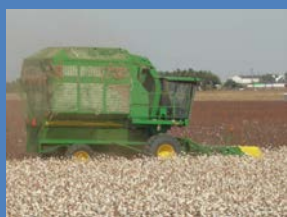


WEST PLAINS IPM UPDATE



News about
Integrated Pest
Management in
Hockley,
Cochran, and
Lamb Counties
from
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2016 High Plains Cotton Harvest-Aid Guide

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Application of harvest-aids in cotton are utilized to remove foliage, prevent regrowth, and open bolls to allow for timely harvest operations to occur so that yield and quality losses due to weathering can be minimized. Defoliation and boll opening are natural processes governed by plant hormones, so harvest-aids are used to speed up these naturally occurring processes. The timing of harvest-aid applications is primarily governed by crop maturity, but environmental conditions also play a role in timing of application, the products used, as well as rates.

Recommendations regarding the timing of applications are based of crop maturity status and there are various methods or crop growth maturity characteristics utilized. The most common recommendations are timing applications at: 1. Four nodes from the uppermost first position cracked boll to the uppermost first position harvestable boll (4 NACB) and; 2. 60-70% of the harvestable bolls on the plant are open (60-70% open bolls). However, these two methods are often not correlated to the same time, in other words 4 NACB doesn't necessarily equate to 60-70% open bolls so a combination of the two may be used, and timing of harvest-aid applications should be made on a field by field basis. Boll distribution, variety maturity, and management practices can impact both of these measurements, and in-field variability of NACB and % open bolls can be high, so taking into account the status of the majority of the plants in the field is recommended. Both of these measurements should be based on the amount of harvestable bolls on the plants, so only mature bolls should be taken into account. While harvest-aids can hasten the natural process of defoliation and boll opening, they do not influence boll maturity. Boll maturity can be determined by slicing the boll horizontally to expose the developing lint and seeds. A mature boll should be firm and difficult to slice, with mature seeds (fully developed cotyledons with little liquid or "jelly" in the seeds) with a dark seed coat, with the lint stringing-out when the two halves are separated.

A wide array of harvest-aid products are available for use in cotton. These products typically fall into one of four general categories, boll openers, defoliants, regrowth control, and desiccants, although some products may serve multiple purposes. For example, boll openers (active ingredient – ethephon) will provide some defoliation, especially in warm sunny conditions. Product selection and use rates are dependent upon environmental conditions at application and in the short-term (3 – 5 days) following application. The tables below provide harvest aid recommendations, and general information on the function of the different active ingredients, use rates, and some common names of products. As always, follow the label regarding use rates and adjuvants/surfactants. Many product labels will also include information on rates base on environmental conditions (mainly temperature and humidity).

Active ingredients, common trade names, and application considerations.

Defoliants		
Trade Names (Manufacturer)	Active Ingredients	Considerations
	<i>Organophosphate</i>	
Folex 6 EC (Amvac)	Tribufos	Reduced activity under low temps, low humidity, or stressed plants; higher rate may be required.
	<i>PPO Inhibitor</i>	
ETX (Nichino)	Pyraflufen-ethyl	Addition of COC recommended
Aim EC (FMC)	Carfentrazone-ethyl	NIS required at higher temps, COC required at lower temps.
Display (FMC)	Carfentrazone-ethyl + Fluthiacet-methyl	
Resource (Valent)	Flumiclorac pentyl ester	Addition of COC or MSO; NIS if warm, sunny conditions.
Sharpen (BASF)	Saflufenacil	Addition of MSO + AMS or UAN required.
Defoliants/Regrowth Inhibitor		
Freefall (Nufarm)	Thidiazuron	Higher use rates and addition of COC with temps < 65 F, or in drought conditions. Thidiazuron alone not typically recommended due to low overnight temps in the High Plains.
Daze (Winfield)		
Klean-Pik (Mana)		
Take Down (Loveland)		
Thidiazuron (Arysta)		
Ginstar EC (Bayer)	Thidiazuron + diuron	Minimum 12 hours rain-free after application for optimal performance. Higher rates required if low humidity is present.
Cutout (Nufarm)		
Adios (Arysta)		
Redi-Pik (Mana)		
Boll Opening		
Super Boll (Nurfarm)	Ethephon (6 lbs. ethephon/gal)	7 day PHI. Minimum 6 hour rain-free period for optimal performance. Higher rates under cool and/or dry conditions, or on toughened/drought stressed foliage.
Boll'd (Winfield)		
Boll Buster (Loveland)		
Ethephon 6 (Arysta)		
Several other trade names		
Flash (Helena)	Ethephon (3 lbs.)	
Finsih 6 Pro (Bayer)	Ethephon (6 lbs.) + cyclanilide	
First Pick (Nufarm)	Ethephon (2.28 lbs.) + urea sulfate	
Desiccants		
Gramoxone Inteon (Syngenta)	Paraquat (2 lbs. paraquat/gal)	Addition of NIS recommended.
Gramoxone SL2.0 (Syngenta)		
Firestorm (Chemtura)	Paraquat (3 lbs.)	
Parazone 3 SL (Adama)		
Several other trade names		

