# The future of the Family Farm in a marginal area.

## A report for

NUFFIELD AUSTRALIA FARMING SCHOLARS

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# Foreword

What is the future of the family farm?[i]

What are some of the things we can do to improve the outlook
of family farms in marginal areas?

Personally, these are some of the most important questions for our farm. I would like our farm to be in a position where my children, if they would like to, could take over the farm and continue its existence for future generations. We are a relatively small farm in a very marginal area and have experienced seven droughts in the last nine years. As a result, I began to question whether or not we were even viable and whether we should continue to farm such country or look for other options. This probably to a large extent has been the main instigator of my whole Nuffield experience.

Within the last decade I have also seen dramatic changes to our communities. Small country towns have struggled to maintain services and population. Some larger towns have become regional centres for the larger area. Here in Australia, and also globally, many smaller family farms are failing and not making it through to the next generation. Farms in marginal areas face even greater stresses due to climate considerations and lower financial resources.

We need to keep people on farms, in smaller communities and involved in farming if agriculture itself is to thrive. The aging population of farmers is a well documented problem and what happens to their farms in the future is going to be critical for the overall well being of agriculture. Sometimes there is no-one lining up to take over and the farmer is winding down and becoming less productive and efficient. In other cases the next generation is waiting and waiting and not being given the opportunity to develop their skills or management style. These people may leave farming altogether in frustration and their skills and experience on the farm lost. In other situations the farm itself has not grown and is simply not big enough to make it through to the next generation.

Personally, over the last few years, I have been approached by several neighbouring farmers to possibly farm their land. Any such arrangements have not come to fruition as in our area there is simply not enough financial gain for either party. Some of these farmers are still farming conventionally and not incorporating no-till systems and thus the land continues to suffer erosion and drift. During these low rainfall and low residue years, no-till has definitely improved our situation. I am sincerely grateful to Nuffield Australia and GRDC for allowing me to undertake this research and discover what more we can do to further improve our soils, utilise our very limited water resources better and thus improve overall farm viability and profitability.

# Acknowledgements

There are numerous people and organisations to thank for making my Nuffield experience memorable and enjoyable.

- My wife Nicole, and our children Loren and Jack. Without their love, support and encouragement I would not have been able to fully benefit from the experience. To have the farm and home under control was a huge thing not to have to worry about.

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# Abbreviations

| | |
|---|---|
| AAFC | Agriculture and Agri-Food Canada |
| ac | acre |
| C | Carbon |
| GRDC | Grains Research & Development Corporation |
| N | Nitrogen |
| ND | North Dakota |
| NRCS | Natural Resources Conservation Service |
| P | Phosphorus |
| SPARC | The Semi-Arid Prairie Agricultural Research Centre |
| USA | United States of America |
| USDA | United States Department of Agriculture |
| UK | United Kingdom |
| WU | Water use |
| WUE | Water use efficiency |

# Contents

# Executive Summary

The aim of my studies was to investigate how family farms are surviving in marginal areas and see what research is being done to improve their situations. Often the focus on research and development is on the more productive areas. Marginal areas face all the usual difficulties that other areas have but include additional stresses. The farms generally encompass lower financial resources/reserves and are more susceptible to the extreme conditions. On the flip side, land prices are much lower and there is more opportunity to pay back the land prices in a relatively short period of time.

We farm outside Goyder's line in South Australia which is said to be the marker of sustainable farming. I specifically travelled to Palliser's Triangle in Canada which is a similar semi-arid area which had also historically been deemed "inappropriate" to farm. This area now is extremely productive. The Semi-Arid Prairie Research Centre (SPARC) is based in the centre of this zone and their extensive research has directly improved agriculture for region. Some of their research which I looked into includes work done on stubble heights, climate control studies and P, N and C cycling processes in soils.

"Cover crops" is an area in which I have been interested in for some time. The research I saw being done and the various farms I visited supported the concept that cover crops could improve our soils and situation. The North Dakota Natural Resources Conservation Service (NRCS) states that soil health can be improved by adhering to four main concepts. Firstly, to disturb the soil as little as possible, secondly increasing plant and animal diversity, thirdly maintain living roots in the soil as much as possible and lastly keep the soil covered at all times. For our area, keeping the soil covered would shade and cool it, which is extremely important as we face extreme temperatures in Summer. In one trial there was an 11˚C difference between soil temperature with a cover crop and one without any cover.

Cover crops appear to assist with three of the above-mentioned concepts and I am planning to implement them into my own system next season. Many farmers in my district would think that this is crazy and I do not believe anyone has attempted to do so before. Our lack of

rainfall and extreme conditions would persuade farmers not "use up" our available moisture for a non-profit crop. The research previously done at Menoken Farm, North Dakota indicated that this was not the case and that there was only 0.04 inch difference in available water with and without a cover crop. This is a very minimal loss especially when considering all the other advantages cover crops provide.

As we would like to be in a position where our family farm is able to be handed over to the next generation we need to ensure that the farm remains economically viable and is environmentally sustainable as it can be. On top of this, we need to ensure we have good succession plans and good communication with our children over the forthcoming years. Family farms will not survive through to the next generation no matter how viable they are without good communication and planning.

# Introduction

In farming "marginal" can mean many things. For example, land may be marginal due to lack of, or too much rain, poor soils, inhospitable temperature or shortened seasons. In South Australia, where we farm near Ramco, it is marginal due to low rainfall. We have an average yearly rainfall of 250 mm and only 180 mm in the growing season. We are north of Goyder's line which is generally known as the boundary which marks the limits of sustainable agriculture. Goyder's Line is extremely well known in South Australia but relatively unknown elsewhere in Australia.

