> *“Any change we make is properly costed.”*

Clarity comes from the costingss

Technical Partners in performance

A focus on cost of production helps Lincs grower Andrew Ward make informed business choices. *CPM* visits to find out how a partnership approach to on-farm trials feeds into this process.

By Tom Allen-Stevens

Inspecting one of Andrew Ward’s fields of wheat, it’s difficult to pick holes in it. The crop is fairly free of disease, even in growth with no visible signs of blackgrass. But this particular field has been one of the costliest to grow this year.

“It’s part of 211ha we originally cropped with oilseed rape, but 87ha, including this field, failed to establish well. So we took the decision to abandon the crop and redrill with Shabras winter wheat towards the end of Oct,” he explains.

“We’d already spent £237/ha growing the OSR crop, so it was a hard decision to make. But I sold the wheat forward so already know what it will return, depending on final yield. Despite the extra costs, the wheat will still bring more than I would have received from a poor OSR crop.”

Andrew’s not shy of making decisions that involve fairly major changes to the farming system at Roy Ward Farms, near Sleaford, Lincs. Farming 650ha that vary from heavy clay to lighter heathland soils, the rotation has switched in recent years from mainly winter crops to one where spring crops now dominate (see table on p58).

Zero-tolerance policy

“Every decision we take on the farm revolves around blackgrass — there’s a zero-tolerance policy. But we have to ensure farming retains it profitability. So any change we make is properly costed — it’s essential to have a clear idea of exactly what your costs are so you can gauge the overall effect of a management change on the entire business.”

His interest in costings started in the mid 1990s. “We had a steel-tracked crawler and wanted to change it to a rubber-tracked Challenger. Bill Basford from ADAS encouraged us to look at every aspect of operating a machine over a period and cost it up, including fuel that we’d never attributed before. A lot of what he said made perfect sense.”

The figures revealed the new rubber-tracked machine was going to cost slightly more to operate than the old steel-tracked crawler (see table on p58). “The capital cost was considerably more, but the difference in its speed and sophistication was huge — it was capable of doing a lot more, and this was reflected in the hourly costs. We looked at swapping one of the other tractors as well and realised we could actually replace three machines, including the crawler, with one,” recalls Andrew.

The exercise focused his mind on recording costs for every operation and allocating these, so that he could work out exactly how much every operation costs. This came in useful a few years later when the farm switched out of ploughing into min

Every cost, including spares and repairs, fuel oil and labour, is broken down and allocated to each enterprise.

till. "I was offered the use of a Simba Solo over the autumn, and if I liked it, we'd buy it, but if it didn't work out Simba said they'd take it back. It gave us the opportunity to properly cost up the operations and compare them." (see table on p58).

Today, every tractor carries a diary and a log is kept of every operation, with fuel and time for each operation also recorded. "We keep a close track on spares and other workshop expenses and attribute these as well," notes Andrew.

"It's a discipline everyone on the farm has to follow, but the information we get is well worth the hassle and there are spin-off benefits — Ian Stubbs, our main arable operator, aims to beat his own figures and often comes up with innovative ways of shaving a bit off costs."

More recently, the focus has been on cost of production. A determination to get to grips with blackgrass has driven the cultivation policy and changes in the rotation. This has seen the spring cropped area increase and now dominate the cropping.

"There is a view that spring crops aren't suited to heavy land, but we've shown they are. The key is to prepare all land in the summer to early autumn. So we don't start to drill OSR until all the winter wheat and ▸

Partnership approach to profitable progress

Andrew Ward (left) is looking for an idea of how different cropping options perform from the trials established by Steve Corbett.

You'd rarely turn up at Glebe Farm, where Roy Ward Farms is based, and find it wasn't a hive of interesting activity. A wander into one of the fields of spring barley reveals trial plots of novel spring crops are being established. As an Agrii iFarm, Andrew Ward is hosting an open day this summer, and these alternative crops will be one of its highlights. Agrii's Steve Corbett can be found netting up the plots to protect them from pigeon damage.

"Haricot beans, or navy beans, similar to the baked beans consumed widely, are one of the crops we're looking at, as part of a project led by Warwick University," he says.

"We're also looking at two varieties of chick peas, that make hummus, one of soya, and a spring oat variety that makes a health food drink. We're keen to identify crops that can be grown profitably in the UK with specific end markets, rather like the contract Agrii has with Budweiser for Explorer spring barley.

