BRISTOL CITY COUNCIL
Neighbourhoods Scrutiny Commission
27th October 2016

Report of: Service Director, Neighbourhoods

Title: Progress Report - Cotham trial for glyphosate-free weed treatment

Ward: Cotham, Ashley

Officer Presenting Report:

Contact Telephone Number:

RECOMMENDATION

No recommendations are due, progress to date is reported.

Summary

The Council is carrying out a trial in Cotham ward to treat weed growth on the adopted highway without using a glyphosate-based product. The trial also involves not controlling weeds at all in parks and green spaces within the ward nor in St Andrews Park in the neighbouring ward.

The trial began in April 2016 and is for 12 months.

The significant issues in the report are:

Research is *indicating* at this point that:

1. Use of an acetic acid-based product on the highway is closest to using a glyphosate product in terms of cost but is a greater cost;
2. Alternative treatments such as foam stream are available but appear to be at a much higher cost;
3. The acetic acid-based product used in the trial is not as effective as glyphosate in controlling weeds;
4. Greater weed growth on the highway and in parks is not resulting in a significant uplift in complaints;
5. Greater attention to hard surface design and materials will reduce the need to control weed growth in the long term;
6. It isn't clear that alternatives to glyphosate are better for health or the environment;
7. A reduction in the use of glyphosate in areas of high public contact should be sought.

Policy

1. "Pest Management Arrangements – a Strategy to reduce the health and safety risks and environmental impact of the management of pests in council services."

Consultation

2. Internal

The trial has engaged with Bristol Waste Company, ward Councillors and officers from Highways, the Environmental Performance team and the Sustainability Team.

3. External

No formal consultation has taken place. Members of the Pesticide Alliance and the local Neighbourhood Partnership are aware of the trial. Desktop research has involved gathering information from a number of external sources.

Context

In March 2015, the World Health Organisation (WHO) presented an International Agency for Research on Cancer (IARC) report evaluating five Plant Protection Products. The evaluation of glyphosate was changed to group 2A as "probably carcinogenic to humans" from previous class 3, "unclassifiable as to carcinogenicity in humans", along with other classification changes. IARC based the evaluation on studies carried out on agricultural workers in the USA, Canada and Sweden and "reported increased risk for non-Hodgkins lymphoma". For the public, WHO states that:

"The general population is exposed primarily through residence near sprayed areas, home use, and diet, and the level that has been observed is generally low."

The European Food Safety Authority, EFSA, updated its toxicological profile of glyphosate in November 2015 and classified it as "unlikely to pose a carcinogenic hazard to humans". The majority view among member states to not classify glyphosate as carcinogenic was 27 to 1, with Sweden disagreeing with the majority view.

The Council has been assessing its use of glyphosate as a chemical weed control following a local and national campaign, built on the WHO report, to ban its use in public spaces. Glyphosate is used to control weeds and vegetation growth in parks and green spaces, on the highway and on other hard surface areas. It is a common product

available to the public from garden centres.

As part of the assessment a glyphosate-free trial is taking place in Cotham ward and St Andrews Park. Within the trial area glyphosate is not being used either on the adopted highway, Housing hard surfaces or in parks. However where invasive weeds are present, e.g Japanese Knotweed, these continue to be treated with glyphosate or other suitable systemic herbicide. The trial performance measurements and outcomes were provided to Scrutiny following questions raised at its 22nd Feb 16 meeting – See Appendix 1.

Prior to the trial, different alternatives to weed control were considered. A view was provided by the Council's Environmental Performance team and Sustainability Team.

i. Thermal steam treatment with added foam:

Contact was made with a contractor employing the method who was able to supplement costs information from an equipment supplier.

A cost to deliver the trial was provided by Bristol Waste Company:

- Thermal steam treatment (Foam) = £7,349.50 – 2 person team, one full week to carry out the works and the cost of the machinery for this method.

(Current method, glyphosate: = £742.22 – 1 person to carry out the works.)

