



Ravensdown - Arable Field Trip (8)

Thursday 24th March 2011

Field Trip Leaders: Anton Nicholls, Barry Croucher

Focus for the Day: Vertical Integration within the Arable Industry

Programme:

- 8.20am Depart Methven Village.
- 8.30am Arrive Graeme & Miriam Lill's farm 'Craiglea', Methven.
Introduction and scene setting (Anton Nicholls, Facilitator)
The Lill Family – A multi-generational Canterbury farming story (Graeme Lill)
Farm management policy, physical and production data (Graeme & Bevin Lill)
Profitable lamb finishing (Hayden Robinson)
- 9.45am Morning tea
- 10.00am The big decision – Irrigation investment (Bevan Lill & Hayden Robinson)
- 10.15am Goals & objectives, succession (Graeme Lill)
Vertical integration by the producer (Allan Lill)
Panel discussion & questions – Knitting it all together (All speakers)
- 11.15am Arrive. Barhill Chertsey Irrigation in-scheme pond (John Wright)
Gravity fed in-scheme turbines to power on-farm irrigation (David Grant)
- 12.30pm Arrive South Pacific Seeds. Lunch (Packed lunch on bus)
New Zealand's attributes as a specialist seed producer (John McKay)
Requirements of international buyers – Quality & timeliness (Grant King)
Tour of the seed processing facility (Operations Manager)
- 3.00pm Depart SPS
- 4.30pm Arrive Lincoln University, barbeque hosted by the Young Farmers Club
- 8.30 pm Depart for Methven Resort
- 9.30 pm Arrive Methven Resort

In the spirit of the OCCUPATION, HEALTH AND SAFETY ACT the Owners have taken all reasonable care in making your visit to the property as safe as possible, they clearly point out, you enter the property at your own risk.

The Owners and IFMA Congress organising committee will accept no responsibility for any incident or injury to any person or property that takes place while you are visiting the property.

ACKNOWLEDGEMENTS

We appreciate the following individuals & businesses in respect of their time input, in preparing for and presenting at today's International Farm Management field day.

Anton Nicholls, Farm Management Consultant, Macfarlane Rural Business

Hayden Robinson & Barry Croucher, Farm Management Consultants, Lauriston Farm Improvement Club

Wayne Allan, Allan Agricultural Consulting, IFMA field day organising committee chairman

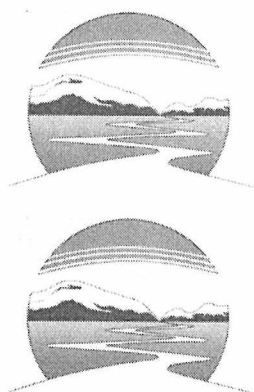
Graeme & Miriam Lill, Bevan & Donna Lill, GW & MC Lill Ltd, Craiglea Farm, Norwest Seed Processing Ltd

Allan Lill, Director, Norwest Seed Ltd, Norwest Seed Processing Ltd

John Wright, Executive Chairman, Barhill Chertsey Irrigation Ltd

Dave Grant, 'The Glebe' Farm

John McKay (Managing Director) & Grant King (Production Manager), South Pacific Seeds NZ Ltd



Norwest Seed Processing Ltd

Highbank Cairnbrae Rd
No 12 RD
Rakaia
New Zealand
norwestseed@xtra.co.nz

Norwest Seed Ltd

PO Box 6017
Allenton
Ashburton 7742
New Zealand
norwestseed@xtra.co.nz



Barrhill Chertsey Irrigation Limited

360 Barkers Road, RD 12, Rakaia, 7782
Ph: 03 3028111
Fax: 03 3028897
www.bciwater.org.nz

The 'BCI Scheme' is a joint venture between Barrhill Chertsey Irrigation Ltd and Electricity Ashburton



