



Army Cutworms – Alfalfa and Wheat

The recent stretch of warm weather conditions, has jump-started many spring activities. One of the earliest signs of spring is usually army cutworms feeding in alfalfa or wheat that has recently broke dormancy.



Army cutworms emerge when temps get above 50 F for several days and can withstand very cold temps. In the spring, they can reduce wheat stands, and greatly delay green-up of alfalfa. Since they lay eggs in the fall, and overwinter in soil as larva, they tend to thrive in drier years or a dry fall where soil is loose and less likely to have diseases that cause insect death. This is also when wheat and alfalfa are being stressed due to dry conditions, so cutworms damage can compound the effect on the crop. Mustang[®] Maxx insecticide or Stallion[®] brand Insecticide will provide excellent residual control of army cutworms. Residual activity of 3 weeks or more can be expected and will generally carry the producer past when cutworms activity is a risk.

Thresholds: Wheat 1-2 larva/ft² on thin stands. Good stands—4 ft².

Alfalfa : 1-2 ft² on new alfalfa seedlings or thin stands, 3-4 ft² on good alfalfa stands.

Mustang Maxx Insecticide : 1.5-2.5 fl oz.: Light populations use 1.5 oz.

• 2.0 - 2.5 fl oz. if populations are high or there is a significant of residue or foliage.

Stallion Brand Insecticide: 5-11.75 fl oz/A: 5-6 oz. for control of army cutworms.

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- Preplant / Pre-Emerge Weed Control in Dry Field Peas.
- Burndown and Preplant Residual Weed Control in Corn.
- Residual Soybean Programs With Authority[®] & Anthem[®] MAXX herbicides.
- Ethos[®] XB Insecticide/Fungicide / Capture LFR[®] Insecticide + VGR Soil Amendment – Improving early season stand protection.
- Preemptor[™] and Topguard[®] fungicides – Disease Management in Wheat.

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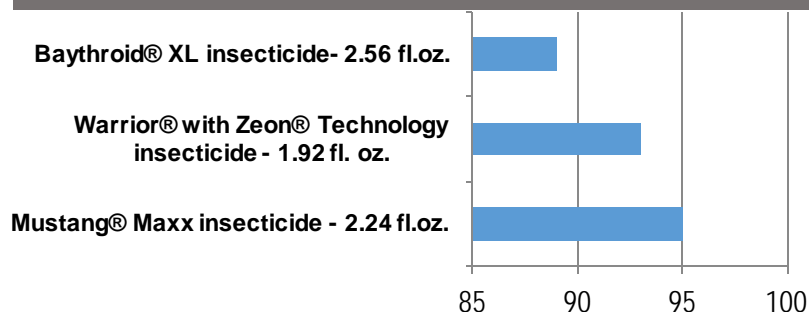
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FMC

Army Cutworm Control – Ave. of 2 trials – NE, CO 2001.



■ % Control - 7 DAT



Aim[®] EC herbicide, Authority[®] Elite herbicide & Spartan[®] Charge herbicide: Preplant/Pre-Emergence for Dry Field Peas and Chickpeas.



Aim[®] EC Herbicide for Preplant Burndown: 0.75 – 1.5 fl. oz./A

- Non-residual burndown control of emerged weeds in tank-mix programs.
- Combine with Authority[®] Elite herbicide to improve burndown on kochia, Russian thistle, lambsquarters, and mustard species.
- Non-residual program: Aim EC herbicide 1.0-1.5 oz. + glyphosate 1-1.5 lbs. ai + COC/MO 0.5-1.0% v/v + AMS.
- Use 1.0-1.5 oz. for heavy weed and resistant populations.
- Use preplant up to one day after planting.

Authority[®] Elite herbicide: 19-24 oz./A See label for specific soil type & organic matter recommendations.

- Combines broadleaf control of Spartan[®] herbicide with the residual grass control of s-metolachlor.
- Excellent on small seeded broadleaves. Stronger on pigweed, lambsquarters and nightshade with two modes of action working on those weeds where soil type has limited the rate of Spartan Charge herbicide in the past.

