Going Pesticide-Free

A Guide for Local Authorities

Working together for a pesticide-free future

PESTICIDE ACTION NETWORK *UK*

Contents

Introduction

In Europe, and more widely throughout the world, there is a growing movement to end the use of pesticides in towns and cities. This has been triggered by growing public concern over the possible health effects of exposure to pesticides (including insecticides, herbicides, and fungicides), particularly for our children. Of equal concern are the effects that pesticide use is having on our wildlife – the serious declines of bees and pollinators, bird species and iconic mammals such as the hedgehog have all been linked to pesticide use. The contamination of water sources, including those used to supply our drinking water, is yet another major cause for worry.

It is not just agricultural use of pesticides that is driving these problems; the hundreds of tonnes of pesticides used in our towns and cities annually is having negative effects on urban biodiversity and presenting an unacceptable risk of exposure to the citizens of the UK.

In the UK, it is clear that people are concerned about the use of pesticides in their towns and cities and are keen to see changes made. A recent poll carried out for PAN UK showed that 68% of the public want their schools, parks, playgrounds and other open spaces in their local area to be pesticide-free.[1] The level of public attention has increased significantly since the debate over the safety of the most widely used amenity herbicide, glyphosate, and the ongoing discussions about its use in public spaces.[2] Despite there being no clear outcome on the glyphosate debate as yet, it has hugely increased both the awareness of and concern over the use of pesticides in public spaces.

In France there has, for many years, been a move away from the use of pesticides in towns and cities. Paris has been pesticide-free for over a decade. As a result of national legislation that came into force in January 2017, the use of almost all non-agricultural pesticides has been banned – meaning that all public spaces throughout France are managed without the use of pesticides.[3]
In Belgium, towns and cities in the regions of Flanders and Wallonia have stopped the use of pesticides completely. The City of Ghent, which has more than a quarter of a million residents, has been completely pesticide-free for over twenty years. Other big European cities Barcelona and Hamburg have stopped using glyphosate and in Canada and the USA there is an ever-growing momentum to stop the use of pesticides in urban areas including parks and playgrounds. This trend will only grow as increasing numbers of non-chemical strategies are implemented and proven to be successful.

Pesticide Action Network UK (PAN UK) has compiled this brief guide to help local authorities end or reduce the use of pesticides in areas under their control such as streets, highways, pavements, parks, playgrounds, cemeteries and any other spaces that are frequented by the public. While it is aimed at councils, it can also be used by other land managers interested in ending pesticide use.

What are pesticides and how are they used?

Pesticides are chemicals used to control a variety of pests in a range of situations. Agriculture is the largest user of pesticides in the UK, but they are also used for amenity control of pests and weeds and by the public in their homes and gardens.

Pesticides include:-

- Insecticides that kill insects
- Herbicides that kill plants
- Fungicides that kill fungal problems

Throughout the towns and cities of the UK, pesticides are used in a wide variety of ways;

- Weed control – most commonly seen on streets and pavements, usually there are two or more applications per year. These are most commonly carried out by contractors employed by the council but can also be undertaken by in-house council work teams
- Control of insects in parks that are harming ornamental plants
- Control of invasive species such as Japanese knotweed
- Maintenance of sports pitches and golf courses

In the amenity sector, the most widely used type of pesticides are herbicides to control weeds and

other plant materials, notably on hard surfaces such as streets, pavements and pathways. They are also employed to deal with a range of issues including the control of insects and rodents. According to the latest survey on the use of amenity pesticides there are currently 38 different active substances being used across all sectors. A complete list of these actives is given in the box below and further information on the pesticides used in the amenity sector can be found in the Annex.

Whilst it is possible that the local authority for whom you work or are responsible does not actually use any pesticides itself, it is likely that outside contractors employed on its behalf to undertake maintenance, including weed clearance, are using pesticides of some kind. However, as the contract specifier you are ultimately responsible for any use of pesticides by third-party contractors. More importantly, it is within your power to dictate the conditions under which a company delivers on its contract with the council so specifying a non-pesticide approach is perfectly possible.

The most recent survey (dated 26 April 2018) revealed that there are 38 different types of pesticides used in UK towns and cities.

Herbicides

2,4-D, Acetic Acid, Aminopyralid, Asulam, Carfentrazone-ethyl, Citronella Oil, Clopyralid, Cycloxydim, Dicamba, Diflufenican, Ferrous Sulphate, Flazasulfuron, Florasulam, Fluroxypyr, Glufosinate-ammonium, Glyphosate, Isoxaben, MCPA, Mecoprop-p, Pinoxaden, Propaquizafop, Propyzamide

Fungicides

Azoxystrobin, *Bacillus sutilis*, Carbendazim, Chlorothalonil, Fludioxonil, Fluopyram, Fosetyl-aluminium, Iprodione, Prochloraz, Propiconazole, Pyraclostrobin, Tebuconazole, Trifloxystrobin

Insecticides

Diflubenzuron, Imidacloprid

Growth Regulators

Trinexapac-ethyl

Problems caused by pesticides

"*While there is some debate over the health risks of glyphosate-based chemicals, there is no debate that at Hammersmith and Fulham, the health and well-being of our residents is our priority and we recognise the importance of a green agenda in better supporting that,*"
Councillor Wesley Harcourt, London Borough of Hammersmith & Fulham, 2016.

Impacts on health

It is important to recognise that pesticides do not only affect the organisms they are targeted at, but can have negative, and often unforeseen, impacts on non-target organisms including people. In terms of the impacts on human health, some groups are more vulnerable to the effects of pesticides than others. Children in particular are more susceptible for a number of reasons; their bodies are still developing, they are exposed to greater amounts of pesticides relative to their weight and they tend to be more directly in contact with sprayed areas such as playgrounds, parks and sports pitches. The report, "A Generation in Jeopardy", published by Pesticide Action Network North America takes a close look at the effects pesticides are having on our children, compiling dozens of scientific reports showing that we are submitting our children to unacceptable levels of risk by exposing them to pesticides.[4]

Whilst it is very difficult to directly link particular instances of chronic ill health with exposure to specific chemicals we do know that certain pesticides have qualities that can cause serious health conditions such as cancer and reproductive and developmental problems. Long term pesticide exposure has been linked to the development of Parkinson's disease; asthma; depression and anxiety; and attention deficit and hyperactivity disorder (ADHD).

It is important to note that just because a pesticide is approved for use does not automatically mean it is "safe" to use. The dangers they pose is precisely the reason why they are regulated and even when approved, most licenses include specific conditions which must be followed to control the harm from these chemicals. Since 2007, the WHO has collated and updated a list of the most toxic pesticides currently in use.[5]

The Precautionary Principle is an internationally-agreed standard for guiding decision-making to ensure that harms to human health and the natural environment are avoided. It states that:

> *"When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause-and-effect relationships are not fully established scientifically"*[6]

The principle is particularly relevant to decision-making around pesticides. In practice, it means that if there is sufficient evidence that a pesticide harms human health or the environment then it shouldn't be used, regardless of whether some scientific uncertainty remains.

Although the regulatory system is designed to take the harmful effects of pesticides into account we have seen time and time again that pesticides are authorised only to be banned later when more evidence emerges revealing the harms they have caused. However, by that point the harmful, and often irreversible, effects have occurred and either people or wildlife (and often both) have paid the price. Since pesticides are designed to kill living organisms and their potential for harm is well-known, a precautionary approach to their use is simple; **do not use pesticides when viable non-chemical alternatives are available.** In the UK amenities sector there are increasing numbers of non-chemical alternatives available and adopting a pesticide-free approach is perfectly possible to achieve. In fact, a number of councils around the UK are already doing it.

> "68% of people want their local schools, parks, playgrounds and other open spaces to be pesticide-free."

One aspect that the regulatory system completely fails to take into account is the so called 'cocktail effect' which refers to the fact that people are exposed to combinations of pesticides on a daily basis. Recent research has shown that combinations of chemicals can work synergistically to increase harmful effects that would not necessarily result from exposure to just one pesticide. In addition to amenity spraying, people are exposed to pesticides in multiple ways – most notably as residues in their food and drinking water and from use in the home – so are constantly coming into contact with cocktails of chemicals. Reducing our overall exposure by stopping their use in public spaces would help to decrease the risk of harmful health impacts, particularly for the most vulnerable groups such as old people, children and pregnant mothers.

Pesticides, including glyphosate, have also been known to cause injury to pets, most commonly to dogs but also cats and horses. Exposure tends to happen either directly through the skin or orally if an animal eats grass or plays with objects that have come into contact with pesticides. In dogs, the most common symptoms included vomiting, hyper-salivation and diarrhoea due to gastrointestinal irritation. In severe cases, acute poisoning could lead to death.

Threats to the natural environment

Pesticides are also negatively affecting the environment and urban biodiversity. Due to habitat loss and the large quantities of pesticides used in UK agriculture, wildlife is increasingly seeking refuge in our towns and cities. However, pesticides are destroying many of the areas where they can forage for food and contaminating the natural resources they depend upon.

Overuse of herbicides, in particular, is reducing the number and variety of plants in our towns and cities, including 'weeds' such as dandelions, which in turn limits the ability of wildlife to survive and prosper. Their use is also reducing the abundance and diversity of native and much-loved British plant species.

In recent years, the issue of dwindling bee and pollinator numbers has caught the attention of the British public. There are a growing number of campaigns calling for councils to adopt 'no mow' regimes on road verges and other areas that can be good pollinator habitats. According to the campaign group Plantlife, as well as providing habitats for many of our hard pressed bee and pollinator species, road verges are also home to over 700 species of wild flower - nearly 45% of our total flora – including 29 of 52 species of wild orchid.[9] Ending pesticide use and stopping mowing are key ways in which councils can contribute to halting the recent declines in pollinators and other insects.

Pesticides are also responsible for contaminating much of the UK's water supplies, since they tend to run off hard surfaces such as pavements and paths. Hard surface spraying is the most common practice in the amenity sector despite aquatic ecosystems being particularly vulnerable to the harmful effects of pesticides. Populations of invertebrates, amphibians, fish and the mammals that feed on them can all be impacted by pesticide contamination of water bodies.

