



Aberdeenshire Arable Monitor Farm

**George and Andrew Booth
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Aberdeenshire
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Report from Meeting held 5th February 2013

[An Idiots Guide to Analysing Farm Accounts!](#)

Date of next meeting: Thurs 9th May 2013

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The Aberdeenshire Arable Monitor Farm Programme is an HGCA project supported by the Scottish Government SRDP Skills Development Scheme.

Chairman, Peter Chapman, welcomed members particularly any new members and Amie Burke from HGCA to the meeting. There was a good turnout of 39 community group members. He outlined the meeting programme which was as follows;

Meeting Programme:

- Andrew's update
- Proposed N trials – Jez Wardman
- Borders Arable Monitor Farmer – Alistair Hodge
- Farm Business Analysis
- Market update and prospects – Charlie Birnie

1. Andrew's update – what has happened since the last meeting (12th Dec)

- Since our last meeting, due to the poor weather nothing much has happened again!
- The farmshop has been very busy through Xmas and New Year but January has been slow
- Brian has managed to do some ploughing, have also carted in some compost from Keenan's
- No more forward grain sales
- Late sown Retriever had Mn seed treatment which looks very good
- All WBs had herbicide sprays but still annual meadow grass and ivy-leaved speedwell

2 Proposed N trials with Yara

Jez Wardman, Yara's Technical manager, described a range of potential trials Yara would be willing to establish on the Monitor Farm following discussion with Andrew and the Management Group.

It was agreed to establish N fertiliser trials looking at ammonium nitrate and urea at different rates.

Andrew was also thinking about renting equipment to trial N sensors for vari-rate nitrogen applications.

3. Borders Monitor Farmer – Alistair Hodge

There are two HGCA Arable Monitor Farms in Scotland, our Aberdeenshire one and a Borders MF. Both MFs are at a similar stage so the group were keen to learn about the Borders Monitor Farmer, how their project is going, issues and learning.

Alistair farms 154ha of combinable crops, has a B&B cattle finishing enterprise and has 5 cottages on long-term lets. He also recently installed two wind turbines. Has adopted precision farming including; vari-rate lime and P&K, soil scanning and recently variable seed rate sowing. Grain drying and storage has also been an issue, and like Andrew he is planning a new grain store with a biomass drier after successfully securing a SRDP grant.

Contact details: alistairhodge@aol.com, mobile 07802290105



Summary of Alistair's powerpoint presentation

- Came to Whitsome Fm, East Newton, in 2001, previously was a livestock farmer in S-W Scotland
- Family run unit (Alistair & father on farm, wife doing accounts)
- All arable operations done in-house
- Fairly heavy soil group 3,1 some 3,2
- Cattle fattening around 900 head a year (mostly B&B)
- Two 20kW wind turbines

- Rotation of 2 wheat's, winter barley and oilseed rape, with a field of spring oats.
- 1st wheat soft group 3/4 . 2nd wheat cordial group 2 (hopefully milling)
- Winter barley 2 row feed
- Oilseed rape generally restored hybrid
- Spring oats for milling

- Meeting Topics: (full reports available at HGCA web site)
 - Variable seed rates
 - Variable rate nitrogen
 - Chemical applications
 - Grain drying and storage
 - Machinery replacements
 - Marketing strategies

- Financial analysis

Average yields Wheat 3.5-4t /ac; WB 3.5-3.7t /ac; OSR 1.6 -1.7t/ac

OSR Establishment

- ▶ Converted Cousin's subsoiler, 9 feet wide
- ▶ Cost £2k
- ▶ 5 legs 50cm spacing
- ▶ 25cm working depth
- ▶ Autumn application 30kg/ha nitrogen
- ▶ Applied with seed in bands
- ▶ Effective fert rate 75kg/ha in band



Benefit of T0 spray on W. Barley. – previously didn't apply

- ▶ T0 spray
- ▶ 1 L Kayak £ 10.40, Cost to spray £ 9.00 = Total £19.40
- ▶ Yield increase 0.7t/ha @ £150/ton £105.00
- ▶ Gross margin improvement per ha £ 85.60

