

Reducing Inputs

Case Study: Balbirnie Home Farms



Using a whole-farm approach

"We're investing in regenerative agriculture and the integration of enterprises, including arable crops, livestock and forestry. I would like to see all farmers reducing tillage, reducing inputs, enhancing the environment and making a profit".

Background

[Balbirnie Home Farms](#) in Fife is becoming well known for leading from the front. Farmed by Johnnie Balfour in partnership with his father and a team of six farm staff - including Farms Manager David Aglen - Balbirnie is 1600Ha of mixed cereals and vegetables, beef cattle and forestry. Since 2020 it has been certified with [Pasture for Life](#) and is also AHDB's [Strategic Cereal Farm](#) in Scotland.

Balbirnie has worked hard to drastically reduce chemical inputs and rebuild soil health. As part of our Soil Association Scotland [Reducing Inputs](#) programme, around thirty farmers and agricultural professionals visited Balbirnie to explore what a whole-farm, integrated approach looks like, hear about Balbirnie's journey and how integrating livestock and arable enterprises has improved the whole system.

We also highlighted how practices such as reducing tillage, diversifying rotations and using cover crops have helped build soil fertility, boost biodiversity and increase farm resilience whilst reducing reliance on external inputs.

Feedback on the event was enthusiastic, summarized by soil expert, Dr Audrey Litterick of Earthcare Technical's reaction to the first soil pit: "WOW! This is as good as it gets!" Many worms of different species and sizes, which have benefitted from no-till and mob-grazed livestock, were evident. Sward species richness has also improved under this management approach.

We caught up with Johnnie and David after the event, to hear more about what led to the

changes that have taken place and their progress in reducing inputs...

Tell us about Balbirnie...

The land at Balbirnie has been farmed for centuries, and most of the same crops are still grown today using modern farming techniques in conjunction with a varied rotation. Each year we grow oats, barley, wheat, beans and carrots, and let land for potatoes. The 150-strong herd of cattle spend their summers on the pasture eating fresh grass and winters outside eating forage crops and silage.

Our traditional mixed farm continues to provide food for the cattle and natural fertilizer for the fields. As part of our holistic approach to environmental management, we have allowed our hedgerows to flourish and have maintained wildlife corridors between our woods. This management has offered protection to the crops from wind and allows us to maintain minimal use of insecticides and herbicides.

You will find our barley in your whisky and your beer, our oats in your porridge and cereal, our carrots on your plate and your Sunday roast could be some of our delicious beef.



How has the farm changed over the past 10 years?

The motivation for integrating the arable and livestock systems was to reduce costs. It is more efficient to grow the food for the cattle and move the cattle there than to grow, harvest and store the food and take the manure to the field. We certified with [Pasture For Life](#) in 2020 for all of our beef cattle – a natural extension of the reduced cost approach. We have changed our **grazing system** to grow more grass with fewer inputs by allowing rest periods during the season for the grass to recover. This means that the mobs of cattle only graze small paddocks for a short time (less than three days) before moving on.

We've **reduced tillage** by adopting direct drilling system for arable crops. By integrating (3rd party) sheep into arable crops we have also reduced fungicides; and hope to reduce fertilizers further as well. Getting cattle and sheep onto cover crops helps with fertility and increases resilience in the rotation – which has also become more diverse.

Before we made these changes, our carbon audit showed that 60% of our 'net' footprint was down to nitrogen. We are trying to reduce that by integrating the livestock. We have also vastly reduced our diesel consumption, which previously accounted for 30% of the carbon footprint, by direct drilling and not harvesting and storing grain to feed cattle.

"Our key goals for farming are to grow more food with more people and to manage for abundance in nature".

What measures have you taken to improve biodiversity?

We've planted hedges and have woods across the whole landscape. We want to bring nature to the middle of the fields and not leave it for hedges and edges. We are trying to be more productive on more of the land; and embrace the diversity of the margins while



managing them with livestock. Winter cover crops have also been great for providing shelter for wildlife, as well as benefitting the soil.

What are the main challenges in your system?

The biggest challenge is mindset. We have worked very hard for a number of years to challenge the thinking that we were brought up with.

Rotations are a challenge with some crops not growing as well here as they do in England for instance with the lower temperatures but there are always opportunities to find something that will do the job that we need.

What have been the main benefits that you've seen?

We have seen reduced costs and increased margin. Five years ago we were running six tractors. Now we run three, doing half the work they used to. Some of that reduction has been through the integration of stock – we no longer have to spread muck or move feed around the farm. The other major benefit has been improved soil structure, and reduced soil erosion. We've also massively reduced the need for fungicides – having the stock in the rotation has helped reduce disease pressure and given us healthier soil.

What plans do you have for the future?

To continue expanding the variety of crops grown and drive our system to produce more.

What advice would you give to other land managers?

Experiment with reducing some of the costs on a small part of the farm; and speak to your peers. Knowledge exchange is really important. And get to know your soil – get the spade out, dig some holes, and use your sense of touch and smell.

"The next big challenge going forward will be exploring how to do no-till in an organic system".

