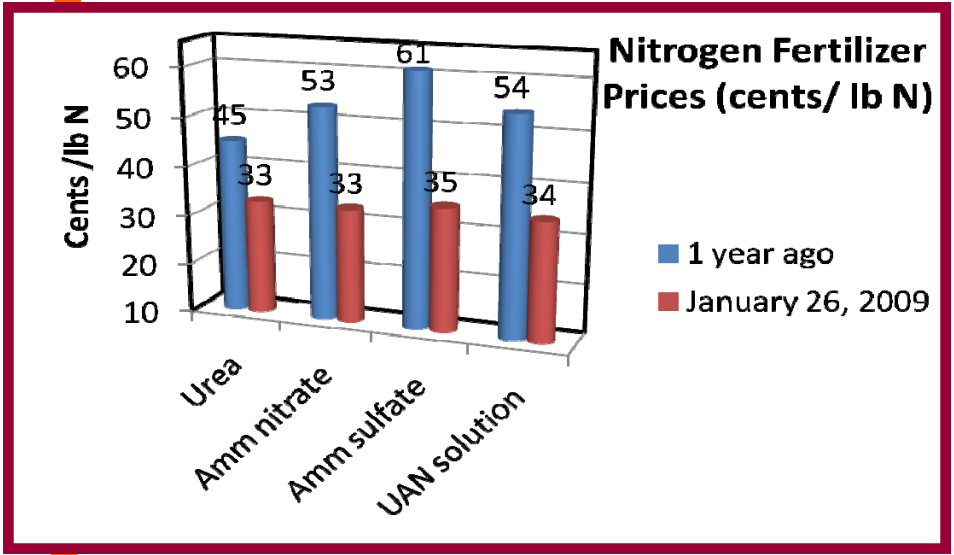
Can I Afford to Nitrogen Fertilize Pastures?

Yes, but you need to know how much to apply and when to apply it as the grass is growing.

In the first weeks after planting your pastures, the grass roots are just coming out, and the root system is not fully developed. Only a moderate amount of N is needed at this time (no more than 25-30 lb N/acre but not less as you may not be supplying enough, and applying too little might be worst than applying none as you have to pay for it). A rule of thumb is to apply 30-30-30 lb (N-P2)5-K20) one week and no later than10 days after planting bermudagrass tops. Make sure you have a good weed control program in place to avoid use of fertilizer by weeds. When your plants are grown and have a full root system you can add more fertilizer. Putting the smaller amount at planting and a larger dose later in the summer will maximize yield and efficiency.

If deciding to fertilize an established stand and can only afford to do 1 application, the target is to do that application when you are more likely to get a response. Too early in the spring or late in summer are not good options because these are the tails of the growing season; a time when warm-season perennials are less productive because of shorter daylength and cooler temperatures.



Test your soil (and plant tissue if dealing with an established stand) to make sure that all your other nutrients are available as plants work best and more efficient (more grass for your fertilizer buck) under balanced nutrition.

With the current upward trends of N fertilizer prices and the prospects of N fertilizer options narrowing, the future of N supply may be dominated by the cheaper urea.

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Management of Crops in a La Nina Year

Historic records show that weather conditions in late winter and spring will be dry in a La Nina year. Management of crops will change on non irrigated sites with that in mind. Soybean, cotton and peanut should be planted earlier since it is often difficult to get stands until summer rains begin in late June and July—a time period that is too late for optimum yields on these crops. If the fields have winter cover crops, these crops should be killed 5 weeks ahead of planting, or more if possible, to conserve moisture for the following crop emergence and growth. Dry-land corn should be planted later since it normally goes through pollination in mid May which is usually a dry month and you need to have adequate moisture during this critical period for corn. With irrigation, these guidelines are not as important since water can be applied to get fast and uniform emergence.

Dr. David Wright, Extension Agronomist

Critical Water Use Times for Crops

Soil moisture monitoring is important for top yields of crops. Recent UGA data compares moisture equipment to visual estimates. When moisture equipment indicated that corn needed to be watered irrigation was delayed one, two, and three days each time it called for irrigation. Yield was reduced by less than 5% with a one day delay, almost 10% by two days delay and by almost 20% with a three day delay. This will take a 200 bu/A yield potential down to a 160 bu/A crop.

Corn is the most susceptible to water stress of the row crops since it has a 10 day period during pollination that has to be low stress (usually mid-May a typically dry time). However, corn requires good moisture during the ear fill period of June and early July to make high yields.

Soybean is very susceptible to damaging nematodes levels and needs water during pod fill which is late August and September for MG V and September and October for MG VI-VIII. MG V soybeans normally do better when planted timely with normal summer rainfall patterns but can vary with time of tropical storms.

Cotton blooms over 8 weeks and can set most of the fruit or yield in the first 3-4 weeks and requires most moisture during bloom time of July and August.

