# FOCUS on South Plains Agriculture

*A newsletter from the Texas AgriLife Research and Extension Center at Lubbock*

Volume 51 number 6 20 July 2012

http://lubbock.tamu.edu/focus

Where We Stand on Climate This Year....3
Insect Roundup....5
Cotton Agronomy....6
Crop Update....6
Plant Growth Regulator Considerations....6
Cotton Disease Update....7
Powdery Mildew in Pumpkins....9
Non-cotton Agronomy....10
Replanting/Late Planting Essentially Completed....10
Grain Sorghum, Corn, Other Seed Crop Prices are Way Up....10
Sorghum/Sudan Seed Supplies for Late Planting....11
New Millet Production Guide from NMSU & Texas AgriLife....11
Huskie Herbicide in Grain Sorghum—Positive Results from Early 2012 Use....11
New Texas AgriLife Wheat Variety—TAM 113....12
Roundup Ready Winter Canola a Weed in Some Oat Hay Fields....12
Regional Alfalfa Workshop, Dimmitt, July 25....12
WTACI Conference Set....13

# Where We Stand on Climate This Year

Last year's crop season was one we will not soon forget, and with conditions apparently improving in the South Plains, it seemed to make sense to look at the numbers. Just how do this year's climate conditions compare with 2011 and with the long-term average?

Evapotranspiration estimates take into account air temperature, humidity, solar radiation, and wind, which are key driving atmospheric factors to crop water demand. Reference crop (cool season grass reference) Evapotranspiration (April 15 to Mid-July) is approximately 28.7 inches of water in 2012, compared to 36.1 inches for the same period in 2011 and 26.1 inches on average over the period 2001 – 2010 (figure 1). Hence the current year is (to date) approximately 10% "above average water demand", compared to 38% "above average" for 2011. Precipitation to date (January to July) is approximately 5.25 inches in 2012, compared approximately 1.1 inch in 2012 and 9.9 inches on average for 2001 – 2012. Hence the current season to date, we have received approximately 53% of the long-term average rainfall, compared to approximately 11% in 2011 (figure 2).

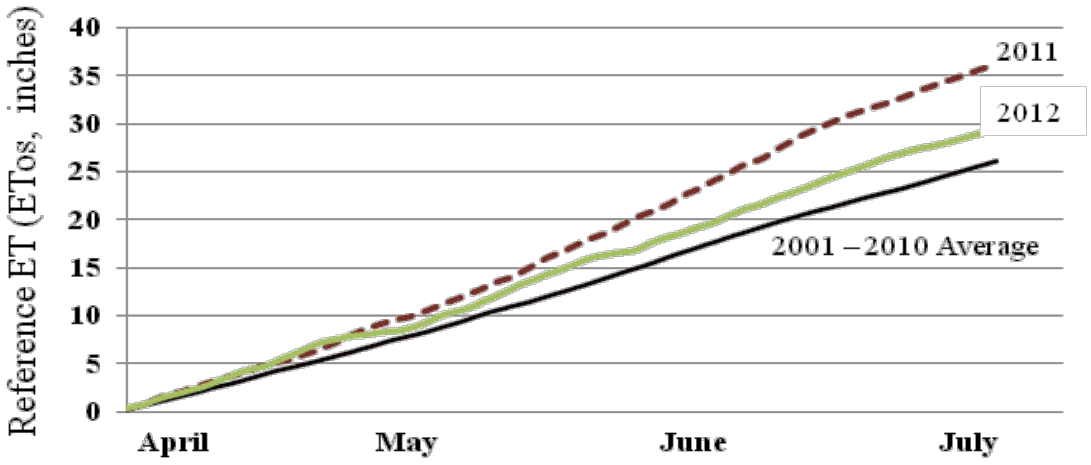



Figure 1. Cumulative (mid-April to mid-July) reference crop Evapotranspiration, reflecting combined effects of wind, air temperature, solar radiation, and humidity for long-term average (2001-2010), 2011 and 2012 crop seasons (Source: Texas High Plains ET Network).

