



## ***Oilseed rape in crisis: But where is Defra's chief scientist?***

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**Reports that UK self-sufficiency in home-grown vegetable oil has more than halved from 40% to 15%, and could fall even further, present a major food security test for the new UK Government, writes Yorkshire farmer Paul Temple. But the plight of the UK oilseed rape crop also raises fundamental questions about the scientific basis for policy decisions intended to protect biodiversity and the environment. Do these decisions take sufficient account of the ecological consequences of any potential changes they may cause in cropping systems, such as a 62% decline in plantings of a key flowering crop, he asks.**

This could be the last year that we grow oilseed rape.

In a last, desperate attempt to make this crucial break crop economically viable, we are sowing it with a companion crop designed to offer a more appetising distraction for the devastating cabbage stem flea beetle.

But I'm not overly optimistic.

The likelihood is that, next year, we will not include this distinctive flowering crop in our rotation for the first time in more than 40 years.

If that proves to be the case, our wheat yields will also suffer, because growing oilseed rape delivers yield benefits in subsequent cereal crops, by breaking disease and weed infestation cycles, and by providing soil structure and nutrient benefits. There isn't really an alternative.

We will also be removing a vital early-season nectar source for the honeybees whose beekeepers have their hives on our land, as well as an important food source for multiple other pollinating insects, whose populations this year are widely reported to be having one of their worst years on record.

So, the loss of oilseed rape on our farm would inevitably bring knock-on economic, agronomic and environmental downsides.

And one thing is clear, the continuing decline in pollinating insects cannot be blamed on neonicotinoid seed treatments, which were banned in oilseed rape just over a decade ago, when the area of the crop was at record levels.

With this year's harvested crop estimated at 280,000ha, down from a high of 740,000ha in 2012, and with some estimates suggesting that the 2024-25 crop could be as low as 200,000ha, the farming and ecological implications are deeply concerning.

It also presents a challenge for the new Government, whose Ministers have repeatedly declared that 'food security is national security'. To reinforce its importance, Defra's Daniel Zeichner has even styled himself 'Minister of State for *Food Security* and Rural Affairs'.

So, when domestic self-sufficiency in a household staple such as vegetable oil has fallen from 40% to less than 20% within the space of a decade, and when we cannot grow any alternative sources of vegetable oil, where is the Government's response?

It is a depressing indictment on the fragmented state of our levy- and taxpayer-funded research base that it has taken a farmer co-operative, United Oilseeds, to try to galvanise the sector into action to reboot the crop's fortunes.

Given the strategic importance of food security in the new Government, where is Defra's chief scientist, Gideon Henderson? Why isn't he ahead of the curve, leading a co-ordinated, COBRA-style response to identify a scientific solution to the decimation of the UK oilseed rape crop?

From a scientific perspective, continuous innovation in the oilseed rape crop is a plant breeding success story which helped to transform arable rotations in Britain over the past 50 years.

A 10-fold expansion in the UK oilseed rape area from the mid-1970s to more than 700,000 hectares in the early-2010s can be directly linked to two major plant breeding breakthroughs.

Varieties were first developed in the late-1970s with reduced erucic acid levels to make the oil more suitable for human food use, followed in the late-1980s by so-called 'double-low' varieties, with reduced glucosinolate levels to improve the quality and nutritional value of the resulting meal for animal feed.

There have been other significant breeding advances, for example with the introduction of the first hybrid varieties in the mid-1990s, and the development of high oleic, low linolenic (HOLL) lines bred to produce healthier, low saturated vegetable oil with improved stability at high temperatures.

We have even flirted with the introduction of GM varieties of oilseed rape, with tolerance to the broad-spectrum herbicide glufosinate. Indeed, I was pleased to host a number of GM OSR trials in the 1999-2003 Farm-Scale Evaluations (FSEs) to compare the biodiversity impacts of growing GM vs. non-GM varieties.

But identifying a genetic solution to the challenge of cabbage stem flea beetle infestation has proved stubbornly elusive to plant scientists and breeders alike, and the progressive decline in the UK oilseed rape crop in recent years is attributable almost exclusively to the Government's decision to ban neonic seed treatments in 2013.

For me, this raises serious questions about the scientific basis for that decision, and whether the neonic ban took full account of the wider consequences for biodiversity and the environment.

The results of the FSE trials referred to above sounded the death knell for GM herbicide tolerant oilseed rape in the UK, primarily because weed control was more effective in the GM plots and therefore less diversity of plants and foraging insects was found compared to the non-GM plots.

Those conclusions remain controversial to this day, with some still arguing that the differences identified between the GM and non-GM trials were only marginal, and that in fact the populations of detritus-feeding invertebrates were significantly higher in the GM plots precisely because of the improved weed control.

At the time, it was also noted that the oilseed rape crop, whether GM or non-GM, supported a wider diversity and abundance of pollinating insects and other invertebrates than many other alternative crops.

And it was therefore argued that, if access to GM technology helped maintain the competitiveness of oilseed rape, which would otherwise be replaced by alternative break crops, the overall impact on biodiversity of growing GM oilseed rape – at a landscape and national scale – would be beneficial.

At the time, molecular biologist Professor Conrad Lichtenstein observed in an [article](#) on Spiked!: *“Surely it is more rational to make large-scale strategic decisions about which crops to grow for biodiversity? Dramatic changes in biodiversity could be affected by changing the crops grown - such as growing less wheat or maize and using beet and rape as break crops more extensively. Relatively small changes here might dwarf the effects on biodiversity of GMHT beet and rape in relation to conventional varieties.”*

Independent scientific experts on the Government's Advisory Committee on Releases to the Environment (ACRE), which oversees GMO applications, have repeatedly argued that consideration of potential environmental benefits as well as risks would improve the evidence base for decisions.

In January 2017, in evidence to the [House of Commons](#) Science and Technology Committee, ACRE stated that:

*“Implicit in an approach that takes benefits into account, is the idea that a certain impact might be tolerated when the benefits are high, whereas they might not be if the product had much more restricted value. We consider that a regulatory system that takes account of the potential benefits and the consequences of not authorising a product and which includes compensatory measures (where appropriate) has the potential to deliver greater overall benefits.”*

In fact, the scenario discussed above in relation to GM herbicide tolerance in oilseed rape is now playing out in relation to the loss of neonic seed treatments, precisely because of the failure to take account of the potential consequences.

In other words, despite environmental NGOs' dire warnings of 'bee-killing pesticides' and 'insect apocalypse', are insect populations actually healthier, more abundant and more diverse today, with a national oilseed rape crop of 200,000 hectares forecast, compared to a decade ago, when farmers grew three quarters of a million hectares of oilseed rape?

Ministers in the new Government made pre-election commitments to maintain the neonic ban, ruling out any future derogations, for example in the sugar beet crop, which faces a similar existential threat from virus yellows with, as yet, no genetic or other solution in sight.

How do these political decisions square with the Government's pledge to prioritise national food security?

What is Defra's chief scientist doing to co-ordinate the scientific response?

And will Ministers accept ACRE's advice that regulatory decisions which take account of the wider consequences of not authorising particular products or technologies, and which consider potential benefits as well as risks, are likely to deliver better outcomes for the environment, for the economy, and for food security?

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