SCS-2011-04

AgriLIFE EXTENSION
Texas A&M System

Managing Volunteer Cotton in Grain Crops

(Corn, Sorghum, Soybean, and Wheat)

G.D. Morgan, D.A. Fromme, P.A. Baumann, J. Grichar, B. Bean, M.E. Matocha, and D.A. Mott
Texas AgriLife Extension Service - The Department of Soil & Crop Sciences

http://cotton.tamu.edu/

Introduction:

The overwhelming adoption cotton varieties with single and double stacked herbicide tolerant traits (Roundup ReadyFlex®, LibertyLink®, GlyTol® and GlyTol®/LibertyLink®) provides cotton producers with some excellent weed management options, and has revolutionized cotton production in the past 10 to 15 years. In Texas, over 90% of the cotton acres are planted to cotton varieties that include one or more of these herbicide tolerant traits and, despite the many opportunities these traits provide to farmers, they do create some challenges. For example, consecutive plantings of herbicide tolerant crops can lead to herbicide tolerant volunteer cotton, corn, or soybean plants; and therefore, these volunteers meet the definition of a weed (an unwanted plant). Volunteer crop plants compete for essential nutrients, water, and light with the crop and can cause harvest issues. Additionally, volunteer cotton plants can be very challenging to manage in other crops such as corn, sorghum, soybeans, or wheat, depending on the herbicide tolerant genes they contain. Volunteer cotton plants are quite problematic because they can serve as a host for the boll weevil (Anthonomus grandis L.) within the grain crops and negatively influence the Texas Boll Weevil Eradication Program (TBWEP).

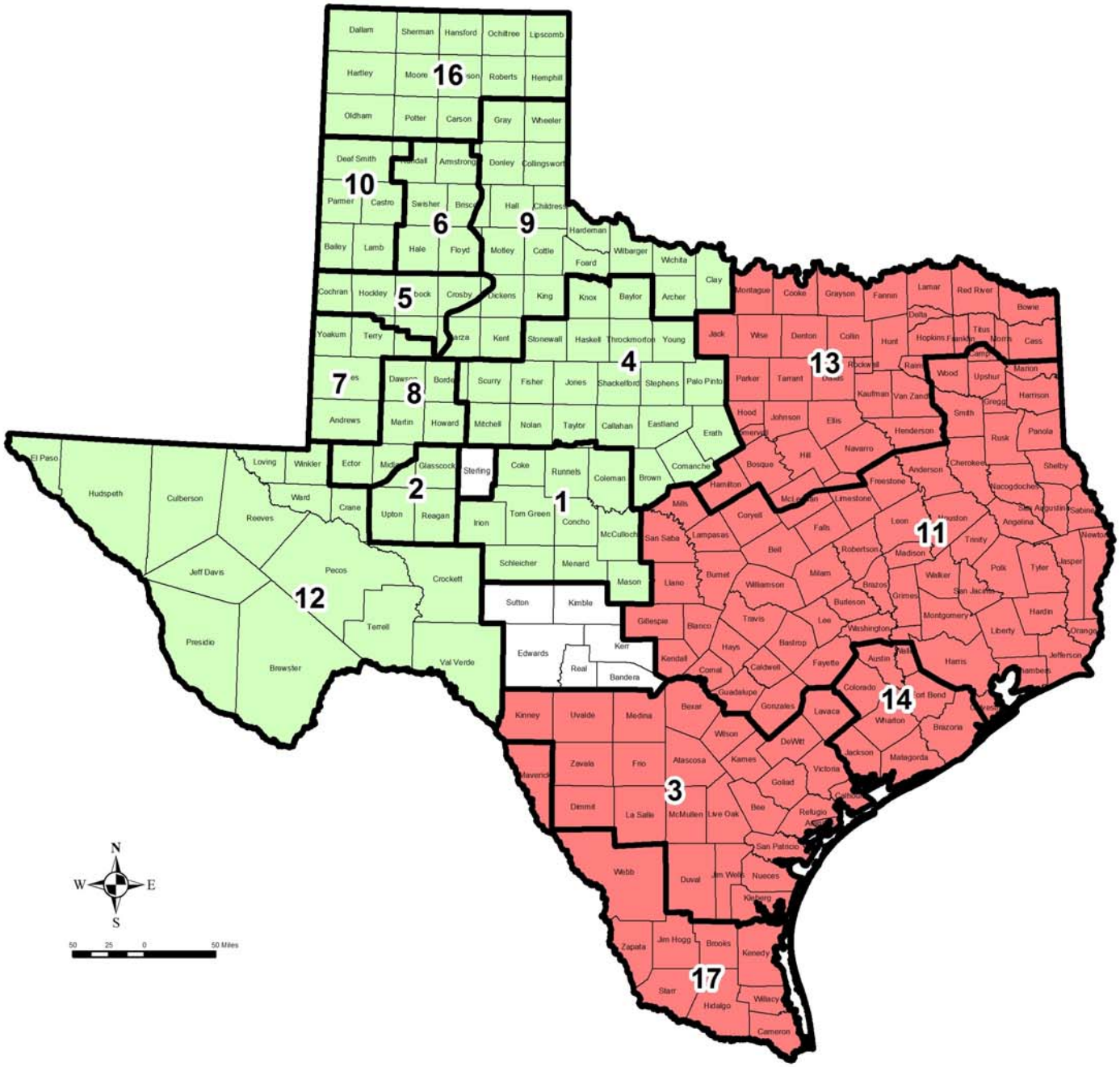
2011 and beyond:

