Sittingbourne Monitor Farm meeting report

Meeting 11: Robust rotations and what can we learn from organic cereal husbandry

Date: 11 December 2018

Speakers: Anne Bhogal, ADAS and John Pawsey, Shimpling Park Farm Ltd.

Location: Blackbird Farming (G.H Dean Ltd), Hempstead Land, Sittingbourne

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

Meeting summary – key messages

Building robust and resilient rotations:

1. Ask yourself whether your rotation is robust, resilient and cost efficient.
2. Consider how individual crops impact on combining capacity and harvest workloads.
3. To enhance rotation robustness there isn't one "silver bullet", you have to integrate everything.
4. Keep your rotation extensive with break crops that work to improve you're following cash crops (e.g. vetches & clover to fix nitrogen).

Cover crops

- Know what your objectives are and select cover crop species accordingly, e.g. soil health, soil structure, nutrient capture, ecological focus area (EFA) and biodiversity.
- Cost of your CC needs to be spread across your rotation.

Is my farm rotation robust, resilient and cost efficient?

Mark Bowsher Gibbs, Sittingbourne monitor farmer has a current five-year rotation of winter beans/peas/soya, winter wheat, second wheat/spring barley, oilseed rape, winter wheat and, utilising catch crops before the spring crops.

He is currently asking:

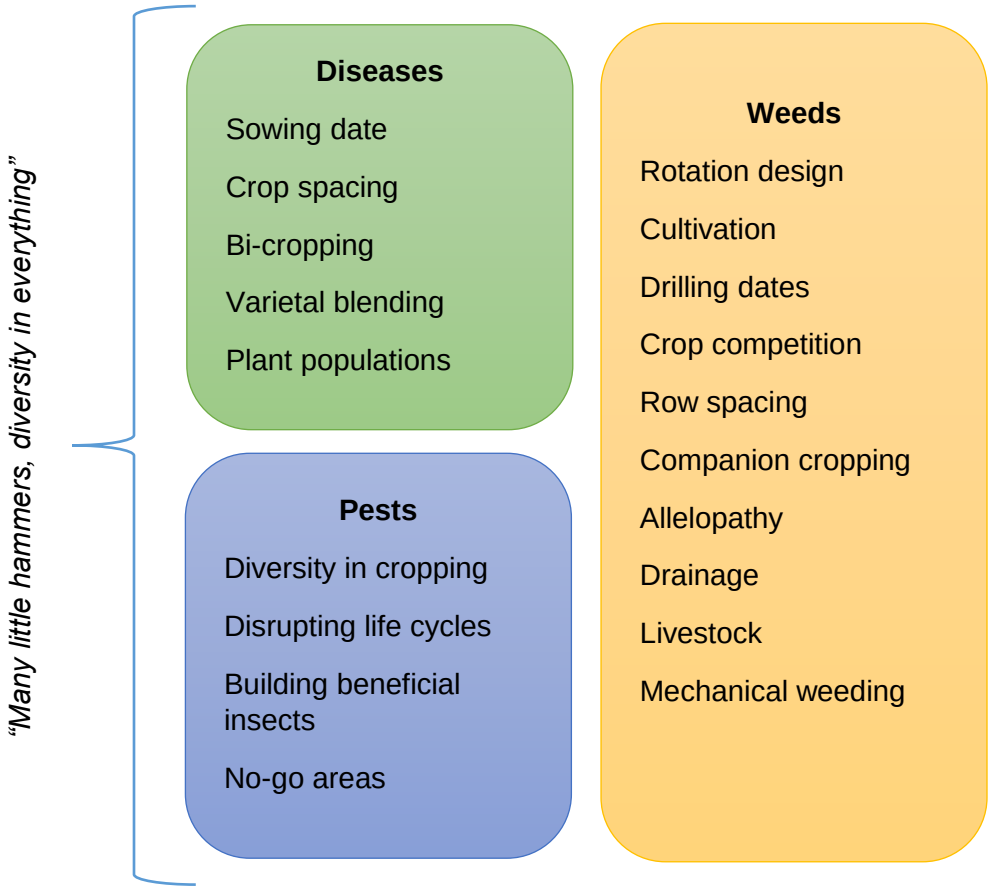
- Should we be aiming for 50 per cent break crops or extending our five-year rotation?
- What are our other options for break crops?
- What role do peas play in the rotation? They can be troublesome to harvest, eat into combining days and often conflict with spring barley harvest timing.
- Could we grow more soya? Soya timings are great for spreading workloads and cleaning fields.
- Are second wheats sustainable and if not what to replace them with?
- We currently bale most wheat, barley and pea straw over and above sheep requirements. This is not beneficial for organic matter but improves work rates.

