

SECTION 2
THE FUTURE

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First commercial crops excel in the Burdekin

By Paul Grundy, QDPI&F

The 2007–08 season saw the first commercial scale planting and commencement of dedicated RD&E looking at the potential of cotton in the Burdekin. Ten participating local cane producers opted to grow fields ranging from 15–100 hectares.

They were joined by two pioneering southern growers attracted by the Burdekin’s soil, water and climate resource. In total about 760 hectares of cotton was planted between December 20 and January 28. The window was selected based on modelling by Stephen Yeates of the CSIRO which suggested a reduced risk of rainy weather during flowering and boll formation while allowing sufficient time for crops to mature for picking in June–July.

Each crop shared a pre-plant history of five or more years of continuous cane production. On some fields, cotton was the first alternate crop to cane in over 15 years. Fields were taken out of cane production anywhere between 3–8 weeks prior to sowing with ground being worked several times (typically with offset discs) before being bedded or hilled up. Each grower determined their preferred formation — cotton was grown on twin row beds or single hills at 30, 32 and 40 inch row spacing variants depending on available equipment and integration with the other on-farm cropping practices.

Nutrition

Nutrition after cane was a large unknown for a first commercial season, a problem made more difficult by the large variations in soil type (from well drained river loams to somewhat impervious Barratta clays). Benchmarking for 2008 showed that the average fertiliser application was an up-front application of 180–200 units N, 40 units P, 80–90 units K, 30 units S and 3–5 units Zinc.

Due to an extraordinary wet season post-planting and the high probabilities of losses due to leaching or denitrification, many growers made a subsequent application of 50–100 units of N either by side dressing or fertigation. Despite these actions, the uniformity of many crops was highly variable with in-field variation appearing to be linked to subtle across-field changes in soil type and drainage that had likely interactions with applied nutrition and crop uptake efficiency.

Wet summer woes

2008 proved to be one of the wettest summers in 20 years for the Burdekin and was characterised by 52 rain days (days where ≥ 1 mm are recorded) and a total of 1160 mm. The long term average is 25 rain days and 550 mm. The majority of rainfall occurred throughout January and February.

Initial rain after Christmas delayed planting for many crops and resulted in several hundred acres of replant due to poor emergence on some badly structured loams, deprived of organic matter due to 20 years of burnt cane monoculture.

On heavy barratta clay soils, some with field lengths over 1000 metres, degrees of waterlogging reduced crop vigour and limited early root development to within the top 100 mm of the soil bed. The net result was poor access to pre-plant applied nutrition that sat at the base of the continually waterlogged beds.

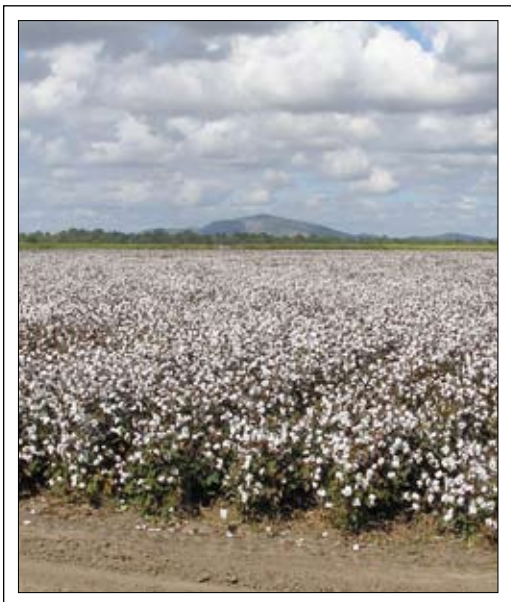
The lack of root development would also later prove to be a challenge for irrigation management with crops initially requiring small deficit irrigations



Andrew Keely’s crop in January, before the wet. Note the nutgrass compared with the same crop in March.



Andrew Keely’s crop in March, after the wet.



Jan LeFranz' crop of Sicot 70.

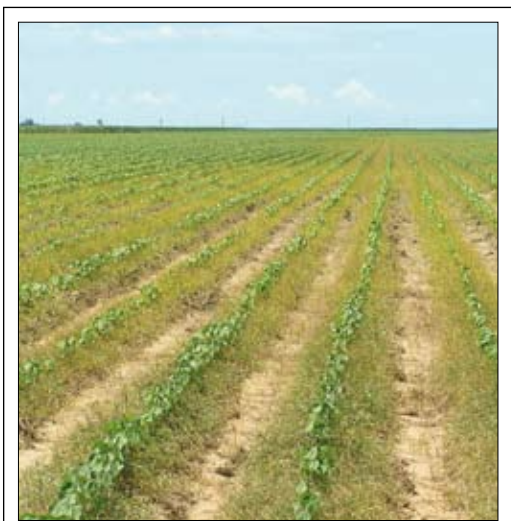
within a week of the last rain until compensatory root development occurred over the dry months of autumn.

