

Mains of Thornton Organic Monitor Farm

- Final Report -
2011-2013

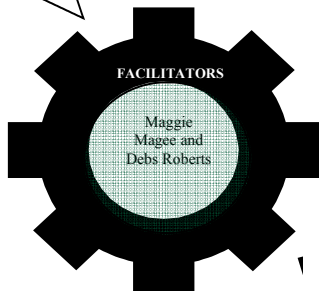


The Organic Monitor Farm Project commenced in January 2011 and after 15 meetings will close on the 28th November 2013. The Project has been funded by EAFRD, Scottish Government, QMS, SOPA and Norvite. The project was facilitated by SFQC.

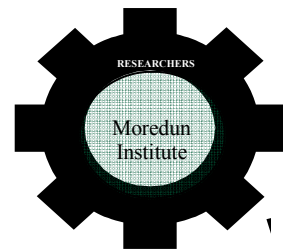


Who was involved and how it worked

The facilitators are responsible for organising meetings, collecting farm data, collating and distributing reports and generally making the project happen.



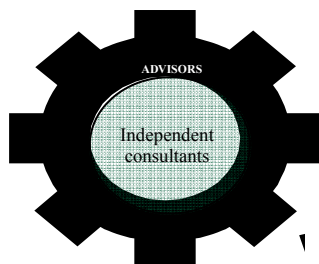
The project started with Kenneth Cooper as the business partner responsible for the organic unit at Mains of Thornton, with brother Leslie responsible for the conventional farm Auchnievie some 6 miles away. There were 4.5 staff at Mains of Thornton. In 2012 Kenneth decided to leave the partnership and Leslie's son Murray stepped into the role of full time management at Mains of Thornton and Monitor Farmer in Kenneth's stead.



Moredun Institute helped the farm understand parasites in sheep. Macaulay Institute (now JHI) prepared a report on Eco System Services. SNH supported a Diffuse Pollution Audit of the farm and some of the community group members' farms.



The community group are the farmers who regularly attend the meetings and contribute to the on-going discussion topics. At Mains of Thornton we had a core group of around ten farmers, some organic and some not, in the community group



The consultants who committed to attending the meetings also contributed advice and technical information. Thanks go to SAC Consulting, HGCA and QMS.



The following companies attended meetings and contributed their expertise and supplied analysis


- Don View Veterinary Practice
- Iain Eadie of British Seed Houses
- McIntosh Donald
- Norvite Animal Nutrition
- Keenan Feed Systems
- Agrii
- Hazel Strachan, Shearwell
- SoilQuest
- SOYL

Key Performance Indicators at Mains of Thornton

At the start of this farmer-led project an open group discussion highlighted 27 key areas that the community group wanted to tackle. The Coopers then decided which were their priority areas to focus on. The facilitators were then tasked to set up Key Performance Indicators (KPIs) for these

priority areas that could be measured and analysed throughout the life of the project. And of course, we had to allow some flexibility to explore any changes in direction forced by outside influences.