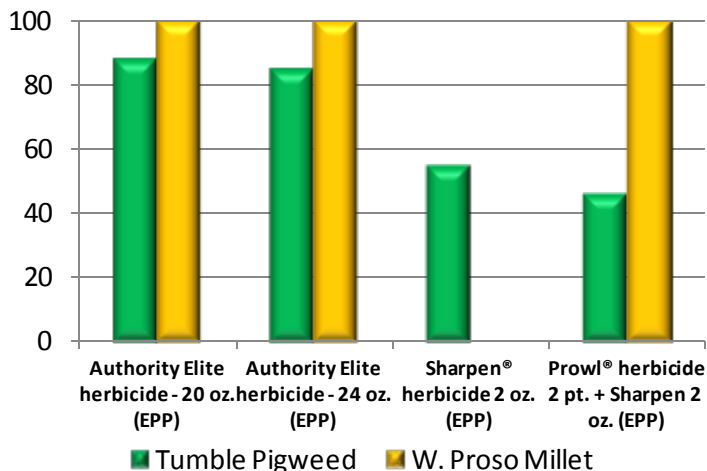
Spartan[®] Charge herbicide: 3-6 oz./A See label for specific soil type & organic matter recommendations.

- Combination of post burndown activity of Aim EC herbicide for increased burndown on kochia, R. thistle, mustards, lambsquarters combined with residual of Spartan herbicide for pigweeds, kochia, R. thistle, lambsquarters.
- Tank mix with residual grass partner (Dual[®] herbicide, Prowl[®] herbicide) or follow with post grass herbicide.

Best Management Recommendations for PRE Applications to Field Peas

- Spartan Charge & Authority Elite herbicides: Tank mix with glyphosate for no-till for complete burndown.
- Add NIS or COC as desired for increased burndown performance.
- Preplant applications (seven to 14 days) have shown good weed control and improved crop safety. Preplant applications also may allow for a higher rate for improved weed control with excellent safety, especially on lighter, low O.M. soils.

Weed Control in Dry Field Peas
Univ. of NE – HPAL, Sidney, NE 2014
% Control 57 DAT



Spartan[®] Charge herbicide vs. UTC on Kochia. Colorado - 2015



Preplant / Pre-Emergence Residual Treatments for Corn (Field, Seed, Sweet, Pop)

Palmer amaranth and waterhemp have become more widespread and are challenging growers weed management programs. Using a strong two-pass program is essential to combat the long germination and rapid growth rates of these two aggressive weeds.

• **Anthem[®] herbicides** are some of the strongest foundational herbicides for residual grass and small-seeded broadleaf control in corn. With longer residual control than other Group 15 herbicides, Anthem herbicides allow excellent application flexibility without sacrificing residual weed control in-season.

Two-Pass Programs : Strongest, most consistent weed control for corn.

- **Anthem[®] MAXX herbicide : 4-5 fl. oz./A (3-3.5 coarse soils) + atrazine 1-1.5 lbs. OR**
- **Anthem[®] ATZ herbicide : 2-2.5 pt./A (1.5-1.75 coarse soils)**

Add Aim[®] EC herbicide 0.5 oz. + 2,4-D 1-2 pt./A or 2,4-D 1 pt. + dicamba 4-8 oz. for burndown on no till.

- Follow pre applications with a postemerge in-season treatment such as Solstice[®] herbicide, Impact[®] herbicide, Laudis[®] herbicide, Status[®] herbicide, DiFlexx[®] herbicide, etc. with glyphosate before weeds reach 4-inches tall. Anthem Maxx herbicide, atrazine or other residual partners are recommended to be added for additional in-season residual on weeds like Palmer amaranth.

