# GRDC VIDEO or PODCAST TRANSCRIPT

**Fall armyworm insights for when the season feels unmanageable**

[00:00:12] **Dr Melina Miles** This year, we've seen the fall armyworm infestations persist into the reproductive stage that past tassel in maize and past head emergence in sorghum and that's not something that we'd seen before. I'd almost come to the conclusion that we know that this is a defoliating pest, and it was going to be restricted to the vegetative stages. But this year's certainly indicated that that's not the case, that there are risks associated with high fall armyworm activity later in grain filling and maturity.

[00:00:41] **Hilary Sims** It's been a busy few months for principal entomologist at the Queensland Department of Agriculture and Fisheries, Dr Melina Miles. This summer has seen high numbers of fall armyworm across all of Queensland, from north Queensland, in the Burdekin, down through southern Queensland and into northern New South Wales as well. In some late sown crops, this relatively new pest for Australia has had a disastrous impact and it's caught many growers and advisers off guard. I'm Hilary Sims and in this podcast, Melina talks us through the factors behind this high fall armyworm population year, what can be done to manage it and at what cost? Here's Melina.

[00:01:22] **Dr Melina Miles** What we've seen is a big planting of late crops with the rain, coinciding with really high fall armyworm activity - higher than we've seen in the previous two years. So that has created, you know, enormous challenges with crop checking, with making decisions about whether to treat or not. And in some instances, crops have been treated multiple times. It's important to note that it really is the crops that were planted relatively late for that sort of southern Queensland planting window that had been impacted. There are lots of terrific crops that were planted earlier than anything that was planted from about mid December onwards, really has sort of borne the brunt of the high fall armyworm activity in that both maize and sorghum and to a large extent, the French millet.

[00:02:07] **Hilary Sims** So, Melina, what are some of the factors that have influenced this high fall armyworm activity?

[00:02:12] Well, we can only speculate, you know, don't have very much experience with fall armyworm in Australia at this point. So I guess we're sort of calling on what we know about other similar species like Helicoverpa and northern armyworm and common armyworm and so on. And I guess, we know that abundant hosts that are made available by wet seasons are often a contributing factor. Mild winters so warmer winters, where abundant hosts really do provide these pests an opportunity to start building their population up early. And I guess just by basic maths, the higher the starting population, the higher the peak. And that's definitely what we're seeing. So the last three years, with our pheromone trapping, we know that the population builds over summer, peaking in about late February/March. And certainly that's the same trajectory but just the numbers are so much higher. When it comes to central Queensland you know, there's a little bit of speculation about whether the fall armyworm hasn't been moved around by the metrological systems associated with the cyclones, but at the moment, that's all sort of speculation.

[00:03:14] **Hilary Sims** And this podcast is all about what to do in the season feels like it's unmanageable. What other options are available when we're dealing with these sort of numbers and this sort of damage.

[00:03:24] **Dr Melina Miles** With the sort of intensity that we're seeing, and the very high likelihood that crops that aren't treated with insecticides will be completely destroyed or significantly impacted in terms of their sort of yield potential, insecticides really are the mainstay. We know that there are lots of natural enemies active in the fields, and they are really important in a season like this for mopping up survivors from insecticide treatments, but they are not going to bring the populations down below damaging level on their own. And so I think it's important that we think about the use of the selective insecticides, the frequency, because even selective insecticides can be damaging to biological organisms. People have been really shocked at how many applications it's taken to keep those crops going, to prevent them from being so severely damaged that they either stop growing or the yield is really impacted. And that's been a massive change for grain growers to be spraying maize and sorghum so intensively.

[00:04:21] **Hilary Sims** And tell me about the costs associated with that and the implications from having such an insecticide heavy management strategy.

[00:04:29] **Dr Melina Miles** It's definitely been a real impost on the bottom line. There's not an effective insecticide that cost less than $50 a hectare, and in some instances, crops have been sprayed multiple times. The chemistry is very effective, and I guess it's important also that we learn to get every last bit of efficacy out of those products. And I think good crop monitoring that involves really having a look at what larvae are left, where the eggs that are hatching, those small larvae surviving or dying, not rushing in to spray crops when there are large numbers of small larvae and egg masses, particularly if the crop had been sprayed recently, because the residual efficacy of those products is really very good. So it's been really challenging. And I think for those crops that might have been infested really late in the cobs, damage to cobs and we haven't seen sorghum damage to the point where the grain has been really heavily impacted directly, but certainly in corn, we're seeing a lot of infestation in cobs, which means they can no longer go into the grit corn market and some of have been cut for silage. So there are implications of that heavy insecticide use for potentially, you know, you need to be careful about withholding periods and so on if they're going into the stock feed market after that.

[00:05:43] **Hilary Sims** Yes, certainly implications to be aware of. What considerations should growers and advisers make for future plantings based on what we've seen play out this year?

[00:05:53] **Dr Melina Miles** Yeah, I think you can sort of look at that a couple of ways. The first is that it really does put the emphasis on early sowing of these crops to get them in the early part of the summer, rather than sort of post-Christmas. We know that it's not always in our control when dryland crops go in, but I think the other thing that it's really sort of highlighted is that sorghum is a crop that is susceptible, you know, and that's been particularly acute in central Queensland where they had had difficulties with their maize and I guess felt that fall armyworm was a really imposter maize production, but hadn't had a similar experience in sorghum and were quite comfortable with fall armyworm in sorghum. But this year they have really had a difficult time. So moved to an early sowing and then I guess a really heightened awareness of what's involved in managing a crop if you have a late planting. But there's no guarantee, we really don't know for sure what the drivers are. So there's no guarantee that we'll have another season like this next year. There is a little bit of concern for people who have had late maize or sorghum, that's got large populations of full armyworm in them that those fall armyworm might carry on. And so early planting of crops meet this high emerging population in spring. I guess we don't know whether that's a high likelihood. And I guess it would be really important for us, from a research point of view, to have a look at what the carryover potential is of some of those crops that have been infested late.

[00:07:15] **Hilary Sims** And to wrap up, Melina, what are your final thoughts or messages on this season so far?

[00:07:22] **Dr Melina Miles** Well, it's definitely been challenging. Usually when we have a pest outbreak like this, we at least have an understanding of how you manage it to fall back on. And so it really feels like everybody has sort of been involved in some giant experiment to see how to manage fall armyworm, and lots of lessons have been learned, but it definitely has been very confronting, particularly, I think, the crops that have been well protected to preserve their yield potential by managing the canopy, only to find that they're badly infested at the cobbing stage and those populations couldn't be brought under control. So I guess what I hope will happen is that people won't sort of throw their hands up and say, well, we're not growing maize, we're not growing sorghum, that we really use this as an opportunity to understand where the major risks are. There's clearly some opportunities with host plant resistance, different varieties potentially, that we haven't looked at like we do with midge you deploy when the risk is high. It doesn't fix the problem, but it definitely makes a valuable contribution to your ability to produce the crop even under high pressure. So I just really hope that agronomists and growers don't throw their hands up and say it's all too hard. And I definitely hope we don't get another year like this straight away.

[00:08:30] **Hilary Sims** No, hopefully not. Melina, thank you for speaking with us today.

[00:08:34] **Dr Melina Miles** Yeah, thanks very much, Hilary.

[00:08:42] **Hilary Sims** That was Principal Entomologist at the Queensland Department of Agriculture and Fisheries Dr Melina Miles. More information can be found in the description box of this podcast or online at GRDC.com.au. I'm Hilary Sims and you've been listening to a GRDC podcast.