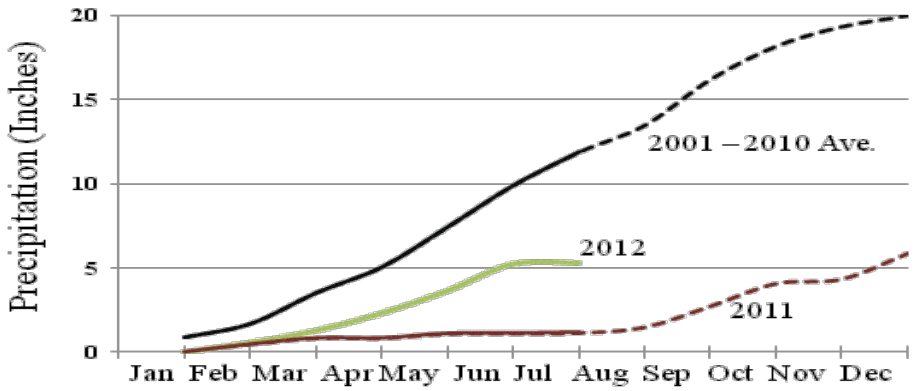



Figure 2. Cumulative January-July precipitation for long-term average (2001-2010), 2011 and 2012 (to date). Dashed lines show August-December accumulations for the 2001-2010 average and 2011 seasons (Source: National Weather Service).

The drought status also is reflected in the U.S. Drought Monitor presentations (figure 3), which indicate current "abnormally dry" to "extreme drought" conditions for most of Texas, compared to the more severe "exceptional drought" conditions in 2011.