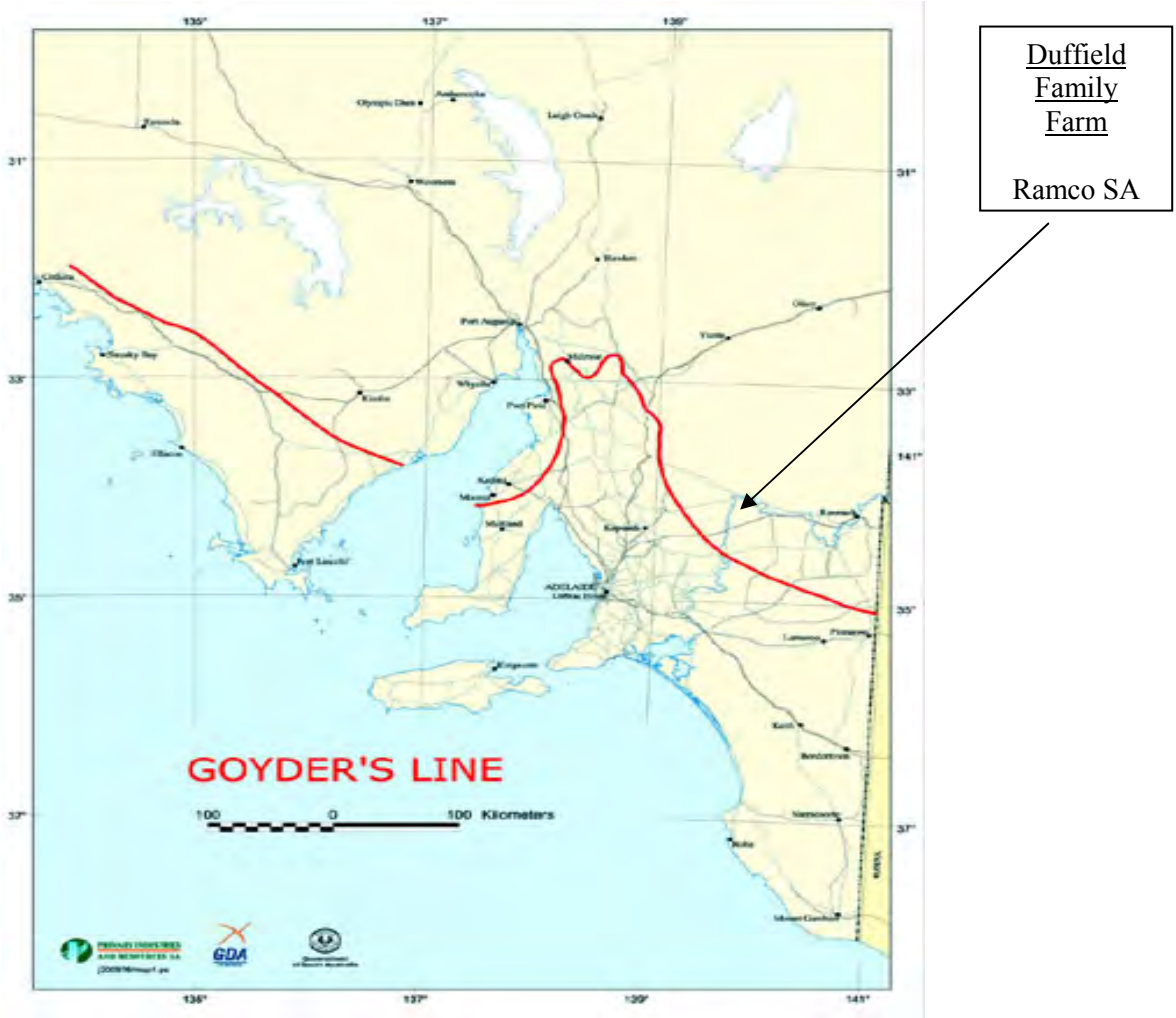
As part of my travels I wished to visit other areas with similar problems to those we face and see how these farmers deal with the difficult conditions. Originally I had also planned to visit Syria and the ICARDA research centre. Unfortunately due to current political problems I was not able to travel there. I have been interested in cover crops for some time and specifically wished to see if they could be implemented here in our low rainfall areas.

I also believe that good succession planning is essential and a necessity if family farms are going to remain viable and be able to be handed over to the next generation. Part of remaining viable for the next generation could mean that the family farm must diversify and/or increase in size or consider other joint ventures. I also wished to briefly look at these issues so that family farmers here may think about their plans for the future and consider some different options.

# Marginal lands farming

## Goyder's Line

The line has been part of South Australian vernacular for nearly 150 years and runs across the mid-north of the state from the fringes of the Nullarbor all the way to the Victorian border. In 1865, SA surveyor-general, George Goyder was sent north to map the extent of a damaging drought. He painstakingly travelled on horseback and made a remarkably accurate assessment of areas of "reliable" rainfall. He relied on clues provided by soil and vegetation types and particularly the zone of transition between native grasses and woodland to drought tolerant saltbush.



Climate scientists today believe that Goyder was way ahead of his time in his understanding of the environment and the limits of agriculture. Originally, no land grants were made outside of the line, however after a string of good seasons and resulting pressure on the government, the law was changed and this land opened up for agriculture. It didn't take long for Goyder to be proven right and there is now a litany of ruins above the line as a result of the 1870's push north.

Today, there are many farms on the "wrong" side of the line. With today's machinery and technology, farming practices have evolved to cope with this environment much better. But all this comes at a social cost. Farmers are farming much more land and this means that very few properties are sold with a new person or family coming in. Usually, the land is broken up and sold to the neighbouring farms.

## Palliser's Triangle

The Palliser Triangle is a largely semi-arid region in the Prairie Provinces of Western Canada that has also been historically determined to be "unsuitable" for agriculture due to its unfavourable climate. The area was named after John Palliser, the leader of the 1857 - 1859 survey expedition to Canada's west. This survey described three distorted triangles of soil types with the innermost being the driest and most susceptible to wind and extreme conditions. In his 1863 report, Palliser found the area was arid with no trees and deemed it unsuitable for cropping. The area is similar to desert like conditions with minimal rain, strong winds and extremely hot conditions.

