FARMEXCELLENCE

AHDB

Brigg Monitor Farm meeting report

Life without subsidies – strategies for business survival

Speakers: Richard Thompson (organic farmer);
Paul Gosling (AHDB)
Date: 21 February 2019
Venue: Hibaldstow Village Hall

For more information, visit: cereals.ahdb.org.uk/brigg

Meeting summary

Key points

- Three key aspects of organic farming are rotation, clover and livestock
- Growing crops organically relies on legumes to fix nitrogen, particularly clover
- Plan your rotation to avoid problems such as weeds
- Two-year grass/clover leys will fuel the rotation
- Manure from livestock gives the flexibility to move nutrients around the system
- Choose resistant varieties to help mitigate against pests and diseases
- Marketing is important as profitability in an organic system relies heavily on achieving premiums

Monitor Farm update

Colin Chappell

Cover crops trial

- Rye and vetch preceding spring wheat
- Will be taken out a month before drilling because rye could have an allelopathic effect on wheat
- Cover crop will be sprayed and wheat drilled whilst it is still green
- Unusually dry conditions for field operations for this time of year (see below rolling heavy clay soil this week – no sign of it sticking)

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Cover crop trial

Rolling heavy clay soil – Feb 2019

What can we learn from organic farming?

Organic farming in East Yorkshire
Richard Thompson, York Grounds Farm

Organic farming is not:
- different – it is all part of agriculture (not black and white)
- stuck in the past

Organic farming is:
- Farming using natural methods
- Using soil to feed crops
- Using rotations and varieties to reduce pests and diseases

Rotation
- One of the key things in organic farming
- Relies on clover to a large extent, and legumes in general, to supply N and for recycling P and K
- Spring barley is undersown with a grass and clover ley
- You do get some weeds there is no spray bill and you get a premium price
- The barley is cleaned up and weed seed is burnt

Using grass and clover leys
- Clover is key to the farming system
- A two-year grass and clover ley fuels the rotation
- A red clover ley can fix 400 kg N
- So you can have enough to fuel another two or three years of cropping
- Clover fixes N and releases it when defoliated, making it available to the main crop

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- N release is also dependent on soil temperature
- The grass is sown within a week of drilling the barley in Spring (before the barley is up) with the coulters just above the surface
- Seed costs - £120/Ha – 70% of the mix has to be organic
- Red clover is shorter in persistence and more competitive for cutting
- Sheep are not grazed on red clover due to grazing problems at tupping but white clovers are used for grazing (mix of perennial and Italian ryegrass with clover)
- The two year clover ley provides two years' production for cattle feed (silage)
- Cattle muck is spread on potato land
- Residual N fuels another wheat crop
- Establishment can sometimes be a problem, especially in a thin crop of barley with a late wet harvest
- Barley seed rate is about 70% of conventional

Grass/clover ley

Manure management

Livestock

- Organic store cattle are bought in and fattened
- Over wintered on silage
- B&B organic pigs on second year of grass ley before it is ploughed up
- Pigs come in at 40 kg and go straight outside
- These are followed by spring barley or a mustard cover
- Then into winter wheat
- Yields are towards 3 t/ac. which is getting close to conventional – with no spray costs
- The livestock enterprise helps to feed the rotation
- The soils are not extremely short of most trace elements because of the livestock manure

Q. Is it possible to farm organically without livestock?

A. There are stockless systems but it depends on the soil which needs to be nutrient and water retentive. A mixed system is better. For your source of N you need legumes, e.g. a

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clover ley. The manure from livestock gives the flexibility to move nutrients around the system. Here you can only get a stale seedbed by cultivations (not by spraying).

