Healthy HARVEST

The impact of losing plant protection products on UK food and plant production

aic agricultural industries confederation

Crop Protection Association

NFU

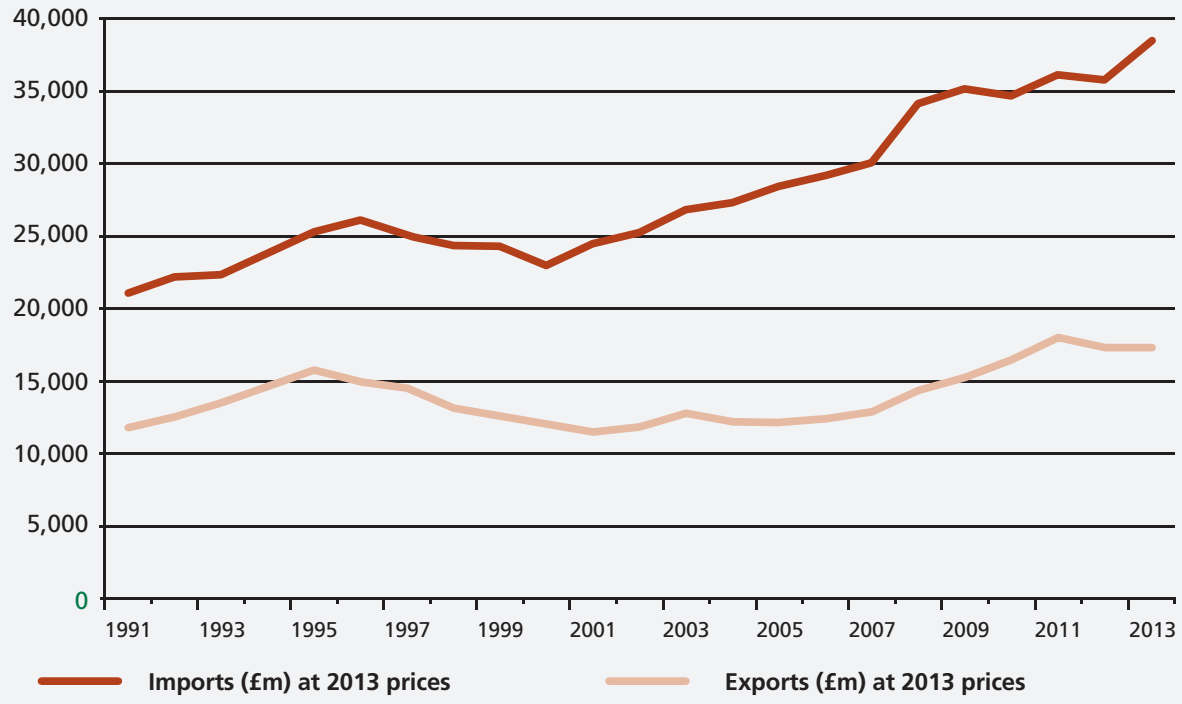
INTRODUCTION

One of the biggest challenges facing the world today is to produce enough food to feed a growing population, using finite natural resources. This challenge, faced against a backdrop of changing, volatile weather patterns creates increased uncertainties in food production and supply. Add in to that complex global markets and geo-political uncertainty and it becomes even more important to build in resilience to our food production and supply chain.

In the UK, the worrying fact is that our food and drink trade gap has continued to widen over the past two decades, meaning we're increasingly looking overseas to meet our own food needs. While the rest of the world seems to be responding to the challenge of feeding a burgeoning global population UK and EU production has, at best, stalled. Some sectors, such as cereals and field vegetables are experiencing an actual production decrease.

