



STOP

POISON POULTRY

Preventing the harms associated with pesticides sprayed on industrial chicken feed



Contents



1 Summary

Bees, fish, frogs, macaws, raptors, owls, tapirs, and bats are among the wild animals in the Americas being poisoned by pesticides for the sake of cheap industrial chicken feed.

The health of farmers, farm workers, and local communities is also at risk.

This feed is imported into Britain in huge volumes to be fed to animals housed in intensive units, primarily poultry.

Walk into any supermarket in the UK and you will find chicken products complicit in these pesticide-related harms.

These harms are not the fault of British farmers or retailers, and there are no easy solutions, but the evidence is clear and highly concerning.

Our chicken supply chains need to be scrubbed clean.

The poisoning must be stopped.

See parts 2 and 3 for references



Poison Poultry

Picture the scene. Honeybees are dying by the billion. Wild bee colonies are at risk of collapse. Bugs and butterflies are vanishing from agricultural areas and their surrounds, and the creatures that feed on them, such as bats and birds, are found dead, a cocktail of chemicals laced throughout their bodies.

A soup of agrochemical run-off is flooding into wetlands, leaching into soils and rivers upstream and flowing down in a noxious brew that infiltrates the aquatic ecosystem. Amphibians choke on blooms of polluted algae. Frogs face chemical castration. Fish float to the surface, bloated and discoloured.

In recent years, scientists in Brazil have begun to report such scenes, describing a disturbing body of evidence. They speak of brightly coloured birds – macaws and tropical raptors – whose flesh is flushed with toxins. They tell of tapirs – pig-like creatures with prehensile nose-trunks – found

with pesticides laced throughout their paw pads, proboscis, stomach lining, liver, blood, bones, and nails.

These pesticide-fuelled harms might seem a world away from British dinner plates, but the average British chicken is complicit in this poisoning. The pesticides applied to soya crops in Brazil are partly our responsibility, for this soya is traded internationally and imported into Britain to be fed to our livestock, primarily chickens housed in intensive systems.

While organic chickens are produced to strict standards which prohibit the use of harmful pesticides, this is not the case for most chickens in the UK. Each time we eat a supermarket chicken curry, a roast chicken, or a box of chicken nuggets, we consequently risk contributing to environmental degradation and the loss of precious wildlife.

Chicken feed

We eat a lot of soya. The average person in Britain consumes around 60 kg each year, though we are rarely aware of this consumption. Only a fraction is eaten directly as 'soy milk' or tofu. Most is consumed within animal products – 'embedded' in meat and dairy, most commonly within chicken.

Chicken is the nation's favourite meat, accounting for almost half of all meat eaten. Consumption has risen steadily in recent years, and it continues to rise year-on-year.

This rising demand has been met through the intensification of farming, predicated on the mass production of fast-growing birds, housed in large flocks, fed a high protein diet. Soya is an integral component of this diet, providing the amino acids required for rapid and corpulent growth. Intensive chicken farming, with today's fast-growing breeds, simply wouldn't be viable without the crop.

We consequently import huge volumes of soya each year, roughly 3 million tonnes per annum. Most of this soya comes from the Americas. In the case of poultry feed, Brazil is the primary source.

Brazilian soya

In recent decades Brazil has become a global epicentre of soya production, responding to escalating global demand, fuelled by rising demand for grain-fed meat, principally pork and poultry.

Brazilian soya farming has expanded in response, and has encroached into ecologically vulnerable areas, contributing to deforestation and wildlife loss. Agrochemical use has also risen. Brazilian soya production has increased almost sixfold, and pesticide use by 900%, since 1990, positioning Brazil as one of the top three leading users of pesticides in the world.

The consequences for human and environmental health have been dire, as scientists are now beginning to understand. Wild animals, farmers and communities are being poisoned by a cocktail of highly hazardous chemicals. Precious ecosystems and individual lives are being irreversibly damaged.

Despite this evidence of harm, British supply chains and policy makers have been slow to respond.

Pesticides in Brazil

Escalating pesticide use has been linked to the genetic modification of soybeans. Around 90% of the soya grown in Brazil has been genetically modified to be 'Roundup Ready', resistant to herbicide glyphosate. Although GM has been touted as a way to improve the environmental performance of farming, its application in Brazil has enabled or encouraged repeated glyphosate application leading to the growth of resistant weeds, prompting farmers to use additional herbicides, along with a cocktail of insecticides and fungicides.

Many of the pesticides applied to soya in Brazil would be illegal to use in the UK or Europe, because of their 'highly hazardous' classification.*

These include known or suspected carcinogens and several chemicals understood to either harm the human endocrine system or pose risks to reproductive and developmental health. Some products are known to be hazardous to bees, other pollinators, and wildlife more broadly.

Notwithstanding their lack of legal status, some of these chemicals are manufactured in the UK or Europe and are exported to Brazil. At least four major pesticide manufacturers – US-based FMC Corp., Denmark's Cheminova A/S, Helm AG of Germany, and Swiss agribusiness giant Syngenta AG, which also operates out of Britain – have been selling products to Brazil that are no longer allowed in their domestic markets.

Brazil has long been a leading pesticide user, but the country's consumption of toxic pesticides has increased sharply in recent years as President Bolsonaro has adopted a reckless approach to controls and regulation. His government has actively sought to weaken controls, and this has allowed a torrent of new products onto the market. Of the 96 active ingredients contained in pesticides released in 2020, one in three are not permitted for use in the UK or EU.

There have been both winners and losers. The agrochemical industry has benefitted handsomely, as have soya trading corporations, while wild animals, farm workers and their communities are paying the highest cost.



Scientists in Brazil are reporting pesticide residues within the bodies of wild animals

photo: Macaw parrots

* There are several international frameworks for pesticide classification. The most comprehensive compilation of highly hazardous pesticides is provided by PAN: <https://www.pan-uk.org/site/wp-content/uploads/PAN-HHP-List-2021.pdf>



The average British chicken casts a toxic shadow. The UK Government and British retailers must respond.

Human health

It is estimated that each Brazilian citizen consumes an average of seven litres of pesticides per year, contributing to 70,000 acute and chronic poisonings annually, according to data prepared by the Brazilian Association of Public Health (ABRASCO). Children are among the most severely affected.

The health consequences have been the focus of a growing body of research in recent years. In 2015, the Brazilian Ministry of Health warned that pesticides were linked to an increased risk and prevalence of chronic diseases in the country, placing Brazilian children and adults at increased risk of infertility, impotence, miscarriages, malformations, neurotoxicity, hormonal deregulation, disruption to the immune system and central nervous system, and cancer.

The Ministry warned that long-term exposure to “usually low doses” of multiple pesticides in food and the environment “may affect the whole population ... and may lead to chronic health effects”. Farmers and their families, and traditional and indigenous communities living in proximity to soya farms, are understood to be of most immediate concern.

Turning a blind eye

In recent years, the UK Government and actors across the supply chain have taken concerted action to begin to address deforestation and land conversion associated with Brazilian soya. The UK Government has acted at international and national levels, and supply chain stakeholders have been convened in fora such as the UK Roundtable for Sustainable Soya and the UK Soy Manifesto.

This work is tremendously important. But pesticides have been mostly neglected.

This neglect starts at the top. The UK Government is permitting agrochemical manufacturers operating in Britain to export highly hazardous pesticides, which would be illegal to use here, to countries with looser regulation and controls, despite clear evidence of harm. Among these exports is Paraquat, manufactured by Syngenta in Huddersfield and exported to countries in the Americas such as Brazil, where it has been associated with a wave of poisonings and farmer suicides. These exports are unethical and dangerous and should be prohibited by government.

British retailers have also, while taking strides to address deforestation, failed to take concerted action to address the use of highly harmful pesticides in their animal feed soya supply chain.

In January 2022, the Soil Association surveyed the UK’s 10 leading supermarkets – Aldi, Asda, Co-op, Iceland, Lidl, Marks and Spencer, Morrisons, Sainsbury’s, Tesco and Waitrose – asking about their policies and approach to pesticides used on soya crops. The results were disappointing

(See Appendix 2 for further discussion.)

