

Gardeners' views on glyphosate

Summary

A survey was sent out to Garden Organic social media contacts, members and non-members, and other organisations and networks, to evaluate people's opinions on the use of glyphosate by amateur gardeners and use in public spaces.

The survey revealed the following headline findings:

Awareness:

Awareness amongst the group was extremely high:

97% had heard of glyphosate.

89% had seen it in the news.

Perceived risks

84% perceived it at least a moderate risk to gardeners, with 58% viewing it as very or extremely dangerous.

94% perceived it at least a moderate risk to the environment with 63% viewing it as very or extremely dangerous.

87% perceived it at least a moderate risk to consumers, with 63% viewing it as very or extremely dangerous.

Many of these perceptions are supported by the scientific literature.

Current use

General use of the herbicide was low amongst those surveyed, with 76% of women and 61% of men never using herbicides. Most of this was used on paths. However, there was an alarming disregard for safety with only 53% always reading safety labels and low levels of PPE being worn (Boots 41%, Eye protection 31%, Facemask 25%).

Support for a ban

87% would support a ban for amateur gardeners and 93% would support a ban on councils using glyphosate. These measures would bring the UK into line with several other EU countries such as France and Luxembourg who have banned the non agricultural use of glyphosate.

Context

Glyphosate is a systemic weedkiller that was first commercialised by Monsanto in 1974 under the trade name Roundup, a broad-spectrum weedkiller. It is a systemic herbicide taken up into the plant and killing all growing points and is often used to treat perennial weeds. Since then, it has become the most widespread weedkiller in use globally in agricultural crops, gardens and public places. ¹ In the UK, its use has increased by 1000% from 200 t per year since 1990 to 2200 t in 2024².

As with all pesticides, in the UK, the licence for their use is granted for a 10 -15 year period by the Health and Safety Executive. In the UK, the licence is due to expire in December 2026, and its safety and efficacy reviewed in the light of any new information or research. This process includes a public consultation.

In the last few years, considerable evidence has emerged casting doubt on the safety of glyphosate in relation to the user, the consumer and the environment, and in light on this, Garden Organic will be pressing to ban the use of glyphosate for amateur gardeners and in public spaces.

This survey will help to gather people's views that feed into the consultation process.

The survey

An online survey was sent out to Garden Organic supporters and members, other charities and community networks containing 27 questions. The questions were predominantly multiple choice with Likert scale questions designed to ascertain people's strength of opinion but also contained open ended free text questions. The aims of the survey were to:

- Establish current levels of awareness, views and perceptions of glyphosate
- Evaluate the extent to which glyphosate is used, how it is used and under what circumstances
- Establish the degree of support for a partial or complete ban.

A total of 505 responded. Results were collated and analysed, and effects of age, experience and gender were also analysed using the appropriate non-parametric statistical tests. It is acknowledged that the gardeners who responded in this survey

support sustainable gardening methods and would have responded accordingly. However, we feel it is important that the views of this group are represented.

Awareness

Not surprisingly, 97% of participants had already heard of glyphosate and 89% had read about it in the news showing a high level of awareness within the group. When asked what brand name of herbicides were associated with glyphosate, 334 out of the 505 participants mentioned the trade name 'Roundup'. This was by far the most mentioned name, with the next most mentioned, 'Weedol' only being mentioned 19 times.

Perception of danger to gardeners

84% of the participants thought that using glyphosate in a domestic setting posed at least moderate risk to gardeners and 58% considered it very dangerous or extremely dangerous.

These dangers are borne out by scientific study. In its early days, glyphosate was hailed as one of the most benign of agrochemicals and agrochemical companies even touted that it was safer than table salt. Glyphosate acts by blocking the shikimate pathway used by plants, fungi and bacteria to make proteins. Because this pathway is absent in animals, it was assumed they would not be affected in any way. However, a large body of evidence has gathered to show that this is not the case. For example, a recent study concluded that there was a significant increase Non-Hodgkins Lymphoma amongst agricultural workers regularly exposed to the chemical³. There are also concerns that the EU acceptable daily dose limit has been set much too high as an extensive study showed, that regular exposure to this dose caused multiple types of cancer⁴.

