



Agriculture Newsletter

Crop Weather and Insect Update

By: John Gordy, CEA Agriculture and Natural Resources

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With the dryer weather, everything is starting to pick up steam, both literally and figuratively. Most of the earlier planted sorghum is either in the boot stage or has already headed out and is starting to flower, and much of the corn is working to fill grain. A lot of cotton is a little further behind, but most has started to square and depending on when it was planting, has dropped some of those early squares as a response to water stress. This recent dry period has allowed most everyone to get in the field and spray, cultivate, or fertilize where needed, and now hopefully we get a little rain to help push the grain on through and keep the cotton green and growing. Be sure to keep a look out for midge and head worms and check out the threshold calculator for insects that affect headed sorghum at:

<https://insects.tamu.edu/extension/apps/sorghumricestinkbug/index.php>

As far as sugarcane aphid is concerned, we have started to see populations building, more in the younger grain than in sorghum that has headed. I want to emphasize the importance of scouting with regard to determining whether or not you need to treat. In one field this week we found one plant that had an incredibly high number of aphids (>1000 per leaf, see Figure 1). However, after scouting the field, even considering the plant with high numbers, the average across the field was less than 25 per leaf, not warranting treatment. Just make sure to be vigilant and continue checking those fields.



Figure 1: Sugarcane Aphid on underside of Sorghum leaf.

There have been some reports of southern rust on corn a little farther south and I wanted you to be aware of the potential for this to become a local problem, possibly requiring management, depending on the stage of your corn. Dr. Tom Isakeit has a publication that does a good job of explaining affected leaf area and management decisions based on crop stage. You can find it at: http://aglifesciences.tamu.edu/plantpathology/wp-content/uploads/sites/19/2011/05/Southern-Rust-of-Corn_2014.pdf

Impact of Ponded Water/Flooding on Corn and Sorghum

By: Ronnie Schnell, Ph.D. Cropping Systems Specialist, Texas A&M AgriLife Extension, College Station

Recent rain events have resulted in flooding or significant ponding of water in many corn and sorghum fields across Texas. While low-lying areas may be flooded, other areas of fields may be saturated for extended periods of time. How long can corn or sorghum survive under saturated or flooded conditions? What impact will these conditions have on grain yield, if any?

Oxygen is required by plants for respiration, including above ground (shoots) and below ground (roots) plant tissue. Respiration is the process where plants metabolize sugars, producing energy needed for growth and development. Soil contains about 50% pore space that is occupied by air and water. Flooding increases the proportion of pore space occupied by water and reduces exchange of air between the soil and atmosphere. Deep ponding has the same effect on above ground tissue. Oxygen does not easily move through water so saturated or flooded conditions will limit oxygen availability to plant tissue, especially roots. This can have detrimental affects on plants.

The growth stage of the crop will influence the plant's ability to withstand flooded conditions. Younger plants are more susceptible to damage or death by flooding, especially when the growing point is at or below the soil surface. Younger plants are easily submerged compared to older, taller plants. Higher temperatures will exacerbate the effects of flooding. Young plants may survive for up to 48 in oxygen limited environments under cool conditions but may not survive 24 hours under warm conditions ($>77^{\circ}\text{F}$). For this reason, yield loss is typically greater when young plants (< 6 leaves) are exposed to saturated or flooding conditions. Stand loss at early growth stages is a major factor in yield loss. Similar to freeze and hail damage, look for new growth several days after conditions improve to determine surviving plant populations.

Extended periods of saturation will affect plants of all ages. Root tissue can die and new growth will be stunted or delayed under saturated conditions. Reduction in root volume will reduce the capacity for uptake of water and nutrients during later growth stages. Flooding can induce nutrient deficiency symptoms. Nitrogen will be remobilized from older (lower leaves) to younger (upper leaves) resulting in yellowing of lower leaves. Purpling of leaf tissue is possible due to accumulation of carbohydrates in the shoot tissue under flooded conditions, a symptom usually associated with phosphorus deficiency. In addition, denitrification and leaching of nitrate can result in loss of nitrogen from soil and potentially reduce yield. Damaged root systems and associated stress can increase the potential for various plant diseases, including root and stalk rot diseases. The degree of flooding will ultimately determine the potential for yield loss. A brief period of flooding will likely have minimal impact on grain yield, especially for older plants. Repeated or long-term saturation/flooding will increase the potential for yield loss due to a variety of complications.



