

Re the Sucker variety article in GRDC Update

Oct 2004

Dear Dr Murray,

After reading your GRDC article on rust sucker varieties and their need to be removed (*GRDC Update October 2004 Issue 34*), I would like to make some comments.

When I was going through University and being taught this theory of sucker varieties promoting rusts and increasing the risk of resistance breakdown (the old numbers game theory), it all made sense.

However, there are just too many exceptions in reality for this theory to be promoted still. Articles like yours do come across as suggesting that we are all doomed if we keep growing these rust sucker varieties. It reads to us that you would rather we make less money growing lower yielding, more rust resistant varieties. I know you are saying “not necessarily so” after reading that, but please bare with me as I try to elucidate.

Canna was released decades ago as a rust tolerant variety. In the first year of its release, its resistance broke down to leaf rust and it became a “sucker”. From all the research I can find on the weather conditions, leaf rust build up was negligible in the year prior to Canna’s release, and over the summer.

Soon after Camm wheats release, its stem and leaf rust resistance broke down, and again this was in the absence of “sucker” varieties building the rust levels up.

In 2002, the driest year on record in WA, we were hit with stripe rust out of the blue. There was no rust build up over summer, and yet the stripe rust boomed. Our two major varieties were previously a 7 and an 8 for resistance to stripe rust (Calingiri and Westonia). Obviously there were no sucker varieties involved here for the resistance breakdown.

Wyalkatchem had reasonable stem rust resistance when it was released, but in 2003, its resistance broke down in the Great Southern, and again this was preceded by very little build up of stem rust over the summer, and the record drought in 2002. The resistance was not broken by so called “sucker” varieties.

But there was one more very interesting lesson learnt from 2003. Farmers were well aware early in 2003 of stripe rust and what it could do to the main varieties we grow. Therefore the majority (estimated to be >70% of the area) used fungicide on fertiliser (Triadimefon or Flutriafol) or on seed (Jockey or Real).

Areas like the Great Southern and south coast were more likely that 80-90% of the area was treated before sowing.

As we know, despite rust conditions being near perfect during the 2003 season, it was the lowest disease year we had seen for decades. Rust was a non-event.

Now in 2004 when most farmers did not treat seed or fertiliser with fungicide, stripe and stem rust have proliferated. So called moderately tolerant varieties have needed spraying just as much as “sucker” varieties.

The cost of fungicide is minimal. The cost of growing a lower yielding variety that may or may not hold its resistance is very high.

We also live in a democracy that people died for. If we lived in a police state, then it would have been compulsory for everyone to treat their seed or fertiliser this year to prevent the rusts proliferating. This dogma was a stipulation for farmers growing 2248 Soft wheat though, a ruling I hope we never see again.

However, we do not live in a police state, and sucker varieties have not been the cause of resistance breakdown, despite what the theory is.

Resistance is a revolving door. We do need to have new and multiple resistance genes and GRDC type funding must persist with this.

However, farmers will not grow a variety unless it is making them money, and the cost of using fungicide on the fertiliser prior to sowing is low. As we learnt in 2003, the more that people do this, the less the disease problem is.

Also, there is a complete absence of varieties that have all the disease tolerances we need. Without rust, most farmers in the Great Southern and south coast, including Esperance, would use fungicide pre-sowing (on seed or fertiliser) to control mildew and the Septoria diseases now that they have seen the amazing benefits in 2003 and 2004.

It was a terribly wrong decision to try and ban 2248 Soft wheat from being released. It was the “theory” that was preventing a fantastic profit making variety being released, and not reality.

Banning so called “sucker” varieties is not the solution. Good knowledge, advice and extension promoting good agronomy is the answer.

Where does stripe rust survive over summer? This needs to be an urgently funded project by GRDC. It obviously does not need a green bridge.

Varieties with better resistances are always needed, but it is so very short sighted to ban varieties like 2248 simply for a theory on its leaf rust susceptibility. Many would still need to spray it with fungicide for mildew, Septoria and Yellow Spot, even if it was completely resistant to all rusts.

We call this variety colloquially “Lazarus” because it will resurrect the Soft wheat industry in WA. If it wasn’t for farmers screaming, the theory of “suckers” would have prevented this being released, and the Soft wheat industry would still be in the doldrums.

So in summary, I hope I have emphasised that there is a serious cost to the industry in your advice to ban “rust sucker” varieties. It does direct effort away from breeding

for profit (yield and quality) and does make varieties like 2248 be rejected because it doesn't quite meet some ideological threshold.

We can fix these deficiencies with fungicides and agronomy. Frost and sprouting tolerance have far more benefit and should receive more funding and effort than disease tolerances (nice though they would be).

Reality has and is showing "sucker" varieties are not the issue. I cannot help but wonder how much profit farmers have missed out on by funding bodies like the GRDC listening to the theories you have promoted. How many high yielding, high quality varieties have not been released because of some slight deficiency in rust tolerance?

We spray most years for mildew and Septoria. Shouldn't your theory be the same for these diseases too? I hope not, even though these are far bigger loss causing diseases than rust. Rust is dramatic. Mildew, Septoria and Yellow Spot are every year and is probably why rust resistance receives more attention.

I would be pleased to discuss this further, but do hope the GRDC will not listen so carefully to your theories and will look more at reality and will fund accordingly.

Regards,

Wayne Smith