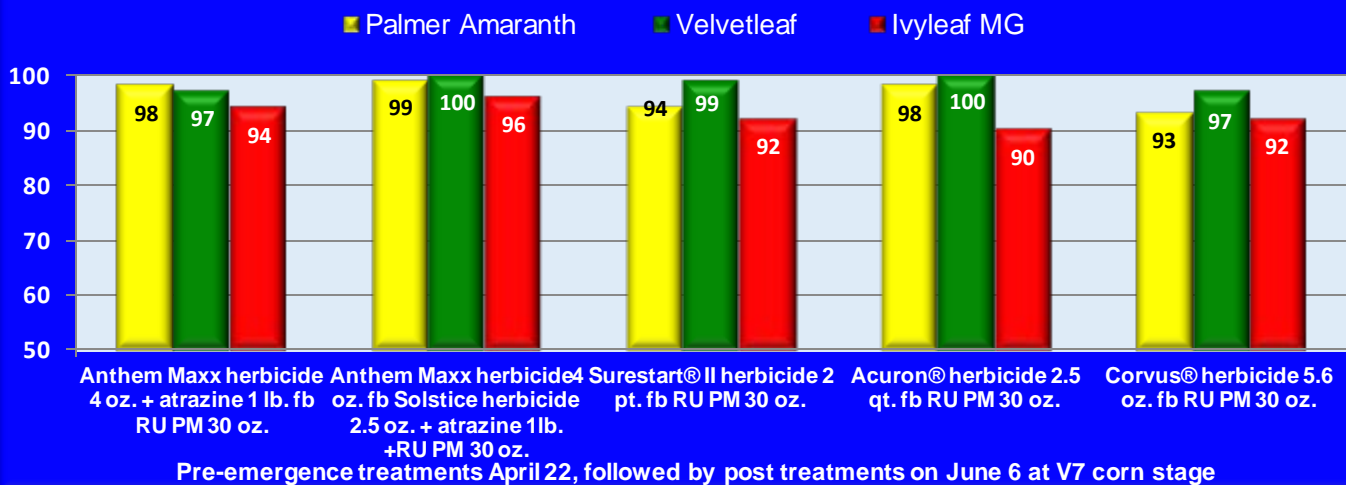
➤ **Anthem MAXX herbicide + atrazine 1-1.5 lbs. a.i. + Balance[®] Flexx herbicide 2-3 oz. – heavy kochia fields.** Additional mode of action and added residual on heavy kochia fields plus strong pigweed, grass, velvetleaf control.

Application Guidelines for Anthem MAXX / Anthem ATZ herbicides:

- For Anthem herbicide applications more than two weeks ahead of planting, use the 5 oz./A rate of Anthem MAXX herbicide or 2.5 pt./A rate of Anthem ATZ herbicide For coarse-textured soils, use 3.5 oz./A of Anthem MAXX herbicide or 1.75 pt./A rate of Anthem ATZ herbicide.
- Excellent formulations for mixing with 28% or 32% UAN solutions.

Weed Control in Corn with PRE + Post Programs.

2015 K-State University, Manhattan : % Control 117 days after PRE applications.



****FMC Freedom Pass Assurance Program****

Use Anthem Maxx herbicide or Anthem ATZ herbicide along with Solstice herbicide in a planned 1 or 2 pass programs, and FMC will provide up to \$10-13/A if 90 percent control of specified weeds is not maintained by July 1. See the Freedom Pass program or talk to your local FMC retail market manager for further details.



Authority[®] Brand Herbicides and Anthem[®] Maxx Herbicide Overlapping/Sequential Residual Programs for Weed Control in Soybeans – 2017.

- For Roundup Ready[®], LibertyLink[®], Roundup Ready 2 Xtend[®] systems.

For Emerged Weeds in No Till

Include: Aim[®] EC herbicide 1.0 oz./A + 2,4-D LV4 1.0 pt./a + MSO/COC @ 1 gal./100 gallon

The challenges of glyphosate resistance and the increasing issues with multiple MOA resistance requires a more diversified herbicide program to manage weeds. Palmer amaranth and waterhemp continue to challenge growers' options. Relying on a single effective site of action herbicide at any one given time is the recipe to develop a resistant population. Authority[®] herbicides have been an effective pre-emergence options for years, but as we learn more about resistance selection, tank mixing another site of action product with the Authority herbicides is important in keeping them viable in the future.

# 1	Anthem MAXX herbicide 3.0 oz./A	+	Authority[®] Assist herbicide 8.0 oz./A Authority[®] First herbicide 5.0 oz./A Authority[®] XL/MAXX herbicide 5.0 oz./A Authority[®] MTZ herbicide 14 oz./A
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- Two effective MOA. (group 14 + 15).
- Strong pigweeds, other broadleaves and grasses.
- Long residual performance.

Followed-by

Liberty[®] herbicide 29 oz./A or

Roundup PowerMAX[®] herbicide 32 oz./A w/ Flexstar[®] herbicide, Cobra[®] herbicide, or Blazer[®] herbicide product* plus extended residual of your choice or **Anthem[®] MAXX herbicide 2.0 oz./A**

# 2	Authority[®] Elite herbicide 20-24 oz./A	+	Authority Assist herbicide 5.0 oz./A Authority First herbicide 3.5 oz./A Authority XL/MAXX herbicide 3.5 oz./A Authority MTZ herbicide 10 oz./A
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- Two effective MOA. (group 14 + 15) on pigweeds.
- Strong Authority rates means excellent residual on pigweed plus other broadleaves and grasses.

