

# NGN - Developing control strategies for key problem weeds in North West NSW ICN2404-002RTX & ICN2403-002RTX



Issues identification 2024  
External summary





Authors note:

This report has been prepared for external communication with meeting participants and interested stakeholders.

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# 1. Issues identification process overview

GRDC projects ICN2404-002RTX & ICN2403-002RTX have been initiated in 2024 to provide local extension outcomes for control of key problems weeds across northern NSW. As part of the project charter, local growers and agronomists will be engaged to identify and prioritise their development and extension needs.

To understand local priorities, ICAN initiated a multifaceted consultation approach, consisting of the following activities:

- ICAN conducted a short survey (see attached Appendix A) at the July/August round of GRDC Updates at Talwood (July 23, 2024), Walgett (July 24, 2024), Goondiwindi (July 30/31, 2024), Pittsworth (August 1, 2024), Jandowae (August 2, 2024).
- 3-hour consultation meetings for growers and agronomists were held at Gunnedah (August 13, 2024), Narrabri (August 13, 2024), Burren Junction (August 14, 2024), Pallamallawa (August 15, 2024)

## 2. Issues identification consultation meetings

Four Issues Identification meetings were held. The format of these consultation session was:

- Introduction to the project and the process for prioritizing issues
- As the APVMA had recently released their proposed regulatory decision for paraquat and diquat, ICAN addressed the proposed changes and how this may impact local weed management needs moving forward
- Issues identification exercise was undertaken. This was conducted by asking participants to write each of their issues on a separate 'Post-it' note. These were then allocated (by ICAN) to one of the 9 key 'buckets' identified below, prior to the prioritisation process

Issues were grouped as follows. It is noted that some issues could easily be also allocated to a different group, as there was significant cross over with some issues.

Resistance issues	Application issues	Integrated management
Farming systems	Efficacy	Prevention
Extension	Biology & ecology	Other

- Bill Gordon led an interactive 'Spray Q&A Session' to address local issues such as sprayer setup considerations with alternative systems (such as PWM and multi-step systems), OSST nozzle selection and setup, current nozzle spray quality standards
- A prioritisation exercise was then conducted (except for Burren Junction due to the low attendance). Each participant was given 7 'votes' (as sticky dots) and were able to allocate these at their discretion to any of the topics identified.

The full list of issues per meeting and the number of votes received has been captured by ICAN and will be used (in conjunction with the Update survey) to define key project objectives and outcomes. A summary of the highest-ranking issues per meeting is listed below.

## 2.1. Highest ranking issues

A long list of individual topics were captured during each meeting.

At Gunnedah, Narrabri and Pallamallawa these were subsequently prioritised, with the ‘top level’ priorities listed below securing a high level of group votes. As there were considerable differences between the total number of available votes per meeting, based on difference attendance levels at meetings, we cannot directly compare the individual number of votes across meetings.

Within each meeting list, the topics are ordered based on the number of votes received. For each of the meetings there was a small number of topics that achieved a very high percentage of available votes. These are listed in the ‘Top level’ list (and are listed from highest to lowest score within each meeting). Issues in the ‘Next level’ list still scored multiple votes, but not to the same levels of the “top level’ list.

The final list ‘Other issues identified’ is a full capture of all the original issues recorded. While still important, these issues typically attracted less than about 3-4 votes.

