10.3 GLYPHOSATE USE IN THE CITY OF VINCENT

Attachments:
1. **WALGA Fact Sheet - Integrated Weed Management Practices**
2. **WALGA Fact Sheet - Benefits and Limitations of Weed Control Methods**

RECOMMENDATION:

That Council

1. **NOTES the information contained within this report on the City's integrated weed management processes including:**

   1.1 The Australian Pesticide and Veterinary Medicines Authority regulations on the use of glyphosate;

   1.2 The City's use of glyphosate for weed control in public open space to maintain fit for purpose public open space; and

   1.3 Cost estimates for further reduction in the use of glyphosate.

PURPOSE OF REPORT:

The purpose of this report is to provide Council with information on the City's current use of glyphosate and details on estimated costs for further reduction in its use.

BACKGROUND:

Local Governments undertake weed management in public open space to meet the regulatory requirements under the *Biosecurity and Agriculture Management Act 2007*, protect biodiversity, reduce bushfire risk, reduce damage to infrastructure, and meet community expectations for the amenity and aesthetics of local areas.

In response to a motion carried at the 2021/2022 Annual Meeting of Electors Council resolved at its 14 February 2023 meeting that administration provide a report on options and costs for further reduction in the use of glyphosate for weed control in public open space.

DETAILS:

Australian Pesticides and Veterinary Medicines Authority

The City is limited to using pesticides that have been approved for use by the Australian Pesticides and Veterinary Medicines Authority (APVMA) which is responsible for the regulation and control of agricultural and veterinary chemicals up to the point of retail sale.

The APVMA have stated that all glyphosate products registered for use in Australia have been through a robust chemical risk assessment process and have concluded that the weight-of-evidence indicates that exposure to glyphosate does not pose a carcinogenic or genotoxic risk to humans.

Current Glyphosate Use Within the City of Vincent

The City's Parks Team endeavour to reduce glyphosate use through integrated weed management practices which includes:

- Use of alternative organic herbicides (e.g. pelargonic acid)
- Manual or mechanical removal such as hand weeding or whipper snipping
- Weed suppression through regular mulching and understorey plantings
- Specialised equipment that scans for chlorophyll and targets weeds in kerb line and footpath spraying programs (up to 84% reduction in glyphosate application)
- Physical barriers such as kerbing around gardens to restrict turf growth and permeable paving trials around tree wells
- Timing weed control to avoid seed banking (noting that one year of seeding equates to seven years of weed growth)

When applying chemicals in public open space (POS) the City's Parks staff and/or contractors erect signage as per the *Health (Pesticides) Amendment Regulation 2016*, which requires signage to be clearly displayed at a distance that provides adequate warning whilst the chemical is being applied and/or until it has dried on the leaf of the plant(s).

The City utilises a range of treatment methods as part of a holistic and integrated approach to weed management. The selection of treatment method is based on specific objectives and site requirements. Specific applications where glyphosate use is required which include:

- Control of perennial running grasses and woody perennial weeds by Parks Staff and/or specialised contractors where required (e.g. eco-zoning program implementation and maintenance).
- City wide footpaths and kerb line spraying undertaken by contractors annually.

Parks staff are prohibited from using glyphosate around playgrounds and spraying any chemicals during school holidays unless approved by the Manager Parks (e.g. when its use is required near a school approval is given to spray during school holidays).

Information is provided to the community on the City's weed control practices via a dedicated webpage on the City's website: https://www.vincent.wa.gov.au/residents/parks-and-streetscapes-maintenance/weed-control.aspx.

An audit of glyphosate purchased over the last five years has identified that the volume has remained consistent at approximately 340L per year. With the preference of alternative techniques, it would be expected that the volume of glyphosate usage would go down however, it is important to recognise that garden areas within the City's parks and reserves have increased over 4.3ha in the last ten years through the eco-zoning program. In addition, there has been an overall increase in the area and standard of POS across the City (including streetscape and park improvements) that require ongoing maintenance and weed control measures.

West Australian Local Government Association Integrated Weed Management Working Group

In an effort to explore alternatives to glyphosate the Parks Team have engaged with other Local Governments directly and is an active participant in West Australian Local Government Association (WALGA) Integrated Weed Management Working Group.

