

Germinating Ideas

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Fusarium Wilt Research

Results from the Fusarium trials carried out over the 2002–03 cotton season are now becoming available. Stem cutting of over 8,000 plots and several 'box trials' has provided some very useful information. The latest F-rank values for all CSD varieties are available at www.csd.net.au and CSD publications.

Some 40–50 agronomic trials have been carried out by CSD this year in addition to all the CSIRO disease screening trials and QDPI trial work.

Many of these trials have been set up in response to observations or questions from growers. A summary of the key findings for several of the agronomic trials all conducted in fields with a heavy incidence of Fusarium are as follows:

- Time of planting — later planting gives better survival.
- Pre water vs. water up — 18 per cent increase in survival when planting into moisture.
- Herbicides — an increase in disease severity from Treflan and Cotogard when wet early season; no effect from Dual and Cotogard when dry early season.
- Feedlot manure applied in fallow — three tonnes per hectare produced no change in Fusarium incidence.
- Soil fumigants — Metham Sodium works well sometimes, requires moist soil, restricted movement in wet soil; possible recontamination from untreated area; very expensive.
- Biological treatments at planting — none



consistently gave improved plant stands.

- Application of products for induced resistance — very encouraging results; further evaluations continuing; permits are being sought for large scale trials; also works against black root rot.
- Different fertiliser products — temporary benefits from anhydrous in one season; no observed control benefits from a range of products including gypsum.
- Preplant and interrow cultivation — rolling cultivator – no impact; knives – sometimes a negative affect; dry spring, no shallow roots – no impact; mouldboard – ineffective at two sites.
- Cotton stubble trash handling — retaining residues on surface for as long as possible reduced disease in subsequent crop; not effective in dry winters.
- Summer crop rotations — less Fusarium following bare fallow, more following legumes; field experiment underway.
- Winter crop rotations — less Fusarium after a bare fallow than with cereal stubble incorporated.
- Burning of stubble — trial in progress.
- Irrigation management — no experiments, but minimise tailwater!
- Summer flooding — significant reduction in disease incidence, but not eradication.
- Variety selection — choose varieties with high rankings especially if disease is on farm. Varieties with 140+ rankings are coming.
- Fusarium and black root rot — an integrated disease management strategy is essential.

Source: Dr S. Allen CSD.

Growers who suspect they may have Fusarium are strongly encouraged to have it identified so that an integrated disease management strategy can be implemented.

Factors that Affect Micronaire

The 2002–03 season has seen big variations in micronaire values between varieties, farms and valleys. There are several factors which affect micronaire — the biggest being seasonal influences.

Base micronaire grades are now generally between 3.8–4.5. This has changed from the previous range of 3.5–4.9 and indications are that the range may get tighter. Spinners prefer fine mature fibres. The measuring of fibre maturity and fineness is the subject of research at many centres including the CSIRO Textiles division at Geelong.

Generally the hotter the season, the higher the risk of high micronaire in some varieties. This is because of less cloudy and overcast days in a hot season. Fibre thickening is occurring in ideal conditions.

There is a tendency for increased fibre thickness in these situations. This is magnified if fine conditions continue and the crop has no setbacks through its fibre development phase. Fully matured crops that have an early cut out will not have later finer fibres from later bolls to dilute the amount of earlier thicker fibres.

Ingard and Bollgard II varieties are showing a higher micronaire than their conventional parents of 0.1–0.3. It is believed that this increase is due to a combination of warmer seasons, high fruit retention and high inherent micronaire values. Trials have been carried out to assess later planting of Bollgard II to get more bolls to average the micronaire value across the plant.

There is also variability within varieties and from season to season. There has been a difference between the past three seasons of about 0.5 of a micronaire unit.

New Conventional varieties

CSD will be releasing two new conventional varieties for planting in 2003. Both have been bred by the CSIRO plant breeding team and have been in CSD's trial program over the past three years.

Siokra V-18 will replace Siokra V-17 and has four per cent higher yield, improved fibre length and an F-rank of 99 (4). It is adapted to central, eastern and southern regions and it is an option for dryland systems in shorter areas such as the Darling Downs where Fusarium may be present.

Sicala 45 has a two per cent higher yield than Sicala 40. It has an F-rank of 133 (3) and this will make it highly suitable for areas where Fusarium may be present. Under heavy Fusarium pressure in trials on the Downs, Sicala 45 has yielded substantially higher than Sicot 189 and Sicala 40.

Full details on these and all of the CSD varieties, are available in the 2003 Variety Guide and the CSD website.

CSD Information Tour 2003

The CSD Information tour will take place in June. All growers, consultants and industry people are encouraged to attend. The meeting dates for Hillston, Bourke, Mungindi, Dirranbandi and Walgett will be advised when finalised with local grower groups.