UF UNIVERSITY of FLORIDA
IFAS Extension

Agronomy Notes

July 2011 Volume 35:7

Features:

Crops:

Forage:

Weeds and Pesticides:

Miscellaneous:

"Agronomy Notes" is prepared by: Maria Gallo, Chair and Y. Newman, Extension Forage Specialist (ycnew@ufl.edu); J. Bennett, Crop Physiology (jmbt@ufl.edu); F. Fishel, Pesticide Information Officer (weeddr@ufl.edu); D.C. Odero, Extension Weed Specialist (dcodero@ufl.edu); D. Wright, Extension Agronomist (wright@ufl.edu).

Dr. David Wright, Extension Agronomist

North Florida REC, Quincy wright@ufl.edu

Irrigating Corn with Limited Water Supplies

With corn prices at near all-time highs growers planted more corn in 2011. Many fields are non-irrigated while others have limited water supplies from ponds or wells that cannot keep up with demands. In general corn requires about 22 inches or water to make a crop from planting until harvest. The most critical period is during the 10 days of pollination. For those who have only 3-4 inches of water for the entire crops, water should be applied at the start of silk and tassel followed by an application in 4-5 days later followed by the 3rd application 5-6 days later. If there is adequate water for another application, it can be made about 7 days later. Corn needs about a third of an inch of water per day during the silk ear fill period if adequate water is available for top yields.

Non irrigated corn that is past silking and tassel period under severe drought stress.

Photo: David Wright

Dr. David Wright, Extension Agronomist

North Florida REC, Quincy wright@ufl.edu

Drought and Planting Date

Due to the drought that we have experienced this year many people have lost non irrigated corn crops and July is too late for peanut and cotton. However soybeans may still be planted in July if drilled and irrigated. Yields can be very satisfactory for MG V-VIII for planting through the month of July into the first 10 days of August. Many of these corn fields will still have residual fertilizer from the corn. Corn may be planted as a second crop for grain or silage if a Bt hybrid is used that has good disease resistance. The latest planting date for corn should be July 15-20 to make satisfactory yields.

Cotton Stands

Growers have had a tough season to get a stand of cotton and had added weed control issues due to the drought. Many growers have had stand problems due to dry soil conditions and herbicides splashing on young cotton seedlings along with heavy thrips feeding. Most growers elected to go with the current cotton stands even if it were less than satisfactory due to the uncertainty of getting any rains before it was too late to plant again. The last date that we recommend planting in Florida is the third week of June even though cotton can be planted in July in the Deep South and still grows and fruits well but will not open normally in most years due to cool weather and frosts. Up to this point growers have faced more weather challenges than in most years. Cotton is a southern crop and will withstand high levels of stress and still has the potential to produce good yields if we have good weather conditions in July and August. The new cotton varieties that have replaced DP&L 55 will be severely tested this year.

Cotton under severe drought stress with poor stands and weed control .

Photo by David Wright

Dr. Yoana Newman, Extension Forage Specialist
ycnew@ufl.edu
Les Harrison, Leon Co. Extension Agent
harrisog@ufl.edu

Budgets for Pasture Establishment

The budgets presented in the next two pages are offered to assist in the making of a rational decision when establishing a pasture or paddock in Florida. They should be used as a guide to assessing the expenses of establishing a seeded type pasture like bahiagrass or seeded bermudagrass versus vegetatively propagated hybrid bermudagrasses such as Tifton 85, Jiggs, or Tifton 44. For production, adaptation, and quality comparisons, the reader is referred to the Forages of Florida website where a description of the different grasses is provided (http://agronomy.ifas.ufl.edu/ForagesofFlorida/index.php)

The use of the budgets presented is a starting point for the development of a value analysis. This application should lead the user to an economic conclusion and a business choice as it relates to his or her farming enterprise. After due diligence, the user may decide to pursue pasture establishment if the anticipated returns sufficiently outweigh the forecast expenses. Conversely, the user may decide it is not efficient to proceed, and either rent a pasture and/or purchase forage for their livestock.