Contamination of water supplies is also a big problem for UK citizens. As a result of health concerns, water companies in England and Wales spend millions of pounds each year removing pesticides. This cost is passed on to the consumer resulting in higher water bills. South West Water, for example, estimates that 17% of the amount of its customers' bills results from passing on the cost of pesticide removal.[10] Hard surface spraying can and does lead to runoff of applied pesticides into drains and other water courses, adding to contamination problems. Stopping the use of pesticides will help to reduce water contamination.

> "The EU relicensed glyphosate with the condition that its use in public spaces was minimised."

The myth that glyphosate is 'safe'

In November 2017, EU Member States narrowly voted to relicense glyphosate for five years. Many have chosen to misinterpret this decision as a declaration that glyphosate is 'safe'. Due to concerns over its human health and environmental impacts, glyphosate was in fact relicensed with the specific condition that Member States "**Minimise the use in public spaces, such as parks, public playgrounds and gardens**."[7] This condition, however, is often missed by many decision-makers.

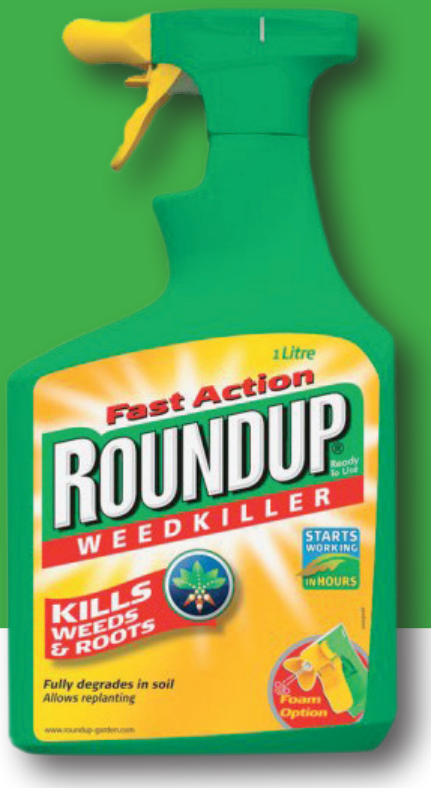
Despite the EU decision to relicense, many countries remain deeply concerned that glyphosate is harming human health and the environment and have already taken steps to ban it in urban areas. The list includes France, Germany, Italy and Austria.
Huge problems have also been identified with the process used by the EU to reach the decision to relicense glyphosate which has been found to be opaque and susceptible to manipulation by the pesticide industry. As a result, in February 2017, the European Parliament voted to set up its own special committee to review how pesticides are authorised, with the aim of breaking the undue influence of the industry. Despite the widespread acknowledgment that the EU process was deeply flawed, the UK government, and many local authorities, continue to justify their support for glyphosate by quoting the EU decision.

While much of the debate around glyphosate has focused exclusively on whether it causes cancer, it is important to recognise that independent scientists from around the world largely agree that long-term exposure to glyphosate is harmful to human health in a whole range of ways and can cause conditions such as kidney and liver disease, act as an endocrine and immune system disrupter and result in reproductive and neurological problems.

In March 2015, the International Agency for Research on Cancer (IARC, part of the UN World Health Organisation) declared glyphosate to be genotoxic (it causes DNA damage), carcinogenic to animals, and a "probable carcinogen" for humans.[8] This ruling was based on a review of one thousand publically available scientific studies by independent experts, free from vested interests. This is in contrast to the EU decision to renew the glyphosate license, which took into account studies funded by the pesticide industry which are not in the public domain.

In an effort to defend one of its most profitable products, the pesticide industry went all out to discredit the IARC findings, calling them "junk science" based on an "agenda-driven bias." The industry has so far spent millions of dollars telling people that glyphosate doesn't harm human health and undermining any scientist or institution that says otherwise.

However, given that the UK takes a precautionary approach to pesticides, the scientific evidence that glyphosate harms human health is certainly sufficient to ban its use. Evidence to the contrary is often funded or influenced by the pesticide industry, which is set to lose billions of dollars if glyphosate loses its license.



Drivers for going pesticide-free

Legislation and policies

In the UK, a number of pieces of legislation or guidance are aimed at reducing or stopping urban pesticide use in order to protect human health, biodiversity or water bodies from contamination by potentially toxic pesticides;

- UK National Action Plan on Pesticides[11] – As an EU Member State, the UK was obliged to draw up a National Action Plan (NAP) which set out actions to implement the European Sustainable Use of Pesticides Directive. The NAP is currently the framework within which the UK works towards a more sustainable use of pesticides. The intention is to reduce the risks and impacts of pesticide use on human health and the environment. At time of writing (June 2018), the NAP is undergoing a review with the possibility of strengthening some areas in order to provide greater protection from pesticides. One of those areas is likely to be amenity use of pesticides which may see more restrictions introduced. Currently the NAP directs users of amenity pesticides to:

  I. Take 'all reasonable precautions' to protect or avoid endangering human health when using, storing and handling pesticides

  II. Confine pesticide applications to the target areas;

  III. Ensure that the amount used and the frequency of use should be as low as is reasonably practicable in specific areas. Specific areas include those frequented by the public such as parks, playgrounds, schools and hospitals.

- The UK National Pollinator Strategy – this calls on local authorities to increase and improve areas of habitat for bee and other pollinator species. It includes recommendations to not mow areas in order to let wildflowers and other plants grow and to reduce pesticide use.[12]

- Defra guidance document, published February 2016 – "Providing and Protecting Habitat for Wild Birds" – this guidance document contains advice on how local authorities should be working to offer greater protection for wild birds. In urban areas species such as swifts, house sparrows and starlings can all benefit from proactive conservation activities and stopping the use of pesticides could be a contributory factor to the objectives outlined in the guidance document.[13]

- The EU Water Framework Directive (WFD) – this required all EU Member States to achieve good status for water bodies by 2015. Runoff from pesticides used in urban areas contributes to water pollution and can be reduced by stopping or significantly reducing the use of pesticides by local authorities. Whilst it is highly likely that there will be changes associated with Brexit in the short term, it is highly likely that the UK will remain aligned with the EU with regard to environmental regulations and so the requirements of the WFD will still be applicable. There is no reason to expect that water quality in the UK will become less of a priority once our full withdrawal from the EU takes effect and thus water quality must remain an important factor in the rationale for reducing pesticide use.[14]

- UK 25 Year Environment Plan – In January 2018, the UK Government published its 25 Year Environment Plan. The Plan lays out a range of goals and policies designed to 'help the natural world regain and retain health' and restates the government's commitment to deliver a Green Brexit. One of the stated goals is to tackle the dramatic loss in biodiversity which has seen the disappearance of 95% of the UK's wildflower meadows and 48% of its farmland birds. It also sets the objective of '…reducing the use of pesticides in the round and deploying them in a more targeted way'. Stopping the use of pesticides in urban areas will help to achieve many of the goals contained in the Plan including 'connecting people with the environment to improve health and well-being'.[15]

Rising public concern

Public concern over the harmful effects of pesticides on human health has never been higher. As mentioned above, a 2017 poll carried out for PAN UK showed that 68% of the public want their schools, parks, playgrounds and other open spaces in their local area to be pesticide-free.[16]

There is also growing concern about the harm that pesticides are causing to our environment, which has been highlighted by the recent alarming declines in bee and other pollinator species in the UK.[17] A poll carried out by Friends of the Earth in 2016 showed that 88% of the British public want similar or stronger environmental protections for the UK post-Brexit.[18]

In the UK, there is a growing Pesticide-Free Towns movement which is seeing ever more local-level campaigns being started by people concerned about pesticides. By June 2018, there were approximately fifty Pesticide-Free Town campaigns running nationwide. There have also been hundreds of online petitions started by concerned members of the public calling for local bans and reductions of pesticide-use in their towns and cities. Glyphosate – the pesticide which is used most widely in the amenity sector – is itself widely unpopular. A petition calling for an EU-wide ban received 1.3 million signatures, including just under 100,000 from the UK.[19]

Benefits of going pesticide-free

A range of benefits can accrue from adopting a pesticide-free approach. Financial considerations are of course a concern for councils across the UK, but with the costs of non-pesticide maintenance close to, or potentially less than, the chemical approach and the other non-financial benefits so high it is a win-win approach for all.

Overview of benefits:

- Improved health for council employees and contractors due to reduced exposure to pesticides.
- Safeguarding of the general public's health by reducing their exposure to potentially harmful pesticides.
- Potential financial savings for councils due to reduced spending on chemical inputs and compulsory training for staff applying pesticides.
- In contrast to pesticide application, most systems of non-chemical control can be used in any weather meaning there are fewer days when staff can't be out working. This makes it easier for councils to schedule work time efficiently.
- Increased ability to reach goals under individual council's sustainability strategies.
- Positive message for the public.
- Compliance with environmental and health legislation.
- Better habitats for bees, pollinators and other wildlife.
- Reduced contamination of water bodies which could lead to cheaper water bills and cleaner, safer water for the public.

How to make your local area pesticide-free

Going pesticide-free can seem a daunting challenge for many councils. But in fact, adopting different techniques need not be difficult or costly. Happily, there is a thirty-year history of towns and cities around the world switching to non-chemical methods. There is lots of experience out there that councils and their officers can learn from – you are not starting from scratch.

Assessing current pesticide use

The first step is to assess pesticide use to determine exactly why they are being used, what types are being used and in what quantities. Many uses are unnecessary and can be avoided. For example, changing planting schemes to provide more ground cover, or introducing "wildlife areas" in parks can do away with the need for pesticides altogether. In addition, some councils will be using pesticides prophylactically or blanket spraying to prevent potential issues that may emerge. This type of practice can be stopped immediately. Pesticides should be used as sparingly as possible and only ever to target an existing problem.

Non-chemical alternatives to pesticides

"The fact that whilst there is any possible hazard from a pesticide, surely it is better to reduce its use and look at alternatives? The more people that use alternatives, the more alternatives will be developed, tested and improved." Andy Frost, Head of Parks and Green Spaces, Lewes District Council, 2018.