Followed-by

Liberty herbicide 29 oz./A or

Roundup PowerMAX herbicide 32 oz./A w/ Flexstar herbicide, Cobra herbicide, or Blazer herbicide product* plus extended residual of your choice or **Anthem MAXX herbicide 3.0 oz./A**

# 3	Authority Elite herbicide 28 oz./A	+	Additional of your choice as needed**
	Authority Assist herbicide 10 oz./A		
	Authority First DF herbicide 6.4 oz./A		
	Authority XL/MAXX herbicide 6.4 oz./A		
	Authority MTZ DF herbicide 16 oz./A		

Followed-by

Liberty herbicide 29 oz./A or

Roundup PowerMAX herbicide 32 oz./A w/ Flexstar herbicide, Cobra herbicide, or Blazer herbicide product* plus extended residual of your choice or **Anthem MAXX herbicide 3.0-4.0 oz./A**

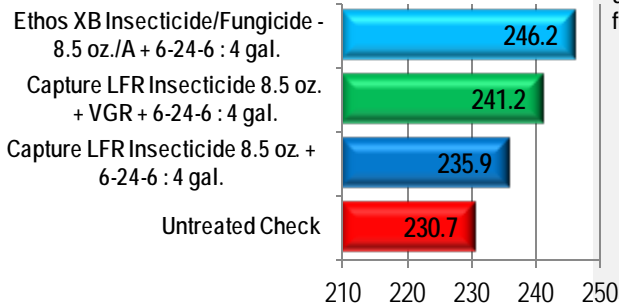
HatchTrakSM



One of the most important parts of yield optimization, is getting even emergence and corn stands. Two new products introduced last year are continuing to raise the bar by enhancing early-season corn growth and development. Ethos[®] XB Insecticide/Fungicide and Capture[®] LFR[®] Insecticide + VGR[™] Soil Amendment provide improved early season plant health and growth above Capture LFR insecticide alone.

In-Furrow Treatments on Corn. Holyoke, CO – 2016 (Centennial Ag Supply)

Yield (Bu/A)



ETHOS[®] XB

INSECTICIDE / FUNGICIDE

Premix of bifenthrin + *Bacillus amyloliquefaciens* strain D747 biological fungicide in a LFR[®] formulation.

- Labeled for suppression of **Pythium, Rhizoctonia, Fusarium and Phytophthora**
- Formulated as a LFR formulation to mix with liquid starter fertilizers.
- Apply in-furrow at planting time for insect control plus suppression of key seedling diseases.



Corn Damping-off (2016, Nebraska)

Use Rates	Seedling Pests (Wireworms, Grubs, SC maggots, Cutworms)	Corn Rootworms
Ethos XB Insecticide/Fungicide	4.0 oz./A	8.5 – 17.0 oz./A
Capture LFR Insecticide + VGR Soil Amendment	4.0 oz./A (one packet/one jug of Capture LFR Insecticide)	8.5 – 17.0 oz./A (one packet/one jug of Capture LFR Insecticide)



+



Capture LFR Insecticide + VGR Soil Amendment: Co-Pack Capture LFR Insecticide + *Bacillus licheniformis* biological.

- Spores germinate and colonize the root resulting in increase in early season root growth and aids to solubilize phosphorus.
- VGR Soil Amendment, once colonized in the soil produces metabolites associated with other benefits such as iron (Fe⁺⁺) chelating.

Plant Stand Comparisons - 2016

2016 Side-by-Side Comparison	Capture LFR Insecticide + VGR Soil Amendment	Capture LFR Insecticide alone
E. Central NE Avg. of two locations	29,512	26,325
W. Iowa Avg. of four locations.	31,500	28,750



Capture LFR Insecticide + VGR Soil Amendment (left) vs. Capture LFR Insecticide (right)



Capture LFR Insecticide (left) vs. Capture LFR Insecticide + VGR Soil Amendment (right) Nebraska – June, 2016.



Many times, wheat gets ignored and some simple management decisions at the correct time can make a big difference between getting a fair wheat crop and a very good wheat yield. Diseases are one issue to watch for as wheat reaches joint stage and beyond. Common rust and stripe rust have been common the last two years because of the cool, wet periods we have seen from late April through May. It is still too early to tell what impact the warm and dry conditions in the southern Plains will have on the disease infestations in NE, KS, CO, but we need to be ready if conditions change.



