

WORKING TOGETHER WITH PLANTS

ZHELJANA PERIC BA SocSci, Post GradDip Psych

WEEDSNETWORK.COM



INTRODUCTION

Survey results

Working with weeds

- **How our Thinking affects our Designs**
- **Reduce and Replace Hard Surfaces, Increase Plant Life**



**Examples drawn from municipal parks, reserves
and roadsides**

Herbicide Pollution Reduction Strategy



Prepared by Zhetjana Peric
BA SocSci, Post Grad Dip

Edited by Dr David Low
PhD



**THIS PROJECT WAS FUNDED BY AUSTRALIAN
GOVERNMENT'S NATIONAL LANDCARE PROGRAMME**



Australian Government

**National
Landcare
Programme**



THE WEED'S NETWORK SURVEY

Review of current weed literature

- ❖ **Concerns over health of humans, wildlife and the environment**
- ❖ **Herbicide resistance**
- ❖ **Lack of available alternatives to chemical use**

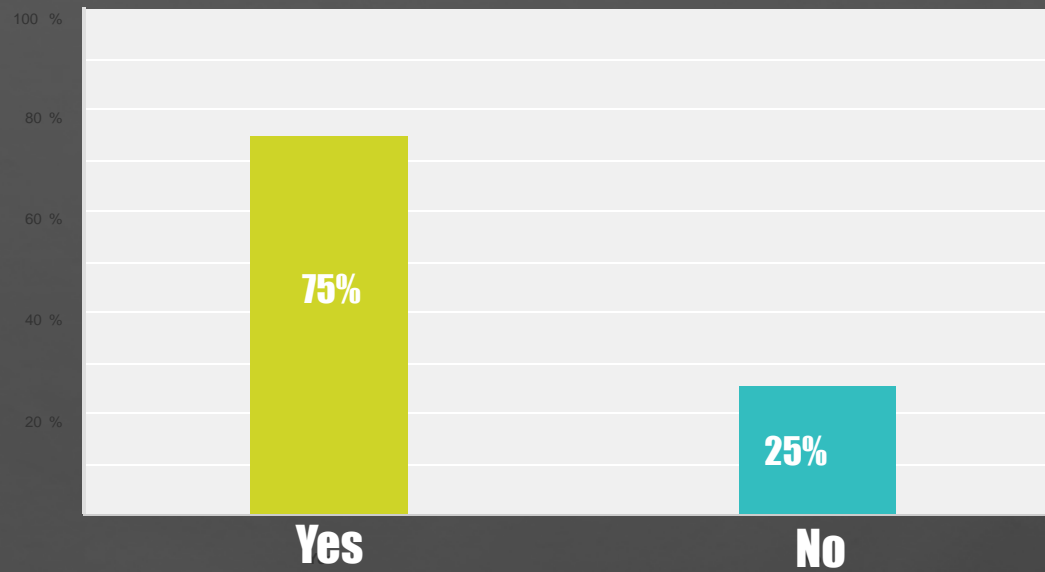
THE SURVEY

The survey was semi-structured, with multiple choice questions as well as closed and open-ended questions.

A selective sample of individuals who have an interest in or work directly with weeds, including academics, researchers, service providers, weed managers and contractors.