Timeline



January 2011	First meeting introducing the farm. 130 cows, bought in stores, 1300 ewes finishing 1500 lambs + 210 ha of grass clover leys, 50 ha spring barley, 4 ha spring oats and 20ha fodder rape/stubble neeps.
March 2011	Should the business continue with the February lambing? The community group said the pros (spread of labour, target premium finished lamb market in May/June, finishing cheaply off grass) outweighed the cons (bad weather, housing costs, extra feeding costs, more months lambing)
June 2011	Grassland management should aim for 30% clover and old unproductive swards need to be invigorated with a reseed or stitching in. Fodder rape/stubble neeps are a good break crop. Aim for pH 6.0 by soil sampling and applying appropriate liming materials.
August 2011	Satellite meeting held at Fala Mains, Scottish Borders. Demonstration of automatic shedding system. Introductory discussion on EID equipment. Moredun Institute introduced the group to parasitic worms and the effect that enteritis can have on lamb growth rates.
November 2011	We looked at fodder beet (not suitable for organic systems) and lucerne (poor establishment but good regrowth after cutting & grazing). Simple farm trial of matching fertility inputs with soil status comparing basic slag, a refined slag, seaweed and FYM. Basic slag was an effective liming agent but FYM needs to be applied in conjunction to target low P&K soils.
January 2012	Community group exercise on the strengths and weaknesses of the business, and what actions to take forward to address KPIs
March 2012	Suckler cow herd: Current calving period is April—September with no recorded calving interval. Start scanning & culling, be strict with bull access to reduce calving interval, calve in Roundhouse
July 2012	We looked at the new forage crops being grown—multi crop oats, barley, grass and hybrid brassicas. Devised simple plan for winter feeding as silage yields looked low & made sure minerals were freely available and matched livestock deficiencies based on blood analysis.
August 2012	Community group toured McIntosh Donald abattoir and viewed lamb and beef carcass grading, fluke infested livers and discussed how abattoir killsheets can be used to improve performance
November 2012	Calving performance has increased from 82% to 98% with a net margin of £224 per cow. Agbag silage contracting costs were £17/tonne—too expensive and more waste. Net margin of £8.97 per ewe.
January 2013	Marketing conference with outlooks for organic grain, beef and lamb. Grain samples are evidence of the quality of the product. The outlook for beef is that supply is short so prices may go up. The outlook for lamb is overall supply is getting tighter but presume the usual seasonal glut in the autumn.
May 2013	Alex Brewster talked about being specific with the trait selection for flocks. Don't be side tracked with things that are outwith your control.
July 2013	Gavin Dick of HGCA talked about benchmarking and costs of production in organic cereals, with the offer of helping an organic group. Organic dairy farmer William Laird from Glasgow offered his experience in growing lupin/triticale arable silage.
August 2013	Hazel Strachan advised on the right EID equipment for cattle and sheep. Any EID issues should be reported to your EID supplier so they can resolve them. A BVD outbreak has cost the farm £60 per cow in culls, testing and time. Vaccination costs £3, so any naïve herd should be vaccinating
November 2013	Closing meeting.

The cattle



Key Performance Indicators

Gestation period 286 days in 2013, not recorded at the start of the project. In 2011 the cows calved continuously from March to December. Now the calving period is strictly April to July and cows are calved in the Roundhouse so that close ante- and post-natal care is possible

Fluke reports from abattoir Are now regularly provided and flukicides administered to a monitored programme to avoid resistance

2013 BVD outbreak cost >£60/cow after time, testing and culled animals. Now the herd is vaccinated at a cost of £3/cow.

Stricter biosecurity

The business has ceased buying-in stores and the only purchases in the past two years has been replacement Aberdeen Angus bulls.

