
Warren L. Multer, EA/IPM

PEST MANAGEMENT REPORT

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

GENERAL SITUATION

Warm, dry weather has allowed cotton to mature rapidly. The 1st cotton has been harvested and several fields are being sprayed with defoliant.

Some area wheat is being damaged by armyworms and white grubs.

COTTON DEVELOPMENT

Dry conditions and warmer than normal temperatures has resulted in cotton maturing very rapidly. During the month of September, we accumulated 476 heat units which is well above the 5 year average of 388. So far the first several days of October have been warm also.

HARVEST AID

With many different harvest aid materials available and various cotton stages and environmental conditions, it is hard to generalize about harvest aid use.

So far, it appears most products are working very well with the warm weather and the condition of the cotton. We will probably see this change after the weather cools and if we get more moisture to set up re-growth.

Below is a section of the 2007 High Plains Cotton Harvest Aid Guide that discusses most of the different types of Harvest Aids available. Enclosed are the tables to give ideas of different uses under different crop conditions. Also enclosed is a table that shows equal rates of paraquat if using the 2 lb/gallon Gramoxone Inteon or the 3 lb/gallon Firestorm. If you would like to read the entire Harvest Aid Guide, it is attached in pdf

form to this e-mail.

HARVEST-AID CHEMICAL TYPES

Harvest aids are basically classed in three categories - desiccants, defoliant, and boll openers. Desiccants (paraquat formulations such as Gramoxone Inteon, Firestorm and various tank-mixes) dry down the plant by causing the cells to rupture. The old "rule of thumb" is that desiccants are normally applied when approximately 80 percent of the productive bolls are open, or at 2-3 nodes above cracked boll. However if sufficient numbers of bolls are mature, based on the knife test, then these chemicals may be applied to somewhat lower percent open boll fields. Gramoxone Inteon and Firestorm are similar products in that paraquat is the active ingredient in both formulations. The most important difference is in pounds of active ingredient per gallon. Gramoxone Inteon is a 2 lb/gallon formulation, whereas Firestorm is a 3 lb/gallon product. A conversion table that provides equivalent active ingredient rates in lb/acre for both formulations can be found in the Decision Aid Table section of this publication. A 24© special local needs (SLN) label has been granted by the Texas Department of Agriculture (TDA) for Gramoxone Inteon for most of Texas. This SLN has approved higher use rates for desiccation of stripper harvested cotton. However, and SLN label has yet to be granted for Firestorm which currently has a maximum use rate of 1.3 pts/acre per season as a cotton harvest aid.

Applications of Gramoxone Inteon or Firestorm made in the late afternoon prior to a bright, sunny day appear to enhance the effectiveness of desiccation and tend to increase regrowth control. Use of non-ionic surfactant (NIS) at a minimum rate of 0.125% or 0.25% volume/volume (v/v), depending on the % concentration of

surface-active agent (see individual labels) with paraquat is suggested. It may be necessary to increase the NIS rate to 1% v/v and spray late in the day to effectively desiccate some fields. In some years, AIM 2EC, Blizzard, ET 2.5% EC, or Resource (see product descriptions below in the defoliant section) when applied at higher rates work well to desiccate juvenile growth and regrowth, which is many times difficult to accomplish with paraquat.

Defoliants (Ginstar, Def/Folex, Harvade, Aim 2EC, Blizzard, ET 2.5% EC, Resource, Dropp, FreeFall, sodium chlorates, Gramoxone Inteon at low rates, and other products) result in initiation of an abscission layer at the base of the leaf petiole where it attaches to the stem. The natural abscission layer formation process is enhanced by the defoliant, which results in leaf drop. In order to obtain maximum leaf drop, defoliants require fairly healthy and active leaves which still properly function and are not severely drought stressed (tough and leathery). Warm air temperatures generally enhance activity. The commonly used rule of thumb is that defoliants can be safely applied when 50-60 percent of the bolls are open and the remaining bolls are of sufficient maturity to obtain desired yield. Although a boll opening response is generally obtained as a result of defoliation, green unopened bolls can still remain a problem. Many times a follow-up application of paraquat or other chemicals with desiccant activity or a killing freeze is necessary to allow stripper harvest of the crop. Aim 2EC, Blizzard, ET 2.5%EC, and Resource belong to the chemical class protoporphyrinogen oxidase (PPO) inhibitors. **Blizzard from Chemtura is new for 2007.** Research conducted with Blizzard in the High Plains in 2006 indicated that the product performed similarly to others in the PPO chemistry in that specific year. Aim 2EC, Blizzard, ET 2.5%EC, and Resource cause disruption of cell membranes, which in turn triggers increased ethylene in leaves. Recent research trials have indicated that these products can be effective defoliants, as well as desiccants in some instances when used at higher rates. Aim 2EC, Blizzard, ET 2.5%EC, and Resource can be tank mixed with other products such as FirstPick, Gramoxone Inteon, Def/Folex, Prep, Finish 6 Pro, and Ginstar. **Use of crop oil concentrate (COC) is suggested for the Aim 2EC, Blizzard, ET 2.5%EC, and Resource spray mixtures. See specific product labels for details. Failure to include COC with these products will likely result in significantly reduced activity.**