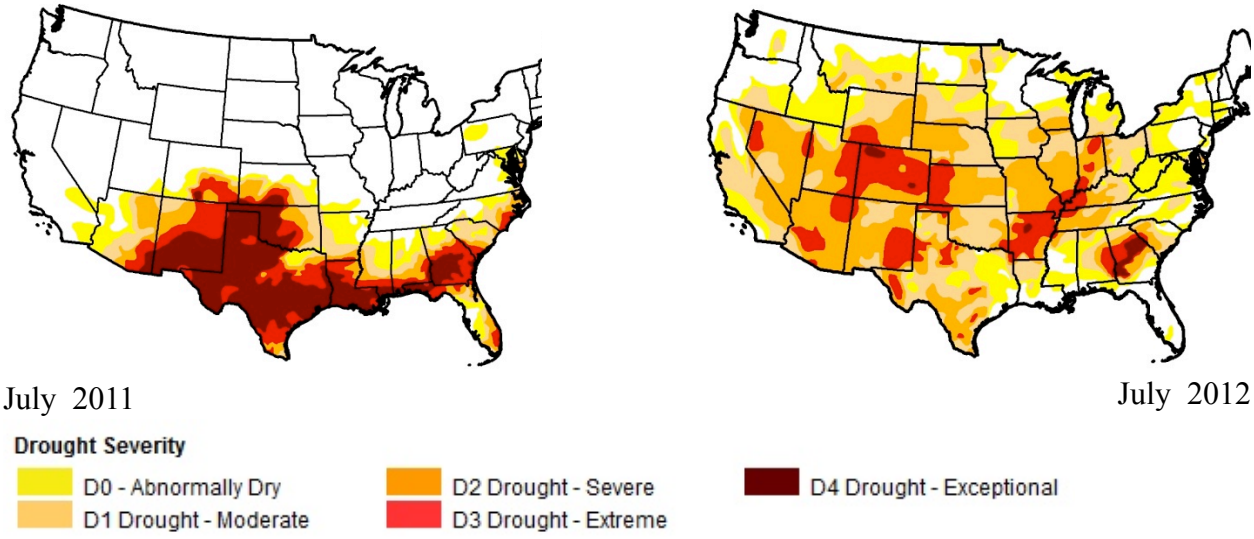
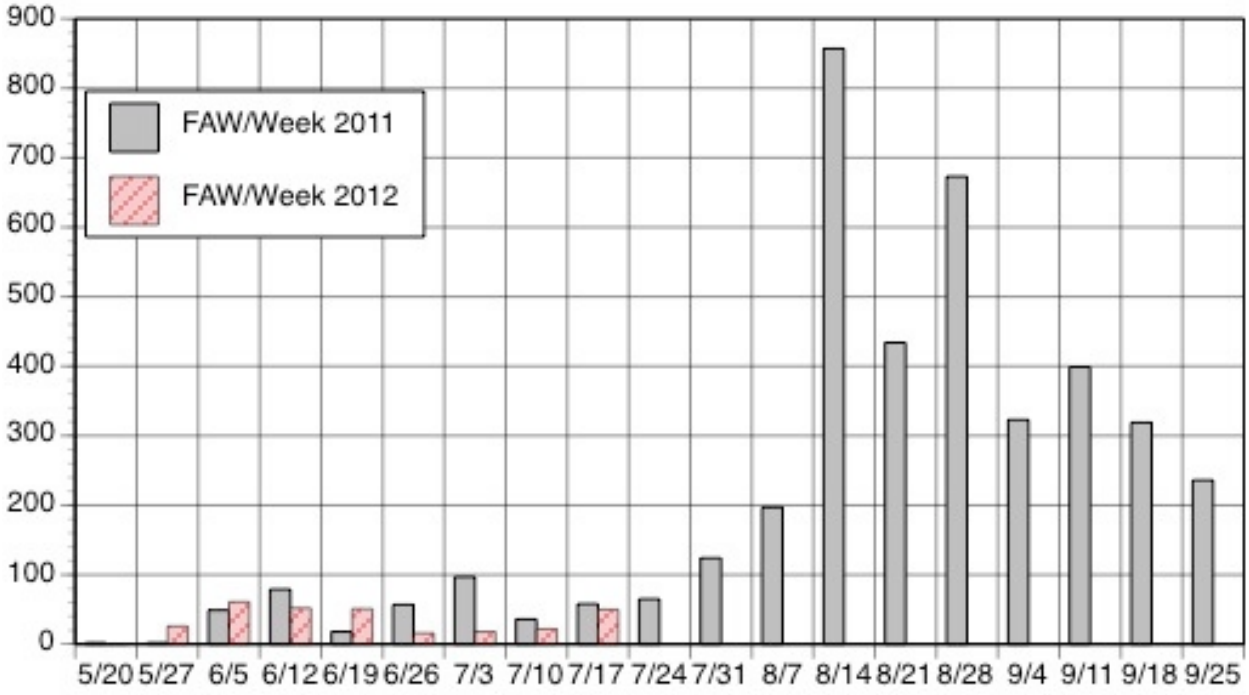



Figure 3. U.S. Drought Monitor (http://droughtmonitor.unl.edu) conditions mid-July 2011 (left) and 2012 (right). DOP

# Insect Roundup

Things are actually fairly quiet right now in cotton. Greg Cronholm in Hale and Swisher counties is reporting that cotton fleahoppers are increasing in some fields and it is about time for Lygus to make its appearance. He is also reporting that the next generation of beet armyworm is here but numbers are below treatable levels for now. I have also noted quite a few beet armyworms and more yellow woollybear caterpillars than normal on the Research Center at Lubbock. Corn leaf aphid is present in very high numbers in some of the sorghum at the Research Center and will have to be treated because it is doing significant damage. The cover shot for this edition of FOCUS pictures some of those corn leaf aphids. Fall armyworm numbers are starting to pick up in the traps and are just about where we saw them last year. As to dedicated corn pests, Ed Bynum, Extension entomologist in Amarillo, just sent out an abbreviated newsletter to warn people that southwestern corn borer numbers are really picking up. By this I mean 799 moths per week in Parmer County. The numbers are still low in Hale and Swisher counties. Non-Bt corn is of course subject to southwestern corn borer damage but Bt corn is safe. RPP

