Germinating ideas

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With the season in full swing and many crops at the cut out stage and approaching maturity we will look at the issue of how a mild end to the season could affect cotton yields and fibre quality.

Also there have been widespread reports of Phenoxy herbicide damage this season. Should the sale of 2,4-D in all forms be restricted during the summer months? Should there be further restrictions on their use during the summer?

And finally, the spread of Fusarium wilt has been much slower than was predicted some years ago. What has contributed to the reduction in it's spread?

A mild end to the season

We have experienced a number of warm to hot seasons over the past few years where day degrees have been up considerably on long-term averages. The impact of a milder season and a La Niña could have some affects on the final outcomes for the cotton season.

The accumulation of day degrees will take longer and this will mean that crop maturation could be delayed. The average crop requires around 2000 day degrees to reach maturity. In all cotton growing regions there are usually enough heat units generated in 130–150 days in summer to accumulate this, but in shorter season areas such as the eastern Darling Downs, upper Namoi and southern NSW in a below average season temperature season, there is a risk of running out of season length.

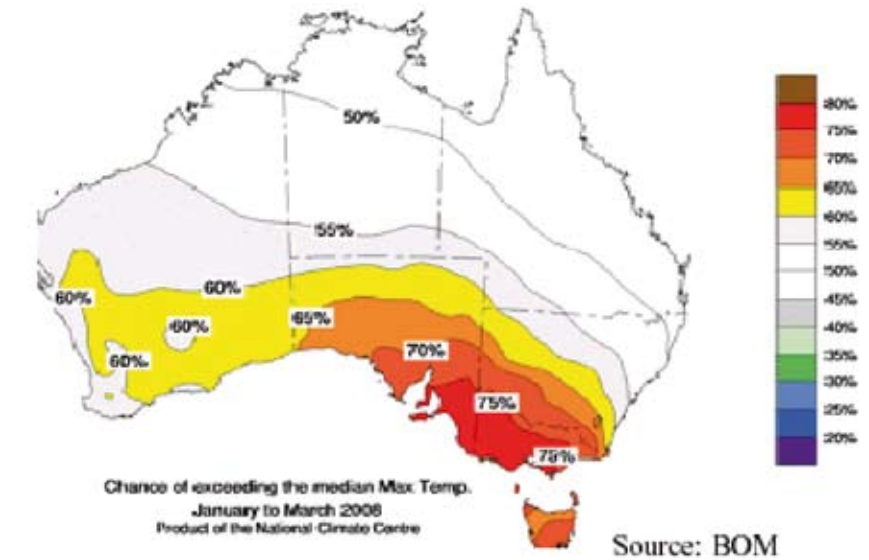
2,4–D damage on cotton this season.

Late planting of crops can also delay the maturity date. The past few seasons, later planted crops have been able to make up the difference with ideal growing conditions from February to April. Bollgard II cotton was allowed to be planted up until December 1 in many valleys due to the extension to the planting window. Some of the longer season varieties will find it difficult to mature later bolls as the temperature and day degrees start to reduce.

Bollgard II crops tend to mature more quickly than their conventional equivalents because of their higher fruit retention with the associated shift in the demand for resources earlier in the season.

Crops that have very low fruit retentions, especially if they are planted later, may be at risk of yield loss as they require a greater amount of time to recover from earlier damage to achieve yield expectations. Recent increases in Helicoverpa activity may add to fruit damage and with a milder season, crops will not be able to reach target yields.

FIGURE 1: Chance of exceeding median temperatures



Fibre quality

Micronaire

There is a strong correlation between high temperatures and higher micronaire. Therefore in a milder season we could generally expect lower micronaire levels. In some cooler regions or in situations of late planting, there may be incidences of low micronaire with associated bale discounts.

Strength

Strength is a difficult characteristic to predict but it does tend to be lower in cooler and cloudier seasons.

Fibre length

A milder season should not have a major impact on length as the fibre length is set earlier in fibre development, earlier in the season. Varietal characteristics and low turgor pressure within the plant (from moisture stress) are factors in determining length.

Uniformity

Especially in late maturing crops, may be reduced because there could be some late bolls with immature fibre with in the sample.

A lower yield expectation in a milder year?

People may have to rethink their yield expectations for this season, especially after the ideal growing conditions of the past few years (for those with adequate water).

Boll weights

Boll weight is a function of carbohydrate supply, which is driven by solar radiation. In cloudy weather, or when maturing under shorter day lengths, bolls may not be as heavy.

Boll numbers

In seasons with periods of cloudy weather and also water-logging, it is more difficult to retain and sustain high numbers of fruit. There maybe fewer instances of high fruit numbers (>150 bolls/metre) that make it through to picking compared to the previous few seasons.

Disease pressure

Verticilium wilt is a late season cotton disease that is favoured by cooler conditions. The incidence of this disease and its effects are expected to be greater this season. Anecdotal evidence suggests this is the case in many areas. The same conditions also favour Fusarium wilt. As bolls develop there are increased demands on the crop and this could lead to higher levels of FOV.

There has been a relatively low level of boll rots (with the exception of Central Queensland) over the past few seasons. Moist and humid conditions in the crop will promote boll rots especially as bolls begin to open.

Moisture will get into bolls and where it does not dry out and the bolls are delayed in opening, the prevalence of boll rots will increase. Care should be taken with later irrigations to ensure that water is not on the field too long, promoting high levels of humidity in bigger and denser crops.

High levels of phenoxy herbicide group damage this season

There have been widespread reports of large areas of cotton affected to varying degrees by the drift of phenoxy type herbicides this season. This season has been particularly bad and this could be put down to a number of reason including:

- The increased cost of glyphosate products, so the need to reduce rates and 'spike' mixes with other compounds;
- The increased use of 2,4-D type products in fallow sprays;
- Summer rainfall in many areas has caused higher weed pressure and associated control requirements;
- The perception that there is very little cotton in the ground so it is safe to spray these products; and,
- The perception that 'low volatile' products are safe to spray even when conditions are not right and susceptible crops are within drift range.

There are many more reasons that may be contributing to the high level of damage but dramatic changes are needed in order to try to prevent this ongoing damage and often-repeated affects. Some crops badly affected are completely devoid of fruit and have been written off after repeated drift incidences.

The issue of physical drift versus volatility damage has been raised but the bottom line is that cotton crops are being destroyed by these phenoxy herbicides so unfortunately tighter controls are needed.

Widespread reductions in the spread of Fusarium wilt

Following from industry predictions several years ago that 90 per cent of Australian cotton farms could have Fusarium wilt by 2010, the cotton industry can be very relieved that this prediction is proving to be wrong.

There are three main reasons why the spread of Fusarium wilt has been delayed.

1. The continued breeding and selection effort for varieties with higher F ranks. This has lead to the overall reduction in levels of FOV building up in areas where the disease is already present. Many growers who farm with the disease have 'left out' their worst FOV fields which may also help reduce the levels of infections over time.

2. Less favourable climatic conditions for the build up and spread of the disease. This has been one of the very few positives of the prolonged dry period in many regions.

3. The widespread adoption and compliance with the 'Come Clean – Go Clean' program. Many farms now have full wash down facilities that have made this policy easier. It has proven to be a very successful program and it is important that it is continued.

There has been extensive trial work carried by a dedicated team of researchers to help find answers and manage the risks when dealing with this disease. The development of the Integrated Disease Management program has been an important part of reducing the severity of this and other pathogens.

This will be more on the issue in further editions.