

**W**E'RE well into the winter crop growing season and it appears Hughie doesn't take too much notice of gloomy seasonal climate outlooks. Our uniquely Aussie rain god has been 'sending er down' for large slabs of the national grain belt. Western Australian growers were staring down the barrel of a very ordinary season, when four days of wet weather in early June created a spectacular turnaround and a much rosier yield outlook. Across to the eastern states, and the early season story is largely the same – June rainfall totals have been above average in most of the cropping regions of South Australia and Victoria and crops have generally established well.



The rain gauges in the grain-belts of New South Wales and Queensland remained pretty dry for much of June before Hughie began looking after those areas as well with some very useful rainfall totals.

The national winter grain crop now has a very good platform for above average yields – if we can just jag a soft spring. But we need to be a bit careful these days when throwing around average yield targets and comparisons.

For example, over the past three seasons, the nation has produced almost 108 million tonnes of wheat with an astonishing average yield of 2.8 tonnes per hectare over those three years.

But total national wheat receipts in the three seasons prior to 2020/21 were half that amount (53 million tonnes) giving an average yield of 1.7 tonnes – or 1.1 tonnes per hectare less yield per year than the three most recent seasons have delivered.

A run of wonderful seasons with plenty of moisture for growing crops has been the main reason for these bountiful harvests. But improved farming systems and varieties – along with the considered application of new technologies – have also played a significant role.

This issue takes a peek at just some of these emerging strategies and technologies. And they are the result of some very clever research both here and overseas. We look at how Australian researchers are developing an innovative approach to help growers increase soil organic matter and return carbon to the soil. While more on the engineering front, the CSIRO has patented a breakthrough, and easily deployed, device to produce hydrogen directly at the point of consumption, such as on-farm.

And local scientists are "only just scratching the surface" with the many benefits for the agricultural industries, such as, from the integration of engineering and biology.

While in the US, scientists have developed a technique (and yes, there's an app for that) which has the potential to slash the development time of new and improved grain varieties. For example, the very complex genome of wheat – which is five times larger than the human genome – can now be 'interrogated' by the new app to identify in minutes, rather than months or years, the location in the genome of genes of interest and use those genes in the development of improved varieties.

Here's hoping Hughie stays busy around your patch. ■



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### Harvest losses above acceptable thresholds

Measuring the scale of grain and profit lost by growers in WA during the 2022/23 harvest, found they left an estimated \$320 million in their paddocks from frost and other machine losses.



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### Resistant ryegrass challenges disc seeding systems

Disc seeding is gaining popularity for its ability to handle crop residue, improved precision, faster sowing speeds, suitability for narrow row spacing and tendency to produce fewer clods.



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### Classic Tractor Tales... The question?

I recently attended a car club function, where I was asked to give a talk on a subject dealing with historical technical evolutions. So I opened my discussion with a question. To my surprise only a few of the motoring enthusiasts were game to volunteer an answer.



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### The boy who cried urea

We have been getting many questions lately about fertiliser availability. There are concerns that there will not be enough urea around to meet demand "Get in quick, before we run out!!" Let's look at what is happening in the market.



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### DNA variations among cereals

Scientists have developed an innovative web app called BRIDGEcereal that can quickly and accurately analyse the vast amount of genomic data now available for cereal crops and organise the material into intuitive charts that identify patterns locating genes of interest. by storing generated electricity for when it is needed later.



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