Proposed new Grain Store and Biomass Drier

- ▶ Currently have a continuous flow Alvan Blanche drier; slow and labour intensive
- ▶ Proposed new Shed 36 x 24 x 7.2m to eaves
- ▶ Successful grant application so estimated cost £300k less SRDP grant £100k – net £200k
- ▶ 2 X 300t on floor dryer (18x8.5x3) with grain stirrers
- ▶ Normally produce 900t wheat, 200t WB, 100t OSR – stored in bins; 100t Sp Oats – sold off.
- ▶ Planning to use biomass as primary heat source
 - Woodchip favourite at moment
 - Straw burner option but need most of straw for cattle

Autumn 2012

Been a very difficult back-end, very wet so the normal rotation is out the window

Use an independent agronomist and use 'Farm Works' software for crop records

Main weeds - have Sterile broom but no blackgrass

Have just purchased a new 'Sulky' drill which allows vari-rate seed sowing.

4. Farm Business Analysis

4.1 Why is it needed?

- To measure your business viability – are you making enough to live on, reinvest, expand? Are you increasing your wealth? How risky is your capital position?
- To identify where you are weak and strong
- To help you understand your business e.g. what most affects its profitability
- To allow comparison with other businesses
- Overall it is the first step in identifying potential problems and areas for improvement, so you can focus your limited management time.

4.2 Analysis Methods

There are perhaps 4 simple methods for analysing the accounts of a farm business:

1. Profit Adequacy
2. Gross Output Analysis
3. Comparative Analysis
4. Balance Sheet Analysis

It is always best to analyse a few years accounts (minimum 3) so that you can identify trends and to ensure that you don't base your conclusions on one exceptional year.

1. Profit Adequacy

The farm profit needs to cover

- Your living expenses (personal drawings, and depending on whether you have other sources of income to cover living expenses)
- Tax
- Any debt repayment
- New investment (over and above what is already covered by the depreciation figure in the profit calculation)
- Ideally a margin for the risk of a bad year
- A return on your risk and management effort over and above drawings

Look at the **profit trend** over several years.

Are there **exceptional drawings** in some years for investment off farm, or is it all consumption?

How does the profit look in comparison to the interest bill? To measure financial risk, some people calculate the **Interest Cover** (Profit divided by Interest) and look for a ratio of 2 or higher.

How does the Output figure look, especially **Output per Acre/Hectare**? If you converted it into the equivalent tonnes of grain or numbers of cattle or sheep per acre how does it look for this type of farm in this area?

What is the **“rental equivalent”** i.e. the total of rent plus interest divided by the total acres/hectares?

How important is **non farming income** to the profit? For example cottage rents, off-farm wages, pensions and investments?

How does the **profit compare to subsidy income**? Would there be a profit without the SFP?

2. Gross Output Analysis

Gross Output Analysis, is a simple technique where the farm ‘Profit and Loss’ account can be analysed and compared to the norms expected for a mixed arable/livestock farm. All the costs are calculated as a % of the total Gross Output (G.O.). This is a quick guide to the pluses and minuses of the cost structure of the business.

The information is based on experience of the normal cost/output relationships in many farm businesses - it is really a form of simplified comparative analysis.

	<u>% of G.O. (norms)</u>
Total Output	100
Variable Costs	30-40
Gross Margin	60-70
Labour	15-18
Power	15-18
Overheads	4-6
Gross Profit	30
Fixed Charges (Rent & Interest)	15 max
Net Profit	15 min

Adjustments would have to be made to the ‘norms’ if the farm includes an intensive livestock enterprise (higher Variable Cost %, lower Fixed Cost percentages).

Note that labour and power tend now to be combined as they substitute for each other, with the total expected to be around 30% to 35%. The labour % is usually well below the power figure.

The Gross Margin as a percentage of Gross Output provides an indication of the technical efficiency of the farming activities. If it is under 60% of the Gross Output for an arable, beef and sheep farm, some thinking on efficiency aspects should take place. The all-arable farm may be up to 70% while the specialist intensive livestock unit or dairy farm may be down to 55%.