**Fall armyworm trap captures at the Lubbock Research and Extension Center**



# Cotton Agronomy

## Crop Update

Recent rainfall (July 9-10) events were spotty and provided some relief to those fortunate enough to be under one of the clouds that produced precipitation amounts ranging from a trace to just over an inch, with some reports of 2+ inches localized. According to the Texas Tech University – West Texas Mesonet website, for June and July rainfall combined, the Abernathy location reported 6.86" for a high and the Lamesa location recorded the lowest with 0.62". Cotton crop conditions are very mixed and variable. Under good irrigation with higher rainfall amounts, most are currently in peak bloom and producers should continue to monitor crop for stress or insect pressure to maintain early set fruit. At this time, most irrigated fields are in fair to good shape and range from early to peak bloom. However, there are areas where irrigated crops are still feeling the effects of 2011 were high amounts of irrigation have resulted saline soil conditions. If producers suspect this condition in their fields, a proper soil sample should be taken and sent in for Sodium Absorption Ratio analyses. Recently, a sample was sent in for testing from a field in Lynn county and the results indicated a highly saline soil with an SAR of 7.3 and an EC of 20.1. Based on cottons response to saline soil, at this level, a better than 50% reduction in stand establishment can be expected. Another field has been sampled and results are pending, but it is suspected that salinity may be a factor in slowed growth and development. Unfortunately, the saline soil problem can only be remedied by large amounts of rainfall to leach the salt minerals through the profile. As for dryland cotton crops in the area, most locations are beginning to show signs of moisture stress or are already experiencing such. This again will only be remedied by much needed rainfall. One bright spot are the modest temperatures experienced on the High Plains in early July with Lubbock recorded daily highs in the low to mid 90's. Although the temperatures have moderated considerably, heat unit accumulations for Lubbock are 19% above normal for the time period of May 1 to July 18. Extended forecasts are mixed with some indicating above normal precipitation in August and September and below normal temperatures in September. Others are predicting continued drought conditions.

The June 29 NASS Crop Report indicated that we planted about 960 thousand cotton acres in 1N (down 23%) and about 3.19 million in 1S (down only 4%) for a combined total of 4.15 million. If these numbers hold up the combined total of 4.15 million acres indicates the 2012 planting is down 9% from 2011. Although acres are down slightly, with beneficial rainfall abandoned acres will be down significantly compared to 2011 (>60%). However, if some areas with struggling dryland do not receive moisture soon, the percent abandonment could soon begin to rise.

## Plant Growth Regulator Considerations

Although limited in number, some irrigated cotton crops may experience growthy conditions that require use of a mepiquat based plant growth regulator (PGR). For more information on these PGR products, see the June 15 edition of Focus. Producers should check with their area seed company representatives and see what they are recommending for specific varieties in specific

field situations. There are a lot of growth potential differences among varieties planted in our region and these differences will have the opportunity to be expressed soon. Fruit retention will be important, and some areas are experiencing square shed due to environmental issues. Many of these lower fruit retention fields will produce vigorous growth under higher levels of irrigation. The growthy varieties perhaps even with good fruit retention will tend to take off if hot temperatures and open skies continue. For producers who initiated early low rate multiple application PGR regimes, it may be necessary to make additional applications to control growth. For producers who have yet to make any PGR applications, higher rates will likely be in order to help check growth. The good news is that the PGR products can be tank mixed with glyphosate in Roundup Ready Flex cotton. MSK