Boll openers (Prep and other generic products such as

Ethephon 6, SuperBoll, Boll'd) and boll openers-defoliants (such as Finish 6 Pro and FirstPick which are ethephon products with additional synergists cyclanilide and AMADS, respectively) enhance boll opening to allow for more timely harvesting of the crop. **DuPont removed CottonQuik from the market in 2006 and replaced it with FirstPick. The active ingredient concentration (for both the AMADS synergist and ethephon) is the same for both products. The formulation change is described as a "water soluble emulsifiable concentrate that has reduced corrosivity and different surfactants." FirstPick has performed similarly to CottonQuik.** These chemicals affect natural plant processes associated with boll opening, but do not increase the rate of boll or fiber maturation. Once inside the plant, ethephon is converted to ethylene, a plant hormone which increases the rate of abscission layer formation. These chemicals result in significant defoliation responses at high rates, but generally are applied at lower rates to obtain boll opening. Defoliant chemicals can be tank mixed with normal use rates of ethephon products to enhance defoliation. The response to ethephon is generally driven by temperatures. Under warmer conditions, reduced rates of ethephon may be used compared to cooler temperature regimes where higher rates are required to obtain similar plant responses. Ethephon product labels generally state that there should be "sufficient mature unopened bolls present to produce desired crop." Mature bolls are defined as "too hard to be dented when squeezed between the thumb and fingers, too hard to be sliced with a sharp knife, and when the seedcoat becomes light brown in color." Applications of boll opening products when bolls lack adequate maturity will likely result in reduced lint yield and micronaire. Results from several High Plains studies indicate that reductions occurred when application were made at 25 percent open bolls, but not a 50 percent open bolls. Lint yields were reduced at least 10 percent, and micronaire was decreased by about 5 percent. A follow-up application of paraquat (or other product with desiccant activity) is generally required to sufficiently condition the crop for stripper harvest.

Glyphosate can be applied as a harvest aid material to non-Roundup Ready/Roundup Ready Flex or conventional cotton specifically to target weed problems and/or to reduce regrowth potential. Effective silverleaf nightshade (or whiteweed) control can be observed in the following season with application of 1-2 quarts per acre of glyphosate when weeds are in the green-berry stage. Control of severe weed infestations may be increased by the higher rate. Research has shown that reductions in weed

populations of up to 97 percent can be obtained from such an application. Applications made in September should target cotton that is 50-80 percent open. After October 1, cotton can be treated when 30 percent of the bolls are open.

Regrowth in Roundup Ready and Roundup Ready Flex cotton varieties will not be controlled by glyphosate application. Glyphosate also should not be applied, at this time, to non-Roundup Ready Flex fields grown for seed production since viability and/or vigor of seed may be reduced. Recent Roundup Flex label changes pertaining to seed production have been made. See the label for specific details.

WHEAT

Some early planted wheat has been damaged by white grubs and armyworms. Grubs have killed fairly large spots in some fields that have been continuous wheat for several years and were planted in Early September. There is no control method available after wheat is planted. Seed treatments or delayed planting are the best control measures.

Armyworms were also found in a couple of the older fields in economic numbers. They can cause significant stand loss if left untreated. The pyrethroids have given good control of this pest in the past.

Control is suggested when there are 4 or more larvae per square foot and they are threatening the stand.

The information given herein is for educational purposes only. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Cooperative Extension Service is implied.

Extension programs serve people of all ages regardless of socioeconomic level, race, color, sex, religion, disability, or national origin. The Texas A&M University System, US Department of Agriculture, and the County Commissioners Courts of Texas Cooperating

HEAT UNITS

Heat units averaged 17 per day the past week. Heat units since 5-15, 5-25, 6-4 and 6-14 are compared with last year and a five year average in the table below.

DATE	5/15	5/25	6/4	6/14
2007	2301	2238	2098	1928
2006	2631	2462	2271	2040
5 YEAR AVERAGE	2449	2304	2141	1945

Heat units needed for Cotton Development

Planting To:	Days	Heat Units
First Open Boll	88-106	1641
95% Mature Bolls	129-163	2271

WEATHER DATA

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

DATE	HIGH TEMP	LOW TEMP	RAIN	AVG WIND SPEED	SOIL TEMP
9/20	85	65	0	8	78
9/21	90	60	0	5	78
9/22	90	64	0	5	80
9/23	88	60	0	7	80
9/24	88	66	0	6	80
9/25	89	67	0	6	80
9/26	89	59	0	3	81
9/27	93	60	0	5	81
9/28	87	61	0	9	81
9/29	87	66	0	13	80
9/30	88	69	0	9	80
10/1	88	66	0	8	80
10/2	91	69	0	9	81
10/3	93	63	0	4	81