A decision was made not to trial the thermal steam treatment method because:

- of the significantly increased cost of the method in relation to using glyphosate;
- because of a predicted increase in fuel use and resulting environmental impact.

ii. Acetic acid treatment:

A cost to deliver the trial was provided by Bristol Waste Company:

- Use of Acid = £2,680.60 – 1 person to carry out the work but the increase in cost is due to the cost of the chemical and the huge amount needed to carry out the work. Compared to 200L Glyphosate it would take 6000L of the acid.

(Current method, glyphosate: = £742.22 – 1 person to carry out

the works.)

The application method is similar to glyphosate – delivered by hand by operatives on foot.

Conclusion:

- To trial this method in Cotham, accepting this level of cost increase.

iii. Manual removal:

Bristol Waste Company reported that the operation of digging out channels in open roads is too high a risk to operatives.

It also reported that it would be extremely time consuming taking e.g. four crew members would probably only complete 3/4 roads a day, the trial zone would take over 6 weeks to complete.

However this method *was* employed in the trial area after the trial had started.

iv. Alternative herbicides:

It was considered early on that the ethos of the trial, and certainly the ethos aim of the Pesticide Alliance and others that supported a glyphosate-free approach to weed-control, was to look for an alternative weed treatment that did not involve man-made chemicals that may be harmful to the environment or health. The Council is not aware of any alternative products that are better in this regard than glyphosate.

One product available, 2,4-Dichlorophenoxyacetic acid, is a well-known known systemic herbicide. However it is not effective on grasses and although not considered at the beginning of the trial it would not be fit for purpose for highway weed spraying or spraying in parks.

The trial:

On the adopted highway acid spray was used as an alternative treatment. In parks and green spaces and Housing hard surfaces, no alternative was used and no additional resources made available to manage weed growth – in order to understand the trial impact and the public response to it.

The aim of the trial is to provide answers to the following:

i. How affective is acetic acid compared to glyphosate as a herbicide?

ii. How is the public responding to visual changes in parks and streets?

iii. What are the costs of alternative weed control?

iv. Will further reduction on herbicide application effect infrastructure?

v. How and where can herbicide use be reduced without damage to infrastructure or increasing public concern?

Monitoring throughout the trail area is carried out once a month and recorded with photographs and by using a scoring system adopted from a DEFRA five year study (WEEDS) – See Appendix 2.

Areas outside of the trial area, where glyphosate continues to be applied, are also being monitored as a control.

Complaints from the public are also monitored and an analysis of costs will be carried out at the end of the trial.

Interim findings:

i. How effective is acetic acid compared to glyphosate as a herbicide?

On application the immediate effect of both acid spray and glyphosate spray is the removal of weeds. However monitoring shows that the weed growth returns significantly earlier in the acid-spray areas - the result is not as long lasting. This is likely because acid-spray is not systemic in the way it controls plant growth. See Appendix 3 for example pictures.

Route	Treatment	Visit 1 average score	Visit 2 average score	Visit 3 average score	Visit 4 average score	Visit 5 average core	Visit 6 average score
Trial	1 vinegar spray	- *	4.8	6.5	5.1	6.2	5.5**
Comp.	1 glyphosate spray	- *	2.8	3.4	3.7	2.9	3.7
Comp.	1 glyphosate spray	3	4.3	2.8	2.6	3.1	3
Comp.	1 glyphosate spray	4.1	4.8	15.6***	4.6	3.2	3.1

* 20 streets added to monitoring round in trial area after first visit
**Hand weeded in areas early October
***Parts of the area sprayed late in the season

ii. How is the public responding to visual changes?

Bristol Waste Company has received two public complaints from the trial area. Six complaints have been received from one of the comparison wards - Easton. Therefore there is not yet a known increase in the number of complaints.

The St Andrews Park 'Friends of' group has complained about the condition of its wildflower beds in the park that did not perform as well as expected. However it cannot be determined that the lack of a glyphosate spray was the reason for this.

iii. What are the costs of alternative weed control?

