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2003 Alternative Crop Options After Failed Cotton

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COTTON INSECTS

Thrips are still a problem on a number of fields. These are the fields that have survived the onslaught of storms over the last two weeks. Plants in these fields are generally beat up, have reduced leaf area and may be suffering from varying degrees of disease problems. Later planted fields with healthier plants may also be facing significant thrips pressure.

The rains, wind, sand and hail did reduce thrips numbers in many cases but not obviously in all instances. This means that producers and consultants will need to scout each field to determine the thrips situation. With sand fighting and replanting going at warp speed, I know producers have little time for checking fields.

Most at-planting treatments began failing at 3 weeks. But cotton growth has been slowed by various weather events and thrips have continued to move into many fields for the last seven weeks in spite of the thrips reduction we have observed following severe weather events. If cotton is “ragged up” pretty good and thrips numbers are averaging one per true leaf present, I certainly would not hesitate to control thrips even into the 6th true leaf stage. I would also consider lowering this threshold if cotton has significantly reduced true leaf area and thrips are concentrating in the terminals.

Foliar sprays will provide a good measure of control for 3-5 days under pressure from adults but of course do not protect leaves that are produced after the application, at least not directly. Orthene, Acephate, Bidrin, and Dimethoate are my choices for insecticides. Once good weather continues for a number of

days, plant growth will accelerate and thrips problems in the remaining troubled fields will decline rapidly.

The thrips control test at Lariat was destroyed by weather last Friday at the 3-4 true leaf stage. Thrips numbers had declined to lower levels, below our threshold point. The untreated check numbers averaged 1.6 thrips per plant while other treatments ranged from 2.3 down to a low of 1.2 thrips per plant. None of the treatments were effective at this point after 29 days but again the thrips numbers had fallen below treatable levels and were no longer a management concern.



Thrips control test at Lariat, June 13. Left plants untreated. Right plants Temik treated.

There are reports that Lygus bug numbers are relatively high in several weed hosts. I will keep you posted on whether a problem is likely with this pest this year. I do know that several fields in the El Paso Valley area are reported to be above treatment levels according to IPM Agent Sarah Downing. Dr. Megha Parajulee's research group will be providing me weed survey data they are collecting weekly and I will compare this year's numbers with last year's to see what might be in store for us. I will also be providing management advice for this pest group as well as for cotton fleahoppers next week. Since much of our cotton has been either planted late or is damaged and off to a slow start, we can ill afford to give up much of our early crop to these square thieves. Depending what September weather brings us, we will probably have little time for compensation this year.

No bollworms have been reported in our young cotton but a few beet armyworms (BAW) have been found. These are few and

far between and most will not survive in our small cotton under hot weather conditions. Trap catches for BAW have declined to lower levels since May but remain at their highest level in the northern area of the High Plains. Bollworm moth trap catches were running above 2002 levels but have since declined dramatically.

Average number of moths caught per trap the week ending June 13.

County	Pest	2003	2002
Gaines	Bollworm	46	214
	Beet armyworm	10	69
Lubbock	Bollworm	79	1010
	Beet armyworm	5	12
Hale	Bollworm	54	161
	Beet armyworm	34	70

I have been asked whether Bollgard cottons would be a good investment for late planted or replanted cotton fields. This is not an easy question to answer since some of the benefit that is derived from these stacked gene cultivars is derived from the varietal characteristics themselves, independent of any insect control obtained. On the plus side---since late planted cotton will be less mature than more timely plantings when bollworm numbers are at their highest---the level of Bt toxin in the leaves and fruit will be at higher

levels and provide more help with later bollworm problems than usual.