The Cost Presented Here: The user should recognize the input cost provided here are static statewide composite figures and may be different from what is encountered locally depending on a variety of factors. Those factors include time of year, location within Florida, market dynamics which can raise or lower cost by changing demand and\or supply, a weather event, modification of the regulatory environment, plus other variables, or some combination of any or all of the aforementioned. The prices in the following tables were representative data in February 2011

See next page for budget tables

Dr. Yoana Newman, Extension Forage Specialist
ycnew@ufl.edu
Les Harrison, Leon Co. Extension Agent
harrisog@ufl.edu

Budgets for Pasture Establishment: (continued from page 4)

Table 1. Establishment Costs per Acre (Bahiagrass) – 2011 †

Concept	Unit	Quantity	Unit Price ($)	Total
A. Operating Costs				
Soil Preparation				
Plowing	Passes	1.00	2.60	2.60
Disking	Passes	2.00	3.30	6.60
Planting and Fertlization ‡				
Seed (early spring-middle Aug)	Lbs	20.00	2.70	54.00
Planter	Passes	1.00	1.76	1.76
Cultipacking	Passes	1.00	1.53	1.53
Nitrogen (7-10 days AP)	Lbs	30.00	0.40	12.00
Nitrogen (30 days AP)	Lbs	50.00	0.40	20.00
P2O5 (low - soil test) (7-10 days AP)	Lbs	25.00	0.33	8.25
K2O (low - soil test) (7-10 days AP)	Lbs	25.00	0.23	5.75
K2O (low - soil test) (30 days AP)	Lbs	25.00	0.23	5.75
Micronutrients*	Lbs	6.15	7.50	46.12
Lime (2 ton per acre every 2 yr)	ton	1.00	28.00	28.00
Weed Control				
Mowing (planting to 6 ")**	Passes	2.00	2.20	4.40
Herbicide after 6"	Gals	0.25	7.00	1.75
Labor	hr	2.00	9.79	19.58
Interest (operating cost)	$	191.48	0.09	18.92
Total Operating Costs				**238.01**
B. Ownership Costs				
Tractor & Machinery (depreciation, insurance, taxes)	Acre	1.00	26.38	26.38
Land charge	Acre	1	***19.50	19.50
Miscellaneous Overhead (10% of total operating costs)	$	229.071	10.00%	22.91
Total Ownership Costs				**68.79**
C. Total Costs (A + B) (Bahiagrass Establishment per Acre)				**305.80**

† This budget is for planning purposes only.
‡ Fertilization and liming should be based on a soil test.
* Includes 1.5 lb each of elemental Zn, Mn, Cu, & Fe from a sulfate source, 0.15 lb B & 5 lb S per acre.
** 2 times - to control weeds; weeds are mowed at 6-8" height back to 2" height.
*** 2009 unimproved pasture average http://edis.ifas.ufl.edu/fe833

Dr. Yoana Newman, Extension Forage Specialist
ycnew@ufl.edu
Les Harrison, Leon Co. Extension Agent
harrisog@ufl.edu

Budgets for Pasture Establishment: (continued from page 4)

Table 2. Establishment Cost per Acre (Tifton 85 Bermudagrass) 2011 †

Concept	Unit	Quantity	Unit Price	Total
A. Operating Costs				
Soil Preparation				
Plowing	Passes	1.00	2.60	2.60
Disking	Passes	2.00	3.30	6.60
Planting and Fertilization ‡				
Sprigging (includes seeding material, 30 bu/acre)	Acre	1.00	160.00	160.00
Nitrogen (7-10 days AP)	Lbs	30.00	0.40	12.00
Nitrogen (30 days AP)	Lbs	50.00	0.40	20.00
P2O5 (low - soil test) (7-10 days AP)	Lbs	25.00	0.33	8.25
K2O (low - soil test) (7-10 days AP)	Lbs	25.00	0.23	5.75
K2O (low - soil test) (30 days AP)	Lbs	25.00	0.23	5.75
Micronutrients*	Lbs	6.15	7.50	46.12
Lime (1 ton per acre/yr)	Ton	1.00	28.00	28.00
Weed Control**				
Herbicide 7 days after sprigging	Gal	0.25	30.00	7.50
Labor	hr	2.00	9.79	19.58
Interest (operating cost)	$	378.82	0.09	34.09
Total Operating Costs				**366.24**
B. Ownership Costs				
Tractor-Machinery (depreciation, insurance, taxes)	Acre	1.00	32.50	32.50
Land charge	Acre	1	***19.50	19.50
Miscellaneous Overhead (10% of total operating costs)	$	413.99	10.00%	41.40
Total Ownership Costs				**93.40**
C. Total Costs (A + B) (T-85 Bermudagrass Establishment per Acre)				**438.40**

† This budget is for planning purposes only.

‡ Fertilization and liming should be based on a soil test.