South Pacific Seeds (NZ) Limited

Methven-Chertsey Rd
PO Box 113
Methven 7745
www.southpacificseeds.co.nz

GW & MC LILL LIMITED – ‘Craiglea’ Farm

Farm boundary



BUS ROUTE FOR DAY

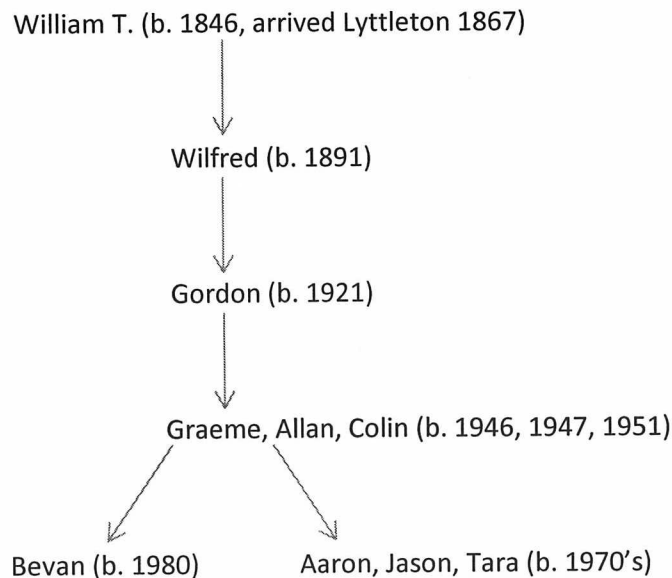
Lill farm, to Barrhill Chertsey Irrigation in-scheme pond, to Dave Grant's (*et al.*) electricity (for farm) generating turbines, to South Pacific Seeds Ltd



THE LILL FAMILY – A MULTI-GENERATIONAL CANTERBURY FARMING STORY

Graeme's Great Great Grandfather was a tenant farmer from Lincolnshire, United Kingdom. He, Bransby, had a large family, of which 2 sons George & William T. with no prospects in England, emigrated to NZ in 1865 & 1867 respectively. They started as farm labourers amongst the earliest European settlers during the pioneering era of the Canterbury Plains.

The Lill Family – a multigenerational Canterbury farming lineage:



William T.

William T. arrived at the Port of Lyttleton (Christchurch) in 1867 aboard the vessel 'Mermaid'. He worked as a farm labourer in Templeton near Christchurch, losing an arm in threshing mill soon after beginning his new occupation. Thereafter he began as the first bridge keeper in Ashburton, managing traffic including trains, pedestrians, horse drawn vehicles, sheep & cattle.

William T. purchased 750 acres light land at Newlands north of Ashburton, followed by 187 acres land Willowby south of Ashburton in 1890 from Longbeach Estate, which was where he resided. Over time he acquired several different blocks around the Ashburton district, including 4000 acres of dryland Westerfield, land at Greenstreet, and leased 800 acres Lyndhurst. William T. produced up to 40,000 bushels of grain & seed per year.

Across these holdings he settled 4 sons.

Wilfred

Wilfred farmed 2000 acres of his Father's Westerfield land. During World War 1, he served at Gallipoli & Flanders. Surviving the war, he struggled on with the light land farming, until 1939 when he "gave it back to bank". Losing land back to the Mortgagor was not unusual story during the Depression in Canterbury. After which he went back to work for his father at Willowby. (Interestingly, the Westerfield land is present day irrigated and converted to dairy production).

Gordon

In 1947 Gordon and his Father Wilfred purchased a block of rocky browntop at Montalto in the foothills west of Ashburton. This was a grazing property, which they redeveloped with the use of turnip greenfeed crops as a pastoral break. Gordon grew up understanding sheep production, working on high country stations, including Mesopotamia – one of the great Canterbury runs.

Gordon purchased his first farmland on own account in 1952 – a sheep & beef farm at Springburn near the foothills. Gordon and family moved down to a flood irrigated lightland block in Carew in 1955, farming there for 7 years, where he was involved in some of the fundamental research identifying selenium deficiency as a precursor to hogget ill-thrift and white-muscle disease.

There was limited scope on the Carew property, and Gordon wanted to expand. Gordon purchased 'Whenuapai' Farm in Methven (600 acres) in 1962. This farm included some arable cropping – the first crops Gordon had managed.