As set out previously Bristol Waste Company initially set out that the costs of applying acid-spray and using foam stream are higher than applying glyphosate. Comments from a contractor that uses the foamstream method appear to confirm a higher cost.

The trial has shown that manual removal has also been required in order to maintain the desired performance outcome - "the same as with glyphosate".

A cost will be applied later in the trial to the practice of manual removal and comparison costs provided for a city-wide methodology. However we can be reasonably confident that the costs will be significantly higher to achieve the same performance outcome.

iv. Will reduced herbicide applications affect infrastructure?

The expected answer to this is 'yes' if an alternative method is not employed. Perennials and self-sown trees start to emerge which will ultimately significantly degrade infrastructure. The trial term, 12 months, is not long enough to determine this empirically.

However trial monitoring has clearly shown that where infrastructure is of poor quality or of a certain design (small block design with lots of cracks for seeds to germinate for example and also hard surface footpaths in areas of low footfall), weed growth is effectively encouraged and deterioration accelerates.

Street furniture placing, signage installation etc. and surface conditions have been observed as playing a big role in the number of weeds.

v. How and where can herbicide use be reduced without damage to infrastructure or increasing public concern?

The Parks service has already been reducing its application and use of herbicides by being more selective with the use of glyphosate around obstacles. The trial suggests for the moment that this may be an acceptable outcome for the park user but this should be assessed at its end.

Herbicide application may be reduced if this need is incorporated into design briefs when designing outdoor space and public realm.

Proposal

We are not in a position to make recommendations – these will be made at the end of the trial period.

However the Council's Environmental Performance Team and Sustainability Team considered the trial and minimising of environmental impacts. Within the views they expressed a number of proposals and statements were made that are worth highlighting here:

Where there is a need to consider the impacts arising from weed control, this must include consideration of all the operational impacts arising, and not just be limited to consideration of the specific product itself.

> "There is a legal duty to minimize the use of plant protection products, including glyphosate and vinegar. The Parks Service is already taking steps to reduce spraying in green spaces and the success or otherwise of this will be clearer over time.
>
> Long term goals and aspirations: One comment from the Alliance statement that we as an organisation have not addressed is the need to "map the land base to identify priority areas for weed control then match these to appropriate treatment options." This is precisely the approach we would recommend. However this would have a significant cost, and as evidence on the dangers of glyphosate is not clear (two authoritative bodies [WHO and EFSA] contradict each other) we need to judge whether the costs of the analysis work take resources from higher priorities from action that we know has greater positive health and environmental outcomes. However whatever decision is reached on this judgement, the organisation should be stating such mapping as an aspiration as and when financial resources allow, either to

carry this out itself or to commit to cooperating with external organisations (with reasonable credibleness and evidence-based approach) and consider findings seriously. In the medium term BCC or contractor vehicles going out to weed sites could be EVs so this will change the equation.

We already monitor where we use Glyphosate and how much we use and have good data on this. This should be maintained and where possible improved and the council should consider making this information publicly available.

Scope of changes to practice:

The Environmental Performance and Sustainability teams fully appreciate the budgetary constraints set out in the trial notice. It will be difficult to find resources to adopt widespread alternatives given that all are more expensive. However as colleagues will be aware if there is a compelling health and environmental case for change, then resources would have to be found.

From the evidence we have we seen, we are not convinced that a ban across the city is justified. Highways land for example is highly unlikely for contact to take place, let alone before the Glyphosate has broken down.

Given the combination of these resource constraints and that even those questioning the use of Glyphosate haven't questioned the breakdown into harmless compounds, the focus of any change should be on areas where there is a chance of direct contact before the Glyphosate has broken down. This is likely to be:

1) Areas closest to houses
2) The most heavily used areas within parks
3) Surface type (e.g. hard /soft landscaping) can be taken into consideration
4) Therefore a small proportion of the land where Glyphosate is used

It should be noted that this is a precautionary position based on current evidence – currently above and beyond legal compliance, but this position should be under review should guidance change.