Labour (employed full time and casual labour) **and Power** (covering machinery depreciation, repairs, fuel and electricity, misc vehicle and machinery costs and contract work) should be within the 30-35% range. If they are beyond this then the organisational aspects of the business should be examined in detail i.e. how labour and machinery are used and organised.

Gross Profit (ie profit before Fixed Charges), should be at least 30% of the Gross Output to meet Fixed Charges and other calls on profit (eg Private Drawings).

Fixed Charges (rent, rates and interest) should normally be under 15% and definitely not over 20% of Gross Output even for the most efficient operators. If they exceed these levels the farm may be **over-borrowed/ paying excessive rents**.

Net Profit should hopefully be 10 -15% of Gross Output or higher.

NOTE: **Gross Output** = (Sales of Crops and Livestock **plus** Closing Valuation of crops (harvested and growing), home-grown fodder and livestock) **minus** (Opening Valuations of crops, fodder and livestock **plus** Livestock Purchases).

3. Comparative Whole Farm Analysis

There is a statutory requirement for member countries within the EU to provide whole farm accounts for the European Commission's FADN (Farm Accounts Data Network). This data is normally gathered by individual countries through a Farm Account Scheme (FAS). Here a representative sample of farm businesses is monitored to produce standard physical and financial data. In Scotland, there are approx. 600 farms contributing to the FAS across 9 different farm types. The principal aim of the FAS is to provide information on farm performance so that Government & EU can assess the impact of agricultural policy decisions. However, the information gathered can also be used by the industry, through a variety of ways, to improve business performance at the micro level.

In Comparative Analysis the farm accounts, with supplementary physical information (if available) are compared with:

- i) Previous results of the **same farm**.
- ii) Results from **other farms** in the same area and/or of a similar type.

The comparative data from the FAS has been presented in a number of formats (Net Farm Income, Management and Investment Income). For the latter all farms are treated as though they were tenanted, pay for all manual labour including family labour, and have no charges for interest (ie they are all self-financing).

The analysis involves assessing levels of **farm output, variable costs, gross margin, fixed costs and “profit”** with similar farm types on a **per Hectare** basis so that farms of different sizes can be compared.

Sources of whole farm benchmarking data for comparison

1. Government

On DEFRA web site on-line.
(www.farmbusinesssurvey.co.uk/benchmarking/Default.aspx/)

Country: Scotland

Farm Type: choose drop down menu (General Cropping)

Farm Size: Choose small, med, large

Scottish Government Economic Report on Scottish Agriculture
available either to purchase or on-line

2. SAC Farm Management Handbook – see whole farm data section
3. Some Banks and Accountants do a service for their clients
4. Benchmarking groups such as the Business Improvement Groups run by QMS.

4. Analysis of the Farm Balance Sheet

The balance sheet measures

- The financial risk carried by the business, and hence indicates viability
- The wealth the owners have tied up in the business
- The trend in wealth over time (if several balance sheets compared)

The minimum requirement for any business would be to see wealth increasing by the rate of inflation, otherwise the capital value of the business is declining in real terms.

The aim of business is to generate profits big enough to cover drawings, hence leaving a surplus which increases the wealth of the business. This increase in wealth is reflected in the balance sheet as more cash or less debt or more investment in machinery, etc.

4.3 Andrews updated cost structure analysis.

Savock and Westfield Farm Cost Structure Analysis. 3 years to 31 May 2012.

	2010	2011	2012	Target %
Farm Gross Output	100	100	100	100
Variable Costs	28	25	32	30
Farm Gross Margin	72	75	68	70
Labour	8	9	10	30 to 35 for labour and power combined
Power	36	29	32	
Overheads	12	6	9	5 to 10
Gross Profit	16	31	17	30

Note:

“Variable Costs” are all input costs which vary directly with the size of the enterprise: seed, fertiliser, sprays, purchased feed, vet, crop and livestock sundries.

“Labour” is all employed labour including casual.

“Power” is fuel, electricity, machinery and vehicle repairs and expenses, depreciation, contractors (machinery depreciation ranges from 9% to 14% of output over the 3 years).