A few years later John Macoun, the Dominion government's botanist argued that the area would be suitable for agriculture and that the absence of trees was in fact a blessing as the area did not require clearing. The soil is dark brown or black in colour and is nutrient rich.

The area was opened up for settlement at the start of the 20th century. However, by the 1930's a combination of dry years and poor farming practices turned the area into a dust bowl and helped send Canada into the great depression. This period is commonly known as the "Dirty 30's".

By ploughing the topsoil farmers had destroyed the native grasses that normally would have kept the soil in place and retained moisture, even during periods of droughts and strong winds. From 1930 to 1936 major ecological damage occurred and at times the black dust clouds reached as far away as the New York and Washington. The area continues to be cropped today and thanks to research at the Semi-Arid Prairie Agricultural Research Centre (SPARC), located at Swift Current, and no-till farming practices, it has become one of most productive agricultural areas in the world. Despite this farmers can still receive large government subsidies in order to deal with drought conditions.

## The Semi-Arid Prairie Agricultural Research Centre

The Semi-Arid Prairie Agricultural Research Centre (SPARC) has been designated as Canada's national centre for research on dryland farming systems. 92% of the durum wheat and nearly 50% of the spring wheat grown in western Canada traces its origins to research from the Centre. SPARC focuses on the Brown Soil Zone and the drier areas of the Dark Brown Soil Zone in southwestern Saskatchewan and southeastern Alberta.

Dr. Brian McConkey - Agriculture and Agri-Food Canada (AAFC) states that there was a major shift in agricultural practices in the area between 1990 and 2000 when nearly all farms have shifted from traditional to no-till systems. He states that, while this resulted in a dramatic decrease in wind erosion across the area, it wasn't until the introduction of rotational crops that the farms really increased their profitability.

Although rotational crops such as peas and canola began in the 1980's it wasn't until the no-till "revolution" that they became common place. In 1995, lentils ( a low water use pulse crop) was introduced and now most farmers in this semiarid region are growing crops such as

spring wheat, peas, chick peas, lentils, mustard and canola. The pulse crops have taken over from wheat in providing their primary financial returns.

Low water availability is said to be the greatest limitation to crop production in any semi-arid marginal area. Dr. Herb Cutforth with Dr. Brian McConkey and others from SPARC have conducted massive amounts of research into this area. Their papers include work done on the effect of stubble height, row spacing, and chemical residues.

*(Lentils harvested with stripper front (on left) and straight head (on right))*

Whilst at SPARC I saw trials being conducted where Shelbourne stripper heads were being used as opposed to straight cut heads at different heights. Shelbourne strippers actually pluck the head off leaving the rest behind, whilst the usual harvester fronts cut the straw and take everything cut off into the header. In earlier trials, crops had been sown into different stubble heights and the yields measured. In one study, stubble was cut at three different heights, 15cm, 30cm and 45 cm. Essentially, the higher the stubble the higher the yield in the following crop. Averaged across crops and years, the overall crop yield and WUE (water use efficiencies) were linearly related to stubble height. (See Appendix)

It was found that tall stubble altered the micro-climate of the soil surface by reducing wind speed, soil temperature and incoming solar radiation. Stubble heights with stripper headers can exceed 60 cm in the dry semi-arid prairie. Further research will be done to see at what point stubble height becomes detrimental.

Another trial being conducted at SPARC was the green house climate experiments. Here "hot- houses" were placed over different crops and the climate controlled to see exactly what effect climate changes have on the crops. These "hot-houses" were only implemented in the

last year so it is too early for any findings or conclusions to be determined. I am particularly interested in these results as it may show how our crops with respond to climate change in the future.

(*Photos taken at SPARC Sept 2011 showing "hot houses".)*

Soil microbiologist Dr. Chantal Hamel was also conducting research into crop selection for differing soil types. Chantal is researching what individual soil nutrient profiles are and matching this information to the nutrients required by particular crops. Her work will hopefully be released later this year and aims to increase yields and improve water use efficiencies for particular crops. Another project of hers is further understanding fundamental P, N and C cycling processes in soil.

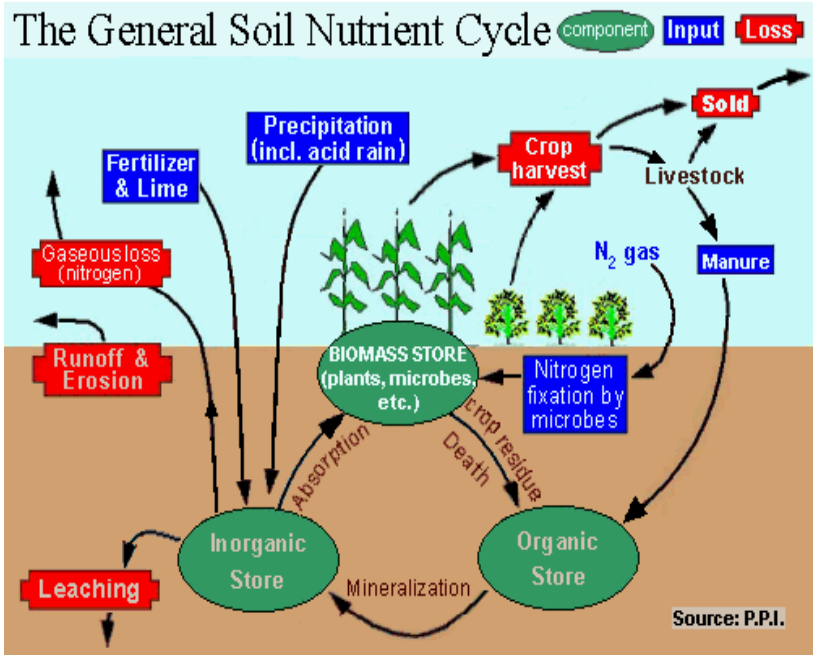
## Soil Health

This area can be quite daunting for those of us, like me, with little or no biology or chemistry backgrounds. In layman's terms, "soil is a living factory of macroscopic and microscopic workers who need food to eat and places to live to do their work" (North Dakota NRCS, 2010). It is said that there are more individual organisms in a teaspoon of soil than there are people on earth, hence the soil is significantly effected by these organisms. The North Dakota NRCS states that soil health can be improved by adhering to four main concepts. Firstly, disturb the soil as little as possible, secondly increasing plant and animal diversity, thirdly maintain living roots in the soil as much as possible and lastly keep the soil covered at all times.