Gordon a founding member of the Lauriston Farm Improvement Club (LFIC) – a farm advisory farmer owned cooperative. Farm Advisor Dick Smith (LFIC) analysis showed most of profit at Whenuapai was attained from crop, which led Gordon to a fully arable rotation, with trading livestock, but no breeding/capital stock. This new farming system caused a lot of debate within the local farming community. Some of the earliest on-farm field days were held at Whenuapai. A simple 3 year rotation was implemented: wheat – peas (autumn sown) – ryegrass. This was a “radical departure from the norm!” The biggest concerning issue was wind erosion. But eventually many LFIC farmer members went this way. The 'Big Wind' of 1975 did indeed cause a lot of wind erosion in the surrounding district.

Graeme & Miriam

Graeme completed an Economics degree at Lincoln University, and thereafter was employed at the Agribusiness and Economics Research Unit (AERU). Soon after he decided he wanted to farm with his father. In 1972 Graeme & Colin leased land to 'compulsorily acquire' within 3 years. Gordon then leased one third of Whenuapai to Graeme & Colin, who also leased the farm machinery. The sons integrated some livestock back into the farm policy. An early lambing ewe flock was introduced, as well as trading lambs on winter greenfeed crops, followed by spring sown arable crops (linseed, wheat). At that time there were few specialist lamb traders, and the sons did “quite well” In 1975 the 343 acre 'Craiglea' block across the road (from Whenuapai) was purchased by the brothers. Soon after, the brothers began their own farm accounts, which led to Graeme & Miriam leasing, then owning Craiglea, then another 100 acres shortly after.

In 1984-88 an opportunity arose for Graeme to consult in seed production in Southwest China, which involved regular visits to China while still farming Craiglea. In 1990 he was reemployed in China with the United Nations Development Programme, at which time he leased the farm for a year. The proceeds from the consulting work helped Graeme and the family through the interest rate crisis of the mid 1980's. In 1991 the top Turneys block 260 acres followed by another 113 acres. However the blocks were unconnected and led to inefficiencies. Fortunately in 2003 the Loves block was acquired, which enabled one larger and efficient block, totalling 100 acres (400 hectares).

Allan

The second son of Gordon, Allan worked at Whenuapai, while leasing 400 acres nearby on Back Track. He subsequently leased irrigated land at Lyndhurst, purchased Whakapono on the Back Track, and purchased 300 acres across road, while relinquishing the lease land.

Bevan & Donna

Bevan, son of Graeme, has recently married Donna, both of whom are University graduates, and have had careers outside of farming. Bevan has been a driver in the irrigation development. The couple are in the process of acquiring shares in the land holding entity.

Norwest Seed Processing Ltd

The brothers first co-invested in seed cleaning equipment late 1960's giving them further control over the produce and the opportunity to market the produce direct. Colin commissioned a range of specialist gear after which he set up his own processing company. Alan & Graeme took over Colin's share in the original plant and shifted it to the existing site. Norwest is still owned by the brothers and is fully commercial running as a separate entity, with the proceeds reinvested into the growing business.

FARMING POLICY

- Committed to arable farming
- Integrating lamb finishing into arable system
- Maintain business relationships that allow for high value seed multiplications both autumn & spring sown
- Maximise milling wheat performance as a viable break crop to the seed multiplications
- Maximise yield of greenfeed crops therefore allowing for increased number of finishing lambs
- Manage large irrigation investment to minimise low production years, therefore confidence (both grower and buyer) in meeting both contracted volumes and quality. (Will investigate on-farm storage pond to augment this).

