# GRDC VIDEO or PODCAST TRANSCRIPT

**Sowing conventional wheat deep**

[00:00:05] **Hilary Sims** Hi there, I'm Hilary Sims. For the 2024 growing season - some Western Australian growers are chasing moisture deeper than ever before by successfully planting conventional wheat varieties down to around 60 to 80mm. This new thinking stems from positive research findings from long coleoptile wheat research, and in this podcast, we hear from SLR agriculture CEO Michael Lamond on how this practice change of sowing conventional varieties deeper has come about and how it's playing out in the field for growers this year. But first, we speak with a grower who's excited about the benefits long coleoptile wheat will have accessing deep moisture in a variable climate. Simon York runs a mixed farming enterprise near Tammin in WA's central grain belt, about 200km east of Perth. His family has been farming there for four generations. There's currently a four year national GRDC investment underway to provide growers, like Simon, with the knowledge and tools to integrate long coleoptile wheat into their farming systems once the genetics become commercially available. Simon starts off by describing his farming operation.

[00:01:26] **Simon York** My grandfather established it in 1909, first came to Tammin, then we've been farming ever since. I farm with my brother and my nephew, in partnership. Scale-wise, it's a mixed farming enterprise. This year we've crop 12,500 hectares to mainly wheat and barley with some legumes in the program as well. Lupins, field peas, some canola and we also run a merino flock 5000 breeding ewes. So we're still invested in the sheep industry.

[00:02:00] **Hilary Sims** And Simon, what are some of the challenges in your region in terms of seasonal breaks, rainfall, time of sowing, factors such as that.

[00:02:07] **Simon York** In this drying climate, I'm not a sceptic, I believe it is happening. We've always been in a semi-marginal area here where rainfall is everything and seasons have always been inconsistent, but our growing season, rainfall is dropping, particularly the last 20 or 30 years. So we're very interested and invested in trying to get the crop established at the right and opportune time. So the business of long coleoptile wheats is very important to us if they can be bred and we'll certainly take them up, you know, when they're available. At the moment we're with the more conventional wheats and every opportunity we get, we push the boundaries a little bit and if moisture is marginal, we'll try going a little deeper with the seed if we're chasing moisture, but always some element of risk there with the coleoptile length. So it would be revolutionary to get these longer coleoptile wheats established in the system when there's no doubt there'd be a huge uptake. We'd certainly be using them, and I'm sure a lot of other farmers would.

[00:03:18] **Hilary Sims** And you've made a few references already. But what appeals to you most about long coleoptile wheat varieties?

[00:03:24] **Simon York** Well, it's just being more flexible with your seeding program, and being able to hit the window with the length of growing season. Moisture is critical with environments changeable, and we need to have our crop established and out of the ground by early June. Early in the better. If there's an opportunity in the middle of April to get our crop out of the ground, potentially we're going to maximise the yield. And that's been proven over many years earlier is generally best. There's always the unlikely or real chance of a late spring frost, but the odds stacked very much against early seeding and establishment, as against a damaging frost. So, for example, if we had 20mm of rain in the middle of April, it might be too early to go with a more conventional wheat, if we had a long season wheat in combination with a long coleoptile and we could plant it down where the moisture is, we'd certainly jump at that opportunity and get in the ground and have the confidence that would come through and grow. Obviously we wouldn't be using them every season because every season is different. But if that opportunity arose, we would jump at at no risk no doubt.

[00:04:44] **Hilary Sims** While the wait is on for more long coleoptile wheats to come onto the market. Sowing conventional wheats deeper to chase moisture is gaining momentum amongst some growers in WA. Michael Lamond is CEO of SLR Agriculture, based in Yorke in Western Australia. He's been at the forefront of this new way of thinking and joins me now to share how it's playing out across the state. As Michael explains, it all stemmed out of a two year scoping study he hosted before the current national GRDC investment on long coleoptile wheat kicked off. The scoping study was testing out the latest long coleoptile wheat varieties in WA soils. Here's Michael.

[00:05:23] **Michael Lamond** In those first two years of the scoping study, we had somewhere around 950 growers through our trials over the two years. It was all quite new and it was all quite exciting. Wasn't any trouble to get growers to the sites. And we got this massive exposure from the trials, which I think raised a lot more questions and answers from the growers. It was interesting, it wasn't a project we had to drive at all, the growers drove it, you know, they would come up with question after question and they were already thinking how this is going to fit into their system. There was no question of whether it would or wouldn't. It was, you know, when and what the benefits going to be. But one of the interesting things is that in the experiments that we had in the first two years and also last year, the conventional varieties, so all the varieties of the growers were currently growing, they would rarely sow them deeper than about 50mm, 50 to 60. They would rarely go any deeper because they would reach the limit of the coleoptile length, and the risk of say, getting a rainfall event, or the coleoptile shortening under heat at emergence would put the emergence at risk, in that the seedlings could be buried and the leaflet would emerge, that coleoptile sheath below the surface would not emerge. But what we noticed in the initial experiments was that when we compared the currently grown varieties versus the long coleoptile varieties, which have the gene to increase the length of the coleoptile, they can easily emerge from 140mm, no problem whatsoever. And the interesting thing was, when we sowed the conventional varieties at the same depth, we would often get a reasonable strike.

