

Germinating ideas

By Craig McDonald, CSD Extension and Development Agronomist

In this edition of Germinating Ideas, we will look at the ginning process and what can be done to improve the cotton that gets delivered to the gin, what can be done to reduce contamination and the role growers can play in getting the best possible lint sample.

We will also look at some issues regarding the introduction of the next generation of herbicide tolerant cotton and what can be done in the lead up to next season, including fallow weed control and preparation for the 2006 planting.

GINNING THE 2006 CROP

Module moisture content

Module moisture plays a vital role in the preservation of the quality of the cotton and the ginning process. Ideally a module should have a moisture content of 6–10 per cent. At this percentage, little heat is required to condition the seed cotton as it goes into the gin.

As the moisture content increases, more heat is required which will damage the fibres — especially fibre length. Modules with moisture contents above 13 per cent require the ginner to work harder to ensure a good quality sample and also lend themselves to an increased risk of fires. At this moisture content, the fibre can be further degraded by micro-organisms and lead to colour downgrades and light spotted cotton.

There are three factors which can influence the moisture content of a module.

1. Defoliation is critical in the presentation of a quality sample to the gin. The amount of green leaf still present will add moisture to a module, and, in severe cases, cause green stain.

2. Picking should only occur when conditions are suitable. Trouble arises when picking is re-commenced too soon after rainfall events, or is pushed into the night after dews have settled in. Pushing the limits in the morning is seen as less of a risk as the cotton is drying.

3. Tarping — wear and tear on tarps is



It is important to avoid contamination during the picking operation.

most likely to allow rain moisture into the module through holes and the like. Ensure that moist modules (those exposed to rain) are allowed to dry by removing the tarp and refitting it.

Contamination

Australian cotton has a very clean, contamination free image and it is paramount for growers' interests that it stays that way. Contamination in modules can lead to downgraded cotton and associated merchant discounts and gin machinery damage and fires.

• Carelessness and poor housekeeping

In many situations the staff making the modules is contract labour or associated with picking contractors. It is important that these people fully understand the ground rules and standards which are required. Simple items such as drink cans and plastic food wrappers should be disposed of correctly.

• Placement of module builders

Ensure that the tail drain or rota-buck area is free of weeds, stones, waste or spills. As mentioned previously, what modules are built on is easily transported

to the gin.

• Machine failures

It is to be anticipated that pickers, boll buggies and presses will break down during the season. On site repair of these machines can lead to contamination of the module. (for example, module builder hydraulic oil).

- Sacking of staff. Although not desirable there are situations where staff are let go. One of the common causes of contamination of modules is the actions of disgruntled ex-employees.

It is important that if there is any suspicion of problem with a particular module, the gin is notified and therefore can take precautions in management of the module.

Grower involvement

There should be as much co-operation between the grower and the ginner as possible. The Ginning Association of Australia is actively encouraging growers to take part in the ginning process. The aims of the gin are to allow the grower to achieve the best quality cotton, and therefore the highest possible price.

Growers' assistance in the ginning operation is essential. In the simplest form it can be notification of problem modules, but may involve getting the gin configuration to produce the desired result for your cotton — for example the number of lint cleaners, heat and moisture levels.

(Adapted from a presentation from the Field to Fabric meetings with assistance from the Australian Cotton Ginners' Association).

NEW COTTON TRAITS FOR 2006

With the OGTR approval now in place for the release of Roundup Ready Flex for the 2006 planting, growers will be able to plant this new technology and achieve season long weed control. The US has completed one full season and is about to begin planting this new technology for the 2006 season.

Associate Professor Donnie Miller from the Louisiana State University Agcentre

at St Joseph Louisiana, has been trialing these new herbicide traits for several years and recently spoke about his experience at the Louisiana Cotton Forum. He raised a series of key points to identify the main issues that growers and advisors will need to be aware of leading up to planting for the 2006–07 season. His comments can also apply to cotton production in Australia.

Changes to and reductions in herbicide use

Roundup Ready cotton has had a dramatic affect on herbicide types and use patterns.

