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Driving pesticide reduction – why the government must set ambitious targets

Will the UK government step up action on pesticides reduction in response to the current ecological crisis?

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Pesticides are firmly implicated in the decline of nature. A new government plan for pesticides is due this year. But will the UK government move beyond vague promises about environmental protection and set ambitious targets to reduce the pollution of our countryside?

This briefing shares evidence from other countries showing that pesticide reduction targets work. Will the UK government act on evidence or will ideology and vested interests come out on top?

Targets needed

Following pressure from Friends of the Earth and others the UK government has promised to consult on a new National Action Plan (NAP) for the sustainable use of pesticides later in 2019. But will it address the risks that pesticides pose to biodiversity and human health?

To be effective, the NAP must commit to ambitious targets for environmental protection, thereby signalling the level of ambition needed and setting policy in the right direction. A vague intention to cut pesticide use is not enough.

The UK has already committed in its 25 Year Environment Plan to a more sustainable way of protecting crops with minimum use of pesticides. But it's failed to set a target to indicate the level of cuts needed or to set out a strategy to achieve its aim. The government accepts that targets are needed to cut other harmful emissions to the environment like air pollution and carbon – the same should apply to pesticides.

By not setting targets the UK has so far failed to meet the requirements of the EU Sustainable Use Directive (SUD) to produce a NAP with measurable targets to reduce the impacts of pesticides. The SUD also requires measures to encourage Integrated Pest Management (IPM), which emphasises non-chemical methods of control.

The government is out of step on risk reduction targets

Despite the SUD's requirement, the UK government continues to state that it doesn't consider pesticide risk reduction targets to be effective¹ – which doesn't augur well for tough targets in the new NAP. Yet this stance is contradicted by the European Commission's review of measures towards implementing the SUD², which found that where measurable targets were in place, such as Denmark, they worked.

The way the UK government acts on pesticides could be an early test of whether the political will really exists to maintain or raise environmental standards after Brexit. This will apply to pesticides standards in trade deals, the regulations governing pesticide authorisations and how it deals with the use of chemicals in our countryside.

Why current trends must be reversed

We've previously set out how [pesticide use is rising](#), showing that urgent action is needed to put farming on a more sustainable path. Friends of the Earth has also shown how overuse of pesticides could [undermine productivity](#) by harming the natural resources that farming relies upon

What kind of targets?

Targets could be based only on quantity (eg treatment frequency index, quantity of active ingredient applied) but this won't limit the pesticide use of greatest risk to the environment or health. Several EU countries are switching targets from use reduction to toxicity risk reduction for this reason.

Use and risk reduction

Friends of the Earth recommends that targets be set for both use and risk reduction. Including a measure of toxicity to humans and wildlife will ensure that the pesticides known to be most directly harmful are reduced first and fastest. But cutting overall use is also needed to ensure that indirect and poorly understood effects from pesticides are reduced. For example, some herbicides may not be categorised as highly toxic, but by wiping out all wild plants – not just specific problematic weeds – they remove important sources of nectar and pollen that bees and other insects depend upon.

Untested impacts

In addition, pesticide approvals testing remains imperfect, with impacts on many species of fauna and flora untested. Neonicotinoid insecticides were found to be harmful to wild bees only after years of subsequent independent research.

Chemicals are also tested singly, but in practice wildlife and humans are exposed to a cocktail of multiple substances at the same time, when their combined impact and interactions are largely unknown.

Given all these unknowns, it makes more sense to move towards a farming system that is much less reliant on chemical pesticides.

Targets work – pesticide reduction in Denmark

Denmark set and met a target to reduce pesticide impact by 40%, based on a national Pesticide Load Indicator (PLI). This metric takes account of human health for pesticide operators, toxicity to the environment, and environmental behaviour, such as risk of leaching into groundwater.

Although there was a discrepancy in the reduction in pesticides sales (40%) and usage by farmers (28%) between 2011 and 2015, there has been a successful measurable reduction in the use and associated environmental burden of chemical pesticides³. The discrepancy was thought to be due to initial stockpiling of products by farmers following the introduction of a pesticides tax.

It's now compulsory for each farm to share its pesticide use data online. This means maps showing detailed information on pesticide use in different regions can be produced, allowing for targeted action in areas of high risk to the environment. The PLI system was also used for setting up a new pesticide tax scheme, which has been used to fund advice for farmers.