Over the next couple of years, stacked herbicide tolerant varieties are expected to be widely available to cotton producers, including glyphosate + glufosinate tolerant cotton varieties. Within the next 4 to 5 years, 2,4-D and dicamba resistant cotton varieties are expected to registered for use in the U.S. and available to producers as triple-stacked herbicide tolerance traits. This next generation of herbicide tolerant cotton varieties will provide an abundance of weed management options for producers and will provide the flexibility to combat and retard the development of herbicide resistant weeds. However, these stacked herbicide traits will also further complicate the issue of managing volunteer cotton.

The problem:

There are two major factors that contribute to the need to remove volunteer cotton from various crops in all the crop production regions of the state. First, the yield loss associated with the competition of volunteer cotton and second, are problems associated with boll weevil control and added costs to the TBWEP and farmers who have volunteer cotton in their grain crops (primarily a problem for South and Eastern Texas where the TBWEP is still active) due to the non-removal of boll weevil host plants. From the crop competition perspective, 80 to 90% control by any herbicide would be considered acceptable by most producers. However, in quarantined zones of the TBWEP (Figure 1), there is a zero tolerance for volunteer cotton in non-cotton fields, also referred to as non-commercial cotton. In these quarantined zones, the legal requirement set by the Texas Department of Agriculture is a zero tolerance for hostable non-commercial cotton plants (6-8 leaf plants or larger). Essentially, non-cotton fields must be kept completely void of hostable cotton plants for the entire year. Complete control is a challenge, but can be accomplished with timely herbicide applications and appropriate herbicide selection. Assisting with these decisions is the primary objective of this publication.

Texas Boll Weevil Eradication Foundation



Zones

1. Southern Rolling Plains
2. St. Lawrence
3. South Texas/Winter Garden
4. Rolling Plains Central
5. Southern High Plains/Caprock
6. Northern High Plains
7. Western High Plains
8. Permian Basin
9. Northern Rolling Plains
10. Northwest Plains
11. Southern Blacklands
12. El Paso/Trans Pecos
13. Northern Blacklands
14. Upper Coastal Bend
15. Pecos Valley NM
16. Panhandle
17. Lower Rio Grande Valley

Zone Status

- Functionally Eradicated
- Quarantined

Management options:

There are five key times during the year for managing volunteer cotton, including fallow, preplant, preemergence, within season, and post-harvest. The best management strategy(s) will depend on local weather patterns, crop rotation, tillage regime, and other factors. The information in this publication primarily focuses on herbicide management options in corn, sorghum, soybean, and wheat. However, tillage (disking or cultivation) should also be considered as a management tool in the decision making process.

