

Defoliate on time to avoid neps *Sandra Deutscher*

Australian cotton needs to maintain its overseas reputation as a high quality fibre. In recent years overseas mills have expressed concerns relating to the high nep content of Australian cotton.

Neps, or small knots of entangled immature or dead fibres, disrupt the spinning processes and damage both yarn and fabric appearance. Lint containing too many immature fibres can increase the likelihood of nep generation during lint cleaning.

Management practices that open immature bolls such as pre-mature defoliation can contribute to the inclusion of immature fibres and an increase in neps. Experiments conducted at the Australian Cotton Research Institute confirmed that defoliating before 60% bolls open lowers micronaire (reduced fibre maturity) and increases neps. (Bange et al. 2009)

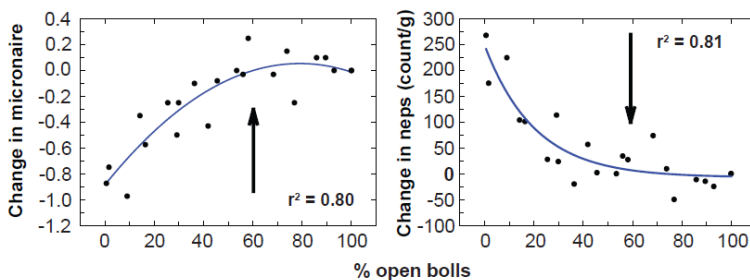


Figure: Impact of time of defoliation on Micronaire and neps. Defoliation before 60% bolls open lowers Micronaire (reduced fibre maturity) and increases neps. (Adapted from Bange et al. 2009).

Optimum timing of defoliation must strike a balance between further boll development, potential losses from adverse weather and the inclusion of immature fibre.

As a general rule of thumb, crops are mature and can be defoliated after 60% of the bolls are open. Another method to establish crop maturity is by counting Nodes Above Cracked Boll (NACB). In most situations 4 NACB is equivalent to 60% open bolls. As an additional means to determine boll maturity, assess seed coats by cutting the bolls open. They are mature if the seed coat is turning brown.

For further information on managing your crop to preserve fibre quality, refer to FIBREpak.
www.cottoncrc.org.au/content/Industry/Publications/Fibre_Quality/FIBREpak.aspx

Other Key issues for use of defoliants:

Timing Issues

- If boll openers/conditioners are applied prior to boll maturation they may cause bolls to shed and reduce yield, not to mention an increase the incidence of neps.
- Avoid application of defoliants if rain is forecast. Some defoliants are taken up slowly by the leaves and will wash off by rain, resulting in an incomplete defoliation. Rain after

applying a boll conditioner may interrupt boll growth and cause 'tight lock'.

- Defoliate before the onset of frost. Frost can cause damage to the abscission zone making defoliants ineffective.

Rate and Chemical Selection Issues

- Higher rates will be needed for young healthy leaves.
- An application in weather that is too warm may cause young leaves to 'freeze' on the plant.
- Cool temperatures, low humidity and water stress can increase the waxiness and thickness of the leaf cuticle reducing chemical uptake. Wetting agents can assist with this problem.
- Hormonal defoliants and boll conditioners have a higher optimal minimum temperature of around 18°C compared with herbicide defoliants that have optimal minimum temperatures ranging from 13 to 16°C. Higher rates are often needed to offset the effects of low temperatures.
- The defoliating effects of a chemical are usually complete 7 days after application.

Application Issues

- Low humidity decreases uptake because chemicals dry rapidly on the leaf.
 - Using a larger droplet size penetrates lower into the canopy.
 - Multiple applications are beneficial for chemical coverage deep in the canopy.
 - If increased waxiness of the leaves is suspected, apply the defoliant in warmer conditions when the waxy layer is more pliable.
- Refer to the Pest Management Guidelines and manufactures details for specific chemical defoliation options and rates.
 (Source: FIBREpak)

If you would like a copy of FIBREpak please let me know

Mealybug update:

Burdekin species have now been confirmed as *Phenacoccus solenopsis* This is the exotic species of mealybug is currently affecting crops in Emerald. An update to the beat sheet blog is available <http://thebeatsheet.com.au>

Irrigated Grains Meeting Monday 01/03/10

7.15pm-8.45pm *Mayfair Tavern Emerald*
 Allan Peake (CSIRO Sustainable Ecosystems) & Nick Poole (FAR, New Zealand) are coming to present their latest research, including results from CQ & the rest of the northern region in 2009.

Allan Peake's experiments last year showed promise in using different plant populations & delayed application of nitrogen to boost yields & reduce lodging risk. Nick Poole will be speaking on manipulating cereal crop canopies for yield & quality under irrigation and whether there is a role for crop sensors in managing irrigated cereal canopies.