- Hot foam systems use high temperature water and foam to kill weeds. The foam, which is made using sustainable vegetable oils, helps keep the water at a high temperature while it kills the weeds – literally boiling them. One of the many benefits of this system is the fact that it can be used in any weather condition in contrast to herbicides (such as glyphosate) which can only be used when it is not raining or windy. As it is non-toxic and non-bio accumulative, it is suitable for use in sensitive areas such as nature reserves and in proximity to water bodies. The Foamstream System - developed by UK company Weedingtech - is also approved for use in organic systems by the Soil Association. In addition to being used to control weeds, hot foam systems can also be used to remove chewing gum and moss.
- High pressure hot water treatments are similar to foam systems but instead rely solely on hot, high pressure water. They are effective for weed control and, as with foam systems, can also be used for other situations such as chewing gum and moss removal thus making them a versatile option.
- Electronic control systems are a relatively new approach that is particularly suited to dealing with invasive species. It works by using electricity to boil weeds from the inside out from the root upwards.
- Hand weeding is an option, particularly for smaller areas such as playgrounds and on paths running through parks. Some councils may be able to use their employees and parks staff to do this on a regular basis to maintain acceptable weed-free levels. However, given capacity constraints many councils have chosen to work with the local community around parks and other areas in order to recruit volunteers to help weed by hand. Friends of Parks groups are an obvious first port of call for finding willing helpers.

  Not only does this get the job done but it is an effective way of engaging local communities to become more involved in their parks and local area. A sense of community spirit can be engendered and it has proved to be an excellent opportunity for the council to engage with local groups in a positive manner. There are already a number of councils using this approach and other land managers such as Royal Parks in London are also asking for volunteers to come in and hand weed.[20]
- Mulching is an age old technique for dealing with weeds by smothering them. Mulching also offers other benefits including retention of moisture in the soil and, depending on the type of mulch being used, improved soil health. Organic material such as chips and bark from recycled Christmas trees can be used, or there is a wide range of mulch mats available. This

is a particularly useful approach in ornamental beds and in parks more generally.

- Acetic acid dilutions have been used very effectively to control weeds on hard surfaces in a variety of situations. Acetic acid is essentially just vinegar and, as such, is biodegradable and poses no risk of bioaccumulation.[21] Some of the companies that make and sell pesticide products have started producing alternatives to glyphosate-based herbicides, using acetic acid as the active ingredient. There is some debate about just how effective this can be for large areas of hard surface in urban areas, but it can be a useful tool for smaller areas such as playgrounds.
- Flame treatment has been used successfully to eliminate weeds in many parks and green spaces. Whilst flame weeding can be an effective alternative to the use of pesticides, and much work has gone into making them more targeted and therefore safer, there are potentially health and safety issues for operatives. However, for smaller areas hand-held flame weeders might be a suitable tool if proper training is provided.
- Steel brushing can be used for larger areas such as pavements and roads and, in combination with the use of acetic acid spraying, can be a very effective alternative. Such systems are particularly useful for removing light weeds and moss from hard surfaces such as paving and tarmac.

Raising public awareness

Public awareness-raising activities are absolutely key to the success of reducing or ending pesticide use. It is vital that the public know what changes are planned, and the reasons they are being made, so that they can support the initiative. For example, in Paris, when they introduced a ban on herbicide use over ten years ago, the Mayor instigated an awareness-raising campaign for Paris residents, encouraging them to accept a greater level of 'weediness' as the payoff for reducing their exposure to potentially harmful chemicals. Many UK councils have told PAN UK that they receive complaints if they leave an area to grow weedy without any information. However, if they put a sign up explaining that the area is being left for wildlife then residents tend to be supportive.

Publicising the action the council is taking can be done in a range of ways. Placing signs in areas which are pesticide-free is very effective, while running public meetings or consultations is another good way of keeping local residents informed. Working in conjunction with existing residents' or Friends of Parks groups in your area can also help to build local support for the change and help to get the message out.

One area that is vitally important is to report what you have been doing already. Many council departments will have tried to reduce the use of pesticides in some way. If that is the case, then this should be advertised to the public. Tell them what you are doing and what you have achieved so far. This transparent approach will help to reassure them that you are taking the issue seriously and taking steps in the right direction. One example of how to achieve this would be to create a map of the areas where you used to apply pesticides and show how that area has shrunk over time.

It is also worth promoting the fact if your council operations have reduced the volume of pesticides applied - sell it as a good news story. Records of use and purchases are available not only to you but also to the public via Freedom of Information requests – so the figures are not secret. It will again help to show that you are doing the right thing.

Working with contractors

More and more local councils do not undertake their own pesticide applications, particularly for streets and other non-park areas. This work is undertaken by contractors employed by the council, or sometimes even by sub-contractors. However, as the ultimate employer the council has the power to dictate the terms of the contract and is certainly well within its rights to insist that a contractor use non-chemical approaches.

Existing contracts which stipulate pesticide use may need to be renegotiated or rewritten. Often this will be possible within the contract period, but other times may have to wait until the end date.

Where an existing contract is in place and dates cannot be changed, it may still be possible to initiate measures in areas that fall outside of those covered by the contract.

If more councils require a pesticide-free approach from their contractors, then increasing numbers of contractors will have to provide that service and will invest the necessary technology to do so. Over time, this will make non-chemical approaches easier and cheaper and, ultimately, the norm rather than the exception.

It is even possible to make contractors key partners in going pesticide-free. In Lewes, East Sussex, the council's contractor purchased a hot foam system in partnership with the council but at no additional cost to local tax payers. The contractor now owns the machine which it used for the council just 30 days per year. The company is now able to generate additional income by hiring out a new non-toxic weed control service to neighbouring councils and land management clients.

Developing a pesticide policy

Given that the use of pesticide by councils can be a contentious issue for the public and often a point of concern, it is surprising how few have a detailed pesticide policy. It is important that each council sets out a clear policy on the conditions under which pesticides are being used in its area – how, where, when and why, and what measures are being taken to end or reduce pesticide use. This not only benefits council staff by clarifying the approach and overall direction of travel, but also provides reassurance to the general public that their council is taking the issue seriously. If the council is using pesticides, then its policy should also inform the public as to when and where they are being applied so that local residents can choose to avoid certain areas at those times. It's vital – particularly for vulnerable groups such as children, pregnant mothers and old or sick people – that they have the information they need to avoid sprayed areas. PAN UK is keen to assist councils in developing their own bespoke pesticide policies. Examples of two councils' pesticide policies are provided in the toolkit section at the end of this document.

Taking a measured approach

Implementing a no-pesticide policy, or significantly reducing pesticide use, requires careful thought and planning.

Real-life experience of establishing pesticide-free areas has shown that introducing measures in a phased manner increases the chance of success. For example, starting off in specific areas such as parks can be helpful. Pesticide-free 'pilot areas' can be used as both a learning opportunity for council staff and a chance to introduce the concept to the public before extending it more widely. Prioritising areas frequented by more vulnerable members of society, like children or the elderly, or which could provide beneficial habitats for bees, pollinators and other species in the urban environment should be the priority in terms of limiting exposure, and are also easy ways of gaining public support for the policy. Excellent examples of this phased approach can be seen in the US where a number of regions have stopped the use of pesticides in their parks following comprehensive pilot schemes which started in small areas of parks and subsequently expanded[22]

In order to be most effective, a phased approach should be accompanied by a clear and public commitment to the eventual complete cessation of pesticide use (or at the least a serious and meaningful reduction in their application).

Dealing with contentious issues

Cost

"A willingness to make a decision that will have long term positive benefits rather than just looking to the short term. In this case the decision to invest in the Foamstream system which in the short term had serious cost implications but in the long term will both save the Council money and help to ensure a healthy, safe environment for the residents and visitors to Glastonbury Town."
Glastonbury: a pesticide-free case study, 2015

Cost is of course a serious issue for every council in the UK; it comes up time and time again as an obstacle to adopting a pesticide-free regime. However, it is important to remember that pesticides are not free and councils spend significant sums of money purchasing and applying them. Therefore, in the first instance, it would be of use to audit your spending on pesticides. Don't forget to include anything your contractors (and sub-contractors) are spending before you make a cost comparison with non-chemical alternatives.

The cost of alternative approaches can undoubtedly be an issue. However, with advances in technology and availability of an increasing variety of non-chemical alternatives, costs of non-chemical controls are predicted to come down and, in most cases, become comparable to a pesticide regime.

Councils that have gone pesticide-free have also found that, after the initial outlay for a new system which can exceed the allocated budget, the costs have reduced over time to equal or even come in lower than a pesticide regime. This was the case in Glastonbury – the first town in the UK to ban the use of glyphosate – where the council invested in its own Foamstream system. They undertook some cost comparisons (see table) which showed that glyphosate was only marginally cheaper than hot water treatment. Hot foam came out as significantly cheaper than using glyphosate if the cost of the initial purchase of the equipment was taken out of the equation. Glastonbury Council is currently looking at the options for hiring the equipment out to other neighbouring parishes in order to recoup some of the initial cost outlay. It is also estimates that over the long term the cost savings will increase.

In fact, towns and cities that have gone pesticide-free all report that their weed and pest control requirements significantly diminish once non-chemical approaches have had a season or two to get on top of the problem. For example, in Seattle, where they have been working to reduce the use of pesticides in their parks since the 1970s, they have successfully reduced the number of man hours and subsequently costs for pesticide application.[23] Similarly in the city of Ghent in Belgium, which has been pesticide-free for 20 years, the amount of labour used for maintaining the parks has been significantly reduced since switching away from pesticides, saving the city money.[24]

The long view is important. Ultimately, it comes down to balancing the benefits against the costs. There are numerous non-financial benefits to going pesticide-free, and these should be weighed against, and factored into, any evaluation of the costs of switching to non-chemical approaches.

New and innovative funding strategies are also available to help councils recoup the costs of buying the equipment needed for non-chemical approaches. Options to consider include: sharing the initial cost of the machine with one or more adjacent council; getting a local company to 'sponsor' the ' machine by covering the cost of purchase; hiring the equipment out to neighbouring councils or local land managers; getting the council's contractor to buy the machine. These options are made possible by the fact that, unlike glyphosate, many of the new non-chemical approaches such as hot foam systems can be used in all weather conditions. Councils don't tend to need more than fifty days per year of use so the machine is available to be hired out to, or shared with, others the remainder of the time.

