PESTICIDE ACTION NETWORK UK

PLAYING WITH POISON

Pesticide residues on children's playgrounds

January 2026

Introduction

Pesticides are used extensively throughout the UK in parks and playgrounds, on streets and pavements and in many other public spaces including cemeteries, playing fields and transport infrastructure. This type of pesticide use is known as 'amenity use'.

The main class of pesticides used in the amenity sector are herbicides with the vast majority being glyphosate-based products.[1] PAN UK recently undertook a survey of local authorities which showed that thousands of litres of glyphosate-based products are being used across the UK to manage weeds in public spaces in villages, towns and cities.[2]

Glyphosate is a Highly Hazardous Pesticide[3] which has been classified as a probable human carcinogen by the World Health Organization.[4] Ongoing research has shown that glyphosate is linked to numerous adverse health outcomes including a range of cancers, oxidative stress, liver disease and birth defects.[5] Children are generally considered to be more sensitive to glyphosate than adults. A 2023 study from UC Berkeley School of Public Health found that childhood exposure to glyphosate and its breakdown product (aminomethylphosphonic acid - AMPA) threatens to increase the risk of developing serious diseases in later life, such as liver cancer, diabetes, and cardiovascular disease.[6]

Why are children more impacted by pesticides than adults?

There are a range of reasons why children are more vulnerable than adults to the health impacts of pesticides:

- Due to their **behaviour**, young children in particular tend to have higher exposure rates than adults. For example, playing in areas treated with pesticides, or putting contaminated objects in their mouth increases their exposure. Children are more likely to sit, lie and play on the ground and can readily come into contact with freshly applied pesticide or dust contaminated with pesticides.
- Children **absorb pesticides more easily** through their skin. Not only is a child's skin more permeable than an adult's, but their skin surface area relative to body weight is also higher. This makes it easier to absorb higher rates of pesticides.
- Children take in more air (and water and food) relative to their body weight compared to adults. This **increases their total exposure**. For example, the breathing rate of a child in its first twelve years is roughly double that of an adult. As a result, the amount of airborne contaminants reaching the surface of the lung can be much higher.
- A child's **ability to cope with pesticide poisoning** will differ from that of an adult. The systems that our bodies use to deal with toxins are less well developed in children and this can make them less able to cope with these substances than adults.
- As they grow, **children's brains and bodies undergo complex changes** that affect tissue growth and organ development. Incidents of exposure that would be tolerated by adults, can cause irreversible damage to unborn babies, infants and adolescents.

In 2019, our colleagues in PAN Europe undertook a study looking at pesticide residues in children's playgrounds.[7] Their research revealed that over 50% of the playgrounds tested had potentially harmful pesticide residues present. We wanted to replicate this study in the UK to see what is present in the playgrounds where our children play.

Headline findings

- We found glyphosate and/or its breakdown product (AMPA) in eight of the 13 playgrounds that we sampled.
- We also found residues of four other pesticides on the 13 playgrounds we tested: two Highly Hazardous Pesticides (HHPs) carbendazim and benomyl, plus 1-naphthylacetic acid and pyraclostrobin.
- An additional substance called anthraquinone was also found in the soil samples taken from 11 of the 13 playgrounds. Like glyphosate, this is classified as an HHP due to its links to cancer.[8] However, it is also a naturally occurring substance in some lichen, so it is impossible to confirm whether its presence in playgrounds is the result of chemical use.

Table 1: Pesticide residues found in playgrounds in England between April-September 2025

Location	Playground	Swab samples – pesticides detected	Plant matter samples – pesticides detected	Glyphosate and/or AMPA found in playground?
Buckinghamshire	1	AMPA	Glyphosate AMPA 1-naphthylacetic acid	Yes
Buckinghamshire	2	AMPA	Anthraquinone	Yes
Buckinghamshire	3	AMPA	Glyphosate AMPA 1-naphthylacetic acid Anthraquinone	Yes
Cambridgeshire	4	Glyphosate AMPA	Anthraquinone	Yes
Cambridgeshire	5	Glyphosate, AMPA	Anthraquinone	Yes
Kent	6		Glyphosate AMPA Anthraquinone	Yes
Kent	7	Pyraclostrobin	Anthraquinone	No
Kent	8		Anthraquinone	No
Kent	9		Glyphosate AMPA Anthraquinone Benomyl Carbendazim	Yes
Hackney, London	10		Anthraquinone	No
Hackney, London	11		Anthraquinone	No
Tower Hamlets, London	12		Anthraquinone	No
Tower Hamlets, London	13		Glyphosate	Yes