This also makes any change we can make significantly more affordable, and thus more possible, than a wholescale Glyphosate ban citywide.

It seems unlikely that substituting any other chemical would have lower health and environmental impacts than Glyphosate so mechanical, hand and non-chemical-based, or foamstream-style applications would have to be evaluated for e.g. greater use of petrochemicals such as diesel.

Our understanding is that methods of application should make it unlikely that the public would come into contact with glyphosate, and this needs communicating carefully as there may be a perception that the chemical is applied liberally and indiscriminately.

Review impacts of alternatives:

We have reviewed a number of alternative approaches (excluding Foamstream, due to lack of available information) and overall, found them to be more harmful to health and environment that Glyphosate, except “do nothing” which is unlikely to be acceptable

Alternatives require either other harmful chemicals or more fossil fuels, due to increased application rates requiring more vehicle journeys, and therefore the production of known carcinogens and harmful chemicals that, unlike glyphosate, do not break down.

Non-chemical means and steam treatments require fossil fuels (for heat and vehicle movements) so are carcinogenic as well as producing a range of other negative effects, for example urban air quality. BCC should always prioritise minimisation of a known carcinogen (vehicle exhausts) over a ‘possible’ or ‘probable’ carcinogen.

There will be a number of health & safety, and environmental impacts to using acids and these need to be evaluated.

We have not seen a compelling case from colleagues that there is no alternative to Glyphosate in the very small percentage of land where contact before breakdown is most likely, as the cost impacts would be very low compared to what is being requested by campaigners. However, the environmental impacts of extra fuel and other petrochemical use and other impacts must be evaluated to compare with Glyphosate.

We have done a substantial, perhaps not exhaustive research and very few cities have actually done significant reduction in Glyphosate use. Newcastle City Council has implemented a trial but the results are not encouraging for reduction of Glyphosate use. Our team will not have the resource to continue to monitor

other cities, but should we be informed of such an example, with significant implications, we would of course be happy to assist with a review.

Risk Assessment

N/A

Public Sector Equality Duties

N/A

Legal and Resource Implications

Legal

No legal advice has been sought as the report is a progress update only.

Financial

(a) Revenue

No financial advice has been sought as the report is a progress update only.

Land

N/A

Personnel

N/A

Appendices:

- Appendix 1 – Cotham trial – performance outcomes and measurements
- Appendix 2 – Defra scoring system
- Appendix 3 – Photos of weed growth in monitored sites

LOCAL GOVERNMENT (ACCESS TO INFORMATION) ACT 1985 Background Papers:

- Comments on Glyphosate Free Trial (BCC) and Pesticide Free Alliance statement on Cotham trial – Bristol City Council Environmental Performance team (including EMAS) and Sustainability Team (including ECG)

Appendix 1: Cotham trial summary, as issued by BCC in response to questions at the 22 February Neighbourhoods Scrutiny Commission

Work area	Performance outcome	Measurement	Update
Maintenance of hard surfaces within the (Highways) weed spraying contract.	As with glyphosate	Cost. Time taken. Staffing. Environmental inputs and outputs.	An update has been requested from Bristol Waste Company.
Control of invasive weeds (Japanese knotweed)	Continue with Glyphosate control	N/A	N/A
Within green spaces - maintenance of hard surfaces	As with glyphosate	Cost. Time taken. Staffing. Environmental inputs and outputs.	The trial operates a non-intervention approach within parks and so no additional resources are used and no additional outputs expected.
Within green spaces - removal of growth around obstacles to reduce demand on staff resources	Maintain current resource level. Accept potential for lower performance.	Visual comparison with control site(s). Enquiries and complaints.	Refer to previous comment regarding enquiries and complaints.
Within green spaces - control of weed growth in bedding and shrub features	Maintain current resource level. Accept potential for lower performance.	Visual comparison with control site(s). Succession growth. Enquiries and complaints. Volunteer activity	It is currently felt that there may not be enough of these features in the trial area to draw a comparison.
Within green spaces - sterilising sites intended to be sown as floral meadows and new planting (e.g. floral displays).	Withhold spraying. Accept potential for lower performance.	Visual comparison with control site(s). Species success. Succession growth. Bloom longevity.	There is a floral meadow within the trial area which is not nearly as good as we would have expected and been the subject of a complaint from the park group. More trials are needed on the impact of not using glyphosate with these features.