In accordance with this, when asked what scenarios people would support a ban, 96% of participants would support a ban if glyphosate was found to cause cancer.

Perception of danger to environment

94% of participants felt that glyphosate posed at least a moderate risk to the environment and 79% considered it very dangerous or extremely dangerous.

These risks have been borne out by environmental studies. There are a number of studies that indicate that glyphosate can negatively impact soil life and soil health⁵. In one study glyphosate reduced soil bacterial activity by up to 73%⁶ and another showed that it reduced the reproductive activity of earthworms⁷. Although manufacturers claim that it is rapidly broken down in the soil, there are studies that show that it persists much longer than this especially when trapped in plant residues⁸ and one study showed that it persisted in forest plant tissues for over a decade⁹.

In this survey, 97% of participants stated that they would support a ban if glyphosate was found to poison the soil.

Perception of danger to consumers

87% thought that posed at least a moderate risk to consumer and 63% considered it very dangerous or extremely dangerous.

Since the 1980s, glyphosate has been used as a preharvest desiccant in arable crops to aid even ripening in colder wetter climates. In continuing to do this, the UK has diverged from the EU position, where glyphosate has been banned for use as a pre harvest desiccant since 2023¹⁰. The use has increased dramatically, with PAN citing UK use increasing from 200 t/year in 1990 to 2200 t/year in 2024.² Consistent with its increased use, residues are finding their way into our food. Government testing results in 2021 revealed that at least half of all bread products contained at least 2 pesticide products.¹¹ In agreement with this, 96% of participants would support a ban if glyphosate residues were detected in food.

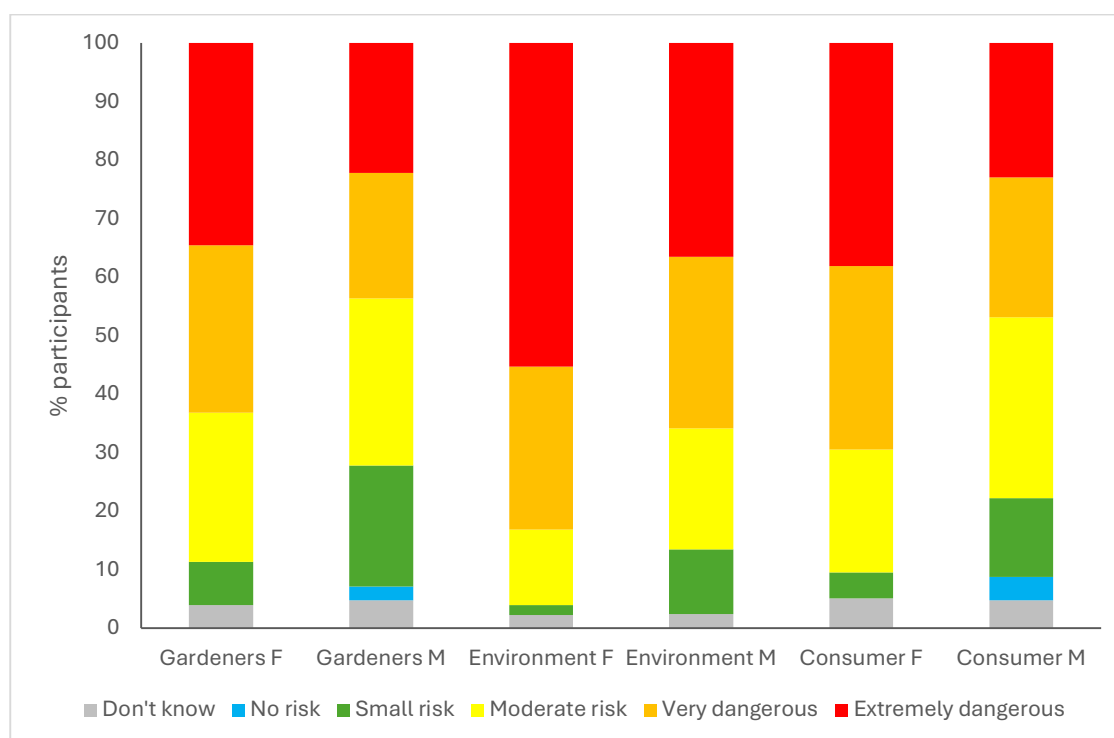


Figure 1 Perceived risk of glyphosate in females (F) and males (M) to gardeners, the environment and the consumer.