- None of the 10 leading UK supermarkets said they were monitoring or restricting the use of highly hazardous pesticides in their soya supply chain.
- Asda and Iceland declined to tell us whether they had taken, or would take, any steps to reduce the use of possible endocrine disruptors and carcinogens in their soya supply chain.
- When we asked Asda and Iceland whether they recognised that pesticides applied to soya crops posed a threat to human health and human rights in some contexts, including in Brazil, where children and families are being poisoned, they declined to respond.
- Aldi, Co-op, Lidl, Marks and Spencer, Morrisons, Sainsbury’s, Tesco and Waitrose were unable to tell us how many pesticides known to be ‘toxic to bees’ were used in their soya supply chain, and not one of the retailers had introduced robust restrictions on use.
- Waitrose was the only retailer to have measures in place to reduce the proportion of genetically

modified soya in its supply chain, including through the sourcing of organic feed and supporting alternative feed projects and trials.

- Some retailers, such as Tesco, Co-op and Lidl, purchase ‘credits’ to hypothetically cover their soya footprint, though these do not guarantee that the soya in their supply chain is free from highly hazardous pesticides.

This inaction is understandable, to a degree. Soya supply chains are opaque and consolidated, and exercising influence is a challenge. Retailers and other supply chain actors have been focussed on addressing the pressing issue of deforestation. The harms associated with pesticides in Brazil are not principally the responsibility of British farmers or retailers.

But the evidence of harm is now overwhelming. The average British chicken casts a toxic shadow. And there are solutions which must now be enacted. The UK Government and British retailers must respond.

Solutions

The UK Government has a critically important role to play in addressing the pesticide-related harms discussed above. As a minimum, the UK Government should –

- **Prohibit companies operating in the UK from selling highly hazardous pesticides abroad.** Agrochemical companies operating in the UK exported pesticides containing 12,240 tonnes of seven different chemicals banned in the UK in 2020. This is unethical and dangerous, and should not be allowed.
- **Ensure that the due diligence requirements of the 2021 Environment Act are applied to soya.** The Act aims to address illegal deforestation in UK supply chains. Soya should be of primary concern, with actors across the supply chain supported to enhance transparency and reporting, building the integrity and visibility of the soya supply chain.
- **Commit to a pesticide reduction target** as part of the Paris-style agreement for nature that will be signed at COP 15 in Kunming, China, later this year. The Summit will introduce targets across a range of environmental outcomes, among them a two-thirds percentage reduction target for pesticide use.
- Introduce, as recommended by PAN UK and Sustain in their recent 'Toxic Trade' report, **'maximum residue levels' (MRLs) for all produce used for animal feed**, including soya sourced from Brazil.
- **Aim for UK consumption and production of poultry to 'peak' within 12 months** and decline thereafter, including by phasing out intensive poultry from the menus of public setting canteens, placing a moratorium on the construction of new intensive poultry units, and implementing the National Food Strategy recommendation for mandatory reporting on protein sales and method of production in retail and other settings.

Retailers are the primary interface between British citizens and chicken products complicit in the pesticide-related harms described in this report – the 'poison poultry' which makes up so much of our national diet. The British public expect foods on supermarket shelves, especially own-brand products, to be free from significant environmental or social harms. Most chicken products are not free from such harms. An onus of responsibility therefore falls on the retailers to address this issue.

Retailers cannot, of course, do it alone. Action is needed along the UK supply chain – by traders, feed manufacturers, and poultry processors – and by policy makers in national government. But there is a key role for retailers, both in setting an ambitious aim and in building momentum towards delivery.

To this end, we are asking that the retailers **develop and commit to a time-bound plan** to address the harms associated with highly hazardous pesticides in their soya supply chain, starting with poultry. This plan should build on, and harmonise with, existing commitments and plans related to deforestation and land conversion. The plan should be drafted within 12 months and must include a commitment to achieving **a poultry supply chain free from highly hazardous pesticides by 2030**.

This plan might include the following:



- **Action to enhance monitoring and reporting**, aiming to establish more clearly in relation to volumes of soya in the supply chain, the locations of origin, and details where possible on farm-level methods of production and agrochemical use.



- **Action to achieve year-on-year increases in the percentage of certified soya in the retailer's poultry supply chains**, including via uptake of certification schemes which address pesticide use and are predicated on physical certification.



- **Action towards full chain of custody oversight for soya sourced as poultry feed**, implementing the FEMAS chain of custody certification or the FEFAC guidelines, working with poultry processors and down the supply chain.



- **Collective action as a retail sector to tighten and strengthen required standards on pesticide use in soya certification and benchmarking.**



- **Increased percentage share of organic poultry and animal produce.**

In addition, the action plan should include **a commitment and actions to scale up alternative feeds**, with the ambition of reducing the soya component of chicken feed from 20% to 10% by 2030, with UK (or European) protein crops used instead.

See Part 3 for further detail and discussion of solutions.



Supermarkets must commit to a poultry supply chain free from highly hazardous pesticides by 2030.



75%

of UK soya
consumption is
within animal
feed

UK soya consumption

Efeca, which convenes the UK Roundtable on Sustainable Soya, an umbrella group of companies and organisations that want to source soya sustainably, reports that the UK imported 3.5 million tonnes of soya in 2019, the latest year for which data is available. When combined with soya imported into the UK 'embedded' in food products, such as imported meat and dairy, the UK's total consumption amounted to around 4.2 million tonnes. Most of the UK's soya consumption, at least 75%, is within animal feed.

Argentina is the UK's most significant sourcing partner, representing nearly half of all soya imports. These imports are typically traded as soya meal as opposed to whole beans and sold into the animal feed sector as 'soya of any origin', suitable for pigs and other livestock where the source of the soya is not critical for nutritional reasons. This is closely followed by Brazil, which is where the majority of the UK's 'high protein' soya is sourced. This soya is more likely to feed into the poultry sector, which requires soya with a high protein content to produce large birds in small timescales.

Of the 1,937,500 tonnes of soya incorporated into animal feed in Britain in 2019, 1,113,800 tonnes was fed to broiler chickens, roughly 57% of the total.¹

Soya farming in Brazil

Soybeans are prized for their versatility and traded globally. Only a fraction of this trade is in whole beans which are consumed directly or as a food ingredient. Most soya is traded as animal feed

(often having been crushed to form meal) and as oil. Soybean oil is the second largest source of vegetable oil globally and is also used in products such as biodiesel and detergents.

Soya production in Brazil has expanded significantly since the 1970s in response to growing global demand, fuelled by demand for animal products. This growing demand is associated with demographic shifts and increased spending power in 'developing' economies, coupled with ongoing high levels of demand for soya-fed meat (mostly pork and poultry) and dairy in more affluent nations. While the animal feed and soybean oil markets are co-dependent, demand for animal products has been the primary driver of market growth and Brazilian soya expansion.²

Soya now occupies an area of approximately 35 million hectares in Brazil, a third of the total area of soya cultivated globally.³ While production in Brazil has been expanding for decades – increasing almost ninefold over the past 30 years, from 566 million bushels for the 1990/91 crop to 4,965 million bushels for 2020/21 – this growth has accelerated in the past decade.⁴

Brazil's explosive growth in soya output has been driven by increases in both planted area and yield. Between 1990/91 and 2020/21, the land-area under soya cultivation increased from 24 million acres to 95 million acres (35 million hectares), an increase of 291%. Over the same period, average yields increased 121%, from 23.5 bushels per acre to 52.0 bushels. This yield growth has been facilitated by investments in technology and the use of agrochemicals, such as fertilisers and pesticides.⁵

photo left: soy bean plantation

2 Analysis & Evidence

Pesticide use in Brazil

Soya farming is the primary driver of pesticide use in Brazil. Though it represents only 42% of arable farmland in the country, soya accounts for more than 60% of agrochemical use. A cocktail of more than 450 chemicals is applied to soya, and many of these pesticides are toxic to humans or harmful to nature, according to the Brazilian National Health Agency and the Ministry of the Environment.⁶