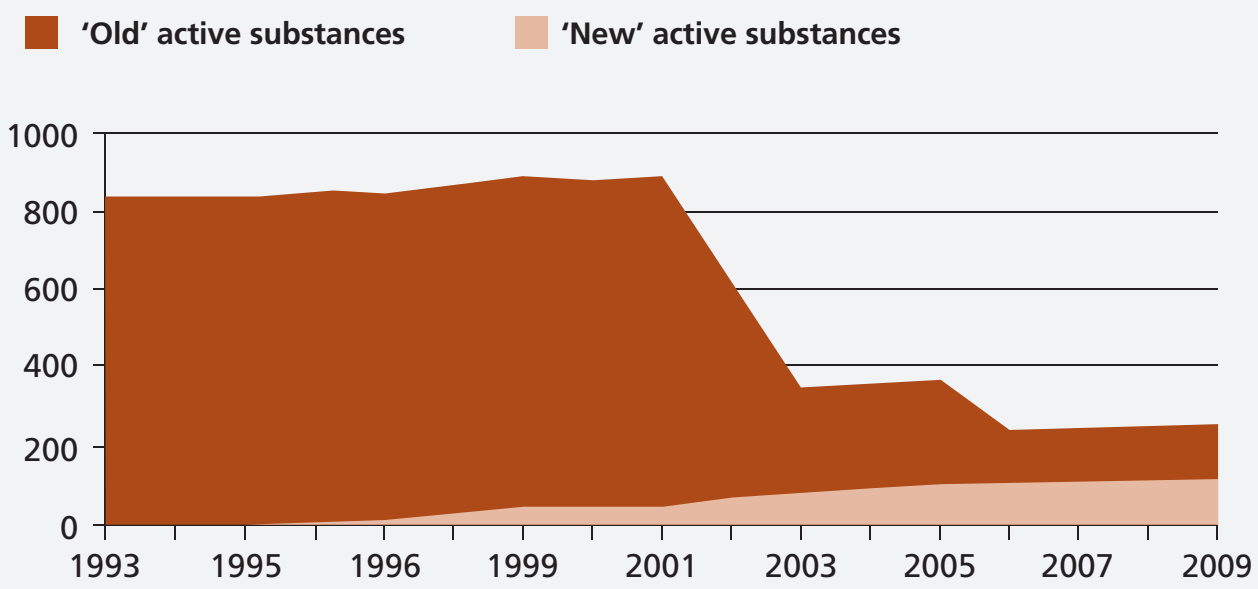
Although the reasons are complex, one key driver is change to the regulatory framework in which UK agriculture and horticulture operates. The undeniable fact is that over-regulation, both at an EU and UK level, severely hampers our ability to provide the raw ingredients for the food and drink we consume. The overly precautionary EU regulation of pesticides used by farmers and growers in crop production is a very good case in point. Since 2001 UK farmers and growers have lost more than half of the active substances approved for use in the EU.

UK TRADE IN FOOD AND DRINK – 2013 PRICES



DEVELOPMENT OF APPROVED ACTIVE SUBSTANCES

Source: European Commission



This trend is likely to accelerate in light of a current regulatory system that fails to take account of risk and instead focuses on intrinsic hazard. This is despite great strides made by manufacturers in recent decades in producing more targeted and safer pesticides, and by farmers and growers in ensuring they are used properly and responsibly.

Not only is this over-regulation starting to affect our ability to grow crops now and in the immediate future, the uncertainty of EU regulation also discourages long-term investment by global pesticide manufacturers in Europe. This stifles, rather than embraces, progressive innovation with the result that British and European farmers and growers are missing out on new technologies. Availability of both biological pesticides and pesticides suitable for use in organic production, are also limited by the conservatism of the regulation. The effect is further compounded by a lack of harmonisation on pesticide uses for speciality crops that can leave our home farmers and growers with fewer tools in the crop protection toolbox than those available to farmers elsewhere in the EU.

Farmers and growers take human health protection and environmental responsibilities very seriously, as evidenced by the take up of voluntary measures which support the need for best practice in pesticide use. For a safe, affordable food supply, good environmental protection is a must. However, these efforts are in vain while there is a lack of sound science driving regulation and a lack of awareness among EU regulators of the impact that their actions have on our ability to produce healthy food crops and to compete in global market places.

The very real fear is that during the five-year life of the newly elected European Parliament the 250 actives still available for UK use could be cut by at least a quarter under existing legislation. Numbers could even halve if further precautionary approaches are adopted. It is for this reason that the National Farmers' Union (NFU), Crop Protection Association (CPA) and Agricultural Industries Confederation (AIC) launched *Healthy Harvest – safeguarding the crop protection toolbox* in June 2014. To follow up this report, we have asked Andersons to carry out an independent study into the potential impact of losing plant protection products on UK agriculture, horticulture and the wider economy.