Figure 2: Flooding of county result demonstration plot

How Waterlogged Soils Impact Cotton Growth and Management Decision

By: Gaylon Morgan, Professor and Extension Cotton Specialist

Much of the South Texas, and possibly some of West Texas' cotton acres, will be down due to the excessively wet weather both prior to planting and following planting. Planting the seed and stand establishment were initially the concerns in South and East Texas. Now the concern is how long can cotton handle saturated soils and cloudy conditions. Below is some information and considerations when trying to make management decisions on cotton during this wet spring and summer.

In waterlogged soils, water replaces air in the soil and plant roots become deprived of oxygen. Clay soils can become depleted of oxygen after just 2 days of standing water, especially where high nitrogen levels are present in the soil. As roots become deprived of oxygen, plants are unable to maintain normal respiration, which provides energy and the building blocks for shoot and root growth. As seen this season, cotton can handle saturated soils for quite some time; however, plant growth will remain slow and each developmental stage will be delayed. Previous research has shown that under short-term flooding (7 days) leaf growth is decreased by over 25% and photosynthesis by over 15%, while root growth was not hindered little. However, under continued saturated conditions, I suspect root growth will also be significantly impacted and may have a long-term detrimental impacts on total root growth, root distribution, and yield potential.

Typically, cotton roots grow 0.5-2 inches per day and plants will have a root system extending 3+ feet deep by the first flower growth stage. The vast majority of root growth occurs the first 60 days after germination. In waterlogged soils, root growth will be slowed, and roots will tend to proliferate near the soil surface where more oxygen is present. Reduced growth and shallow depth of the roots make plants more susceptible to drought stress later in the season. Additionally, producers should be careful when cultivating to minimize root pruning, which can further hinder the crop growth. Because of these impacts on root growth and function, saturated soils also inhibit nutrient uptake, specifically phosphorous and potassium, along with nitrogen and other nutrients. An obvious response for some producers may be to apply foliar nutrients to remediate observed or anticipated nutrient deficiencies. Foliar applications of nutrients may result in a slight improvement in appearance, but are not likely to result in an economical yield increase.

Soil nitrates (plant available form of nitrogen) also can be lost from the soil as a gas once anaerobic conditions occur. As a result, supplemental N may be needed in some cases to meet plant needs for the season. See the publication from Mississippi State University titled "How to Estimate Nitrogen Loss resulting from Saturated Soils". However, in most cases once waterlogged conditions subside and sunshine returns, normal plant growth and nutrient uptake will resume, and nutrient deficiency symptoms typically will go away. Regardless, plants cannot compensate for this lost time and crop harvest will be delayed as a result. *Continued on Page 4*



Figure 3: Young cotton plants struggle to survive waterlogged conditions caused by excessive spring rains in the Brazos Bottom.

Waterlogged Soils, Continued

After the soil begins to dry out, there will likely be the urge to apply plant growth regulators (PGRs) to control plant size and possibly promote earlier maturation. However, we must keep in mind that waterlogged conditions also inhibit plant hormones, which contribute to growth and leaf expansion. So, be cautious about applying PGRs too soon after waterlogged conditions, because applications too early could further decrease the yield potential, especially for some varieties. Please consult with the seed company about the recommended PGR regime for each variety.

The 2015 season has been a challenge. The flooding and waterlogged soils will definitely delay crop development; however, once established, cotton is a tough plant that can compensate for many adversities. So, do not give up on our 2015 cotton crop too early.

Farm Service Agency County Committee Nomination Period Begins June 15

By: Dustin Wright, Fort Bend County Executive Director, Farm Service Agency

The U.S. Department of Agriculture today announced that the nomination period for local Farm Service Agency (FSA) county committees begins on Monday, June 15, 2015.