Beneficial insect and spider numbers are on the increase, perhaps having taken advantage of the abundant thrips food supply while dodging hailstones. The most common predators I have observed have been big-eyed bugs, minute pirate bugs and spiders.

reproductive female weevils can result in several hundred weevils later in the season when these interlopers emerge from the infested cotton field. **Please help us out!**

Producers are strongly encouraged to properly clean up any remaining cotton plants in fields being re-planted to another crop. This is particularly important to both the continued



Crab Spider

Minute Pirate Bug Adult

Big-Eyed Bug Adult

Boll weevil trap catch numbers remain very low in all zones this week. No weevils have been caught in the Northwest Plains zone this year. No weevils have been caught in the Northern High Plains zone for 5 weeks, the Southern High Plains/Caprock zone for 3 weeks and the Western High Plains zone for 4 weeks. The exception to this good news is the Permian Basin zone, which has continued to catch weevils because of the problems experienced last year ([see previous FOCUS issues](#)). The accumulative trap catch average actually went up in this zone this week from 0.0009 to 0.0013 boll weevils per trap inspection for the season. The first acres were sprayed in the High Plains this year in this zone (398 acres). Still, weevil numbers remain at incredibly low levels. I would expect that all five High Plains zones could qualify for suppressed status by the end of the year.

I want to again emphasize the need to keep traps standing on your fields. Without these functional traps, the Texas Boll Weevil Eradication Foundation will not know whether weevils are in the area. A few missed

success of boll weevil eradication and to the pocketbooks of those growers. Failed cotton acreage is normally eligible for a credit offsetting any boll weevil assessment that would otherwise be due as long as the acreage is kept free of hostable cotton during the remainder of the growing season. However, if hostable cotton is found in a failed cotton field after the certification date, the assessment could be re-applied if adequate measures are not taken by the grower

Differential plant age will cause management problems. One further complication that the recent severe weather events have brought upon us is a wide range in plant age between fields across the area and even within some fields. I would base insect control decisions on my best and oldest plants. These should be the ones that will contribute the most to yield and hence cause the biggest problems if attacked by pests. **JFL**

Average accumulative number of boll weevils caught per trap through the week ending June 15.

Zone	2003	2002	2001	2000
Northwest Plains	0	0.0002	0.035	0.1906
Western High Plains	0.00003	0.0004	0.0407	0.8487
Permian Basin	0.0013	0.0001	0.0324	0.2835
Northern High Plains	0.00002	0.0073	-----	-----
Southern High Plains	0.00003	0.0028	-----	-----

COTTON AGRONOMY

It's been an interesting week out there across the region. We continue to have various weather events that affect growth and stand survivability. Many producers had fields that were environmentally damaged which continued to “go down” this week. Many painstaking decisions are still being made. While the planting window has closed for the northern and central portions of the South Plains, some producers in the central portions with badly damaged fields are replanting fields that have not sufficiently recovered. The good



Irrigated cotton being replanted at AgCares, Dawson County.

news is that cotton planting is in full swing south of Lubbock where a substantial portion of this year's dryland crop is being planted after the final planting date, but within an acceptable late planting period. Most producers will likely be wrapped up with planting and/or replanting next week.

The lost and/or badly damaged cotton acreage estimate is at least 750,000 acres or more, but due to the amount of replanting, it is going to be very difficult to determine the final number of lost acres for some time. The hodge-podge of plant health particularly north of Lubbock, has been associated with a cornucopia of issues including perhaps some marginal seed quality



Muleshoe cotton planted May 5 that missed severe weather events. Picture taken on June 16.

coupled very early planting in late April and early May with associated subsequent chilling injury, roller-coaster temperatures, seedling disease, excess moisture, cool and cloudy conditions, thrips damage, varietal sensitivity to environmental/wind/sand/hail damage, and possibly other factors. The bottom line is that even when we factor out the severe weather events, even the best cotton in the Muleshoe area is way behind where it should be.

June weather continues to be problematic for our crop. Many fields planted in early to mid-May that have made it through the weather continue to struggle due to below normal temperatures for the first half of [June](#). The

overall heat unit totals for 2003 versus the long-term average (LTA) and what we observed in 2002 are interesting. June is shaping up to be quite a bit below the LTA and what occurred in 2002. We really need to get this crop down the road in terms of development. September has already “shaped-up” to be a very critical month due to the lack of growth for much of this crop and due to the substantial acres replanted.