Gunnedah	Narrabri	Pallamallawa
<b>‘Top level’ priorities</b>		
Strategies for milk thistle control	Control of Group 1 & 2 resistant grasses (phalaris, wild oats, ryegrass) in winter cereals and pulses – in particular use of residual herbicides	Strategies for a ‘low rate’ paraquat scenario <ul style="list-style-type: none"> <li>• OSST uses</li> <li>• Optimising broadacre rates</li> <li>• Role of glufosinate with restricted paraquat usage.</li> <li>• Alternative products for double knock</li> <li>• Control of summer grasses without the use of paraquat</li> </ul>
Resource summary for efficacy of herbicides on different weeds	Optical spot spraying extension information	Control of Group 1 & 2 resistant phalaris in winter cereals and pulses. Group 1 resistant phalaris / wild oats / ryegrass in-crop
One pass and double knock solutions and alternatives to paraquat – grass weeds		Pre-em herbicides in a disc seeder system
<b>‘Next level’ priorities</b>		
Pre-em chemistry and use of disc seeders	Glyphosate tolerant milk thistle control options	Non-herbicide weed control methods apart from cultivation
Regulatory defence of paraquat and new use patterns with reduced paraquat use rate	Group 14 use patterns in mixtures with glufosinate	Feathertop control without paraquat
Alternate solutions for thistles (Saffron, Variegated)	Control of brown beetle grass	Paraquat defence <ul style="list-style-type: none"> <li>• Develop body of evidence to benchmark actual percentage sprayed area by optical sprayers</li> <li>• Commission GRDC/CRDC to support actual in-field environmental assessments to rebuff modelling claims</li> <li>• Push industry and grower groups to lobby against the APVMA paraquat ruling</li> </ul>
Cost effective herbicide alternatives to glyphosate and paraquat in fallows	Dicamba use in fallow	Milk thistle control strategies

Economics of more regular OSST applications versus waiting for boom spray	Grazing in the cropping rotation to control ryegrass and phalaris issues?	
On-farm demonstrations for adoption of extension		
<b>Other issues identified</b>		
Accessing & interpreting MRL data	Windmill grass – control or utilize?	Real, non-chemical alternatives (that don't include cultivation).
'Rotational' use of (effective) tillage	Improved control options for barnyard grass	Ryegrass control in a double crop system
Cost of tank mixes	Better information on tank mix antagonism	Understanding new chemistry on the horizon. Invest in mechanical control or wait for new herbicides?
Control of grass weeds in tough conditions (drought) where Group 1 efficacy is poor	Bladder ketmia in fallow – potential resistance glyphosate, 2,4-D	Trial / demo sites showing the performance between different adjuvant types.
Spray water quality efficacy trials	Where are we up to with alternate weed control options to herbicides	Strategic agronomic options and programs for ryegrass. Ryegrass control strategy.
Spray recs to comply with EPA / APVMA requirements (for paraquat)	Weed scouting to detect escaped individual plants that might be herbicide resistant before it becomes a problem population	Resistance in phalaris & wild oats. More access to resistance testing. More data collected & shared on resistant winter grass populations to help with decision making.
Efficacy v drift. More grower / commercial applicator understanding More WAND towers in our area	Factsheet for options to replace paraquat (if registrations removed) Field walks / demo sites of alternate options	Residual herbicides for wild oats in winter cereals and pulses.
Water rates and other application techniques to optimise weed control when spot spraying	Package up trial data from NGA & chemical companies to form box and whisker charts by product x weed	Trials with optical sprayers & old chemistry & additives for in-crop grass control
Understanding of European tillage based weed management systems (just in case we need it if products get banned)	Effectiveness of deep phosphorous placement versus shallow placement	Chemical residue in soil testing
Understand the key pressure points in the paraquat review and how to address this	Residual herbicides using disc planters to tackle ryegrass and phalaris	Phosphorous nutrition in marginal areas (Collarenbri, Mungindi) Long-term profitability of applying P <ul style="list-style-type: none"> <li>• Just once?</li> <li>• Frequency of application needed?</li> <li>• Deep or shallow?</li> </ul> Needs research and then extension
Extension to encourage uptake of harvest weed seed management	Alternative systems to zero till are not well understood Cultivation / Loss of water use efficiency / infiltration rates / Holding capacity of the soil	Sakura – add more crops e.g. Fabas to the label. Sakura – How effective is it in controlling FTR in crops? What makes it more / less effective?
Management of broadleaf weeds in brassica crops now that ForageMax isn't available	Residual chemical strategies to complement optical sprayers	Sprayer set ups – nozzle guidelines, optical sprayer nozzle selection
Synergies between different mixes on key species in a single pass	Most effective ways to conserve moisture in fallow for the next crop. Environmentally sustainable for long term farming. Technology? Cover cropping?	Ryegrass seed dynamics / biology in northern NSW environments
Spray rig decontamination with Group 14s	Investigate the feasibility of horticultural robots in broad scale farming	R&D into new modes of action /resistance management strategies for in-crop grass control (Groups 1 & 2

