Submission by Dr Peter Wylie
Agripath Consultants

A Management Crisis in Agriculture

The so called 'debt crisis' in agriculture is more of a 'management crisis' than an economic crisis. Put simply, farmers who spend time on fine-tuning their crops and their business are doing well and others are not. Management tools and skills are important, but so are attitudes and focus. A lot of farmers believe they are doing a good job because they are told that it is not possible to make good money from farming. Rather than blaming the high Australian dollar and farm subsidies in other countries, the good farm managers move on and make the most of what they have to work with.

ABARE estimate profit at full equity for the average Queensland cropping farm is a return on capital of 3.7% in 2011-12. This compares with farms measured by Agripath consultants, where the average was 7.2% and the top 20% of farms, 11.4%. Farm profit results in 2012-13 were similar, with ABARE estimates of 3.3% and Darling Downs farmers benchmarked by Agripath recording an average return on assets managed of 6.8%.

Agripath has extensive benchmarking results from New South Wales as well as Queensland, which show similar results. Benchmarking shows that grain farmers in NSW and Queensland, with $8 million of assets under management, have potential to make an annual profit exceeding $500,000.

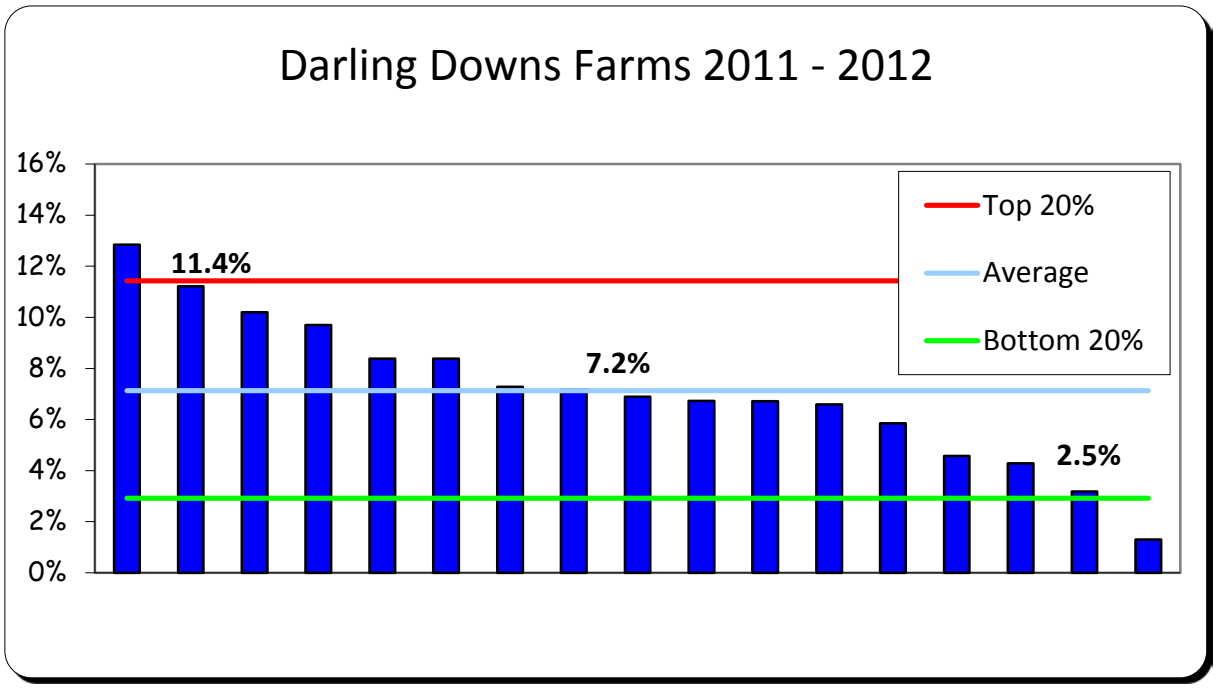

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Figure 1: Grain farm profits in 2011-12 – return on assets managed before interest and tax.

Making a good profit from livestock operations is more difficult than grain and the average results from Agripath benchmarking are in the vicinity of a 2% per annum return on assets managed. Farm gate prices for wool and meat have remained stagnant for many years, while farm costs have increased. Australia has high supply chain costs which need to be addressed for these profits to improve. It is the high cost of selling, freight, processing and exporting in Australia which keep farm returns well below those of other countries, such as Canada and the USA.

Nevertheless, there is a large difference in profitability on livestock farms, due to the producer's attention to the details of management, marketing and how they handle drought.

Potential to double grain production

There is potential to improve farm grain yields by 50 to 100% with good farming systems and best practice management. Good management of machinery, labour, finance, risk and the timeliness of operations is also an important part of the management process.