Heat units associated with various time periods in 2003 compared to 2002 and the long-term average (LTA).

Time period	2003	2002	LTA
Total from May 1 – May 31	347	311	293
Total from May 1 – June 18	571	646	583
Total from May 16 – June 18	404	486	445
Total from June 1 – June 18	225	313	290
June 1 – June 18 2003 as % of 2002	72	-	-
June 1 – June 18, 2003 as % of LTA	78	-	-

Roundup WeatherMax application management tips. We need to do everything possible to keep this crop out of the ditch, including managing for earliness and obtaining good weed control. This begins with timely Roundup applications on Roundup Ready cotton. Monsanto personnel have provided me some management tips for producers using Roundup WeatherMax on Roundup Ready cotton. It is suggested that 22 oz/acre of Roundup WeatherMax be used for all over-the-top applications. Producers and applicators should use a nozzle type that gives good coverage (flat fan, flat fan XR, flat fan DG, Turbo teejet). This is especially critical for Russian thistle, where coverage is key for effective control. Avoid using air induction nozzles for Roundup applications. Cotton can only be sprayed over-the-top with Roundup WeatherMax until the 5th true leaf is the size of

a quarter; and with all of the wind, rain, and hail we have had growers need to count nodes and not leaves. See the [first issue of Focus](#) to determine proper crop staging. Make sure that if a hooded sprayer is used for post-directed applications, the spray contact on leaves is minimized. Use 17 lbs of dry ammonium sulfate per 100 gal of spray mix (or an equivalent rate of liquid AMS) with Roundup WeatherMax. It is suggested to use a drift retardant agent if drift concerns are a problem, but do not use drift retardant agents in combination with air induction nozzles.

The list of west Texas weeds which 22 oz/acre of Roundup WeatherMax is expected to control includes:

- Russian thistle
- Palmer amaranth (pigweed spp.)
- Cocklebur
- Barnyardgrass
- Devil's claw
- Annual morningglory (<3")

The list of west Texas weeds which 22 oz/acre of Roundup WeatherMax is expected to suppress includes:

- Silverleaf nightshade
- Texas blueweed
- Lakeweed

You will get increased suppression of the above three weeds with another 22 ounce application, 14-20 days later.

The control suggestion for small Marestail escapes would be diuron (Karmex or Direx) plus MSMA, post-directed or through a hooded sprayer. It is likely that cultivation or hoeing will be required to take out large Marestail.

RB

CORN INSECTS

Things are normal for this time of year. The first flight of southwestern corn borer adults is tapering off. Corn earworms are present in the crop but not doing economic harm. Spider

mites are out there but not at worrisome levels yet.

The EPA has approved the planting of transgenic corn that provides protection from corn rootworm damage. Monsanto and its associated companies are selling one product this year that has a *Bacillus thuringiensis* (Bt) toxin that is effective at protecting corn roots from rootworm larvae. Dow AgroSciences and Mycogen will be marketing a rootworm-protected corn with an entirely different toxin either next year or the year after.

Both types of transgenic corn provide very good to excellent results. In Texas, several of us ran rootworm corn trials in 2001 and found that the Monsanto and Dow/Mycogen corn provided at least as good of protection as did the best insecticides in our trials. I can, without reservation, state that rootworm-protected corn works and works well. But this does not mean you should use it. Crop rotation is still the best and cheapest way to avoid rootworm problems. If you can't rotate then consider this new transgenic corn in fields where rootworms are a problem. The transgenic crop has the huge advantage of being well protected regardless of weather effects that can degrade the performance of traditional insecticides. It also has a Gaucho seed treatment that can help with other early season pests.

Here is what to expect. Your roots will not suffer significant damage from corn rootworms. You will see plenty of adult rootworms emerging in your field. This is because the Monsanto corn does not kill all of the rootworm larvae, but it does protect the roots. (The Dow/Mycogen corn does kill almost all of the larvae; so adult emergence will be very low in fields planted to this type of corn a few years down the road.)

