

EFFECTIVE PRODUCTION AND MARKETING OF IRRIGATED GRAIN CROPS USING PERMANENT BEDS

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Woodlands was purchased in 1987 by the then SFIT to augment its grazing enterprises on Tubbo Station. Woodlands was expanded by purchasing a neighbouring property in 1989 and it became independent of the other property, however the primary enterprise was still to be wool production.

With the down turn in the wool industry we needed to change quickly. Some consultants were engaged to ascertain how much it would cost to enter into irrigated row cropping. A figure of \$1.5 M did not help our chances of getting the funds to do this. We did however, proceed and managed to beg, borrow, build and buy enough machinery to get underway. We spent \$173,000 and we have done all other expansion within our cash flow ever since. The machinery was not pretty but it served our purposes and much of it still does.

Something else which served us well were the goals we set back in 1989 which were:

"To make the best of human, physical and technological resources by maintaining a viable farming system which gives satisfactory returns, both in cash flow and capital gain to superannuees, without compromising our fiduciary, social or environmental responsibilities.

To seek out premium domestic and export markets and service them so that the long term viability of Woodlands is maintained and improved.

We do this by having enterprises which are managed using appropriate and sustainable farming practices, taking into account our physical, social and economic environments.

We aim to remain flexible and have an enterprise mix which reduced agronomic and financial risk, but is successful and innovative enough to provide leadership in the agricultural industry."

We are undertaking ISO 9002 accreditation this year which will enable a management system accepted throughout the world to be implemented that will cater for the demands and potential growth of our markets. This QA program will also provide for succession of key management personnel and operators which will ensure the farms ongoing viability.

We are actively involved in expanding export markets for their own sake. We belong and network with a number of groups such as the Riverina Faba Bean Grower Association, the Riverina Food Group and the NSW Chamber of Manufactures. We are also developing relationships with major clients whereby we use their processes to add value to our produce and directly market into the retail, wholesale and particularly the food service sectors. In doing this however, we ensure that we do not tread on our client's market territory.

This gives some background into our operation at Woodlands, for us to be able to be effective in marketing, we have to be effective in producing.

In practical terms this means using a permanent bed farming system where enterprises are chosen on performance from within agronomic groups. These groups fit into a rotation where, after relasering, beds are formed into which is planted an initial high performance crop such as Maize. If lasering is not necessary beds are simply renovated using the same traffic lines.

Subsequent crops such as Wheat, Soybeans, Faba beans and Canola can follow. These subsequent crops have reduced establishment costs and unproductive fallow periods are minimised.

These crops are directly drilled into the previous crops' stubble with reduced chemical and fertilizer input. The permanent beds allow the maintenance and improvement of soil structure, facilitate water application and drainage and reduce overall capital cost in machinery. They also allow operations to be carried out in circumstances that conventional farming techniques would not. All of these benefits can result from this type of farming together with the achievement of higher yields.

The rotation of crop types aids pest and disease control with a balance of minimum, reduced and conventional tillage. Chemicals used in maize can control troublesome weeds such as Bathurst burr, broad leaf weeds can more easily be controlled in cereal crops and vice versa. Legumes improve soil fertility, retained organic matter with reduced tillage improved soil conditions, and crops such as Canola can have a tremendous benefit against soil compaction ready for a new rotation.

12 DSE's of Wethers and 8 DSE's per hectare of steers are run on irrigated pastures established on soils less suited to cropping. Crop stubbles are also incorporated into the annual feed budget for sheep; (cattle are not grazed on beds). The wethers are valuable in the farming enterprises for their ability to control weeds, utilise crop residues, dry-land and other non-crop areas. This system gives us the flexibility we want and simplifies the choices we face at the planning and budgeting stage.

The resource we have which makes the whole system possible is a supply of underground water. This water is of the highest quality (less than 200 EC) and yield (between 18 and 25 megalitres per day). It enters the aquifer from a fault beneath the Murrumbidgee River about 50 kilometres from Woodlands and has been carbon dated to 15 000 years old at the pump site. It is expensive compared to surface water at around twice the price with capital and operating costs, however it is reliable and fits in well with permanent bed rotations which utilise water throughout the year.

The use of the neutron probe helps us make a range of decisions. We are able to prolong irrigation intervals without loss of water-use through the plant. This results in less irrigations over a season allowing limited water resources to be better utilised. That means more area can be cropped without risking yields or overall water costs can be reduced.

It is important to note however, that under good soil conditions the use of the probe does not alter the amount of water used by the plant. It will in fact increase it by maximising the number of days the crop can actively grow. Under good soil conditions, this will reduce the number of water-logged periods, channel and drainage losses etc. Where compaction or soil conditions hinder water infiltration and uptake, the probe will actually indicate the need for more frequent irrigations.

These are important points to remember when using permanent beds. The information we have obtained from the use of the probe has prompted us to address compaction problems on fields where we would not have thought we had a problem. Change crop watering systems from through-the-bank pipes to syphons. We have also irrigated crops when we did not think they needed it and held off water when we thought they did.

Woodlands is marketed as an operation which aims to produce regular supplies of quality grain and produce where quality and continuity are rewarded with appropriate prices. I believe with our soils and environment our returns the use of permanent beds provide a better and less risky option than any other alternatives.

Details of "Woodlands" Operation

	Ha	%
Total Area	1 344	
	(3 319.68 ACRES)	
Crop Area	723	53.795
Pasture Area	200	14.881
Regen Area	7	0.5208
Dryland Pasture Area	170	12.649
Noncrop Area	244	18.155
	1 344	100

	\$	%
Opening Capital Value	2 292 111	
Operating Return		14.40
Capital Growth		2.80
Total Return		17.20

Typical Gross Margins Excluding Overheads

	\$ / Ha
Culinary Maize	1 448
Popcorn	868
Feed Maize	662
Faba Beans	318
Canola	311
Sheep / Cattle	100

Water is supplied from 3 deep bores delivering between 18 and 25 Megalitres per day.

Water is recirculated on-farm for reuse.

Rainfall is around 400 mm

Soils comprise approximately 50% excellent grey self-mulching soils, 20% Transitional red brown earths and the balance of hard setting red soils with timber and prior stream formations unsuited to cropping.