FARMING FUTURES
PROFITABLE BUSINESS IN A CHANGING CLIMATE

CASE STUDY 30

FOCUS ON SOIL MANAGEMENT

JAMES BARBOUR

Following the ban on straw burning in the early 1990s, Norfolk-based James Barbour was forced to transform the way he farms his soil. Using a unique wide-span system combined with controlled traffic farming technology, James is able to reduce the levels of compaction of his heavy clay soils but also save fuel and labour costs – just 1.2 hours of labour input is required per hectare of crop over a growing season. In this case study, James talks of the benefits achieved by his distinctive self-engineered farming solutions...

THE DETAIL

- **230 ha** Norfolk farm, **130 ha** of wheat
- Imported a **5.8m** wide-span Field Power Unit in **1996**
- Whole farm direct drilled since **2004**
- **1.2 hours** of labour input per hectare of crop over a growing season

What is your background in farming?

I farm 130ha of continuous wheat in Bedfordshire, with a livery and other diversification activities taking up another 100ha. I have been on the family farms since I left school in the mid-sixties.

What prompted you to change your farming approach?

Ever since straw burning was banned in the early 1990s, we found that a low input system could no longer produce reliable yields. The high levels of compaction associated with a disc-based direct drilling approach prompted us to investigate other technologies. In 1996 we imported a second-hand, Israeli-designed 'Field Power Unit' (FPU), with a track width of 5.8m and a ground clearance of 1.8m. Following an extensive refurbishment, this vehicle was our first attempt at wide-span farming.

Since that initial investment and after a bit of research, we built our own simple tine drill from a John Deere cultivator, to be used as an attachment to the FPU. In 2004, for the first time, the whole farm was direct drilled using this setup. The FPU is used for all field activities except for the annual harvest.

There was an obvious need to combine accuracy and efficiency with our investment in the FPU, so we installed a controlled traffic system (CTF) to benefit from reduced time in the field and decreased cost of fuel and labour.

How difficult was it to implement the new system?

It was tricky – there were no suitable wide-span vehicles off the shelf in the mid-nineties, and there still aren't any today. All of the attachments have to be extensively modified by us before they can be used, but the investment has been well worth it.

Blackgrass and sterile brome remain a challenge. Within the constraints of our rotation, delayed drilling and a rigorous spray programme remain the most effective weed management tools.

How have the original compaction issues been reduced?

The CTF system already provides greater wheel accuracy when operating in the fields. That, together with the wide FPU, considerably reduces compaction. Every fifth pair of wheelways is left unsown to allow chemical application around tramlines centred at 29m. The other four pairs of tramlines normally receive only one pass each year, but they are also used if a stale or false seedbed for weeds is needed in the autumn.

What are the benefits of the system you have put in place?

Reduced hours spent in the field has freed up time for other activities about the farm. For crop establishment, fertilizer application and crop protection we require just 1.2 hours of labour input per hectare of crop; for drilling alone, we can achieve 0.25 hours per hectare. Crop yields have gradually increased despite a change to lower yielding milling wheat.

Have you any plans to further improve your operations?

Compaction during harvesting remains a problem, even in dry conditions. We use a New Holland TX63 6m cut machine on Goodyear 42-25 Terra tyres, with grain trailers confined to the headlands. We did think about mounting the harvester onto the FPU, but its cost and complexity was not a feasible investment for the acreage we farm.

When do you expect to renew your equipment?

The FPU will be maintained forever! With no obvious replacement model, we will look after it and adapt it for our needs. The CTF equipment is continuously improved over time – we installed a new computer system only this year. In the future hope to make the system satellite guided.

What advice can you give to farmers considering a similar transition?

Creating the permanent wheelways immediately after ploughing was not ideal – in hindsight, a shallow tillage system operated with low ground pressure equipment might have been a better means of transition (although more expensive).

For advice and information on how to apply this approach to your own farm, take a look at FACTSHEET 20 – SOIL MANAGEMENT

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