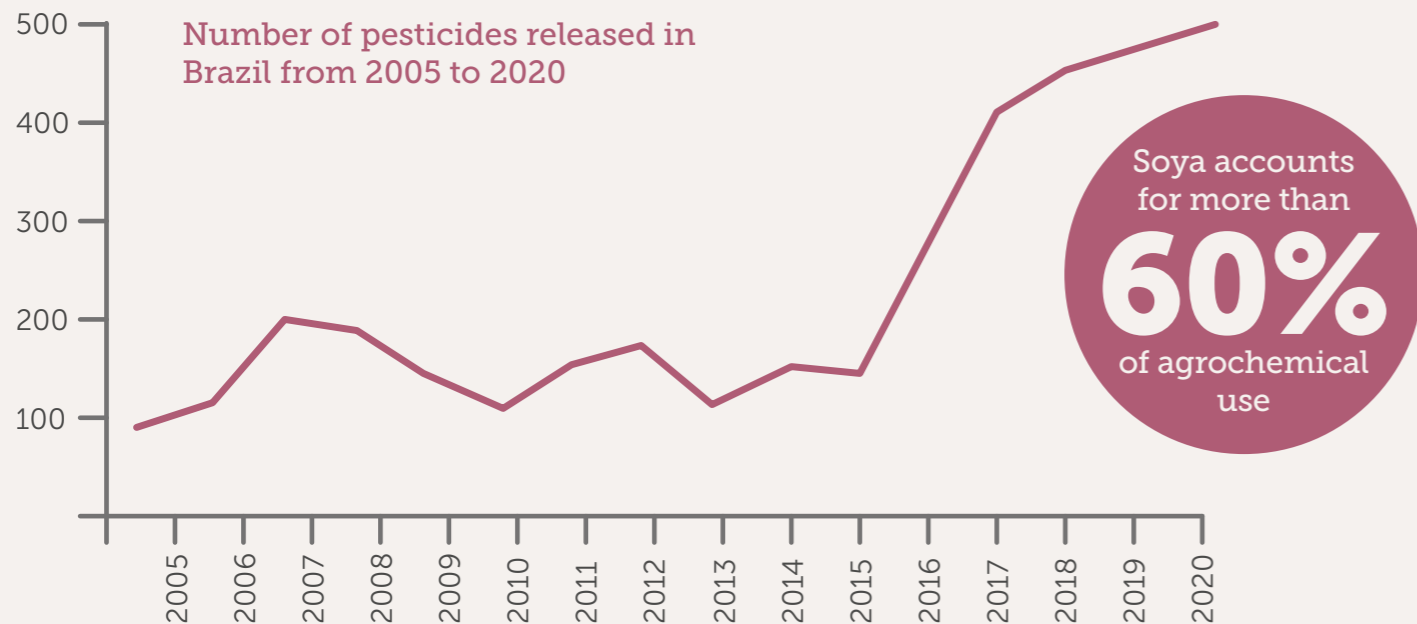
Pesticide use has been either tacitly or explicitly encouraged by the Brazilian government through a policy of tax exemption for producers of commodities. Intensification is the name of the game. Small farmers and producers have been prompted to use agrochemicals to boost their yield and output, as agroecological production is not considered competitive enough to receive government support.⁷

The Bolsonaro government has entrenched this support for intensive production by allowing a glut of new and harmful chemicals onto the market. In 2019, in the first year of Bolsonaro's presidency, 474 new pesticides were licensed for use, of which 110 were classified as 'extremely toxic', 52 as 'highly toxic' and 170 as 'moderately toxic'. In 2020, this rose to 493, and in this new

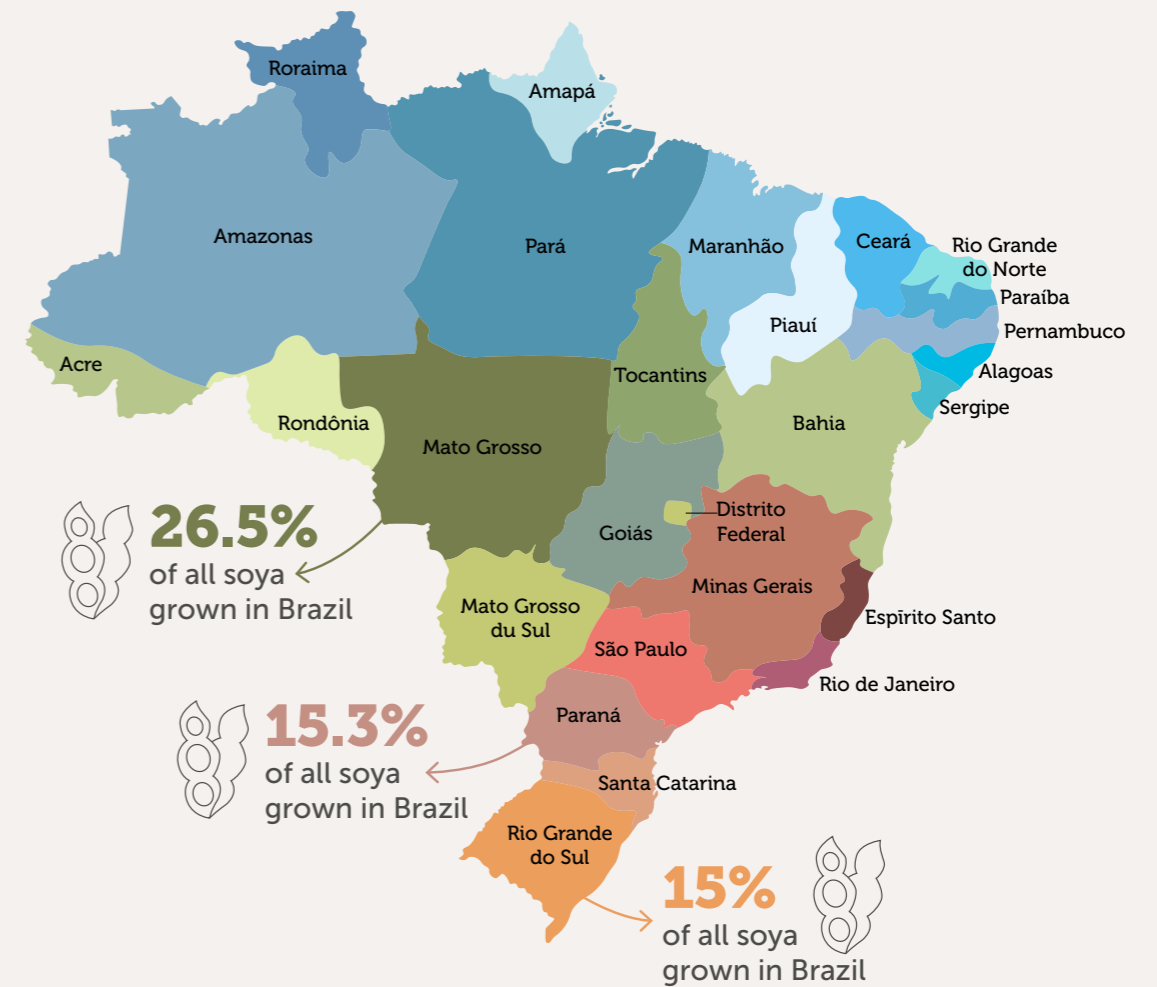
cohort were numerous products containing ingredients believed to be hazardous to humans and wildlife. Many of these products are not permitted for use in the UK, US, or Europe. (See Appendix 1 for details.)⁸

Within the 2019 cohort were florpiauxifene-benzyl, fluopiram and dinotefuran, the latter being a neonicotinoid insecticide, prohibited in Europe and under re-evaluation in the US, due to the risk it poses to bees and other pollinators. Six products contained the active ingredient sulfoxaflor, a new sulfoximine class insecticide, which has been associated with increases in bee mortality. The active ingredient imidacloprid, found in 37 new products, is a neonicotinoid compound, which, along with thiacloprid and clothianidin, has been associated with sublethal and lethal effects on bees.⁹

And there is likely to be more to come. In February 2022, it was reported that Brazil's lower house had approved a new bill seeking to further loosen controls on pesticide approvals. The proposal has been dubbed the 'Poison Bill' by critics who say it paves the way for more dangerous pesticides to be used, further entrenching soya productions in harms to humans and wildlife.¹⁰



Map of Brazil showing states with the highest volumes of soya production



The local context

Soya production is concentrated across several states. In 2020/21, Mato Grosso, in the Midwest region, had the greatest land-area under soya, accounting for 26.5% of all soya grown in Brazil. The second and third states were the two southern states, Paraná with 15.3% and Rio Grande do Sul with 15.0%.¹¹ In the Cerrado region, Matopiba is at the forefront of soya cultivation, the soybean area increasing by 253% between 2000 and 2014.¹²

Some controls and regulations related to pesticides are devolved to regional administrations. In some states (such as Distrito Federal, Alagoas, Mato Grosso do Sul, and Ceará) and municipalities within states (such as Minas Gerais, Acre, and Espírito Santo), there are bans on the use of aerial spraying and prohibitions on use in proximity to inhabited areas.

