Cotton Catchment Communities CRC
NSW DEPARTMENT OF PRIMARY INDUSTRIES

COTTON *TALES*

Southern New South Wales

James Hill, Regional Cotton Extension Officer – 6993 1608, 0447 773 791

2008/09
No.2
26/09/08

Hi Everyone

As the temperature starts to heat up growers are considering the best planting date for cotton. Deciding when to plant is one of the most difficult and important decisions to be made. This season the decision is even more difficult with growers trying to schedule in planting and watering of cotton whilst dealing with the demands of thirsty wheat crops. The biggest challenge is selecting the period which promotes the most rapid growth and therefore best establishment.

Soil Temperatures

It is recommended that cotton sowing does not occur until minimum soil temperatures at 10cm exceed 14ºC at 9am for 3 consecutive days. *Note: 14ºC at 10cm depth will equate to approximately 16-17ºC at seed sowing depth*.

Planting date options

Early plant

Planting early (ie. mid September) when the temperatures can climb into the thirties may have an advantage of maximising early season growth and vigour. This may result in an earlier maturing crop, leading to an early harvest and avoiding late season cool temperatures.

However, planting early increases the risk of exposing the crop to the last of the season's cold weather. Any advantage gained by an early emergence is then lost as the seedlings develop more slowly and are at more risk of seedling diseases in cooler weather.

Mid season plant

Historic weather patterns for Southern NSW show that the temperatures for cotton planting are generally ideal in the first half of October. Temperatures are warming up and the risk of cold shocks is greatly reduced during this time.

Late plant

The weather conditions and soil temperatures after the 15th October will promote rapid emergence and seedling vigour; however a later planting date can create problems at the other end of the season.

Planting late reduces the length of season. A crop planted in late October or November may not have enough time to fully mature, particularly if the season finish is cool.

Under the Bollgard II® Resistance Management Plan, all Bollgard II® cotton crops and refuges must be planted by the 15th November.

Weather Patterns

Watching the weather patterns and synoptic charts is an important tool when deciding when to plant.

- Weather patterns at this time of the year are dominated by slow moving high pressure cells
- High pressure cells are air masses where the air moves in an anti clockwise direction
- The high pressure cell brings to southern NSW cold southerly winds often accompanied by patchy light showers as the cell crosses into our area
- As the high pressure cell moves eastward and the centre is over our region the temperature increases
- The cells then causes warm northerly winds as the high pressure cell moves east ward away from the area

Often in between highs we are at the mercy of the more intense low pressure cells. The low pressure cells are parcels of air that move in a clockwise direction. Low pressure cells can be associated with very cold weather often with showery conditions. How cold it gets depends on how far south the cells air originates.

- A strategy may be to plant as the low pressure cell passes, timing the irrigation with the arrival of the high pressure cell (and warmer weather)
- The potential then exists for several days of warm weather to start the germination process. Once the soil is moist it should hold the heat absorbed during this time.

Moisture Plant or Water up?

Cotton seeds can either be planted into soil wet enough for the seed to germinate (moisture plant or pre-irrigate) or planted into dry soil before the field is irrigated (water up).

Moisture Plant

- Moist soil heats up more rapidly and retain heat better than dry soil.
- Effective in soils with even soil type and moisture holding capacity. Can be difficult in variable soils.
- Potential for weed germination and control prior to cotton emergence
- Wireworm control will improve as the chemical used to treat wireworm is soluble meaning that under very dry conditions the product can be taken away from the seed when watering up.

Water up

- More effective in fields with variable soil type and water holding capacity.
- Soil temperatures should be very warm when planting, as irrigating can cause the soil temp to drop a couple of degrees.
- Reduced risk of compaction at planting and allows a high bed height to be maintained.

Planting Depth

If planting into moisture, seed should be placed into moist soil with good seed to soil contact so that moisture is rapidly imbibed into the seed.

Planting depth should rarely exceed 5cm unless chasing moisture. Planting deeper than 5cm may slow emergence and decrease emergence percentage.

Alternatively, planting shallow (<2cm) may also increase emergence variability as the shallow soil may dry back quickly and emerging seedlings may become isolated from the moisture. This is particularly an issue in soils prone to cracking.

If planting dry, seed should be placed shallow (approx 2cm) as during the irrigation process seeds can drop deeper, especially in cloddy soils.

It is important to monitor planting depth to ensure that depth is appropriate for the soil type and moisture levels in the field. This is particularly important in fields with more than one soil type where sowing conditions can change across the field.

Disease management

Sowing below ideal soil temperatures and cool weather conditions can increase the incidence of seedling disease, Black Root Rot and *Fusarium* spp. by slowing germination and emergence. The use of seed treatments are an important part of disease management. Other practices that may help reduce disease incidence include:

- Plant into high, firm beds to reduce the risk of water logging
- Plant into warm weather conditions and soil temps
- Consider planting into moisture, rather than watering up.

Soil Insects

Wireworms are the key insect pest at cotton planting/ seedling emergence. Spring populations are generally higher in fields with large amounts of previous crop stubble, weeds or following a summer crop so preventative measures may be warranted in fields with these conditions. Wireworms are difficult to sample but are generally found at the top of the intersection of wet and dry soil. Cutworms can also cause damage to young seedlings post emergence and are more likely to be found in fields that have weeds present, especially in lower lying areas where soil remains damp.

Thanks to Mike Bange (CSIRO) for information in this article.