Method	Cost per linear metre
Hand Weeding by contractor	£00.32
Hot water treatment by contractor	£00.26
Glyphosate treatment by contractor	£00.23
Foamstream factoring in costs of diesel, foam, in-house application, van and water. Excluding initial cost of equipment	£00.07

> “Councils that have gone pesticide-free find that the cost of non-chemical approaches reduces over time to equal, or come in lower, than using pesticides.”

Effectiveness

Concerns about the effectiveness of non-chemical approaches are understandable. However, the new systems that are coming into operation are just as effective as chemical controls and make it possible to maintain current levels of weed control in your area. Of course, the effectiveness of each method will vary depending on the local context and environment and, in most cases, there won't be one silver bullet to replace pesticides. Instead, a suite of different approaches will be required. PAN UK is keen to work directly with councils and other land managers to devise bespoke strategies for ending pesticide use tailored to fit their local context.

Again this is an area that requires long-term thinking. There may, in the short term, be some increased 'weediness' while new approaches bed in. Communicating with the public during this phase is crucial so that they are not put off during the initial phase.

Invasive species

This is a serious concern for local authorities and green space managers as there are legal requirements and health and safety issues that mean invasive species such as Japanese knotweed and giant hogweed need to be controlled and eradicated. If invasive species are not managed responsibly, it is possible that under the Infrastructure Act 2015 a species control order could be handed to the land owner which could incur significant costs. Similarly with plants such as giant hogweed, which pose the potential to harm the public there is an obvious necessity to ensure that they are eradicated.

There are non-chemical alternatives available such as electronic control systems that kill stems and roots instantly. However, if the council does plan to continue using pesticides to deal with invasive species then a technique that keeps the use of herbicides to a minimum, such as stem injection, should be employed. Stem injection can be used on Japanese knotweed and other hollow stemmed invasive species. Since the herbicide is injected directly into the stem, rather than being applied by a foliar spray, it reduces the amount of pesticides being used and the possibility of any spray drift onto adjacent areas. A number of companies currently provide stem injection systems in the UK and offer training courses on its use.[25] [26]

What support can PAN UK offer?

PAN UK is here to help you on your journey and we are keen to work closely with councils. Here is an overview of the assistance we can offer:

- Work with councillors and relevant council officers to create a bespoke pesticide policy for the borough.
- Run practical workshops and webinars to provide practical help as to how to reduce pesticide use in the borough.
- Help to design suitable trials and pilot schemes for non-chemical alternatives.
- Attend meetings alongside elected councillors in order to support their approaches to other councillors, council officers or the public.
- Provide sample council motions associated to going pesticide-free.
- Assist in publicising measures that are already being undertaken by the council to stop and reduce the use of pesticides within the borough.
- Provide suggestions for public information materials and messaging.
- Provide information and support in all areas related to going pesticide-free, including a toolkit specifically for councils.

Conclusions

In summary, going pesticide-free is desirable and achievable but not always straight forward. There are a lot of issues that need to be addressed and these will often be specific to the area that you are working in.

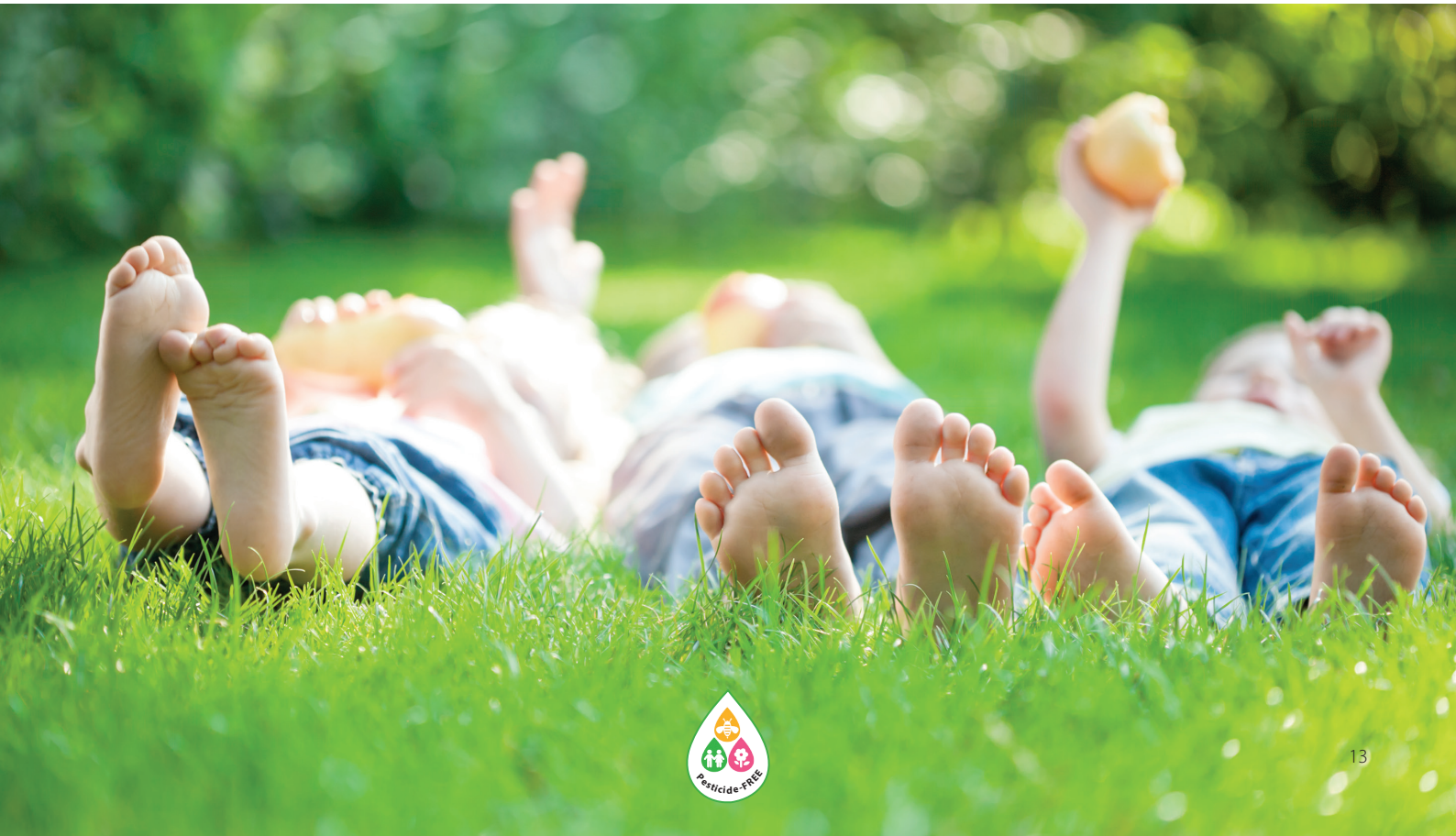
But for any pesticide-free plan to work there are three key requirements:

- Support from the public
- Political support from the councillors
- A willingness to think long-term

The final piece of advice is to make it clear what you are doing and why to all that need to know. This includes councillors and council officers but most importantly the general public. Local residents can be your greatest ally, so communicating effectively with them is crucial.

Good luck and please do keep us informed of your progress. PAN UK can be contacted at;

- **pesticide-free@pan-uk.org**
- **01273 964230** - ask for a member of the Pesticide-Free Towns team.



Pesticide policies

Pesticide policies vary considerably from council to council. However, despite the urgent need for transparency driven by rising levels of public concern, few councils currently have a comprehensive pesticide policy.

Every council should be aiming to develop and implement a clear and comprehensive pesticide policy which covers all the various areas and ways in which pesticides are used by the council and its contractors, as well as the actions being taken to reduce pesticide use.

Your policy should provide an overall roadmap for how the council plans to go pesticide-free. In particular, it should include (but not be limited to);

- Where and how the council has historically used pesticides
- The times and location of any ongoing pesticide application
- The rationale for going pesticide-free, including what you hope to achieve and an outline of the benefits for the public and wildlife
- Details on any reductions in pesticide use that have already been achieved and what alternative methods are being employed
- Plans for trialling pesticide-free approaches including details of the trial location area, what non-chemical alternatives are being tried and for how long, indicators for evaluating the success of the trials
- Communication plan for engaging with the public and other stakeholders

Here are two councils' current pesticide policies. They both happen to be from London councils but still provide examples that can be applied elsewhere:

1. The London Borough of Tower Hamlets provides a comprehensive parks policy which clearly lays the rationale for reducing pesticide use.

"Policy on the use of pesticides
The Parks and Open Spaces Service has been moving away from using chemicals wherever practical, replacing their use with cultural and manual methods. Pesticides are no longer used in Green Flag Park sites or play grounds, except where pesticides offer the only effective option such as in the treatment of some persistent weeds. The council no longer uses chemicals to control plant diseases (other than on fine turf areas) preferring to plant resistant species and improve its plant maintenance regimes.

In non-Green Flag sites, specialist trained contractors are employed to control weeds in selected situations. There is no blanket application of spray. Individual weeds are sprayed on their leaves with a contact herbicide that moves through the plant to kill it. This means that only areas with current growth are treated. This restricts applications to lightly trafficked paved areas. A maximum of three applications are made each year. In exceptional circumstances a residual herbicide (one that stays in the soil surface for several months) may be used to provide control in known problem areas, though the emphasis remains on the reduction of usage of this type of herbicide.

The borough occasionally has infestations of the Browntail moth. The caterpillars of this species of moth have fine hairs that can cause irritation or occasionally more serious reactions in humans. Where infestations are found, they are pruned out and the arisings disposed of; pesticides are no longer used to treat this problem.

Some pesticides are used on the council's four bowling greens to maintain the fine grass surface that is required for this sport,

including fungicides to control turf diseases and lumbricides to reduce worm casts and prevent root damage by leather jacket larvae. In these locations our trained greenkeepers use their experience to ensure that treatments are kept to a minimum and are carried out in a safe and timely way.