A research project being conducted by Agripath for GRDC in the Northern Grains Region provides data on targets for attainable yields, which can be compared with average production.

Attainable yields in this study have been developed from three sources. Data has been collected from research and variety trials and from crop yields on well managed farms over recent years. This has provided detailed information on water use efficiency of crops. Comparisons are made with yields calculated using these water use efficiencies and average rainfall and water storage and yields modeled using the APSIM model and 100 years of rainfall records.

Average farm yields have been obtained from data collected by the Australian Bureau of Statistics and aggregated to produce average yields for 6 sub-regions of the Northern Grains region. The initial data is an average of 7 years, from 2005-2011. Estimates of attainable yields and the yield gap from average rainfall and water use efficiency are shown in Table 1.

	North Central NSW	North East NSW	N W NSW, Balonne Qld	South East QLD	South West QLD	Central QLD
Attainable yields						
Wheat	3.2	3.75	2.93	3.8	3.13	2.7
Chickpea	2.0	2.2	1.78	2.5	1.9	2.1
Sorghum		4.72	2.75	6.0	3.68	3.6
Yield Gap: Attainable yield minus the average yield						
Wheat	1.5	1.56	1.6	1.6	1.49	1.0
Chickpea	0.85	1.0	0.86	1.15	0.76	1.05
Sorghum		1.02	0.4	2.5	1.68	1.7

Table 1: Attainable crop yields and the yield gap for the Northern Grains Region.

Improved profits from closing the yield gap

The huge effect of improving grain yields on farm profits is a potential motivator for stimulating interest by farmers in spending more time on management for better crop production. In some cases, average yields are barely profitable, but a significant improvement in crop yields would increase gross margins from grain production by between five and ten fold.

For example, the profit margin from wheat in the higher rainfall areas of northern NSW and the Darling Downs in Queensland could be increased from $60/ha to $360/ha if average yields could be lifted from 2.25 t/ha to attainable yields of 3.8 t/ha. See Table 2.

In the lower rainfall areas, such as South-west Queensland and North West NSW, profit from wheat could be increased from $22 to $200/ha if average yields could be lifted from around 1.6 t/ha to attainable yield levels of 2.75 t/ha.

Profit margins from chickpea in the higher rainfall areas of NSW and the Darling Downs in Queensland could be increased from $23/ha to $483/ha if average yields could be lifted from 1.25 t/ha to attainable yields of 2.5 t/ha. See Table 2.

	Chickpea D. Downs **average**	Chickpea D. Downs **attainable**	Sorghum D. Downs **average**	Sorghum D. Downs **attainable**	Wheat D. Downs **average**	Wheat D. Downs **attainable**
Yield (t/ha)	**1.25**	**2.5**	**3.5**	**6.0**	**2.25**	**3.8**
Price	430	430	220	220	250	250
Gross $/ha	**537**	**1075**	**770**	**1320**	**562**	**950**
Fertiliser:	28	35	85	174	83	129
Seed	42	60	32	36	24	24
Fallow sprays	45	45	40	40	45	45
Weeds, Pests	85	100	40	45	15	15
Fuel & Repairs	55	60	55	60	55	60
Harvest costs	50	60	50	60	50	60
Freight & Misc.	18	41	53	98	31	57
Labour	98	98	98	98	98	98
Machinery costs	93	93	93	93	93	93
Total costs	514	592	545	703	502	585
Gross Margin	**23**	**483**	**225**	**617**	**60**	**365**
Costs of production are derived from farm benchmarking by Agripath consultants						

Table 2: Profit from average and attainable yields for the Darling Downs

Improvements which will close the yield gap

Good crop yields result from storing water in the soil and converting this water efficiently into grain. There are many aspects of farming systems which improve moisture storage and the water use efficiency of the crops being produced.

Most farmers receive advice from an agronomist, who is usually employed by a supply firm such as Landmark. But good yields are about more than agronomy and there is a need to look beyond such things as weeds and fertiliser for crops to reach full potential. There are such matters as farm operations being done well and on time. This requires good labour management and the right finance to optimise inputs and keep machinery up to date. Crop choice and a sound rotation may help to minimise weeds, pests and diseases and are important ingredients in high crop yields.

Improvements to crop yields involve seven main ingredients. A brief description here provides an indication of the complexity of the production system and why farmers and their advisers need to spend more time on management:

1. **Farming systems** and practices, which optimise moisture storage and build healthy soils include zero-tillage, controlled traffic and components of precision agriculture. Maintaining soil structure and organic matter and obtaining benefits from earthworms and non-symbiotic nitrogen fixation are important parts of building healthy soils which make better use of rainfall.