Peanut has a long bloom period and can produce a crop over a long period after long periods of stress as can cotton and does best on sandy soils. July and August are usually most critical for high yields of peanut.

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Organic Arsenicals Agreement

EPA has reached an agreement in principle with the major manufacturers of the organic arsenicals MSMA, DSMA, CAMA, and cacodylic acid and its sodium salt. This voluntary agreement steadily removes all organic arsenical pesticide uses, except the use of MSMA on cotton, from the market and implements new restrictions to better protect drinking water resources. Phasing out these uses is expected to accelerate the transition to new, lower risk herbicides.

Under the agreement, many uses, including use on residential lawns, will be canceled by the end of this year. For products used on cotton and products phased out after 2009, new use restrictions and mitigation measures will be added to increase protections to water resources. Mitigation measures in the near and upcoming future include:

By mid-March, the registrants must submit voluntary cancellation requests for all uses, other than the use of MSMA on cotton.

By the end of 2009, many existing uses will be phased out and canceled including use on residential lawns, forestry, non-bearing fruit and nut trees, and citrus orchards.

Over the next 4 years, uses on golf courses, sod farms, and highway rights-of-way will be phased out, promoting transition to alternatives.

In the Agency's 2006 Re-registration Eligibility Decision (RED), EPA concluded that all uses of the organic arsenicals were ineligible for re-registration. Following application, these pesticides convert over time to a more toxic form in soil, inorganic arsenic, and potentially contaminate drinking water through soil runoff. At that time, EPA believed that inorganic arsenic also could enter the human food supply through the meat and milk of animals fed cotton by-products treated with MSMA. In completing the RED, EPA determined that the aggregate dietary risks from food and drinking water combined did not meet the food safety standard.

During the last two years, stakeholders have submitted additional data indicating that no residues of inorganic arsenic are likely to remain in the meat and milk of animals fed cotton by-products that have been grown in fields treated with MSMA, or in food crops that are rotated with cotton that has been treated with MSMA. Cotton growers also have documented the increasing spread of Palmer amaranth or pigweed, a glyphosate-resistant and economically significant pest, which only MSMA controls at present.

In light of this new information, the agreement allows for re-registration of MSMA use on cotton, contingent on the development of confirmatory data. If these data are not submitted by the August 2010 due date, or if they do not confirm the current scientific understanding, EPA will proceed to cancel the cotton use. The Agency is also rescheduling the Registration Review of MSMA to begin in 2013. At that time, MSMA's risks and benefits will be reevaluated considering any new toxicity information and the availability of new, lower-risk herbicides that should be entering the market.

EPA will amend the 2006 Organic Arsenicals RED to reflect the provisions of the agreement. Public comment opportunities will be provided when the Agency publishes Federal Register notices announcing its receipt of registrants requests for voluntarily cancellation of uses.

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Minimize Nutrient Use by Placement

With fertilizer prices at or near an all time high, growers are looking for ways to minimize fertilizer usage while not impacting yield. Fertilizer rates can be minimized by placement of needed nutrients in the row. Most soil test recommendations are based on broadcast rates of application. Our research would indicate that P can be cut in half and K by 1/3 if applied in row vs. broadcast applications without loss of yield and there may be a yield increase in dry years if irrigation is not available. This cuts could result in significant savings while requiring more time and labor. For many years fertilizer was cheap enough that higher rates could be applied without having to watch for one more thing during the planting operation.

Dr. David Wright, Extension Agronomist

Crop Response to Rotation

All crops benefit from proper crop rotations by having higher yields and requiring less pesticide use and often less inputs. Some growers have few options in their area on what crops can be handled by local infrastructure resulting in growing the same crop in the same fields too often. Poor rotations results in higher input prices and marginal yields for profitability of the operation.

Response to rotation from most to least responsive:

Soybean ~ Peanut ~ Corn ~ Cotton

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Good rotations lead to:

Full use of Water and Nutrients

Less Nematode, and Disease Pressure and Pesticide Use

Enhanced Yield and often Quality of Rotation Crops in Rotation

Calendar, Field Day & other Resources

March 12-15	**Maize Genetics Conference**, St. Charles, IL
March 20-21	**UF Bee College**, St. Augustine, FL Featuring over 40 lectures and workshops on honey bees and beekeeping. www.UFhoneybee.com
April 4	**Performance Horse Short Course**, Okeechobee Agri-Civic Center For those who use their horse for ranch work or competitive events. 8:30am - 3:00pm. (863) 674-4092 or horse1@ufl.edu
April 16	**Cattle and Forage Field Day,** Ona, FL UF Range Cattle REC, 863-735-1314, ext. 201
May 4-7	**UF Aquatic Weed Control Short Course**, Coral Springs, FL
June 5-9	**American Society for Reproductive Immunology,** Orlando, FL
July 20-24	**National Conference on Ecosystem Restoration** (NCER) Los Angeles, CA