It is important for county committees to reflect America's diversity, all eligible farmers and ranchers, including beginning farmers are encouraged to get involved in this year's elections. FSA has seen an increase in the number of nominations for qualified candidates, especially among women and minorities – a trend the Agency would like to see continue.

To be eligible to serve on a FSA county committee, a person must participate or cooperate in an agency administered program, be eligible to vote in a county committee election and reside in the local administrative area where they are nominated.

Farmers and ranchers may nominate themselves or others. Organizations representing minorities and women also may nominate candidates. To become a candidate, an eligible individual must sign an FSA-669A nomination form. The form and other information about FSA county committee elections are available at www.fsa.usda.gov/elections. Nomination forms for the 2015 election must be postmarked or received in the local USDA Service Center by close of business on Aug. 3, 2015.

FSA will mail election ballots to eligible voters beginning Nov. 9, 2015. Ballots will be due back to the local county office either via mail or in person by Dec. 7, 2015. Newly elected committee members and alternates will take office on Jan. 1, 2016.

While FSA county committees do not approve or deny farm ownership or operating loans, they make decisions on disaster and conservation programs, emergency programs, commodity price support loan programs and other agricultural issues. Members serve three-year terms. Nationwide, there are about 7,800 farmers and ranchers serving on FSA county committees. Committees consist of three to 11 members that are elected by eligible producers.

Ready On-Line Access to Chemical Labels

By: Calvin Trostle, Ph.D., Professor & Extension Agronomist. Lubbock, TX; (806) 746-6101, ctrostle@ag.tamu.edu

Whether on your home computer, your tablet, or with your smart phone in the field, there is a convenient way to access chemical labels for everything from a quick check to assistance in planning your herbicide program. Chemical Data Management Systems, <http://www.cdms.net>, offers quick access to labels and Material Safety

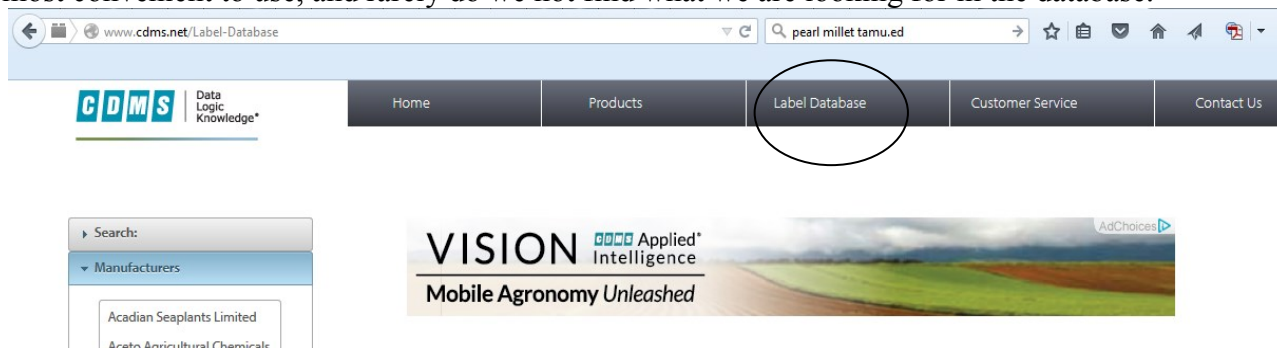
Data Sheets for herbicides, fungicides, insecticides, seed treatments, and many other labeled agricultural products. I rely on this website a lot in my Extension agronomy work.

Colleague Dr. Josh McGinty, Corpus Christi, and I have compiled a user guide for how to best utilize this valuable on-line resource. The document, **“Ready On-Line Access to Chemical Labels for Agricultural Production,”** is available to view, print, or download from <http://lubbock.tamu.edu/files/2015/04/Ready-On-line-Access-Chemical-Labels-CDMS-April2015.pdf>

It is relatively simple to access labels online, and CDMS makes it even easier by compiling them all in one place. This URL also enables you conduct several additional tasks (register for free):

- Search by active ingredient enables you to find alternative chemicals, possibly more cost effective generics.
- Learn what other chemical options may be available for your crop. For example, you can search by ‘chemical type,’ (e.g., insecticide, herbicide, etc.) and your target crop (grain sorghum, sunflower, etc.). You can also search for products that control a specific pest (e.g., cotton thrips, root knot nematode, johnsongrass, etc.). This will provide you with a list—and links—to labeled chemicals, and is a convenient way to identify additional chemical options you might not otherwise be aware of.
- Minor crops provide a challenge as there may be few labeled herbicide or other chemical options. Rather than read a dozen or more labels, find which ones to read first by searching by crop and chemical type.