# Cotton Disease Update

To date, things have been relatively slow from a disease standpoint in this year's cotton crop. Root-knot nematodes (Meloidogyne incognita) are apparent in many fields with severe damage occurring with high populations. Symptoms of nematode damage include low vigor, stunting and a reduction in bolls. Infected plants may also exhibit nutrient deficiency-like symptoms, as nematode feeding disrupts root functions. Spherical galls or 'knots' may be present on the tips of tap and feeder roots. With the cancelation of Temik 15G, there are few chemical management options that can be used. While seed treatment nematicides may offer some early season protection, they are less effective under high pressure conditions. Foliar applications of Vydate have been shown to reduce nematode damage and increase yields; however, little information exists on how to properly time applications in the absence of Temik. Since nematode damage is a function of populations in the soil, management practices which impact nematode reproduction or survival should be utilized to reduce losses in the future. Several partially resistant varieties, including Deltapine 174RF, Phytogen 367WRF, Stoneville 4288B2F and Stoneville 5458B2F are available. Benefits from planting these varieties include increased yields, as well as a reduction in reproduction. Breeding for resistance to root-knot nematodes is a major interest in many breeding programs, and new resistant varieties are being evaluated. In the meantime, it is important to monitor nematode populations in fields with a history or those that are at risk. Soil sampling is an important process that can be used to determine nematode populations. Samples collected in the fall or early winter can provide insight into potential issues the following year. For information on nematode sampling, handling and processing see the http://lubbock.tamu.edu/files/2011/11/Nematodesampling.pdf

Fields infested with root-knot nematodes could also experience problems with Fusarium wilt. The causal agent of this disease is a soilborne fungus (Fusarium oxysporum f. sp. vasinfectum), that is capable of negatively affecting stands and greatly reducing yields. Symptoms associated with this disease include wilting of leaves early in the day, as well as chlorosis or necrosis on the margins of leaves in the lower canopy. Wilt symptoms are more severe on hot, dry days when the plants demand for water is high. Such symptoms occur because of clogging of the vascular system caused by infection. Mortality can occur in young plants. Discoloration, which is continuous, can be seen when examining the inside of the root system or lower stem. The

development of Fusarium wilt in Texas is found to be in conjunction with root-knot nematodes; therefore, the appearance of galls can be used in some cases to distinguish this disease from Verticillium wilt.

As the cotton crop transitions from vegetative growth to reproductive stages the plants demand for water increases. As a result, now is the time to expect to see an increase in the incidence of Verticillium wilt (caused by the soilborne funfus Verticillium dahliae). Infections by V. dahliae occur early in the growing season as microsclerotia (the overwintering structures of the fungus) germinate in response to soil conditions and plant exudates. The fungus infects through the roots and ultimately colonizes the vascular system. It is this colonization that plugs the channels which transport water and nutrients (known as the xylem) and results in the wilted symptoms observed on the foliage. Leaves of infected plants will exhibit a yellowing between the veins before becoming necrotic. Under severe circumstances the leaves may defoliate prematurely. Previous research has shown that several cultural practices can affect Verticillium wilt development (lubbock.tamu.edu/files/2011/11/IntegratedManagementVerticilliumWiltCotton.pdf). There are no fungicides labeled for control of Verticillium wilt in cotton. Rather the disease should be managed with partially resistant varieties. Studies are on-going to determine the performance of cotton varieties and breeding lines in fields infested with varying levels of V. dahliae. Refer to the following link to see the response of cotton varieties to Verticillium wilt and other diseases.(http://lubbock.tamu.edu/files/2011/11/DiseaseRecommendations.pdf)

High relative humidity within the canopy resulting from irrigation applied to maximize fruiting and scattered thunderstorms favors development of other diseases, such as bacterial blight (caused by Xanthomonas axonopodis pv. malvacearum). This disease occurs routinely in the High Plains; however, substantial yield loss is seldom experienced. Recent crop alerts from the mid-south indicate that the disease has been reported in parts of the mid-south. Symptoms of bacterial blight include small, dark green, water-soaked lesions that are first visible on the underside of leaves. These lesions are delimited by the veins within the leaf (which gives rise to the common name 'angular leaf spot'). As individual lesions coalesce and become necrotic, infected leaves will defoliate prematurely. In addition, lesions may develop on the bolls, resulting in the rotting of lint. There are no chemical management options available for bacterial blight; however, the disease can easily be managed through the use of resistant or immune varieties http://lubbock.tamu.edu/cotton/pdf/2010Bacterial.pdf. If you have any questions regarding these or any other disease issues in cotton, please contact Jason Woodward @ 806-632-0762, or via e-mail jewoodward@ag.tamu.edu. JW

Typical pattern of damage caused by the root-knot nematode.