In the states with the highest levels of use – Mato Grosso, Rondônia, Paraná, Santa Catarina, and Rio Grande do Sul – there are some restrictions on how and where pesticides may be used, though monitoring is often lax and restrictions partial. In Rio Grande do Sul, there are additional laws related to awareness of pesticide risks, which include the requirement that schools teach about ecology and pesticides, and the stipulation that organic food should be served in school canteens.

The divergences in regulation at a national and regional level, and the lack of robust monitoring or enforcement, attest to the fact that pesticides are politically controversial in Brazil. Agrobusinesses and agrochemical companies have actively lobbied for deregulation, while scientists, NGOs, and public health experts in government have raised concerns. The Bolsonaro government has sided with agrobusinesses, at escalating cost to the natural environment, wildlife, and human health.¹³

Ecosystems at risk

The natural environment in Brazil is a rich tapestry of rainforest, grasslands, savanna, wetlands, coastal biomes, agricultural lands, and urban development. It is home to the greatest diversity of animal and plant life of any country. In relation to pesticide pollution and poisoning, it has more to lose than most, and there is evidence of pesticide-related harms being channelled through the air, water, and soil.



Air pollution

When sprayed on crops, some chemicals within pesticides evaporate or are released into the air, where they are carried on the wind into the surrounding environment. The diffusion of hazardous chemicals can contaminate ecosystems, either proximate or distant from agricultural areas, and generate airborne pollution that harms the respiratory system of humans and animals.



Water pollution

Pesticides may enter surface and ground water through spray drift or runoff from plants and soil, infiltrating aquatic ecosystems. Drinking water can be contaminated, posing a threat to human health, while fish and other aquatic organisms may be threatened by chemical poisoning. It's estimated that freshwater bodies in 80% of Brazilian states are contaminated with herbicides.¹⁴



Soil pollution

It's common for pesticides to leach into soils, where they can harm microorganisms such as bacteria, earthworms, fungi, insects, and other microbes. The effects can be detrimental for both plant growth and soil fertility, undermining the productivity and resilience of agricultural and wild ecosystems. These chemicals also leach from soils into streams and the atmosphere and are eaten as residues in foods.

The unique and precious diversity of plant and animal life in Brazil makes it difficult (or impossible) to provide a comprehensive summary of at-risk ecosystems. But among the most important and endangered are the Pantanal, Amazon, and Cerrado.

Scientists have discovered that waterways feeding into the Pantanal are contaminated with a soup of toxic pesticides

The Pantanal

The Pantanal is one of the world's largest freshwater floodplains. It supports a diverse and unique assemblage of flora and fauna and provides important regional and global ecosystem services.¹⁵ The Pantanal itself is relatively untouched by agriculture, with only 0.01% of its area occupied by soya. Scientists have nevertheless discovered that waterways feeding into the Pantanal are contaminated with a soup of toxic pesticides, with potentially devastating consequences for aquatic organisms, and evidence that some species of fish are growing scarce in certain locations. This is understood to

be the result of soya production upstream. The wetland has, in effect, become an enormous depository for agrochemical residues washing down from the northern plains of Mato Grosso, an epicentre of soya farming. As cultivation has expanded, soya fields have edged closer to the springs that feed the Pantanal, and the poison has been flushed downstream. Unless action is taken to curtail pesticide use in Mato Grosso in the next few years, the consequences for the Pantanal could be severe.¹⁶

photo: Pantanal

The Amazon

The Amazon is the world's largest tropical rainforest and has endured decades of deforestation and land conversion for cattle ranching and soya cultivation. Pesticide use in the region has risen in turn, with concerning consequences for sensitive, vulnerable, and endemic species in the biome. Several studies have discovered agrochemical contamination in tributaries of the Amazon River, threatening both human populations and aquatic life. Scientists are concerned that pesticides applied to soya in the region have contaminated lakes and lagoons, poisoning fish in rivers' floodplains, causing harms to human and ecosystem health which are only now beginning to be understood. In some areas, residents are regularly consuming water, fish, fruit and vegetables contaminated by a cocktail of pesticides that derive from soya farms. The true scale of the poisoning remains unknown.¹⁷



400
million litres of
pesticide product
applied annually in the
Cerrado region

The Cerrado

The Cerrado is a tropical savannah biome located to the south of the Amazon, home to a unique and precious array of plants and animals. In recent decades the Cerrado has been at the leading edge of agricultural expansion, with vast areas of native vegetation cleared for cattle ranching and soya. The Cerrado's Matopiba region is at the forefront of this expansion, the soybean area increasing by 253% between 2000 and 2014.¹⁸ This has, in turn, fuelled a high level of pesticide use, with an estimated 400 million litres of pesticide product applied annually in the region.¹⁹ This increasing toxic load has been associated with increasing

photo: Chapada dos Guimarães, Mato Grosso, Cerrado

impacts on people's health. The national average rate of pesticide poisoning in Brazil in 2017 was 6.8 cases per 100,000, a figure that rises to 8.5 per 100,000 in the Cerrado. There is a higher rate of child cancer in the region compared to the rest of Brazil, and environmental pesticide pollution is placing pressure on the remaining native vegetation.²⁰ The UK imports 100,000 tonnes of soya beans from the Cerrado every year, mostly as animal feed.



photo: Phalcoboenus chimango in flight

Impacts on wildlife

Wildlife is exposed to pesticides in the natural environment and in contaminated food and water. This exposure can cause harm along multiple metabolic pathways, promoting adverse behavioural changes, disrupting biological and reproductive cycles, and sometimes contributing to increased mortality. Such evidence of potential harm has been found in relation to diverse species in Brazil.

Birds

Analysis of owl carcasses collected between 2018 and 2019 in southern Brazil found evidence of the pesticides abamectin, atrazine, chlorpyrifos-ethyl, and diuron in their tissues. The scientists conducting the analysis warned that bioaccumulation of these toxins might impact the species at a population level, altering their ecological function and unbalancing the encompassing ecosystem.²¹ Raptors (birds of prey) seem to be especially susceptible to pesticide poisoning due their preening behaviour, which allows chemicals on their feathers to come into

contact with their beak and skin, increasing the likelihood that toxins will enter the digestive tract and bloodstream. In keeping with these findings, a 2021 study described the results of a necropsy conducted on hyacinth macaws from the Pantanal. Dangerous levels of organophosphate pesticides were found in their tissues.²² A 2020 study also found organochlorine pesticides in the feathers of three raptor species (*Phalcoboenus chimango*, *Milvago chimachima* and *Caracara plancus*).²³ Hundreds of rare or endangered bird species in the Amazon, Pantanal and Cerrado are believed to be at risk due to pesticide poisoning.

Humans reliant on aquatic ecosystems and consuming freshwater fish that have been poisoned by pesticides are also at risk.