ANDERSONS' EXECUTIVE SUMMARY:

The NFU, AIC and CPA have commissioned farm business consultants Andersons to produce an independent report which looks at the economic impact of crop protection technologies on UK agriculture and the wider economy.

It summarises that there are three main policies threatening the availability of Plant Protection Products (PPPs).

- **The approval process at EU level**
- **The implementation of the Water Framework Directive at national level**
- **Restrictions on neonicotinoid use**

At present there is no definitive list of the PPPs that are under threat from the various policies. This is partly due to uncertainty in the way regulations will be defined and interpreted. This project has identified that 87 (out of a current UK approved total of 250) active substances could be threatened by the cumulative effects of these policies. In practice, there is a sliding scale of threat.

The Andersons' report has assessed that 40 active substances are deemed likely to be lost or restricted in their use; of that number, 10 are insecticides, 12 fungicides, 16 herbicides and two molluscicides. This would have serious implications and the control of weeds, disease, and pests in key UK crops would become far more difficult. Reliance would be placed on a smaller number of PPPs and resistance build-up is more likely.

Perhaps more concerning is the likely loss of PPPs leading to lower overall yields in the crops studied. Yield decreases are in the range of 4-50 per cent, depending on crop.

IMPACTS INCLUDE:

LITTLE, OR NO, DOMESTIC PRODUCTION OF SOME 'ICONIC' BRITISH FOODS SUCH AS FROZEN PEAS, APPLES AND FRESH CARROTS.

THE GROSS VALUE ADDED (GVA) OF UK AGRICULTURE WILL FALL BY ABOUT **£1.6BN PER ANNUM**. THIS REPRESENTS A DROP OF **20%** ON THE FIVE-YEAR AVERAGE 2009 TO 2013.

UK FARMING PROFIT (TOTAL INCOME FROM FARMING) DROPS BY **£1.73BN** IN MONETARY TERMS, BUT THIS EQUATES TO A HIGHER PROPORTION OF THE OVERALL PROFIT – A **36% DROP** FROM CURRENT LEVELS. THIS DECLINE IN PROFITABILITY WILL CAUSE FURTHER STRUCTURAL READJUSTMENT IN THE FARMING INDUSTRY.

This is based on the effect of losing those PPPs classified by Andersons as having a 'high' likelihood of being restricted or not gaining re-authorisation. The overall output of food from UK farming and horticulture would decline, with the UK becoming more reliant on food imports, often produced using the PPPs banned in the UK and EU. This change in the structure of UK crop production is accompanied by changes in farming costs which may impact on livestock feed costs rising as cereal output falls.

However, the impact of the loss of key PPPs goes wider than just agriculture. Farming provides the raw materials for the wider agri-food sector, which makes up more than seven per cent of the total UK economy. As a result, the food processing and manufacturing sector would decline over time and would potentially lose an estimated £2.5billion of its GVA.

THERE WOULD BE JOB LOSSES OF BETWEEN 35,000 AND 40,000 IN THE ASSOCIATED WORKFORCE

The other sectors hit hard would be agricultural wholesalers and the agricultural supply industry. Together, the loss of GVA in these sectors would total £280million with the potential loss of 3,500 to 4,000 jobs.

The UK is a major centre for research and development for PPPs. The present EU policy environment is uncertain and generally unfavourable for the development of new PPPs, thus investment in this high-tech sector of the economy is under threat.

As the UK is a relatively wealthy country, purchased imports could make up any shortfall in domestic production. However, the cost of food for consumers would be likely to rise. This may not have a great impact on the majority of the UK population, but would be serious for up to a fifth of the population that is already struggling with food poverty.

Andersons says any policies should be science-led and the assessment of risks undertaken on a proportionate basis. This will continue to ensure a thriving agricultural sector and safe food for the UK population.