Tillage: Tillage is probably one of the most effective tools for managing volunteer cotton in fallow situations or prior to planting any crop. However, in-season crop cultivation will leave approximately 15 to 25% of the area undisturbed where cotton plants can survive. Although the 75 to 85% control obtained with cultivation should suffice for minimizing crop competition, this level of control is not acceptable to the TBWEP.

Herbicides: Various herbicides will provide excellent volunteer cotton control during either the fallow period or growing season. However, only a few herbicides specifically list management of volunteer cotton on their label. For optimum results, it is always important to follow the herbicide label for rate, application timing, additives, carrier volume, etc.

Preplant burndown herbicide: A detailed list of herbicide products labeled in corn, sorghum, soybean, and wheat are included in **Table 1**. The estimated efficacy of these products can be extrapolated from **Table 5** for the postemergence herbicides efficacy.

Preemergence herbicides: See **Table 2** for herbicides labeled in corn, sorghum, and soybean. The most effective preemergence herbicides will likely only reduce cotton stands about 65%, and 2 lb/a of atrazine only reduced stands by 30%. See **Table 4** for specific preemergence herbicide efficacy ratings. Preemergence herbicides can be used as another tool for managing volunteer cotton, but other tactics will likely have to be employed.

Postemergence herbicide: See **Table 3** for postemergence herbicides labeled in corn, sorghum, soybean, and wheat. For good to excellent control of volunteer cotton and to have the greatest number of herbicide options, volunteer cotton plants must be small (1-4 leaf stage). See efficacy ratings in **Table 5**. Once cotton reaches the 5-6 leaf stage or beyond, highly effective herbicide options decrease dramatically because the cotton becomes much more difficult to kill. See efficacy ratings in **Table 5**. Additionally, none of the herbicides provided 100% volunteer cotton control when applied at the 5-6 leaf stage.

Hostable Plants for Boll Weevil: Any cotton at pin-head square stage or beyond is considered hostable for the boll weevil. Additionally, enforcement by Texas Department of Agriculture of volunteer cotton guidelines begins at the pin-head square stage. It is critical to prevent volunteer cotton plants from reaching this stage for the overall success of the Texas Boll Weevil Eradication Program and to prevent the levying of any fees or fines for volunteer (non-commercial) cotton found in fields. To ensure the highest herbicide efficacy and eradicate boll weevil hostable plants, volunteer cotton should not exceed the 5 leaf stage at the time of herbicide application. Cotton plants at or beyond the 5 leaf stage have a high probability of surviving the herbicide application and becoming hostable plants

Mechanism-of-Action: Knowing the mechanism of action of a herbicide is necessary to plan to manage volunteer cotton plants, especially with numerous herbicide tolerant traits in most cotton varieties. This will be even more important as double and triple herbicide tolerant traits are integrated into cotton varieties. Producers will have to consider the herbicide tolerant traits in their cotton variety and select a herbicide with an alternative mechanism-of-action to control the volunteer cotton. For example, to adequately kill a cotton variety with glyphosate tolerance (Roundup Ready® or GlyTol®) a herbicide with a mechanism-of-action other than a EPSP inhibitor must be selected, such as a Ignite®, Gramoxone®, or many others.