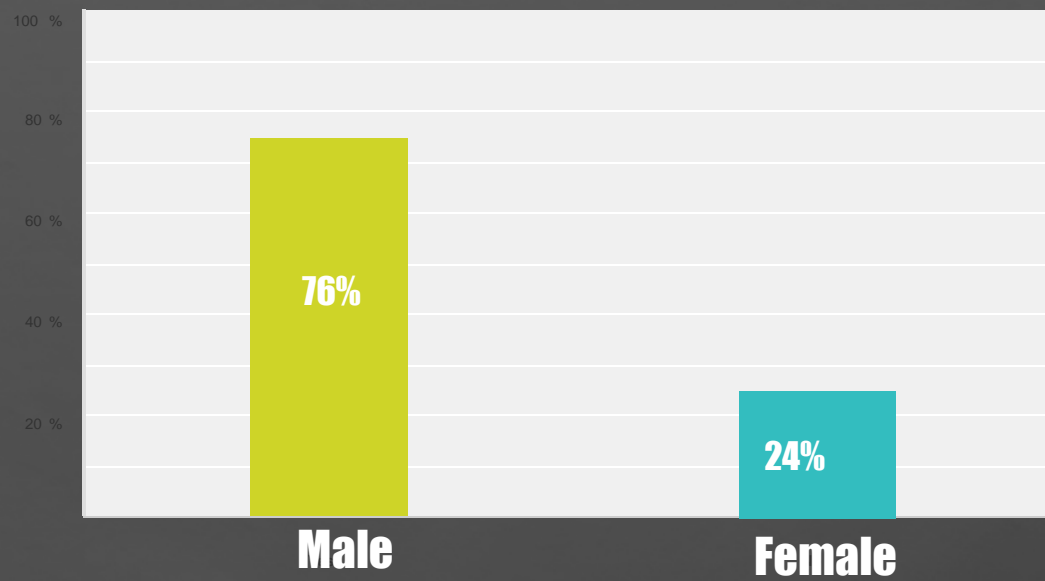
RESULTS

**Figure 1. Percentage of individuals who use herbicides
(n=981)**

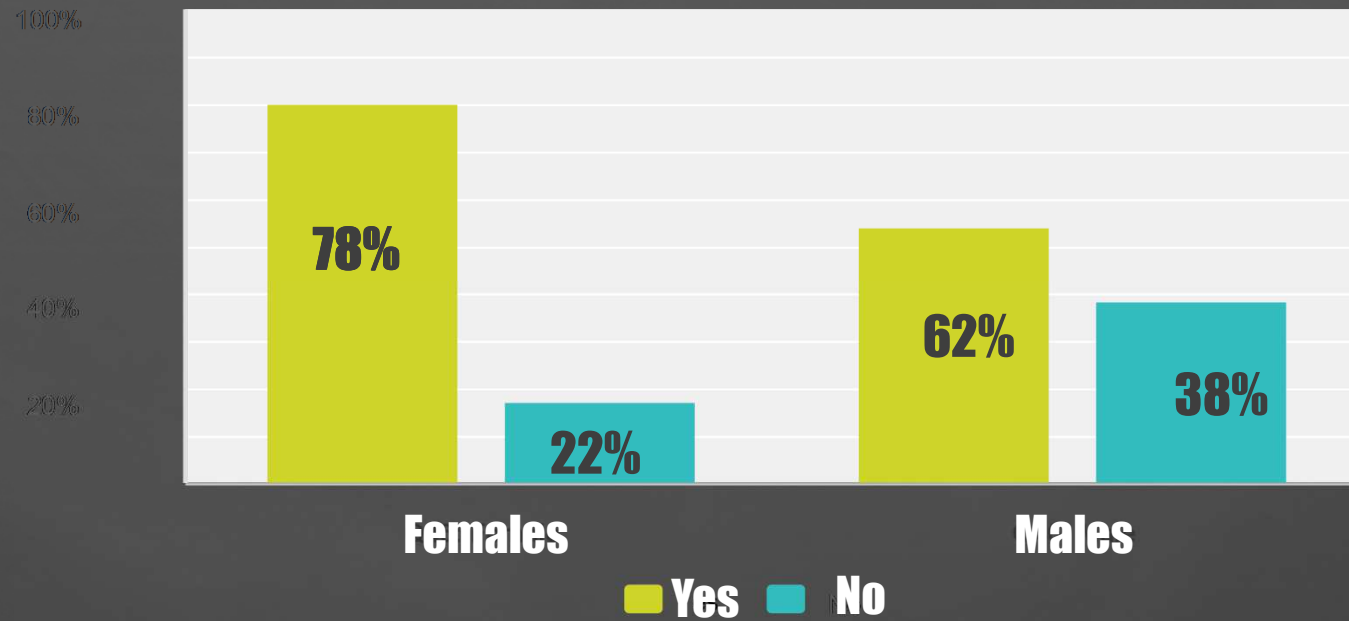