Mammals

Analysis of tapir carcasses from the Cerrado found the presence of numerous pesticides, including two carbamates (aldicarb and carbaryl), three organophosphates (diazinon, malathion, and mevinphos), two pyrethroids (deltamethrin and permethrin), and two toxic metals (cadmium and lead). These were detected in roughly 40% of tissue samples – on the animals' paw pads, within the proboscis (snout), stomach, liver, blood, bones and nails – some at concentrations high enough to cause adverse health effects in the individual. Some concentrations exceeded environmental safety thresholds, raising concerns over potential effects that could lead to population level and ecosystem impacts.²⁴ Concerning evidence has also been found of pesticide poisoning among bats, which play important ecological roles in forest and agricultural ecosystems through seed dispersal and insect population control. Bats are exposed to pesticides through food or water contamination, or through direct skin contact in their roosting areas, with several pesticides commonly applied to soya crops understood to pose a threat to their reproductive health.²⁵

Fish

Aquatic ecosystems are at known risk from pesticide pollution, and the effects on aquatic organisms have been amply demonstrated.²⁶ Fish exposed to pesticides, such as methyl parathion organophosphate, can exhibit fatigue, involuntary



photo: fish swimming in the water in Bonito, Mato Grosso do Sul, Brazil

muscle contractions, and eventually, paralysis of the body extremities and the respiratory muscles, resulting from the interaction between these pesticides and the central nervous system. Humans reliant on aquatic ecosystems and consuming freshwater fish that have been poisoned by pesticides are also at risk.²⁷

Amphibians

Amphibians can serve as bioindicators of environmental health as they are highly sensitive to chemical pollution. Scientists studying amphibians in Brazil have found concerning evidence that amphibian alarm bells are ringing. They observed malformations in three amphibious species at breeding sites in the Amazon, close to an area where the herbicide glyphosate had been applied. The observations echoed those from Brazil's Atlantic Forest where scientists have studied morphological anomalies and mortality in amphibians exposed to herbicides.²⁸ Frogs are among the amphibians chiefly affected. The chemical atrazine, which is still legally used in Brazil, is known to cause hermaphroditic deformities, undermining frogs' reproductive capability (in effect, causing 'chemical castration'). Atrazine is also toxic to some fish species and indirectly affects the immune system of several amphibian species, increasing their susceptibility to deadly diseases. Several novel weedkillers approved in recent years by the Bolsonaro government are known to contain atrazine, which has been banned in the EU since 2003.²⁹

Impacts on bees

Some of the most concerning evidence from Brazil pertains to bees, both managed honeybees and wild bees, which are exposed to pesticides while searching for pollen, nectar, and water. Chemicals latent in the environment may be ingested and absorbed during the bees' foraging, causing toxic effects, such as physiological damages or changes in behaviour, with potentially far-reaching consequences for agricultural and wild ecosystems. In recent years, as pesticide use has increased, the evidence of harm has deepened in turn.

Managed honeybees

Significant declines in Brazilian bee populations, and the associated collapse in *Apis mellifera* colonies, have been reported in recent years. It's estimated that over a 5-year period from 2013 to 2017, more than 1 billion bees were lost in Brazil, including honeybees and wild bees. For managed honeybees, a high rate of colony losses has been observed and reported over recurring years, these losses tending to occur during spring and summer, at the peak of agricultural activity. Almost 50% of beekeepers believe that pesticides are the main cause, and chemical analyses support this conclusion.³⁰ Analysis suggests the main drivers for bee deaths relate to the exposure to fipronil, followed by the neonicotinoid pesticides clothianidin, imidacloprid, and thiamethoxam, all used in soya cultivation.³¹

The losses have been regionally concentrated. In Rio Grande do Sul, in the south of Brazil, roughly 7,000 beehives were lost in December 2018, and it has been shown that 80% of these bee deaths were caused by pesticides used in soya cultivation, with the heaviest losses recorded in the central region of the state, coinciding with prairie soybean plantations.³² Between 2014 and 2017, some 200 occurrences of 'mass beehive loss' were reported in the state, and in 70% of the cases fipronil was the main pesticide detected.³³ Similar evidence has emerged from other regions. In 2020 in only four Brazilian states, more than five hundred million bees were found dead. The main cause for this mortality was the use of neonicotinoid and fipronil pesticides, used in soya farming.³⁴

Wild bees

Stingless bees such as *Apidae* and *Meliponini* are the main pollinators of native plants in tropical regions of Brazil and are commonly exposed to pesticides when foraging on contaminated flowers. In one recent study, the susceptibility of stingless bees to the ingestion of the most widely used herbicides and insecticides in Brazil was investigated. Bees were orally exposed to food contaminated with the insecticide acephate or the herbicide glyphosate in concentrations permitted for use in agriculture. The results indicated that these pesticides reduced the lifespan of foragers; increased mortality rates; and impaired the bees' flight ability. The study demonstrated that wild bees are susceptible to commonly used pesticides, at levels permitted in soya farming.³⁵

Several studies have shown that native bees might be even less tolerant to the insecticide fipronil than the managed (and non-native) honeybee. Stingless bees have been recognised as essential plant pollinators and producers of various natural products in neotropical areas. Research into the potential risks to bees of many pesticides remains slim, but that research which has been conducted provides grounds for concern.³⁶

Pesticide use in Brazil contributes to

70,000
acute and chronic poisonings annually

photo: Spraying pesticide in soybean plantation

Impacts on human health

A 2022 meta-analysis reviewing studies addressing the relationship between exposure to pesticides and health problems in the Brazilian population concluded that pesticide exposure had caused significant harms to public health, regardless of age and gender, in both rural and urban areas. Among the harms reported were damage to the central nervous system, increased cancer rates, intoxications, malformations, and endocrine changes.³⁷

It is estimated that each Brazilian consumes an average of seven litres of pesticides per year, contributing to 70,000 acute and chronic poisonings annually, according to data prepared by the Brazilian Association of Public Health (ABRASCO). The Brazilian Ministry of Health warns that, for each notified pesticide poisoning event, there are another 50 not reported. It is known that children are the most at risk and affected by accidental pesticide poisoning.³⁸

The populations most vulnerable to the spraying of pesticides – including glyphosate, applied to soya crops in high volumes – are native peoples and traditional communities, indigenous communities, and family farmers, especially those living in proximity to soya farms.³⁹

Irresponsible behaviour by agribusiness, exhibited through a lack of regard for farm worker health and welfare, has accentuated the risks to those involved in soya cultivation. In one recent survey, 80% of Brazilian pesticide applicators said they were unaware of the requirement to use Personal Protective Equipment (PPE), and 92% reported not using any PPE, either in the mixture's preparation or in the application of pesticides.⁴⁰



3 Solutions

Confronting the challenge

The average British chicken dinner is complicit in a litany of harms related to the use of highly hazardous pesticides in soya cultivation in Brazil. There are compelling reasons for actors along the poultry supply chain – soya traders, feed manufacturers, poultry processors, and retailers – to take action to alleviate and avoid these harms, alongside action from UK policy makers at a national level.

The Soil Association is campaigning to ‘Stop Poison Poultry’, calling for action by British businesses and government to prevent the harms associated with soya cultivation in Brazil.

This action should be double-pronged and should include steps to both

- **‘clean’ UK supply chains**, ensuring that soya associated with highly hazardous pesticides is not fed to British livestock, and UK reliance on unsustainable feed is eased; and
- **transform production practices on the ground**, using UK buying power and influence to support a transition to more nature-friendly production.

Neither of these is straightforward. Indeed, both are hugely challenging, for several reasons:

Supply chain opacity

International soya supply chains are opaque, limiting the ability of British businesses to trace soya back to its ultimate source or understand how it was produced. While progress has been made in recent years in measuring and monitoring the volume of ‘deforestation free’ soya purchased and consumed in the UK, tracing soya back to the farm or determining farm-level production practices related to agrochemicals is a significant challenge.

Supply chain consolidation

International soya supply chains are largely controlled by a handful of dominant producers and traders. In Brazil, the six largest traders together account for almost 60% of soya exports. These companies should play a leading role in addressing the environmental and human health issues linked to soya production, but

they are difficult to influence.⁴¹ Cargill, a global food corporation and the largest privately held corporation in the US, is responsible for an estimated 70% of UK imports of Brazilian soya.⁴²

Defining ‘sustainable’ soya

There is no consensus on the definition of ‘sustainable’ in relation to soya. Over fifty different frameworks worldwide have been developed to govern the production and trade of soya, and within these frameworks pesticides are addressed to differing degrees and in varying ways. The UK Roundtable on Sustainable Soya has led efforts to develop measurable indicators for sustainable sourcing but has focussed on ensuring legality and the protection of forests and valuable native vegetation – pesticides have not been a focus.

Limits of certification

Several third party and corporate certification schemes have been developed, and some of these nominally address pesticide use, though not in a consistent or robust manner. Certification also has limited reach, with the chain of custody (the paper trail that tracks the movement of materials) typically ‘breaking down’ after import. While physically segregated supply chains have been developed for non-GM soya, segregation does not exist for certified soya beyond the sale to the feed manufacturer.⁴³

In addition, only 2% of soya grown globally is certified, and most UK purchases are ‘book and claim’ credits, which support more sustainable production but provide no guarantee that the volumes of soya used by the buyers are free of environmental risks. While there is an increasing take up of more physical models of certification, it will be challenging to drive a transformation in pesticide use at the pace and scale required using certification alone.