Methodology

Samples were taken from 13 different playgrounds in England, across three counties (Buckinghamshire, Cambridgeshire and Kent) and two London Boroughs (Hackney and Tower Hamlets). All samples were taken on dry days, Buckinghamshire and Cambridgeshire in April 2025, Kent and London in August and September 2025. We are not naming the exact locations of the playgrounds because we do not want to cause alarm in those areas or single out particular councils when this is likely to be a UK-wide issue.

Two sample were taken from each of the 13 playgrounds, one sterile swab sample and one sample of plant material (soil, leaves, grass, plant sticks etc.). Swabs were swept across surfaces covering approximately 1m^2 on playground floors, swings, slides and other equipment. Each sample of plant material was collected to a weight of approximately 1kg.

The swabs and materials were sent to a laboratory in Belgium to undertake standard testing for pesticide residues, including glyphosate. We also tested blank swabs in order to eliminate the possibility that residues were present on, or in, the cotton swabs themselves.

What do the results tell us?

The results show that eight out of the 13 playgrounds tested were contaminated with glyphosate and/or its breakdown product AMPA, exposing the children that use these areas to potentially harmful chemical residues. This points to the fact that glyphosate contamination in children's playgrounds is likely to be a fairly common occurrence.

In fact, the only test areas that showed no glyphosate or AMPA residues were located in the London Borough of Hackney. Hackney Council stopped spraying glyphosate in parks and green spaces and on housing estates in 2018.[9] It can be postulated, therefore, that the absence of glyphosate residues in the two parks tested could be a result of this approach. In contrast, the councils responsible for the eight playgrounds where glyphosate and/or AMPA was found all continue to use pesticides – almost certainly glyphosate-based products – in parks and green spaces.

The presence of residues on the swabs that were taken directly from play equipment, such as swings and slides, gives particular cause for concern. These are areas where children are likely to come into direct contact with pesticide residues. These pesticides can then potentially enter children's bodies, either via dermal absorption or oral contamination resulting from them putting their hands (or other contaminated items) in their mouths.

There were some apparent anomalies in the findings, most notably the presence of two banned fungicides – benomyl and carbendazim (both HHPs). It is not clear where these came from, but they were found in one of the playgrounds closer to farmland. However, given that benomyl and carbendazim have been banned for use in the UK since 2003 and 2017 respectively, their presence does point to illegal use. This could have either drifted over into the playground from use elsewhere or been used directly on the play area by a maintenance team.

While it is to be noted that 13 playgrounds is an extremely small sample size given the number of playgrounds in the UK, our results are likely to be indicative of the general situation. While many UK councils have taken action to reduce or end their pesticide use, the majority do continue to use chemicals in parks and playgrounds.[10] According to official data, glyphosate-based herbicides make up 96% of all the pesticide active substances applied by local councils.[11] It is, therefore, likely that our findings are broadly mirrored across the country.

Pesticide spraying in progress, Cardiff.
Credit: Cardiff Civic Society

Brief description of the pesticides found on playgrounds[12]

Glyphosate and AMPA

- **Glyphosate** – Classified as a Highly Hazardous Pesticide (HHP) with serious implications for human health and the environment. It was classified as a probable human carcinogen by the World Health Organization in 2015. Glyphosate has repeatedly been linked to various cancers, most notably non-Hodgkin's lymphoma. There is also growing evidence showing links between exposure to glyphosate-based products and a range of other negative health outcomes including liver damage, oxidative stress, changes to DNA and birth defects.
- **AMPA** – A breakdown metabolite of glyphosate. AMPA has toxicity which is comparable to that of glyphosate and is therefore considered to be of similar toxicological concern as glyphosate itself.[13] Studies have found evidence linking AMPA to a range of health problems, including liver disease and liver cancer.[14]