Across the US there has been a 753 per cent increase in glyphosate use from 1997 to 2003.

In Louisiana over the same period, there was an 80 per cent decrease in Staple use, Cotoran was down 85 per cent and MSMA was down 64 per cent. There was a 134 per cent increase in Diuron as it was increasingly used as a mix with glyphosate for layby and knockdown weed control.

Benefits from its use

Potential to eliminate chemical application and reduce tillage operations. Growers realised that if timely over the top applications occurred on small actively growing weeds, they could reduce or eliminate pre emergent herbicides normally applied at planting. Tillage for weed control could also be eliminated or reduced.

Easy to understand 'application trigger'. Spray both grass and broadleaf weeds when they appear.

Broad spectrum of control. The days of tank mixing herbicides for both



Associate Professor Donnie Miller.

grass and broadleaf control are gone.

Allows for a 'systems' approach. Some growers treat Roundup Ready cotton with only glyphosate. Others treat Roundup Ready with glyphosate up until the fourth leaf over the top restriction after which they treat it like regular cotton utilising conventional herbicide programs. Others use a combination of the two systems — they use glyphosate and incorporate some of the other materials.

Rotational flexibility. Glyphosate use provides no residual or long lasting effect and allows the rotation of crops. Growers aren't locked into specific crops.

Potential problems

Proper application timing. Most growers would prefer to put two over-the-top applications on Roundup Ready cotton. But when the crop is growing

vigourously and there is ideal moisture it is very difficult to get those two applications on prior to the fourth leaf stage, especially over big areas.

Rates on perennials. Difficult to choose the right rate to kill both perennial and annual weed species. Higher rates must be used to ensure adequate activity on some of the harder-to-kill weeds.

Crop tolerance. Spraying Roundup Ready cotton past the fourth leaf stage is off label and can affect fruiting patterns and delay maturity. This can affect final yield.

Reduced herbicide development. This is a big concern according to Donnie Miller. Chemical companies have not been putting time, money or effort into developing new chemistry. They do not see any real return on investment.

ROUNDUP READY FLEX

Roundup Ready Flex had a limited release in the US for the 2005 season. There will be a more widespread release for the 2006 season with more varieties available. Roundup Ready Flex has also been approved by the OGTR for release in Australia for the 2006–07 season.

This new cotton provides tolerance beyond current restrictions. Growers will no longer have to restrict over-the-top applications to the fourth leaf stage and will be able to broadcast spray over the crop until well into the crop's life cycle.

Donnie Miller is very concerned that with the lifting of the early application restrictions, growers may be tempted to delay the initial application. They may want to wait until there are enough weeds emerged to justify an application. This

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approach is dangerous and could be the biggest detriment to the new technology. Cotton is a very poor competitor with early season weeds. The effect of weed competition on cotton can be easily hidden by the ability of glyphosate to clean up a weedy field.

Competition from weeds against the crop is not the only problem. Weeds can host other pests that can harm cotton.

Covering the area and making timely applications

Growers can use broadacre spray booms that spray 100 per cent of the area. This will speed up application considerably compared to using a shielded sprayer. After a rain event, if a timely glyphosate application can be made there may not be a need to apply a residual herbicide.

The addition of residual herbicides in a Roundup Ready Flex system may buy a grower time and limit the competition where a glyphosate application is delayed and the weeds become larger. The inclusion of these residuals can help control more of the harder to kill weeds. The addition of other modes of action herbicides can also help delay or prevent any potential resistance or species shift.



Weed research trials in Louisiana.

Donnie Miller made the key point that most growers will see the positive impact of this new technology and will try to assure its longevity wherever possible.

Technology costs

The current Roundup Ready and the new Flex systems both work very effectively. Growers will have to decide if the extra

technology fee for Flex is worth it. They may feel the potential to reduce the cost/time associated with applications over the top throughout the season with larger and faster moving equipment and the ability to reduce the number of applications may offset the increased cost. The potential to tank mix insecticides and plant growth

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