Appendix 2: DEFRA SCORING SYSTEM

Criteria			Score	Level	Description
Height (mm)	Weed diameter or length (mm)	Joint coverage (%)			
<10	<50	<10	<3	1	No noticeable weeds
10-50	50-100	0-20	4-6	2	Occasional small weeds
50-100	100-150	20-30	7-9	3	Patchy weed growth with some flowering weeds
100-150	150-200	30-40	10-12	4	Numerous weeds, many flowering, view annoys or irritates public
150-200	200-300	40-50	13-15	5	Numerous large weeds, risk to slip or trip
>200	>300	>50	16-18	6	Numerous large weeds, many tall and flowering,causing obstruction

WEEDS, Best practice guidance notes for integrated and non-chemical amenity hard surface weed control, EMR 2015

Appendix 3: Pictures trial and comparison areas

Trial area (Cotham) visits 1 – 6

Visit 1

IMAG2522

Visit 2

IMAG2991

Visit 3

IMAG3779

Visit 4

IMAG4664

Visit 5

IMAG5319

Visit 6

IMAG5726

Visit 1

IMAG2537

Visit 2

IMAG3005

Visit 3

IMAG3792

Visit 4

IMAG4675

Visit 5

IMAG5328

Visit 6

IMAG5738

Hand weeding trial area

Some of the local access roads in the trial area have been hand weeded during the trial time to achieve set performance outcome “same as glyphosate”. The street in the monitoring round does not have coblestones in the gulley, as is common on other streets in the trial, and is therefor relatively easy to “hand dig”.

Pictures 3788 – 4674 show the street both before acetic acid spray and shortly after where smaller weeds have died back but some larger persist. Pictures 5324 – 5325 show the street after hand weeding. More monitoring visits are needed to see how the effects over time and a cost will be estimated.

IMAG3788


IMAG4670


IMAG4673


IMAG4674


IMAG5325


IMAG5324

Comparison area 1. Visits 1-6 (Clifton)

Visit 1

IMAG2454

Visit 2

IMAG2894

Visit 3

IMAG3709

Visit 4

IMAG4558

Visit 5

IMAG5269

Visit 6

IMAG5685

Visit 1

IMAG2457

Visit 2

IMAG2896

Visit 3

IMAG3713

Visit 4

IMAG4567

Visit 5

IMAG5271

Visit 6

IMAG5687

Comparison area 2. Visits 1-6 (Easton)

Visit 1

IMAG2726

Visit 2

IMAG3366

Visit 3

IMAG4044

Visit 4

IMAG4956

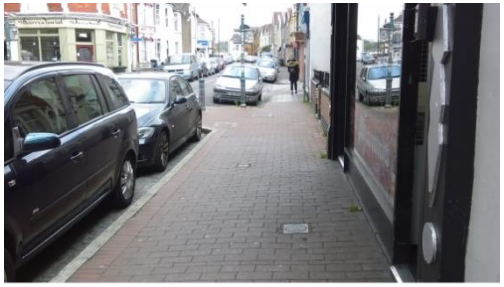
Visit 5

IMAG5250

Visit 6

IMAG5642

Visit 1



IMAG2731

Visit 2

IMAG3368

Visit 3

IMAG4049

Visit 4

IMAG4962

Visit 5

IMAG5255

Visit 6

IMAG5646