* Includes 1.5 lb each of elemental Zn, Mn, Cu, & Fe from a sulfate source, 0.15 lb B & 5 lb S per acre

** Herbicide is 2,4 D plus dicamba at a rate of 2 pt/acre .

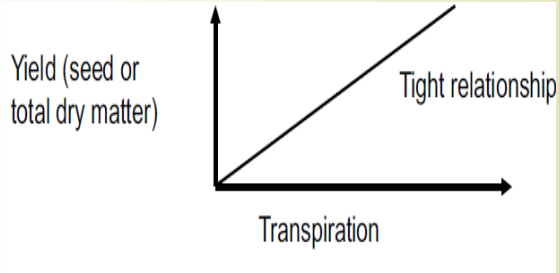
***2009 unimproved pasture average http://edis.ifas.ufl.edu/fe833

Dr. Jerry Bennett, Crop Physiology
jmbt@ufl.edu

Crop Varieties and Water Use

Why can't crop varieties be developed that produce the same yields but with the requirement of much less water?

Stimulated by extended droughts like we have experienced this spring and early summer discussions sometime turn to why we can't develop new varieties of crops that produce high biomass (yields) with less water use (transpiration). While many advances have been made in producing new crop varieties with improved characteristics, research has not been very successful in breeding new varieties of crops for high biomass production with significantly reduced water use. Many years of research have shown that, for a specific geographical location, water lost from a crop through transpiration is directly, and linearly, related to the amount of crop biomass produced, as shown below:



The scientific literature is filled with examples showing this very tight linear relationship, at least for the highly productive crops, such as the agronomic crops. (Just a note: the slope of the line is significantly affected by dryness of the air and will be different in arid and humid environments.)

So, why are water use and yield so tightly linked? The reasons are actually quite simple. Both the loss of water out of leaves (transpiration) and the movement of carbon dioxide (necessary for photosynthesis and yield) into leaves occur through the same microscopic pores (stomata) in leaves. These small pores can open or close depending on the level of water stress in the plant. If the stomata are open under well-watered conditions, water is lost and carbon dioxide moves into the leaves, resulting in high water loss and high photosynthesis. However, under drought conditions when the stomata close to conserve water the movement of carbon dioxide into the leaves is also severely restricted which reduces photosynthesis (biomass or yield). Thus, the dilemma and the age-old question is how can water loss from plants be reduced without also reducing photosynthesis. Indeed, breaking the tight linkage of water loss and photosynthesis will be a very difficult challenge to overcome simply because of the anatomy of plant leaves where stomata regulate both transpiration and photosynthesis. It's difficult to envision how high biomass can be produced without the loss of significant amounts of water from crops. One must always question claims that high yields will be achieved with low inputs (and that statement applies to many other inputs in addition to water). It simply takes requires significant amounts of water to produce high yields. The old adage that we can't expect "something for nothing" certainly applies to water use in agriculture!

Nevertheless, efficient crop management, and especially efficient irrigation management, ensures that water is used effectively for crop production. Proper irrigation management is a key to ensuring that applied water is used for transpiration rather than being lost to drainage below the root system, runoff, or evaporation as it moves from the irrigation system to the soil. As we look to the future, all segments of society will be under more and more scrutiny to justify use of our limited water resources and other natural resources.

Dr. Fred Fishel, Pesticide Information Director
weeddr@ufl.edu

Registrants Request Voluntary Cancellation of Dicofol

In a Memorandum of Agreement with EPA dated May 17, 2011, the registrants of dicofol requested voluntary cancellation of all their dicofol registrations. EPA is requesting comment for 30 days on the registrants' request, which would terminate the last dicofol products registered in the United States. EPA plans to grant the registrants' request at the close of the comment period unless substantive comments require further deliberation. Dicofol is the last organochlorine pesticide to go through a cancellation process to terminate all its remaining uses in the U.S.

The registrants, Agan Chemical Manufacturing, Ltd. and Makhteshim Agan of North America, Inc., ceased all production of dicofol as of May 17, 2011, and have agreed to cease all sales and distribution of the pesticide by October 31, 2013. The companies also have agreed to amend product labels for existing stocks by August 31, 2011, to prohibit use of dicofol after October 31, 2016. EPA plans to revoke the tolerances associated with commodities treated with dicofol effective October 31, 2016.

Dicofol is registered for use as a miticide on cotton and several other agricultural crops and on non-residential lawns and ornamentals. Use of dicofol has significantly declined since the amended Reregistration Eligibility Decision (RED) in 2006. The 2006 amended RED significantly increased the re-entry interval for most crops in order to protect workers harvesting the crops after application of dicofol.