Stripe rust hot spot,
Nebraska panhandle UNL
Extension -Nov. 2016



Dr. R. Hunger leaf rust –OSU
variety research plots Stillwater,
OK. Nov. 2016



Stripe rust - 2015.
E. Colorado.

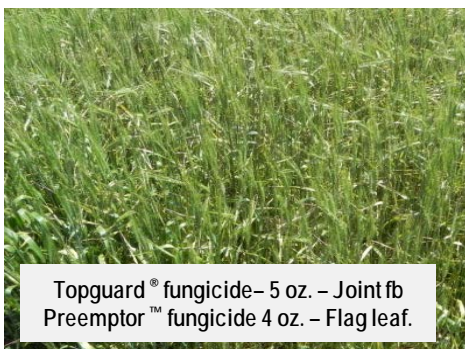
Rust diseases don't overwinter in NE, KS, but typically get blown north in the spring from infected wheat in TX and Mexico.

Protecting the flag leaf is critical to maximize yield potential, but don't wait until just before flowering to check wheat. Early in growing season, watch for infestations of stripe rust. Stripe rust is very aggressive, as seen in 2015 and 2016 seasons, and yield losses can be as high as 40 percent. If stripe rust is present early (around joint stage), wheat will benefit from a foliar application at that time. Waiting until flowering can be too late and result in the wheat losing too much photosynthetic leaf area to benefit from a flag-leaf application.

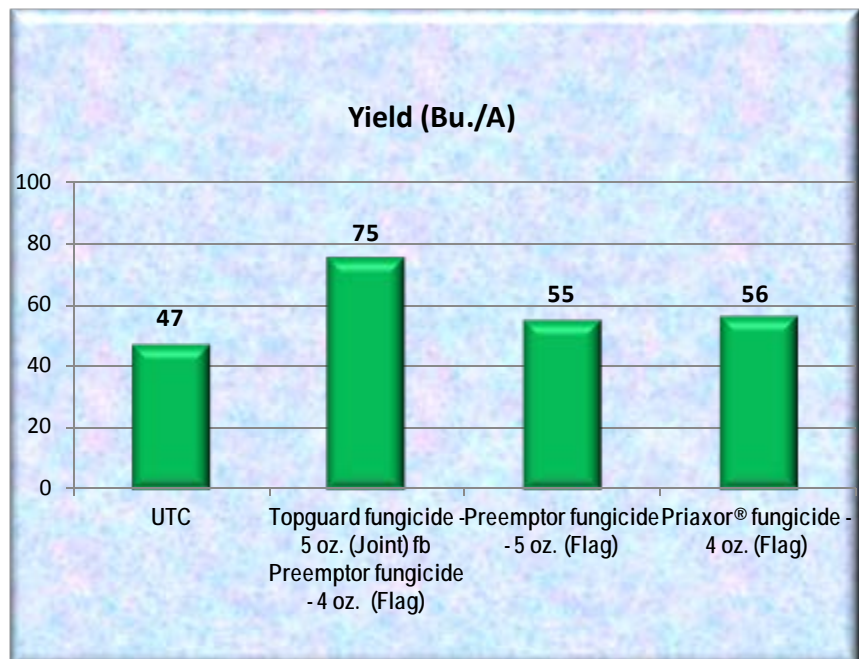
Yield Response in Wheat to Stripe Rust Treatments – UNL, Havelock. 2016.



Untreated Check



Topguard[®] fungicide– 5 oz. – Joint fb
Preemptor[™] fungicide 4 oz. – Flag leaf.



HatchTrakSM



PREEMPTORTM SC

Superb disease management - green up to flag leaf.

PreemptorTM SC fungicide should be applied preventatively when conditions favor disease development. Generally when you start to see two or more lesions on leaves below the flag leaf.

- ☐ 3 oz./A for early season control of tan spot, powdery mildew, septoria, suppression of rust plus plant health. Feekes 4-8. *May be mixed with herbicides or insecticides unless prohibited on mix partner label. Do not mix with bromoxynil based herbicides as crop injury could result.*
- ☐ 4 -6 oz./A (light → severe pressure) leaf and stem rusts and other diseases at 50 percent to full flag leaf emergence. Feekes 9-10. *Do not apply past Feekes 10.5 (flowering)*
- ☐ 3 oz. late tiller/early joint followed by 5 oz. full flag leaf emergence for maximum disease control and higher yields
- ☐ Thorough coverage is necessary for good disease control. Minimum 10 GPA by ground and 2 GPA by air.
- ☐ Pre-Harvest Interval (PHI) – 40 days for grain or straw, 15 days for hay or 7 days forage. Minimum spray interval is 14 days. Apply no more than 6 oz. per application, nor more than 12 oz./A total per year. REI is 12 hr.

