Cotton Catchment Communities CRC

COTTON *TALES*

Queensland Government

Central Queensland

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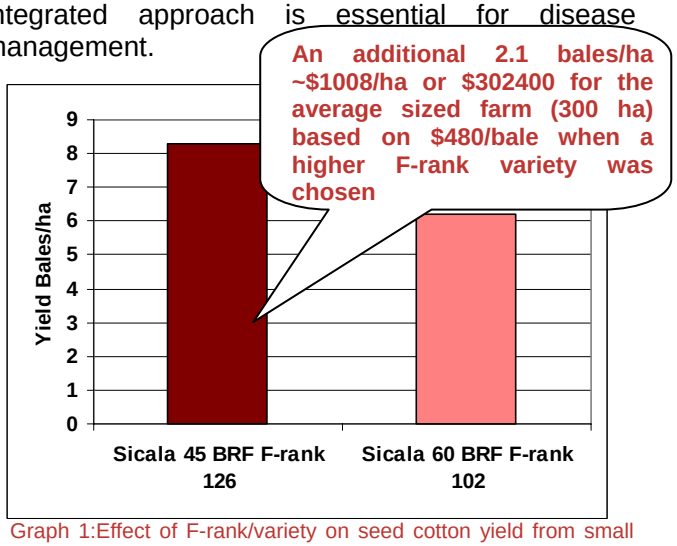
Plan to manage Fusarium Wilt

With a potential increase in area, cotton may be planted into fields that have previously had Fusarium Wilt. Cotton breeders have made remarkable progress in developing cultivars with improved resistance to Fusarium wilt. However, when environmental conditions are favourable and inoculum levels are high, only 35% of plants will survive in the most resistant cultivar that is commercially available. Planning to manage Fusarium wilt is key to success.

- **Plant a high F-rank variety**

Cotton varieties with high levels of resistance to Fusarium wilt are the cornerstone for management of this disease. Planting higher F-ranked varieties will produce higher yields (Graph 1) and will slow the build-up of Fusarium in the soil, in contrast to susceptible varieties. However, when weather conditions are particularly conducive to disease development, disease incidence may increase substantially even in resistant varieties, hence an integrated approach is essential for disease management.



Graph 1:Effect of F-rank/variety on seed cotton yield from small plot field trials conducted in 08/09 on Darling Downs.
Data followed by a different letter are significantly different from one another

- **Use BION seed treatment**

BION is a plant activator that turns on the natural defences of the plant before disease takes hold. BION seed treatment has shown to significantly decrease the incidence of Fusarium wilt by up to 42%. Reducing the effects of Fusarium wilt and establishing a healthier stand with BION seed treatment can lead to benefits through to harvest, with yield increases recorded in many trials.

- **Delay planting to the end of October**

Cool, wet early season conditions are conducive to infection and disease development. The best way, to avoid such favourable conditions is by planting as late as possible within the planting window.

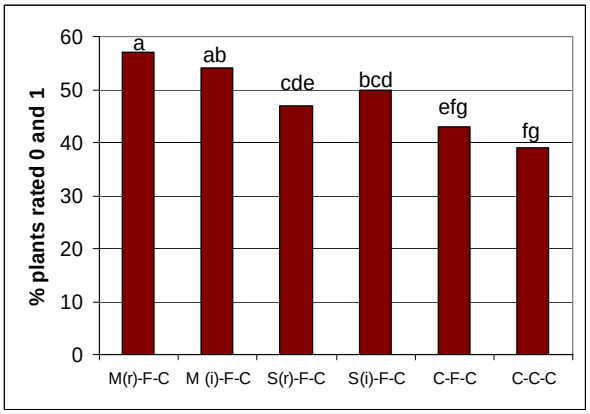
- **Avoid cultivating with knives if possible**

This causes root damage and provides an entry point for the pathogen. Instead consider using a shielded sprayer for weed control.

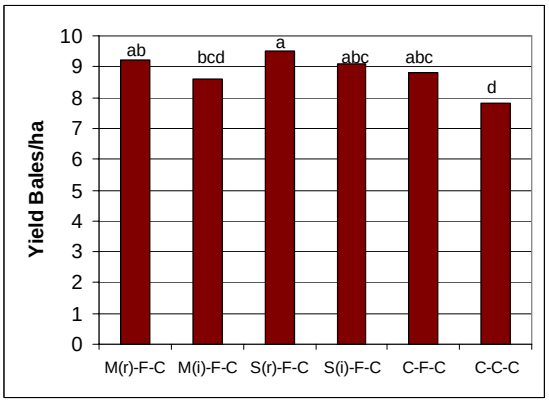
- **Consider previous rotations when selecting fields**

Bare fallow rotation is best at reducing disease severity in the subsequent crop.

Recent trials indicate that some crop rotations significantly reduce disease severity and increase cotton yield. For example: A summer maize – fallow - cotton or sorghum incorporated – fallow - cotton rotation significantly reduced the % of plants with disease compared to a cotton-fallow-cotton or continuous cotton (Graph 2). All rotations, except when maize was incorporated, resulted in significantly higher yields in the 3rd year than continuous cotton (Graph 3).



Graph 2: The effect of crop rotation on % of cotton plants rated 0&1 for Fusarium wilt severity in the final year of a 3-year field trial
Plants rated 0&1 have < 5% vascular discolouration
M = Maize (retain or incorporate residues), S = Sorghum (retain or incorporate residues), F = Fallow, C = Cotton (Siokra V18 BRF)
Data followed by a different letter are significantly different from one another



Graph 3: The effect of crop rotation on cotton yield in the final year of a 3-year field trial conducted in Fusarium infested soil
Data followed by a different letter are significantly different from one another

- **Minimise your tailwater**
- **Retain cotton residues on the surface**
- **Burn, bury or bale cereal residues ASAP**

Always practice good farm hygiene!