EPA has issued resistance management guidelines for rootworm-protected transgenic corn. Texas played a significant role in helping establish these guidelines

through our participation in a group of entomologists from the midwestern states. Kevin Steffey (University of Illinois) has done a superb job of encapsulating the EPA resistance management requirements for Monsanto rootworm-protected corn. "Because of important biological differences between corn rootworms (mating is much more localized, less mixing of adults from different fields) and European corn borers, the resistance management plan for YieldGard Rootworm hybrids has some unique features and includes the following elements: (1) growers will be required to sign stewardship agreements if they purchase YieldGard Rootworm hybrids; (2) growers will be required to plant a structured refuge of at least 20% non-Cry3Bb1 (MON 863) Bt corn; (3) the refuge may be treated with insecticides to control corn rootworm larvae; (4) refuge acres should be planted as blocks adjacent to MON 863 cornfields or as in-field strips; (5) refugia planted as strips must be at least six rows wide, preferably 12 consecutive rows wide; and (6) insecticides labeled for control of corn rootworm adults cannot be applied while adults are present in the refuge unless the YieldGard Rootworm field is treated in a similar manner. This last guideline (number 6) will no doubt be debated among entomologists regarding its "fit" within the IPM paradigm."

Item number 6 means that if you spray your refuge corn for any pest (like southwestern corn borers or mites) with an insecticide that kills rootworm adults, you must also spray the transgenic corn with the same product. This is because spraying the refuge is essentially the same as having no refuge, and it is therefore prudent to also kill rootworm beetles emerging from the Bt corn. This will get even more complicated as companies introduce stacked-gene products that contain toxins for corn borers and corn rootworms combined in the same plant.

Gustafson LLC has announced EPA approval of Poncho corn seed treatment. This is good news for the 2004 crop year and beyond. Poncho's active ingredient is

clothianidin, an insecticide in the nicotinoid family. Roy Parker's (extension entomologist) trials near Corpus Christi show that clothianidin is an excellent seed treatment. Poncho will be available as a "250" formulation for protection against early season cutworms, flea beetles, seedcorn maggots, wireworms, white grubs, and a few other pests. A "1250" formulation will have more of the active ingredient and (according to Gustafson) protect against billbugs and corn rootworms in addition to those pests listed for the "250" formulation. **PP**

SORGHUM INSECTS

Sorghum acres may be up this year because of replant needs, and sorghum midge may be a real problem, especially in sorghum that is planted relatively late. If you are planting late sorghum, then do your utmost to get a good, even stand and achieve uniform maturity in the field. This is because midge adults only lay eggs in sorghum that is flowering, and an uneven maturity field will provide a long window of opportunity for egg laying. Uniform flowering allows a smaller window of susceptibility and greatly reduces the period of time over which insecticides need to be used (if they are needed at all). Also, eliminating johnsongrass inside and outside the field will help suppress midge populations. We have attached a short video of Roy Parker, our extension entomologist in Corpus Christi, demonstrating the window of midge susceptibility in sorghum. You can view the 47 second video in [Windows Media Player](#) or [Quicktime](#). **PP**

2003 ALTERNATIVE CROP OPTIONS AFTER FAILED COTTON

With recent storms and cooler weather hammering seedling cotton stands over a substantial portion of the South Plains, many producers have several decisions to make. Marginal cotton stands or marginal cotton seedling health will be evaluated for possible

termination. Cotton may be replanted as soon as possible, especially south of Lubbock, growers may decide to take insurance disaster payments and leave it at that, whereas others will consider replanting to catch crops.

There is adequate time to replant to alternate crops. As usual, cotton herbicides, goals of the producer, and production economics will dictate which crop may be more suitable to a particular situation. As planting dates pass mid-June, however, maturity class (shorter) may become a consideration for some replant crops such as grain sorghum.

