

“

As I have driven across the country I have been impressed with the consistency and evenness of crops

”

Sarah Whiteman,

cereal breeder in New Zealand with PGG Wrightson Seeds, is currently on a placement with plant breeder Limagrain UK.



The unique, yet similar, challenges for farmers in New Zealand and the UK

It's been an interesting time over here and I have had the opportunity to visit several trials days and national events such as Groundswell and Cereals. As I have driven across the country I have been impressed with the consistency and evenness of crops.

It seems to rain about as much as in New Zealand too, but maybe it's more reliable, as there is not the same requirement for irrigation.

Unlike here, where wheat drives the rotation, on most arable farms in New Zealand, cereals are more of a secondary crop. Specialist seed production/multiplication crops, such as carrots, raddish, brassicas, ryegrass, clovers dominate the rotation due to their higher value.

The dairy industry also dominates New Zealand agriculture and on dairy farms, grass is king. Cereals are used to provide a break in the rotation, assist in weed control for other forage crops, while also providing a valuable feed source for animals or food for human consumption.

We breed both feed and

milling wheats, with a 50/50 split between our breeding focus. Feed wheat is more popular in New Zealand, for two main reasons, price paid or premium for the grain is often not competitive enough between milling and feed wheat for farmers to take a yield penalty for feed wheat and secondly, feed wheat is less complicated to grow.

We have three main milling groups, P1, P2 and Gristing. New Zealand quality requirements are much higher compared to the UK. Our bread wheat tends to have greater dough strength and higher Hagberg falling number, we aim for 350-450 while in the UK 250-300 is acceptable as premium grade. This is because currently the majority of New Zealand bread is actually made from Australian wheat - for New Zealand grown wheat to be used it has to match Australian quality parameters.

In the main we have very similar breeding challenges for wheats: a focus on more robust Septoria resistance, yellow rust is an issue but not to the same extent, brown rust is always

about so we keep an eye on that. Fusarium head blight and sharp eyespot can be seasonal problems.

However, we do have our differences. Lodging is a big issue due to the very high yields, robust nitrogen inputs and strong winds, so we try to stay away from breeding tall or weak strawed varieties. Shattering is also an important factor.

Black-grass is not an issue, so don't need to consider suppression in our selections, but the industry is very aware of herbicide resistance (ryegrass/wild oats).

Barley tends to travel better; we can literally pick it up and grow it in New Zealand! Although we still evaluate potential lines, as we can have issues with height and lodging. While good yields gains have been achieved over the past decade, we have seen an erosion in straw strength and lodging.

Most of our barley is grown for feed and again high yields with higher amounts of nitrogen being applied compared to the UK as not

restricted by protein like with malting barley. Malting barley is a smaller industry in NZ but still important all the same.

While NZ currently doesn't have a royalty system for Farm saved Seed (FSS) it recently had UPOV 91 of the PVR Bill ratified which brings us into line with many other countries around the world and we are hopeful in getting a FSS system in place in the future.

New Zealand farmers pay an end point royalty on wheat which is often missed if not traded through a merchant and farmers are able to save seed for multiple seasons, which sounds great for the farmer but, means dealing with more off-types and contaminations.

“ Unlike here, on most arable farms in New Zealand, cereals are more of a secondary crop ”

For us as breeders it means we have less revenue to invest back into R & D for future wheat varieties.

Royalties for barley are collected at seed point mainly because there is a lot of farm-to-farm trading with barley.

Looking ahead we face many of the same challenges: we are under pressure to reduce nitrogen, so we are looking at varieties that are still able to produce high levels of protein from less nitrogen, and it's a similar picture for pesticide use. Much like here, there is an increasing awareness of soil conservation and more sensitive management of soils.

To finish – it's not a field it's a paddock!