TOPGUARD

Foliar protection early or for fusarium head blight (scab) suppression at flowering with shorter PHIs & spray intervals

Apply preventatively when conditions are favorable for disease development

- ☐ 10-14 oz./A for control of rust, powdery mildew and septoria leaf and glume blotch.
- ☐ 5 oz. Topguard[®] fungicide at late tiller/early joint followed by 10 oz. Topguard fungicide or 5 oz. Preemptor SC fungicide at full flag leaf for maximum disease control and higher yields.
- ☐ 10-14 oz./A for suppression of fusarium head blight (scab) at Feekes 10.51 (flowering). Spray nozzles should be oriented to provide maximum coverage of wheat heads.
- ☐ *May be mixed with other fungicides, herbicides or insecticides unless prohibited on mix partner label.*
- ☐ Thorough coverage is necessary for good disease control. Minimum 10 GPA by ground and 2 GPA by air.
- ☐ Pre-Harvest Interval (PHI) – 30 days for grain, 15 days for hay or zero days forage. Minimum spray interval is seven days. Apply no more than 14 oz. per application, nor more than 28 oz./A total per year. REI is 12 hr.

888-59-FMC-AG FMCCROP.COM

Always read and follow label directions. NOTE REGARDING RESTRICTED USE PESTICIDES: Anthem ATZ herbicide; Athena insecticide, Brigade 2EC Insecticide/Miticide, Brigade WSB Insecticide/Miticide, Brigadier Insecticide Capture 3RIVE 3D insecticide, Capture LFR Insecticide, Declare insecticide, Hero Insecticide, Mustang Insecticide, Mustang Maxx Insecticide, Pounce 25WP Insecticide, Stallion Brand Insecticide, Temity LFR Insecticide/Fungicide, Triple Crown Insecticide, Ethos XB Insecticide/Fungicide and Gladiator Insecticide/Miticide are **Restricted Use Pesticides**. NOTE FOR CALIFORNIA: Accurate Extra herbicide, Aim herbicide, Aim EC herbicide, Aim EW herbicide, Anthem herbicide, Anthem ATZ herbicide, Anthem Flex herbicide, Anthem MAXX herbicide, Authority Assist herbicide, Authority Elite herbicide, Authority First DF herbicide, Authority MAXX herbicide, Authority MTZ DF herbicide, Authority XL herbicide, Cadet herbicide, Chisum Herbicide, Command 3ME microencapsulated herbicide, Crusher Herbicide, Edition BroadSpec herbicide, Edition Tankmix Herbicide, Marvel herbicide, Nimble Herbicide, Nuance Herbicide, Preemptor SC fungicide, Report Extra Herbicide, Solstice herbicide, Spartan 4F herbicide, Spartan Charge herbicide, Spartan Elite herbicide, Temity LFR Insecticide/Fungicide, Topguard EQ fungicide, Zeus Prime XCherbicide, Zeus XC herbicide, Capture 3RIVE 3D insecticide, Ethos XB Insecticide/Fungicide, Hero Insecticide, Mustang Maxx Insecticide, Display cotton harvest aid, Zoro Miticide and VGR Soil Amendment **are not registered for sale or use in California**. VGR Soil Amendment is not a pesticide. Beleaf and Carbine are trademarks of Ishihara Sangyo Kaisha, Ltd. Cercobin is a trademark of Nippon Soda Co., LTD. Sovran is a registered trademark of BASF. FMC, 3RIVE 3D, Accurate, Aim, Anthem, Athena, Authority, Brigade, Brigadier, Cadet, Capture, Chisum, Command, Crusher, Declare, Display, Edition, Ethos, Preemptor, Fracture, Fyfanon, Gladiator, Hero, Koverall, LFR, Marvel, Mustang, Nimble, Obey, Pounce, Report, Rhyme, Rovral, Shark, Solida, Solstice, Spartan, Stallion, Temity, Topguard, Topguard Terra, VGR and Zeus are trademarks and HatchTrak and Investing in farming's future are service marks of FMC Corporation or an affiliate. ©2017 FMC Corporation. All rights reserved. 11/16

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