OUR ASKS

To ensure British agriculture and horticulture remains resilient, and to enable British farmers to meet the demands of a growing population, we need a change of approach in crop protection regulation to ensure that we have a crop protection toolbox capable of delivering short and long-term sustainable solutions. We are calling for changes in Europe and in the UK:

OUR ASKS IN EUROPE

✓ **For regulation to be risk-based and to follow sound science, with a review of the precautionary principle and its relationship to assessing risk.** We also want to increase the role of chief scientists in decision making and the embedding of science advisers in every Directorate General of the European Union.

✓ **For policy making to take account of the need for investment to ensure long-term resilience in the food chain.** This could be achieved by inclusion of an innovation principle in the regulatory process to ensure that whenever legislation is under consideration, its impact on innovation as a driver for jobs and growth has to be assessed and addressed, alongside the needs for public and environmental protection.

✓ **For the impact of regulatory decisions on the availability of a single active substance or crop protection technology to be assessed in the wider context of food production strategy.** Pesticide resistance is a growing issue in crop management and we need a range of tools to control each pest, weed and disease and reduce the risk of resistance developing.

✓ **For the Regulation that governs pesticide authorisation to be changed to a risk-based process to ensure sustainable production.** This revision should include:

- The removal of hazard criteria and list of candidates for substitution;
- Active substance reviews guided by necessity for review not timeframes;
- The inclusion of a social and economic impact review of a regulatory decision;
- Standardisation of the process used to develop EU guidelines for carrying out risk assessments, and a trialing process to ensure they are fit for purpose;
- Improvement of the zonal system and increased incentives/measures to harmonise the approach taken across member states; and
- For the definition of an Endocrine Disrupter to be risk based, following sound science, accounting for potency and recognition of socio-economic impacts.

✓ **For a change in approach to the regulation of pesticides in water so that:**

- Priority substances are identified based on a risk basis rather than simply frequency of detection;
- Arbitrary 0.1ppb standards for drinking water and groundwater are removed and replaced with health based standards.

✓ **For a greater commitment from the European Commission to facilitate the establishment of a minor uses technical secretariat, and to ensure ongoing financial and practical support for the secretariat's work.**

OUR ASKS IN UK

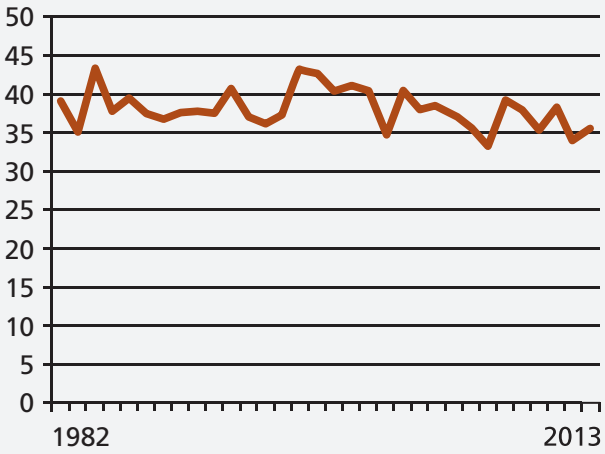
✓ **Ensure that the drive to increase British food production and productivity is at the heart of policy-making across all government departments.** UK policy-makers must ensure the needs and interests of domestic food production are properly considered in the development and implementation of all policies and programmes. The UK Government should establish protocols, similar to its approach to Rural Proofing, to "Food Proof" UK policy-making and implementation.

To support this, we need:

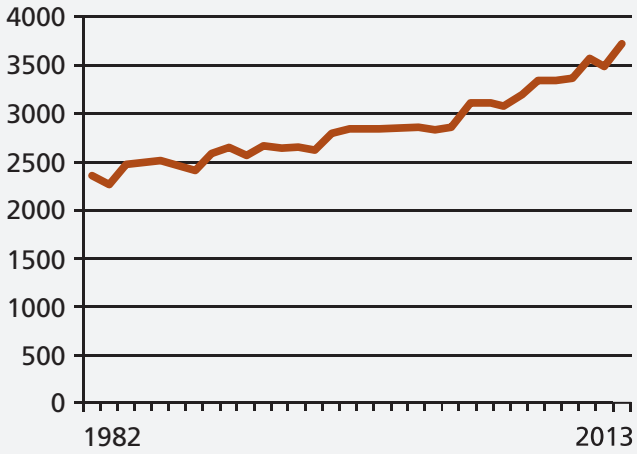
- The UK Government to continue its defence of science-based regulation in the EU and its calls for the review of EU Regulation 1107/2009.
- A continued commitment to support for catchment based approaches to manage pesticides and targeted risk management rather than regulatory restrictions.
- UK regulators to review their implementation of Article 7 of the Water Framework Directive.
- Progress to be speeded up towards a harmonised approach to the assessment of crop protection products, moving to European risk models.
- The UK to play an actively supporting role in the work of the minor uses technical secretariat, with a commitment to financial or in-kind contributions if required.
- Government to ensure the UK approach to emergency approvals is made more efficient and evidence-based.
- A full review of the Local Environmental Risk Assessment for Pesticides (LERAPs) scheme.