Fungicides banned for use in Great Britain

- **Benomyl** – A foliar fungicide used to control a broad range of fungal infections. Benomyl is classified as an HHP due to its human health impacts and as a 'developmental or reproductive toxin', meaning that it can have adverse effects on sexual function and fertility in both adults and children. It also has possible links to both cancer and endocrine disruption. Benomyl is moderately toxic to birds, honeybees, earthworms and most aquatic organisms. It has not been approved for any use in Great Britain (GB) since 2003.[15] Given that benomyl is not persistent in soil, it is highly likely that its presence in a playground more than 20 years after being banned is the result of illegal use.
- **Carbendazim** – A systemic fungicide. It is classified as an HHP due to its potential for being both reprotoxic and mutagenic, the latter meaning that it can cause a permanent change in the amount of structure of the genetic material in a cell leading to genetic defects. It was banned for use in GB in 2017.[16] As well as being a pesticide active substance in its own right, carbendazim is a breakdown product of benomyl so its presence in a playground in Kent might be related to the use of benomyl as outlined previously. However, it is also possible that a pesticide product containing carbendazim was used illegally.

Other pesticides

- **Pyraclostrobin** – A broad-spectrum fungicide used to control major plant pathogens in cereals and other crops. It is slightly acutely toxic. It is not classified as an HHP and no adverse effects are reported with regard to human health. It is approved for use on amenity grassland in GB.
- **1-naphthylacetic acid** – A synthetic auxin used as a plant growth regulator. 1-naphthylacetic acid (also known as NAA) has a moderate oral toxicity to humans, is a recognised irritant and may also be a 'developmental or reproductive toxin'. It is currently approved for use in the UK but only on apples.[17] Given that the two playgrounds where 1-naphthylacetic acid was detected are both in Buckinghamshire, it is possible its presence was a result of pesticide drift from an orchard in the vicinity.
- **Anthraquinone** – Used largely as a bird repellent and classed as an HHP due its potential for carcinogenicity. It has not been approved for use as a pesticide in the UK since 2008.[18] In addition to being a pesticide active substance, anthraquinone can also occur naturally in lichen. Given that it was found in plant matter samples from 11 of the 13 playgrounds, it is likely that its presence results from this natural occurrence rather than illegal use.