The graph above showed that the participants associated glyphosate with substantial risks to gardeners using the product, the environment and to consumers consuming food where it has been sprayed.

Many of the comments from participants showed that there was a high degree of mistrust in the chemical:

“Like putting poison on your dinner!”

“I was horrified to see a whole section of Glyphosate on sale”

Interestingly, there were significant ($p < 0.001$) differences in response between genders, with females consistently perceiving greater risks. This is consistent with many other studies have shown that women often demonstrate a great concern for the environment^{12,13} and have been shown to take fewer risks with pesticides that might compromise safety¹⁴.

Use of glyphosate

In this survey, males were significantly ($p = 0.001$) more likely to use herbicides than females: 76% of females stated that they never used herbicides whereas the figure for males was only 61%. There are many other studies that have shown that males may take on the role of applying pesticides in a horticultural setting¹⁵ and this ‘traditional’ male role may still persist in UK gardens.

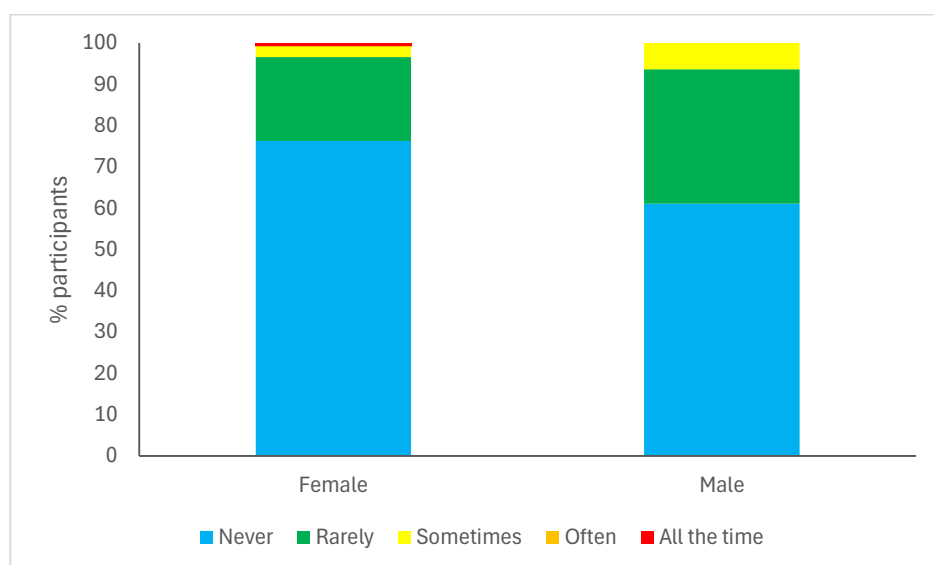


Figure 2 Gender effects of use of herbicides

Any use was principally on paths (23%) with low use for clearing land (10%) and very low use for borders (4%), or lawns (5%). These findings are borne out by our experience with gardeners who frequently state that they don’t use any sprays, but then when questioned further, admit to using glyphosate to kill weeds on paved areas.

