

Integrated  
Pest  
Management  
CASE STUDY

“It’s not low input –  
low output. It’s more  
like intelligent farming”



Project jointly produced with:



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Tim Parton (Richard Stanton)

*“I don’t class myself as a low input farmer. I class myself as an intelligent farmer because I’m making informed decisions. I still want those top yields, but I don’t want to pay much to get those yields”*

Tim Parton, Brewood Park Farm

**Farm size and soil type:** A 300 ha working arable farm situated in the heart of the South Staffordshire countryside.

**History:** The farm has been in the family for three generations. Mixed farming started in 1929 moving to arable cropping in the 1990s.

**Crops Grown:** Wheat, barley, oilseed rape, beans, lupins and haylage.

**Regenerative Agriculture and Integrated Pest Management:** Tim’s journey to regenerative agriculture started in 2009. Conventional inputs are minimised to limit any impact on the environment whilst also maintaining yield & profitability.



## Integrated Pest Management at Brewwood Park Farm.

### Q: How did you get started?

Over the last fifteen years, Tim Parton has found that working with Nature on the 300 ha that he manages at Brewwood Park Farm, Staffordshire, has increased profitability and the resilience of the business. Tim's approach to transforming the business has been based on years of reading and research. Pioneering regenerative farmers from around the world have shared practical solutions to many of the problems that Tim was thinking through.

Coming to the farm Tim was presented with a range of issues but also a passionate and committed landowner: *"The owner that I was working for at the time has passed away, but he shared my passion, and he had total belief in me, which was the only way I could achieve what I've done here. Everything needed his backing because it was his money. So we made a good team. If he hadn't believed in me, none of it would have happened. It's as simple as that."*

Tackling problems, such as long-term damage to droughty soils, pesticide resistance and yields that have plateaued has needed a whole-farm 'systems approach' that works with Nature, especially as climate change, the loss of the Basic Payment Scheme and regulations for water bring new challenges to the business.

This approach has included rebuilding well-structured soils rich in organic matter and mycorrhizal fungal



networks, a process that has allowed Tim to adjust crop nutrition. Nitrogen has been cut down by 50% by using finely-tuned micro nutrients to build plant health - giving cereals and oilseed rape better immunity to pests and diseases. Reducing nitrogen has cut costs, greenhouse gas emissions and leaching - and has increased yields and margins.

### Q: Do you have any examples of how this has worked well?

**Two case studies show how the systems at Brewwood now work better:**

## Investing in Soil Health.

A former 'Soil Farmer of the Year', Tim puts the health of his sandy and clay loams above all else to underpin the resilience of the farm business. A wide rotation includes grass leys to build organic matter. Cover and companion crops protect soils over winter and soil is never left bare. Ploughing stopped around 2009. Minimum tillage is being reduced to zero tillage to reduce machinery and establishment costs by £20,000 a year, increase soil organic matter, preserve soil structure and build up fungal nutrition.

*"I started off with strip-tillage, then no-tillage. There was a light bulb moment when I realised you don't need to till at all. Once you've got a soil that's working it's naturally aerated from all those worm channels, the job's done for you which is how nature intended it to be. Because my soils are more fungal than most people's, it's the fungi that will release a lot of the nutrition. So the plant will put out exudates which feed the fungi. In return, the fungi give the plant what it requires. So if you just pop a seed in, that fungal network is there, and the plant is away. But it does take time to build a fungal soil."*

Applying fungicides risks damaging these valuable soil fungal networks and seems counterproductive to Tim.