Tillage is very destructive to soil microbes and creates a hostile place for them to live and do their work. Soil may also be damaged by the misuse of inputs such as fertilisers and pesticides. All of these impact on the relationship between fungi, micro organisms and crop

roots. One of the keys to soil health is ensure that there are many sources of food in the soil. The best food is that sugar exuded by living roots. Soil organisms feed on this sugar, then on dead plant roots, then above ground crop residues, and lastly on organic matter in the soil. If there is plenty of food available for the soil microbes then they can readily cycle the nutrients that the plants need to grow.

Nutrients in soil can be inorganic such as rocks or minerals, biomass (which is the living tissues of plants of soil organisms i.e. microbes) or organic (decaying or dead tissue). Nutrients are not locked up on the one place and are constantly changing from one form to another. This process of biological-geological-chemical changes is what is known as the Soil Nutrient Cycle and is shown below.




The soil nutrient cycle is not a closed system. There is "leakage" as a result of erosion, leaching, crop harvesting and gaseous losses. Inputs include rain, dust particles, fertiliser, Nitrogen fixation via microbes and manure deposits. Clearly there are extra losses from harvested soils as opposed to unharvested soils. These need to be carefully managed by farmers who wish to maintain their soil health. Obviously, the healthier the soil is, the better it will function and provide for our crops. I believe cover crops are one way farmers can improve their soil health. On face value, they appear to address three of the four ways which the North Dakota NRCS list as necessary to improve soil health. They increase plant biodiversity, maintain living roots within the soil and keep the soil covered for longer.

# Cover Crops

## What are cover crops?

Cover crops are simply defined as any crop that is planted between periods of regular crop production. They have been around a long time and have many uses. These include slowing erosion (wind and water), drying out saturated soils, shading and cooling soils. They also can provide livestock fodder, assist nutrient cycling and control pests. Cover crops are not usually taken to maturity but they can reduce costs. Ideally their benefits should accumulate over the long term and improve the overall sustainability of our farming systems.

## Benefits of cover crops.

Cover crops are not simply "wonder crops" to fix all problems. Farmers must first determine what they want most from their cover crops. For example, if the primary objective is to increase residue cycling then Brassica cover crops such as canola, rape, turnips etc will accelerate the breakdown of residue such as wheat stubble and allow for a warmer and drier seedbed for an earlier planting of corn. Normally a mixture of different species should be used to achieve various cover crop objectives. The following tables show various cover crop objectives and options to be used in both warm and cool seasons.

Table1. Cover crop objective and appropriate crop species

| Objective | Primary Cover Crop species |
|---|---|
| Grazing | *turnips, lentils, rape, radish, rye, oat, triticale, sorghum-sudan* |
| Reducing compaction | *radish, canola, sugarbeet, sunflower, sorghum-sudan, turnip (and hybrids)* |
| Moisture | *rape, clovers, winter wheat, rye, triticale* |
| N-fixation | *clovers, vetches, lentils, cowpeas, soybeans, field pea, chickling vetch* |
| Residue cycling | *Brassicas (canola, rape, radishes, turnips and mustards)* |
| Nutrient cycling | *sunflower, sugarbeets, brassicas, small grains* |
| Salinity | *sugarbeets, barley, winter canola, rape* |

*Pioneer Agronomy sciences Field facts vol8.no13 page 2*

*(Cover crop showing different species in North Dakota*

Table 2. Cool and warm season cover crop options

| Cool season broadleaf | Warm season broadleaf | Cool season grasses | Warm season grasses |
|---|---|---|---|
| **Alfalfa*<br>**Clover (red, sweet, alsike, white)*<br>**Vetch (hairy, common, chickling)*<br>*Winter Canola/rape*<br>**Lentils (red berry or Indianhead)*<br>*Radishes (fodder, oilseed)*<br>*Turnips*<br>*Sugar beets*<br>*Crambe*<br>**Field Peas*<br>*Flax*<br>*Camelina* | **Cowpeas*<br>**Soybeans*<br>*Sunflower* | *Barley*<br>*Oats*<br>*Spring wheat/rye*<br>*Winter Wheat/ Rye*<br>*Spring/winter Triticale*<br>*Tall wheatgrass*<br>*Annual Oregon Ryegrass* | *Grain and forage sorghum*<br>*Sudangrass*<br>*Millet*<br>*Teff Grass* |
| *Legume species that can fix atmospheric nitrogen* | | | |

*Pioneer Agronomy sciences Field facts vol8.no13 page 2*

If the objective is to reduce soil compaction then certain species have strong tap roots that will help with this problem. Another general benefit is that these species increase the total number and diversity of soil organisms. As stated previously microbial diversity in soils is one key to a healthy and well-functioning soil.

I was lucky enough to visit Gabe Brown's cattle and cropping farm in Bismark, North Dakota and see first hand how cover crops have assisted with his compaction problem. The following pictures were taken on 18th August 2011 and show a cover crop sown for cattle feed. The snow and frost will kill off the cover crop and Gabe will then sow a wheat crop into the residue. He has planted a cover crop in this paddock for the last five years which previously had compaction problems. The soil was a grey/river sandy type soil.