Evaluating stand loss for non-cotton crops.

For many growers, particularly from the Lubbock area and northwest, if cotton has been hailed out then other crops may be heavily damaged as well. The following resources are also available from your CEA or <http://lubbock.tamu.edu> (unless noted otherwise).

Assessing Hail and Freeze Damage to Field Corn and Sorghum, John Bremer, Cloyce Coffman, and Steve Livingston; Texas Ag. Extension Service, publication B-6014 (1995).

Assessing Damaged Corn and Sorghum, Cloyce Coffman, Texas Ag. Extension Service, (May 2000).
<http://soilcrop.tamu.edu/publications>

Evaluating Hail Injury and Stand Reduction in Texas Sunflower, Calvin Trostle, Texas Cooperative Extension, Lubbock (2001) (CEAs have a copy in their 'Sunflower Crop Book').

For information on evaluating weather damage to other crops contact Calvin Trostle, Extension Agronomy, Lubbock, at the above phone or e-mail.

Herbicide considerations. Foremost among replanting considerations on cotton ground are potential problems with residual cotton

herbicides. Your cotton herbicide may dictate crop selection for replanting. Consult product labels for rotational crop restrictions for the herbicide used. Keep in mind that the Texas South Plains is basically a sandy soil area hence herbicide activity can be hotter on susceptible alternative crops. Of course buster planting may be used to “break out” the treated soil in order to get below the herbicide zone. It is recommended that producers avoid “pulling” the treated soil toward developing plants during cultivation until later in the season in order to reduce potential for herbicide effects on developing plants.

Among crop options after cotton, soybean, sunflower, and guar are typically grown with yellow herbicides, and thus these crops experience less risk to injury than does sorghum. Herbicide carryover injury from cotton fields may be a particular concern for Caparol, Cotoran, Karmex, Diuron, and Staple in soil residues. These herbicides are more likely to injure sorghum than the yellows, often on sandy soils where residues could be relatively deep in the soil, particularly if you have received substantial rain since application. The problem of herbicide residues in soil can often be minimized if not avoided in heavier textured soils with a buster planter to establish a herbicide-free seed zone. Again, consult the chemical labels or your chemical dealer.

If Dual herbicide has been applied, Concep-safened sorghum seed can be planted directly into the treated soil with little risk of, buster planter notwithstanding. The Staple label also suggests producers not plant sorghum the next year on Staple-treated ground. Staple is moderately mobile in the soil according to Wayne Keeling, Texas A&M weed scientist in Lubbock. The label on Staple suggests that STS treated soybean can be used, but supplies of group IV STS soybeans on the South Plains are limited, and seed will probably need to be ordered (see more info in the soybean section below). Brent Bean, Texas A&M-Amarillo has tested STS soybeans prior to 2000 for tolerance to several sulfonylurea herbicides (same

chemical family as Staple) commonly used in wheat at 4X rates. Only one of several herbicides gave any noticeable injury in two years.

Be realistic about replant cropping expectations. Keep in mind that a wise alternative crop choice after failed cotton will have a low establishment cost with the flexibility to adjust inputs only if conditions continue to improve. The best alternative crop fully utilizes previous inputs and maximizes growing conditions anticipated for your growing area.

Many replant crops grow well for producers, but then the crop will usually sit there until cotton harvest is complete. To that end producers should ask themselves if a particular crop is appropriate if it will be subject to yield and quality losses in the fall. Also, several of the crops listed below due to possible later planting dates may reach maturity and optimum harvest conditions at the same time that cotton desiccation/defoliation and cotton harvesting occur. Producers are going to focus on those tasks thus harvest quality, harvest losses, etc. may increase in alternative crops as they await harvest after farmers complete cotton harvest. For a complete and an extensive discussion (12 pages) of alternative crops and their management, go to: <http://lubbock.tamu.edu> and look for the article under “What’s New” 2003 alternative crop options after failed cotton. CT

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