Other chemical search options exist (Greenbook, chemical company websites, etc.), but we find this one is the most convenient to use, and rarely do we not find what we are looking for in the database.



Not so sticky after all

By: Zahra Shihabuddin, Summer Intern, AgriLife Extension and Research

Since the Sugarcane aphid has been a rising concern in the sorghum industry, why is it so important to you? It is important to you because aphids are mainly parthenogenetic, meaning they reproduce by cloning. They multiply rapidly in a very few days (birth to a reproductive adult is 5 days). This can highly affect your production if you are not able to keep up with their growth on your field, making sure the aphids have been mitigated before the damage is beyond repair. One very effective way of keeping up with aphids is scouting. Once you have identified aphids on your field, it is critical to check your field at least twice weekly and promoting the beneficial insects that help with controlling the aphids.

Scouting is encouraged during the pre-flowering/ physiological maturity of your crop; this is when aphids can be identified under the third leaf from the bottom and the top leaf, (pre-flowering stage). On the flowering stage; aphids can also be found on the flag leaf which then moves over to the head. Droughts and dry weather are the most prosperous times for the aphids to grow and reproduce. There is a scouting card available at the extension center or on the link below; which serves as a guide to scout for aphids, when to spray and also how to manage aphids in your fields. <http://ccag.tamu.edu/files/2015/05/ScoutCard.pdf>

Hybrid Pearl Millet as an Alternative to Sugarcane Aphid-Susceptible Sorghum Family Forages

By: Dr. Calvin Trostle, Extension Agronomist, Lubbock, 806-746-6101, ctrostle@ag.tamu.edu;
Dr. Vanessa Corriher-Olson, Extension Forages, Overton, 903-834-6191, vacorriher@ag.tamu.edu

With the widespread presence of sugarcane aphid (SCA) in Texas in 2014 and the apparent expansion occurring again in 2015 for this damaging aphid to Texas sorghums—grain, forage sorghum, sorghum/sudan, etc.—growers interested in annual forage and grazing may have another option that appears to be unaffected by SCA. Hybrid pearl millet (HPM) (Figure 4) is a leafy forage that can have a fit in some grazing and haying operations.

Field observations in several Texas areas in 2014 by producers, county ag. extension agents, and millet breeders did not find SCA in HPM. Though hybrid pearl millet has not yet been tested in USDA forage screening test (proso has, and it was not a host for SCA), the body of evidence points to non-host status to SCA.

The Dept. of Soil & Crop Sciences is developing a summary of potential hybrid pearl millet use as an apparent alternative, at least for some acres, among Texas forage producers who seed annual crops like sorghum/sudan. “Hybrid Pearl Millet as an Alternative to Sugarcane Aphid-Susceptible Sorghum Family Forages” will be available the week of May 4 at <http://publications.tamu.edu/> Key points include:

- Although two insecticides are labeled for use in sorghum family forages to control SCA, both require withdrawal of livestock for 7 days.
- Hay and forage growers, especially on smaller acreages, may be less willing or less able to spray for sugarcane aphid if treatment thresholds are met. This could be particularly damaging to a forage crop as leaf area is lost thus making HPM more attractive for growers even if forage yield potential may be lower.
- Millet is best adapted to sandier soils, but it also tolerates high pH soils better than sorghum family forages due to a different iron uptake mechanism.
- Millet is not susceptible to prussic acid development—it is not a member of the sorghum family—in summer drought and fall frost situations, but it can accumulate nitrate.
- Millet is small seeded, one-fourth to one-fifth that of most sorghums thus it can't be planted as deep.
- Other millets like German (foxtail) millet and proso millet are not likely replacements for some sorghum forage acres. The former is a short maturity, lower yielding forage, and proso is best suited for contract grain production.

