

Benefits accrue when doing it right

“This way of farming just feels right.”

Technical Spring beans

Spring beans are an integral part of a plan to improve the soils through the use of cover crops and reducing cultivations on the Revesby Estate in Lincs. *CPM* visits to find out how it's progressing.

By Tom Allen-Stevens

Peter Cartwright takes the spit of soil he's just dug up into his hands, holds it to his face and breathes in, as if he's just cupped a handful of freshly roasted coffee beans. "You can smell the goodness in this soil," he says.

There's no textbook definition of the correct smell of a soil, but this relatively light silty sand just smells right. It's a welcoming, fresh, clean aroma — as the crumbs of soil drop to the ground, you get the feeling the newly exposed worm and uncovered roots this clod harbours couldn't help but want to explore it.

The crop we're in is a cover crop of oats and phacelia. The field's destined for spring beans and is part of a soils "journey" Peter's taking with the 1260ha

Revesby Estate Farm, based near Boston, Lincs. "A quarter of the farm is now in spring crops, and we have 174ha of catch and cover crops. We're reducing the depth we cultivate and some of the land is direct drilled — we've just moved into controlled traffic farming."

Remarkable aspect

Perhaps the most remarkable aspect, however, is that where all this comes together, he's achieving a spring bean yield above 6t/ha, with lower costs and a gross margin to rival a winter wheat. What's more, he hasn't even had to apply a pre-emergence herbicide, and that's on a farm that's battling blackgrass.

As farm manager for the Wiggins-Davies family, Peter and his team is responsible for cropping the half of the Revesby Estate that's farmed in hand. With soil that varies from "kind" silty sand through to "sticky and claggy" slow-draining silty clay, there's plenty of blackgrass to contend with. So he's opened up the rotation, pushing oilseed rape into one year in four, and has put an emphasis on spring cropping.

"The worst of the blackgrass fields get three years of spring crops — two spring cereals and a break crop — before coming back into winter wheat. Sugar beet

makes up less than 10% of the cropping and you need a fair amount of patience with some of our soil — it sticks and smears and then dries like concrete."

With the emphasis on spring cropping, an over-wintered cover crop has been an integral part of the rotation for the past five years. A pulse crop has also been a feature, although this used to be vining peas.

"Our first cover crop was in front of

Spring beans: how the finances stack up

	(/ha)
Cover crop	£17.26
Vertigo seed beans	£82.54
Fertiliser (0-24-24; Kieserite)	£53.23
Fungicides	£24.62
Herbicides	£9.61
Insecticides	£10.40
Trace elements	£7.23
Variable costs	£204.89
Yield (t/ha)	6.63
Price (/t)	£181.50
Output	£1203.35
Gross margin	£998.46

Source: Revesby Estate Farm, 2017 harvest



This year, phacelia has been added to home-saved oats in a bid to create a fibrous root system and a friable topsoil to close the slot when drilling beans.

vinning peas. We put in Sept-drilled oats, but the vining group was worried there'd be an allelopathic effect that would hold back the peas. So we mulched the cover and ploughed it in before the cash crop was established. Then we tried an on-farm trial, comparing peas in front of cover crops and without, and that's when I had my light-bulb moment."

In front of the cover crops, the peas were thicker and healthier. "I figured it was the phosphate — there's plenty in the soil, but it's locked up by calcium. The oats scavenge the P then release it to the following crop."

The quandary came with crop destruction. "We started grazing the cover, but the risk of salmonella in vining peas meant we'd have to plough the land in front of the crop, killing the soil structure. Vining peas were no longer working for us, so we switched into spring beans," recalls Peter.

Establishment remains a problem, however. "If you try to force the seedbed for a spring bean, you'll ruin the yield. The difficulty we've had is that the drill slot remains open on some of our heavier soils — the soil needs to be friable enough at drilling to close the slot."



Passed twice over a relatively low heat, the Bruchid-free crop achieved a human consumption premium.