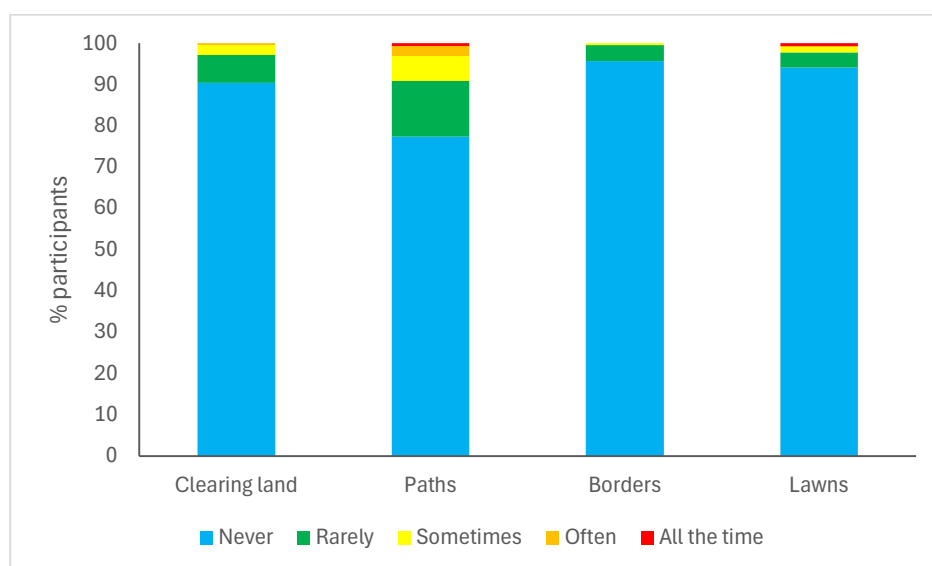


Figure 3 How glyphosate is used in the garden

To spray glyphosate in the workplace, users legislation states that they should hold a spraying certificate and must wear personal protective equipment¹⁶. There are no such restrictions on amateur gardeners.

Alarming, **of those that used glyphosate, only 53% read safety label all the time**, with 26% often reading it and 16% sometimes. Likewise, for following the instructions for dilution and use, only **72% follow instructions all the time**, with 24% often and 3% sometimes following them, increasing the risk of incorrect doses impacting the environment. These findings are similar to a study made by the Health and Safety Executive in 2019, where only 51% would read instructions before they used the product for the first time.¹⁷ It demonstrates that a significant proportion of amateur users are not using pesticides as directed putting themselves and the environment at risk.

Levels of PPE worn were also lacking. **Although 71% stated that they wear gloves, only 41% wear boots, 25% wear facemask and 31% wear eye protection**. There was also 10% that don't wear anything but think they should. Considering that glyphosate is classed by its safety data sheets as harmful in contact with skin and can cause serious eye damage¹⁸, it is worrying that is being used by the public without proper protection. According to HSE, users should wear PPE including elbow length or wrist length nitrile gloves of 0.5 mm minimum thickness, cuffs inside protective elastic elbow length sleevelets, water repellent boots.¹⁹

In the comments, there was a small minority who viewed that the risk was entirely dependent on how glyphosate was used, and when used correctly, the risk was extremely

small. However, the results above suggest that a significant proportion of gardeners may be putting themselves and the environment at risk by not using the products as directed.

Support for a ban

Amongst the group surveyed, there was strong support for a ban or imposing restrictions on use.

A large majority of 84% would support gardeners needing a licence and 87% would support a complete ban for amateur gardeners.

These measures should not be considered radical. Eight EU member states have already taken measures to reduce pesticide use in public places²⁰ with Luxemburg and France having passed total bans on all non-agricultural pesticides. In Belgium, amateur gardeners are no longer allowed to use glyphosate and Denmark has banned pesticides in many public places including paved surfaces²¹. The product has also been banned further afield in Vietnam preventing sale of glyphosate to amateur users.²² In the EU, in 2023, the license for glyphosate was renewed for a further 10 years until 2033, although with the proviso that it could be withdrawn if new evidence arose that meant that the approval criteria could no longer be fulfilled.²³ In coming to this decision, no majority decision was reached by the member states, and the EU commission took the decision to renew the licence for a further 10 years²⁴.

When considering the factors influencing whether glyphosate should be banned, for 82%, gardener safety was considered a very or extremely important factor. For 92% consumer safety was considered very or extremely important and for 98%, the environment was considered very or extremely important.

In our survey, 93% of participants would support a ban on councils using glyphosate.