These pictures show me pushing a steel rod (approximately 1m and 8mm wide) easily into the soil. The rod simply had a ball bearing welded on to the bottom and with hardly any pressure I was able to push it right down. Prior to the introduction of cover crops, Gabe says that there was no way he would have been able to do this.

## How do cover crops work?

Previously, due to our lack of growing season rainfall, I have sprayed to remove all vegetation in the idea it would conserve water for the next year's crop. I have since changed my mind and now believe that the way to go is to plant cover crops. In our semi-arid environment I believe that cover crops would work to improve the soil by shading and cooling it.

These soil temperature probes (taken on the same day) show a difference of 19.8˚F (11˚C) between where there is no cover and where a cover crop has been sown.



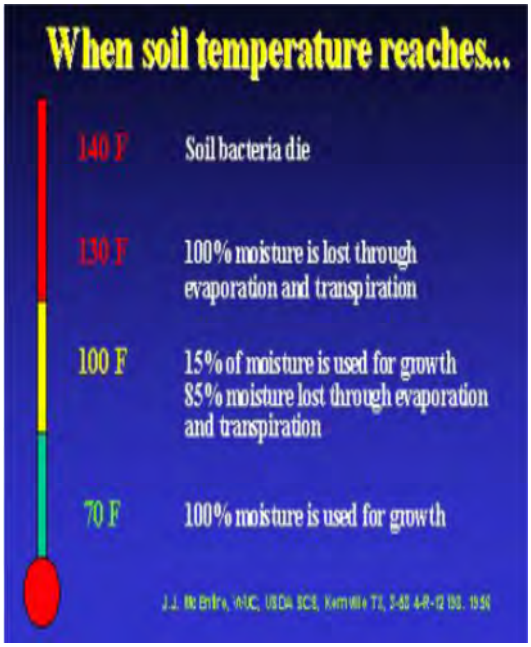
*(Building Soil Health p.8 Jay Fuhrer NRCS Bismark ND)*

What difference does this temperature variation make to the soil?

Temperature is known to greatly influence the rate of biological, physical and chemical processes in the soil. Plant growth also occurs in a fairly narrow range ie 60-100˚F, but where the temperature reaches 140˚F (60˚C) Jay Fuhrer states that the soil bacteria die and the soil itself becomes "sick".

Jay Fuhrer is a soil conservationist from North Dakota NRCS who works for the USDA. He provided invaluable information and showed me around numerous farms.

Fuhrer's chart clearly shows what happens in the soil when soil temperature rises.




*Building Soil Health p9 Jay Fuhrer NRCS Bismark ND*

So what about water storage and the idea that cover crops would harm the primary crops by using up too much water?

On the Richter farms in Menokan North Dakota, trials by Jay Fuhrer were conducted in 2008 specifically aimed at this question.

**Estimated Inches of Available Water**

***Sampled on May 6, 2008***

**Richter Farms, LLP**

***Menoken, North Dakota***

**Inches of Available Water**

***Parshall Fine Sandy Loam***

| Depth (inches) | Cover Crop | No Cover Crop | AWC* |
|---|---|---|---|
| 0-6 | 0.44 | 0.37 | 0.95 |
| 6-12 | 0.58 | 0.51 | 0.95 |
| 12-24 | 0.84 | 0.89 | 1.56 |
| 24-36 | 0.74 | 0.73 | 1.44 |
| 36-48 | 0.47 | 0.61 | 1.20 |
| **Total (0-48)** | **3.07** | **3.11** | **6.10** |

*** AWC - Available Water Capacity (Inches) @ Field Capacity**

**Timeline**

| | |
|---|---|
| July 1, 2007 | Harvested Field Peas |
| July 7, 2007 | Planted Cover Crop Cocktail Mix |
| October 1-17, 2007 | Grazed Cover Crop Cocktail Mix |

The above results measure total available water capacity (AWC) in inches. A cover crop was planted after a pea crop was harvested. Three months later it was grazed with cattle. Just prior to planting the winter wheat crop the soil moisture was tested. Amazingly, there was only 0.04 inch difference between the cover crop and no cover crop trials! I think farmers could live with this "loss" considering with all the other benefits the cover crop bring to the soil.

## Some other tips for cover crops in No-till Wheat stubble.

The preferred seeding method for most cover crops is drilling in with a single disc opener machine. This machine provides good soil to seed contact and has the least soil disturbance.

Aerial broadcasting can also be used and this relies on the rain to cover and germinate the seed. This method gives variable results and would take place as soon as the Winter or Spring crop reaches maturity and before harvesting.

*(Examples of single disc openers)*

The cover crop species mixture should not include the crop type for the next year's cash crop. This reduces the potential for the cover crop to act as a host in pest and disease cycles.


It is important when desiccating a cover crop to do it quickly. If the cover crop is being used for nitrogen building and is sprayed with glyphosate, as this is a slow reacting chemical, the plant will use all stored energy to fight its death. A good quick way is with knife roller or Paraquat® that will kill the plants' top. Farmers have to be careful in selecting appropriate herbicides to precede their cover crops. For example, brassicas can be highly sensitive to residual herbicides, especially wheat herbicides.

Careful planning is also needed when dealing with the differing seed sizes to ensure that the appropriate percentages are achieved in the mix.

# Farming models & marketing

As part of my research I also wanted to briefly look at how other farms have expanded or taken on new ventures and diversified. The following section simply outlines some of the farming models I saw.

In 2008 Australian farmers found themselves in uncharted waters with the introduction of a deregulated grain market. How has this impacted on family farms? From my experience most family run farms are still very unsure of their marketing decisions and abilities. Word of mouth advice can be contradictory and confusing and people are sticking with what they know. Few are venturing into areas such as forward selling, on farm storage or domestic seed or feed sales.