*"There's been an awful lot of work done on fungicides. For instance, where fungicides are used and applied, there's less aggregation in the soil. It's a fungicide, so you're trying to kill fungi - the clue is in the name. Some of that fungicide will hit the soil floor so you're pushing that fungi back. I want the fungal soil, so the plant can fight the pathogens itself."*



*"Fungi are so, so sensitive. You can just destroy that whole ecosystem and network of fungi. They vanish basically because they just don't get a chance to establish themselves. Then you have a bare-root plant that has no interaction at all with the soil because we've made it into a drug addict. Putting on N, P, K we are stepping out from that symbiosis and losing all that nutrition that would normally be available to the plant."*

*"I realised that fungicides weren't doing my soil any good. I wanted the plant's natural immune system to kick in. So I started using more nutrition and more products to protect the plant using its own immune system. As the soil gets healthier, I don't get the same weed problems, so I don't need to use as many herbicides."*

*"Now you never see any sort of erosion in my drains, they are gin clear. I'm not losing the soil, I'm not losing nutrients. It's all stopping where it should be because once you get all that mycorrhizal fungi going, you get the glomalin glue that mycorrhizal fungi forms, which is holding all that nutrition together. And that glomalin can hold it there for 40 years just waiting to be used by a plant. And that's working with nature. That's what we've forgotten about in farming."*

## Effective IPM Aphid Control.

Barley yellow dwarf virus (BYDV) on winter wheat can be a yield killer especially with warmer winters and the lack of frost which allows aphids to survive through winter. Aphid monitoring<sup>1</sup> suggests that 2021 will be a challenging year for arable farmers. Early sown cereals and mild autumns encourage aphid attack and yields can drop 30%<sup>2</sup> or more. Aphicides



have become less effective at controlling BYDV and neonicotinoid seed dressings are no longer available. In Tim's experience, spraying insecticides is a 'sticking plaster' approach destroying the natural 'predator-prey' balance. Farmers that rely on insecticides become locked into repeatedly spraying those fields.

*"Once the predators have gone then you have to keep using the insecticide because you have interfered with the balance of Nature. Having sprayed you will have to spray again in a few days. You've got to do nature's job then. Insecticides are like sticking plasters on the damage that people have done to the natural balance. We are treating the symptom rather than the cause. When you understand the cause, THEN you can step away from using insecticides. If [at Brewood], you go and walk through the fields, your feet will be covered in cobwebs because the whole field will be a mass of little tiny spiders which are eating the aphids. The whole field will be spiders webs over all the crop first thing in the morning with the dew on them. They're all doing the job for me."*

Tim stopped using insecticides in 2015 – a bad year for Barley Yellow Dwarf Virus. *"2015 was a pretty awful year for BYDV – but I wasn't any worse or any better than somebody who sprayed four or five times with an insecticide. If you use an insecticide for aphids you might take 50-60% of the aphids out – maybe 30 or 40% these days. I wasn't any worse or any better than somebody who sprayed four or five times with an insecticide. That's what gave me the encouragement to carry on."*

Additional BYDV control is based on understanding and managing nutritional balances in the plant.

*"You've got to understand WHY the aphids are attacking the wheat plant. So the only reason the aphids are attacking is that you've got an imbalance there. I do an awful lot of sap testing and tissue testing of plants to constantly monitor that plant to make sure it is balanced. The sap test, you're sort of getting the*



blood out of that plant, so you'll see what's actually happening in that plant. We can step in and monitor what's going on and make the changes [to nutrition]. Better nutrition results in healthy plants which can better defend themselves against attack. Foliar sprays can be seven to 15 times more efficient than applied fertiliser. And it's not leaching off and polluting all our waterways, and that's the massive difference."

*"I use a foliar product from Denmark which is 90% available to the plant. It is an amide nitrogen. just one step behind an amino acid. It doesn't take anywhere near the energy for the plant to convert it into an amino acid, so you don't need as much of it. With this approach, I can mix anything, so I can put zinc, copper, boron, molybdenum, cobalt, anything I want. We can do a mix to whatever that plant requires. We're still going for the high yields."*

The changes Tim has implemented have not only cut costs and improved soil and crop health dramatically - they have also been rewarded by wheat yields rising by one tonne/ha to average 10.5 t/ha in 2021.