GENDER COMPARISON

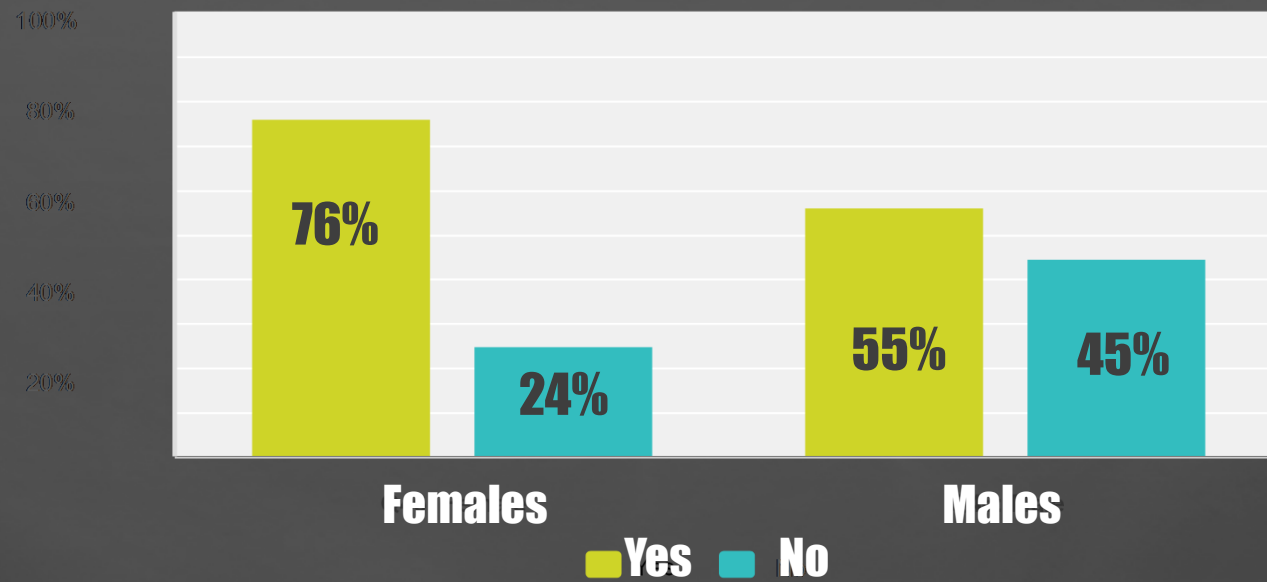
Figure 1. Gender comparison of individuals who use herbicides