For additional information about hybrid pearl millet management consult:

Central and East Texas: “Warm-season annual forage grasses for Texas” (2012), E-630, Texas A&M AgriLife Extension Service (V.A. Corriher), <http://foragefax.tamu.edu/files/2013/05/WSAForagesforTexas.pdf>

West Texas: “Millets for Forage and Grain in New Mexico and West Texas” (2012), A-417, New Mexico Cooperative Extension Service (M.A. Marsalis, L.M. Lauriault, C. Trostle), <http://lubbock.tamu.edu/files/2012/07/Millets-for-NM-West-TX-2012-A-417.pdf>



Figure 4: Pearl millet used for forage

Scouting for Sorghum Downy Mildew

By: Thomas Isakeit, Professor and Extension Plant Pathologist, t-isakeit@tamu.edu

Sorghum downy mildew is a disease that has potential to cause yield loss to susceptible hybrids if there is a high incidence in the field. Previous research has shown yield losses if disease incidence exceeds 30%. The disease occurs most commonly in the Upper Coast counties, and has usually been associated with fields grown under monoculture with hybrids susceptible to pathotypes 3 or 6. The seedling stage, about 3 to 4 weeks after planting, is a good growth stage to determine the incidence of disease in the field, since the initial infections occurring in soil that lead to systemically-infected plants occur before then, and do not occur thereafter.

Leaves of systemically-infected seedlings have a mottled, pale green appearance, often with a fuzzy white sporulation of the fungus on the underside of the leaf (*Fig. 5*). With frequent rains this spring, another symptom of downy mildew is the local lesion (*Fig. 6*). Local lesions arise from spores (“sporangia”) that are blown from systemically-infected plants in the same field, or neighboring fields. While these leaf symptoms look horrible, they will not affect yield, nor do they pose a long-term threat to productivity. The fungus does not survive to the next season in these leaves. As the season progresses, and temperatures increase, the conditions become unfavorable for new local lesion production and they will not be present or prevalent on upper leaves of the plant.

However, with some hybrids that are very susceptible to downy mildew, spore infections of leaves can sometimes lead to systemic infections (*Fig. 7*). These are local lesion systemics and with such infected plants, there is an absence of downy mildew infections on lower leaves. These local lesion systemics can be problematic, as they are capable of producing spores (“oospores”) that can carry over to the next year. Additionally, this is a means that the pathogen can be introduced into new fields. Growers need to be aware of this to manage a potential future disease problem.

For more information on diagnosis (http://amarillo.tamu.edu/files/2010/11/sorghum_downymildew.pdf) and management (<http://amarillo.tamu.edu/files/2010/11/SorghumDownyMildewPart2.pdf>) of sorghum downy mildew, see these fact sheets.



Figure 5: Fungus on underside of the leaf

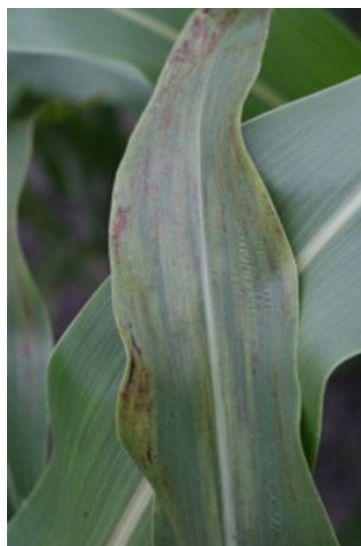


Figure 6: Symptom of downy mildew



Figure 7: Spore infections of leaves sometimes leads to systemic infections

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DATES TO REMEMBER

June 16

Fort Bend County Row Crops Tour

Stasney Farm—2252 W. Tavenner in Beasley

Registration at 8:30 a.m., Program Begins at 9:00 a.m.

July 29

Private Applicator Training

Registration 8:00 a.m., Training 8:30 a.m.

August 3

Farm Service Agency County Committee Nominations

Due to USDA Service Center by close of business

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