FARM PHYSICAL & PRODUCTION DATA

- Location:** Highbank Cairnbrae Rd, Methven
- Area:** Total – 400.6ha. Effective – 380ha cropped.
- Soils:** Lyndhurst silt loam. 600-700mm to alluvial gravels. Free draining. Approximate plant available soil water holding capacity is 160 mm.
- Climate:** Annual rainfall – 850 to 950mm, but highly variable. Growing season rainfall – 450mm, but, growing season evapotranspiration – 750mm! Frosts – April to October, possible into December. Winds predominantly from the northerly quarter all year. Snow expected 3 times per winter of up to 15cm each fall. Every say fifth year expect a fall of 30cm or more. Other risks are heat or frost during flowering & grainfill, wind or hail when crops mature, wet harvest weather
- Irrigation:** 4 lateral move irrigators, wetted footprint 350 ha. 150 l/sec pressurised water supplied by Barrhill Chertsey Irrigation scheme gives 3.7 mm/ha/day. Or farm receives 12.9 ML/day (5 Olympic swimming pools)
- Soil tests:**
- | | | | |
|-----------|-------------|----|----------------------------------|
| Typically | Olsen P | 25 | |
| | Quicktest K | 4 | (although high natural reserves) |
| | Sulphate-S | 10 | |
| | Magnesium | 10 | |
- Fertiliser:** Base fertiliser for autumn sown crops typically 400kg/ha superphosphate, with additional K, S & Mg applied in spring e.g. total N-P-K-S-Mg-Ca = 0-33-20-39-25-72. Spring nitrogen is typically 130 to 215kgN/ha via urea.
- Base fertiliser for spring sown crops (non-legumes) is 250kg/ha Cropmaster15 e.g. 38-25-25-19-25-0. Additional nitrogen is typically 50 to 130kgN/ha.
- Selenium is applied to grazed paddocks.
- Labour:** Graeme, Bevan, 1 full time employee, 1 harvest/seasonal employee
- Buildings:** 1700 tonnes (wheat equivalent) of silo storage, three grain batch-drying floors giving, heated by diesel/LPG, large concreted floor machinery storage & workshop, 2 x 4 bay implement sheds, 3 stand woolshed and uncovered yards
- Seed dressing:** 50% partnership with Allan Lill. Locally engineered. Two air-screen machines (one specialised for grass seed), indent cylinders, 2 gravity separators. Facility cleans approximately 1000t ryegrass, 150t white clover, 500t brassica, cereal seed, linseed etc., per year
- Machinery:** 200hp, 135hp, 100hp New Holland tractors, Claas Lexion 540 combine

Arable crops grown: (under dryland rotation)

Cereals:	Milling wheat	25%	
	Barley	10%	35%

Herbage seeds:	Forage ryegrass	15%	
	Turf ryegrass	10%	
	Prairie grass	5%	
	White clover	5%	35%
Breakcrops:	Winter cereal greenfeed	-	
	Open-pollinated radish	10%	
	Forage rape seed	5%	
	Forage turnip seed	5%	
	Linseed	5%	
	Lentils	5%	30%

Rotation (backbone under dryland rotation):

1. Wheat – grass seed – break crop – wheat
2. Wheat – winter greenfeed – spring barley – grass seed – break crop – wheat
3. Wheat – brassica seed or clover – wheat – grass seed – break crop – wheat

Production: (shows yield range)

Crop	Dryland (t/ha)	Irrigated (t/ha)
Wheat (Milling)	4.0 – 9.0	8.0 – 11.0
Barley	3.0 – 8.0	6.0 – 10.0
Perennial ryegrass	0.5 – 2.5	1.5 – 3.0
White clover	0.2 – 1.0	0.5 – 1.2
Radish (spring sown)	0.8 – 2.0	1.5 – 2.5
Lentils	1.5 – 3.0	1.5 – 3.0
Forage rape seed (autumn sown)	1.5 – 2.5	2.5 – 3.5

LIVESTOCK POLICY

Livestock play an important role in the business, both from an economic and management point of view.