A small player

The UK is a small player in a massive Brazilian soya market. Brazil’s exports are valued at US\$28.6 billion, and China is the primary purchaser, buying 73.2% of all Brazilian exports in 2020.⁴⁴ The influence UK buyers and supply chains might exercise over production practices in the country is therefore limited.



There are meaningful and critically important actions that UK policy makers and the soya supply chain can take to address the pesticide-related harms associated with Brazilian soya

photo: deforestation

Beyond deforestation

Nevertheless, there are meaningful and critically important actions that UK policy makers and the soya supply chain can take to address the pesticide-related harms associated with Brazilian soya, building on recent positive momentum to address deforestation and land conversion risks, which have prompted action by both businesses and government.

At a national level, the UK Government has introduced new **due-diligence requirements pertaining to forest risk commodities** (such as soya) in the 2021 Environment Act, aiming to address illegal deforestation in UK supply chains.⁴⁵ The Act is yet to be fully implemented, but should force traders and importers, as well as poultry processors and retailers, to be more accountable, helping to generate a greater degree of transparency in soya supply chains.

The UK Government also led efforts at an international level to attain **a pledge at COP 26 from**

over 100 countries, among them Brazil, to halt and reverse forest loss and land degradation by 2030. This is the latest in a series of international commitments, which have mostly been limited in effect, but signal a degree of political ambition to address the environmental impacts of traded international commodities. The upcoming COP 15 biodiversity conference in Kunming, China, will explicitly frame pesticide reduction as an international priority in addressing the ecological crisis.⁴⁶

Actors along the UK supply chain have also sought to address deforestation and land conversion in collaboration, with an industry-led **UK Roundtable on Sustainable Soya** convened in March 2018 at the behest of the UK Government. The role of the Roundtable is to provide buyers and specifiers of soya in the UK with a platform for renewed impetus for action on sustainable soya and a means of tracking and communicating progress.

The Roundtable has, to date, focused on deforestation and land conversion. While a broader range of environmental, social, and economic

factors have been considered, the Roundtable decided it might be unwise to set too wide a scope, lest clarity of purpose and impetus for action was lost. Pesticide and agrochemical use have therefore not been concertedly addressed.

The Roundtable has nevertheless played a role in encouraging and supporting British retailers and businesses to adopt **sustainable soya policies**, with a focus on monitoring and reporting and increasing uptake of soya certification and feed assurance schemes. These policies typically do not explicitly address pesticide use, but they may be extended to do so (see below).

The **UK Soy Manifesto** is also working with actors across the soya supply chain with the ambition that all physical shipments of soya to the UK are deforestation and land conversion free as soon as possible, and by 2025 at the latest. Signatories to the Manifesto, which include the major retailers and several major poultry processors, are expected to embed the 2025 deadline and accompanying

requirements in commercial contractual requirements with suppliers.

While the focus is on deforestation and land conversion, the Manifesto aims to provide a platform through which signatories can be signposted to a broader set of **complementary actions relating to environmental and social outcomes** (such as those related to pesticides), supporting change at a landscape or jurisdictional level in key producing landscapes/countries, such as Brazil. The Manifesto provides a framework through which the pesticides issue might begin to be addressed.

All of this provides grounds for optimism and impetus for action. While deforestation and land conversion are critically important – and it is understandable that efforts have been focussed on these issues to date – the evidence of harm associated with pesticide use is now overwhelming. The case for action is compelling. It's time to talk solutions.

Solutions: UK Government

The UK Government has a critically important role to play in addressing the pesticide-related harms discussed above. As a minimum, the UK Government should –

- **Prohibit companies operating in the UK from selling highly hazardous pesticides abroad.**

Agrochemical companies operating in the UK exported pesticides containing 12,240 tonnes of seven different chemicals banned in the UK in 2020. They included paraquat, a weedkiller linked to Parkinson's disease; imidacloprid, a neonicotinoid banned in 2018 because it harms bees; propiconazole, a fungicide banned because it was classified as capable of harming babies in the womb; and chlorothalonil, a fungicide banned in 2019 over concerns that it might contaminate groundwater. This is unethical and dangerous. Companies operating in the UK should not be allowed to sell these products.⁴⁷

- **Ensure that the due diligence requirements of the 2021 Environment Act are applied to soya.**

The Act aims to address illegal deforestation in UK supply chains, but the scope of the requirements and guidance for business is still being developed. Soya should be of primary concern, with actors across the supply chain supported to enhance transparency and reporting, building the integrity and visibility of the soya supply chain. Accordingly, UK businesses to whom the Act applies should, we suggest, be required to:

- obtain information, supported by evidence, that allows them to trace the soya in their supply chain to the geospatial location on which it was cultivated; verify whether that land has been subject to deforestation or conversion; identify the actors involved in the production process; identify all "relevant local laws" and the legal requirements they impose; and determine whether the "relevant local laws" have been complied with;

- and in addition, obtain information, supported by evidence, regarding the cultivated area in terms of environmental protections and land use rights, supported by guidance from UK Government pertaining to the UK's commitments regarding human rights abuses and environmental crimes. This guidance should ensure that human rights concerns and environmental degradation are integral to effective due diligence.

- **Commit to a pesticide reduction target** as part of the Paris-style agreement for nature that will be signed at COP 15 in Kunming, China, later this year. The Summit will introduce targets across a range of environmental outcomes, among them a two-thirds percentage reduction target for pesticide use. The UK Government and devolved administrations should commit to this target, both in relation to traded commodities and domestic production.

- Introduce, as recommended by PAN UK and Sustain in their recent 'Toxic Trade' report, **'maximum residue levels' (MRLs) for all produce used for animal feed, including soya sourced from Brazil.** Currently, while produce for direct human consumption, such as fruit and vegetables, has legally defined MRLs, soya used as animal feed is exempt. These MRLs should be set at equal levels (or lower) than those applied to human foods. See 'Toxic Trade' for further details of this recommendation.⁴⁸

- **Aim for UK consumption and production of poultry to 'peak' within 12 months** and decline thereafter, including by phasing out intensive poultry from the menus of public setting canteens, placing a moratorium on the construction of new intensive poultry units, and implementing the National Food Strategy recommendation for mandatory reporting on protein sales and method of production in retail and other settings. See the Soil Association's 'Peak Poultry' briefing for further detail.⁴⁹



Solutions: Industry Collaboration

The UK Roundtable on Sustainable Soya and the UK Soy Manifesto have made important progress towards a more sustainable soya supply chain. While the focus has been on deforestation and land conversion, the UK Soy Manifesto provides an opportunity to begin to address pesticide use.

Manifesto signatories will be required to publish an annual progress report, outlining their progress each year. This will initially focus on deforestation and land conversion, but in time these reports might – and should – be expanded to include reporting on agrochemical use.

This reporting will be supported by the development of **a harmonised monitoring, reporting and verification (MRV) system**, which will provide an independently verified measure of imported soya against the Manifesto goals. The MRV system should also include criteria pertaining to pesticide and agrochemical use, developed in dialogue with the Soil Association and PAN UK.



Solutions: Retailers

Retailers are the primary interface between British citizens and chicken products complicit in the pesticide-related harms described in this report – the ‘poison poultry’ which makes up so much of our national diet.

The British public expect foods on supermarket shelves, especially own-brand products, to be free from significant environmental or social harms. Most chicken products are *not* free from such harms. An onus of responsibility therefore falls on the retailers to address this issue.

Retailers cannot, of course, do it alone. Action is needed along the UK supply chain – by traders, feed manufacturers, and poultry processors – and by policy makers in national government. But there is a key role for retailers, both in setting an ambitious aim and in building momentum towards delivery.

To this end, we are asking that the retailers **develop and commit to a time-bound plan** to address the harms associated with highly hazardous pesticides in their soya supply chain, starting with poultry. This plan should build on, and harmonise with, existing commitments and plans related to deforestation and land conversion. The plan should be drafted within 12 months and must include a commitment to achieving **a poultry supply chain free from highly hazardous pesticides by 2030**.