"From an agronomic point of view, we're looking for spring-sown crops with potential to replace an OSR crop in the rotation, so a late-drilled, 90-day crop, preferably with white straw, is ideal. We're also looking at barley and rye taken as forage for anaerobic digesters."

Andrew's keen to understand more about novel crops. "The benefit we get from these trials is an idea of how the crops perform under our field conditions, and crucially we'll get some clear figures on costs. Within two years, I'd like to look at introducing a larger area of a crop that's looks to be a winner," he says.

But for now, it's the spring barley Andrew's come to assess, and he's joined by Bayer commercial technical manager for Lincs, Matt Garnett. The crop of KWS Irina has received its T1 application — 0.5 l/ha of Siltra (bixafen+ prothioconazole) — and the pair discuss plans for the T2. With barely a sign of disease, and a crop that covers the ground well, inevitably the conversation comes round to cost.

"We suffered a high cost of production last year, at £129/t, due to late April drilling because of the wet weather and the later drought knocking back yields," reveals Andrew. "Normally I'd expect cost of production to be around £100/t. But that's from a yield of 9t/ha, and you have to spend on a crop to achieve that — we can't risk potential being compromised by late season disease, for example. So the £5.43/t total fungicide cost is one I'm loathe to cut back on."

As one of Bayer's Judge For Yourself farmers, Andrew regularly compares the company's products in tramline trials to ensure he gets value for money. It's a level of scrutiny Matt welcomes. "It's very valuable for us to work with farmers like Andrew so we can be sure our products are delivering on farm what we say they will. The fact that Andrew has such a clear idea of costs gives us confidence in his findings, and informs how we can help other growers get better value from their crops."

Keen to put cover crops and direct drilling to the test, Andrew converted a heavy clay field into the system five years ago and has generally used a John Deere 750A drill to establish the crop. This year, a crop of LG Diablo follows the cover crops, but it doesn't look as good as the Irina next door, that was established with a Simba Freeflow drill, into land cultivated in the autumn.

"It might work on our lighter heathland soils, but not as well on heavy clay — the slots don't close up properly and that's compromised establishment," observes Andrew. "That'll reduce yield by around 0.5t/ha, which could add £5/t to our cost of production, knocking back any establishment savings. But my main worry is blackgrass control — this crop is very open, and if we haven't got the ground cover then the crop's not doing its primary job."

But it's not all about costs, notes Andrew. "Judge For Yourself involves around 40 farmers, and what I really enjoy are the get-togethers where we share experiences, together with experts laid on by Bayer. I'm keeping an open mind on what the next cropping solution will be, and it's through working with partners and other growers that I believe the answers will come. I'm not afraid to make a mistake — that's how you learn — but it's important not to make the same mistake twice."

- The open day at Glebe Farm takes place on Friday 14 June.

With blackgrass control its primary job, the KWS Irina (left) has covered the ground far better than the direct-drilled LG Diablo.

Working with farmers like Andrew informs Matt Garnett how he can help other growers get better value from their crops.

Cropping changes (ha) at Roy Ward Farms

Crop	2012/13	2018/19
Winter wheat	326	160
Spring wheat	0	47
Spring barley	23	118
HOLL oilseed rape	226	124
Failed OSR (now w wheat)	-	87
Sugar beet	60	51
Haylage grass	0	15
Stewardship areas	25	34

▸ 75-80% of spring-cropping land is ready for drilling. If you leave cultivations in your spring-sown area until after the autumn crops are drilled up, it's too late and the land will be too wet," he says.

So how has the move to spring cropping helped his cost of production? "It's easy to spend as much as £220/ha on herbicides in winter wheat – this simply isn't sustainable. We've managed to achieve a decent yield in spring cereals that, along with the lower herbicide bill, has reduced our unit cost of production."

Andrew believes that if he was still following the same cropping regime today he had before the change, his cost of production for winter wheat would probably exceed the price he could get for the crop (see table bottom left). This is mainly due to the yield penalty from the blackgrass burden, as well as higher herbicide costs.

"The spring barley cost of production is actually £10/t higher than wheat, but the wheat crop doesn't contribute as much to blackgrass control compared with spring barley which usually turns in a comparable profit. The biggest difference has been in not allowing any blackgrass to go to seed."