What can we learn from organic farming systems?

In 1999, John Pawsey began a conversion trial to organic production. A further 65 hectares were converted in 2000, and the rest of the farm was converted in addition to contract farms. John farms a 6 year rotation including 2 years grass/ clover ley, winter wheat, winter spelt, spring quinoa, spring oats, spring barley, triticale, beans and peas. John also runs a flock of New Zealand Romneys – an easy care breed requiring low management input.

Livestock are integrated into the arable rotation in order to help increase field fertility, reduce weeds and cereal disease through cereal grazing and, the inclusion of herb/legume fallowing / cover cropping.

Designing a robust and resilient rotation relies on diverse pest, weed and disease management strategies.



Developing a robust and resilient rotation relies on good soil management. John imported the first System Cameleon into the UK from Sweden in July 2015. It's a low draft, low disturbance seed drill, but it's also an inter-row hoe using camera guidance as well as our RTK network. It drills on 25cm rows for cereals and 50cm rows in winter beans. With very even sowing and hoeing depth. More aggressive hoeing means that you can hoe later and usually only once and tungsten tip brakes the soil allowing the hoe entry in toughest of conditions. Inter-row sowing sows onto moisture. Following wheel ensuring good seed/soil contact. John has had 100% success in sowing leys and green manures and has achieved seed savings, increased fertility, increased yields and better weed suppression. In the past the plough was relied upon to help control weeds, but the Cameleon drill undertakes the weeding so reducing the need to plough.

Maximising the benefits from cover crops through species selection and crop management

Maxi-Cover crop," is a three-year research project that will endeavour to increase our knowledge and understanding of the benefits, optimal crop management practices and knowledge gaps associated with different cover crop species.

This project has been generated from farmers wanting to gain more factual knowledge associated with the viability and, suitability of various species used in such cropping regimes.

The data collected will answer questions with regard to the impact that cover crops have on the following two to three cash crops, taking into account rooting structures, yield, soil moisture, nutrient uptake, soil nitrogen, organic matter, earthworm counts, soil strength and lastly but by no means least, the environmental and biodiversity benefits.

With regard to the species that Mark will be growing at G H Dean and Co, two different mixes will be planted on the farm over late summer period:

- Mix 1 - oats and crimson clover
    - Note that there are certainly data recorded for crimson clover, but it is being tested here as an example of a small-seeded legume, and has previously been shown to be a successful component in mixes.
- Mix 3 - oilseed radish, oats, crimson clover, phacelia and buckwheat
    - Phacelia proved to have a high root length density compared to other species.

These mixes will then be followed by a cash crop of spring barley.

When establishing cover crops:

- Plant early and into a moist seedbed or post rain in order to achieve successful germination and establishment.
- Ensure soil contact is made.
- Good CC rooting has shown to increase rooting of following cash crop.

When choosing species:

- Beware of the allopathy effect as some cover crops (e.g. cereal following cereal CC) can affect your next cash crop.
- Diverse CC mixes can promote more benefits to the soil biodiversity and therefore, increase their decomposition in to the soil.
- If grazing Brassicas, be aware that they can cause iodine and copper deficiency which in turn can effect fertility, especially in breeding ewes.

In 2019 Mark will also undertake various try-outs in different cultivation and establishment techniques together with a comparison in "kill-off"/ sowing preparation methods that may involve contrasts in the use and cost of chemicals versus crimper rollers and livestock grazing and cultivation/ establishment methods.

When destroying cover crops:

- Early destruction of CC's (before New Year) on heavy soils.

Find out more

- AHDB Maximising the benefits from cover crops through species selection and crop management (Maxi-Cover crop): online reports
- Access to online publications and tools to assist arable pest control – including slugs and aphids. Guidance on cultural control strategies and where to get information about current pest pressure.

Forthcoming events

29 January 2019	Drilling into your fixed costs to sow a profit
19 February 2019	LEAF / AHDB Joint Meeting: Delivering savings, examining trade-offs and monitoring impacts

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