Rats and other pests are monitored and outbreaks controlled only as and when necessary by the council's pest control service."[27]

2. The London Borough of Haringey has adopted a fairly comprehensive policy. While it unfortunately fails to set an aspiration to reduce or end pesticide use, it does at least outline how, why, where and when the council's contractor treats weeds with herbicides. With regard to the use of potentially harmful chemicals, transparency is the very least that the public should expect.

"Weeds
A weed is commonly known as 'any undesirable or troublesome plant, especially one that grows profusely where it is not wanted'. As much as we like to see open green spaces full of plant life, we don't want plants growing between paving slabs or along the edge of the road.

The number of weeds growing increases throughout the months of spring due to the increase in temperature and sunlight.

Weed removal
At the end of April (weather permitting) Veolia take steps to remove weeds and prevent growth ahead of the summer.

To remove the weeds, a herbicide is applied to the areas of growth which kills the weeds. Once the weeds have turned brown - which should take approximately two weeks - they are manually scraped out of the ground to prevent re-growth.

When does the weed spraying take place

- ***First treatment*** *– April to May*
- ***Second Treatment*** *– July to August*
- ***Third treatment*** *– October to November*

Veolia Environmental Services operates a flexible system and will conduct monitoring to take weather variations into account. They work to ensure that the weeds are successfully removed whilst minimising the use of herbicides

Weed spraying methods
There are three methods used to apply the herbicide:

1. *Application using an Intelligent Technology Systems - this looks like a ride-on lawn mower*
2. *Vehicle Mounted Sprayer Herbicide Application - this looks like a street cleansing vehicle*
3. *Knapsack Herbicide Application - this looks like a backpack*

Herbicide and application

- The herbicide we use is a non-hazardous product and is suitable to be used externally
- *Herbicides will not be applied in residential areas before 8am (after 9am in the vicinity of schools and similar properties). Spraying will normally be completed by 4.30pm (3.30pm in the vicinity of schools and similar properties)*
- *Nearby watercourses, drains, other environmental factors and neighbouring properties are taken into account when spraying takes place*

Weed Spraying timetable
We will update with the new weed spraying schedule when available.

For more information please contact Veolia:

- ***Tel:*** *020 8885 7700*
- ***Email:*** *enquiries.haringey@veolia.com"*[28]

Trialling of non-chemical alternatives

Switching to a pesticide-free regime is not something that can happen overnight. It is essential that efficient, properly conducted trials be carried out in order to find the best solution for your specific situation, to build public support for the switch, and to identify and develop solutions to any potential problems.

The design of the trial is of paramount importance in order to ascertain what is possible, determine effectiveness of controls, to examine costs and to make it possible for you to report back on its success in detail to the council. In contrast, a badly planned trial that is 'designed to fail' can provide opponents of reducing pesticide use with useful fodder for resisting change so it is very important to get it right.

PAN UK is able to assist and advise on how to design and carry out an effective trial on non-pesticide alternatives in your area. Please contact us at pesticide-free@pan-uk.org to discuss your needs.

No two councils will have the exact same requirements and variations in environment and geography will mean that the approach to controlling weeds and pests needs to be site-specific. Another factor to consider is who undertakes the work; will it be conducted by an in-house team, or contracted out? You may need to work with your current contractor or discuss options with other contractors about how they operate and whether they can deliver a pesticide-free control system. Despite these contextual differences, there are some actions that should be taken when designing any effective trial:

1. Undertake a full audit of your current system, where spraying takes place, how frequent the applications are and why these areas need to be sprayed
2. Look at the locations that are being treated and note the different types of area; for example, rural roads and paths, parks and green spaces, old cobbled streets, modern paved areas such as shopping centres, areas of housing such as estates, etc.
3. Choose a selection of areas for the trial that best reflects the various types of location currently being treated.
4. Look at the variety of non-chemical treatment options that are available. Details of these are given earlier in this document.
5. Document the areas being trialled before treatment with photographs to show the level of weed growth and to identify the species of weeds being treated.
6. Within each area, or area type, organise for treatments to be applied at the same time under the same conditions on different parts of the area.
7. One part of the area should be left untreated as a control.
8. Document the area immediately after treatment with photographs.
9. Ensure that the trial areas and different treatment areas are mapped accurately to allow for proper assessment of the effectiveness of the treatments over the following weeks.
10. Return to the treatment areas on a regular basis over at least a 12 week period to assess regrowth and effectiveness of the treatments. These site visits should ideally be carried out on a fortnightly basis. At each visit, take photographs of the treated areas.
11. Your final assessment should be a full summary of how the trial was conducted, which treatments were used, why the areas for the trial were chosen and be accompanied by an assessment of the effectiveness of the treatments accompanied by the photographic evidence you have gathered.
12. Make an economic assessment of the treatments. This can best be carried out in consultation with the contractor or supplier of the trial equipment. However, there are many things that need to be factored in when

making an assessment including(but not limited to);

a. Staff time

b. Material costs

c. Staff training for both herbicide use and any required for non-chemical alternatives

d. Time lost for spraying due to weather conditions

13. Also record benefits – e.g. ability to conduct operations in poor weather (e.g. rain) not having to delay/reschedule and incur additional costs for staff down time;

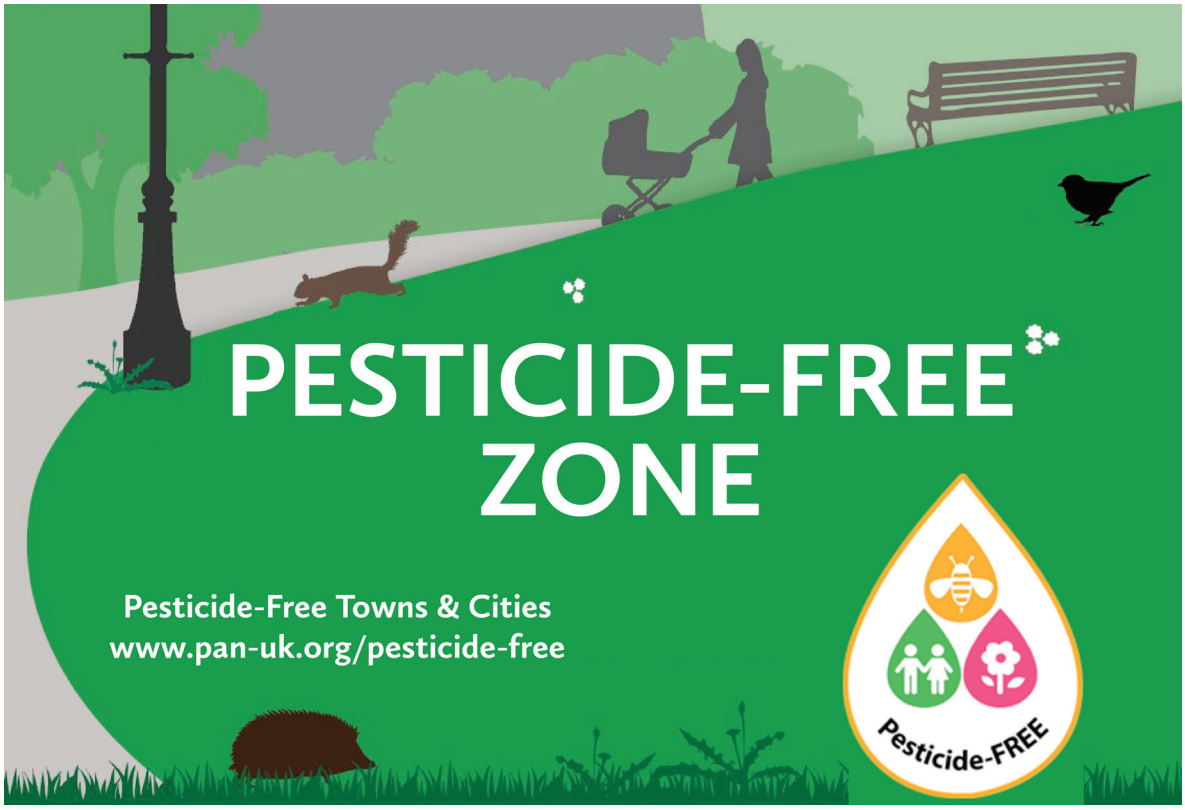
14. Record public feedback – how was it received by residents?

Keeping the public informed

Keeping the public informed about what you are doing is an important element of any plan to go pesticide-free. As mentioned earlier in this document, there are a number of instances where communicating with the public can really help you achieve your objectives. They are as follows;

Prior to adopting any plan

There may well be a great deal of public concern about the use of pesticides in your area, with campaigns and petitions running. Many councils are already taking action to minimise pesticide use but are not communicating this to the public. If you are already reducing the use of pesticides do tell the public what actions you have taken and encourage them to support you. Notices on your council website or specific department website or in the local media can be effective outlets for such information. You could also consider holding a public consultation on the issue to hear directly from residents.



TOOLKIT

In areas that are already pesticide-free
In areas, such as parks, where you have already stopped using pesticides letting the public know will give them confidence that you are serious about reducing their exposure to potentially harmful chemicals. This can be done very simply by putting up a 'Pesticide-Free Zone' sign. You can download the sign for free from the PAN UK website at: http://www.pan-uk.org/pesticide-free/

Once a decision has been taken to go pesticide-free
Following the decision to transition to a pesticide-free approach, the public should be informed. This is a good news story and an opportunity to spread a positive message about your work. The public is unlikely to read the minutes of the council meeting where the decision was made so an article in the local press and an announcement on your website are good ways to spread the message.

During trials of non-chemical control methods
This is the most critical time to engage the public. During the trials it is likely that there will be a great deal of attention focussed on the trial area. The public may see unfamiliar machines, hand weeding, spraying with acetic acid and weeds growing in the locations that have been allocated as control areas and therefore not treated. There are likely to be a lot of questions from curious residents so getting in first with comprehensive information on what is going on and why will head off these inquiries and save you time.

Information on the different systems being trialled, what they are and how they work, as well as a rationale for why some areas are being left untreated is all important to include. A map of the areas that are part of the trial will also be a useful inclusion.

Once again, signs in the trial areas that explain what's happening are a way of keeping residents informed, as is information on your website and in the local media.

> "Keeping the public informed is a vital part of going pesticide-free. Local residents can be your greatest ally."