It's been a tricky balancing act across his range of soil types — in 2016, for example, a single pass with the Horsch Terrano, set at just 50-75mm depth in front of the cover crop, caused some soils to slump, resulting in little overwinter cover and a poor seedbed for the bean crop. "This year, we're not inverting the soil, using a Flatlift, and the heaviest fields have gone into winter beans."

He's also been experimenting with when to destroy the cover crop. "The main purpose of the crop is to improve soil structure. It's not there for blackgrass control, but you have to be careful you don't wake up the weeds when you establish the beans. The oats have a smothering effect."

Following the recent purchase of a 10m Horsch Sprinter drill, he uses the 25mm Dutch openers to establish the beans, although, as a trial next season he will try



You can smell the goodness in the soils of the Revesby Estate.

establishing with the 125mm open-backed Dutch coulter to get slightly more soil movement to prevent slotting, running at 90mm depth and slow speed to prevent excessive soil disturbance.

This year, he also tried drilling direct ▶

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Spring beans



He uses the 25mm Dutch openers to establish the beans.

► into the cover. “Some of the cover was sprayed off just two days before drilling, but I also took it one step further, leaving half of one field and spraying it off with glyphosate two and a half weeks after drilling — this took some nerve!”

But there was no scorch of the bean crop, nor were they held back. “The bean is such a large seed, it’s not affected by any competition from the oats. But any weeds are — we didn’t need a single herbicide. The crop grew better, too — it seemed to draw the beans out of the ground, which meant it stood better, with pods that were well clear of the soil surface.”

As the season progressed, the benefits from where the cover had been left accrued. “We had to cultivate land where the cover failed, and here the soil was cloddy and dried out, knocking back the bean crop. Also, we saved on pre-harvest desiccant — we only tend to use this where we’re looking for a clean stubble, but where the cover had been left, it was weed-free anyway.”

The biggest benefit came when the combine went through. “The field where the cover crop had been left yielded 6.63t/ha (adjusted to 15% moisture). We had quite a range, though, down to our

Opportunities available for the premium grower

A harvest of variable quality for peas and beans has presented both challenges and opportunities for growers and the trade alike, according to Franek Smith, president of the British Edible Pulse Association (BEPA).

“Opportunity is the key word,” he says. “Growers with premium quality crops are being rewarded with price premiums that have increased significantly this year.”

Yields in 2017 are generally better but quality has suffered, he reports. Beans in the south of the country were severely affected by Bruchid beetle, and crops in the north suffered more from staining after a wetter harvest. “Exports are down because of a lack of availability for human consumption. There’s a premium of upwards of £30/t.”

Peas from across the country were affected by bleaching, again due to the catchy harvest weather. “Those who achieved crops suitable for human consumption are seeing a £50-60/t premium, so there really is the potential for added value in that sector,” notes Franek.

Steady global growth in the market of around 3% per year is keeping demand strong, he says. Winter bean plantings are expected to be up this year, with the result that spring bean plantings may dip. Large blue peas may present an opportunity for growers, with contracts available.

“Current exchange rates make the UK pulse crop competitive, and the UK faces fewer logistical issues than other exporting nations, while our levels of traceability and assurance are very attractive in certain markets, such as snack foods.”

The new PGRO Recommended List sees a subtle shuffle of varieties, with agronomic characteristics recognised as much as yield performance, notes PGRO’s Steve Belcher.

“Downy mildew is important as options for control are increasingly limited. But we’re in a good period for varieties, with some solid choices available for growers.”

New to the spring bean RL with a P1 recommendation is Mallory from LS Plant Breeding. Yields are just 2% below the best and it has good rating (7) for downy mildew resistance.

LG Cartouche progresses from P1 to P2 recommendation and ups its downy mildew rating from 4 to 5. Lynx gains a full recommendation for 2017 and tops the yield rankings at 104% of controls, while maintaining a good (7) rating for downy mildew resistance.

“Vertigo has dropped a little bit, and Fanfare has improved, while Fuego is looking a little tired,” comments Steve.