“Overheads” are all sundry fixed costs: insurance, professional fees, telephone, office costs, property repairs, miscellaneous costs.

“Gross Profit” is the margin available to cover rent and interest and a Net Profit to provide for living expenses, tax and new investment or debt reduction.

4.4 Case Study – now you have a go at analysing the following business.

Bangwhackit Mains

Bob Duguid and son Robbie farm just over 1,000 acres in an all arable system. They own 900 acres, but rent in extra land seasonally for the tattie enterprise. They are on good medium loam land and the cropping and yields are as follows;

Crop	Area (ha)	3 yr average yield (t/ha)
WW	100	9.6
WB	60	9.1
SB	120	5.5
OSR	25	2.8
Tatties	110	
Total	415	

The owned land is in 3 blocks spread over approx 5 miles with the buildings on two sites. There is ample potato and grain storage, but the grain storage and continuous flow drier are showing

their age. The farm has two full time employees and is well mechanised, but ring labour is used in the tattie enterprise and contractors pulled in when required.

Financial Results

Table 1. Profit analysis 2010

	£	% of Output	£/ha	English General Cropping Farms 2010/11 (large, 450ha avge) £/ha (%)
Output	840,000	100	2024	2284 (100)
Variable Costs	250,000	30	602	618 (27)
Gross Margin	590,000	70	1422	1666 (73)
Labour	72,000	9	173	293 (13)
Power	250,000	30	602	526 (23)
Overheads	35,000	4	84	194 (8)
Gross Profit	233,000	27	561	653 (29)
Fixed Charges	160,000	19	385	162 (7)
Net Profit	73,000	8	176	491 (22)

Net drawings have averaged £58,000 per annum over the last 3 years.
SFP is around £60,000

Table 2. Cost structure analysis 2008 to 2010

All costs expressed as a % of total farm gross output.

	2008	2009	2010
Output	100	100	100
Variable Costs	17	33	30
Gross Margin	83	67	70
Labour	6	10	9
Power	16	33	30
Overheads	7	6	4
Gross Profit	54	18	27
Fixed Charges	12	22	19
Net Profit (Loss)	42	(4)	8

Table 3. Simplified Balance Sheet as at November 2010

ASSETS	£	LIABILITIES	£
Land and Property	3,600,000	Overdraft	750,000
Equipment	600,000	Loans	800,000
Valuations	440,000	Creditors	170,000
Debtors	100,000	Net Worth	3,020,000
Total Assets	4,740,000	Total Liabilities	4,740,000

Percentage Owned (Net Worth as a percentage of Total Assets) = 64%

Group Question:

Carry out an analysis of Bangwhackit Mains

- List 6 to 10 key points about the business – what are your conclusions about its profitability and capital position?
- There's 200 acres might come up for sale nearby. Should they go for it?

Group Responses:

- Technical efficiency is good – VC's 30%, average yields good
- Output/ha good for Scotland, but a bit below the English arable farm average (English figures used for comparison as they are for farms with similar scale and crop mix)
- Power on the high side? Labour and power 39% 2010, target 35%?
- Fixed charges (rent and interest) high. Rental equivalent is around £160/acre. Quite a drag on profits. Debt clearly substantial – limits profit, but plenty collateral so not a security problem? Percentage Owned = 64%. On low side for an owner occupier. Also big tattie land rents.
- Profit % low in 2010 – limited by fixed charges, rise in power costs and poorish tattie/crop output.
- Profit in 2010 (73K) reliant on the SFP (60K). Little profit without subsidy.
- Key issue for this farm is the variability of output and profits due to the potato enterprise. Very important to measure all the ratios over say a 3 year period. Average annual profit over the last 3 years is £130,000 – much better than the 2010 snapshot. More than covers annual drawings of around £58,000.
- But group pointed out that the surplus after drawings (58K) and loan repayment (probably around £50K) is only around £22,000 per year – not a big buffer, not much to set aside for new investment/expansion/overdraft reduction/risk of a disastrous harvest.
- Key Point: Business has both high financial risk (debt) and fairly high business risk (volatile tattie enterprise). Need to think about how the business manages this risk. Need to develop very good relationship with the bank and keep them informed.
- Very few folk were in favour of expansion through purchase of 200 acres. The farm has capital demands for storage and drying, and the Balance Sheet is already fragile. Very reliant on historically low interest rates. However, some felt that buying the extra land might reduce the potato land rental bill – if a £300/acre rent were converted to an interest bill it would justify a buying price of £6,000/acre @ 5% interest. General feeling: consolidate, work on reducing risk, improve existing business.