Herbicide Options and Disclaimer: The information provided within this publication is not a substitute for reading the label. It is meant to be a quick reference to identify some potential herbicide options for controlling volunteer cotton. The information contained in this publication is based on numerous research trials that have been conducted over the past several years by Texas AgriLife Extension and Research personnel. The objective in each of these trials has been to evaluate numerous herbicides over a broad spectrum of environments and cotton growth stages. **Herbicide injury to corn, sorghum, soybean, or wheat was not reported. Special attention should be paid to the application method (hoods, drop nozzles, post-directed) and timing for each of these crops.**

TABLE 1. Volunteer Cotton Control Options with Preplant Burndown and Residual Herbicides

Product	Rate/acre (product)	Crop Labeled	Remarks	Rotation Restrictions	Mechanism-of-Action
2,4-D Amine	1-2 pt	Corn, Sorghum, Soybean, Wheat	May cause injury to labeled crops if adequate time does not occur between application and planting. See label for details. Do not apply to sandy soils.	Cotton – Following spring Wheat – following year	Synthetic Auxin
Clarity (dicamba)	8-32 oz	Corn, Cotton, Sorghum, Soybean, Wheat	May cause injury to labeled crops if adequate time does not occur between application and planting. See label for details. Planting, cultivation and rotation restrictions	Cotton – 21 days/8 oz + 1" rain Sorghum – 15 days/8 oz Wheat – 22 days/8 oz Soybean – 14 days/8 oz + 1" rain	Synthetic Auxin
Glyphosate (glyphosate 3 lb./gal ae)	16 oz-5 qt	Non-selective, use only on Roundup Ready Crops	Cultivation restrictions; some generic formulations contain 3 lb ae/gal.	None	EPSP inhibitor
Gramoxone Inteon (paraquat)	2-4 pt	Corn, Cotton, Sorghum, Soybean, Wheat	Spray coverage is critical. Apply in a minimum of 10 GPA carrier volume via ground or 5 GPA for aerial applications. Always use a surfactant.	None	Photosystem I inhibitor
Ignite (glufosinate)	29-43 oz	Non-selective, Liberty Link Crops	Reduced efficacy may occur under cool conditions and stressed weeds.	None	Glutamine synthetase inhibitor
Reflex (fomesafen)	1-1.5 pt	Cotton, Soybean	Rotation Restrictions; Labeled for use only East of Hwy 77 in Texas; Cotton: 70 day pre harvest	Cotton – 21 days + 0.5" rain Corn – 10 months Sorghum – 18 months Wheat – 4 month Soybean - None	PPG inhibitor
Roundup (glyphosate, 4.5 lb./ gal ae)	22 oz-3.3 qt	Non-selective, Roundup Ready Crops	See glyphosate description above	None	EPSP inhibitor
Sharpen (saflufenacil)	1.0-2.0 oz	Corn, Sorghum, Soybean, Wheat	Rotation restrictions for cotton & soybeans; Do not apply after corn, wheat or sorghum has emerged; Sorghum: 30 day planting interval; Soybean: Do not apply at cracking stage or after emergence	Cotton – Following spring Soybean – 1 month Sorghum – 0 month	PPG inhibitor
Valor (flumioxazin)	1-3 oz	Corn, Cotton, Soybean	Apply within 3 days of planting but before crop emerges. Treated soil contacting newly emerged crops may result in temporary crop injury; Rotation restrictions	Rate dependent – refer to label	PPG inhibitor

TABLE 2. Volunteer Cotton Control Options with Preemergence Herbicides in Grain Crops (Corn, Sorghum, Soybeans, and Wheat)