ENVIRONMENTAL CONCERNS



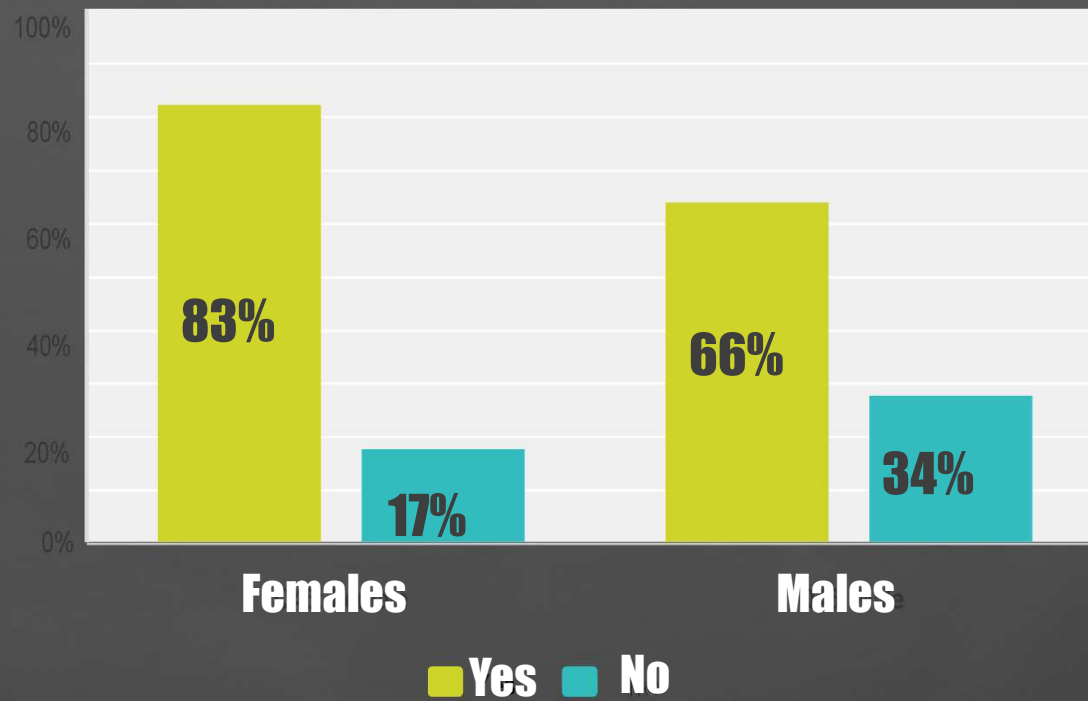
HEALTH CONCERNS



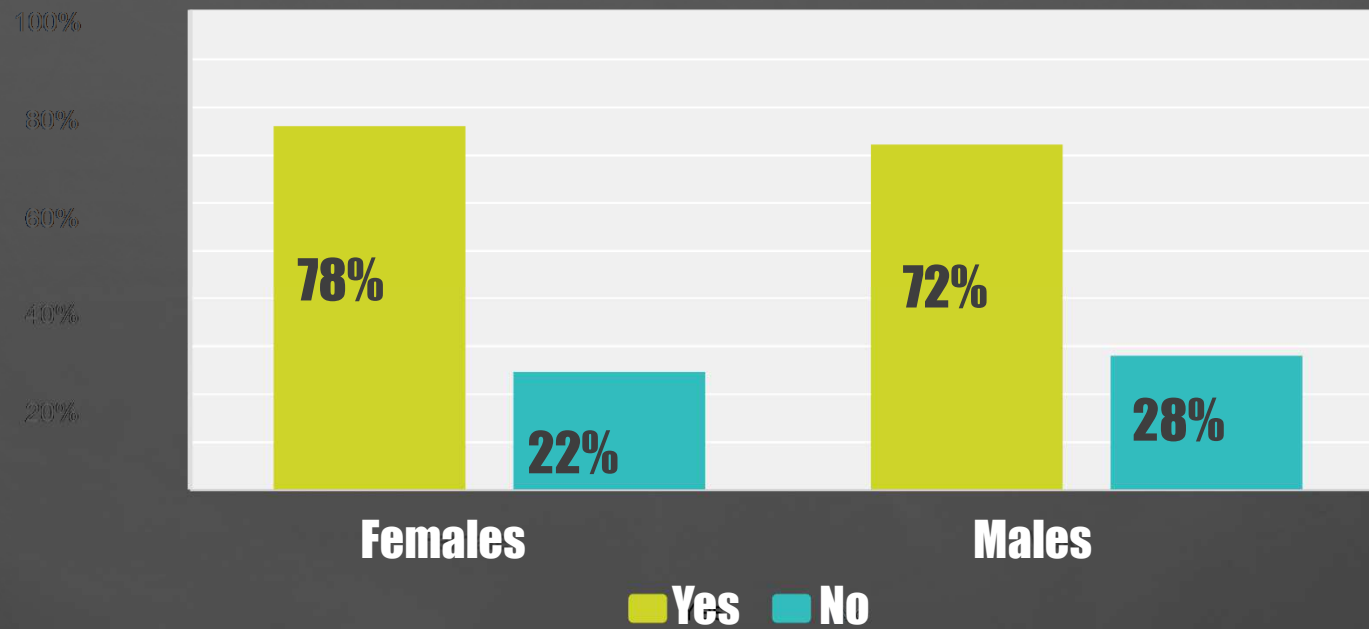
"Environmental risk. Personal health risks from exposure. Expense. Messiness and time taken to set up, clean up etc. personal health risks from heavy sprayers and water containers." (Male Participant)

"Safety, off target damage, weed resistance, non-sustainable. There are safer and more environmentally sustainable alternatives which if can be made more economically viable we would prefer to use." (Male Participant)

HERBICIDE POLLUTION



WANT TO USE LESS



THOUGHTS AND FEELINGS ABOUT HERBICIDE USE

Conflictual; efficacy vs concerns over the 'unknowns' in respect to health and environmental impacts, and long-term damage

'A necessary evil'

Large part of current usage is unnecessary and is resulting in resistance

PARTICIPANTS RECOGNISE THAT HERBICIDES

- **Are hazardous and toxic**
- **Have health and environmental concerns**
- **There is a blurring between safe use and safe product**
- **Negative public perceptions about herbicide use**
- **Want to use less or not at all**
- **Feel there is a lack of support, information and research into alternatives**

Feel there are no other alternatives

MOVING FORWARD

How we Think is what we Create

Thinking affects Design

Reduce, Replace, Increase

Rethinking our Relationship with Plants

**Smart plants -Working Together
Know your Ally**

**Dr Monica Gagliano University of WA
plants learn *Mimosa pudica* plants**



Herbicide Resistance Demonstrations Successful Learning in Plants

**Plants: Intelligent Beings? Find out on 'What Plants Talk About'
<https://www.youtube.com/watch?v=rrG-42uCDj4&noredirect=1>**