Once the scheme has been adopted and is rolled out
This is the time to announce that your town or city is pesticide-free. Make a big splash, perhaps have an event and invite the media. Tell the world about your good news and blow your own trumpet. Place signs around the town; use it as an advertisement for the excellent work the council is doing.

If there is a need to control invasive species using pesticides
This is a difficult area and it can, if not handled properly, undermine confidence in the good work that you are doing. It is important to explain clearly to the public that you are required to remove invasive species and that you have chosen to continue to use pesticide to do so. Make sure to tell the public that you are combatting invasive species using the smallest amount of pesticides possible and in the least harmful way. Using signage to inform people in advance and during invasive species control will help to reassure the public that you are not rolling back the pesticide-free approach.

Council Motions

Motions can be useful tools for getting council support for going pesticide-free. Any member of the council can introduce a Motion to be debated and voted on. This was the path taken by Brighton & Hove council. A Motion was put forward by a councillor which was then discussed at a full council meeting and subsequently adopted by a unanimous council vote, thus becoming official council policy.

Whilst council officers are not able to submit a Motion, they can still demonstrate their department's support for the objectives by working with elected councillors to input into the contents. Relevant council officers are also sometimes able to be present in order to give supporting evidence when the Motion is debated.

Motions can be as detailed or as general as is thought necessary by the councillor making the submission. There is no one-size-fits-all approach and motions will differ depending on local circumstances. Some examples of Motions are given below;

Notice of Motion to Brighton & Hove Council –
"Council resolves to:

1. *Request the Environment, Transport & Sustainability Committee to request officers to use the opportunity of the end of the current weed spraying contract in April 2017 to end the use of Glyphosate in our city; and*
2. *To request that the Environment, Transport & Sustainability Committee gives consideration to trying non-chemical and mechanical alternatives during the testing period due to start in July this year and asks officers to inform Members of the Committee as to which alternatives are being trialled (by its meeting on 28th June) and report on the progress of those trials to the same Committee at its meeting on 29th November this year."*

This was a fairly simple, straight-forward Motion outlining exactly what they wanted to see and including specific time frames for reporting on progress.

Notice of Motion to Oxford City Council
"This council notes that there is growing evidence that glyphosate is a higher health risk than previously assumed, and that the World Health Organisation has recently upgraded glyphosate to 'probably carcinogenic to humans'**, with growing understanding of the damages caused by other chemical weed killers and pesticides to health and the environment.*

It further notes that other local councils in Britain, Hammersmith & Fulham being the most recent, have already decided to ban the use of glyphosate and other chemicals from their own operations. This is in the wake of large cities all over the world - such as Chicago and Paris - who have already decided on a ban and the Netherlands and Denmark which have banned the use of glyphosate in urban areas.

Therefore this council resolves to/asks the CEB:

1) *Pledge to cut out the use of glyphosate completely, in all its in-house operations (including in Parks, and Streetscene) within one year. The one exception would be in dealing with the Japanese knotweed, an aggressive invasive plant, currently without any other means of controlling. However, in this case glyphosate will only be stem-injected, rather than sprayed, to reduce its spread in the environment.*

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* *The WHO concluded there is sufficient evidence of carcinogenicity in experimental animals:*

"The IARC Working Group that conducted the evaluation considered the significant findings from the US EPA report and several more recent positive results in concluding that there is sufficient evidence of carcinogenicity in experimental animals. Glyphosate also caused DNA and chromosomal damage in human cells, although it gave negative results in tests using bacteria."

2) *Consider the one year period until the ban takes effect as a testing period, during which the council will test non-chemical and mechanical alternatives.*

3) *Use the opportunity of the end of the current weed spraying contract in XXX 2018 to request the contractor ceases to use glyphosate, or find another local contractor who will abide by a glyphosate ban.*

This is a much longer motion which provides substantial background detail and sets out a timeframe for the listed actions. Although the Motion received significant support, it failed to garner a majority and so unfortunately was not passed by Oxford City Council.

Notice of Motion to Glastonbury Town Council
"With regard to the health and environmental risks associated with glyphosate, this Council requests that the subcontractors employed by Mendip District Council discontinue the use of 'Glyfos' and all products containing glyphosate in this town, in favour of a more environmentally friendly product or other solution, in line with our Environmental Charter."

This short motion is extremely specific in its request to end the use of glyphosate but broad in terms of how the goal will be achieved. It was adopted by Glastonbury council which has ceased the use of glyphosate.

PAN UK has experience of working with councillors to draft suitable Motions and we are always happy to advise and assist. Given that Motions will be similar in many cases, as will the obstacles to their adoption by the full council, seeking advice from other councillors that have put forward Motions on pesticide use could be useful. PAN UK would be happy to put you in touch with others that are working on the same issue so that you can share experiences and knowledge. In the first instance please contact PAN UK at pesticide-free@pan-uk.org for more information.

Reports to council

Council officers are frequently asked to supply reports to council cabinet members, committees or the full council on subjects of interest to councillors who require more expert information. Reports can be requested purely for further information, in response to a public petition that has gained sufficient signatures to demand a response, or as supporting information prior to a debate and vote on a Motion that has been put forward to the council for consideration.

The following is an example of a report provided for a full meeting of Lewes Council by the Director of Service Delivery for Lewes District Council in response to a public petition calling for a pesticide-free Lewes.[29]

The response itself is comprehensive and includes;

- An audit of current pesticide use
- An investigation of non-chemical alternatives including information on trials already under way
- The development of a pesticide reduction plan
- An examination of cost implications
- A risk assessment outlining possible implications involved with going pesticide-free

A report template for you to adapt and use can be downloaded from the PAN UK website.

Report provided to Lewes Council by Director of Service Delivery for Lewes District Council

Agenda Item No:	10
Report No:	69/17 Report
Title:	Response to Petition – Pesticide-Free Lewes Report
To: Council Date:	10 May 2017
Cabinet Member:	Cllr Linington
Ward(s) Affected:	All
Report By:	Ian Fitzpatrick, Director of Service Delivery
Purpose of Report:	To respond to the petition submitted to Council on the 7th December 2016 regarding the use of pesticides in the Lewes District.

Officers Recommendation(s):

1 To note and debate the petition in line with the Councils petitions scheme.

2 To adopt the Pesticide Reduction Plan shown in paragraph 7.

1 Reasons for Recommendations

At the meeting on the 7 December 2016, Council received a petition from Cllr Carter and Mr Adams containing a combined total of over 1500 signatures. The petition stated:

"Stop spraying all toxic pesticides in Lewes District streets, parks, schools and public spaces. There is clear evidence that pesticides (such as the herbicide glyphosate) used for pest and weed control across Lewes District are causing declines in biodiversity and are harmful to human health, especially children. Our children need to be able to play safely in the parks of Lewes face down on the ground without fear of exposure to glyphosate and other potentially harmful chemicals. But it is not just children.

Everybody who lives, works, plays, visits or walks their dog anywhere in this beautiful district should have the right to enjoy the area without fear of coming into contact with unnecessary, toxic chemicals".

In light of the number of signatures and in accordance with the Council's petitions scheme, it was agreed that the petition would be debated by the Council as an individual agenda item at a future Council meeting.

2 Information

2.1 The petition that has been received is requesting to stop the use of pesticides in streets, parks, schools and public spaces. It should be noted, however, that East Sussex County Council is responsible for the maintenance, and therefore pesticide use, within most schools and highways / streets.

2.2 The council currently has a policy, through its Pesticide Management Plan, which strictly limits the use of pesticides on council owned land. The term "pesticide" encompasses herbicides, insecticides, lumbricides, and pest control materials.

2.3 The council does not use any pesticides in designated children's play areas, and it does not use any residual herbicides. I.e. herbicides that are intended to stay in the ground to prevent further weed growth.

2.4 However, the council does use the herbicide Glyphosate for the control of weeds in hard surface pathways in recreation grounds and around our housing areas. This pesticide is applied by trained operatives in very small doses to each individual weed – it is not blanket sprayed across the entire hard surfaced area.

2.5 The council also uses selective herbicides for the control of weeds in sports areas, such as bowling greens, cricket squares and football pitches, where it is important to keep a safe uniform and level playing surface.

2.6 The council takes biodiversity very seriously, and this year will be increasing the perennial wildflower areas across the district, to help provide additional food sources for butterflies and bees.

3 Pesticide-Free Campaign

3.1 There is currently a campaign, being led in the UK by PAN UK (Pesticides Action Network), to create pesticide-free towns across the country.

3.2 The reasons for wishing to go pesticide-free are numerous, but include:

(a) Contamination of local water supplies

(b) The potential impact of pesticides on human health, the environment, biodiversity and bees populations

(c) Public concern

3.3 In April 2015, the International Agency for Research on Cancer, part of the World Health Organisation, concluded that Glyphosate based weed killer was “probably carcinogenic to humans”. Other studies have linked glyphosate to birth defects and a rise in antibiotic resistance.

3.4 PAN UK have a “precautionary principle” that states that “When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some of the cause and effect relationships are not fully established scientifically”. In other words, although some evidence against the use of pesticides appears inconclusive, it is far better to work towards using less or ideally no pesticides.

3.5 There are some areas where alternative weed control methods are not yet fully developed, such as the control of Knot weed, so a phased approach to pesticide reduction is required, rather than a complete overnight ban.

4 Glyphosate and the Law

4.1 All products containing Glyphosate have to be registered and approved by the European Pesticides Commission.

4.2 Glyphosate was re-registered and approved in June 2016, but for a limited period of 18 months (until the end of 2017).

4.3 As part of this approval extension, the Commission also presented some recommendations to be considered by member states. One of these recommendations was to “minimise the use of the substance (glyphosate) in public parks, public playgrounds and gardens”

4.4 There is the possibility that further restrictions or a total ban on Glyphosate may be brought in when the registration is reconsidered at the end of 2017. By reducing the reliance on the chemical now, we will be better prepared for any future changes.