Product	Rate/acre (product)	Crop Labeled	Remarks	Rotation Restrictions	Mode of Action[1]
Aatrex 4L (atrazine)	4 pt	Corn, Sorghum	Rotation restrictions to planting cotton and wheat.	Cotton - Following spring Wheat – following year	Photosystem II Inhibitor
Balance Flexx (isoxaflutole)	6 oz	Corn	Rotation restrictions; corn must be planted at least 1.5" deep.	Cotton – 18 months Sorghum – 6 months	Carotenoid Inhibitor
Basis (rimsulfuron + thifensulfuron)	0.33-0.5 oz	Corn	Rotation restrictions.	Cotton – 10 months Sorghum – 10 months Soybean – 10 months Wheat – 1 month	ALS inhibitors
Boundary (S-metolachlor + metribuzin)	1.2-3.0 pt	Soybean	Rotation restrictions; do not use on sandy soils.	Cotton - 8 months Corn – 8 months Sorghum – 12 months Wheat – 4.5 months	Mitosis inhibitor+ Photosystem II inhibitor
Callisto (mesotrione)	6-7.7 oz	Corn	Rotation restrictions.	Cotton – 10 months Wheat – 4 months Soybean – 10 months Sorghum - immediately	Carotenoid inhibitor
Callisto Xtra (mesotrione + atrazine)	20-24 oz	Corn	Rotation & cultivation restrictions; 60 day pre harvest interval.	Cotton – Following spring Soybean – Following spring Sorghum - immediately	Carotenoid inhibitor + Photosystem II inhibitor
Command (clomazone)	1.33-3.33 pt	Soybean	Rotation restrictions.	Rate dependent – refer to label	Carotenoid inhibitor
Corvus (thiencarbazone + isoxaflutole)	3.33-5.6 oz	Corn	Crop must be planted at least 1.5" deep; rotation restrictions.	Cotton – 17 months Sorghum 17 months Wheat – 4 months Soybean – 9 months	ALS inhibitor + Carotenoid inhibitor
Integrity (saflufenacil + dimethenamid)	10-16 oz	Corn	Preplant restrictions.	Cotton – Following spring	PPG inhibitor

TABLE 2. *continued*

Product	Rate/acre (product)	Crop Labeled	Remarks	Rotation Restrictions	Mode of Action[1]
Pursuit (imazethapyr)	4 oz	Corn, Soybean	Apply only to Clearfield® corn; Rotation restrictions.	Cotton – 18 months Corn – refer to label Sorghum – 18 months Wheat – 4 months	ALS inhibitor
Lumax (S-metolachlor + atrazine + mesotrione)	2.5 qt/a	Corn, Sorghum	Corn: Do not apply more than 14 days prior to planting. Sorghum: must be Concept treated seed. Application within 7 days of planting may cause injury.	Cotton – Following spring Wheat – 4.5 months Soybean – Following spring	Mitosis inhibitor + Photosystem II inhibitor + Carotenoid inhibitor
Python (flumetsulam)	0.8-1.33 oz	Corn, Soybean	Rotation restrictions; Corn must be planted at least 1.5" deep; use the low end of the application rate on sand or loamy sand textured soils.	Cotton – 26 months Sorghum - 12 months	ALS inhibitor
Sharpen (saflufenacil) + G-max Lite (dimethenamid + atrazine)	1-3 oz Sharpen + 2-3.5 pt G-max Lite	Corn, Sorghum	Rotation Restrictions; Planting interval; Corn: 80 day pre harvest interval (PHI); Sorghum: 70 day PHI.	Cotton – Following spring	PPG inhibitor+ inhibitor+ Photosystem II inhibitor
SureStart (acetochlor + flumetsulam + clopyralid)	1.5-2 pt	Corn	Rotation restictions; Crop must be planted at least 1.5" deep; 85 day pre harvest interval;	Cotton – 26 months Sorghum – 12 months	Mitosis inhibitor+ALS inhibitor+Synthetic auxin

TABLE 3. Volunteer Cotton Control Options with Early Postemergence Herbicides in Grain Crops