CROP PRODUCTION

PRODUCTION OF MAJOR CROPS – UK
Millions of tonnes



PRODUCTION OF MAJOR CROPS – WORLD
Millions of tonnes



* Major crops include: cereals, rapeseed, soya, potatoes, sugar beet
Sources – FAO, Defra

HOW THE INDUSTRY IS PLAYING ITS PART

Farmers and growers continually strive to maintain the highest standards of responsible use. Best practice in stewarding pesticides from planning and purchase through to disposal of any remnants is fundamental to the aims of protecting human health and the environment, whilst ensuring availability to a sustainable range of pesticides. In addition to complying with strict legislative requirements, UK growers are, through the Voluntary Initiative (VI) on Pesticides:

- ✓ Recording and reviewing crop protection measures by completing a Voluntary Initiative Integrated Pest Management plan or similar plan.
- ✓ Following the most up-to-date stewardship guidance for the specific crop protection products being used.
- ✓ Operating to The Voluntary Initiative (VI) best practice where appropriate (e.g. within arable and fresh produce assurance schemes) for additional equipment testing and to register their sprayer operator with National Register of Sprayer Operators.
- ✓ Ensuring that point source pollution risks are minimised by following Voluntary Initiative best practice on handling, filling, storage, cleaning and disposal of crop protection products.

Figures for uptake of best practice measures can be found in The Voluntary Initiative annual reports (available on the VI website: www.voluntaryinitiative.org.uk). These practices are audited by produce assurance schemes to ensure compliance.

EXAMPLES FROM THE FIELD

GUY POSKITT, YORKSHIRE – POTATO AND CARROT GROWER

Guy is a root vegetable grower in Yorkshire, producing more than 50,000 tonnes of carrots each year, as well as various other produce such as pumpkins, potatoes, swedes and parsnips, on 5000 acres in a mixed basis of owned, rented, share and contract farming.

"Nematicides are hugely important to us growing potatoes, carrots, parsnips and sugar beet on a sandland rotation.

"Potato production on the farm would be worst hit by the loss on nematicides, potato cyst nematode (PCN) being a huge problem. Over the years, especially with the loss of products such as Temik, the PCN numbers have continued to rise to such a degree that now more than 50 per cent of our potato land would be unfarmable for potatoes without nematicides. PCN-resistant varieties are now coming through but are very limited in terms of market acceptance.

"PCN CAN REMAIN IN SOILS FOR UP TO 20 YEARS, AND WITHOUT CONTROLLING THEIR NUMBERS THEY COULD SOON ACCELERATE OUT OF CONTROL."

"On the carrot and parsnip front the situation is similar if not as defined as in potatoes, but packed tonnage per acre would reduce by five to 10 per cent in an industry that is already under financial pressure. This could result in increased production costs coupled with greater numbers of imports from competitors.

"The conclusions reached by the Andersons' report on the severely negative impact on domestic production of carrots is worrying, as is the concept that we may see little or no British carrots on supermarket shelves in the not-so-distant future."

MARK LEGGOTT, LINCOLNSHIRE – ARABLE AND VEGETABLE FARMER

Mark farms over 500 acres in partnership with his parents, growing vegetables, potatoes, peas and combinable crops in Lincolnshire

"The pea sector would be much less efficient and would struggle economically if key crop treatments were lost, and I can't see how it would lead to anything other than lower quality produce and increased prices for consumers.
"In fact, the Andersons report shows the worrying reality that with significant yield losses and the impact on quality from losing key PPPs, the likelihood is that we will have to stop producing vining peas in the UK altogether, leaving us totally reliant on imports.

