Growers’ attitudes and practices towards area-wide management of weeds in the Riverina

INTERVIEW AND SURVEY FINDINGS

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The aim of the interviews was to:

- learn about attitudes towards AWM of weeds
- identify factors that explain participation in individual and AWM of weeds
- identify social costs and benefits of AWM of weeds

The aim of the survey was to collect data on:

- socio-economic characteristics
- the nature of farming operations
- weed management concerns and beliefs
- individual and collective weed management practices

Introduction

In 2020-2021 growers, agronomists, extension officers and public land managers were interviewed and surveyed.
Methods

Intensive interviews:
30 from Riverina (84 total)
- Growers: 14 participants
- Advisers: 10 participants
- Government: 6 participants

Survey:
218 growers from Riverina (604 total – 200 Sunraysia, 186 Darling Downs)

Main crops grown by Riverina growers surveyed

<table>
<thead>
<tr>
<th>Crop</th>
<th>0%</th>
<th>50%</th>
<th>100%</th>
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</thead>
<tbody>
<tr>
<td>Wheat</td>
<td></td>
<td></td>
<td>100%</td>
</tr>
<tr>
<td>Canola</td>
<td></td>
<td></td>
<td>50%</td>
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<tr>
<td>Barley</td>
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<td></td>
<td>50%</td>
</tr>
<tr>
<td>Oats</td>
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<td>50%</td>
</tr>
<tr>
<td>Lupins</td>
<td></td>
<td></td>
<td>50%</td>
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<tr>
<td>Faba Beans</td>
<td></td>
<td></td>
<td>0%</td>
</tr>
<tr>
<td>Sorghum</td>
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<td></td>
<td>0%</td>
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<tr>
<td>Chick Peas</td>
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<td></td>
<td>0%</td>
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<tr>
<td>Rice</td>
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<td>0%</td>
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<tr>
<td>Vetch</td>
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<td>0%</td>
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<tr>
<td>Field Peas</td>
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Weeds of most concern in survey

- **Ryegrass**: You rarely find ryegrass that isn’t Roundup resistant (Grower)
- **Fleabane**: Fleabane was never a weed 20-30 years ago and whereas probably in the last ten it’s been a major summer fallow weed (Adviser)
- **Barley grass**: Barley grass is another nuisance… when it goes to the head it’s a problem with sheep because it sticks into their wool. (Grower)
- **Khaki weed**
- **Milk thistle**
- **Brome Grass**
Growers concerned or very concerned about weed issues

- Financial costs of managing weeds
- Weed presence
- Herbicide resistant weed presence
- Weed spread to your land
- Herbicide resistance spreading to your land
- Herbicide resistance spreading from your...
- Weeds spreading from your land

Riverina
Sunraysia
Darling Downs
Grower agreement about AWM

Belief in the importance of working together

“wind borne seed spread can be an issue too, so if you’ve got a neighbour who's got fence lines and areas of high weed population and things like mustard weed, and just difficult to kill weeds, particularly in a broadleaf sense. So this is where I think the area-wide management strategy is a good thing because if we can all work together, so in terms of machinery hygiene, keeping our boundaries and in-field stuff controlled to a certain level, we can prevent cross boundary spread” (Grower)
Weeds are everybody's problem

Each land manager has a responsibility to the whole region to control weeds

Effective control of weeds requires land managers to work together

Weed management is more effective if land managers coordinate the timing of their weed control

Herbicide resistance can be managed effectively without land managers working together
**Grower agreement benefits of AWM**

<table>
<thead>
<tr>
<th>Benefit</th>
<th>0%</th>
<th>20%</th>
<th>40%</th>
<th>60%</th>
<th>80%</th>
<th>100%</th>
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<tbody>
<tr>
<td>Increased awareness of new weeds in the area</td>
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<tr>
<td>Increased awareness of herbicide resistant weeds in the area</td>
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<tr>
<td>Getting ahead of weed spread in the area</td>
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<tr>
<td>Improved quality of agricultural production</td>
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<tr>
<td>Improved yield of agricultural production</td>
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<tr>
<td>Access to expertise you might otherwise not be able to obtain</td>
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<tr>
<td>Access to resources you might otherwise not be able to obtain</td>
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<td>Time saved compared to managing weeds on your own</td>
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<td>Less money spent on control compared to working on your own</td>
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Grower agreement about costs of AWM