		resistant ryegrass / wild oats / phalaris)
Technote / field day on all new pre-em chemistry to demonstrate fit in fallow / rotations	Pre-emergent application via weed maps to minimise residual carryover issues	Test kit for IMI trait in retained seed to prevent spraying Intervix on susceptible crops
Replacement for paraquat in lucerne cleaning (in stands over 12 months)	Extension of spray application. How is efficacy impacted by boom set up, timeliness of application, water rates, travel speed etc	Growth regulators in faba beans.
Cost of optical spraying	What impact does pressure have on the use of oil additives to spray mixtures? Effect of pressure changes on droplet size	More confidence (demos / extension) in the use pattern of residual herbicides for controlling summer grass (FTR & BYG) in fallows
Star rating for different herbicides x weeds (e.g. Bayer and Dow AgroSciences used to produce tables)	Spray drift information. More education around inversion conditions and use of glyphosate	Overuse of IMI chemistry
More resistance testing available. Consider being subsidized by the industry	Managing a fallow in the absence of paraquat and glyphosate <ul style="list-style-type: none"> <li>• Residuals</li> <li>• Alternate knockdowns</li> </ul>	Green on green chemical options – registrations and rates
Milk thistle outgrowing usual chemical solutions or growing skeletons	New strategies for wild oats & phalaris. Possible use of older products?	Summary of all milk thistle trials <ul style="list-style-type: none"> <li>• Residual</li> <li>• Double knock</li> </ul> OSST
Trifluralin becoming ineffective – but have no alternative chemistry	Weed control / management with narrow v wide row sorghum and is there reduced planting opportunities with narrow row sorghum?	Research into better fallow management without the use of double knocking
Efficacy of green on green options	Is there a way to enhance paraquat effectiveness at lower use rates (if that is all we are allowed to use)	More confidence in plantbacks to Group 1 prior to sowing (research & extension)
Is there an exact science to work out top-up rates for residuals?	Efficacy of generic herbicides versus brand names e.g. Pinoxaden v Axial Xtra. Is there a difference? If so, how much?	Glyphosate resistant FTR / BYG / milk thistle / fleabane control in fallow and crops
Cron Cromwell options in fallow and in-crop	Develop an update for Chem Cert training to educate trainees on herbicide efficacy factors	Control of glyphosate / glufosinate tolerant crops and volunteers without paraquat near Group 4 susceptible crops?
Importance of timing of paraquat when used as a double knock on summer grasses following glyphosate	Better models for residuals herbicides	How far can we push glufosinate plantbacks (currently 14 days)?
Windmill grass control – best options	Cropping sodic soils	Demo sites showing various treatment options to control problem weeds
Management plan for resistant ryegrass		Summer grass residual herbicide trials
Non-chemical alternatives to the double knock		More trials of herbicide to kill weeds in crop
What herbicides can replace paraquat?		Practical examples of various control methods used during harvest time to reduce the abundance of weeds
Use of commercial spray application set up for weed control trials		More information on microbial breakdown and/or breakdown methods of residual herbicides

Specific spray application set up for specific target weeds		Testing water quality – effects of hardness, bicarbonates, pH on chemicals and how to improve water
Water testing (subsidized by industry)		With the proposed paraquat outcomes, how will this affect the ability to use Verdict in fallow (where a flowing high rate paraquat application is part of the label requirement)
Best residual options for fencelines		Access electrostatic and magnetic application treatments on booms that are claiming better coverage
What are consumers going to eat if products are banned?		Clarity for certain products in regard to just getting some coverage versus getting product to the actual target site of the plant
Can paraquat use be supported in cotton systems where there is little seed in/on the soil and pupae busting is used?		Can drones provide both targeted and early resistance detection