On the production side, Australian farmers have relatively good climatic conditions, but I believe that this has actually hindered our ability to market the product in some circumstances. Our Summer sun and minimum rainfall produce an excellent standard of grain without the need for drying, cleaning and storing. Many farms throughout Europe, USA and Canada have less favourable conditions, such shorter time frames due to their climatic conditions and as a result they have extensive storage, grain drying and cleaning facilities on farm. Most of the farms I visited were able to hold 40-80% of their total crop. This has given them the edge on grain marketing.

## "Camgrain" Cambridge UK

Camgrain near Cambridge in the UK is a farmer-owned central storage cooperative. It was established in 1983 and is committed to shorten supply chain partnerships between farmers, consumers, manufacturers, and food and retail groups. They have a 350,000t storage capacity over two sites with a third currently being built. Every grain is cleaned from the grid then sent to the drier or for segregation. Each facility has its own testing laboratory, with the highest quality going through a gravity table laser eye and magnet to specifically select for breakfast cereal.

To deliver to Camgrain, farmers must become members and purchase their own storage space. Storage space could be purchased for about £115 /t. One of the things that made this facility so successful was the fact that farmers had to deliver the same amount of grain as to the storage they had purchased. This means that if a farmer had purchased 100t storage then they were required to deliver 100t of grain. They were not able to deliver any more or any less. Most farmers I spoke to only had committed about 10-20% of their total crops to Camgrain. Camgrain outsourced all its marketing to an independent company, who had known and consistent tonnages to work with. Average grower returns were £10-15 above market prices.

## Seed cleaning businesses

Throughout central North America and Canada, I visited several family farms which had diversified very successfully into seed cleaning businesses. These business clean seed for other local farmers or in some cases larger seed companies.

*(Two neighbouring seed cleaning businesses in Dry Drayton, UK.)*

## Collaboration, Joint Ventures, Incorporation

In Saffron Waldon, Essex UK, one farming model consisted of five smaller farms of differing sizes. The total area of all five went in to create the one farm business. Each individual farm then paid the same percentage of the total inputs in relation to the percentage of land they had contributed from. They then received the same percentage of returns. Each individual farm still received its own farm payments or subsidies it was entitled to. In this case, one of the

five farmers (with the help of several investors) had individually formed a machinery and farm management business. This in turn ran the whole farming enterprise. The four remaining farms were then able to sell their machinery if they desired. There were some distances between the farms so all the farms were block-cropped and each individual farm treated as one field. The business had constant work to justify the machinery which it had to purchase and was able to budget for machinery replacement. All crops were delivered to Camgrain. (Camgrain has its own trucking section so transport was not an issue.)

Each of the five farms was also required to provide a cement or bitumen pad onto which crops were tipped. Trucks would then load themselves with telehandlers provided by the machinery business. Storage and/or shed space available at any of the five farms was also rented out by the farm business for fertiliser, machinery or other use. The business farmed 5,400 ac with two combines, one large drill, 1 smaller drill, two sprayers and two telehandlers over a 40 mile radius. As a result cost efficiencies were improved, the crops were being sown on time with the latest equipment and the smaller farmers didn't have the worry of machinery breakdown or depreciation.

## Magyar Farming Co

In Gyor Hungary, Andrew Hunter (1996 UK Nuffield Scholar) is heading up the Magyar Farming Co. Magyar is made up of 20 investors and the company currently has three farms. One each in Hungary, Ukraine and Serbia. The Hungary farm has a 1,000 head dairy and produces 5- 6,000 ton of potatoes, 15,000 ton maize silage, wheat, sunflowers and corn. It also produces straw for the dairy and bedding and has a bio-digester which generates 600 kilowatts per hour. The effluent from the dairy "feeds" the bio-digester. The bio-digester project cost $2m but was heavily subsidised (55%) by the government. In Hungary there are more people employed in the two government departments involved in agriculture than the whole of the USDA and a huge percentage of Hungarian Government Ministers own land. As a result, the government appears to be very supportive and in touch with agriculture. The Ukraine and Serbian farms both produce combinable crops.

### Canada - Syndicate farming

On the other hand in Frontier Southern Saskatchewan, Canada, I saw a farming syndicate which had failed. The syndicate was made up of three farms all of different sizes (10,000, 7,000 and 4,000 acres). The reality for the syndicate was that two of the farmers saw the joint venture as a way to early retirement. This apparently was not made clear at the start and the venture was plagued with poor communication. Also the children who worked in the business were paid on education level and not farming abilities or work done. Clearly good communication is always going to be essential for any joint venture.

This is often the main issue which is holding back many family farming businesses and preventing future expansion and timely succession. This blind spot for many farms is simply the tension around the lack of clear, open and conflict free communication. Family farming businesses need to talk, listen and then act and then keep on doing it.

# Succession planning

Throughout my travels in east Europe, Slovakia, Hungary and Serbia the usual succession practice has been to split the farm up between all children equally. This is clearly unsustainable and the results of such practices are now clearly evident. There are now land owners that only have 100 square yards. Clearly these "blocks" are too small to be farmed and can now probably no longer be split any further.

*(Serbia - different crop areas representing different land holdings)*

In other places, the farm may have simply been handed down to the eldest son, totally ignoring the daughters and other sons. This is hardly "fair" in today's world. Traditionally farming has always been a male-dominated occupation; however, according to a 2006 survey in Iowa, 16 % of identified successors were daughters of the current operator. (This is up 10% from a similar survey in 2000.) One would expect these results to be similar here in Australia.

The question of fairness is always going to be present in any succession process, but how is this to be determined? Fairness is said to be tough but not always equal.