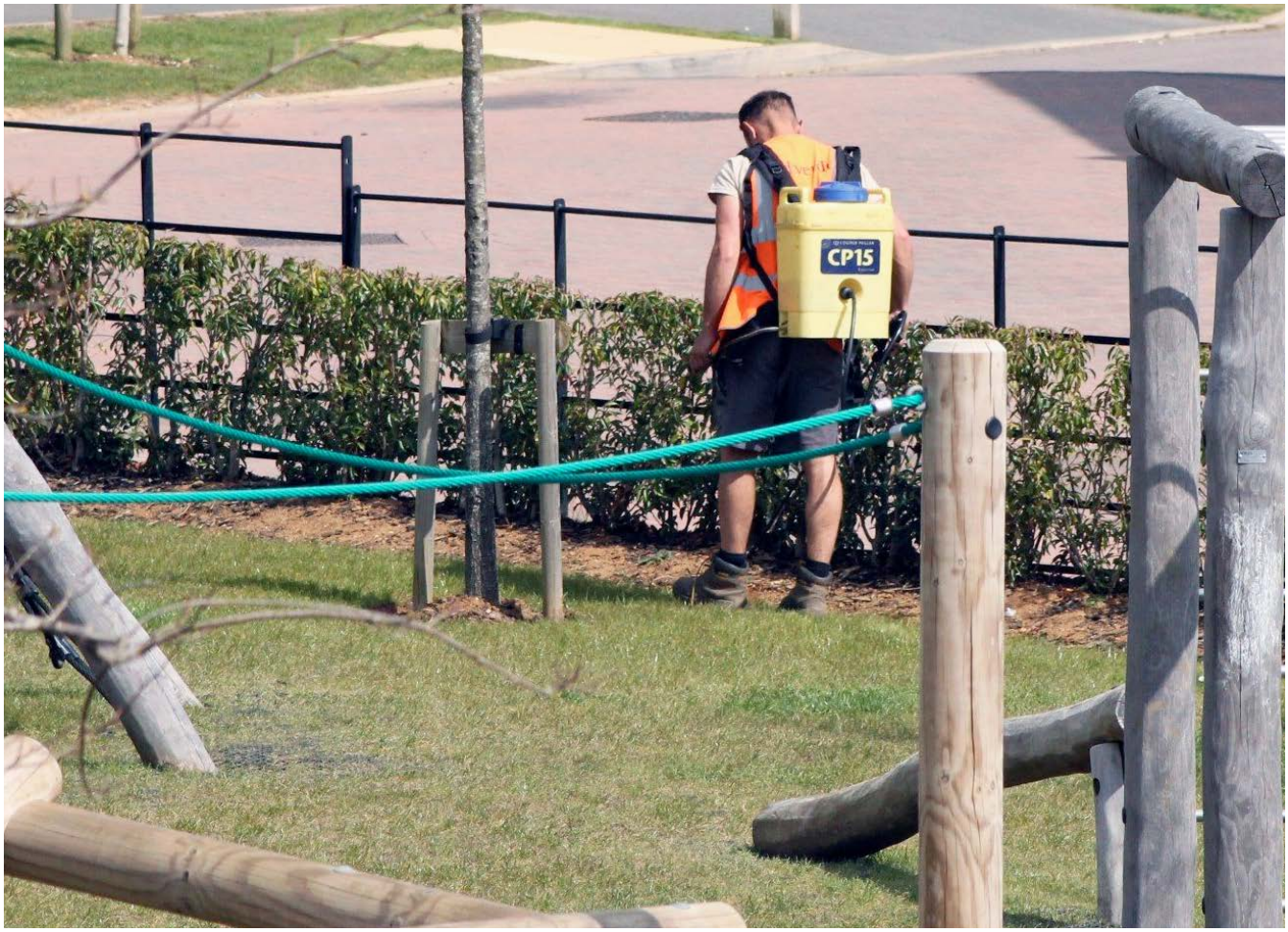
Conclusions

The finding that 10 of the total 26 samples taken contained glyphosate or glyphosate breakdown chemical residues is extremely concerning. Young children spend a lot of time in playgrounds and are notorious for putting their fingers and other items in their mouths. Proponents of pesticides often say that glyphosate breaks down almost immediately when applied and is therefore perfectly safe. However, these results show that, in the majority of playgrounds tested, there was glyphosate present along with its toxic breakdown product AMPA.

We cannot know exactly where these glyphosate residues have come from. In most cases, it is likely to have been deliberately applied in the playground to control unwanted plants, such as grass from around the edge and vegetation under picnic benches. Glyphosate is also used extensively in farming so contamination could also have come from nearby fields, although none of the playgrounds were particularly close to agriculture.

In order to protect children's health, we must do everything we can to reduce children's exposure to potentially harmful chemicals. The spaces where children play should be entirely pesticide-free, which is only achievable by ending pesticide use outside of farming (as France did in 2019). Whilst it is arguable that ending pesticide use in agriculture can be a complex task, there is no reason at all why local authorities and other land managers responsible for public spaces need to continue using pesticides in our parks and playgrounds. With children's health, the stakes could not be higher and it's vital that we take a precautionary approach to ensure that every playground in the UK is pesticide-free.

Application of pesticide in playground, Banbury.
Credit: J Wilson



Key recommendations

Given that children are more vulnerable than adults to the health impacts of pesticides, under a precautionary approach all playgrounds should be pesticide-free. There are a range of ways to go about making his happen.