**Burren Junction** (issues not prioritised due to low number of participants)

- How to maintain, share, and transfer knowledge held by senior agronomists to newer, less experienced agronomists?
- Diuron use in fallow. A label is needed to support widespread use occurring in western regions (ICAN comment – lack of plantback information at expected use rates is likely to be a barrier to registration)
- Options for preplant grass herbicides as an alternative for grass control in cereals (Group 1 & 2 resistant) including grower scale pre-em trials/demos with earlier sowing dates.
- Demonstration of strategic tillage option to re-set the seedbank
- Access to the historical NGA and GOA trial data
- Optimising glufosinate in Summer. Which mixing partners (e.g. Group 14). How else to improve control?
- Optimising OSST application and set up
- Information on nozzle selection and application (booms and OSST) for growers. Typically this is not an area where agronomists get heavily involved. Importance of water rates and coverage
- The role of adjuvants – what to use? Where and why?
- Potential to package the historical GRDC spray quality data (from UQ Gatton wind tunnel) x product x adjuvant x nozzle
- Control strategies for emerging weeds in the district - Rye grass, Windmill grass
- Resistance messaging and need for resistance testing. Comments that resistant status will vary between patches in the same paddock.
- Lack of knowledge around use of drones - Label requirements / Coverage required / Currently considered by regulators as a rotary winged aircraft (with requirement typically to apply 100L/ha)
- The role for crop competition and companion planting. Does it have a fit in our systems?



### 3. Weed Survey conducted during the July 2024 GRDC Updates

A one-page survey was undertaken, seeking to obtain some high-level input into weed problems and extension topics. The survey was anonymous however participants were asked to indicate their role in the grains industry and postcode (many did not supply a postcode).

#### Demographics of surveys returned

Location	Grower	Agronomist	Industry	Other
Talwood Qld	1	6		
Walgett NSW	3	3		
Goondiwindi Qld & NSW (2-day update)	4	12		
Pittsworth Qld	18	10	2	1
Jandowae Qld	6	4		
<b>TOTAL</b>	<b>32</b>	<b>35</b>	<b>2</b>	<b>1</b>

**What are your most challenging weeds (top 1 to 4) and why are they a problem to you?** (Respondents could nominate any number of weeds and tick more than one reason for each weed nominated)

As was somewhat expected, the weeds with the highest frequency of mentions were feathertop Rhodes grass (85), milk thistle (74), barnyard grass (55) and fleabane (43). Interestingly, the split of responses as to why these are problematic was remarkably similar across species:

- The widespread nature of the problem 42% to 49% of mentions depending on the species
- Expensive to manage 20% to 37% of mentions
- An emerging problem 5% to 19% of mentions

Those that mentioned that current solutions don't work, are not practical or they don't know how to manage these weeds was relatively infrequent. This implies that the project focus for these main weeds of concern should be less about 'finding solutions that work' and more focused on challenges around adoption and implementation of known control strategies.

- Current solutions don't work, or not practical 9% to 14% of mentions
- Don't know how to manage it 1% to 6% of mentions

	Why?					Other reason / comments
	Very widespread	Expensive to manage	Current solutions don't work, or not practical	Don't know how to manage it	Emerging problem	
<b>Feathertop Rhodes</b>						
Talwood	6	7	4		1	Evolving weed – now germinating from June onwards
Walgett	3	3	1	1	2	
Goondiwindi	9	9	1			Prolific seeding & spreading Just difficult
Pittsworth	15	6	1		3	Germinating in winter crop prior to harvest Variable soil types

Jandowae	6	6	1			Knockdown options close to planting next crop are limited Weed shielding and timing issues make getting a full kill hard to achieve Transient seed
<b>TOTAL</b>	<b>39</b> (46%)	<b>31</b> (37%)	<b>8</b> (9%)	<b>1</b> (1%)	<b>6</b> (7%)	<b>85</b>

	Why?					
	Very widespread	Expensive to manage	Current solutions don't work, or not practical	Don't know how to manage it	Emerging problem	Other reason / comments
<b>Milkthistle</b>						
Talwood	6	4	4	1	2	Antagonism/less control due to mix of weeds Getting harder
Walgett	3	1	2	1	1	
Goondiwindi	10	5			5	What to do when there is a combo of barnyard grass, FTR and milk thistle Resistance – glyphosate x 3 Continuing issues. Future control options Resistance – 2,4-D
Pittsworth	9	3	3		3	Requires tillage Increasing resistance x2
Jandowae	4	2	2		3	Tank mixes reducing efficacy Becoming increasingly resistant
<b>TOTAL</b>	<b>32</b> (43%)	<b>15</b> (20%)	<b>11</b> (15%)	<b>2</b> (3%)	<b>14</b> (19%)	<b>74</b>