### **Q: What have been the benefits of these approaches?**

#### **Business: "It's a stronger, more resilient business now."**

- Major cost savings of over £60,000/year (£200/ha and £81/acre) from managing nature to work cost-effectively for the business.
- Zero insecticide costs, fewer seed dressings to preserve soil health, reduced fertiliser, fungicides and herbicide costs.
- More cost-effective approaches to fertiliser through sap testing and highly efficient foliar feeds.
- Less reliance on pesticides that might be banned. Reduced risk of prosecution for pollution.
- Reduced wear and tear on machinery, lower depreciation costs, fewer machinery purchases so lower fixed costs. Savings of 5,000 litres of diesel year from reduced tillage.
- Significantly reduced carbon footprint: 9,327 tonnes sequestered in 2021. The farm has carbon to sell.
- Being and staying ahead of the game whilst the Basic Payment Scheme disappears. Lower financial risk as the farm system becomes more resilient.

#### **Soil restoration: "I've been successful at restoring my soils to where they should be."**

- Damaged soils restored from years of over-cultivation.
- Soil erosion and compaction both on the decline.
- Higher soil organic matter. Glomalin securing soil structure which allows better aeration, rapid infiltration rates and drainage.
- Minimising fungicides allows complex fungal networks to establish supporting plant health.
- Worm numbers up (20-25 per square foot) with worm channels improving soil aeration, infiltration rates and drainage.
- Improved root growth improving the cost-effective use of nutrients.
- Healthier soils assist rapid plant establishment reducing the impact of pests (such as cabbage stem flea beetle in oilseed rape).
- Active soil biology helps to break down glyphosate when use is unavoidable.

#### **Crop Management: "Healthier crops resist so much."**

- Slow release of Nitrogen – no sudden rush of N to upset the plant's natural balance.
- Regular sap testing ensures balanced nutrition to stimulate the plants' own natural immune system.
- Healthier plants resisting fungal attack.
- Evidence that beneficial insects are reducing pests (e.g. Carabid beetles eating slug eggs).
- Oilseed rape surviving Cabbage Stem Flea Beetle without seed treatment (unlike neighbours crops which have failed).
- Creating new crop protection solutions by working with a regenerative agronomist.

*"I have bird ringers they come in and they go out and catch the skylarks at night. They caught 170 yellowhammers and the previous year, 70 had only been caught for the whole of Staffordshire."*

*"The whole ecosystem is working, but because I'm not using the insecticides, there's more food on the farm, so you've got more moths and it's just because I'm not killing everything."*



**Biodiversity: “Wildlife is thriving because I’m just not killing everything anymore.”**

- Volunteers recording major increases in biodiversity (e.g. Rothamsted moth trapping and bird ringing).
- More birds with larger clutches surviving because of additional food because we are not killing everything.
- More moths and flies on the windscreen of vehicles on the farm than surrounding roads.

*“Last year, the bird boxes were about 90 percent full. The boxes were having eight to ten in the clutches and the only reason we’re rearing those big clutches is because we’ve got enough food here to sustain them.”*

**Personal: “Once and for all I’ve stepped off that hamster wheel. I’ve never met an unhappy regenerative farmer – you get that feel-good factor.”**

- Meeting new people. Working with inspiring people, leading thinkers from around the world.
- Learning from the experience of other farmers and scientists. A whole new community of visionary farmers.
- Sharing ideas, developing new thinking, being at the vanguard of progress.
- Being a part of a community of like-minded people brought together by moral purpose, of restoring the damage that people done to the planet.
- A strong feeling of moving forward, of being ahead of the field - of being on a journey.