This working group is comprised of 27 Local Governments from urban and regional areas across the state. The working group has gathered information from participating Local Governments on alternative chemical and non-chemical weed control methods with the below key findings:

Organic Herbicides:

- Alternative non-selective chemical substitutes such as pelargonic acid, acetic acid and pine oil are not as effective as glyphosate.
- Organic sprays are contact herbicides and require 100% coverage of leaves and stems to be effective therefore, requiring more chemical and greater exposure to staff applying and the general public. Increased levels of spraying also increases the risk of off target damage (i.e. damage to surrounding plants).
- Pelargonic acid, acetic acid and pine oil are all required to be mixed at a greater concentration, requiring more chemical to be purchased and used.
- Acetic acid and pine oil are classified as a schedule 6 "poison" with a moderate potential for causing harm at a low exposure, whereas glyphosate is classified as a schedule 5 "caution" with a low potential for causing harm.

Steam Control:

- There are 17 Local Governments that have reviewed the use of steam weed treatment. All found that steam weed treatment is a costly option compared with other weed control methods.
- The City of Joondalup has trialled steam in conjunction with hot water, which has better ground penetration and lower water use than steam alone.
- Steam and hot water control can be used in a streetscape and footpath situation but is not a viable option for garden beds or within parks and reserves. The potential for off target damage is too great as the treatment will kill any underground roots of surrounding vegetation, as well as destroying any nutrients and microbial activity within the soil preventing any succession planting to establish.

All of the Local Governments participating in the WALGA Integrated Weed Management Working Group still utilise glyphosate for weed control in public open space in varying degrees. Due to the community opinions on the use of glyphosate and the current need to still use this chemical for effective weed control, one of the key objectives of the group is to educate the community and several fact sheets have been developed including:

- Fact Sheet – Integrated Weed Management Practices (**Attachment 1**)
- Fact Sheet – Benefits and Limitations of Weed Control Methods (**Attachment 2**)

In addition to fact sheets, the below video has been produced in collaboration with Kings Park:
https://www.vincent.wa.gov.au/residents/parks-and-streetscapes-maintenance/weed-control.aspx

Glyphosate Residue Testing in Hyde Park

An independent contractor was engaged by the Parks Team to undertake soil testing at Hyde Park to ascertain if glyphosate had any residual traces in the soil. Hyde Park was selected as it's a high-profile site that has been maintained using glyphosate and a selection of other herbicides over many years. The testing was conducted on the 30 May 2023 and 6 June 2023.

The study sampled a site one day after application and again eight days after application of the recommended rate of glyphosate (10ml per litre). The results detailed in the below table and are measured in milligrams of glyphosate per kilogram of soil.

Date of Sampling	Glyphosate Content - mg/kg	Soil moisture %
30/05/23	3.6	2
06/06/23	<1	27

Eight days after application there was no detectable quantity of glyphosate within the sample, indicating that there was less than 1mg/kg present (with 1mg being the minimum detectable trace for testing). During the testing period the site received 105mm of rainfall which explains the variance in soil moisture.

The above results indicate that glyphosate, when applied at the recommended rate, has little to no residual presence in the soil eight days after application. However, the occurrence of rainfall between samplings, along with the small number of test sites limits the confidence of these results. Therefore, the Parks Teams intends to carry out further testing during the dryer months at multiple locations.

STRATEGIC IMPLICATIONS:

This is in keeping with the City's *Strategic Community Plan 2022-2032*:

Enhanced Environment

Our parks and reserves are maintained, enhanced and are accessible for all members of the community.

SUSTAINABILITY IMPLICATIONS:

This is in keeping with the following key sustainability outcomes of the *City's Sustainable Environment Strategy 2019-2024.*

Urban Greening and Biodiversity

FINANCIAL/BUDGET IMPLICATIONS:

Based on costings and case studies provided from other Local Governments through the WALGA Integrated Weed Management Working Group, extensive steam weed control trials have found that the average cost of steam treatment is four times the price of glyphosate per application, with a minimum of five applications a year recommended for the steam treatment to be successful.

