# GRDC PODCAST TRANSCRIPT

**Update on herbicide resistance in WA weed species**

[00:00:05] **Intro** This is a GRDC podcast.

[00:00:12] **Deborah Bishop** GRDC funded random surveys conducted in Australia during the 2020 harvest, revealed that herbicide resistant weed species are common. However, the incidence of resistance varies significantly for different weed species and herbicides across cropping regions, both within a cropping zone and across Australia. Hello, I'm Deborah Bishop. The surveys monitored the frequency and distribution of resistance in key weed species to commonly used herbicides in cropping paddocks and why resistance is increasing, plant numbers are remaining low and not to growers who are controlling their weed numbers. I spoke with Mechelle Owen from AHRI, Australian Herbicide Resistance Initiative, who said driving that seed bank down and knowing your resistance issues remain important steps to offer good control. The challenge is to use a wide range of integrated weed management options that help achieve herbicide sustainability and support productivity of cropping systems.

[00:01:17] **Mechelle Owen - AHRI** So the resistance is coming from the random surveys that have been funded by GRDC. These surveys have been conducted probably over the last 20 years and run every 5 years, and we are just sort of monitoring resistance, plus looking at what particular areas resistance is more common in and if we've got new herbicides coming into the market, how well are they controlling these species?

[00:01:43] **Deborah Bishop** Because WA is experiencing herbicide resistance, I mean, that is very clear. Is there an indication why that is happening?

[00:01:51] **Mechelle Owen - AHRI** Particularly in WA resistance first developed in the northern ag region, which is where we were seeing resistance, and it was predominantly continuous cropping areas so cropped every year rather than wheat, sheep in there, and then there was the move to no till. So there was a reliance on herbicides for weed control and just the continued selection pressure allowed resistance to develop.

[00:02:16] **Deborah Bishop** So Mechelle, are we seeing increased brome and barley in crop paddocks then?

[00:02:20] **Mechelle Owen - AHRI** Yes, so in the survey we are seeing a little bit more brome and barley grass to previous years, so in WA it's around just under 50% of fields have had brome grass present and about 33% of fields had barley grass. Possibly, part of this is that it does like the colder weather for germinating, so it might be germinating June, July after some of the earlier sowing has been done and then there's limited control options after that for controlling in the crop. We are seeing a little bit of an increase in resistance to the sulfonylurea herbicides in brome and barley grass. So it's not spreading as quickly as some of the other grass species. Partly it could be because they self pollinating so that then they don't spread their resistance genes to other plants around them like ryegrass, which is out crossing. So that could slow down resistant spread.

[00:03:16] **Deborah Bishop** What are the control options are available for growers in regard to Brome considering that increasing resistance?

[00:03:21] **Mechelle Owen - AHRI** So we're seeing an increasing resistance to the (SU) herbicides, so the sulfonylureas, but we're not seeing any major resistance to (IMI) herbicides. IMI tolerant crops allow good control of brome grass at the moment and then there's the new CoAXium barley that's just been released that allows the use of a FOP in a barley crop and very low resistance to FOP herbicides in brome, so if there's a big brome problem, it could be a targeted approach to controlling brome using some of those herbicide options.

[00:03:56] **Deborah Bishop** Is there much variation of resistance? Are you seeing much variation of resistance around different cropping areas of WA taking into account that historical data?

[00:04:05] **Mechelle Owen - AHRI** Yes. So even in the early data, resistant wild radish was common in the northern ag region, but we weren't seeing much resistance anywhere else, but in the last survey, so in 2020 we're seeing radish more in the central ag region and in the southern regions, but resistance is also in those regions. So not only is the weed spread further south, but more resistance is becoming more common in southern regions as well.

[00:04:31] **Deborah Bishop** So how does resistance in WA compare nationally? I mean the GRDC funded some random surveys around Australia during harvest in 2020 and that revealed herbicide resistant weed species are pretty common, but how does WA compare nationally in that?

[00:04:46] **Mechelle Owen - AHRI** So for wild radish it was more predominant in WA, the other states had less of a problem with radish, so maybe we collected around 100 populations just under, but most of the other states was 10 to 15 populations. They're mostly just seeing resistance to chlorsulfuron, whereas in WA we're seeing a lot more resistance to the other herbicides like 2,4-D and Diflufenican.

[00:05:11] **Deborah Bishop** Mechelle though, what about other species nationally?

[00:05:14] **Mechelle Owen - AHRI** So we also had brome and barley grass which was common in Western Australia, South Australia, Victoria and New South Wales. Resistance levels for brome was similar across all the states or had resistance to the Sulfonylurea herbicides, but generally the other herbicides work quite well. South Australia and Victoria had a little bit more FOP and DIM resistance to WA and then barley grass was similar across all states, possibly a little bit more barley grass in Western Australia that was collected in the survey and showing some resistance to the sulfonylurea herbicides as well and some crossed resistance to the IMI's.

[00:05:53] **Deborah Bishop** Are there any particular herbicides or species that are affected?

[00:05:57] **Mechelle Owen - AHRI** Depending on the species there are different herbicides that can be used, so for reddish, most of the herbicides being used as standalone have resistance, whereas in brome grass we're seeing resistance sort of developing to the Group B herbicides, so that's Sulfonylureas which radish is also, has a lot of resistance, but brome and barley grass, we're not seeing resistance to or not developing widespread resistance to the other herbicides that are available for brome and barley grass, but there are limited in crop options for those species.

[00:06:34] **Deborah Bishop** Herbicide resistance. It's a major problem nationally. It costs millions and millions and millions of dollars each year, time consuming and on the pocket. Are there other steps that this research is revealing or uncovering that growers might be able to take to help manage the situation generally?

[00:06:48] **Mechelle Owen - AHRI** I guess the first step is probably knowing what your problem is, your resistance problem, what your weed species range is, what they're resistant to, which herbicides are providing control and targeting herbicides that will give you good control, reducing seed set and driving that weed seed bank down so that you're not having a big weed problem in the following years.

[00:07:12] **Deborah Bishop** Are the specific takeaways that from this particular project that you can offer growers and perhaps even the industry as well?

[00:07:19] **Mechelle Owen - AHRI** So because these projects have been funded for a long time by GRDC, we have data from 20 years ago, so we're just putting that together. But we have seen generally over time that resistance is still increasing, but generally plant numbers are still low in the field. So while lots of resistance is there, farmers are managing their weed seed bank and generally the density of the weeds in the paddock is less than one plant per square meter. So partly it's a numbers game. So, the more weeds you have, the harder it is to control them.

[00:07:56] **Deborah Bishop** So clearly a lot of hard work has been done, but still hard work ahead of us.

[00:07:59] **Mechelle Owen - AHRI** Yes, well I guess we just got to keep monitoring our paddocks and keep those weed seed numbers down so that we've got good weed control for following years.

[00:08:09] **Deborah Bishop** Mechelle, thanks a lot for joining us.

[00:08:10] **Mechelle Owen - AHRI** Thank you.

[00:08:17] **Deborah Bishop** You've been listening to Mechelle Owen from AHRI, Australian Herbicide Resistance Initiative. More information can be found on the GRDC website. I'm Deborah Bishop and thanks a lot for listening.