- Constant challenge and a focus on problem solving.
- Sharing a passion with the land owner, building his confidence in the new system. After his death successfully passing on the challenge to the next generation of land owners.
- Thinking more about the whole system of land management. Focusing on system change rather than solving individual problems.
- Overcoming the fear and stigma of being a leader.
- Generating the ‘feel good factor’: happiness, satisfaction of having seen and overcome great challenges in the journey towards IPM and regenerative farming.
- Thanks and appreciation from other farmers: *“When someone rings you up and say that you said something, they went home and tried it and it worked! That is the biggest reward you can have.”*

*“We’ve got skylarks galore, we’ve got yellowhammers galore, we’ve got greenfinches everywhere, we’ve got linnets, and we’ve got barn owls on the farm.”*

**Q: Do you have any Top Tips for other Farmers who want to start IPM?**

**Be Proactive. Take back control of your land.**

- Don’t delegate all the thinking to your agronomist. Engage with your crops and become a farmer again.
- Find a supportive agronomist with the right skills and knowledge to support your journey into regenerative farming.

*“When you walk in the farm, and you’ve got skylarks jumping up, and they’re singing away, I challenge anybody not to have a smile on their face because the whole farm is alive.”*

**Don’t transition to IPM alone. Meet new people. Find new support mechanisms.**

- Talk to farmers who have made a success of this journey and have the knowledge to help you.
- Don’t be scared to ask. IPM farmers are happy to answer your questions and help you.
- Use websites and join in with the discussions.
- Join a farmer-led knowledge exchange network such as BASE UK. BASE is an organisation of like-minded people who are interested in regenerative agriculture and support people on their journey to regenerative farming.

[\(https://base-uk.co.uk/\)](https://base-uk.co.uk/)

Tim has found that:

*“BASE UK is very good at supporting people on this journey - the whole ethos of the organisation is to help each other. You can call on any member for advice. You’ll always find somebody that’s got the same problem as you. They’ll put you in touch with somebody to help you get over that problem. It’s a big support mechanism, basically, and it works.”*

**Change your thinking away from individual gross margins to wider thinking about the whole farm system.**

- See farming as more than a series of individual cropping decisions.
- Start small – but aim to change the whole system.
- Invest in long term benefits.

**Minimise the risks:**

- Prepare well, research before you start.
- Go gently to build your confidence. Cope with risk by being realistic.
- Watch your crops. Learn from mistakes and treat issues as learning opportunities.

**Keep the costs low:**

- You don’t need new machinery – second hand is fine.

**Get to know your soils. Get a spade – and use it!**

- Learn to judge a healthy soil. Measure and record worm counts, infiltration rates, soil colour and organic matter at the outset. Watch them all get better over time.
- Notice how your drains run – are they clear? Has soil compaction reduced? Structure improved?
- Invest in fungal network; get mycorrhiza working.
- Don’t just focus on the drill. The farm system is wider than just tillage. *“Too many people think it’s the drill, and they go out there and buy a drill and just carry on conventionally. That just doesn’t work. You’ve got to change the whole system.”*

**Don’t be frightened – jump!**

- Be proactive. Nobody’s going to do this for you. You have to get off your butt and do it yourself.
- Don’t let other people knock your confidence and put you off.
- This approach to farming works all over the world! If you don’t do it - it will always be nagging away at you.
- Finally, focus on what has worked well to keep you motivated.

*“The whole ecosystem is working, but because I’m not using the insecticides, there’s more food on the farm, so you’ve got more moths and it’s just because I’m not killing everything.”*

**Tim Parton recommends the following books.**

- **Growing a Revolution: Bringing Our Soils Back to Life; David Montgomery.**
- **Dirt to Soil; Gabe Brown.**
- **Ploughman’s Folly; Edward Faulkner.**
- **Healthy crops: A new Agricultural Revolution; Francis Chaboussou. Available online from the [Gaia Foundation](#)**

<sup>1</sup>For example, the Rothamsted Aphid Bulletin:  
<https://insectsurvey.com/aphid-bulletin>

<sup>2</sup>(PDF) *The Past, Present, and Future of Barley Yellow Dwarf Management*