Root-knot nematode galls

Close up of a leaf exhibiting symptoms of Verticillium wilt (intervenial chlorosis and necrosis)

Bacterial blight

# Powdery Mildew in Pumpkins

I have received several reports from AgriLife Extension personnel and area crop consultants confirming Powdery mildew (caused by Erysiphe cichoracearum) in pumpkins. This disease commonly occurs throughout the growing season. Spore germination is favored by warm temperatures and high levels of humidity; whereas, sporulation and dissemination of spores occurs under dry conditions. The initial symptoms of powdery mildew appear as small, pale, chlorotic spots that can be seen on pumpkin leaves in the lower canopy. As the disease progresses and the fungus grows, a white powdery growth can be seen on upper and lower leaf surfaces. Infected plants may turn yellow, appear stunted or die. The disease is capable of completely destroying the foliage, exposing fruit to direct sunlight which may result in sunburn, severe discoloration, reduced size, malformations and poor flavor. Cultivars with resistance to powdery mildew are available; however, fungicides are the primary means of control. Intense scouting should be conducted to identify the onset of disease. Many fungicides, both protectant and

systemic, are labeled for use in pumpkin. Various sulfur formulations are available for use against powdery mildew; however, there is the potential for fruit or leaf burn to occur. Several copper-based products are available, and are most effective when applied weekly or in alternation with other products. DeMethylation inhibiting fungicides (or DMI's), such as Nova, Procure and Folicur (or other generic formulations of tebuconazole), are systemic and provide powdery mildew control on both leaf surfaces. Strobilurin fungicides such as Quadris or Flint as well as the quinoline fungicide Quintec are active on powdery mildew, but should be alternated with other fungicides due to fungicide resistance concerns. When considering fungicide resistance it is important to utilize products with different and/or multiple modes of action in rotation with fungicides with a single-site mode of action. Other things to consider when developing management plans for powdery mildew include application timing and coverage. Fungicide programs should begin in early to mid-August, unless the disease appears earlier. Applications should be made on a 14 day interval, which can be shortened (10 days) if favorable conditions are encountered. In addition, improved fungicide efficacy can also be achieved by maximizing spray coverage on the underside of leaves. This can be accomplished by using higher carrier volumes, increasing pressure, decreasing nozzle spacing, etc. If you have any questions regarding powdery mildew in pumpkins or other cucurbits contact Jason Woodward at 806-632-0762 or jewoodward@ag.tamu.edu. JW

# Non-cotton Agronomy

## Replanting/Late Planting Essentially Completed

Some scattered planting of grain sorghum in the lower South Plains should have been completed by earlier this week, and a few fields of sunflower are still being planted in the central and lower South Plains. Sunflower tolerates moderate exposure to temperatures down to 28°F thus the fall risks for late planting are less than with grain sorghum and other crops. If you are growing another crop this year for the first time in a long time and have agronomic questions, call Extension for management resources to help you through the rest of the summer.

## Grain Sorghum, Corn, Other Seed Crop Prices are Way Up

When USDA cuts the projected national corn average per acre bushel yield from 166 to 146 bushels per acre, grain markets were roiled. This projection reduced the U.S. corn projected yield by 1.8 billion bushels which has immediate effects on grain, fed cattle, and ethanol producers. Most contracting in the region for corn and grain sorghum is based on December 2012 futures. Grain sorghum contract prices the last few years in the South Plains have been $0.50 lower than the corn bushel price, then convert to hundred-weight (cwt.). This morning's corn price translates to over $13/cwt. for grain sorghum though I expect buyers will increase the spread to more than $0.50/bushel at these high prices for grain sorghum.

Corn farmers are much more accustomed to pricing their crop than are grain sorghum farmers, but as the season progresses, your sorghum crop looks promising under irrigation, then you may wish to study the trends in the market and lock in your price on some of your grain production. The caveat, however, is these prices are for pounds, not acres, so you need to be cautious about how much you commit to deliver.