Product	Rate/acre (product)	Crop Labeled	Remarks	Rotation Restrictions	Mode of Action
2,4-D Amine	0.5-1.5 pt of 4 lb/gal 0.33-66 pt/a of 6 lb/gal	Corn, Sorghum, Wheat	Maximum rate and timing varies by crop. Refer to label for specifics. Corn: Apply when crop is less than 8" tall; use drop nozzles for corn over 8" tall Sorghum: Apply when crop is 6-15" tall; Wheat: Apply to crop after tillering but before boot stage.	Cotton – Following spring Wheat – following year	Synthetic auxin
Aatrex 4L (atrazine)	2.4 pt	Corn, Sorghum	Rotation restrictions; Apply before crops are 12" tall.	Cotton - Following spring	Photosystem II inhibitor
Affinity Broadspec (thifensulfuron + tribenuron)	0.4-1 oz	Wheat	Apply from 2 leaf stage to before the flag leaf emerges.	Cotton – 14 days Corn – 14 days Sorghum 14 days	ALS inhibitor
Aim (carfentrazone)	0.5-1 oz	Corn, Sorghum, Soybean, Wheat	Corn: Apply from planting to 8 leaf collar stage; Sorghum: Apply from planting to 6 leaf stage: Soybeans: Apply from 30 days prior to planting up to third trifoliate; Wheat: Apply from planting to jointing stage.	None	PPG inhibitor
Autumn (iodosulfuron)	0.3 oz	Corn, Soybean	Planting & rotation restrictions.	Cotton – 9-18 months-refer to label Corn – 1 month Soybean – 3 months Sorghum – 9 months Wheat – 4 months	ALS inhibitor
Axiom (flufenacet+ metribuzin)	4-10 oz	Wheat	Apply to crop from spiking to 2 leaf stage; Crop must be planted 1-2" deep.	Cotton – 8 months Corn – None Soybean – None	Mitosis inhibitor + Photosystem II inhibitor
Buctril (bromoxynil)	1-1.5 pt	Corn, Sorghum, Wheat	Cultivation & rotation restrictions: Corn: Apply to crop from 3 leaf to before tassleing stage; Sorghum: Apply to crop between 3 leaf and preboot stage; Wheat: Apply to crop from emergence to prior to boot stage.	Cotton – 1 month Corn – 1 month Sorghum – 1 month Soybean – 1 month Wheat – 1 month	Photosystem II inhibitor
Cadet (fluthiacet-methyl)	0.6-0.9 oz	Corn, Soybean	Cultivation restrictions; Corn: Apply to crop preplant to 48" tall but before tasseling stage, 30 day pre harvest interval (PHI); Soybean: Apply from preplant to full flowering stage; 60 day PHI.	None	PPG inhibitor
Callisto (mesotrione)	3 oz	Corn	Cultivation & rotation restrictions; Apply to crop up to 30" or 8 leaf stage; 45 day pre harvest interval.	Cotton – 10 months Wheat – 4 months Soybean – 10 months Sorghum - immediately	Carotenoid Inhibitor

