IRRIGATION RESEARCH & EXTENSION COMMITTEE

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FOR IRRIGATION CROPPERS

GPS technology – Weedseeker and Greenseeker technology application in irrigation

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Merrilong Pastoral Company

I would like to thank GRDC for inviting me to speak at this Farmer Update. Following is a background on our farm in New South Wales and a brief description on weed control and the use of weedseeking technology.

Background

Merrilong Pastoral Company is located 13 km from Spring Ridge in northern New South Wales, Australia. Merrilong Pastoral Company operates five properties with the main focus on dryland and irrigated grain production.

Area

Total land area is 4735 hectares, made up of: 3000 ha dryland farming

900 ha irrigated farming

885 ha grazing

Location

Merrilong is located on the Liverpool Plains, which covers an area of 1.2 million hectares. The area is serviced by Tamworth, population of 35 000, Gunnedah, population of 9600 and Quirindi, population of 3500. All these towns have schools and agricultural service centres.

Topography

The topography is in two distinct parts, with the first class friable black self mulching Yarraman Creek floodplain giving way to sloping red basalt predominantly low grazing hill and slope. The altitude varies from 350 metres to 420 metres above sea level.

Irrigation

Merrilong has four irrigation allocations totalling 1750 megalitres. Irrigation water is sourced mainly from fully equipped electric bores plus one river licence. There are 320 hectares of centre pivot irrigation and 580 hectares of flood irrigation. The capacity of each bore is approximately 50000 GPH. All bores are currently in an unembargoed area known as the Oxley basin. Merrilong is currently converting its flood irrigation areas to centre pivot irrigators. This enables the water to be used more efficiently.

Crops

Crops grown include bread wheat, durum wheat, barley, chickpeas, faba beans, canola, sorghum, corn, sunflowers, mung beans, and black eye beans. Crops are grown annually in both the winter and summer months, generally on a 50/50 split.

Machinery

Currently Merrilong has one Cat 55 tractor, one JD 8320 and a 4710 self propelled sprayer fitted with a Weedseeker spray system (only sprays green weeds in the fallow) and one 9610 JD header. All the dryland planting is done with a NDF zero till planter for winter crops, with fertiliser, seed and nitrogen all applied in one pass. It has been the objective to minimise equipment required.

We have recently changed the width to 9 metres to suit both the irrigation and the dryland. The row spacing

for summer crops is 75 cm and for winter crops is 37.5 cm. The 9 metre width will enable the header to be included in the system to reduce the compaction that the harvest operation causes. The sprayer is 27 metres so it will travel on every third tramline. Wheel centres for the tractors are 3 metres and we have fitted self steer to these to help with efficiency and precision of operations.

Grain Storage

Merrilong can store 13,000 tonnes of grain on farm. 9800 tonnes of this storage is owned by Mermell Unit Trust, which is in turn leased by Merrilong on an annual basis. The storage is elevated silos and is all interlinked. The remaining storage is spread over the farms and consists of five sheds and fifteen 100 tonne elevated silos

Management

Merrilong is a company structure. The management of the farming company is shared between Gordon and David Brownhill. Gordon has been involved in the business full-time since 1981. David did not join the management team until 1993. There are three full-time staff employed by Merrilong. Casual labour is employed where required and contractors are used for specific tasks such as spraying and harvesting. There is a policy in place to involve the staff as much as possible in the decision making process.

Marketing

The approach to marketing depends on the commodity and the risk associated with growing that crop.

The irrigation crops such as gritting maize for human consumption, are generally forward contracted 100 % at the time of planting.

Sorghum being the main summer crop is 25% sold at planting, if the market opportunities are there. By the time harvest is upon us we have sold a further 25% and then the remainder is stored on farm and marketed throughout the year as market opportunities arise. Traditionally the lowest sorghum prices are at harvest time.

Wheat and other winter crops that are at risk to weather damage prior to harvest are rarely forward contracted.

Merrilong uses all forms of marketing techniques from the AWB National Pool, the cash market, forward cash contracts, hedge to arrive contracts and futures contracts. Marketing is an essential part of the business.

AMPS

Merrilong has recently purchased shares in AMPS Commercial Pty Ltd which is a grower group consisting of 24 farms and a production base of approximately 200 000 tonnes of grain per year. Its primary focus is on developing relationships along the marketing chain. Although in its infancy, this group has already started to reap benefits through an inputs business, marketing and information dissemination.