## Sorghum/Sudan Seed Supplies for Late Planting

Most seed dealers still have limited supplies of haygrazer, sudangrass, or millet. Hay prices are still good, and Extension suggests that sorghum/sudan planted as late as August 1 is still an acceptable cropping practice. The key is that the forage will be good quality, and you as a producer do not take the risk of needing seed maturity in order to have a successful crop.

## New Millet Production Guide from NMSU & Texas AgriLife

"Millets for Forage and Grain in New Mexico and West Texas," Guide A-417, New Mexico State Univ. Cooperative Extension is now available. Millets include hybrid pearl millet (by far the most common), but also German (or foxtail) millet, which is very short season, and proso millet which is grown on some acres for grain.

Distinctives of hybrid pearl millet include high drought tolerance (more so than sorghum/sudan), slightly more leafy forage, better tolerance of high pH soils that cause iron deficiency in sorghum family forages, and since millet is not a member of the sorghum family it does not develop prussic acid from a fall freeze or summer growth after drought stressed conditions. Millet is also suitable for horses unlike sorghum/sudan. Management drawbacks include few labeled herbicides for millet, and the seed is very small, about 70,000 to 90,000 seeds per lb. (about 1/5 the size of sorghum/sudan seed), so it is more difficult to get the seeding rate cut down.

This document is posted in the NMSU system, but also at http://lubbock.tamu.edu/programs/crops/other-field-crops/forage/

## Huskie Herbicide in Grain Sorghum—Positive Results from Early 2012 Use

Extension provided an extensive review of Huskie herbicide use in grain sorghum in our April 5 FOCUS newsletter (see http://lubbock.tamu.edu/files/2012/04/Focus2012April5v21.pdf )

Among the researchers at the Lubbock Texas AgriLife Research & Extension Center, Peterson, Meason, and Trostle all report impressive control in field test plots. Though there is some burn on leaves, that is to be expected, and the sorghum is growing out of it. Key points for Huskie reviewed in April include:

- Over-the-top weed control in grain sorghum, apply at 3-leaf stage to 12" tall

- Excellent control of pigweed and many other broadleaf species
- Greatly reduced injury potential compared to 2,4-D and dicamba
- Atrazine suggested as a key tank mix partner to enhance weed control, but now be cautious about any atrazine use late in the season if returning to cotton production in 2013

## New Texas AgriLife Wheat Variety—TAM 113

TAM 113 was released last year, but now limited seed supplies are available. TAM 113 is not necessarily intended to replace either TAM 111 or TAM 112, which have been variety picks from Texas AgriLife for several years. Distinctives of TAM 113 include a solid all-round rust disease package particularly for leaf and stripe rust, better than either TAM 111 or TAM 112. In 2011 harvests TAM 113 ranked 4th among forty commercial wheat lines and experimentals in six irrigated Texas High Plains yield trials, and it was 1st in dryland (the same forty entries). For 2012 harvests, it was 5th among forty lines in irrigated (five sites), and slightly above average in dryland.

The variety also has good bread making quality, is medium maturity, and considered medium tall. TAM 113 will be considered in the next 2 weeks for addition to our forthcoming Texas High Plains wheat variety picks for irrigated and dryland wheat production. Consult Extension resources by the end of July for finalized information.

## Roundup Ready Winter Canola a Weed in Some Oat Hay Fields

Inquiries were received from Moore, Bailey, and Floyd Counties in June about a scattered weed that was present in oat fields planted for hay. It was Roundup Ready canola though I am unsure if it was winter canola (grown largely in Oklahoma) or spring canola grown in the Dakotas. Producers noticed the weed in some cases, but it wasn't until they found out Roundup didn't touch it that they became worried, especially when they saw how much seed the plants were producing. Rogueing was the only option if the field had been replanted to Roundup Ready corn or other broadleaves, especially since plants were scattered perhaps 3 to 10 per acre. The contamination would have originated in harvest equipment, storage bins, etc., most likely in regions where oat seed production occurs. Much of the oats for forage planted in West Texas is are spring-oat types which fit oat hay production systems here (planted in February).

