Phil Jarvis – Allerton Project Loddington Estate

"I am a food producer AND a custodian of the countryside."

The Allerton Project, managed by the Game & Wildlife Conservation Trust (GWCT), aims to carry out field-scale research on agri-environmental and food production issues and then share results with over 4000 visitors each year (the public, farmers and other agricultural professionals and policy makers). The Allerton Project has been working to this end since 1992.

The project is run on 333 hectares of the 800 Ha Loddington Estate in Leicestershire and is reflective of East Midland landscape, with heavy clay soils which can become very wet during the winter months and rely on good drainage. Phil Jarvis, Farm Manager at the Allerton Project, says the focus of their work and research always comes back to its relevance to farmers and how they can remain profitable. Phil keeps a very close eye on costs of production and is concerned that low commodity prices and high input costs are becoming increasingly unsustainable. Because of the loss of many pesticides available to growers through regulation and resistance development, increased costs of Nitrogen fertilisers and the future loss of BPS payments which prop many farming businesses up; Phil is constantly looking at how he can de-risk his business. IPM can offer some °solutions but he points out that there is a complex balance with many uncertainties which have to be managed carefully.

The farm averages 600ml of rainfall a year and 60 years ago, this farm would, in all likelihood have been all grass. It is now a mix of arable, grass, woodland, water, hedges and environmental stewardship features (10% of the land is in stewardship). By providing a diverse network of different habitats, biodiversity has increased with impressive bird counts recorded each year.

In order to stop any decline in species Phil believes 3 management practices are necessary:

- Provide appropriate habitat
- Supplementary feeding in winter
- Predator control

All three practices are carried out at Loddington.

Bird species differ in the extent to which crops they use as foraging habitats. Analysis of blackbird and song thrush nesting success suggests that the area of pasture close to the nest has a positive influence, but monitoring of birds in break crops shows that linnets and reed buntings are strongly associated with oilseed rape and tree sparrows make considerable use of field beans as a crop to forage in. Crop diversity is beneficial to birds. Research shows that when feeding their young, yellowhammers forage in oilseed rape early in the breeding season, then switch to barley, and later to wheat as the structure of the crops change. Yellowhammer pairs with several crops within their range will have a longer foraging season which may result in higher productivity.

The Countryside Stewardship agreement in 2003, and subsequently Entry Level and Higher Level Stewardship agreements, have provided a useful source of income to compensate for the land taken out of production for the benefit of game and wildlife, as well as paying for the routine Stewardship of hedgerows and field margins. However, minimising costs in the joint partnership through reduced overheads, maximising yields through good timeliness and agronomy are key. In addition marketing crops by forward selling and supplying produce through the Kellogg's Origins Group has seen many benefits to the business.

Phil feels that UK farming is a fundamental cornerstone to the country's food security. The Government need to look at how farms, environmental features and food production will be supported going forward to achieve a balance.

Phil's concerns for his business:

- Value of wheat (and other crops) lower than input costs
- What will future ELMS look like?
- How will crops continue to be grown in the wake of continued PPP loss and will there need to be a system change?
- How can UK compete globally?
- Climate change, extreme weather events and water availability

Phil also has ideas about how to solve some of these problems:

- Farmers need to increase efficiency/ productivity (through benchmarking and smart technology)
- Food needs to be more highly valued
- Government could support the industry on a journey to become more sustainable

Phil's integrated approach:

For Phil, lengthening the rotation, looking at better soil health and choosing appropriate varieties have been key practices he has put in place at Loddington. Rather than look at yield potential when choosing varieties to grow, Phil will choose varieties with good disease resistance capable of producing higher financial returns.

He has also extended his rotation from 4 crops to 7 to including winter wheat, winter barley, winter beans, spring beans, grass, oats, oilseed rape and herbal leys as well as cover crops where appropriate.

IPM Blackgrass management

Blackgrass can thrive in the heavy wet clay soils on the farm and it has become a problem in recent years. Phil has brought populations down by:

- Improving drainage with more mole ploughing
- Lengthening the rotation
- Delaying drilling (this is risky on this land as once the weather closes in it can be impossible to establish winter wheat in some years)
- Switching to some spring cropping
- Introduction of herbal leys including chicory, sainfoin, lucerne and clover and grazing with sheep – the sheep do the weed control by not letting the blackgrass go to seed

The use of cover crops:

Phil sees the benefit of establishing a cover crop to protect the soil through the winter. If established in late summer/early autumn it ensures that the soil is not bare through the winter months. The benefits of cover crops are massive:

There can be issues with establishing the next crop in the spring following a cover crop, and Phil has tried different methods of crop destruction before spring drilling. He has tried to use sheep to graze of the cover crop but this is not always effective and can cause soil damage if wet. On light land, a non-frost tolerant plant can be chosen, such as buckwheat. However, if there are insufficient hard frosts the crop will keep growing rather than being killed by the low temperatures. Spraying off with a herbicide has proved most effective. Phil believes the low environmental impact of glyphosate is important and this would be his preferred method of cover crop destruction. There is a concern that the moist habitat within cover crops can act as a green bridge for certain pests, particularly slugs, so it is important to understand the life cycle of the pest you are trying to control when using cover crops.