"In growing peas, you soon learn the crop needs help to establish; it is not a very competitive crop and can easily be dominated by weeds during its early development, seriously affecting yield and quality if not controlled. Poor weed control can lead to significant crop loss; a 100 per cent write off is not unheard of. Therefore, a wide range of herbicides is needed to cover the whole weed spectrum.

"In this country, we only have a limited range of herbicide products (containing pendimethalin, linuron or flumioxazin), all of which face re-registration by mid-2016. Frustratingly, there are other, mostly newer materials available in other parts of the EU which we do not have access to, because our authorities are not applying the 'mutual recognition' rules in the same way as our European neighbours.

"This limited range means that if we were to lose one, it would have a hige impact on the crops in the ground. For example, if we were to lose the fungicide Chlorothalonil, it could lead to us being restricted to a very narrow range of fungicides for controlling botrytis.

"Other important fungicides include Thiram, Iprodione and Metconazole, all of which help maintain quality. Insecticide treatments under threat include Cypermethrin for control of moths and beetles in picking peas and vining peas. Insecticides are essential to maintain the quality and appearance of the harvested crop which would be rejected by the freezer or processors."

HEDD PUGH, MID WALES – LIVESTOCK FARMER

Hedd Pugh and his son Dewi run a 1,730 acres hill beef and sheep farm in two units in the Upper Dyfi Valley of Mid Wales.

"The soil is a reasonably fertile brown earth but farming is constrained by steep slopes and a constant battle against the bracken, which finds the soil and climatic conditions ideal. Bracken reduces the farm's grazable area and increases the risk of disease and livestock losses as a result of bracken poisoning. Control or at least containment of bracken, despite the cost, is vital for the successful grassland management on both holdings. The need for control is now even greater as agri-environment scheme requirements have necessitated a reduction in overall livestock numbers.

"MECHANICAL CONTROL AND CUTTING ARE NOT AN OPTION DUE TO THE TERRAIN."

"Chemical control through the judicial, well planned and responsible use of Asulam both aerially (with consent) and by tractor mounted sprayer in August is considered essential. Since 1985, an approved contractor has sprayed around 300 acres, twice from the air supplemented by on-the-ground applications where possible. Without it large tracts of the farm would be covered in dense bracken in summer and well into autumn. It would also make late summer gathering of sheep nigh on impossible and increase their vulnerability to fly strike and ticks. It should also be remembered that ticks represent a risk to humans and pets because of Lyme's disease. Biodiversity would suffer as thick continuous and extensive bracken beds do no favour to flora and fauna diversity, nor indeed to walkers who use this land classified as open access land under the CROW act.

"Unchecked, a single bracken frond can spread one metre per year. With a combined frond and rhizome mass of more than 25 tonnes per hectare, I shall let you do the maths! On this farm, like many others, chemical control is the only economic option to prevent this from occurring. The sooner Asulam, the only approved chemical for selective bracken control, regains current full approval the better. Emergency authorisation for use of the chemical in a specifi c year and period, although welcome, merely adds to uncertainty of long-term strategic control of this problematic weed."

MIKE HAMBLY, CORNWALL – ARABLE FARMER

Mike farms 500 acres in a family partnership in Callington, Cornwall, producing cereals, oilseed rape and beef. His wheat and barley crops contribute to the UK's current production of 15 million tonnes of wheat and 6.5 million tonnes of barley a year grown for food products, animal feed and renewable fuel.

"As a farmer, I have a legal responsibility to control naturally-occuring mycotoxins, which can form in diseased crops, to ensure the grain is below the legal limits of contamination and therefore safe for both human and animal consumption. Like all arable farmers, I use a combination of techniques to control and limit fungal diseases - I think it's never about just one approach. I select varieties that have a naturally higher disease resistance, rotate my crop and cultivate the soil, all to limit the requirement for applied plant protection products. At times of high disease pressure it is vital for us to have access to fungicide products that complement the crops' natural resistance to ensure the delivery of high quality and a safe product from the field.