5. Market Prospects – Charlie Birnie, Grainco Ltd

The market continues to be very volatile, although slipping after recent highs. Difficult to predict where it will go next, dependent on weather and currency.

UK Wheat

- Wheat is still the key decider as far as crop values go
- Wheat yields down 40% across some most of UK
- UK average bushel weight 69.9kg/hl (5 year average 76.7kg/hl)
- Winter plantings down 10-15% on last year – pressure on spring plantings

- Wheat futures in 2012 marketing year swing of £85/t, today around £20 off top.
- UK a credible wheat importer this season (trade expect over 3MT)
- In past, wheat price was based on export parity, now will be based on import parity → this may add up to +£15/t
- It will be vital that the biofuel plants remain operational (since the meeting the Ensus bioethanol plant has in fact closed again)
- New crop EU corn offered to consumers at discount to domestic wheat offers (Black Sea origin)
- Speculators have a huge influence on the market
- At a local level, what happens at Karro Foods, Mill of Brydock mill, is important – use 1,000t wheat per week
- Physical wheat price around £225 ex farm, harvest price Nov '13 £195/t
- Maize is coming into Scotland to replace wheat – Invergordon distillery

Global S & D

- World harvest in 2012 production was 130mt short of estimate, stocks down 50mt on estimate. High prices did reduce usage, particularly for ethanol use in US
- Our market heavily influenced by global grain markets.
- Very tight global corn and soybean balance sheet
- Massive Chinese import demand: **soybeans** – 60MT
- US has potential to produce extra 100MT in harvest 2013.
- The world needs this to get back to where we were stock wise 2011
- Canadian wheat area estimated 10% higher
- India now a major supplier of wheat to world market (7MT this season) and bumper harvest forecast
- Black Sea crops have snow cover and in reasonably good condition.
- Russia forecasting a 20MT gain in grain production in 2013/1.

World Markets

- UK economic concerns sent £ sterling from 1.20 to 1.17 to the euro
- US fiscal cliff/ debt ceiling
- On-going EU sovereign debt crisis
- Risk that funds might exit commodities to reduce exposure

Malting Barley

- Malting barley contracts available. See will be very tight. Concerto is the main variety – low N
- HGCA estimate 320,000ha sp Barley in Scotland ~ (ie an extra 100,000ha extra!)
- The area of SpBar in England is expected to be up 40% 2013 – due to the low autumn plantings
- Distilling demand very strong, malsters all at maximum production which means the quantity the Scottish malster can handle will be the same as last year at 900,000t
- Analysts estimate spring barley plantings in England will be up 40%. In last 2 years quantity of barley has gone from Scotland to England to be malted then come back to Scotland as malt. Will this happen from 2013 harvest?

Feed Barley

- Physical barley price around £192 ex farm
- Domestic market very difficult to estimate, but at the present price level it will have to be consumed domestically. (FOB value for Feb equates to around £180 ex farm)
- FOB values for Nov equate to around £160 ex farm

Milling Oats

- Physical value around £200 ex farm
- Forward contracts based on wheat futures available

OSR

- Due to the free-fatty acid (FFA) problem effectively 2 markets – low FFA and high FFAs
- Lot of extra effort been put in this season working with consumers to minimise claims
- Tolerance level 2%. At 5-7% level price discounted by £25/t
- Bulk stores were a disadvantage this season, no segregation
- Physical OSR for March around £385 ex farm
- OSR prices was down to £345/t in Nov/Dec so rallied at £385/t
- High FFA OSR around £360 ex farm
- Harvest values around £350 ex farm

Next meeting – will be on **Thursday 11th May 2013**.