> *"A family business is not a piece of pie. You don't take a viable farm and cut it into four equal pieces like a pumpkin pie".*
>
> *Elaine Froese*

Elaine Froese is a professional speaker, writer and personal coach from Canada and has had more than 30 years experience working with farm families. She is a farmer herself and has helped many farm families through very difficult times. I was very fortunate to be hosted by Elaine and found her common sense approach to these problems inspiring. She has numerous publications and self-help tools for families. She also encourages financial planners, accountants and other professional to look at the "un-discussable" issues farm families face and kick start action for their clients. This report does not intend to provide a comprehensive list of how to fix farm succession problems but rather highlight some of the issues and encourage people to start the hard conversations and to seek help.

There are many needlessly distressed farm families across the globe as a direct result of poor succession planning and poor communication. There is often mistrust, unresolved conflict and a farm business that just isn't performing as well as it should or could be.

> "*When someone gets mad, they just get sad and don't talk about it in a healthy way. We don't do conflict, we just avoid it!"* *Elaine Froese*

Does this sound familiar? Conflict is increased when people don't know the expectations and rules of the game. In sporting organisations and most businesses, people know the rules and when they are not followed, they pay the consequences. A viable family farm business has been founded by people who deserve to be compensated for creating wealth, preserving it and/or growing the assets. Transfer of management and ownership should be part of their business plan but too many founders only make an estate plan or do nothing at all in terms of succession planning. This creates confusion and frustration for the younger generation and frustration itself increases friction.

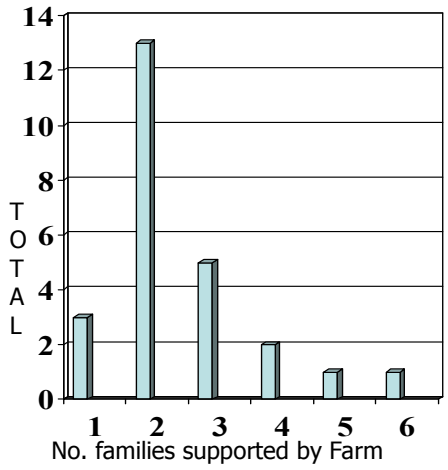
According to a study of 400 farms in over six states, the producers who communicated well were 21 percent more profitable. (Elaine Froese - "Doing the tough things right")

Out of interest, as I travelled I kept asking "Where do you see the future for your family farming business?" The number one response was an overwhelming "I don't know". It seems that only a very small proportion of the farmers I spoke to actually had some sort of clear vision, plan and understanding of how their farm is to continue on.

I also asked a series of general questions from farmers I visited in UK, USA and Canada. My survey results are shown below.

## Survey results

(25 families polled)




| | Yes | No |
|---|---|---|
| Has the farm been running in the family for >40 yrs? | 23 | 2 |
| Can production pay back land price 5 – 10 years? | 10 | 15 |
| Has the farm diversified? (Excluding off-farm wk) | 14 | 11 |
| Does the farm receive any government subsidy? | 24 | 1 |
| As it is can the farm be passed to next generation? | 19 | 6 |

In most cases the family farm was supporting two families (13 out of 25 families polled) and most had been running for over 40 years. These farms need to have clear succession plans in place as they are already well and truly in the transition period between founders and the next generation.

As I mainly visited marginal lands, production was able to pay back the land price in less than 10 years in almost half of those polled. All but one farm received some sort of subsidy. The one farm which didn't claim a subsidy had actually turned it down and he could receive more money from "tiling" his land than from the subsidy. (Tiling is the process of placing pipe under the soil surface to drain away excess moisture.)

Every farm family is unique and no one solution will provide for all. Elaine Froese lists some common themes that can weigh down the transition process. These include founders being unable to let go, failing to make retirement plans and/or off-farm investments to provide for retirement, questions as to what is fair and pre-marital agreements.

Quite often "sweat equity" is a highly contentious area. "Sweat equity" is the work done by children who stay on farms including labour, time, decision making contributions and off-farm financial contributions. Time flies by, and before you know it there is 20 years of equity and contributions built up, but nothing in terms of ownership or management for the child who stayed home. "Someday this will be yours" is not enough, especially when the child has his or her own family to support and needs their own financial security. There are many tools around that are available to help families see the value of sweat equity for which the younger generation needs to be compensated. Elaine also has a spreadsheet tool that can evaluate how the founder's net worth changes as they age.

Unfortunately, unresolved conflict grows more and more ugly as time goes on. Options to resolve the problems decrease, and a "fight" that was really very fixable in the early stages of the conflict becomes unfixable and may even end up in Court. During these years (and even decades) of conflict the family business is hardly going to be at its most efficient and productive. For the more marginal areas there is the additional problem that the farm itself may not produce sufficient income to support two or more families. If this isn't addressed earlier then it will undoubtedly come to the forefront when the next generation successor gets married or has a defacto partner and starts their own family. The newly acquired "in-law" should not have to bear the brunt of years of unresolved family conflict.

Families need to talk about the issues but as a Chinese proverb says, "talk does not cook rice" - you have to do it. Conflict is normal, arguing is okay but resolution needs to happen. If the family needs help in managing conflict then they should be encouraged to find an outside person to help everyone talk, fight fairly and actually achieve some tangible outcomes.

# Conclusion

For family farms in marginal areas, there will be many challenges ahead, some foreseeable and others not. Despite this, I believe there is a future provided we continue to grow and learn and take care of our environment and ourselves. In particular, I believe that we still have a lot to learn in respect of soil health and hope that my plans with cover crops will prove to be beneficial both economically and ecologically. We also need to consider diversifying (such as seed cleaning business and the like) or working collaboratively with others in the area to improve our financial situations. For all farms in marginal areas, financial restraints are a real concern. The ever-increasing input costs (without a corresponding increase on end product value), combined with our relatively low yields, makes farming in these sorts of areas extremely difficult. Many would argue it is unsustainable.