TABLE 3. *continued*

Product	Rate/acre (product)	Crop Labeled	Remarks	Rotation Restrictions	Mode of Action
Capreno (thiencarbazone + tembotrione)	3 oz	Corn	Cultivation & rotation restrictions; Apply to crop from 1 leaf collar (V1) to V6 stage.	Cotton - 10 months Sorghum - 10 months Wheat – 4 months	ALS inhibitor-Carotenoid inhibitor
Clarity (dicamba)	2-16 oz	Corn, Sorghum, Wheat	Rate dependent on crop. Corn: Apply to crop from emergence to 5 leaf stage or 8" tall; Sorghum: Apply to crop from spike stage to 15" tall, 30 day pre harvest interval (PHI); Wheat: Apply to crop from emergence to prior to joint stage (fall), 7day PHI, Apply to crop from emergence to prior to 6 leaf stage (spring).	Cotton – 21 days/8 oz + 1" rain Sorghum – 15 days/8 oz Wheat – 22 days/8 oz Soybean – 14 days/8 oz + 1" rain	Synthetic auxin
CleanWave (aminopyralid + fluroxypyr)	14 oz	Wheat	Rotation restrictions.	Cotton – 24 months Corn – 4 months Sorghum – 4 months Soybean – 18 months	Synthetic auxin
ET (pyraflufen-ethyl)	0.5-2 oz	Corn, Soybean, Wheat	Corn: Apply to crop from emergence to V4 stage; 7 day pre harvest interval (PHI); Soybean: Apply to crop from emergence to V6 stage, 70 day PHI; Wheat: 60 day PHI.	Cotton – None Corn – None Sorghum – 1 month Soybean – None Wheat - None	PPG inhibitor
Evik	2.0 lb/a	Corn	Directed spray to corn 12" or taller. Apply a minimum of 20 GPA carrier volume.	Cotton – 11 months Sorghum – 11 months Soybean – 11 months Wheat – 3 months	Photosystem II inhibitor
Glyphosate, 4.5 lb./ gal ae	16- 32 oz	Non-selective, use over Roundup Ready® crops only	Shielded sprayer applications to sorghum over 12 inches tall.	None	EPSP inhibitor
Gramoxone Inteon (paraquat)	1-2 pt	Corn, Cotton, Sorghum, Soybean	Shielded sprayer applications only. Corn: Apply before crop is 10" tall; Sorghum: Apply before crop is 12" tall, 48 day pre harvest interval.	None	Photosystem I inhibitor
Huskie (pyrasulfotole + bromoxynil)	11-15 oz	Wheat	Apply from 1 leaf to flag leaf emergence; Rotation restrictions.	Cotton – bioassay Corn – 9 months Sorghum – 4 months Soybean – 4 months	Caroteniod inhibitor + Photosystem II inhibitor
Ignite (glufosinate)	22-29 oz	Non-selective, Liberty Link® Corn and Liberty Link® Soybean	Cultivation restrictions; 70 day pre harvest interval for corn, cotton & soybeans; Corn: Apply from emerge to 36"; Do not exceed 22 oz in a single application; Soybeans: Apply from emergence to before bloom; Wheat: 70 day planting interval.	None	Glutamine synthetase inhibitor

TABLE 3. *continued*

Product	Rate/acre (product)	Crop Labeled	Remarks	Rotation Restrictions	Mode of Action
Laudis (tembotrione)	3 oz	Corn	Rotation restrictions; May be applied from emergence to V8 stage.	Cotton – 10 months Sorghum – 10 months	Caroteniod Inhibitor
Lumax (S-metolachlor + atrazine + mesotrione	2.5 qt/a	Corn, Sorghum	Do not apply corn greater than 12" tall.	Cotton – Following spring Soybean – Following spring Wheat – 4.5 months	Mitosis inhibitor +Photosystem II inhibitor + Carotenoid inhibitor
Peak (prosulfuron)	0.38-1 oz	Corn, Sorghum, Wheat,	Rotation, cultivation & planting restrictions; 60 day pre harvest interval; Corn: Apply when crop is between 4-30" tall; Sorghum: Apply when crop is between 5-30" tall or before head emergence.	Cotton – 10-18 months, depending on location Soybean – 10-18 months, depending on location Wheat – 1 month	ALS inhibitor
Python (flumetsulam)	0.8-1.33 oz	Corn, Soybean	85 day pre harvest interval; Rotation restrictions; plant corn at least 1.5" deep.	Cotton – 26 months Sorghum - 12 months	ALS inhibitor
Spirit (prosulfuron + primisulfuron)	1 oz	Corn	Apply when crop is between 4-24" tall; Cultivation restrictions; Do not make application after June 30 when rotating to a Spirit-sensitive crop.	For soil pH below 7.8 Cotton – 10 months Soybean – 10 months Sorghum – 10 months Wheat – 3 months	ALS inhibitors
Starane (fluroxypyr)	0.66 pt	Corn, Sorghum, Wheat	Corn: Apply up to V5 stage, 90 day pre-harvest interval (PHI); Sorghum-apply between 3-7 leaf stage, 70 day PHI; Wheat-apply between 2 leaf and flag leaf stages, 40 day PHI.	Not stated on label	Synthetic auxin
Status (diflufenzopyr + dicamba)	5-10 oz	Corn	Do not apply to corn more than 36" tall, or V10 stage, or within 15 days before tassle emergence, whichever comes first; 72 day pre-harvest interval; Crop rotation restrictions.	Cotton – 4 months Sorghum – 4 months Soybean – 4 months Wheat – 4 months	Auxin Transport inhibitor + Synthetic auxin
Stinger (clopyralid)	0.25-0.33 pt	Corn, Wheat	Corn: Apply from emergence to 24" tall; Wheat: Apply from 3 leaf to early boot stage.	Cotton – 18 months Sorghum – 10.5 months Soybean – 18 months	Synthetic auxin