- Too much time spent in meetings
- Limited options for organic growers
- Being restricted to using specific herbicides
- Having to change spraying operations to accommodate neighbours
- Unequal distribution of shared resources
- Other people knowing sensitive information about weeds on your farm

“There could be a number of people that just don’t like to get together, so they’re not involved. But they could be encouraged to be involved…we probably ask a lot of growers’ time to go to meetings. So, they’ve got to go and get something out of it” (Adviser)
There is an attitude-behaviour gap for AWM of weeds

Growers believe collective weed management is more effective but few collaborate

**ATTITUDES**

- **83% growers** believe effective weed control requires land managers to work together
- **82% growers** believe weed management is more effective if land managers coordinate timing of weed control

**BEHAVIOUR**

- Less than one-fifth (18%) of growers in the Riverina participate in weed management activities that involve land managers working together

There are several factors that make growers more likely to collaborate
Area-wide management of weeds

Little consensus in interviews about what the term means

1. Geographic Area
   - Nearly state-wide
   - Valley
   - Floodplain
   - Local govt area
   - Irrigation area
   - Common areas
   - Group of farms
   - Whole farm
   - Large-scale area
   - Big area
   - Whole area
   - Broad location

2. Who and What
   - “everyone”
   - “everybody”
   - “all”
   - “working together”
   - Other key terms included “collaboration”, “cooperation” and “coordination”.

3. When
   - Synchronised timing: “same thing at the same time”
   - Multi-year to multi-decadal

4. Which Weeds
   - Ryegrass
   - Silverleaf
   - Fleabane
   - Nightshade
The term ‘area-wide management’ is too vague

There is no consensus about what “area wide management of weeds” means.

AWM programs need to begin by determining:

1. What area?
2. Which weeds?
3. Who should be involved?
4. What practices are required?
5. When should they be applied?
## Factors that make growers more likely to collaborate

<table>
<thead>
<tr>
<th>Factor</th>
<th>Riverina growers</th>
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<tbody>
<tr>
<td>Concern about herbicide resistance spreading to neighbouring land</td>
<td>36% concerned</td>
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<tr>
<td>Awareness that other land managers work together on weeds</td>
<td>39% aware</td>
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<tr>
<td>Discuss weed management with neighbours</td>
<td>27% discuss weeds with neighbours</td>
</tr>
<tr>
<td>Receive external support for weed management, e.g. government funding</td>
<td>4% receive support</td>
</tr>
<tr>
<td>Likely to attend meetings on managing local weed issues</td>
<td>74% likely</td>
</tr>
<tr>
<td>Likely to share information on weeds with other land managers</td>
<td>87% likely</td>
</tr>
<tr>
<td>Likely to work with others on weed management</td>
<td>53% likely</td>
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</tbody>
</table>
Greater uptake of AWM starts with good neighbours

There are many ways to encourage greater collaboration

1. Organise short meetings on **local** weed issues that are **achievable**
2. Highlight the **mobility of herbicide resistance**
   (e.g. results of the genetic analysis and/or offer to provide HR testing)
3. Encourage growers to **talk to their neighbours** about weed management
4. Provide **funding** for collaborative weed management
5. Encourage **agronomists** to take the lead on linking growers
6. **Start** with a **small** group of dedicated landholders, document the benefits of AWM then scale up
Fleabane is ideal candidate for an AWM program

Fleabane is locally mobile, building herbicide resistance and of widespread concern

In both the stakeholder interviews and grower survey, fleabane was frequently identified as a weed of concern.

• 60% interviewees listed fleabane as one of the top weeds of most concern to them

• 84% Riverina growers surveyed identified fleabane as a weed of concern

Widespread concern about fleabane as well as regionally-contained HR genetic diversity makes it a useful weed to galvanise area-wide management programs within and across regions.
Thank you

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