## Regional Alfalfa Workshop, Dimmitt, July 25

Alfalfa producers can update their alfalfa production expertise at an upcoming alfalfa production workshop, Wednesday, July 25th, in Dimmitt. This Texas AgriLife Extension Service workshop begins with registration at 8:30 AM then concludes by 12:15 PM. The meeting will convene at the Castro Co. Extension Office, 205 North Broadway (U.S. 385). Workshop topics include fall planting, irrigation requirements, variety selection, as well as insect and weed control.

Two additional emerging topics in Texas High Plains alfalfa will include:

- With the advent of glyphosate-resistant pigweed species in the South Plains, alfalfa growers are not immune to developing resistant pigweed, thus sole reliance on glyphosate in Roundup Ready alfalfa for weed control is inadvisable for alfalfa producers just as it would be for a cotton or corn grower.
- Looming irrigation pumping restrictions in much of the region may decrease the available water to alfalfa fields established in fall 2012 unless fields are grandfathered in for the duration of the stand for regular irrigation. Pumping limits will likely shrink the size of some alfalfa fields.

The program will conclude with a visit to a local alfalfa field. Registration is $10. 3.0 CEUs are available. An alfalfa crop production handbook will be available for purchase for $20. For further information contact the Castro County office of Texas AgriLife Extension, (806) 647-4115, or Calvin Trostle, Extension agronomist, Lubbock, (806) 746-6101, ctrostle@ag.tamu.edu . CT

# WTACI Conference Set

The annual meeting of the West Texas Agricultural Chemicals Institute (WTACI) has been scheduled for Thursday September 6 at the Scottish Rite Temple - Learning Center located at 1101 70th Street in Lubbock, Texas (South Loop 289 and Interstate 27). This year represents the 60th meeting of WTACI, who is an unincorporated organization of dealers, industry representatives, agricultural producers, scientists, educators, and agribusiness members who support education and research programs promoting safe and effective use of agricultural chemicals and protection and preservation of the area's natural resources. Topics to be discussed at the conference include various aspects of pest identification and management, pesticide application and disposal, research efforts on row crops in the High Plains, and much more. The Texas Department of Agriculture (TDA) has approved a total of 6.5 continuing education units (CEU's) in the areas of IPM (1.0), Pesticide Laws and Regs (1.0), Drift Minimization (1.0) and General (3.5). In addition, the WTACI program has been approved for 4.0, 2.0 and 0.5 hours of Pest Management, Crop Management and Professional Development, respectively. A detailed list of presentations and speakers will be available shortly. Pre-registration is currently available on-line at (http://wtaci.tamu.edu/onlineregistration.php). Registration forms will be mailed out within the next few weeks. On-line registration fees are $75 for conference attendees and $300 for a booth and must be completed or postmarked by August 31. On-site registration will begin at 7:00 the day of the conference and will cost $95 for attendees and $325 for booth sponsors. Lunch will be provided as part of the registration fee. Opportunities also exist to contribute to the WTACI Scholarship Fund which has provided more than $60,000 in scholarships to students majoring in agricultural fields at many Texas universities. Contact Jason Woodward at 806-632-0762 or jewoodward@ag.tamu.edu for questions about the program and CEU's. If you have trouble or questions regarding registration contact David Pointer 806-746-4021 or dlpointer@ag.tamu.edu. JW

# FOCUS on South Plains Agriculture

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## Editor

Patrick Porter

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## Contributing Authors

Mark Kelley, Extension Cotton Agronomist
Dana O. Porter, Extension Agricultural Engineer
Patrick Porter, Extension Entomologist
Calvin Trostle, Extension Agronomist
Jason Woodward, Extension Plant Pathologist

## Useful Web Links

Water Management Website, TAMU, Irrigation at Lubbock, IPM How-To Videos, Lubbock Center Homepage, Texas AgriLife Research Home , Texas AgriLife Extension Home, Plains Cotton Growers

## County IPM Newsletters

Castro/Lamb, Dawson/Lynn, Crosby/Floyd, Gaines, Hale/Swisher, Hockley/Cochran, Lubbock, Parmer/Bailey, Terry/Yoakum