	Why?					
	Very widespread	Expensive to manage	Current solutions don't work, or not practical	Don't know how to manage it	Emerging problem	Other reason / comments
<b>Barnyard grass</b>						
Talwood	4	4	3			Glyphosate resistance
Walgett	2	2	1	1	2	
Goondiwindi	10	5	2	2	2	Resistance x3 Hard to kill, needs multiple passes Getting harder to control Continuing issue. Future control strategies
Pittsworth	4	2			2	Emerging in winter crops leading to seeding at harvest Stressed in summer
Jandowae	3	2	1		1	
<b>TOTAL</b>	<b>23</b> (42%)	<b>15</b> (27%)	<b>7</b> (13%)	<b>3</b> (6%)	<b>7</b> (13%)	<b>55</b>

	Why?					
	Very widespread	Expensive to manage	Current solutions don't work, or not practical	Don't know how to manage it	Emerging problem	Other reason / comments
<b>Fleabane</b>						
Talwood	1	2	1			
Walgett	2	1	1	1	1	
Goondiwindi	6	3	1			Matures quickly Just difficult if you miss it
Pittsworth	9	3	2		1	Variable soil types
Jandowae	3	4	1			Weed shielding and timing issues make getting a full kill hard to achieve
<b>TOTAL</b>	<b>21</b> (49%)	<b>13</b> (30%)	<b>6</b> (14%)	<b>1</b> (2%)	<b>2</b> (5%)	<b>43</b>

	Why?					
	Very widespread	Expensive to manage	Current solutions don't work, or not practical	Don't know how to manage it	Emerging problem	Other reason / comments
<b>Ryegrass</b>						
Talwood					2	
Walgett						
Goondiwindi	3	4			3	Resistance x2 Disc planter systems
Pittsworth	1	2	1		5	Increasing resistance
Jandowae					1	Coming into the area
<b>TOTAL</b>	<b>4</b>	<b>6</b>	<b>1</b>		<b>11</b>	<b>22</b>

	Why?					
	Very widespread	Expensive to manage	Current solutions don't work, or not practical	Don't know how to manage it	Emerging problem	Other reason / comments
<b>Wild oats</b>						
Talwood	3	2	2			Resistance

Walgett						
Goondiwindi	1					Resistance
Pittsworth	1			1		Resistance to Group 1 herbicides
Jandowae	1	1				
<b>TOTAL</b>	<b>6</b>	<b>3</b>	<b>2</b>	<b>1</b>		<b>12</b>

	Why?					
	Very widespread	Expensive to manage	Current solutions don't work, or not practical	Don't know how to manage it	Emerging problem	Other reason / comments
<b>Phalaris</b>						
Talwood	1	1	3		1	
Walgett	1					
Goondiwindi	3	1			1	Increasing problem in winter crops Growing issue. Future control strategies Resistance x2
Pittsworth						
Jandowae						
<b>TOTAL</b>	<b>5</b>	<b>2</b>	<b>3</b>		<b>2</b>	<b>12</b>

	Why?					
	Very widespread	Expensive to manage	Current solutions don't work, or not practical	Don't know how to manage it	Emerging problem	Other reason / comments
<b>Others</b>						
<u>Talwood</u> Johnson grass Wild radish	1	1			1	Widespread on isolated farms
<u>Walgett</u>						
<u>Goondiwindi</u> Windmill grass Saltbush Climbing buckwheat Bluegrass Button grass		1	1	2	1 1 1 1	Stresses easily, hard to kill in hot/dry conditions at Thallon
<u>Pittsworth</u> Lovegrass Lantana	1 1	1				

Grasses	2	1				Plantback periods for herbicides required Erratic control with glyphosate when treating advanced plants
Vines		1				
Johnson grass	1					
Bluegrass		1	1	1	1	
Fumitory	1					
Scarlet pimpernel						
Bladder ketmia	1			1		
<b>Jandowae</b>						Weed shielding and timing issues make getting a full kill hard to achieve
Bluebells	1				1	
Tarvine	1	1			1	
Bluegrass		1			1	
Tall fleabane	2	2	1		1	
<b>TOTAL</b>						

Participants were then asked what areas of weed management extension are of most interest to them?