"I am very concerned that the removal of key fungicides will further limit our ability to produce wheat and other cereals that offer the highest level of food safety to consumers. As cereal producers we need to be competitive within a global market place to ensure our business is sustainable; the loss of key fungicides will have a negative impact on this."

ALI CAPPER, HEREFORDSHIRE – APPLE AND HOPS GROWER

Ali farms in partnership with her husband Richard and his father Mark, growing top fruit and hops on 200 acres in Worcestershire.

"Apple orchards, hops, in fact all fruit and vegetable crops suffer from being classed as 'minor crops' by UK and EU pesticide regulators. It is inexplicable that size of acreage defines priorities. Across the EU, fruit and veg accounts for about three per cent of available land area and yet 20 per cent of agricultural production. The fruit and vegetable sector is not minor and the NFU continues to lobby to change this prioritisation.

"Apple tree scab is the most critical disease of commercial apple production. Failure to control it can result in very significant economic losses: either because of apple quality or yield. The eating apple market has changed over the last 10 years with retailers requiring varieties that are available for all year round and that can be grown in both hemispheres. Unfortunately most of these varieties are very susceptible to apple scab (e.g. Gala, Braeburn, Kanzi, Cameo,Jazz).

"FAILURE TO ADEQUATELY CONTROL APPLE SCAB WOULD HAVE SEVERE ECONOMIC CONSEQUENCES FOR UK APPLE GROWERS."

"Growers have a limited range of modes of action in products used for controlling scab, with no new fungicide groups expected on the market. We have a good record of preventing fungicide resistance to apple scab in the UK, and this is because we use protectant fungicides with multi-site activity. This means they, themselves, are highly unlikely to suffer from resistance, but they also protect the other site-specific chemistry from resistance. An example of a long-standing multi-site fungicide is Captan, which has been used on apples since its discovery in the early 1950s. It is the most frequently used fungicide on apples in the UK and has recently been re-registered in the UK but the harvest interval has been doubled from 14 to 31 days, which means that it cannot be used late in the season. This is a worrying change. Scab has a sexual phase during leaf fall in the autumn, and it is at that stage that any sensitivity shifts in the population could occur. Not having a multi-site fungicide available may increase the risk of resistance to other fungicides occurring. Failure to adequately control apple scab would have severe economic consequences for UK apple growers."

TIM EDWARDS, WEST MIDLANDS – HARDY NURSERY STOCK GROWER

Tim is a hardy nursery stock grower based near Wolverhampton, producing a huge variety of plants, shrubs and trees to the landscaping industry.

"As well as being the bane of most gardeners, vine weevil can also be a devastating pest in the container-grown ornamental plants industry.

"We used to achieve effective control of vine weevil using a single insecticide mixed into the compost. But this insecticide was one of the neonicotinoids accused of potentially harming bee populations. While there's no evidence our use of this neonicotinoid is harmful to bees, we decided to stop using it last year in anticipation of the neonicotinoid restrictions, and we looked for alternatives.

"We switched to using biocontrols, but these products require much more management and monitoring for them to perform properly, and even then they do not appear as effective in controlling vine weevil as the neonicotinoid we've lost. As a result we now have to use two different biocontrol products, plus we have tried looking at different insecticide sprays to control adults.

"We will also be using another insecticide incorporated into the compost, but unlike the neonicotinoid we lost, which gave nearly year-round control, this insecticide only controls vine weevil for about 38 weeks.

"We practice Integrated Pest Management on our nursery – we monitor for pests and diseases on a regular basis and we use cultural and biological controls where they will be effective. But, it just does not make sense to us that, as a result of a poorly-evidenced and overly precautionary decision by the European Commission, we have had to replace one effective control product with several other control products – products that are less effective in controlling vine weevil and that are costing us over £5,000 more a year, and there's no evidence that this change is benefitting the environment at all.

"The situation we are facing will be mirrored across hundreds of container-grown ornamentals nurseries across the country."

ROBERT LASSETER, DORSET – ARABLE AND LIVESTOCK PRODUCER

Robert grows wheat, winter barley and spring beans in a four-year rotation on his 400-acre farm in Weymouth, Dorset. His proactive, positive approach to integrated pest and disease management in his crops has not halted the relentless challenge of blackgrass on his farm.