COC – crop oil concentrate; NIS – nonionic surfactant; MSO – methylated seed oil; AMS – ammonium sulfate; UAN – urea ammonium nitrate; PHI – pre-harvest interval.

Harvest-Aid Decision Table (all units in per acre basis). This lists several available options but is not mean to be exclusive.

Crop Condition	Harvest-Aid Options ¹
Short stature (12 – 14 inches); low/limited yield potential (< 500 lbs/acre).	PPO inhibitor defoliant (rates vary) with or without the addition of a boll opener.
	PPO inhibitor defoliant (rates vary) FB ² PPO inhibitor defoliant (rates vary). ³
	Paraquat formulation at 8 – 16 oz (2 lb.) or Paraquat at 5.3 – 10.7 oz (3 lb.).
	Paraquat at 4 – 12 oz (2 lb.) FB paraquat up to 48 oz (2 lb.) or paraquat at 2.6 – 5.3 oz (3 lb.) FB paraquat up to 32 oz (3 lb.). ⁴
	Paraquat at 6 – 24 oz (2 lb.) or Paraquat at 4 – 6.7 oz (3 lb.) + tribufos at 8 – 16 oz or PPO inhibitor defoliant (rates vary). ⁵
Medium stature (15 – 24 inches); 500+ lbs./acre yield potential.	Ethephon (6 lb.) at 16 – 42 oz or (ethephon + cyclanilide) at 16 – 42 oz + tribufos at 8 – 16 oz.
	Ethephon (6 lb.) at 16 – 42 oz or (Ethephon + cyclanilide) at 16 – 42 oz + (thidiazuron + diuron) at 3 – 8 oz.
	Ethephon (6 lb.) at 16 – 42 oz or (ethephon + cyclanilide) at 16 – 42 oz + PPO inhibitor defoliant (rates vary). ³
	PPO inhibitor defoliant (rates vary) ³ + tribufos at 8 – 16 oz or PPO inhibitor defoliant at 0.6 – 8 oz ³ + (thidiazuron + diuron) at 3 – 8 oz.
	PPO inhibitor defoliant (rates vary) ³ FB ² PPO inhibitor defoliant (rates vary). ³
	Paraquat at 6 -24 oz (2 lb.) or paraquat at 4 – 16 oz (3 lb.) + tribufos at 8 – 16 oz.
	Paraquat at 6 – 24 oz (2 lb.) or paraquat at 4 – 16 oz (3 lb.) + PPO inhibitor defoliant (rates vary). ³
	Paraquat at 4 – 8 (2 lb.) oz FB paraquat up to 48 oz total (2 lb.) ³ or paraquat at 2.6 – 5.3 oz (3 lb.) FB Paraquat up to 32 oz total (3 lb.). ⁴
	(Ethephon + urea sulfate) at 48 – 64 oz + (thidiazuron + diuron) at 3 – 8 oz.