Footpath and Kerb Line Weed Control Cost Comparison Within City of Vincent:

Should the City decide to implement steam treatment for weed control of footpaths and kerb lines, the current budget would need to be increased from $25,000 to over $500,000. Details are provided in the below table:

Weed Control Location	Area	Annual Cost - single glyphosate treatment	Annual Cost Steam Control - 5 treatments
Footpaths	435,000m^2	$15,225	$304,500
Kerb lines	350,000m^2	$6,160	$123,200
Traffic Islands	30,000m^2	$4,500	$90,000
TOTAL ANNUAL COST		**$25,885.00**	**$517,700.00**

Steam Treatment within Parks and Reserves

Detailed costs associated with the elimination of glyphosate use within the City's parks and reserves are currently unknown. However, based on trials carried out by the City of Rockingham, it was found that a 10m^2 area cost $1.00 to treat with glyphosate and $80.00 with steam.

Control Method	Cost per m^2	Cost 10m^2	Time required
Glyphosate	$0.10	$1.00	15 mins
Steam	$8.00	$80.00	60 mins

COMMENTS:

Administration recognises the public interest and safety concerns regarding the use of glyphosate for weed control within POS. It is therefore important for the City to manage its use and continue to investigate and trial options to further reduce it use.

To ensure our POS is maintained to be fit for purpose and meet environmental and greening commitments, the continued use of glyphosate is essential for specific parks operations and programs within the scope of current budgets and resources. The City is committed to the safe and responsible use of chemicals and maintaining open and transparent weed management.

Further reduction of the use of glyphosate could have significant cost implications which are not currently budgeted.

Local Government Integrated Weed Management Practices

Local Governments undertake weed management in a variety of areas and participate in a shared responsibility approach.

Local Governments undertake weed management in natural areas, parks and reserves, streetscapes and urban landscapes, and road reserves. Weed management is needed to meet the regulatory requirements under the *Biosecurity and Agriculture Management Act 2007*, protect biodiversity, reduce bushfire risk, reduce damage to infrastructure, and meet community expectations for the amenity and aesthetics of local areas. Local Governments undertake actions to prevent, monitor and control the introduction and spread of weeds. Effective weed management is based on the principle of shared responsibility, with a coordinated approach required by government, industry and members of the public.

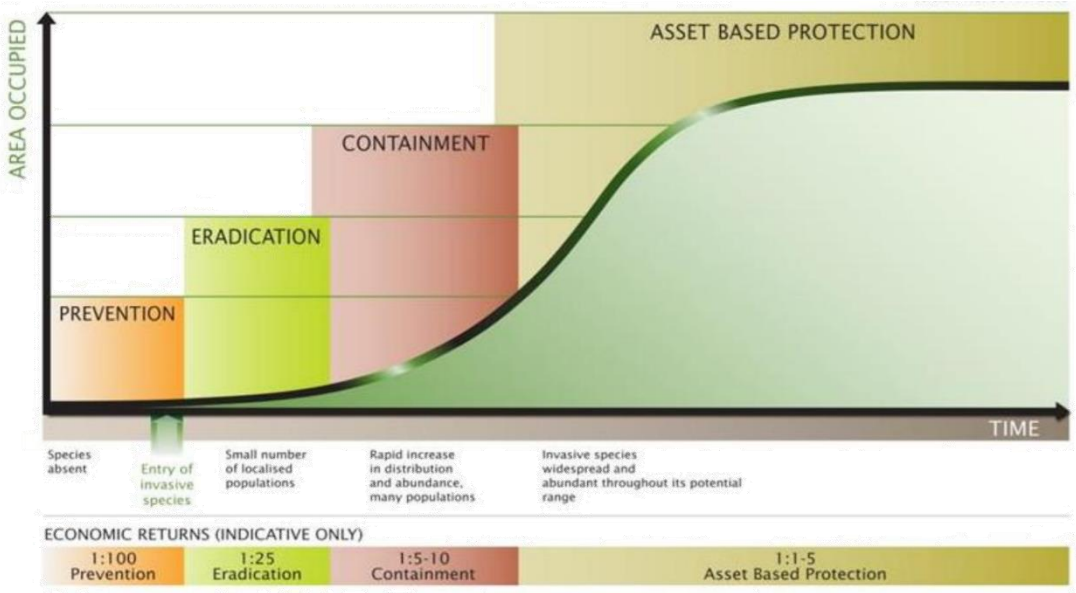
Weed prevention

Preventing weed establishment is one of the most effective approaches to weed management. Local Governments implement a variety of weed prevention practices including minimising access and disturbance, weed hygiene procedures, weed management after fire, competitive planting and mulching. Best practice hygiene procedures include sourcing plants from Nursery Industry Accreditation Scheme Australia (NIASA) accredited nurseries and using Australian Standard mulches and compost to ensure these products do not introduce weeds into an area.