Cattle

Merrilong has 150 head of cattle. This operation is mainly a trading enterprise. Cattle are bought and sold depending on seasonal conditions and market signals. Cattle make up 11% of the gross income whilst using 19% of the total farm area. Some agistment is currently being offered as we sold the bulk of our cattle in September 2003.

Timeline

1959 Purchased Merrilong at 22 pounds per acre($50 per acre) Total area of 1077 hectares

1960 *Primarily sheep farming with some Lucerne. The property was covered with mintweed two feet high*

1961 *Started growing wheat*

1968 *Started growing summer crops – sorghum*

1971 purchased Noongah at $59 per acre (479 hectares) Total area of 556 hectares.

Strip farming commenced in 1975 over both properties

1979 Bought Yarraman Station "walk in walk out"(3300 hectares) Total area of 4850 hectares

1980 Began fertiliser and pasture program on Yarraman Station

1985 *Commenced no-till summer crops and began using Nitrogen fertiliser*

1990 *Reached target of 1000 breeding cows on Yarraman Station*

1995 Sold Yarraman Station and livestock, bought Gowrie(889 hectares) and Keralla Downs(1060 hectares) which were neighbouring farming properties to Merrilong and Noongah. Total area of 3505 hectares.

1995 *Disbanded the strip farming to larger blocks, extended equipment to 12 metres wide and began growing all crops 100% no-till. Developed Ground Hound Zero till planter which enabled crops to be planted into heavy residues from previous crops.*

1996 *Leased 457 hectares of Yoorooga (neighbouring property)*

1999 *Lease of Yoorooga expired*

2000 Purchased Dimby Plains(1225 hectares) Total area of 4735 hectares

Irrigation expansion and growth

Cropping System

The aim of the cropping system on Merrilong is to maximise moisture use. Through the use of no- till systems water infiltration is maximised. Being on clay-based soils, the aim is to store up to 250 mm of plant available water in the top metre of soil. Once this is achieved we then plant a crop and try and use all available moisture. If we start with a full profile then we can usually grow a crop that will return a profitable yield regardless of in-crop rain.

We have changed our farming system from the 1980's of conventional tillage to the 1990's where no-till began in summer crops to the current decade where it is a full no-till system. Some fields have not been cultivated for 15 years.

A full no-till system has its issues including compaction, weed control, and disease. We minimise all of these through different techniques. Hard to kill weeds are probably the biggest problem with fleavane, milk thistle, bind weed and ryegrass the main culprits.

We approach this problem on two fronts: Firstly with the cropping rotation where we can rotate from summer to winter crops and secondly with technology, in this case the Weedseeker. By rotating from one crop to another it enables different chemical group to be used and also through competition we can minimise weed growth.

The use of the Weedseeker, which only sprays green weeds in the fallow can greatly reduce herbicide costs and also allows us to use expensive herbicides on hard to kill weeds as we are only spot spraying the field. We have reduced herbicide usage by as much as 80% in some cases. The example below is proof of savings achieved on glyphosate resistant ryegrass.

By using the Weedseeker it has reduced our reliance on glyphosate and it will help prolong the life of this herbicide.

Job Summary sheet

Customer		D Ronald					
Date Sprayed		10/20/04					
Field name		The Point					
Field area		300	Hectares				
Target Weeds		Weed 1	Ryegrass				
		Weed 2					
		Weed 3					
Chemical type and rates					Pricing		
	Chemical	Rate		Cost per unit		Total per ha	
Chemical 1	Select	0.3 l/ha		$90.00		$27.00	
Chemical 2		0 l/ha		$4.50		$ -	
Chemical 3		0 g/ha		$0.18		$ -	
						$ 27.00	per ha
Application cost if sprayed overall with own spray rig						$ 4.00	per ha
						$ 31.00	per ha
Actual usage			7%				
Actual Cost per Hectare			$1.89				
Application Cost per ha			$9.00				
Total Cost per Ha			$10.89				
Net Saving		Total chemical cost per ha + own application rate					
		minus Actual cost per ha + contract application cost					
Net saving =		$27.00	plus	$4.00	=	$31.00	
	minus	$1.89	plus	$9.00	=	$10.89	
Net Saving =	**$20.11 per ha**						
Field Saving	300 Hectares times Net Saving $20.11						
Total Field Saving	**$6,033.00**						