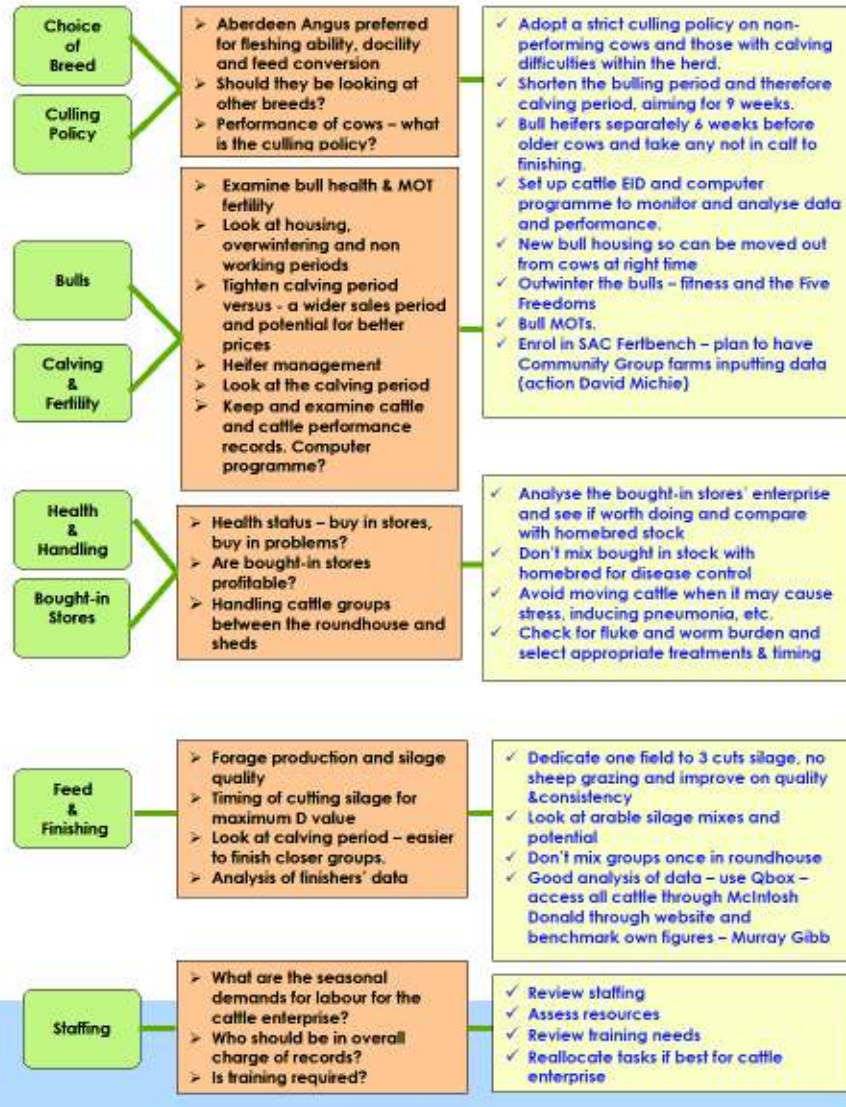
EID cattle recording

All cattle are now EID tagged and fortnightly growth rates are recorded and downloaded to the office computer. All EID records are fully up to date.

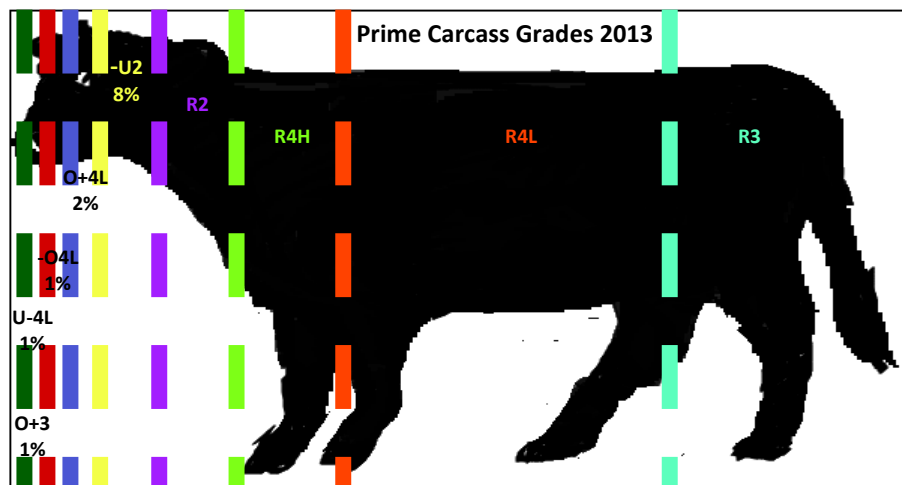
Strict culling policy

21 cows were earmarked for culling 2013, however this number increased to 34 with BVD losses.

Community Group Focus Areas



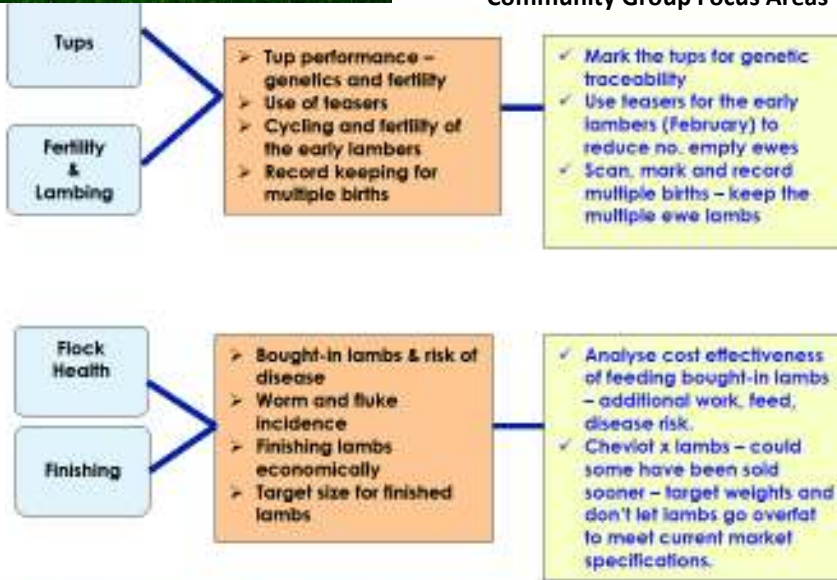
Prime beef kills	2011	2012	2013
Prime Cattle Slaughtered	103	81	89
Total Deadweight (Kg)	29786	26363	27214
Average carcass weight (kg)	327	325	302
Average Organic Price £kgdw	3.46	3.80	4.76
Total Prime cattle sales	£158,568.62	£100,354.10	£126,102.51