Wet conditions also made other operations such as side dressing and inter-row cultivation difficult, with many growers opting for water run nitrogen with the first irrigation as the only means of supplementing nutrition. Redemption for 2008 came with the dry sunny autumn conditions that the Burdekin is renowned for, which enabled crops to recover, flower and fill bolls.

Crop management

Pix management in an environment characterised by warm humid conditions and unlimited soil moisture that favours rank growth was an unknown challenge. Guided by the Ord research experience, most crops received early applications of Mepiquat Chloride at 400mL per hectare at 5-6 nodes to encourage reproductive growth, followed by further 400-600mL applications up until flowering.

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Nutgrass being controlled by Roundup Ready herbicide.



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<33...COMMERCIAL CROPS IN THE BURDEKIN

Weed management during the wet on old cane country is a significant challenge as many fields contained high populations of nutgrass, sesbania and vines. Despite these populations, most crops achieved effective weed control with two or three in-crop applications of Roundup Ready herbicide.

Insect management was in many ways similar to central Queensland. Most crops received one or two applications of low rates of fipronil for mirid control in the first half of the season. But these applications also served to control minor infestations of red shouldered leaf beetles, *Monolepta australis*. These

beetles are thought to emerge from the soil in cane fields where the larvae feed on roots. These beetles congregate in large swarms and defoliate small patches of crop, which is particularly noticeable on smaller fields, but the impact is typically worse than it looks.

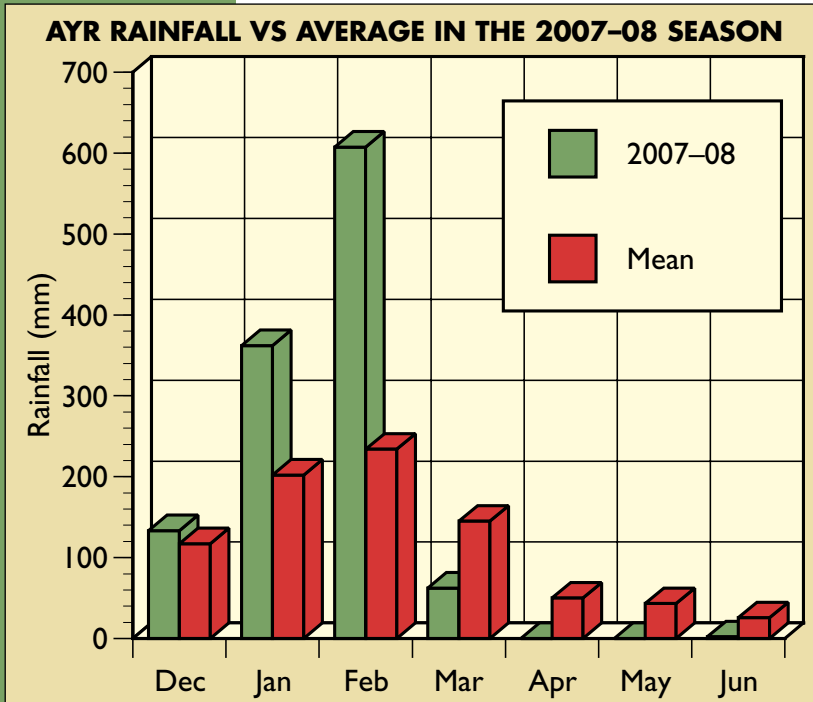
With the onset of the dry season, green vegetable bugs were the primary damaging pest encountered in nearly all fields, requiring one or two applications of pyrethroid. Silver leaf whitefly (SLW) were present in most crops although at levels well below threshold due to effective parasitism by local wasp complexes. Only a small percentage of fields were treated for SLW, primarily to minimise dispersal onto neighbouring horticulture crops at defoliation.

Defoliation began in earnest during late May and the first crops were picked in June. Yields were highly variable (between four and 12 bales per hectare) with the district average (including the 10 per cent unsprayed refuge areas) estimated at 7.2 bales per hectare. If the three fields (about 60 hectares) which only yielded four bales per hectare due to extensive waterlogging are excluded, the district average would be closer to 7.5 bales per hectare.

Quality a winner

The quality of lint produced in the Burdekin has been the big story of 2008. With two thirds of the crop ginned and classed at the time of writing, every bale has been base grade or above with 70 per cent of the crop attracting a premium for lengths of 38-39 and strength 32-34 g/tex. Colour has been strict middling and micronaire in a range of 3.5-4.9 with 75 per cent of bales being within 3.8-4.5.

All in all for a first season, taking into account limited agronomic information, first time growers and one of the wettest seasons in 20 years, the results for 2008 auger well for the future with the acreage for 2009 looking set to increase.



Local grower Lindsay Hall at a field day in April.