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PEST MANAGEMENT REPORT

NEWS ABOUT INTEGRATED PEST MANAGEMENT IN GLASSCOCK, REAGAN AND UPTON COUNTIES

GENERAL SITUATION

Cold and wet conditions have persisted this winter and soil moisture looks excellent at this time.

DEMONSTRATIONS AND APPLIED RESEARCH

Preliminary results of work from this past season are in the two gin offices for you to pick up or you can contact my office. I am working on writing final reports at this time.

COTTON WEED CONTROL

Billy Warrick, Extension Agronomist, San Angelo

There are a lot of winter weeds growing on land that is to be planted to cotton this spring. The winter weeds are using valuable soil moisture that should be reserved for the cotton crop to be planted. Since we have more than 60 days before planting, several different herbicides can be considered. You need to determine what kind of weeds you have and make sure that they are listed on the herbicide label. The least expensive broadleaf control herbicide is 2,4-D and it will eliminate a wide range of weeds. If the maximum daytime air temperatures are cool then the Ester formulation should be used. If you are concerned about other weeds that may emerge prior to planting you may want to include an herbicide that is soil active for a short period of time. Special consideration should be given to the crop that is going to be planted; use only approved herbicides and rates. Tests were conducted in 2002 and 2003 on controlling winter weeds; the links to the studies are <http://sanangelo.tamu.edu/agronomy> Publications - Result Demonstration Reports - 2002 *Far West Texas Conservation Tillage Weed Control Test*

HTML and <http://sanangelo.tamu.edu/agronomy> Publications - Result Demonstration Reports - *Far West Texas Conservation Tillage Weed Control Test, 2003*. The herbicides listed in the last table in each report is linked to a picture of that treatment in the test.

WHEAT

With the improved moisture conditions and potential for increased prices, more people are concerned with their wheat. Below are several different pieces of information from some extension agronomists that work with wheat about yield potential of late wheat, fertility in wheat and weed control.

GREEN BUGS

There are greenbugs in varying numbers in wheat now. The later planted wheat is probably most susceptible to damage from greenbugs. Populations of 25-50 greenbugs/foot of row can be economic in the younger fields.

Greenbugs are pale green, approximately 1/16 inch long, with a dark green stripe on the back. They reproduce rapidly at temperatures between 55° and 95°F. Their natural enemies, however, reproduce slowly when temperatures are below 65°F. Greenbug average temperatures must be below 20°F for at least a week to kill 99% of the greenbugs. The population also must be without protection from snow cover. Infested fields generally turn yellow in spots or sometimes entire fields. Greenbug damage is often confused with moisture stress or nitrogen deficiency. Many times, greenbugs will be near the base of the plant or in the leaf folds. So inspect plants thoroughly for the presence of greenbugs.

LATE EMERGING WHEAT

Dr. Billy Warrick, Extension Agronomist, San Angelo

What is the number one question being asked? Does this wheat have a chance of making grain? It was an impressive site to see all the wheat that emerged after the snow melted off. The wheat that is just now emerging will have several challenges before it will have grain to harvest.

Late maturity: Late emerged wheat will mature later subjecting the wheat to higher temperatures and drought stress during grain fill. Disease organisms will usually be present at higher levels during the latter part of the growing season, causing more risk to the maturing crop from wheat leaf rust and/or stem rust.

Poor Root System Development: Seedlings which emerge in December and January have a weak, shallow root system. The root system will not have the potential for moisture and nutrient uptake that wheat planted in the optimum time frame would. Hot, dry conditions at flowering and during grain fill would result in a significant yield reduction.

Tiller numbers: Wheat grows very slowly at low temperatures and is essentially dormant below 40 degrees. Late emergence dates subjects the wheat to cooler temperatures which results in very few tillers being produced.

Phosphorus inefficiency: Phosphorus availability is low in cold soils. P moves by diffusion from the soil solution to the root surface, and diffusion rates are inversely related to soil temperature. Root system expansion is slower in cold soils which results in lower phosphorus uptake by the plant. Phosphorus is an important nutrient in the development of the root system and ultimately a healthy plant.

Vernalization: Winter wheat undergoes two important physiological changes in the fall. The processes that bring about these changes are known as vernalization and cold acclimation. Vernalization is required before heading will take place in the spring. If seeding takes place after the optimum date, vernalization will be affected and maturity delayed. Cold acclimation is necessary before plants can survive the low temperatures of winter. Vernalization and cold acclimation require growth when minimum morning and maximum afternoon soil temperatures are below 45 and 50°F, respectively. Winter wheats require a number of chilling hours to stimulate the formation of reproductive growth. These chilling hours are usually

considered those above freezing but below the temperature at which wheat growth goes dormant from the cold (between 40 and 32 degrees). Wheat varieties vary somewhat with respect to vernalization requirements. Late planting reduces vernalization on wheats, which may be significant, particularly in southern growing areas of District 7. Optimum planting dates for wheat grown for grain production in our area is between October 15 and November 15. Yield reductions can be expected when wheat emergence occurs after November 20, however, weather conditions will be a major influence to the extent of the reduction.

Reduced Plant Vigor: Four to five weeks growth at temperatures higher than those required for vernalization and cold acclimation is necessary to ensure that plants have sufficient energy reserves available for a quick start in the spring. Seeding when maximum afternoon soil temperature is approximately 64°F usually allows sufficient time for this growth and development to take place. Seeding later, when temperatures were lower, resulted in delayed germination, slow plant emergence and a reduced rate of subsequent plant growth. This usually translates into a higher risk of winterkill, lower yield and delayed maturity.