With a high level of resistance to post-emergence chemistry Andrew has reduced his use of herbicide and has sprayed out with glyphosate in the spring those patches that haven't been controlled with autumn herbicide. Any remaining blackgrass is hand-rogued by a team who make up to three passes through the crop in June. "We spend as much on hand-rogueing as we used to spend on Atlantis. Now that bill is coming down from £56/ha on average in 2016 to just £21/ha last year as there's progressively less to remove, and we haven't had the need to spray out any patches for two years."

Now it's oilseed rape that's under scrutiny.

The actual cost of gearing up

	TM 155 Crawler	Cat Challenger 45
Net capital cost	£31,500	£88,000
Years kept	7	6.5
Depreciation	£3071.43	£6800.00
Finance charges	£783.86	£0.00
Interest on capital	£1890.00	£3080.00
Spares + repairs	£3214.46	£1760.00
Tax + insurance	£204.00	£249.00
Total annual cost	£9163.75	£11,889.00
Hours used	500	660
Fixed cost (/hr)	£18.33	£18.01
Fuel + oil (/hr)	£2.10	£6.05
Labour (/hr)	£6.00	£8.00
Total cost (/hr)	£26.43	£32.06

Source: Roy Ward Farms actual costs, 1996; All costs are annual, apart from capital cost and where indicated.

Profitability of wheat vs spring barley 2015 (£/ha)

Cost	Spring barley	Winter wheat	W wheat (avg UK)
Chemical	166	217	286
Fertiliser	86	136	210
Seed	89	71	94
Fixed costs			
Establishment	93	93	156
Crop treatment	29	43	34
Harvest & haulage	90	90	90
Overheads	456	456	456
Total cost	**1009**	**1106**	**1326**
Crop yield (t)	9.7	11.8	9.0
Cost of production (£/t)	**104.02**	**93.73**	**147.33**

Source: Roy Ward Farms actual costs, 2015, for spring barley and winter wheat; w wheat (avg UK) based on John Nix Farm Management Pocket Book (45th edition) with 2015 Defra average UK yield.

The move to min till

Operation	£/ha
Plough system on heavy land, 2nd wheat	
Ploughing	25.00
2x Cultipress	25.00
Drilling	14.20
Total	64.20
Discing/subsoil on 1st wheat after OSR	
Disc and press	20.52
Subsoil	24.73
Disc and press again	22.00
drill	14.20
Total	81.45
Simba system	
Simba Solo	34.00
Drill	17.00
Total	51.00

Source: Roy Ward Farms actual costs, 1996 for plough/disc-based systems, 2003 for Simba system.

Partners in performance

Partners in Performance is the result of a long-standing collaboration between Bayer and a group of progressive growers.

It started in 2011 with the launch of Aviator Xpro when growers were invited to trial Aviator on their farm. In these split-field trials Bayer took a back seat with the only demands being the field area for fungicide comparison and crop yield verified over a weighbridge or via combine yield monitor — everything else was down to the farmer.

Over time this has developed into a club. Each year the farmers meet to discuss results, listen to guest speakers and debate winter wheat management issues.

Farming has always been a challenging business, and with Brexit those challenges have intensified. The margin between profit and breaking even is likely to become even tighter and any incremental gain will be needed for sustainable combinable crop production.

To achieve that the industry needs to work together to share the latest research and thinking, exchange ideas and experiences.

Partners in Performance aims to bring farmers and specialists together to develop solutions to improve crop performance and investment return.

Blackgrass, now a rare sight at Glebe Farm, can be found in a patch of the wheat that received no pre-emergence herbicide, and will be hand-rogued.

"Our cost of production has varied between £236 and £252/t since 2015, although I should think it will be considerably higher this year as a result of the failed crops. It's also the one crop where I believe we get blackgrass seed return, although you can't see it through the canopy.

"We've kept with OSR because it's been profitable, but yields have been dropping and with this year's CSFBs larvae problems, we've decided to reduce our area for 2019 plantings by around 75%."

The aim is to grow OSR only one year in five or six and to get there, he plans to stop growing it for three years where the rotation is currently two spring barleys followed by OSR. "In its place, we'll be growing spring oats and winter beans but we must be confident it would give us an improved profitability. The key to determining that will be to try some options, get a system that works in our field conditions, and use our knowledge of costings to refine it to ensure we end up with a more profitable rotation." ■