Recommendations for the UK government on glyphosate:

Glyphosate is coming up for reapproval in Great Britain by December 2026. Due to its links to serious health and environmental harms, the UK government should take this opportunity to ban glyphosate, following the examples of Luxembourg, Mexico and ten other countries.[19] If the government does decide to grant glyphosate a new license, then it should be with an accompanying set of restrictions designed to both reduce overall use and limit the impact of glyphosate exposure, particularly on children's health. These restrictions should include:

- **Ban on use in the amenity sector** – France, Belgium, Luxembourg, Denmark and Bulgaria have all banned the use of glyphosate in public areas, including children's playgrounds. Viable alternatives to glyphosate are available for the amenity sector and a ban would assist in the development of green technology that would not only help protect children from the effects of exposure but also support biodiversity and improvements to water quality.
- **Shorter approval period** – if glyphosate is reapproved then it should be for five years, and certainly not for the legal maximum of fifteen years. The evidence against glyphosate is increasing year-on-year, and this shortened time frame will help to ensure that any approval decision is reviewed within a reasonable timeframe allowing for new toxicological evidence to be taken into consideration.

Recommendations for the UK government and devolved administrations on amenity pesticide use:

Local councils are responsible for managing children's playgrounds on public land. Since 2015, over one hundred and fifty councils across the UK have either ended their use of pesticides or taken positive steps towards doing so, all without any support from central government or the devolved administrations. Given the funding crisis engulfing local authorities across the UK, it is remarkable that so many councils have managed to reduce or end their pesticide use without any support. However, if the UK government and devolved administrations want to fulfil their 2025 commitment to "…minimise the risks and impacts of pesticide use on the environment and human health…"[20] then they should put in place the following:

- Introduce **legislation** prohibiting local authorities from using pesticides in villages, towns and cities. There is already a Bill going through the House of Commons, tabled by Sian Berry MP, which would ban pesticide use by English Councils.
- Provide overarching **guidance** to local authorities on how to phase out their use of pesticides.
- Develop a **training scheme for council officers on pesticide-free approaches**.
- Provide councils with **interest-free loans or grants** to cover capital outlay costs for new machinery.
- **Ringfence extra funding** for councils' city cleansing/environment/parks teams to oversee chemical-free weed removal and for any manual labour required.
- Enable **peer-to-peer learning** between councils by establishing a network for council officers and operatives to share best practice.
- Mandate that local authorities **consult key local stakeholders** – most importantly disability groups – and provide communications on pesticide reduction to all local residents.
- Help to **change the narrative** about urban spaces, 'weeds' and pesticides to make it clear to the public that our villages, towns and cities can and should be an oasis for wildlife.

Recommendations for local councils:

While we hope to secure central government support for councils wanting to go pesticide-free, it is not a prerequisite for taking action. In the short-term, councils are responsible for protecting residents' health, and none more so than children. Local councils must urgently take action to ensure that playgrounds under their control do not contain harmful chemicals. Regardless of whether external support is in place, councils should take the following actions:

- Adopt PAN UK's three-year phase-out plan which has been followed successfully by many of the councils that have gone pesticide-free.
- Prioritise ending the use of pesticides in public spaces most frequently enjoyed by children, including playgrounds, parks and other green spaces.
- Develop a comprehensive pesticide policy aimed at reducing, and ultimately ending, pesticide use.
- Undertake trials and pilot schemes for non-chemical alternatives to pesticides.
- Work with council officers to plant pesticide-free urban wildflower meadows to create a haven for bees and other wildlife.
- Promote the concept of going pesticide-free to other local land managers (e.g. universities, housing estate managers etc.).
- Communicate with members of the public about the benefits of going pesticide free.

PAN UK has a range of free resources for councils, including the three-year phase out plan, which can be downloaded here: **https://www.pan-uk.org/information-for-local-authorities**

Results of pesticide application around playground equipment.
Credit: Dave Goulson

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Personal Protective Equipment (PPE) worn to protect workers from the chemical hazards of pesticide applications. Credit: Iris Borgers

Pesticide Action Network UK

PAN UK is the only UK charity focused on tackling the problems caused by pesticides and promoting safe and sustainable alternatives in agriculture, urban areas, homes and gardens.

We work tirelessly to apply pressure to governments, regulators, policy makers, industry and retailers to reduce the impact of harmful pesticides.
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