Again, this is not a radical decision and over 70 local authorities have already taken moves to reduce or eliminate glyphosate, with many adopting alternatives like hot water, foam, and mechanical weeding²⁵

The comments frequently outlined participants' frustrations with their local councils continually spraying glyphosate in public places:

"I hate the fact the council still sprays glyphosate weed killer to kill weeds around roads and pavements."

In trying to push for continued support for the use of herbicides, it is often cited that the public will not tolerate any level of weeds in their locality. However, the opinions in this survey would refute any such claims:

78% would tolerate moderate or very weedy private gardens. 62% would tolerate moderate or very weedy paved areas and a further 31% would tolerate a pavement that still had low levels of weeds. Whilst it is acknowledged that high levels of weeds can

present challenges for accessibility and safety, more moderate levels of control achieved by alternative methods are perfectly adequate to achieve acceptable outcomes, without needing to strive for completely weed free environments.

This was also supported by the comments:

“I have nothing against weeds. They are a part of nature & many have flowers essential for all wildlife”

“I dislike the term 'weeds' as it is a negative word people use for self-seeding flowers they think need eradicating so they can have a perfect green lawn not 'blemished' by flowers they didn't plant”

Alternatives to Glyphosate

One justification for the continued use of glyphosate is that if it was phased out, it would be replaced by chemicals with a worse impact on the environment and health. However, in this study, the majority of participants stated that they would adopt sustainable alternatives such as hand weeding (97% of participants) or using mulch (89% of participants). Only 2% would use another weedkiller if glyphosate was banned. A few participants highlighted the dangers of replacing herbicides with plastic mulches that release microplastics into the soil.

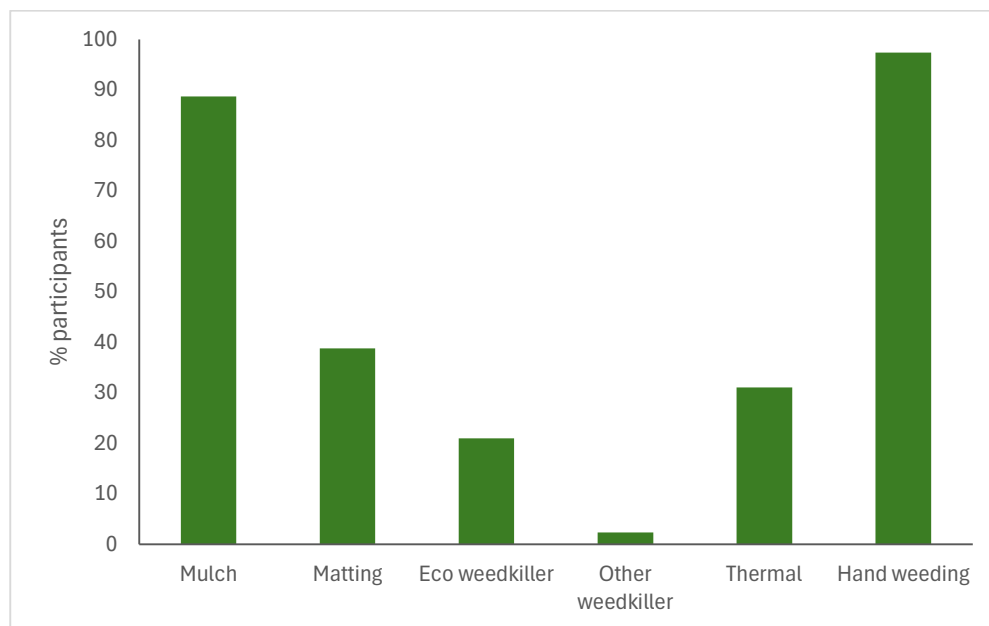


Figure 4 Alternative measures to using glyphosate

Conclusion

This survey showed that within this group of sustainably minded gardeners, there was a high perceived risk of glyphosate to the gardener, the consumer and the environment. However, this risk was not always consistent with behaviour, with the small number of people that did use it, not always reading instructions or using appropriate PPE equipment. The survey also demonstrated clear support for restrictions on amateur use and a ban on spraying it in public places. The findings also suggested that there was a desire to move away from perfect weed-free spaces and a move towards tolerating an appropriate background level of weediness.

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