This plan might include the following (see Appendix 3 for further discussion):

- **Action to enhance monitoring and reporting**, aiming to establish more clearly in relation to volumes of soya in the supply chain, the locations of origin, and details where possible on farm-level methods of production and agrochemical use.
- **Action to achieve year-on-year increases in the percentage of certified soya in the retailer’s poultry supply chains**, including via uptake of certification schemes which address pesticide use and are predicated on physical certification.
- **Action towards full chain of custody oversight for soya sourced as poultry feed**, implementing the FEMAS chain of custody certification or the FEFAC guidelines, working with poultry processors and down the supply chain.
- **Collective action as a retail sector to tighten and strengthen required standards on pesticide use in soya certification and benchmarking**.
- **Increased percentage share of organic poultry and animal produce**.

In addition, the action plan should include **a commitment and actions to scale up alternative feeds**, with the ambition of reducing the soya component of chicken feed from 20% to 10% by 2030, with UK (or European) protein crops used instead. This might require the following:

- **Action down the supply chain** with feed manufacturers and poultry processors to co-develop an approach to delivery, trialling alternative feeds and progressively growing the UK market for protein crops.
- **That suppliers work with producers to introduce slower growing breeds of bird** at the earliest opportunity, with full compliance with the Better Chicken Commitment ensured by 2026 at the latest. The reduction of soya in poultry feed is unlikely to be achievable unless slower growing breeds are adopted.

By 2030, retailer reliance on imported soya for poultry feed should accordingly be reduced by roughly 50%, with the remaining 50% free, as far as is possible, from highly hazardous pesticides.

The Soil Association will work in partnership with the retailers to develop and deliver these action plans. See Appendix 3 for further detail.

Appendix

1

Pesticides used on soya crops in Brazil

There are 150 pesticide products approved by the Brazilian government for use on soya. The table below describes the 22 most commonly used pesticides in Brazilian soya production. Of these, 80% are classified as 'highly hazardous', and of these 66% are not approved for use in the EU or UK.

Of the 30 insecticide products licensed for use, 14 are classified as "highly toxic to bees" (Abamectin, Acephate, Bifenthrin, Cypermethrin, Chlorpyrifos, Diafenthiuron, Dimethoate, Fipronil, Imidacloprid, Lambda cyhalothrin, Malathion, Methomyl, Permethrin, Thiodicarb).⁵⁰

NAME	TYPE	APPROVAL in EU/UK	STATUS
2,4-D	Herbicide	Approved	Highly Hazardous Possible endocrine disruptor
Clomazone	Herbicide	Approved	
Diuron	Herbicide	Not approved	Highly Hazardous Likely to be Carcinogenic to Humans: At High Doses
Glyphosate	Herbicide	Approved	Highly Hazardous Probably carcinogenic to humans
Paraquat dichloride *banned in Brazil in 2020, though stockpiles can still be used	Herbicide	Not approved * exported from UK directly to Brazil	Highly Hazardous Fatal if inhaled
Acephate	Insecticide	Not approved	Highly Hazardous Environmental toxicity Highly toxic to bees
Acetamiprid	Insecticide	Approved	
Bifenthrin	Insecticide	Not approved	Highly Hazardous Possible endocrine disruptor Environmental toxicity Highly toxic to bees
Chlorpyrifos	Insecticide	Not approved	Highly Hazardous Probably carcinogenic to humans Environmental toxicity Highly toxic to bees

Cypermethrin	Insecticide	Approved	Highly Hazardous Environmental toxicity Highly toxic to bees
Imidacloprid	Insecticide	Not approved	Highly Hazardous Environmental toxicity Highly toxic to bees
Lambda-Cyhalomethin	Insecticide	Approved	Highly Hazardous Fatal if inhaled Probably carcinogenic to humans Environmental toxicity Highly toxic to bees
Malathion	Insecticide	Approved	Highly Hazardous Probably carcinogenic to humans Environmental toxicity Highly toxic to bees
Methomyl	Insecticide	Not approved	Highly Hazardous Environmental toxicity Highly toxic to bees
Azoxystrobin	Fungicide	Approved	
Carbendazim	Fungicide	Not approved	Highly Hazardous Probably carcinogenic to humans Possible mutagenic properties
Chlorothalonil	Fungicide	Not approved	Highly Hazardous Fatal if inhaled
Copper oxychloride	Fungicide	Approved	
Cyproconazole	Fungicide	Not approved	Highly Hazardous Probably carcinogenic to humans
Mancozeb	Fungicide	Not approved	Highly Hazardous Probably carcinogenic to humans Known human reproductive toxicant
Tebuconazole	Fungicide	Approved	Highly Hazardous Fatal if inhaled Probably carcinogenic to humans Probably human reproductive toxicant
Thiophanate methyl	Fungicide	Not approved	Highly Hazardous Probably carcinogenic to humans

Appendix

2

photo: Soybean farming

Current retailer policies on pesticides in soya supply chains

The UK's top 10 supermarkets – Aldi, Asda, Co-op, Iceland, Lidl, Marks and Spencer, Morrisons, Sainsbury's, Tesco and Waitrose – are signatories to the UK Soy Manifesto. This commits them to sourcing only deforestation-free soya from physical sources by 2025, including products from animals fed on soya such as poultry. Nine are currently using soya certification schemes to responsibly source a percentage of the soya they source, including for livestock feed.

In early 2022, we surveyed these 10 UK supermarkets about pesticides in their soya supply chains. Our questionnaire was comprised of 15 questions about supermarket pesticides policies, commitments made around the use of highly hazardous pesticides, human health and environment and on the use of GM soya (whose introduction has increased pesticide use on soya crops in Latin America). The list of pesticides used on soya crops in Brazil in Appendix 1 was used as a point of reference.

Responses were received from Aldi, Co-op, Lidl, Marks and Spencer, Morrisons, Sainsbury's, Tesco and Waitrose. No response was received from Asda and Iceland.

All the supermarkets have policies in place to address pesticide use on the produce they sell in store. But these policies do not monitor or reduce the pesticides applied to soya as animal feed, including those classified as highly hazardous,

possible endocrine disruptors or carcinogens posing a threat to human health or those recognised as toxic to bees.

All eight supermarkets who responded to our survey outlined the challenge they faced over transparency in soya supply chains, noting that it's not possible for them to monitor pesticide use at farm level. All eight spoke to the need to improve transparency and to action they were taking to address the challenge, including through involvement in industry bodies such as the Retail Soy Group and the UK Roundtable on Sustainable Soya.

Eight of the supermarkets we surveyed (Aldi, Asda, Co-op, Lidl, Marks and Spencer, Sainsbury's, Tesco and Waitrose) are members of the Retail Soy Group and were represented in a response to a consultation to update the UK Feed Materials Assurance Scheme (FEMAS) to include requirements restricting the use of highly hazardous pesticides.

Waitrose has measures in place to reduce the amount of GM soya in its supply chains, including through the sourcing of organic feed and supporting alternative feed projects and trials. Although it was not covered by the survey, the majority of responding supermarkets spoke positively of the need for alternative feed to soya and about varying efforts they are making with suppliers to try to achieve this.

Appendix

3

photo: Soybean plantation

Retailer action plans and policies, and the role of certification and assurance

We are asking retailers to develop a time-bound plan to address the harms associated with highly hazardous pesticides in their soya supply chain, starting with poultry. This plan should build on, and harmonise with, existing commitments and plans related to deforestation and land conversion and must include a commitment to achieving a poultry supply chain free from highly hazardous pesticides by 2030.

Achieving this will require that retailers work with existing sustainable soya standards, including

certification and feed assurance schemes, and with emerging frameworks for monitoring and reporting, such as the harmonised monitoring, reporting and verification (MRV) system developed by the UK Soy Manifesto, to make stepwise progress towards the 2030 ambition.

Among the challenges to negotiate is the divergent approach to pesticide and agrochemical use in sustainable soya standards and schemes (where such an approach exists at all).



Certification and assurance – a brief overview

Certification falls under third party schemes and companies' own sustainability standards.

