Other Services
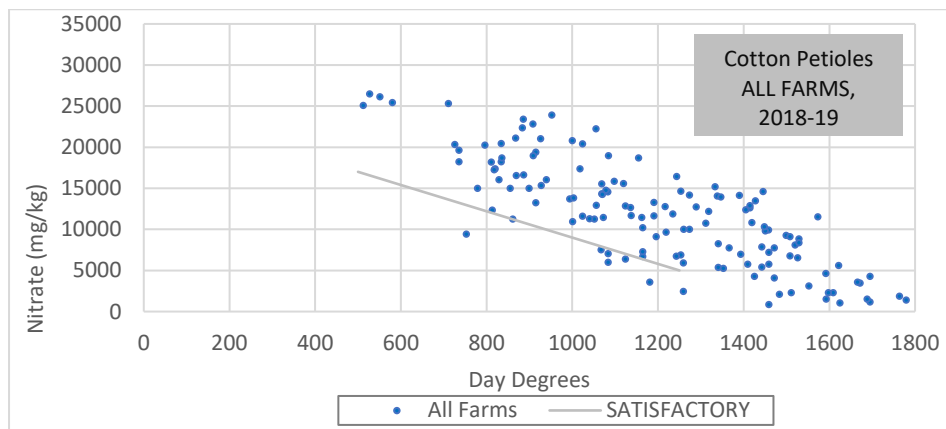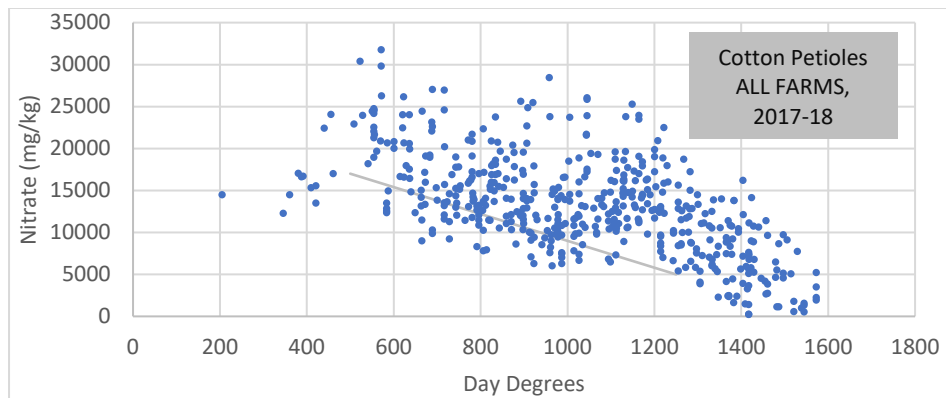
- PreDicta B soil DNA disease testing for broadacre crops
- Cotton tissue testing – nitrate testing for petioles on site

Cotton Petioles ALL FARMS, 2017-18

Cotton Petioles ALL FARMS, 2018-19

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Disease Testing in Cotton
Verticillium Wilt and Black Root Rot

Crown Analytical Services

Gwydir Valley Area Wide Management Meeting
Thurs 16th Jan 2020

Disease is one of the biggest challenges facing the cotton industry. There is a clear need for an objective measurement tool leading to successful disease management.

Over the last two cotton seasons, Crown Analytical Services have tested fields for Verticillium Wilt and Black Root Rot using SARDI's DNA diagnostic technology.

Sampling was done on a 2-hectare grid and each point was GPS referenced to allow for subsequent sampling. A total of 16 soil cores (10 x 100mm) were taken over two rows at each point. For some fields, stem cuts were taken to compare disease inoculum levels and incidence.

The heat maps generated can assist disease management decisions, track changes over time, monitor the impact of crop rotations and rank fields based on disease levels (Figure 1). On a research level, they can help identify sites of interest for further investigation. CSD has used the service this season to direct the location of trial sites (Figure 2).