The sheep

Community Group Focus Areas



LAMBS	2011	2012	2013
Number slaughtered	1053	1271	799
Total Deadweight (kg) sold	20950	25796	16351
Average carcass weight (kg)	19.90	20.30	20.44
Average Price £kgdw	£5.02	£4.41	£4.11
Deadweight kgs over 21kg spec	288kg	389kg	373kg
Deadweight kgs under 19kg spec	364kg	387kg	329kg
Cost of overweight lambs	£2,397	£2,970	£2,027
Cost of underweight lambs	£1,848	£1,797	£749
Lambs in weight spec 19-21kgdw (%)	51%	30%	43%

Murray Cooper's tupping programme



More than 30% of all prime lambs slaughtered 2011-2013 made U3I and R3L grades

Key Performance Indicators

Recording

With EID systems up and running in the latter half of 2013, sheep performance can be linked to genetics as well. Tups are marked and multiple births recorded. This means that liveweight gain can be combined with killsheet data to trace back through the animal's history from before birth to slaughter. EID recording also gives the Coopers the knowledge of animal health treatments so parasitic infection can be traced to specific animals. EID recording allows the implementation a programme of Targeted Selective Treatment (TST) for Worm Control in Sheep, as suggested by Moredun Institute.

Trait selection

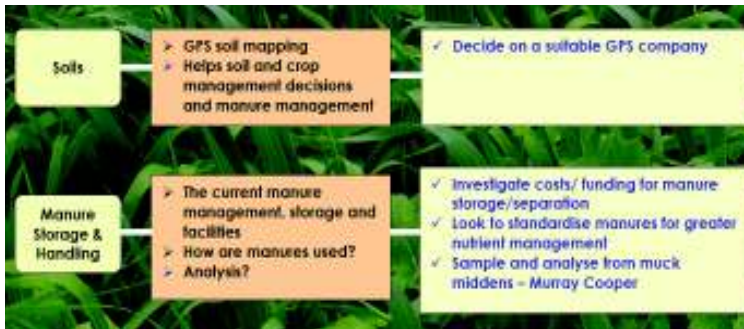
On the suggestion of Alex Brewster of Rotmell, Dunkeld, Murray has designed a tupping programme based on four family hubs. Preferred traits are meeting market specification and lamb thrive at birth.

Flock reduction

With the change in partnership in 2012 the farm has had to restructure and 450 acres have been sold. This has necessitated a reduction in the ewe flock of 700, meaning that ewe retention has been based on desirable trait selection—lamb performance and lamb thrive at birth.

The soil

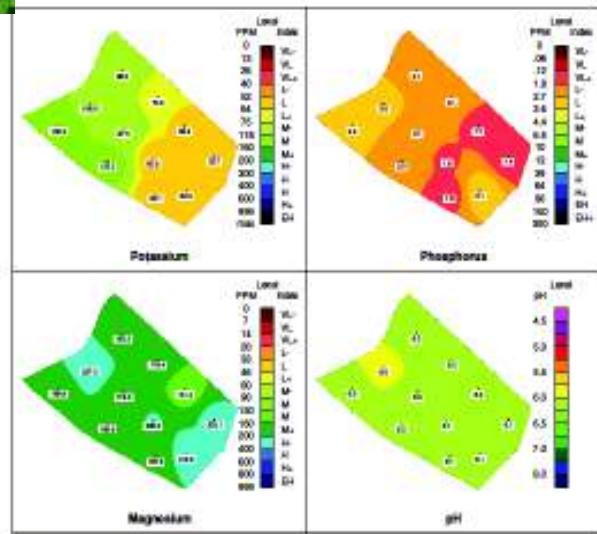
Community Group Focus Areas



Soil Nutrient Level Field Summary

Field Name: 45.26 Acre

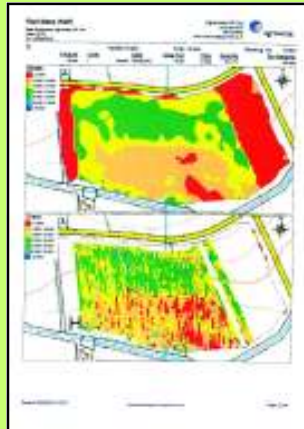
Area: 99.57 Ha



Key Performance Indicators

GPS mapping

In 2013 75ha had been GPS mapped for Potassium, Phosphorus, Magnesium and pH. 2012 yields were also GPS mapped.