#### AGRONOMISTS

Water quality for spraying	Not interested	Low interest	Somewhat interested	Extremely interested	Essential	Av. score
Talwood	1	1	3	1		3.16
Walgett				1	2	4.67
Goondiwindi		3	6	2	1	3.33
Pittsworth		2	6		1	3.00
Jandowae		1	2	1		3.00
<b>TOTAL (n=34)</b>	<b>1</b>	<b>7</b>	<b>17</b>	<b>5</b>	<b>4</b>	<b>3.09</b>

Spray drift management	Not interested	Low interest	Somewhat interested	Extremely interested	Essential	Av. score
Talwood			2	1	3	4.17
Walgett				2	1	4.33
Goondiwindi		2	6	2	2	3.33
Pittsworth			6		3	3.67
Jandowae		2	2			2.50
<b>TOTAL (n=34)</b>		<b>4</b>	<b>16</b>	<b>5</b>	<b>9</b>	<b>3.56</b>

Droplet size	Not interested	Low interest	Somewhat interested	Extremely interested	Essential	Av. score
Talwood			3	2	1	3.67
Walgett			1	1	1	4.00
Goondiwindi		2	6	1	3	3.42
Pittsworth			6	1	2	3.56
Jandowae			3		1	3.50
<b>TOTAL (n=34)</b>		<b>2</b>	<b>19</b>	<b>5</b>	<b>8</b>	<b>3.56</b>

Adjuvants	Not interested	Low interest	Somewhat interested	Extremely interested	Essential	Av. score
Talwood			4	2		3.33
Walgett					3	5.00
Goondiwindi			2	5	4	4.18
Pittsworth		1	2	3	2	3.33
Jandowae			2	2		3.50
<b>TOTAL (n=32)</b>		<b>1</b>	<b>10</b>	<b>12</b>	<b>9</b>	<b>3.91</b>

<b>Residual herbicide plantbacks</b>	<b>Not interested</b>	<b>Low interest</b>	<b>Somewhat interested</b>	<b>Extremely interested</b>	<b>Essential</b>	<b>Av. score</b>
Talwood			1	2	3	4.33
Walgett			1		2	4.33
Goondiwindi		1	1	2	8	4.42
Pittsworth				8	1	4.11
Jandowae			2	2		3.50
<b>TOTAL (n= 34)</b>		<b>1</b>	<b>5</b>	<b>14</b>	<b>14</b>	<b>4.21</b>

<b>Seeder set-up for ryegrass pre-em's</b>	<b>Not interested</b>	<b>Low interest</b>	<b>Somewhat interested</b>	<b>Extremely interested</b>	<b>Essential</b>	<b>Av. score</b>
Talwood			4		2	3.67
Walgett			1	1	1	4.00
Goondiwindi		4	3	4	1	3.42
Pittsworth			4	2	2	3.75
Jandowae			2	2		3.50
<b>TOTAL (n=33)</b>		<b>4</b>	<b>14</b>	<b>9</b>	<b>6</b>	<b>3.39</b>

<b>Optimising double knocks</b>	<b>Not interested</b>	<b>Low interest</b>	<b>Somewhat interested</b>	<b>Extremely interested</b>	<b>Essential</b>	<b>Av. score</b>
Talwood			1	2	3	4.33
Walgett				2	1	4.33
Goondiwindi			2	3	6	4.36
Pittsworth		1		6	2	4.00
Jandowae			1	2	1	4.00
<b>TOTAL (n=33)</b>		<b>1</b>	<b>4</b>	<b>15</b>	<b>13</b>	<b>4.21</b>
<b>Optical sprayer and nozzle set-up</b>	<b>Not interested</b>	<b>Low interest</b>	<b>Somewhat interested</b>	<b>Extremely interested</b>	<b>Essential</b>	<b>Av. score</b>
Talwood			2	2	2	4.00
Walgett				2	1	4.33
Goondiwindi		4	5	1	2	3.08
Pittsworth		1	4	3	1	3.44
Jandowae			3	1		3.25
<b>TOTAL (n=34)</b>		<b>5</b>	<b>14</b>	<b>9</b>	<b>6</b>	<b>3.47</b>