Among third party certification schemes or standards are:

- **RTRS** – The Roundtable on Responsible Soy, formed in 2006 to establish private-public dialogue on sustainable soy production. Almost 4.5 million tonnes of soya are certified to RTRS standards each year. Pesticide use is partially addressed.
- **ProTerra** – The ProTerra Foundation is a not-for-profit organisation promoting transparency and responsible production practices in the feed sector. Approximately 3.6 million tonnes of soya are certified to this standard each year. Pesticide use is partially addressed.
- **Donau Soya / Europe Soya** – Founded to support European protein production and supply, certifying roughly 4.7 million tonnes of soybeans produced annually in the Donau Soya region. Pesticide use must comply with EU law.

- **ISCC PLUS** – The International Sustainability and Carbon Certification system covers a range of issues across the food and feed supply chain. Approximately 258 thousand hectares of soya are certified to this standard annually.

Among private sector and company developed standards – which are developed and governed by the business, and can therefore be less transparent – are **Cefetra (CRS)** and **Cargill Triple S**.

These certification schemes offer a range of **Chain of Custody (CoC)** models, allowing companies to make claims about the product covered by the standard. CoC models can be broadly classified in two main types: credit (or 'book and claim') models and physical models. UK soya imports certified under 'book and claim' outnumber physically certified soya almost 3:1 (and both combined comprise only around 30% of soya imports). Of the physically certified soya imported in the UK, 89% falls under company standards, 9% under Proterra and 1% under RTRS. Of 'book and claim', 68% falls under RTRS, 30% under company standards, and 2% Proterra.⁵¹

In addition to certification schemes, there are buying standards and feed assurance schemes for businesses working across the supply

chain. **The European Feed Manufacturers Federation (FEFAC)** launched its Soy Sourcing Guidelines in 2015, updated in 2021, to facilitate transparency across sets of standards, highlighting how standards approach key topics such as deforestation, labour rights and good agricultural practice, including pesticide use. In the UK, the Agricultural Industries Confederation (AIC), the trade association for sections of the agri-supply industry including 90% of UK animal feed, is similarly responsible, under the banner of **FEMAS**, for providing chain of custody certification for responsibility sourced soya.

Both FEFAC and FEMAS partially address pesticide and agrochemical use.

FEFAC soy sourcing guidelines, for example, require that:

- there is no use of agrochemicals listed in the Stockholm and Rotterdam Conventions.
- producers ensure use of pesticides complies with national legislation.
- application of agrochemicals (pesticides and fertilisers) is documented and carefully managed.
- pesticides are not applied within 30 meters (or a distance determined by local legislation) of any populated area or water body.

- pesticides are applied using methods that minimize harm to human health, wildlife, plant biodiversity, and water and air quality.
- aerial application of pesticides is carried out in such a way that it does not have an impact on populated areas and water bodies.

An additional 'desirable' criterion is that 'there is no use of PAN dirty dozen, WHO 1A, 1B and 2 chemicals.'

These standards, which are broadly mirrored by FEMAS, go a good distance to preventing pesticide-related harms, though they should be stronger, stipulating mandatory prohibitions on all highly hazardous pesticides, as determined by PAN and published in the 'PAN International List of Highly Hazardous Pesticides', and they require robust monitoring and enforcement.⁵²

The UK Retail Soy Group, comprised of leading retailers working collaboratively to find industry-wide solutions for sustainable soya, recently responded to a consultation on FEMAS standards, expressing their desire for the FEMAS feed standard revision to explicitly include a requirement restricting the use of highly hazardous pesticides. We support their proposal.

Retailer action plans

We are asking retailers to act in five areas:

- **Action to enhance monitoring and reporting, aiming to establish more clearly in relation to volumes of soya in the supply chain, the location of origin, and details where possible on farm-level methods of production and agrochemical use.**

The final part of this – obtaining farm-level data or visibility – will be the most challenging. Whereas for deforestation, it is possible to objectively, and in a scalable way, monitor large areas of land at risk, via, for example, satellite monitoring, for pesticide-use on the ground visits or physical certification would be required.

The implementation of the 2021 Environment Act should contribute towards enhanced supply chain transparency, ideally requiring (as outlined above) that UK businesses obtain information, supported by evidence, that allows them to trace the soya in their supply chain to the geospatial location on which it was cultivated; identify the actors involved in the production process; identify all “relevant local laws” and the legal requirements they impose, including in relation to human rights and environmental degradation; and determine whether those laws have been complied with. Such an approach should make it easier for actors along the supply chain to work together to understand the use of agrochemicals in soya production.

As a first step, all retailers should commit to monitoring soy volume and country of origin, and (aligning with ‘deforestation and land-conversion free’ commitments) support soya grown in line with the FEFAC soy sourcing guidelines (including criteria on pesticide use).

In the longer term, retailers should work together with other experts to improve agricultural practice monitoring, and advocate for the strengthening of requirements on pesticide use across soya standards, including in UK/EU legislation.

- **Action to achieve year-on-year increases in the percentage of certified soya in the retailer’s poultry supply chains, including via uptake of certification schemes which address pesticide use and are predicated on physical certification.**

Certification has a role to play in addressing the risks of deforestation and hazardous pesticide use. While the UK Soy Manifesto is working on the understanding that certification alone will not suffice in addressing deforestation at the pace or scale required, there are still good reasons for retailers and the UK supply chain to invest in year-on-year increases in certified soya.

Soya purchases via any FEFAC benchmarked scheme with ‘desirable’ criteria on pesticide use would be welcome, but RTRS and Proterra, which include meaningful stipulations on agrochemical use, currently provide the most robust approach.

Private certification schemes such as Cefetra (CRS) and Cargill Triple S are more opaque, and industry collaboration, such as through the UK Retail Soy Group, will be required to ensure they are fit for purpose. UK retailers should send a clear signal to traders and importers that agrochemical use is of concern, and work with relevant partners to influence relevant standards within private certification schemes.

Most certified soya purchased by UK businesses currently falls under book and claim, rather than physical certification. Over this decade, retailers should also work to address the balance, investing in physical certification, mass balance supply and more comprehensive chain of custody oversight.

- **Action towards full chain of custody oversight for soya sourced as poultry feed, implementing the FEMAS chain of custody certification or the FEFAC guidelines, working with poultry processors and down the supply chain.**

The FEMAS and FEFAC soya sourcing guidelines include valuable (if imperfect) measures that would help to address agrochemical use.

Retailers should integrate these frameworks into their sourcing policy and work with poultry processors and feed manufacturers in their supply chain to collaboratively realise their implementation. It is important that retailers look beyond the development of pockets of sustainable soya to ensure that companies within their supply chains are effective agents of change.

UK retailers should send a clear signal to traders and importers that agrochemical use is of concern

This will require placing pressure on traders and importers to increase the transparency of their supply chain and provide meaningful evidence of production practices and agrochemical use. To this end, retailers should introduce ‘code of conduct’ or contractual commitments with clear requirements that cover agrochemical use, requiring transparency from poultry processors as a condition of supply, reviewed annually, with the promise of commercial sanctions for non-compliance.

- **Collective action as a retail sector to tighten and strengthen required standards on pesticide use in soya certification and benchmarking.**

Each retailer should have robust and ambitious policies regarding agrochemical use and soya that refer to the definitions and guidance within FEMAS and FEFAC soy sourcing guidelines (or certification schemes such as ProTerra). These existing standards represent a good starting point, but they should be raised at the earliest opportunity to stipulate mandatory prohibitions on all highly hazardous pesticides, as determined by PAN and published in the ‘PAN International List of Highly Hazardous Pesticides’.⁵³

The sector should work together to tighten required standards in soya certification (such as RTRS) and benchmarking procedures (the FEFAC Soy Sourcing Guidelines). This would allow and support more impactful action, for example via the Retail Soy Group, UK Roundtable on Sustainable Soya and UK Soy Manifesto

The UK Retail Soy Group, as noted above, recently called for the FEMAS feed standards to explicitly include a requirement restricting the use of highly hazardous pesticides. Such collaboration will be important this decade.

- **Increased percentage share of organic poultry and animal produce.**

Organic standards are defined in law and include strict prohibitions on pesticide use. Chicken and other meat products certified as organic will be free from the pesticide-related harms documented in this report.

Regarding the proposed retailer **commitment to scale up alternative feeds**, with the ambition of reducing the soya component of chicken feed from 20% to 10% by 2030, with UK (or European) protein crops used instead – please see the separate Soil Association briefing.



photo: Soybean plantation, Brazil

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