PLANTS LOVE TALKING

Weeds tell us about what is going on in the environment:

- **Soil conditions**
- **The talk to themselves as well as each other**
- **Weeds also talk to insects and call them for help**

They also tell us what they like

- **Decreased germination under green light**
- **Who they like to hang out with, or don't**

DESIGN AND MANAGEMENT

Weeds also tell us about our designs and management practices:

- **Eg lack of soil cover, excess nutrients, pollution, etc**
- **Creating conditions which invite weeds in due to management practice which mimic natural disturbances**
- **Designs which limit plant diversity limit ecological functions thereby increasing maintenance costs**

WEEDS TELL US THAT A PLANT WANTS TO GROW IN THAT SPOT

Just removing an unwanted plant does not solve the problem – open space is an open invitation - if you remove undesired vegetation you need to claim that site with desired vegetation



DESIGN IN LONG TERM SUCCESS



**PARKS AND
LEISURE**

High maintenance design

**Bench in full sun and on
grassed area**

**High use area which turns into
dust**

**The bench is better placed in
mulch and shady landscaped
area.**





WHAT HASN'T BEEN WORKING

**Short Term 'Bang for Buck'
Thinking**

**can be replaced with long term
success options**

Regularly sprayed

Has been replanted

Same design

**Herbicide management
designed in**



Same management method will give same result



NO ROOM FOR UNWANTED VEGETATION





Maintenance Nightmares





**DESIGNED TO
REDUCE
MAINTENANCE**



REDUCED MAINTENANCE NEEDS AROUND UTILITY POLES



USED DRAIN IN DESIGN



Variety of plant species and height

REDUCE, REPLACE, INCREASE

Councils and counties worldwide are working with water corporations to replace high input unused lawns

USA pays residents to remove unused lawns

“Turf terminators”

Australia

Verge beautification

Rain gardens



Two main drivers; water shortage and water pollution

REPLACE

Decrease hard surfaces - Increase vegetation

Replace unwanted plants with desirables

2020 initiative; “create 20% more green space in our urban areas by 2020.”

City of Nedlands, WA, in conjunction with the Water Corporation converted passive lawn areas at the front of the Administration Building and Nedlands Library into Waterwise Demonstration Gardens.



City of Sydney have been installing rain gardens (water sensitive urban design) whenever they repair or lay footpaths.

RAIN GARDENS

- **Combine beautification with functionality**
- **Filter stormwater and stop pollutants flowing through waterways,**
- **Remove pollution, such as herbicide, nitrogen, phosphorus and other chemicals, which are washed off these hard surfaces.**





**Mulch piled
excessively high
increases runoff**

**Rain gardens:
Opposite
effect**



REDUCE HARD SURFACES



Unused Lawns = High Input High Stress

ROADSIDE VEGETATION MANAGEMENT



Research finding road vegetation management spreads weeds



**HEALTHY DIVERSE VEGETATION IS
ATTRACTIVE AND SUPPRESSES
WEED INVASION**



Photo © K. Payne/RCC



**Green spaces
increase
well-being
and connect
people to
their
community**

TIME FOR CHANGE



“An old farmer went to a landcare conference, an old fella, about 75, and he went along and he stood up at the end of that conference and he said: “I just hope this landcare works, because I’m sick to death of poisoning the things that want to live here and trying to raise the things that want to die.””

(Pastoralist A, interviews 2007, quoted in Rangan, Wilson & Kull, 2013).

THANK YOU

SOURCES

- **[HTTP://WWW.NEDLANDS.WA.GOV.AU/SITES/DEFAULT/FILES/CITY%20NEWS%20ISSUE%202.PDF](http://www.nedlands.wa.gov.au/sites/default/files/city%20news%20issue%202.pdf)**
- **[HTTP://WWW.SYDNEY2030.COM.AU/WP-CONTENT/UPLOADS/FINAL-2030-SNAPSHOT-BOOKLET.PDF](http://www.sydney2030.com.au/wp-content/uploads/final-2030-snapshot-booklet.pdf)**
- **SEE MORE AT: [HTTP://WWW.WSUD.ORG/RESOURCES-EXAMPLES/CASE-STUDIES/ON-GROUND-WORKS/RAINGARDENS/#STHASH.DD7QQIR9.DPUF](http://www.wsud.org/resources-examples/case-studies/on-ground-works/raingardens/#sthash.DD7QQIR9.DPUF)**