Weed control

While weed prevention is important for reducing new infestation of weeds from occurring or spreading, weed control is necessary for reducing or eradicating weed infestations already present. The weed control methods used by Local Government include physical, chemical, hydrothermal and biological control. Physical weed control includes hand removal, smothering or mulching. Chemical weed control includes the use of synthetic or organic herbicides in accordance with regulatory requirements. Hydrothermal weed control uses steam and hot water. Biological control involves using a weed's natural control agents (usually insects or disease). Weed management in natural areas differs substantially to parks and urban landscaping areas due to the difference in weed density and biodiversity values.

The biosecurity invasion curve (pictured overleaf) provides a useful illustration on how weed prevention and early control achieves the greatest outcomes at the least cost. A robust weed management approach will implement controls across the continuum to manage the negative impacts of weeds.



The biosecurity invasion curve (Department of Primary Industries Victoria 2009©)

Weed monitoring and reporting

Weed monitoring is important to identify areas with weed populations, assess weed spread, discover new weeds, protect significant native flora species and measure the effectiveness of weed control measures. There are numerous approaches that can be used to monitor weed presence and distribution, including weed mapping, photographic monitoring and observations. Weed monitoring and reporting reviews the success of control efforts and ensures adaptive management.

Partnerships

Local Governments can partner with other agencies that also have weed management roles and responsibilities, including State Government, Natural Resource Management groups, research organisations, universities, schools and Friends Groups. Friends Groups and community members can make substantial contributions towards weed control on Local Government managed land and private property.

Education

Local Government plays a key role in community education by raising awareness of the impact of weeds, the need for shared weed prevention and control, and providing information on council weed control strategies and operations.

Benefits and Limitations of Weed Control Treatments

Building the capacity of Local Government to implement accountable and effective weed control programs

The Local Government Herbicide Use and Integrated Weed Management Working Group has collated data from trials of commonly used weed control treatments to share information on cost and effectiveness. Twenty-five Local Governments from across Western Australia participated in the survey. Qualitative ratings (0 low - 5 high) were used to evaluate the efficacy and cost effectiveness of each treatment, and quantitative data was provided on cost per hectare and percentage weed control for up to 42 days following treatment.

Local Governments have trialled a range of weed control treatments, including pre-emergent and post-emergent herbicides, organic herbicides (pine oil, pelargonic and acetic acid), manual, mechanical, suppression and thermal (hot water, steam and solarisation) treatments.

Pre-emergent herbicides have not been widely trialled or adopted for use by Local Government. The most commonly used post-emergent herbicides are glyphosate, fusillade and metsulfuron, which have demonstrated high efficacy and cost effectiveness. Several Local Governments restrict the use of glyphosate to specific areas, including the Town of Bassendean, Shire of Denmark, Town of Mosman Park, City of Joondalup and City of Subiaco.

Organic herbicides showed low to medium effectiveness in controlling weeds, with most products not adopted for ongoing use by Local Government.

The majority of contributing Local Governments have incorporated non-chemical weed control such as manual hand removal, slashing and competitive planting and mulching into their integrated weed control programs. The City of Fremantle reported that manual weed control in bushland areas was beneficial in reducing herbicide use and off-target vegetation damage.

There are 17 Local Governments that have reviewed the use of steam weed treatment. All found that steam weed treatment is a costly option compared with other weed control methods. The City of Joondalup uses steam in conjunction with hot water, which has better ground penetration and lower water use than steam alone. Seven Local Governments have adopted the use of steam as an ongoing treatment in their weed control programs, including the Town of Bassendean, Shire of Bruce Rock, Cities of Fremantle, Joondalup, Perth, South Perth and Subiaco. As this treatments are not selective, application is restricted to specific areas such as garden beds and paved areas to avoid off target damage.