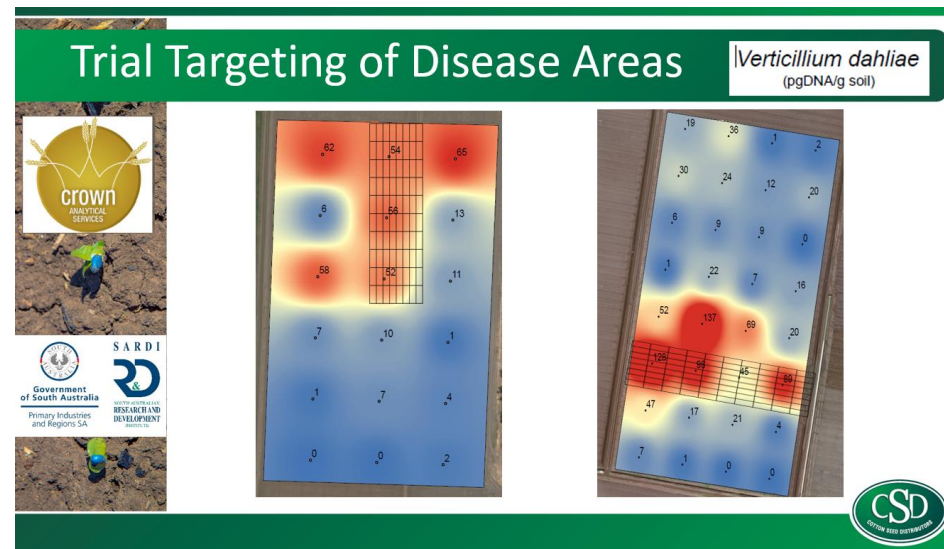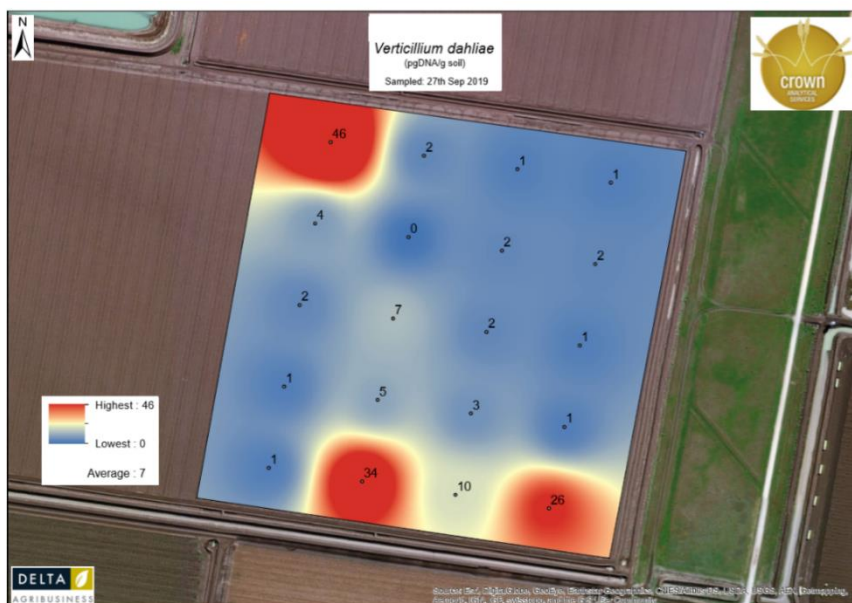Figure 1. Example heatmap for Verticillium Wilt

Figure 2. CSD using disease heat maps to place trial sites

CAS has also been developing a proposal for a project with the CRDC. This will build on work that has already been undertaken in the area of mapping cotton diseases. It will involve collaboration with industry and commercial bodies.

The cotton industry has been calling out for distinction between the Defoliating and Non-Defoliating strains of Verticillium Wilt. This project will provide samples and materials towards developing a DNA test differentiating between the strains.

The project will explore relationships between disease inoculum and other spatial datasets including EM, elevation, soil nutrition, NDVI and ultimately yield. This will help identify agronomic and management strategies to mitigate yield losses and reduce inoculum loadings.