"I put a strong emphasis on traditional control measures focused on grass weeds, starting with a four-year rotation to improve the condition of the soil and give the crop the best conditions to grow in so it's competitive with the blackgrass. Ploughing is also used to incorporate well composted farmyard manure and bury fresh weed seeds.

"While I feed the majority of his cereal crop to my pig herd, it's essential my arable cropping holds its own in global markets for cereals and oilseeds to support competitive, profitable pig production – if we're not profitable, we're not sustainable. Loss of herbicides in UK and EU agriculture in recent years has put more pressure on fewer products at home, while internationally our competitors can access a full suite of herbicides, coupled with the considerable advantage of varieties available with herbicide tolerance traits.

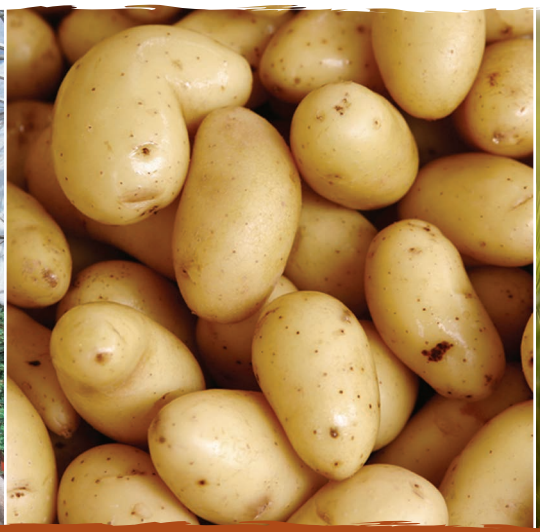
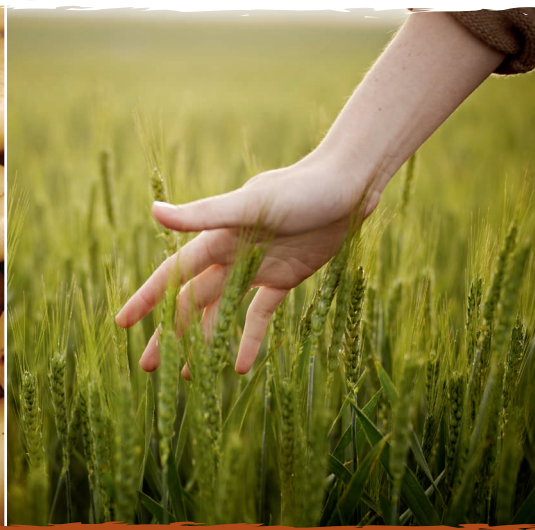
"Already having lost key blackgrass products like IPU and Trifl uralin, with diverse modes of action to reduce herbicide resistance developing, overregulation has already seriously damaged my ability to prevent the development of grass 'super weeds'. The real prospect of more herbicides being irresponsibly withdrawn can only lead to the loss of my ability to produce arable crops in the face of strong competition."

KEY ASK FOR MEPS AND EU REGULATORS

- ✓ For regulation to be risk-based and to follow sound science, with a review of the precautionary principle and its relationship to assessing risk.
- ✓ For policy making to take account of the need for investment to ensure long-term resilience in the food chain. This could be achieved by inclusion of an innovation principle in the regulatory process to ensure that whenever legislation is under consideration.
- ✓ For the impact of regulatory decisions on the availability of a single active substance or crop protection technology to be assessed in the wider context of food production strategy.
- ✓ For a change in approach to the regulation of pesticides in water removing the arbitrary 0.1ppb standards for drinking water and groundwater and replacing them with health based standards.
- ✓ For the Regulation that governs pesticide authorisation to be changed to a risk-based process to ensure sustainable production.

KEY ASK FOR MPS AND UK REGULATORS

- ✓ Ensure that the drive to increase British food production and productivity is at the heart of policy-making across all government departments. UK policy-makers must ensure the needs and interests of domestic food production are properly considered in the development and implementation of all policies and programmes. The UK Government should establish protocols, similar to its approach to Rural Proofing, to 'Food Proof' UK policy-making and implementation.

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