Anti-compaction measures

The Coopers have purchased a grass slitter and 35 ha were slitted in 2013.

FYM utilisation

Based on the advice provided by SAC Consulting in 2011, FYM is sampled for nutrient availability and targeted applications made according to nutrient deficiencies highlighted in GPS maps. In early spring 2013 FYM was applied at 10t/ac to specific fields.

Soil Nutrient Applications

Phosmin and Sulphate of Potash have been applied according to GPS reports

Diffuse Pollution

A Diffuse Pollution Audit was produced and the Coopers are now addressing some of the high risk areas highlighted in that report.



Murray Cooper taking dung samples for nutrient analysis

Getting the most out of home grown feed

- **Introducing pea/ cereals to the rotation**

The Coopers wanted to improve their resilience to feed purchases, reducing their risk to commodity price increases. This has resulted in simple on-farm trials trying new silage crops and combined cropping of peas and oats, and peas and barley on the recommendation of the community group.



The business has seen a major shift in the crop account, with off-farm sales of organic wheat and oats. 50t of home grown barley was produced. By 2013, no cereals were grown for sale and 104t of peas and oats/barley were crimped for livestock feed. The analysis shows 11.75 ME and 12.3g/kg CP. This crop is sown with a conventional drill and combined, with the straw baled for feeding in the TMR.



Other wholecrops introduced include oats undersown with grass and clover averaging DM 73.6, ME 12 and CP13.2.

Crop Varieties

- > Should growing wheat be continued?
- > Choice for spring barley
- > New varieties of oats, Vok and barley, Armada?
- > Alternative cereals – 4 row barley?
- > Protein crop using pea/oat/barley or ensile Spring Wheat
- > Silage quality – see cattle feed discussion
- > Use of forage brassica mix undersown in cereal

- ✓ Drop spring wheat and grow spring barley instead looking at Westminster, Armada or Firth for an earlier grain filling period– HGCA to advise
- ✓ Look at cost of straw when reviewing the varieties and crop choice
- ✓ Run a germination test on the home saved barley seed
- ✓ Investigate the 4-row spring barley 'Wide', a Scandinavian variety
- ✓ Grow an arable silage peas/oats in the 2012 rotation and after harvest end July broadcast sow hybrid brassicas Swift and Redstart into the sward for fattening lambs, flushing ewes and shuffer grazing for cattle – Iain Eadie (British Seed Houses) to do costings

- **Lupin tritcale arable silage**



Lupin tritcale arable silage had a very disappointing start in 2013 when it was grown for the first time.

In the July 2013 meeting we welcomed William Laird, organic farmer from Kilsyth to advise on the crop. Mr Laird has grown lupin tritcale arable silage for nearly ten years so has plenty of experience. Final arable silage yield was 260 tonne. With an average D-value of 67, average ME 10.5 and average CP 141g/kg.

Recommendations for lupin/tritcale arable silage

- ✓ In Aberdeenshire, sow lupins/tritcale in late May
- ✓ Aim for soil temperature >7-8degC
- ✓ Seed rate needs to be c. 100kg/acre

In 2012 Iain Eadie of British Seed Houses advised on the multicrop oats, grass and hybrid brassicas Swift and Redstart grown in 2012 brought a gross margin of £14.74/ha.

The multicrop silage was ag-bagged and the contracting costs were prohibitive at £17/tonne, plus there was more wastage than baled silage.



Where are we now?

Mains of Thornton has seen a major restructure in 2013 as the family partnership changed. 450 acres of the farm has been sold and the community group has focussed on the day to day changes to allow the Cooper family to address the strategic direction of the overall business.

New management practices introduced and now routine in day-to-day management

EID recording of all livestock
Fortnightly weighing of finishing stock
Calving interval measured
GPS mapping
FYM sampling
Grass slitting
Trait selection in sheep flock
All cereals retained for home feeding
Peas and oats/barley a staple crop



Monitor Farmer Murray Cooper

↓
Cow numbers reduced by 35%, compounded by BVD outbreak in 2013.

↓
Ewe numbers reduced by 40% due to farm restructuring

↓
Soya purchases reduced by 34% between 2011 and 2013

↓
2.5 fewer staff with rationalisation of roles and responsibilities

↑
Lamb carcass weights increased by 2.6% in 2013

↑
Home grown feeding increased from 28t in 2011 to 104t in 2013. All seed now home-saved.

↑
Field inputs now applied according to GPS soil and yield mapping

↑
Cow gestation now measured and recorded at 286 days