

Make SFI work for your farm

The latest iteration of the Sustainable Farming Incentive (SFI) includes some attractive payment options, but farmers must look beyond headline-grabbing figures and do what's best for their farm, according to speakers at this year's Environmental Trial Site demonstration.



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The event, hosted by P F England & Son near Warboys in Cambridgeshire, took the theme of “right option, right place” to highlight the importance of targeting SFI options to individual farm and field situations, rather than just looking at it as a way to bridge the loss of BPS income.

With more than 100 options available under the expanded SFI 2024, and some offering annual payments of over £800/ha, the potential income on offer can be very tempting, but growers were urged not to be hasty and to plan schemes wisely.

Caution needed

One of the highest payments on offer is for the winter bird food on arable land (CAHL2), for example, worth

£853/ha per year for three years. “It is one of the best-paying options, but you need to be really careful when deciding whether it will work on your farm,” said environmental services specialist, Hannah Joy.

The option can be very effective on field margins, awkward corners, or as a spring-sown option on areas where crops have failed, but caution was needed when considering it on a field scale, particularly on more weedy sites, she said.

“Once you’ve drilled the mix, there’s little or nothing you can do in terms of weed control, so you need to be really careful it doesn’t create a mess that needs tidying up before that land can go back into crop production. Recognise the risks and do what you can to manage them.”

The same applies to other options, such as the legume fallow (CNUM3), which despite being badged by Defra as a way of helping to control grassweeds, is likely to do very little in that respect, and could even exacerbate problems if not used appropriately, technical manager, Dick Neale continued.

“A lot of growers looked at the one-year fallow [in SFI 2023] as an alternative break to oilseed rape, but again, you need to recognise that once a legume mix is drilled, you’re locking yourself out of using any grassweed chemistry. The guidance suggests mowing can help control black-grass, but in reality, we often find it just sets heads a lot lower down, so still returns seed.”



➤ Mr Neale insists legume fallows can deliver many benefits to the soil and biodiversity, but the risks must be considered, and options targeted to individual situations.

“Think about risks like the weed burden on particular sites, but also consider what the soil needs, and practical things like how your cultivation and drilling process will cope with the conditions left once the cover is finished and the field goes back into a cash crop.”

Some covers, especially those in the ground over multiple seasons, can leave a dense mat of roots near the surface, that drills - tine or disc - can sometimes struggle to properly place seed into and achieve good seed-to-soil contact, he said.

“It may be that you need some sort of shallow surface cultivation first, just to give the drill a better chance of getting the seed in and covering it over.”

Select mixes carefully

Agronomist and regional technical support manager, Alice Cannon, reiterated the importance of selecting cover crops carefully and choosing multi-species mixes that would best address specific needs. The management and termination of covers was also an important consideration when deciding what to grow, she said.

“White mustard, for example, is cheap, and can do a great job for soil structure given its deep tap root. But it does have a high carbon:nitrogen ratio, which means that if it's not managed correctly, there can sometimes be a yield loss in the following spring cereal as so much nitrogen is used by the soil biology to breakdown all that carbon.

“Every species has its pros and cons, so you need to understand those fully to deliver the benefits you want, both above and below ground. If you're going to do it, do it properly.”

Super-charged soil biology risk

Trials at the Warboys site have highlighted one potential risk that should be considered when planning to grow a multi-year stewardship mix containing a high proportion of legumes.

The work found that the sudden release of natural nitrogen that built up in the root nodules over the

*Benefits and risks must be considered and options targeted to individual situations, says **Dick Neale***



course of a four-year AB15 grass-free legume fallow (containing vetch, clover, sainfoin, lucerne and others) acted as a “super food” for soil biology, prompting a spike in the consumption of organic matter, that in turn, caused soil aggregates to collapse.

“Soil aggregates form around organic matter, so when that is consumed, the structure collapses, causing the soil to become tight,” Mr Neale explained. “The soil's not compacted, and is still in good condition, full of roots, with decent infiltration, but it does need to be managed carefully to open that structure back up.”

At Warboys, that has been done with the application of gypsum to the heavy, high magnesium clay soil. “High mag soils are prone to becoming tight, but the issue we've seen with nitrogen release and

organic matter consumption, seems to affect all soil types.”

Interestingly, Mr Neale noted no such structural issue was observed after the four-year AB15 mix containing grass, as the grass utilised nitrogen throughout the cover period, meaning no sudden spike in availability when it ended.

“You wouldn't want to introduce something like ryegrass into an arable rotation, but, as many growers are utilizing CNUM3 legume fallow on a one year basis, it may be that including wheat, barley, or triticale, within a legume fallow mix could help utilise nitrogen better and maintain good soil structure.”

If you need advice on SFI planning, contact our environmental team: enviro@hlhlt.co.uk

Take a Gold approach to soil management

The 2023/24 season could have a lasting legacy on many soils, so accurately identifying and understanding any issues is vital to rectify them promptly. TerraMap Gold offers a valuable tool to facilitate this.