[00:06:55] **Hilary Sims** So, Michael, what percentage emergence were you seeing with these seedlings and what was the reaction from growers?

[00:07:02] **Michael Lamond** So up to 40, 50, 60 per cent of those seedlings would emerge from down at, say, 120mm. That was an absolute light bulb moment for most growers. They hadn't seen that before. They'd never really contemplated sowing that deep. The conventional varieties that deep. We hadn't either. Often the leaflet would emerge out of the coleoptile sheaf well below the soil surface. But in West Australia, because our soils are generally quite light and fluffy, particularly before there is a rainfall event on them, the little leaflet would emerge. We never really got the same emergence as we did with the long coleoptile varieties, because they would come through easily, whereas a lot of the seedlings would struggle. But we would often get a reasonable enough strike that we would get reasonable yields. So when the growers saw this, it was like, oh, okay, well maybe we can do that with the conventional varieties. Maybe we could be sowing deeper. And it's interesting that it was only three years ago, and already last year we were getting growers chasing moisture deep. And this year it's been quite extraordinary. We've had a huge area of the crop has gone into much deeper than they ever had before. They got very successful emergency. You know, the emergence was, in a lot of cases, probably wasn't as good as you know you'd normally get. At least they got the crop up and they're able to utilise that moisture.

[00:08:19] **Hilary Sims** And what are the risks growers should be considering before giving it a go?

[00:08:22] **Michael Lamond** Well, the greatest risk, of course, is if you get a rainfall event soon after planting. The conventional varieties do struggle because the rain compacts the soil that's in the furrow and makes it more difficult for the little leaflets sort that have emerged out of the coleoptile sheath below the soil surface to come through, as opposed to having a dry, warm profile for the leaflet to emerge through. Once it's rained, you often get a little bit more furrow fill. So it actually it's effectively deeper now than it was. Then the soil on top of the seedling can compact and make it more difficult for it to merge. And we've already got some very good data this year showing that. So we're we've had seedlings emerge dry versus those that have tried to come through following a rainfall event. These are conventional varieties have been sown at say 60 or 80mm. They really do struggle because those leaflets emerge below the surface and then they haven't got the strength of the coleoptile to come through, and they do struggle. So the emergency is down. So that's the greatest risk. And most wouldn't go more than 80mm deep. You do need some time for that to come through before rainfall event. We're gathering information on the speed of the emergence under various temperature regimes. And we know that under warm soil temperatures, the seedlings will come up from 80mm or even 90-100mm. These are conventional varieties within about a week, six days is about how long it takes them to come through. So we know where that window is. But it does vary a bit on soil temperature. So as you are getting to the back end of May, the risk will become greater. Of course, because the soil temperatures are cooling and it takes longer for the seeding to come through. So one of the major aims of the current project is to provide growers with a good understanding of how long it'll take for a seedling to emerge at various depths, at various times of the growing season, to help them evaluate that risk if they should be chasing moisture deep. Now it's more pronounced with a conventional variety then it is with a long coleoptile variety, because the long coleoptile varieties, of course, can come through more difficult emergent conditions because the coleoptile is just longer.

[00:10:35] **Hilary Sims** And Michael, to finish up. What excites you most about this practice change of sowing conventional wheat varieties deeper to chase moisture?

[00:10:43] **Michael Lamond** Well, I suppose the exciting thing about this is that we never really anticipated this at all. When we're showing the growers the trials and the experiments that we'd been doing for several years, we were looking all the other exciting things that we'd seen, such as just getting a crop up from depth. We would not have seen much of it, of crop safety from herbicides. We're noticing we're getting less rise like Tonia would noticing in a non wetting soils that we were getting them up below the non wetting layer. So we were excited at all sorts of things. And that was the growers that was saying well hang on. Those varieties I'm growing now seem to be coming up okay. Even though they're often down a little on numbers, they just compensate by more tillers. And it wasn't really something that we thought about too much until we started showing growers the trials in the paddocks. You know, when we reviewed the comments from the growers, particularly over those first two years where we had, you know, nearly a thousand growers through the trials that most of the comments were around about, well, maybe I should be doing that now. Do I really need to wait for these long coleoptile varieties? Maybe I can be sowing deeper than I thought I could. So it was that awareness brought about by the growers that has driven this. And the astonishing thing about it is the practice change has been almost immediate. Seeing the trials in the ground, having some discussion around it with other growers and then growers actually adopting that practice almost immediately. It's been incredible, really. And then I suppose the other exciting thing, of course, is that once we do have these new varieties, you know, sometime in the future with the long coleoptiles, the growers are already primed on what to do and how to do it, where they should use them and how they should use them, and what the benefits are going to be.

[00:12:27] **Hilary Sims** That was SLR Agriculture CEO Michael Lamond, and before him was Tammin-based grower Simon York. More information on this topic can be found in the description box of this podcast or online@GRDC.com.au. I'm Hilary Sims and you've been listening to GRDC podcast.