5 Current Pesticide Use by LDC and possible alternatives

5.1 Pesticide usage at LDC

Pesticide	Purpose	Application	Area Used	Alternatives
Roundup Pro Biactive (Glyphosate)	Weed killing	Spot treatment	Paths and hard surfaces (not play areas)	Foamstream Hot Water Burning Manual weeding Vinegar
Mecoprop, Dicamba	Selected weedkilling	Spray	Sports pitches and bowling greens	None
Glyphosate	Knotweed control	Injected	Knotweed and other problem infestatious weeds	None, although some control gained through electrocution method
Ferrox Sulphate	Moss Control	Spray	Fine turf	None – although cultural methods such as aeration can help reduce the need.
Azoxystrobin, Propiconazole	Fungicide	Spray	To control fungal attacks on fine sports turf	None – although cultural methods such as aeration can help reduce the need.

5.2 Alternatives to Chemical Weed Control

Method	Use	Advantages	Disadvantages
Hot Foam	Weeds in hard surfaces Moss on hard surfaces and play area safety surfacing, Grass growth around trees	Foam holds hot water against plant. Pesticide-free but uses plant oil extracts in foam. Can be used in all weather. Kills 95% of targeted weeds.	New technology – needs refinement. Expensive to purchase (£25,000+) Additional cost of plant oil extract, Diesel consumption and pollution
Hot Water / Steam	Weeds in hard surfaces, play area surfacing, graffiti removal, chewing gum removal.	Lower initial purchase cost.	Requires more treatments as heat is not held onto plant. Diesel consumption and pollution.
Propane / Flame gun	Weeds on hard surfaces	Relatively cheap to purchase	Health and Safety Risks (banned in the domestic market). Not particularly effective
Manual Weeding	Weeds in general	Very effective if done well. Low set up costs (excluding labour).	Very time consuming. Requires large amount of labour.
Vinegar	Weeds in hard surfaces	No licence required for application.	Has been trialled, but has not been effective. Strong smell, can give operator headache.

6 Trials of alternative weed control methods

6.1 Over the past 6 months, LDC have been trialling various types of alternative weed control, including hot foam and hot water systems

6.2 The developments of these systems are still in early stages, with no system providing an overall solution. Non chemical weed control will be more expensive than traditional chemical weed control, and costs may rise further if a ban on Glyphosate comes in, and demand for alternatives increase.

6.3 From the trials carried out by LDC, the Foamstream method of weed control, using hot foam, has been found to provide the best alternative weed control method. It is also very effective at cleaning off moss and algae from play area surfacing, and on hard surfaces such as tennis courts. One big advantage of Foamstream is that it can be used all year round, even in cold weather.

6.4 A number of other councils across the country are looking at reducing the amount of pesticides used, or going pesticide-free. These include Brighton and Hove City Council, London Borough of Hammersmith and Fulham, Woking Borough Council and Edinburgh City Council.

6.5 Fareham Borough Council has recently purchased a Foamstream machine, and is currently training their staff in its use.

6.6 Support to the principle of reducing pesticide use has also been received from Lewes Town Council and Newhaven Town Council.

7 Pesticide Reduction Plan

7.1 Should Council decide to adopt a phased pesticide reduction plan, then it is proposed that the following proposal be supported:

Item	Proposal	Advantages / Disadvantages	Time Scale
Pesticide-Free Parks	To introduce Pesticide-Free Parks and Play Areas. These would be set areas where it is feasible to stop using pesticides completely*. For instance, Southover Grange Gardens is already a pesticide-free park. Other park areas across the district could be phased in	Park areas would have signage to promote them as pesticide-free parks and the council would benefit from good publicity. New pesticide-free parks could be introduced annually, assuming that they are suitable.	0-3 years
Weed spraying of hard surfaces using Glyphosate	To make use of a Foamstream machine to carry out the weed killing on all accessible paths and hard surfaces in parks, gardens and housing areas. The Foamstream machine would be supplied and operated by our grounds maintenance contractor. There would be no additional costs to LDC, as costs would be transferred by a contract variation from chemical weed control to Foamstream weed control.	LDC would have full use of a Foamstream machine, with all maintenance costs being absorbed by the contractor. In order to cover the cost of the machine, this agreement would need to be in place for the remaining term of the grounds maintenance agreement. Whilst the Foamstream machine is not being used on the LDC Contract, it can be used by LDC and the contractor to procure weed control work in other authorities. Limited pesticide application may still be required on areas where it is not feasible to use the Foamstream Machine.	1 year
Sports Turf Areas	For the control of a specific problem, such as Knot Weed control or stump removal, pesticides will have to be used until suitable alternatives are available.	Pesticides will still need to be used, although cultural and non pesticide alternatives will be used when and if they become available.	Review in year 1-2
Specific problem areas	For the control of a specific problem, such as Knot Weed control or stump removal, pesticides will have to be used until suitable alternatives are available.	LDC have an obligation to control Knot weed in certain areas, and Glyphosate treatment is the only viable control method. Application of the pesticide will be very specific, in the form of leaf application, injection or as eco – plugs, placed directly in the stump	
Pesticides Management Plan	To revise the LDC Pesticide Management Plan to include these proposals and to introduce a pesticide reduction policy.	LDC will commit to reduce the use of pesticides, whilst still allowing use where essential and where alternatives are not yet available.	To be submitted to Cabinet in May 2018

* Pesticides may have to be used for specific problems where there is no alternative, i.e. if Knotweed infestation became a problem.

8 Financial Appraisal

8.1 By working in partnership with our contractor, G. Burleys, there will be no additional costs to LDC by implementing this Pesticide Reduction policy.

8.2 There is currently an annual cost of £32,320 within our grounds maintenance to carry out weed killing on hard surfaces in parks, open spaces and housing areas.

8.3 The cost to provide and operate a Foamstream machine will be £24,828 per annum (includes machine, labour, trailer and vehicle).

8.4 If the policy is agreed, then a Variation to the contract will be issued to the contractor to change from pesticide use to using a Foamstream machine for the remaining term of the contract.

8.5 The balance of £7,492 per annum will be used for weed control in those areas that are inaccessible to the Foamstream machine.

8.6 By taking this option, LDC would not be liable for any maintenance costs or Vehicle and trailer costs, and would not need to find storage areas or pay for the machine when it is not being used.

9 Legal Implications

The current legal position regarding the use of glyphosate is set out in paragraph 4 above. Until the Great Repeal Bill is debated and enacted by the UK Parliament, it is not known whether the legal obligations regarding glyphosate under EU law will be incorporated into UK domestic law (whether in its original form or adapted) or repealed, as part of the process of the UK leaving the EU in 2019.

Date of legal advice: 29.3.17. Legal ref: 06213-LDC-OD

10 Risk Management Implications

I have completed a risk assessment. The following risks may arise if the recommendations are not implemented and I propose to mitigate these risks in the following ways:

Risk	Mitigation
There is a risk that at the end of 2017, registration of the pesticide Glyphosate will be removed.	If registration was removed, and these recommendations had been approved, then the Foamstream system could be used. If the recommendation were not approved, then there is likely to be a phasing in period of the ban on the use of Glyphosate. During this time, alternative weed control methods would have to be adopted. It should be noted that there is no indication at this time whether a ban will be introduced, or if registration of the product will be renewed.
Public opinion on the use of pesticides may grow with more publicity.	The use of pesticides would remain carefully controlled.

The following risks will arise if the recommendations are implemented and I propose to mitigate these risks in the following ways:

Risk	Mitigation
There is a risk that the "new technology" proves to be un reliable and therefore more expensive.	As the machinery is purchased by our contractor, these risks would transfer to them, with no liability with LDC.
To cover costs, the variation with our contractor needs to remain in place until the end of the contract term. There is a risk that if the contract term ended early, there would be an additional fee to pay.	It is very unlikely that the contract term would finish early. If this were the case, then this would form part of the overall contract termination negotiations.

11 Equality Screening

An Equality Analysis has been undertaken and the potential introduction of a pesticide reduction policy was found to have likely positive outcomes for all residents, but in particular for children and young people who may be more vulnerable to pesticide use.

12 Background Papers

None

ANNEX

Pesticides currently used in amenity applications

Pesticides currently used in amenity applications

The most recent survey of amenity pesticide use, undertaken by the Food and Environment Research Agency (FERA), covers the year 2016 and was published in April 2018.[30] It looks at both the quantitative and qualitative use of pesticides in the amenity sector.

Whilst the survey gives an interesting insight into the use of amenity pesticides, there are certain caveats that must be made clear when interpreting the data. Of the 1,100 amenity companies that were contacted, only around 10% responded. As a result, figures for pesticide usage in the report are almost certainly underestimated. Therefore, while the report is useful, it provides just a limited snapshot of pesticide use in a small portion of the amenity sector.

The report reveals that in 2016, there were:

- 38 different active substances used in the amenity sector. These 38 active substances will form the core ingredients of many different formulated products (i.e. branded products) which are what is ultimately used in UK towns and cities. As an example, glyphosate is an active substance which is found in hundreds of different formulated products, the most common of which is Roundup. Details of authorised products and active substances can be found via the Chemicals Regulation Directorate Plant Protection Products database (https://secure.pesticides.gov.uk/pestreg/ProdSearch.asp)
- 80 tonnes of active substance covering a treated area of 98,121 hectares were applied by those responding to the survey – as stated above this is an underestimation of the actual amount being used.
- The most widely used class of pesticides were herbicides, accounting for 98.8% of the total pesticides applied.
- Glyphosate was by far the most widely applied herbicide accounting for 77% of active substances applied – 61,249kg.