From surface capping and slumping, to deep compaction or gullyng caused by runoff, few soils completely escaped the ravages of an exceptionally wet season. There is also the impact prolonged waterlogging can have on the complex biological and chemical properties to consider, as it can affect nutrient availability and subsequent crop growth.

Some issues may have been relatively straightforward to identify and resolve this autumn, while others could take several seasons to fully overcome.

The key, says Soils Services Specialist, Nick Chichester-Miles, is to take time to accurately identify the problems, where they are, and then plan the best remedial action.

"Any changes or soil management decisions have to be an educated decision using the right actions to solve particular problems."

Standing water on fields, for example, could be due to various reasons, such as surface capping preventing water infiltration, deep compaction, blocked field drains, an imbalance in chemistry creating a 'tight' structure,

or maybe even a high water table that surfaces on lower-lying parts of the field, he notes.

Going straight in with a subsoiler at a certain depth may work in certain situations, but unless it is addressing the underlying cause, it could risk making problems worse, rather than better, he warns.

"Traditionally, the focus has often been on getting water away from fields quickly, but while drainage is important, we also need to consider how soils hold and utilise water better."

Delving into detail

Autumn is an ideal time to get into fields with a spade to visually assess soils with a simple VESS test, Mr Chichester-Miles says. **"Start with known problem areas first and record what you see, taking photos, making notes and recording locations."**

Sometimes, it can be relatively easy to identify physical problems that need rectifying, such as a compacted layer or blocked drain, but equally, more detailed analysis may be required to assess the physical, chemical and biological soil properties.

That is where TerraMap Gold can help, combining comprehensive soil analysis with accurate soil mapping. The Gold test analyses 31 different aspects, allowing far more informed decisions to be made from field-to-field and within fields.

"Heavy rain that caused soil capping, for example, could have affected pH where soils went anaerobic, and also reduced nutrient availability. Breaking that capped layer with a machine will let air in and help rectify the issue in the short-term, but if there are underlying issues with aggregate stability, problems may just reoccur next time it rains hard."

By understanding the soil's physics, chemistry and biology, more informed decisions can be made, both for short-term fixes and longer-term changes to management practices, rotation, or cropping, to build resilience into soils.

For more information about soil assessments and TerraMap Gold, please contact our specialists: soils@hlhltd.co.uk





Omnia
Digital Farming



Example total Ca:Mg ratio map within Omnia



Ben Pledger Farmacy Agronomist

Gold test sets baseline in regen transition

Building resilience and paving the way for a transition to regenerative farming practices are the aims of one Hertfordshire farm that used TerraMap Gold to benchmark soil conditions across 300 ha of combinable cropping.

Around 18 months ago, farmer Richard Blair decided to take a more regenerative approach to production, partly as a way of mitigating the impact of losing BPS payments. Minimum tillage is already employed across the farm, but Mr Blair is now working towards a full direct drilling strategy, with greater inclusion of cover, catch, and companion crops, plus Johnson-Su compost extract to build soil biology.

"Within this transition, we wanted to establish a baseline of current soil status to highlight any areas that need addressing and provide a benchmark from which to measure the effectiveness of any changes," explains agronomist, Ben Pledger. "The best and most accurate way of doing this is with TerraMap Gold."

The whole cropped area was analysed in spring 2023. One important finding was the imbalance in the calcium: magnesium ratio on the predominantly clay loam soil.

"We already knew many fields were a 'two-day soil', where there is a very narrow window to work it either side of soil being too wet or too dry; something that was particularly evident last season," explains Mr Pledger.

"TerraMap Gold confirmed a key reason was the fact magnesium levels were too high, binding clay particles together and making soil tighter and harder to work."

The farm has started addressing this by variably applying gypsum, which helps leach excess magnesium through the soil, making it more friable and easier to work. "Most ground is already in pretty good condition, but hopefully this will lengthen the window to work soil, while improving water holding capacity, and creating conditions that allow direct drilling to work effectively."

TerraMap Gold also revealed variations in pH, phosphate and potash across some fields, which they plan to address with targeted lime applications where low pH is an issue, and the inclusion of placement fertiliser with seed at drilling in future.

"We know high pH can cause issues with phosphate lock-up, so hopefully it's something we can mitigate with the use of placement fertiliser," says Mr Pledger.

"The contractor that does all the fieldwork is well on board with what we're trying to achieve and is currently looking to replace their drill, which will have capability to apply liquid or microgranular fertiliser with seed." Another important aspect of the TerraMap Gold analysis is the measure of soil organic matter, he notes. "It sets a baseline from which we can measure any improvements resulting from the move to full direct drilling, and other steps to build organic matter."

Additionally, it meets CSAM1 requirements under the Sustainable Farming Incentive (SFI), which the farm plans to join.

