**Using cover/trap crops to facilitate IPM -the role of beneficial plants**

*Key points from webinar #1 in the series* ***Sharing farmer knowledge across the farming sector on ways to work with nature to reduce pesticide use,*** *Feb. 2022*

This webinar for farmers and agronomists focussed on the potential of plants to help deliver on-farm protection in arable cropping systems without the need for chemical products. Expert speakers who shared their practical experiences were:

* **Georgie Bray, from RSPB's Hope Farm**, on trialling cover and trap crops and composting from farm management and biodiversity perspectives
* **Andy Dibben, from Abbey Home Farm**, on preventing problems on-farm with the help of plants, and in particular on using buckwheat as a couch grass suppressant
* **Duncan Coston, research entomologist at ADAS**, on how to effectively leverage cover/trap crops for integrated pest management (IPM)

**Key points**

* Cover crops deliver many benefits for soil health and biodiversity, as well as their role in helping reduce levels of pests, diseases or weeds and reducing the need for pesticide applications.
* Companion cropping as an IPM tool for Cabbage Stem Flea Beetle (CSFB) remains a work in progress with lots of questions still to answer but overall it looks quite promising and some farmers are finding it effective- watch this space!
* The forthcoming Sustainable Farming Initiative (SFI) scheme has a requirement for cover cropping. This is mainly for soil protection against erosion but farmers can gain many other benefits from using cover and companion crops in their fields.

**A. Experiences with trap crops for Cabbage Stem Flea Beetle in oil seed rape**
Since 2014 many arable farmers struggle with the loss of neonicotinoid insecticide seed treatments for CSFB in oilseed rape and widespread resistance of this pest to foliar pyrethroid sprays. But other IPM options are available and good experiences reported.

***Hope Farm’s experience:*** Using stubble turnip strips (6m strip every 60m) as a trap crop for CSFB in oilseed rape significantly reduced pest larvae feeding in their trials run in 2016-16 and again in 2021-22.

Turnip trap cropping can be very effective, especially if your farm currently has CSFB problems- you’ve not much to lose and it might work really well for you!

The farm’s success in eliminating insecticide use since 2018 is part and parcel of the move to increasing the diversity of crops- they now grow over 7 crops, compared with just winter wheat and OSR 20 years ago. Combining cover crops and composting really benefits the farm’s soil structure, boosting beneficials and giving better yields with higher profits. Reducing cultivations is also key to improving soil health.

We need to move mindsets to feeding the soil, not the crop, but recognise this is a longer-term strategy.

***ADAS experience***: they have been trying out different mixes of companion crops to reduce CSFB damage, including buckwheat, berseem clover and fenugreek. Oilseed rape grows well with any of these. Results to date suggest significant reductions in adult CSFB numbers, possibly by confusing the adults as they land.

But adult numbers *per se* don’t necessarily relate to actual damage so you also need to assess levels of leaf damage (shot-holes) in seedlings. ADAS preliminary data shows some reduction in % leaf damage in seedlings from companion crops’ effect on beetle adults but data are not yet available on subsequent oilseed rape yield. Association with other brassica family crops and with berseem clover seems to decrease most adult CSFB damage to seedlings and help them get beyond establishment stage.

There is still lots to learn on how different cover or companion crops work to reduce CSFB levels and damage- is it mainly colour changes and/or chemical signals which confuse the adults or help to mask the ‘brassica’ odours which the adults home in on?

**B. Using cover crops to tackle pernicious weeds**

***Experience from organic vegetable production at Abbey Home Farm:*** The farm has developed a cover crop tactic using buckwheat to help control couch grass -one of their most problematic weeds as it is allelopathic, releasing chemicals into the root zone which can harm other plants. Previously Andy had to either take badly infested fields out of use or cultivate aggressively, harming soil health.

By serendipity, he noticed that a 1ha couch-free patch in an otherwise badly affected field had been sown to buckwheat the season before. Andy then trialled the ‘death by buckwheat’ tactic via an Innovative Farmers’ Field Lab and refined further. The farm’s 4 years’ experience has now resulted in a good, functioning system.

The method involves sowing buckwheat in May once the soil has warmed up, then cutting down after 6 weeks with a flail mower and incorporating. Like couch, buckwheat also releases allelopathic chemicals but it needs to be killed and dug in to deliver its weed control effect. By rolling in the chopped remains, some of the chemicals are ‘locked in’ to take effect against the couch roots and other weeds.

You must allow the buckwheat chemicals to dissipate before you sow your next crop, waiting at least 3 weeks or the crop will struggle to germinate. You also need to avoid buckwheat from forming seed so it must be cut back while in flower.

You need to give your cover crops some ‘TLC’! Andy irrigates them in to get good establishment and growth. Cover crops also provide major co-benefits, much reducing soil erosion and compaction during heavy rains.

Webinar recording is available via: <https://www.agricology.co.uk/sharing-farmer-knowledge-across-farming-sector-ways-work-nature-reduce-pesticide-use>

These webinars are part of a project to share farmer knowledge across the farming sector on ways to work with nature to reduce pesticide use. The project partners are RSPB, The Soil Association, Nature Friendly Farming Network, Pesticide Action Network UK, and CoFarm Cambridge.

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