Mark McLean:

I'm Mark McLean, senior research scientist with Agriculture Victoria based in Horsham. I'm standing in our spot form of net blotch barley disease screening nursery at Horsham and it's looking really good this year. We've had really nice infection and so we've been able to assign ratings for up-and-coming barley varieties for their resistance and susceptibility reaction.

Mark McLean:

When we're assessing our barley nurseries, we assess on a 1 to 9 scale where we actually have nine different rating categories and each of those is likely to have a different yield loss associated with it. And what we're trying to aim towards is a moderately susceptible or better.

Mark McLean:

We have our susceptible barley variety, so you can see it's actually got the same number of infection points, but it's got a lot more infection and it's a lot more severe, so there's a lot of leaf tissue loss there which would cause significant loss in a grain crop.

Mark McLean:

 This variety here we would classify as moderately susceptible, so it still gets quite a lot of infection, especially on those lower leaves. But what we can see compared to the very susceptible variety is that the size of those spots are a lot smaller, so there is actually a lot less leaf damage on this variety as compared to our various susceptible and that means there's a lot lower risk of loss associated with it.

Mark McLean:

This is a moderately resistant rated variety, and this has a sufficient level of resistance that we would normally imagine that it won't receive any loss from spot form of net blotch. So, we can see there is still infection and we can still see spot form of net blotch on those leaves. But in most cases the spots are really quite small and restricted. And so, it's unlikely to cause enough damage to cause loss. And that's what we're really aiming for with our research to produce these moderately resistant or better varieties.

Mark McLean:

So here we have a resistant barley variety which is looking nice and green and clean. With all of the spot form of net blotch infection as tiny little black spots that haven't spread it all. So that's what we're aiming for our resistant barley varieties.

Mark McLean:

As part of the GRDC funded Barley Foliar Pathogens Project, we've been able to produce 3 lines of barley with really nice resistance to spot form of net blotch. So I'm standing in front of them here. These have been delivered to breeders to be able to incorporate into their breeding programs in the future.

Mark McLean:

And so, what we did to start with was we took a resistant barley variety that we tested all around the world. And we tested for different pathotypes in Canada, Finland, around Australia and South Africa as well. And then we crossed that variety to a current commercial variety to produce something that was a lot more agronomically adapted to the Australian environment. And then we've gone through a screening process and identified the best of the best. So these lines are resistant to spot form of net, blotch, scald and net form of net blotch as well and they should provide a really nice resource for barley breeders into the future.