Technical Managers, Darryl Shailes and Neil Watson answer questions on sugar beet and BYDV



Darryl Shailes
Hutchinsons Root Crop Technical Manager



Neil Watson Hutchinsons Technical Manager

Q: Should I consider Conviso beet on my farm?

A: Since its introduction in 2020 with Smart Janninka KWS, the Conviso Smart system from KWS and Bayer has increased year on year.

From an original concept when millions of beet seedlings were sown and sprayed with ALS herbicide to find a naturally occurring resistant plant, this has now developed into varieties that are very close in performance in terms of yield to the best on the RL, with the additional benefit of being ALS tolerant.

This conventional breeding has developed and now there are 3 Conviso Smart varieties on the BBRO Recommended List - Smart Uma KWS, BTS Smart 9485 and Smart Vesnica KWS. In addition to this, there is Smart Nelda KWS as a test market, which is BCN tolerant.

If you look on the RL the yields are just below the standard varieties, with Smart Uma being the highest at 95.3 adjusted tonnes/ha compared with BTS1915 at 102.02 t/ha.

However, this doesn't tell the full story as the RL trials all use a conventional herbicide programme, so the real advantages of having a variety that is immune to the herbicide

being applied isn't considered. Even the kindest conventional weed control programme has some yield effect and certainly we saw yields in excess of 100 t/ha in 2023 of Smart varieties.

So, it makes complete sense where growers have a weed beet problem, but more and more growers are switching to Smart beet for the convenience of the system and what it delivers in time savings, etc.

There are issues that need managing, such as bolters and groundkeeper control, effective management of these form a key part of the **Conviso stewardship programme**. Also, some farms have developed weeds that are resistant to ALS herbicide, not a fault of the Smart system but an over reliance on single modes of actions for several years. It still needs to be managed, however, by using other modes of action in some fields in conjunction with Conviso 1.

Q: What can I do to reduce virus yellows in beet on my farm?

A: Virus yellows is a disease complex made up of three viruses in sugar beet; Beet Mild Yellowing Virus (BMV), Beet Chlorosis Virus (BChV), which are both a Polerovirus and very closely related, and the most damaging Beet Yellows Virus (BYV).

All are transmitted by aphids, with *Mysus persicae*, the peach potato aphid, being the most important vector.

There are several factors that need to be taken into account, including presence of the aphid, presence of the virus and crop growth stage at point of colonisation.

Variety of sugar beet is also important and BBRO's Goliath trial is investigating this with some interesting results.

The aphids will be present mainly depending on the over wintering of the aphids and the Rothamsted virus yellows forecast takes this into account every year. Unfortunately, we can't influence this, but with generally milder winters the over winter survival is likely to increase.

Overwintering brassica crops such as oilseed rape can act as hosts for *M.persicae*, as can cover crops, so sugar beet grown near these can be subject to earlier colonisation.

BRRO advise that all cover crops are destroyed at least 5 weeks before drilling of sugar beet to reduce the risk of a green bridge. This will also allow soils to dry, as we all know cultivating wet soils in the spring is not good practice on all but the lightest of soils and will lead to poor establishment.

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➤ Speed of growth can have an influence on virus levels, so drilling beet into good soil conditions is more important than it has ever been.

Sowing of barley or other companion crops can mask the rows of sugar beet from early infection and could potentially have a SFI benefit.

Herbicide programmes can have an influence on speed of growth of sugar beet, so kinder programmes will be better, although weed control shouldn't be compromised.

So are there things we can do, yes, but they need consideration before the aphids are flying.

Q: Are more Barley Yellow Dwarf Virus applications likely to be required for my early drilled crops this season?

A: That's a bit like asking "how long is a piece of string?" The word "more" in the title assumes you will have already needed to apply at least one spray so far.

It very much depends on **three factors**:

1. How early the crop is drilled.

a. Inevitably, following last season's wet autumn, the temptation to drill early has been too great, despite the hard lessons learnt not least in terms of grassweed control, if not from virus management.

b. Early drilling specifically increases the exposure period of a crop to infection earlier in the season than would normally be the case.

c. An early drilled crop, with an earlier migration of aphids into the crop, being the worst-case scenario. To date, data from the Rothamsted insect survey would indicate aphid migration is both ahead of last season and the long-term trend. The other factor to remember, on average up to a quarter of the aphids will be carrying virus.

d. The pyrethroids used for control will have a degree of persistence and anti-feeding properties, yet with new leaf continuing to emerge every 10 days this will be left exposed to new infection without protection.

2. How long will aphids continue to fly into the crop.

A few seasons ago, due to the extraordinary mild autumn, the suction trap counts were extended into December due to aphid flight into the crops continuing.

3. Applications applied for other pests that will give incidental control of aphids.

A prime example would be that Gout fly, or leafhoppers, might

be the driving factor, yet will give incidental control of aphids that are in the crop at time of application.

Most prediction models for anticipating spray threshold timing would assume reinfection would occur on day one following a threshold; it is never quite that simple, yet it alerts you to the potential threat.

If you have a technical question, please contact us:
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