Advantages of a grass ley in the rotation:

- Reduced cost of blackgrass control £45/ Ha compared to £140/Ha on other fields
- Reduced Nitrogen costs
- £150/Ha saved on cultivation costs
- Can drill wheat straight into grass
- Less chemistry needed to control black grass in subsequent crops

10 Benefits of Cover Crops

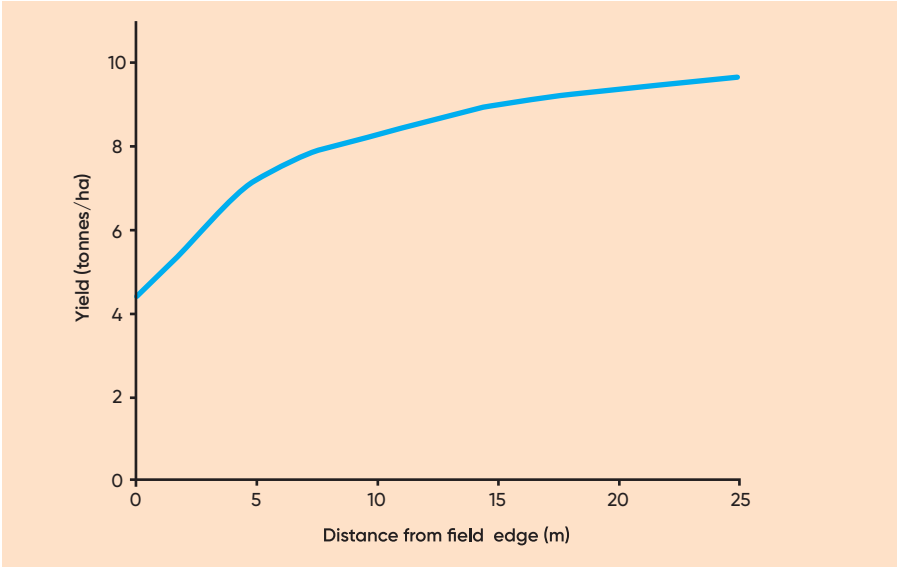
1. They help increase soil organic matter
2. Legume cover crops replace nitrogen in the soil
3. They improve soil porosity and water infiltration
4. They help soil aeration
5. They reduce erosion
6. They attract and protect earthworms
7. They increase channels for future crop roots to follow
8. They reduce compaction
9. They increase nutrient recycling
10. They will help interrupt the cycle of soil-borne diseases

Habitat for Pollinators, Beneficials and Birds

A lot of habitat has been created for pollinators at Loddington. Phil has used agri-environment schemes effectively to establish areas with environmental benefit on lower yielding marginal land. This works in harmony with the arable enterprise as food production is then concentrated on the more productive areas.

Cropping Costs and Benefits of Marginal Areas of Fields

Assessment of crop yields at varying distances from the crop edge has revealed that while inputs to field headlands may be the same as to the field centre, wheat yields can be 23% lower (see graph opposite). These field margin areas now provide a focus for research into habitats such as wild bird seed mixtures, grass margins and pollen and nectar. Some in-field management such as beetle banks and skylark plots does also occur. Wherever possible, research seeks to develop management options that deliver multiple benefits, such as field margin plant communities that benefit pollinators and insect pest predators, and improve rain water infiltration.



PHIL'S POLICY ASKS

- Policies should be developed which support farming practices, so they can help deliver the outcomes desired in the 25 Year Environment Plan.
- Make new agri-environment schemes more streamlined to encourage uptake
- More R&D is needed to deliver IPM and regenerative agriculture solutions to farmers. These concepts need to be tested robustly to encourage uptake.
- An acknowledgment that IPM can be complicated; it comes with greater risk and could attract funding to aid the early years of transition.

FOR FURTHER INFORMATION:

Impressive bird counts recorded each year

FOR FURTHER INFORMATION, PLEASE VISIT:

https://www.emr.ac.uk/horticultural-research-programmes/genetics-crop-improvement

https://www.emr.ac.uk/horticultural-research-programmes/pest-pathogen-ecology/

FIELDS FOR THE FUTURE

The Principles of Regenerative Agriculture

- Diverse rotation
- Continuous soil cover
- Reduced cultivation
- Herbal/Grass Leys