Submit comments by July 22, 2011 on the dicofol voluntary cancellation request through docket EPA-HQ-OPP-2005-0220 at Regulations.gov.

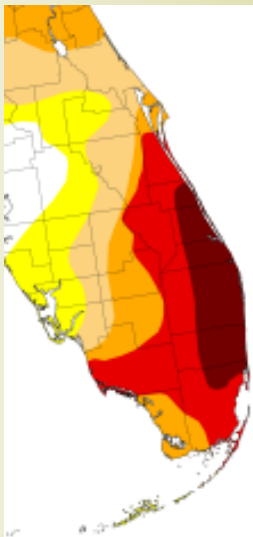
The Memorandum of Agreement is also available in the dicofol reregistration docket; see EPA-HQ-OPP-2005-0220-0016 at Regulations.gov.

Dr. D. Calvin Odero, Extension Weed Specialist
dcodero@ufl.edu

Effects of Drought on Sugarcane Production

Extreme and exceptional drought conditions have covered Palm Beach County, Florida in the last several months, according to the National Weather Service. Palm Beach County accounts for 75% of the state's sugarcane grown in the Everglades Agricultural Area (EAA). This is the fourth such extreme drought that the county has experienced in the past decade, according to the National Drought Mitigation Center.

The protracted drought has negatively impacted water level in Lake Okeechobee which reached the lowest water elevation ever recorded in the month of April. Low water level in the lake has resulted in South Florida Water Management District cutting back 45% in water allocation to EAA growers.



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	6.53	93.47	82.96	66.48	47.59	20.65
Last Week (06/21/2011 map)	6.53	93.47	86.30	70.27	50.41	22.46
3 Months Ago (03/29/2011 map)	0.04	99.96	82.72	54.43	20.42	0.00
Start of Calendar Year (12/28/2010 map)	0.18	99.82	86.04	50.84	20.21	0.00
Start of Water Year (09/28/2010 map)	54.97	45.03	18.02	4.22	0.00	0.00
One Year Ago (06/22/2010 map)	100.00	0.00	0.00	0.00	0.00	0.00

Intensity:

D0 Abnormally Dry
D1 Drought - Moderate
D2 Drought - Severe
D3 Drought - Extreme
D4 Drought - Exceptional

U.S. Drought Monitor
Florida

June 28, 2011
Valid 7 a.m. EST

Of the over 500,000 acres cultivated in the EAA, less than 4% is under fallow implying that the entire EAA is in dire need of water for sugarcane and other crops. The effects of drought on sugarcane have been manifested by slowdown in production of new shoots and leaves, and accelerated shoot and leaf senescence. The growers are hoping that summer rainfall will be adequate to help sugarcane grow by at least an inch a day especially for fields that are scheduled for harvest in another 100 days.

In addition, the drought has negatively impacted sugarcane management practices including weed control. Competition for water between sugarcane and weeds has increased as soil moisture becomes limited under drought conditions. Weed species that have been observed in sugarcane fields during this drought period have been mainly grasses, predominantly fall panicum. Weed control before sugarcane canopy closure is normally achieved by use of a combination of herbicides and cultivation between the rows. Many fields especially in shallow muck and transitional sandy soils have seen a reduction in cultivation to conserve available soil moisture. Therefore, some of these fields have relied entirely on herbicides for weed control. However, most herbicides become less effective when plants are under water stress. Thus, applications of grass herbicides such as asulam have exacerbated the effect of drought stress on sugarcane by causing phytotoxicity to the crop while providing poor grass control. While the vigor and size of these grasses have been reduced by herbicide application and drought conditions, they have still been able to produce a lot of viable seeds which will become sources of reinfestation in subsequent crops. Consequently, herbicide use during extreme drought needs to be reevaluated to minimize adverse effects that they may have on sugarcane. It is important to always read herbicide labels to see if they permit use of lower rates when the sugarcane and weeds are under dire water stress.

Calendar

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

Jul. 3-9 **Caribbean Food Crops Society meeting**, Two Mile Hill, St. Michael, Barbados,.
http://www.cfcs2011barbados.org/

Jul. 15-17 **Florida Small Farms and Alternative Enterprises Conference**, Kissimmee, FL.
http://conference.ifas.ufl.edu/smallfarms/index.html

Oct. 3-5 **Southeast Herbicide Applicator Conference**, Panama City Beach, FL
http://conference. ifas.ufl.edu/sehac/index.html

Oct. 16-19 **American Society of Agronoy Annual meeting,** San Antonio, TX
https://www.acsmeetings.org