The proverbial saying "necessity is the mother of invention" may well apply to marginal lands farmers. We need ingenious solutions or ways to improve our businesses or many will be doomed to fail in the forthcoming years. This would be a sad loss for Australian agriculture.

Family farm businesses have often accumulated a wealth of specific knowledge in respect to their lands over the generations. For example, the farmer knows which paddocks are prone to frost, which have salinity issues or non-wetting sand patches or where the "rain shadows" are. They know the history in respect to fertilisers/rotations/sprays. Often this knowledge is irreplaceable and may be lost once the farmer leaves and a "manager" from elsewhere assumes control.

It is a travesty where the family farm is financially viable and strong and yet fails through to the next generation simply through poor succession planning. I am certainly not suggesting that all children from farming backgrounds must continue the family business. A business

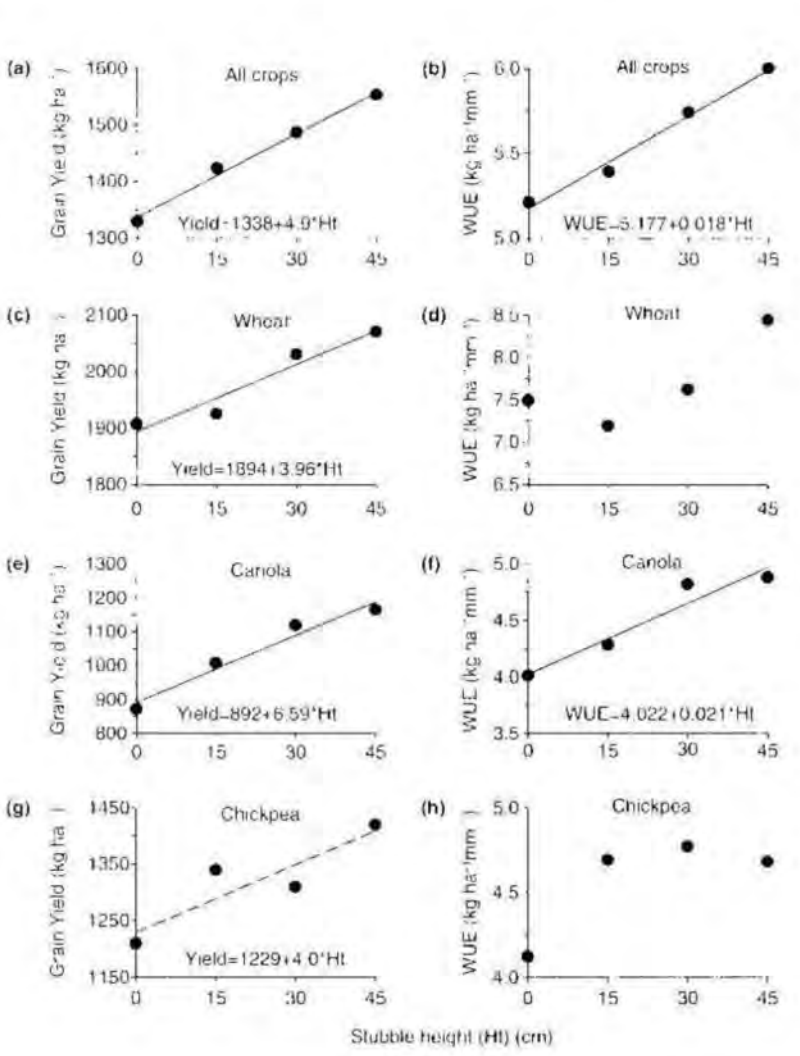
will only succeed when these children want to become involved. Many farmers simply do not have a suitable "heir" who wishes to continue farming. The real problem is where there is a suitable heir or heirs and the farmer has not properly planned for any succession.

With family farms, the farm business and the family itself are so intertwined that the succession process has a dramatic effect on all those concerned. It is an extremely complex process that can have several stages before it is complete. All family members need to keep talking about their needs, wants, hopes and dreams and keep listening to the others. Often succession plans are insufficient (or even non-existent) and this needlessly becomes a major threat to the survival of the farm.

This paper is not meant to provide the magic answers for everyone, but hopefully by raising some of the issues, other farmers may look at their own circumstances and take some positive action before it is too late or it becomes too difficult.

# Appendix

Effect of Stubble height on grain yield and water use efficiency (WUE) when averaged across years (2001 - 2003) and crops (wheat, canola, chickpea) (a and b, respectively), and when averaged across years 2001 - 2003 wheat (c,d) canola (e,f) and chickpea (g,h).




(*Cutforth, H.W, McConkey B.G, Angadi, S.V and Judiesch D (2011). "Extra-tall stubble can increase crop yield in the semiarid Canadian prairie" Canadian Journal of Plant Science, 91(4) p 784)*

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# Plain English Compendium Summary

| **Project Title:** | The future of the family farm in a marginal area. |
|---|---|
| Nuffield Australia Project No.: | |
| Scholar: | Craig Duffield |
| Organisation: | |
| Phone: | 08 85419142 |
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| **Objectives** | To investigate ways of improving family farm situations in marginal areas. |
| **Background** | Seven droughts in the last nine years and threats of climate change/worsening conditions coupled with a difficult and lengthy succession process forced me to consider the long term viability of the family farm |
| **Research** | The study consisted of the Global Focus program visiting New Zealand, Brazil, Mexico, USA, Canada, France, Scotland and England. Following this a further 9 weeks revisiting Canada, USA, England and also Slovakia, Hungary and Serbia concentrating on marginal farming areas. |
| **Outcomes** | Family farms in marginal areas can remain viable if they manage their environments sustainably, continue to assess their growth options and opportunities and ensure that they have good communication and succession plans in place. |
| **Implications** | Further field trials of cover crops in our semi-arid environment at Ramco South Australia will aim to show the long-term benefits and soil improvement these crops can provide. |

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