I think you can tell by the reasons given that the likelihood of this crop being harvested for grain is low. A producer would probably be trading dollars by the time the harvest was complete. It will cost about seven to nine bushels of grain to pay for the harvest cost and hauling. I'm not sure that most of our late emerging acreage will produce 10 bushels.

Wheat producers should consider making a fertilizer application as soon as soil temperatures increase. Between February 15 and March 15 the wheat will reach a stage of growth where nutrients and water uptake will increase significantly. If producers intend to get the most from the dollars invested on fertilizer they need to apply nutrients soon. Soil nutrient levels will need to be at a high level when the formation of the head occurs (shortly before rapid spring growth begins). If the head can be found above the soil surface the producer has lost the opportunity to impact the number of spikelets per head and the number of seeds per spikelet.

TOP DRESSING AND WEED CONTROL SUGGESTIONS IN WHEAT

Brent Bean, Extension Agronomist, Amarillo
Calvin Trostle, Extension Agronomist, Lubbock

In general, the Texas Panhandle and South Plains wheat crop has gotten off to an excellent start. In some fields wheat has not grown as much as growers would have preferred, but this will likely change as soon as weather conditions become more favorable. For the most part, fall and winter rain and snow has replenished subsoil moisture to levels that should give the region the potential for an excellent wheat yield, assuming spring weather conditions are not drastically different from our long term average.

Two negatives that have resulted in our wet fall and winter weather conditions are an abundance of winter weeds, especially mustard weeds, and loss of nitrogen from the soil likely from leaching. Texas Agricultural Experiment Station research has shown that one uncontrolled tansy mustard weed per square foot can reduce dryland wheat yield by 10 percent. These weeds should be controlled while they are small and have not had a chance to use up valuable soil moisture that will be needed by the wheat crop this spring. Mustards that have grown out of the rosette stage and are beginning to bolt in order to flower are much more difficult to control. Also, lower rates of herbicide can be used to control small weeds compared to larger weeds. Many of the herbicides labeled for use in wheat, including 2,4-D, will be very effective on small mustard weeds. In choosing which herbicide to use consider how much residual effect is needed, and which crop will be planted on the land following the wheat. Use the herbicide with as long of a residual as can be tolerated considering the crop rotation plan. A list of herbicides labeled for wheat, along with their residual and crop rotation restrictions, can be found in the agronomy sections' of the Amarillo and Lubbock Texas Cooperative Extension and Texas Agricultural Experiment Station web sites.

Wheat foliage may appear light green when growth occurs during cool, cloudy weather. If this yellow-green color persists after several days of sunshine, it is likely due to inadequate nitrogen. The presence of vigorous darker green wheat growth around cattle droppings and urine spots is added evidence that nitrogen is deficient. Also, nitrogen deficient wheat will generally have yellow older leaves as the plant transfers nitrogen to younger growing leaves.

If both weeds are present and nitrogen is needed, consider applying herbicide and fertilizer together in order to save

on application costs.

Some wheat diseases, particularly wheat streak mosaic and the "high plains disease," can produce yellowing symptoms that may be confused for nitrogen deficiency. A closer look at the leaves reveals an irregular mosaic or mottled pattern of yellowish and normal green if these diseases are present. Quite often the disease symptoms will be worse in the southwest corner of the field where the disease carrying wheat curl mite is carried to the wheat by prevailing winds. The presence of volunteer wheat or CRP grass in the vicinity of the initial outbreak will aid in the confirmation of the diagnosis.

The rule of thumb for determining wheat nitrogen need is 1.5 lbs of nitrogen per bushel of expected yield. For example, a 35 bushel wheat crop that has not been grazed, will require 52.5 pounds of nitrogen for the entire growing season. In the absence of a soil test, dryland wheat exhibiting nitrogen deficiency symptoms in the late winter or early spring should be fertilized with 30 to 40 lbs of nitrogen. Likewise irrigated wheat fields should be fertilized with 60 lbs of nitrogen with additional nitrogen applied in the irrigation water as needed, depending on the yield goal and previous rate of nitrogen applied.

Ideally the nitrogen should be applied two weeks prior to wheat jointing. This will hopefully improve the chances of the nitrogen moving into the soil where the roots can pick up the nitrogen when the wheat begins its rapid growth during the jointing phase. This is also just prior to when the wheat plant will begin to form the wheat head and potential kernel numbers per head is determined. Research has shown that there is very little benefit to grain yield when nitrogen is applied after the second joint (node) is visible on the wheat plant. Any nitrogen added after this time may benefit grain protein, but will have little effect on yield.

Leaf burn from liquid nitrogen application is often a concern with growers. Leaf burn can be minimized by applying nitrogen while temperatures are cool. Even if leaf burn occurs it will have little effect on final grain yield.

RAINFALL

Rainfall amounts for the months of November, 2006 through January, 2007 are included in the table below.

	St. Lawrence	Garden City	Midkiff
November	0	0	0
December	.92	1.93	2.10
January	1.21	1.42	1.28
TOTAL	2.13	3.35	3.38

WEATHER DATA

Weather data for the past two weeks is included in the table that follows:

DATE	HIGH TEMP	LOW TEMP	RAI N	AVG WIND SPEED	SOIL TEMP
1/29	52	28	0	7	45
1/30	39	28	0	8	45
1/31	53	32	.03	10	45
2/1	46	32	.16	7	46
2/2	42	27	0	7	46
2/3	59	25	0	9	45
2/4	61	27	0	5	46
2/5	64	27	0	7	46
2/6	73	33	0	9	47
2/7	78	35	0	8	49
2/8	45	30	0	7	49
2/9	40	30	0	7	48
2/10	40	31	0	6	47
2/11	56	38	0	13	48

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