A study of the Danish system concluded that it's likely that pesticide load will further decrease when farmers have used up their stocks. In the short term, substitution of pesticides with high pesticide load values by those with lower values is expected to reduce risks. But in the long term, the adoption of non-chemical methods through IPM is expected to contribute to a greater reduction in risk to human health and the environment.

France – an ambitious target has driven change

Targets have an important role in signalling the level of ambition and in setting out policy and investment direction. In France, although the ambitious 50% reduction target was not met during the period of its first NAP (the Ecophyto plan), an important shift has taken place in attitudes and in shifting R&D focus.

One practical outcome was the setting up of a network of demonstration farms, which have played a key role in mainstreaming pesticide reduction through peer-to-peer learning. Experience gained since the target was set has led analysts to conclude that existing technologies and practices alone could cut chemical use by at least 20%. Research and trials are expected to lead to greater cuts.

Despite early resistance from farmers to the target, more than 40 French farmer organisations subsequently signed up to a solutions pledge that includes specific pesticide reduction goals.

A new target has now been set in France's new NAP (Ecophyto II) for a 25% reduction in pesticide use from 2015 levels by 2020 and 50% by 2025⁴. Specific targets have also been set for 53 active substances. The groundwork put in place in the first NAP has led to an expectation of success for the new targets: "Without underestimating the extent of the challenge, there are reasons to be optimistic," says Alain Tridon, director of the Ministry of Agriculture's plant health services in Paris⁵.

Germany – modelling helps with risk reduction goals

In 2017 the European Commission reported that Germany had achieved its target of a 30% reduction in risk relating to the aquatic environment and non-target organisms compared to the 1996-2006 period⁵. The German system uses sophisticated exposure modelling to assess risk to indicator organisms. However, toxicity assessment is based on simple endpoints and human health isn't considered.

The revised German NAP doesn't have a use reduction target, despite this being a recommendation of the German Environment Agency (UBA), which suggested that such a target, accompanied by measures to help farmers, is needed to incentivise farmers to change practices⁶. However, the German NAP still goes further than the UK's in this regard, by having an intention that "the use of plant protection products must be limited to the necessary minimum".

Similar to the situation in France, the demonstration farms set up in Germany showed that a 20% reduction of pesticide use was readily achievable against a national rising trend. However, Germany's new NAP recognises that improvements are needed in monitoring to accurately assess environmental impact, such as monitoring of smaller water bodies.

Targets for Integrated Pest Management and organic farming

As well as targets to reduce harmful pesticides use, some countries have measurable targets for boosting non-chemical alternatives. Germany has a target for 30% of farms to work according to published IPM guidelines by 2021 and 50% by 2023⁷.

In addition, several EU countries have set targets to increase organic farming as one way of cutting overall pesticide use. This is a good approach that sits well alongside measures to help conventional farmers cut their use of inputs. While the percentage of land being farmed organically is increasing across the EU, there's been a 15% decline in organic farmland in the UK since 2013⁸.

Germany has also set targets to increase the area of natural habitats in the agricultural landscape to encourage beneficial organisms such as natural predators which help with pest control - a key element of an effective IPM approach.

Supporting Integrated Pest Management

According to existing UN and EU definitions⁹, IPM is about preventing problems, careful monitoring of pests or disease, and the prioritisation of non-chemical methods over pesticides. In particular, IPM supports nature's own pest control in the form of natural predators. It's a holistic approach using several techniques across the farm. But cutting chemical dependence has never been explicitly set out in the UK's definition of IPM in its NAP.

In order to set meaningful targets for IPM the UK would have to be much clearer about what IPM is and support farmers to make the shift. It's evident that the approach in the UK has been ineffective so far. If use of IPM techniques had been increasing on UK farms, we would've seen a reduction in the use of pesticides. But pesticide use continues to rise¹⁰.

Relying on voluntary measures fails to deliver on pesticide reduction

The UK's 2013 NAP doesn't include measures to promote IPM. Instead, the government relies on the industry-led Voluntary Initiative (VI)¹. However, the VI has failed to deliver meaningful action to reduce the risks or use of pesticides. A key weakness is its reliance on the National Farmers' Union online IPM tool². Completing this online form (which is suggested will take 30 minutes to 1 hour) is considered to meet the requirement for an IPM plan. But this form is just a tick box survey, which doesn't discriminate between good and bad IPM plans.