Marketing

- Very important - part of the organic system relies on getting a premium for crops
- The Recommended List is used and resistant varieties are chosen
- Have tried blends but it depends on the market
- A blend could help in selecting varieties that suit your farm
- Odd markets exist, e.g. poppy seed for birds
- Feed price for Spring barley £280/£290 (some malting with a premium)

Weed challenges

- The organic philosophy is to plan the rotation to avoid a problem
- Poppies and charlock are the main weeds
- Not black-grass – four crops in six years won't get black-grass
- Winter wheat is drilled late (late October)
- Early drilling would open up to more weed seeds germinating
- Ploughing is used to control volunteers – this isn't the best but you need a stale seedbed
- Later in the rotation pigs deal with them

Cover crops

- Mustard is sown where there is a gap between harvest and a spring sown crop
- This is down to timing and cost
- You have to be careful with nematodes on clover
- Mustard is cheap and simple
- Then it is flailed off and ploughed in

Using an organic approach

- Steps involved in going organic should help to get rid of black-grass
- The first step in conversion is to convert the farmer
- Develop an integrated system by planning a rotation to avoid the risk of weeds
- This is similar to some conventional systems but lacks the fire brigade of chemicals
- Start by putting in a grass ley – this will help with any black-grass
- Add compost which will increase the organic matter and liven the soil up

Destroying a grass ley

- A clean job with the plough is the best option, but not deep ploughing (plough at 6" or preferably 4") followed by one pass with the cultivator
- You are relying on the organic matter and if this is buried too deep the oxygen doesn't get to it. Keep it near the surface (top 3 or 4") so that the microbes can break it down

Potatoes in the rotation

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- Land is shallow ploughed then cultivated with a deep tine
- “Growing spuds is a gamble, organic are a bigger gamble.”
- They can do 15 t/ac.
- Sold for pre-pack in supermarkets
- This crop is where disease resistance comes in most – blight resistance is key to what can be done so it is important to be looking at new varieties all the time
- Challenges are blight and slugs
- Ferric phosphate can be used for slugs

Manure management
- Muck is spread by contractors
- This is the main way of balancing up nutrients around the farm
- The biggest application is before potatoes in the first week in March

How can we make use of new technology?
Paul Gosling

Some of the challenges
- Loss of old chemistry
- Increasing resistance to existing chemicals

Revisiting old chemistry
- There have been some effects of mixing old chemistry with sulphur, copper etc.
- At Teagasc they have been looking at the effects of adding sulphur and/or boron with an azole and SDHI
- The results were variable and affected by the site; also 2018 was not a typical year (too dry)
- Overall this approach is not reliable compared with previous chemicals

Biopesticides
- Currently the same regulation as pesticides
- This presents a barrier to getting them to the market
- This category has shown a huge increase in the last decade
- 20 out of 35 products awaiting registration (in February) were biopesticides
- They are more likely to be used in protected cropping environments
- YAS-EIP Project: Can fungicides be replaced by biopesticide equivalents?
    - Project in North of England with one year’s data so far (in a dry year)
    - Comparing integrated pest management (IPM), conventional and biological

Biostimulants
- No regulation at all
- The AHDB review revealed that only a few really worked

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- Currently not a lot of evidence they work but it is worth having a trial
- The main problem is the lack of consistency
- But the rubbish will fall away as regulation tightens up

Robots

Robotic weeders, sprayers and cultivators
- These use a camera to distinguish between crop and weed
- Targeted spray goes to the weed only
- Can cut herbicide use by 90%
- They are good for the environment and make it more likely we could keep the chemistry

Robotic cultivator (Robovator)
- Can replace 10 humans manually weeding
- Good in high value horticultural crops

True robots
- Fully autonomous
- solar powered
- unmanned spray system - for low to moderate weed levels
- new ways of applying pesticides and fungicides under investigation - varying rate to match crop biomass (research at Cranfield)

Find out more – Links to AHDB information sheets or research

Crop biostimulants
Livestock and the arable rotation
Opportunities for cover crops in conventional arable rotations
Maxi-cover crop research project
Recommended Lists for cereals and oilseeds
Cereals and oilseeds market information

For more information or to find out more about Farmbench, AHDB's benchmarking tool, contact: Judith Stafford
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CEREALS & OILSEEDS

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