The following is a list of the active substances that were reported as being used in the survey;

- Herbicides
  2,4-D, Acetic Acid, Aminopyralid, Asulam, Carfentrazone-ethyl, Citronella Oil, Clopyralid, Cycloxydim, Dicamba, Diflufenican, Ferrous Sulphate, Flazasulfuron, Florasulam, Fluroxypyr, Glufosinate-ammonium, Glyphosate, Isoxaben, MCPA, Mecoprop-p, Pinoxaden, Propaquizafop, Propyzamide
- Fungicides
  Azoxystrobin, Bacillus sutilis, Carbendazim, Chlorothalonil, Fludioxonil, Fluopyram, Fosetyl-aluminium, Iprodione, Prochloraz, Propiconazole, Pyraclostrobin, Tebuconazole, Trifloxystrobin
- Insecticides
  Diflubenzuron, Imidacloprid
- Growth Regulators
  Trinexapac-ethyl

PAN UK has examined the health effects associated with the fifteen most frequently used active substances in the amenity sector and presented the findings in the table below. The classifications are taken from a wide variety of sources and different regulatory authorities around the world.[31]

Active	KG applied in 2016	Use	Acutely Toxic	Carcinogen	Developmental or Reproductive Toxin	Endocrine Disruptor
Glyphosate	61,249	Herbicide		Probable		
2,4-D	4,757	Herbicide		Probable		
MCPA	3,983	Herbicide	Yes	Possible		
Mecoprop-P	3,929	Herbicide	Yes	Possible		
Triclopyr	1,610	Herbicide				
Diflufenican	1,212	Herbicide				
Fluroxypyr	891	Herbicide				
Dicamba	685	Herbicide	Slight		Yes	
Trinexapac-ethyl	177	Growth Regulator				
Aminopyralid	158	Herbicide				
Iprodione	141	Fungicide		Yes		Suspected
Flazasulfuron	131	Herbicide				
Ferrous sulphate	130	Herbicide				
Clopyralid	99	Herbicide	Yes			
Azoxystrobin	92	Fungicide				

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1 Polling commissioned by PAN UK and SumOfUs and conducted by GQR Research, September 2017, https://gqrr.app.box.com/s/0ddbifc853j9k1t1sbjvuc1crvxw8zbc

2 Pesticides: Parliament to set up special committee http://www.europarl.europa.eu/news/en/press-room/20180118IPR92014/pesticides-parliament-to-set-up-special-committee

3 France declares public spaces pesticide free – private gardens will follow https://www.gardenorganic.org.uk/news/france-declares-public-spaces-pesticide-free

4 A Generation in Jeapordy – How Pesticides are Undermining Children's Health and Intelligence – 2013 – Pesticide Action Network North America – http://www.panna.org/resources/publication-report/report-generation-jeopardy

5 WHO International Programme on Chemical Safety – Highly Hazardous Pesticides – http://www.who.int/ipcs/assessment/public_health/pesticides/en/

6 "Wingspread Conference on the Precautionary Principle" 26/01/1998 http://www.sehn.org/wing.html

7 European Commission – Some Facts About Glyphosate – https://ec.europa.eu/food/plant/pesticides/glyphosate_en

8 Monograph on Human Toxicity of Glyphosate – International Agency for Research on Cancer (IARC) – March 2015 – http://monographs.iarc.fr/ENG/Monographs/vol112/mono112-10.pdf

9 Plantlife's campaign to protect wildflowers and nature on roadside verges – http://plantlife.love-wildflowers.org.uk/roadvergecampaign

10 "Diffuse Pollution of Water by Agriculture" – PostNote Number 478 October 2014 – Houses of Parliament Parliamentary Office of Science and Technology

11 UK National Action Plan for the Sustainable Use of Pesticides – https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/221034/pb13894-nap-pesticides-20130226.pdf

12 UK National Pollinator Strategy – https://www.gov.uk/government/publications/national-pollinator-strategy-for-bees-and-other-pollinators-in-england

13 Providing and protecting habitat for wild birds – DEFRA – 25/02/2016 – https://www.gov.uk/guidance/providing-and-protecting-habitat-for-wild-birds

14 The EU Water Framework Directive – http://ec.europa.eu/environment/water/water-framework/index_en.html

15 The UK 25 Year Environment Plan https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf

16 Polling commissioned by PAN UK and SumOfUs and conducted by GQR Research, September 2017, https://gqrr.app.box.com/s/0ddbifc853j9k1t1sbjvuc1crvxw8zbc

17 Pollinators Decline in Numbers – Royal Horticultural Society – https://www.rhs.org.uk/advice/profile?pid=528

18 British Public Back Strong New Wildlife Laws – The Guardian – 25/08/2016 – https://www.theguardian.com/environment/2016/aug/25/british-wildlife-needs-new-laws-to-protect-it-post-brexit-poll-shows

19 The European Citizen's Initiative on Glyphosate – http://ec.europa.eu/citizens-initiative/public/initiatives/successful/details/2017/000002

20 Volunteer in the Community Garden, Regent's Park – https://www.royalparks.org.uk/get-involved/volunteer-with-us/volunteering-opportunities/volunteer-and-volunteer-co-ordinator-in-the-community-wildlife-garden,-regents-park

21 Vinegar; an Alternative to Glyphosate? – University of Maryland – 2017 – https://extension.umd.edu/sites/default/files/_docs/programs/ipmnet/Vinegar-AnAlternativeToGlyphosate-UMD-Smith-Fiola-and-Gill.pdf

22 Pesticide-Free Parks – Portland Department of Parks and Recreation – http://www.portlandoregon.gov/parks/47501

23 Pesticide Reduction – Seattle Department of Parks and Recreation – http://www.seattle.gov/parks/about-us/policies-and-plans/pesticide-reduction

24 Pesticide-Free Towns – Pesticide Action Network Europe – http://www.pesticide-free-towns.info/stories-principles

25 Stem Injection Kits (other sources are available) – https://www.amenity.co.uk/japanese-knotweed-control/stem-injection-kits.html

26 Stem Injection Training Course – http://www.mortontraining.co.uk/courses/stem-injection/

27 Tower Hamlets Council Policy on Pesticides – www.towerhamlets.gov.uk/lgnl/leisure_and_culture/parks_and_open_spaces/Park_development_and_improvements/policy_on_the_use_of_pesticide.aspx

28 Haringey Council Pesticide Policy – http://www.haringey.gov.uk/parking-roads-and-travel/roads-and-streets/road-care-and-maintenance/weed-spraying

29 Response to Petition – Pesticide-Free Lewes Report – 10/05/2017 – https://tinyurl.com/ycfutzpz

30 Amenity Pesticide Use Survey 2016 – Fera – April 2018 – https://www.gov.uk/government/statistics/pesticide-usage-survey-amenity-pesticides-in-the-uk-2016

31 Chemicals Regulation Directorate database in approved pesticide products – http://www.pesticideinfo.org/Search_Chemicals.jsp

Who are 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.

We campaign for change in policy and practice in the UK and overseas, contributing our wealth of scientific and technical expertise to reducing the impact of harmful pesticides and pushing for a pesticide-free future.

Find out more about our work at:
www.pan-uk.org/pesticide-free

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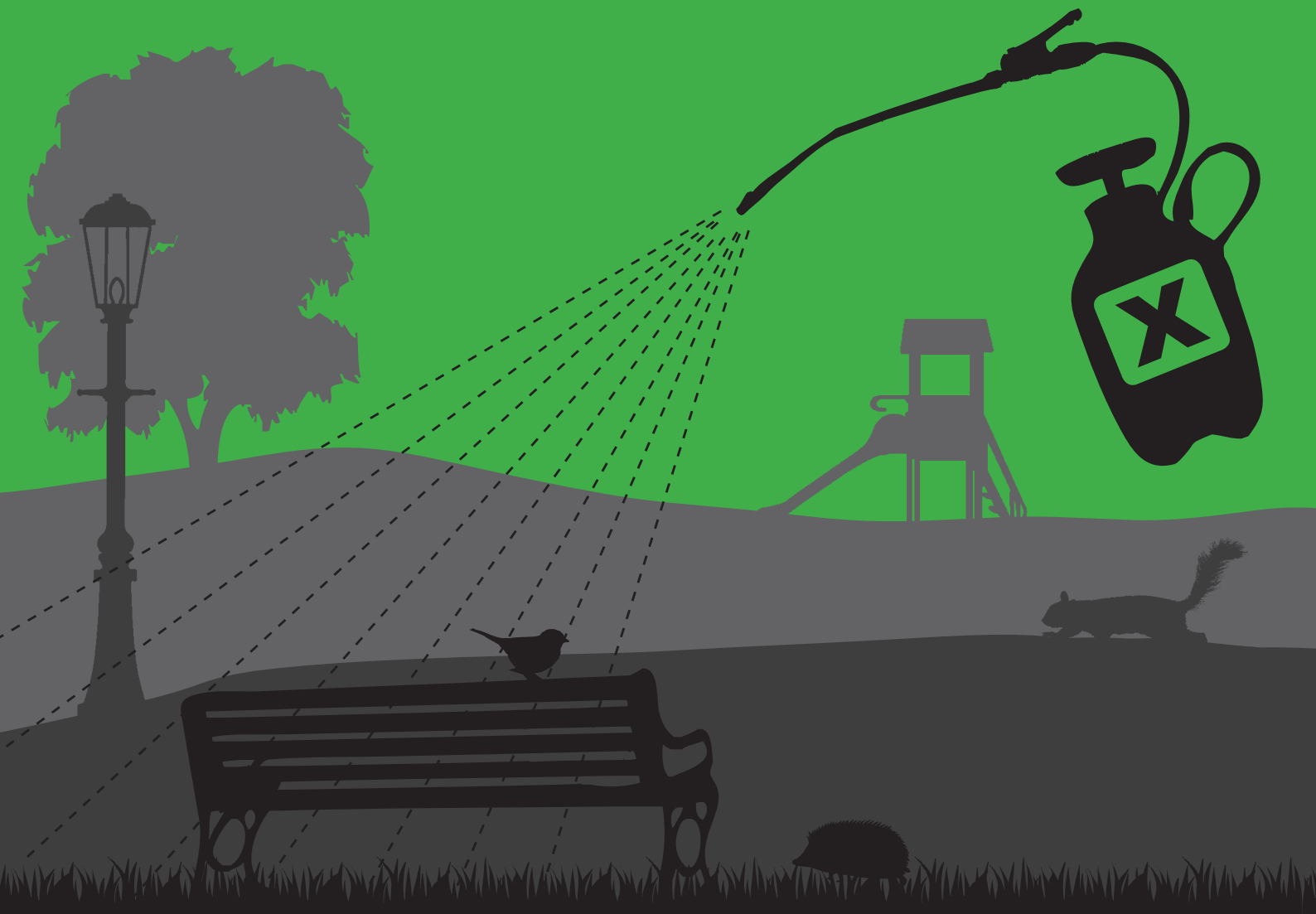

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