Harvest-Aid Decision Table continued (all units in per acre basis). This lists several available options but is not mean to be exclusive.

Crop Condition	Harvest-Aid Options ¹
Tall stature (> 24 inches); 1000+ lbs./acre yield potential.	Ethephon (6 lb.) at 21 – 42 oz or (ethephon + cyclanilide) at 21 – 42 oz + tribufos at 8 – 16 oz.
	Ethephon (6 lb.) at 21 – 42 oz or (ethephon + cyclanilide) at 21 – 42 oz + (thidiazuron + diuron) 3 – 8 oz.
	(Ethephon + urea sulfate) at 48 – 112 oz + (thidiazuron + diuron) at 3 – 8 oz.
	Ethephon (6 lb.) at 21 – 42 oz or (ethephon + cyclanilide) at 21 – 42 oz + PPO inhibitor defoliant (rates vary). ³
	(Ethephon + urea sulfate) at 48 – 112 oz + PPO inhibitor defoliant at 0.6 – 8 oz. ³
Conditioning Treatment for late maturing cotton. Apply after daily heat units drop below 5, but 7 days before average first killing freeze date.	Paraquat at 4 – 16 oz (2 lb.) or paraquat at 2.6 to 10.7 oz (3 lb.).
	Ethephon (6 lb.) at 21 – 42 oz.

¹Actual rates needed will depend on weather conditions (high and low temperatures, humidity). Higher label rates are typically recommended under cooler and dryer conditions. Check the label for specific details on rates.

²FB = followed by.

³Rates will depend on product selected; check the label for appropriate rates for the selected product. No more than: 3.2 oz/acre total of Aim EC, 2.0 oz/acre total of Display, 2.0 oz/acre total of Sharpen, 3.4 oz/acre total (no more than 2 applications) of ETX, and 14 oz/acre (no more than 2 applications, max of 8 oz per single application) of Resource may be applied during the growing season.

⁴No more than 0.75 lb./acre of parquat active ingredient may be applied (in up to 3 multiple applications in one season based on the Texas Special Local Need 24c label. The second application should depend on the green leaves remaining and the rate applied in the first application; use higher rates if excessive regrowth is present.

⁵Labeled tank mix partners for paraquat include Folex, ETX, and Sharpen.

Private Pesticide Applicators Training

The Texas A&M AgriLife Extension Service will offer the required private Pesticide Applicators Training (PAT) each month. This training is required by Texas Department of Agriculture before taking the exam for obtaining the license. A private pesticide applicator is a person who uses or supervises the use of a restricted-use or state limited-use pesticide or a regulated herbicide for the purpose of producing an agricultural commodity. This license is not for those receiving monetary compensation for a pesticide application.

To participate in training individuals must call 806-894-3159 by 3pm the day prior to the training in Levelland or 806-385-4222 ext 235 by 3pm the day prior to the training in Littlefield, and 806-266-5215 for training in Morton. The trainings will begin promptly at 1pm at the Extension Offices (see addresses below). There is a \$60 fee for training materials. This is only the required training. Testing will be conducted at a separate time and location.

Future PAT Trainings:

- September 22 Morton Extension Office 200 W. Taylor Avenue
- October 27 Levelland Extension Office 1212 Houston Street
- November 17 Littlefield Extension Office, Courthouse, Room B-5
- and December 19 Morton Extension Office 200 W. Taylor Avenue

Texas A&M AgriLife Extension seeks to provide reasonable accommodations for all persons with disabilities for any educational meetings. Please contact us to advise us of the auxiliary aid or service that you will require a week in advance of training.

See You On The Radio

IPM Radio Program Aglife on Fox Talk KJTV, radio 950 AM, on Wednesdays from 1:00 to 2:15 pm.

Texas A&M AgriLife Extension in Hockley County Report on KLVT Levelland, High Plains Radio Network, radio 1230 AM, Wednesdays from 7:30 am to 7:45 am.

West Plains IPM Update is a publication of the Texas A&M AgriLife Extension Service IPM Program in Hockley, Cochran, and Lamb Counties.

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