- Current policy:
 - 4,000 - 5,000 lambs
 - Average live-weight at purchase – 26 - 28kg
 - Average carcass weight – 20 - 22kg
 - Purchasing through March and April – in some years extend through to June
 - Run on Autumn saved ex Ryegrass seed paddocks and Green feed
 - Dry matter is influenced by the taking of a silage crop after harvest. Effective Dry matter will vary from paddock to paddock depending on silage options
 - Grass important tool in the crop rotation – 18 month period sown down
 - Green feed – Oats and/or Rape. Estimated Dry matter production per ha of 3,500 - 5,000kgDM
 - It is critical that the Dry matter is maximised – irrigation will play an important role in this going forward
 - Lambs play an important role in pre-closing grazing of new season Rye-grass seed paddocks prior to closing in late September
 - Green feed follows an early harvest of cereal, followed by a spring sown break-crop
 - Enterprise to contribute 10-15% of budgeted income 2010/11
 - Lambs are seen as the preferred option over Winter Cow Grazing due to:
 - Reduced soil compaction and pugging
 - Can have difficult winters in Methven – utilisation of feed for cows can be difficult. Lambs can be maintained easier.
 - Important tool in managing the Grass seed crops prior to closing
 - Can defer purchases to after harvest is completed

- Analysis of Lamb finishing (based on 4,000 lambs)

Purchase price	28kgLW @ \$ 3.00	\$ 84.00
Interest on purchase price	10% (150 days)	\$ 3.45
Death factor (assuming 2% deaths)		\$ 2.73
Animal Health		\$ 2.00
(wool – breakeven after costs)		
Total costs		<u>\$ 92.18</u>
Selling price	20kgCW @ \$ 6.50	<u>\$ 130.00</u>
Net		<u>\$ 37.82</u>
Return per kgDM eaten	150kgDM per head	25.21c/kgDM

- Dry matter production – the table below shows how crucial it is to produce dry matter for the lamb production

Crop	Area (ha)	kgDM per ha		Total	
		Low	High	Low	High
Autumn saved grass seed	60	2,500	4,000	150,000	240,000
Turf grass	35	1,000	1,500	35,000	52,000

Clover	8	1,000	2,500	8,000	20,000
Oats	20	3,000	5,000	60,000	100,000
New grass	80	1,500	2,500	120,000	200,000
TOTAL	203			373,000	612,000
Lambs at 150kgDM/hd				2,486	4,080
Net Return @ \$ 37.82 per hd				\$ 94,020	\$ 154,305
Per ha				\$ 463.00	\$ 760.00

IRRIGATION DEVELOPMENT FOR GW & MC LILL LIMITED

The Lill's have undertaken significant irrigation development in the last 12 months sourcing water from a local Irrigation Company. The irrigation system is all spray with 150 Litres per second of water supplied under pressure to the property boundary. The on-farm infrastructure comprises of 4 Lateral Irrigators covering an area of 350 ha.

The Lill's have decided to go into irrigation for the following reasons:

- Reliability from one season to the next
- Reduce the risk of drought
- Allow greater land use options including processed vegetables
- Assist in the transition to the next generation by improving the viability through the implementation of the above benefits
- Capital development on the existing property seen as being preferable to further land purchase
- Fully aware that the ROA will be reduced in the short term, however mitigates the low performance "drought years"

Economic Analysis of the Irrigation Development

	Prior to Irrigation			Post Irrigation		
	ha	\$ per ha	TOTAL	ha	\$ per ha	TOTAL
Land and Buildings	400	18,000	7,200,000	400	30,000	12,000,000
Gross Farm Income	400	2,500	1,000,000	400	4,090	1,636,000
Farm working expense	400	1,500	600,000	400	2,250	900,000
Irrigation Annual Charges						246,510
Annual interest on development						117,200
Wages of Management			60,000			60,000
Economic Farm Surplus	400	850	340,000	400	781	312,290
Return on Assets			4.72%			2.60%

GOALS AND OBJECTIVES

- Transition to the next generation
 - Work – Life balance
 - Decision making

- Maximise the potential under irrigation by:
 - Water monitoring
 - Crop rotation
 - Minimising the effect of water restrictions
 - Ensuring reliability of production is maximised
 - Lamb trading

- Increase profitability per hectare by increasing revenue with minimal increase in marginal cost by:
 - Exploring arable crop alternatives
 - Increased yields
 - Exploring process vegetable options
 - Maximising the lamb trading

- Continue to grow the off-farm investments
 - Seed processing – expand and grow the current business
 - Direct marketing of produce