Good advice on IPM and the best tools to apply it depend on farmers' enthusiasm to try different approaches, and their ability to pay for them. It follows that improvements for the environment are likely to be patchy and uncoordinated. Neither the NAP nor the VI clearly signal that IPM should aim to minimise the use of chemicals.

Firm action needed on Integrated Pest Management

A lack of action to promote IPM is a common criticism of EU countries – the European Commission's review of NAPs highlighted the need for firmer action. Nevertheless, there are examples of good practice that the UK could draw on, and which in many cases echo what [farmers have told us](#) they need in order for IPM to be taken up more widely. These examples include:

- Mandatory and detailed recording of all IPM measures by farmers in the Netherlands.
- IPM as a compulsory subject in all vocational training related to agriculture in Poland.
- An independent advisory service in Denmark, with local advisory centres.
- National IPM guidelines available for most crops grown in Italy, complemented by regional-level guidelines.
- Research priorities in France that include reducing dependence on pesticides and addressing socio-technical and economic barriers to shifting practice.
- Use of rural development funds in Germany and Italy to promote IPM practices.

On the latter point the new Environmental Land Management Scheme (ELMS), which is expected to be a core element of the UK's farming policy after Brexit, could provide a key opportunity to help farmers adopt IPM methods, as outlined in a recent report from Pesticides Action Network³.

Testing UK government's commitment to environmental protection

We've heard regular promises from the UK government that it will address the overuse of pesticides. Now we need action to ensure our precious pollinators and other wildlife are better protected. As with other environmental pollutants, a targeted approach is needed. At the moment, it's hard to hold the government to account for a vague promise and hard for landowners to know what's expected of them.

Experience from other countries shows that pesticide reduction targets work. Any of these could be adopted in the UK or a bespoke system could be developed that draws on the best parts of them all. There's no technical difficulty in developing risk indicators and risk and use reduction targets for the UK. The barrier is political, not technical.

Whether we get a pesticides plan with firm targets and action could be an early test of the government's commitment to maintain or raise environmental protection after Brexit. The new National Action Plan is a key opportunity to demonstrate support for targeted pesticide reduction, alongside the right support for farmers.

Look out for the long-awaited consultation on Defra's website. Pressure will be needed to ensure the plan is robust and sets the right direction for the health of our countryside and ourselves.

Notes

1. In a letter from Minister George Eustace to the House of Lords EU committee he states “...the Government concluded that setting such targets would not be an effective tool to drive sustainable pesticide use”
2. [a.](#) [b.](#) European Commission Directorate-General For Health And Food Safety 2017. Overview Report on the implementation of Member States' measures to achieve the sustainable use of pesticides under Directive 2009/128/EC DG(SANTE) 2017-6291 ISBN 978-92-79-52987-0
3. Ministry of Environment and Food, 2017. Pesticides Strategy 2017 –2021 Available at https://ec.europa.eu/food/plant/pesticides/sustainable_use_pesticides/nap_en.
4. https://ec.europa.eu/food/sites/food/files/plant/docs/pesticides_sup_nap_fra-ecophyto-2_en.pdf.
5. <https://www.sciencemag.org/news/2018/10/france-s-decade-old-effort-slash-pesticide-use-failed-will-new-attempt-succeed>
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6. <https://link.springer.com/article/10.1186/s12302-018-0136-2>.
7. Federal Ministry of Food, Agriculture and Consumer Protection National Action Plan on Sustainable Use of Plant Protection Products
8. https://ec.europa.eu/eurostat/statistics-explained/index.php/Organic_farming_statistics.
9. According to the EU SUD for example ‘integrated pest management’ means careful consideration of all available plant protection methods and subsequent integration of appropriate measures that discourage the development of populations of harmful organisms and keep the use of plant protection products and other forms of intervention to levels that are economically and ecologically justified and reduce or minimise risks to human health and the environment. ‘Integrated pest management’ emphasises the growth of a healthy crop with the least possible disruption to agro-ecosystems and encourages natural pest control mechanisms;
10. <https://policy.friendsoftheearth.uk/insight/theres-something-wrong-countryside-rising-pesticide-use-uk>.
11. The Voluntary Initiative, 2018. Annual Report 2017-18 page 6
12. <https://www.nfuonline.com/updates-and-information/fill-in-your-integrated-pest-management-ipm-plan/>.
13. <https://www.pan-uk.org/environmental-land-management-scheme/>.