TABLE 4. Preemergence herbicides and their expected efficacy when applied with appropriate additives and carrier volume.

Treatment	Rate(oz/A)	Efficacy Rating (0-9)*
Atrazine	32	3
Atrazine	64	5
Axiom	20	6
Balance Flex	6	4
Basis	0.66	4
Boundary	16	6
Boundary	32	8
Callisto	3	3
Callisto	6	5
Callisto Xtra	24	4
Command	24	4
Command	48	5

Treatment	Rate (oz//A)	1-4 lf cotton
Corvus	5.6	4
Integrity	16	8
Lumax	80	4
Python	0.7	4
Python	1.3	5
Pursuit	2	3
Pursuit	4	4
Sharpen + G-max	3+48	7
SureStart	28	7
Valor	2	2
Valor	3	4

*0 = no control and 9=excellent control of volunteer cotton plants

TABLE 5. Postemergence herbicides and their expected efficacy when applied with appropriate additives and carrier volume.

Treatment	Rate (oz//A)	1-4 lf cotton	5-8 lf cotton
2,4-D	16	8	7
2,4-D	24	9	9
2,4-DB	12.8	8	-
Affinity Broadspec	1	7	7
Aim	1	9	6
Atrazine	16	3	2
Atrazine	32	7	2
Atrazine	64	9	5
Autumn Herbicide	0.3	5	3
Basagran	32	4	-
Buctril	8	7	6
Buctril	16	9	8
Cadet	0.6	7	3
Cadet	0.9	7	5
Callisto	3	7	5

Treatment	Rate (oz//A)	1-4 lf cotton	5-8 lf cotton
Caperno	3	8	5
Classic	0.67	2	-
Clarity	8	8	7
Cleanwave	14	6	-
Cobra	12.5	2	-
ET	1.5	6	5
ET	2	8	6
Glyphosate (4.5 lb ae)	16	6	4
Glyphosate (4.5 lb ae)	32	9	8
Gramoxone Inteon	24	9	3
Gramoxone Inteon	32	9	5
Halex+Atrazine	58+32	9	8
Huskie	15	9	7
Ignite	29	9	7

TABLE 5. *continued*

Treatment	Rate (oz//A)	1-4 lf cotton	5-8 lf cotton
Lay by Pro (linuron)	32	8	5
Peak	0.75	6	4
Peak + Atrazine	1 + 32	9	5
Pursuit	2	2	-
Pursuit	4	4	-
Python	1	8	6
Reflex	24	1	-
Sharpen	1.5	9	5
Sharpen	2	9	7
Spirit	1	4	3
Spirit	2	5	4
Starane	6.4	9	6
Starane	10	9	9
Status	5	9	8
Status	10	9	9
Stinger	5.3	6	5
Surestart	28	7	6
Ultra Blazer	24	1	-

*0 = no control and 9=excellent control of volunteer cotton plants

For questions or additional information contact:

Gaylon Morgan
Associate Professor and State Extension Cotton Specialist
Phone: (979) 845-2425; gmorgan@ag.tamu.edu

This project was partially funded through the Texas State Support Committee of Cotton Incorporated

Issued in furtherance of Cooperative Extension Work in Agriculture and Home Economics, Acts of Congress of May 8, 1914, as amended, and June 30, 1914, in cooperation with the United States Department of Agriculture, Edward G. Smith, Director, Texas AgriLife Extension Service, Texas A&M System.