New variety Vespa from Senova joins the winter bean RL with a P1 recommendation. Yields at 102% are 3% lower than top yielding Tundra and Bumble gains a full recommendation for 2017. “With the removal of Arthur from the outclassed category, all winter beans are now pale hilum types,” notes Steve.

A busy combining pea RL sees Manager, a new white-seeded pea from KWS, join with a P1 recommendation as the top yielding variety with a yield of 108% of controls.

Three new large blues join the RL: Karioka (Senova), Bluetime (LSPB) and Blueman (LSPB) with yields of 107%, 106% and 102% respectively. “Blueman stands out with a 9 for downy mildew — you just can’t ignore that.”

The trusted PGRO Pulse Agronomy Guide is now available in the palm of your hand through the new PGRO Pea & Bean app. This will provide up to date technical backup as well as the RL variety guides and a new interactive pest and disease reporting tool via smartphone or tablet.

The most innovative feature is the ability to generate your own crop reports. Accessed via the Pests, Diseases and Deficiencies section, growers and agronomists can take images and write a short report, sending them from the app by email to others.



Source: PGRO Recommended Lists 2018

The report will automatically be sent to the PGRO Plant Clinic where a request for advice can be lodged. Anonymised, the incidence/report will appear marked on a map of the UK on the PGRO web site enabling others to be aware of crop developments around the country.

The app is available for both Android and iOS smartphones — search for PGRO.

worst field — a heavy one where the soil slumped — at just 3t/ha.”

The plan is to cut the Terrano out altogether — already 3% of the farm is

Farm facts

Revesby Estate Farm, Boston, Lincs

- **Farmed area:** 1258ha
- **Cropping:** 455ha winter wheat; 271ha winter oilseed rape; 96ha sugar beet; 88ha spring oats; 60ha spring beans; 58ha spring barley; 9ha winter beans; 8ha spring wheat; 174ha cover/catch crops; 124ha grass; 89ha environment areas
- **Soils:** From sand to silt to silty clay plus chalky Wold
- **Mainline tractors:** Claas Xerion 5000; Massey Ferguson 7624; New Holland T7; Fendt 724
- **Combines:** Claas Lexion 760 with 9.1m header (moving to 10.6m)
- **Sprayer:** Horsch GT trailed with 30m boom and 5000-litre tank
- **Drill:** 10m Horsch Sprinter SW
- **Cultivation:** 4.5m Horsch Terrano
- **Drier:** Perry 50t/hr (100t/hr max)
- **Staff:** Three full-time plus Peter.

direct drilled, and Peter plans to increase this. He's also introduced phacelia into the cover crop. “This is mainly to increase the friability of the soil — phacelia has a very fibrous root. It also means we can claim the cover crop as part of our ecological focus area.”

EFA inconvenience

He admits the loss of EFA on pulses is an inconvenience. “The paperwork was so simple when we claimed the bean area. You have to look after the crop, so not spraying for bruchid beetle or chocolate spot just to claim the EFA isn't an option. I think the move is a positive step, though, because those who were only growing beans for the EFA, and making a poor job of it, won't bother.”

All of his beans went for human consumption, however. “They're worth looking after. I don't worry too much about harvest, waiting for the moisture to drop below 16%. Then we run them through the drier on a relatively low heat, fairly fast. They go through twice if they have to before being transferred to an on-floor store with no ambient light so they don't discolour.”

Peter freely admits there are plenty of



Half of one field (on right) was sprayed off with glyphosate two and a half weeks after drilling which suppressed weeds and promoted crop growth.

fields that didn't work as well. “Our heavier soils in particular remain a challenge, but I do think overall the soil health is improving, and that's having knock-on benefits.”

No foliar insecticides were used on the wheat, for example. And just one hit of glyphosate on his spring beans, without any other herbicide, is an achievement in itself. “Is this because our soil health is improving? Are we growing crops that are more resilient to pests and diseases as a result? I can't answer that. But this way of farming just feels right,” he says. ■

Batsman

Spring Linseed

- ⊕ Early maturing
- ⊕ Very high yielding
- ⊕ Stiff strawed
- ⊕ Tried and tested
- ⊕ Ideal break crop