   There are combined, cumulative effects here, where less compaction and less tillage improve infiltration rates, which causes less runoff and erosion. Paddocks tend to be more even, with less water running from harder or higher parts to cause ponding and waterlogging on lower area. Less waterlogging means higher crop yields and reduced loss of nitrogen through denitrification.

   Paddock variability is important and precision agriculture is increasingly being used to provide yield maps for identification of optimum yields and understanding how to reduce variability. Yield mapping lends itself to trials of various strategies and inputs to achieve good yields.

2. **Fertilisers** become more important, as yield levels increase and the age of cultivation increases. Nutrient management strategies need to be developed to maintain organic matter and soil fertility as well as to optimise yields.

   Throughout the Northern Grains Region, nitrogen inputs from legumes and fertiliser needs to be substantially increased to close the yield gap. Gains in profit may be obtained by managing nitrogen inputs according to yield potential, with increased application of N at planting time or after planting, before the end of the tillering stage of a cereal crop.

3. **Agronomy** involves good weed control, disease management and pest control. This may involve judicial use of herbicides, fungicides and pesticides, but an integrated program will also use crop rotation and varietal selection to minimise problems and the need for expensive sprays.

   Crown rot and nematodes are two of the most serious disease/pest problems of wheat, which can be largely managed by crop rotation and varietal selection. Across the northern grains region, one way to improve wheat yield is to grow less wheat and increase grain legumes and sorghum in crop rotation programs.

4. **Strategic management** involves decisions on crop choice and frequency, crop rotation and practices which avoid losses in wet seasons and make the most of good seasons. Opportunity cropping, using double crops at times when there is good rainfall and long fallows when fallow stored moisture is not good for the start of a crop will pay dividends across most of the Northern Grains Region.

   Rotation and crop sequence planning involves the maintenance of good ground cover, and obtaining benefits from legume crops as well as the control of pests and diseases. Rotation can be an important weapon in the fight against serious weed pests and herbicide resistance.

5. **Timeliness of operations** is important for good weed control, planting success and avoiding losses at harvest time.

   Increased areas being farmed makes it difficult to achieve timeliness of weed sprays, the success of which are crucial for avoiding herbicide resistance. Timeliness of planting affects yield, firstly by getting a good strike and secondly by optimising flowering times in relation to frost and heat.

Harvest requires good management to start early and get the crop off in an optimum period to avoid losses from lodging, shattering, pest and weather damage. In many cases this requires additional capacity from contractors.

6. **Good management of machinery and labour** is essential to ensure optimum timeliness and good results. Good machinery is needed for good results.

   Machinery breakdown and shortages of labour are often the cause of delays which cost yield. Good farmers have a breakdown strategy, which may involve the use of contractors or having a spare tractor or sprayer on hand. Turnover of labour often results in mistakes and poor results as new operators become familiar with the farm and its machinery.

7. **Management and finance** are important in putting the whole farm program together and funding the optimum inputs and updating of machinery. The most common reason for not being able to update machinery or using optimum fertiliser is a lack of profit and available funds. Poor crop yield results in low profits and can perpetuate a cycle of poor results.

Better management the key

Good managers work at fine-tuning, not just crop agronomy, but the farm business. They believe the most important job of the farmer is not out in the paddock, but in the office.

There is a large potential for improvement in crop yields and profitability if farmers spend more time on managing the farm as a system and consistently adjust a myriad of choices and details which, when put together well, can double profit even on a reasonably well managed farm.

Profit margins from grain are finely tuned and if there are three or more issues; things like disease, nematodes, weeds, low nitrogen, timeliness or harvest losses, all of which can affect yield by more than 10%, then profit can go down by more than 50%.

To manage well requires attention to all the profit draggers and to put together a good system which minimises their effects. But there is much more to a profitable farming business and time and effort needs to be put into crop selection, rotations, crop frequency, risk management and farm cost choices. Teamwork, labour, safety and machinery decisions are also important.

Farmers need more help to improve their management, but they don't need more *training* on farm management skills that have been presented in the past and have missed the mark. Too much emphasis has been placed on budgeting and financial management, while management is a combination of planning, implementation, risk and financial management. It requires the integration of good farming systems and best practice management with the good management of machinery, labour, finance and timeliness of operations.

Investment is needed in a program which helps farmers improve their management, but this also needs to be run in conjunction with activities which result in an industry wide change in attitudes, with fewer excuses for poor farm profits and more emphasis on what is possible. Setting out to make money makes a world of difference to thinking is not possible to make a good profit. More agricultural research is needed to boost future productivity gains and efforts to reduce infrastructure and supply chain costs are needed to improve livestock profits in particular, but the biggest scope for improvement and the main message required is that farmers who are not making a good profit need to access more advice and spend more time on their management.