DRYLAND COTTON GROWING

Ray Pengelly, Bowenville, QLD

INTRODUCTION

Pengelly Farming Pty. Ltd. is a family owned and operated business in the Bowenville area of the inner Downs. Our business is a mixed enterprise of grain, cotton and cattle fattening carried out on an aggregation of 6,500 acres which is land owned, sharefarmed and leased. Soil types vary from brigalow scrub and box to heavy black flood country. We have been growing dryland cotton for five years.

ROW CONFIGURATIONS

We have adopted the use of single skip with a three metre tram track for spraying by ground rig in preference to double skip.

* Single skip with two rows under the tractor helps the driver maintain accuracy when inter-row cultivating especially if working at night.

* Single skip compensates better if plant establishment is poor.

* Three metre tram track allows for total spray program to be applied by ground rig.

* Three metre tram track is used to accurately guide the aircraft and as the majority of our cotton is planted in 95 metre strips this enables the aircraft to operate without markers.

* Experience has shown no difference in yield between single and double skip but savings of at least one spray application which is usually in the third stage of the spray strategy.

* Because the plant size is easier to regulate in single skip, this has allowed us to use lower band widths when applying chemicals and this more than compensates for the extra 13% planted area.

* Picking single skip is 13% dearer than double but we find the cotton matures evenly and speeds up the picking operation.

WHAT ARE THE BEST PLANTING DENSITIES?

Experience has shown that a good even plant stand is essential and can have a large impact on the cost of production rather than effecting yield. Cotton can compensate well for poor plant stand but in so doing can often add several extra sprays to the program and these are usually the more expensive stage three sprays. To achieve what I consider the perfect stand of 6-8 established plants per metre we use disc opener planters and water injection. Temik is used on early plantings (Sept, Oct) to help young plants establish in colder soil and sustain vigour under high insect pressure. It is imperative that seed is not planted deeper than 2 inches. The planter is set to drop 10 seeds per metre.

WHAT ARE THE BEST CROP ROTATIONS?

This is the problem we have had the most trouble coming to terms with because different soil types can sustain cotton production better than others. Again experience has shown cotton will perform well on a virgin cotton rotation but yield is difficult to maintain at these levels. The main factor which influences cotton yield is available stored moisture and it is imperative that we adopt farming practices which replace the moisture that is drawn from deeper in the profile. This is why cotton crops perform well, cotton extracts moisture and nutrients that previous crops haven't used. We have tried back to back cotton, cotton-double cropped wheat-fallowed cotton, cotton - 2 years fallow cotton, cotton long fallow wheat long fallow cotton.

On our box type soils it is imperative that crop residue is maintained to achieve good soil structure and cotton production using traditional farming methods is having a negative impact on soil structure. This season we have modified machinery and developed a zero-till system in an effort to reverse this trend. The advantages of zero-till are more stored moisture, friendly environment for seedling establishment (no sandblasting) and faster growth with the fruit set up to 2 weeks quicker (saving on expensive spray at the end)

I believe that for a long term sustainable farming system we can grow cotton 1 year in four. I have more difficulty deciding on the rotation after cotton and it has taken up to 2 years for the moisture profile to be replenished. Again I find a zero-till system into sorghum or millet the following summer gives best results.

HOW IMPORTANT IS WEED CONTROL?

Without good weed control it is impossible to grow cotton. There is no cheap way of controlling weeds and the less effective early control is, the dearer weed control becomes. Weed control begins in the fallow 12 months before the cotton is planted in an effort to reduce the store of weed seeds. We use a tram line system during the fallow to layout the field ensuring accuracy when spraying and also reduce the risk of having to plant into spray tracks. Grass control is proving the most difficult in the zero-till system. To date we have used Dual or Stomp but these are not as effective at Treflan. This year we intend to apply Treflan in a 60cm band when laying out the field. Cottagard is performing well and the single shank 80cm blade type parallelogram cultivation is used to clean the inter row. We find the pre-emergent chemicals applied correctly work well and chipping is limited to stray burrs etc.

SUMMARY

Growing dryland cotton successfully and sustainably requires the grower to manage the elements better than traditional dryland cotton growing practices have in the past. I believe dryland cotton is well suited to this area and has a permanent future in our farming system but we must continue to develop practices to combat erosion and low levels of organic matter post cotton crop.