<b>Optimising sprayer set-up</b>	<b>Not interested</b>	<b>Low interest</b>	<b>Somewhat interested</b>	<b>Extremely interested</b>	<b>Essential</b>	<b>Av. score</b>
Talwood		1	4	1		3.00
Walgett				1	2	4.67
Goondiwindi			5	4	3	3.83
Pittsworth		1	4	3	1	3.44
Jandowae		1	2	1		3.00
<b>TOTAL (n=34)</b>		<b>3</b>	<b>15</b>	<b>10</b>	<b>6</b>	<b>3.56</b>

<b>Harvest weed seed control</b>	<b>Not interested</b>	<b>Low interest</b>	<b>Somewhat interested</b>	<b>Extremely interested</b>	<b>Essential</b>	<b>Av. score</b>
Talwood		1	4			2.80
Walgett			1	1	1	4.00
Goondiwindi	1	1	6	2	2	3.17
Pittsworth		1	3	4		3.33
Jandowae		1	3			2.75
<b>TOTAL (n=32)</b>	<b>1</b>	<b>4</b>	<b>17</b>	<b>7</b>	<b>3</b>	<b>3.19</b>

<b>Weed size x herbicide control</b>	<b>Not interested</b>	<b>Low interest</b>	<b>Somewhat interested</b>	<b>Extremely interested</b>	<b>Essential</b>	<b>Av. score</b>
Talwood		1	1	1	3	4.00
Walgett			1		2	4.33
Goondiwindi	1		1	6	4	3.92
Pittsworth			2	6		3.75
Jandowae			1	3		3.75
<b>TOTAL (n=33)</b>	<b>1</b>	<b>1</b>	<b>6</b>	<b>16</b>	<b>9</b>	<b>3.91</b>

## GROWERS

Note: Not every respondent answered every question.

<b>Water quality for spraying</b>	<b>Not interested</b>	<b>Low interest</b>	<b>Somewhat interested</b>	<b>Extremely interested</b>	<b>Essential</b>	<b>Av. score</b>
Talwood			1			3.00
Walgett		1	1	1		3.00
Goondiwindi		1			1	3.50
Pittsworth		2	6	5	2	3.47
Jandowae	1	3	2			2.00
<b>TOTAL (n=27)</b>	<b>1</b>	<b>7</b>	<b>10</b>	<b>6</b>	<b>3</b>	<b>3.07</b>

<b>Spray drift management</b>	<b>Not interested</b>	<b>Low interest</b>	<b>Somewhat interested</b>	<b>Extremely interested</b>	<b>Essential</b>	<b>Av. score</b>
Talwood		1				2.00
Walgett				3		4.00
Goondiwindi			2			3.00
Pittsworth		2	2	9	4	3.89
Jandowae	1	1	2	2		2.67
<b>TOTAL (n=29)</b>	<b>1</b>	<b>4</b>	<b>6</b>	<b>14</b>	<b>4</b>	<b>3.52</b>

<b>Droplet size</b>	<b>Not interested</b>	<b>Low interest</b>	<b>Somewhat interested</b>	<b>Extremely interested</b>	<b>Essential</b>	<b>Av. score</b>
Talwood		1				2.00
Walgett				3		4.00
Goondiwindi			1	1	1	4.00
Pittsworth		1	5	8	3	3.77
Jandowae		1	1	2	1	3.60
<b>TOTAL (n=29)</b>		<b>3</b>	<b>7</b>	<b>14</b>	<b>5</b>	<b>3.72</b>

<b>Adjuvants</b>	<b>Not interested</b>	<b>Low interest</b>	<b>Somewhat interested</b>	<b>Extremely interested</b>	<b>Essential</b>	<b>Av. score</b>
Talwood				1		4.00
Walgett			1	2		3.67
Goondiwindi				1	2	4.67
Pittsworth		1	3	10	3	3.88
Jandowae		1	2	3		3.33
<b>TOTAL (n=30)</b>		<b>2</b>	<b>6</b>	<b>17</b>	<b>5</b>	<b>3.83</b>

<b>Residual herbicide plantbacks</b>	<b>Not interested</b>	<b>Low interest</b>	<b>Somewhat interested</b>	<b>Extremely interested</b>	<b>Essential</b>	Av. score
Talwood			1			3.00
Walgett			1	2		3.67
Goondiwindi				3		4.00
Pittsworth			3	11	3	4.00
Jandowae		1		1	4	4.33
<b>TOTAL (n=30)</b>		<b>1</b>	<b>5</b>	<b>17</b>	<b>7</b>	<b>4.00</b>

<b>Seeder set-up for ryegrass pre-em's</b>	<b>Not interested</b>	<b>Low interest</b>	<b>Somewhat interested</b>	<b>Extremely interested</b>	<b>Essential</b>	Av. score
Talwood				1		4.00
Walgett			2	1		3.33
Goondiwindi				3		4.00
Pittsworth		4	6	6		3.13
Jandowae	1	2		2		2.40
<b>TOTAL (n=28)</b>	<b>1</b>	<b>6</b>	<b>8</b>	<b>13</b>		<b>3.14</b>

<b>Optimising double knocks</b>	<b>Not interested</b>	<b>Low interest</b>	<b>Somewhat interested</b>	<b>Extremely interested</b>	<b>Essential</b>	Av. score
Talwood			1			3.00
Walgett				2		4.00
Goondiwindi				2	1	4.33
Pittsworth	1	1	4	12		3.50
Jandowae			1	5		3.83
<b>TOTAL (n= 30)</b>	<b>1</b>	<b>1</b>	<b>6</b>	<b>21</b>	<b>1</b>	<b>3.63</b>

<b>Optical sprayer and nozzle set-up</b>	<b>Not interested</b>	<b>Low interest</b>	<b>Somewhat interested</b>	<b>Extremely interested</b>	<b>Essential</b>	Av. score
Talwood			1			3.00
Walgett				2	1	4.33
Goondiwindi				1	2	4.67
Pittsworth			2	14	2	4.00
Jandowae		3	1	2		2.83
<b>TOTAL (n=31)</b>		<b>3</b>	<b>4</b>	<b>19</b>	<b>5</b>	<b>3.84</b>

<b>Optimising sprayer set-up</b>	<b>Not interested</b>	<b>Low interest</b>	<b>Somewhat interested</b>	<b>Extremely interested</b>	<b>Essential</b>	Av. score
Talwood				1		4.00
Walgett				2	1	4.33
Goondiwindi		1	1		1	3.33
Pittsworth		1	6	8	2	3.65
Jandowae		1	1	4		3.50
<b>TOTAL (n=30)</b>		<b>3</b>	<b>8</b>	<b>15</b>	<b>4</b>	<b>3.67</b>



Harvest weed seed control	Not interested	Low interest	Somewhat interested	Extremely interested	Essential	Av. score
Talwood				1		4.00
Walgett			2	1		3.33
Goondiwindi		1	1			2.50
Pittsworth		1	8	5	2	3.50
Jandowae	1	1	1	1	2	3.17
<b>TOTAL (n=28)</b>	<b>1</b>	<b>3</b>	<b>12</b>	<b>8</b>	<b>4</b>	<b>3.36</b>

Weed size x herbicide control	Not interested	Low interest	Somewhat interested	Extremely interested	Essential	Av. score
Talwood			1			3.00
Walgett				3		4.00
Goondiwindi				1		4.00
Pittsworth			8	5	4	3.77
Jandowae			2	3	1	3.83
<b>TOTAL (n=28)</b>			<b>11</b>	<b>12</b>	<b>5</b>	<b>3.79</b>

Participants were then asked if they were interested in ‘Integrated management strategies for individual weeds? If so, for which weeds?’

#### Agronomists

Integrated management strategies	Talwood	Walgett	Goondiwindi	Pittsworth	Jandowae	Total
Milk thistle			4	2		6
Fleabane			1			1
Corn Gromwell						1
Feathertop Rhodes grass			1	1	1	3
Ryegrass	1		2			3
Windmill grass			1			1
Barnyard grass					1	1
Summer grass (bluegrass, dinebra)				1		1
No specific weed given	3		2			5

#### Growers

Integrated management strategies	Talwood	Walgett	Goondiwindi	Pittsworth	Jandowae	Total
Milk thistle				1		1
Phalaris			2			2
Wild oats			1			1
No specific weed given		1		1		2