

INFLUENCING PERFORMANCE: THE ROLE OF VARIETIES AND AGRONOMY ●●●

Most trials involving rye are either designed to benefit the grower by optimising inputs or the distiller by maximising alcohol yield. There is little done to establish if flavour profiles vary between varieties. To investigate this KWS worked with the Scotch Whisky Research Institute (SWRI) to establish the flavour differences of two non-foaming varieties, KWS Bono and KWS Edmondo, and to measure their distilling performance against the spring barley industry standard.

“The results largely reflect the breeding focus of the past few decades which is perhaps not surprising,” explains John Burgess, hybrid rye product manager at KWS UK.

“The focus has been on improving yield performance and agronomic characteristics. That both KWS Bono and KWS Edmondo exhibited similar flavour profiles is therefore to be expected. They also produced similar spirit yields although these were slightly less than that produced by malting barley. Again, this is to be expected as malting barley has benefitted from decades of breeding focus intent on improving these characteristics,” he adds.

The results neither enhance or diminish rye’s suitability for distilling, but instead confirm what many already know: it is a different grain that exhibits different properties.

“No one is looking at rye as a substitute for other grains. Its chief attribute is that it offers a different flavour profile. If this is something a distiller desires, they will adapt their processes to suit,” says Mr Burgess.

Trials investigating agronomy best practice, however, have been more productive. Scottish Agronomy has investigated the relationship between nitrogen and seed rates for the past four years. The results, says senior agronomist Eric Anderson, will be of interest to both growers and regulators.

“We have shown repeatedly that the optimum seed rate is 300 seeds/square metre and the optimum nitrogen rate, including soil nitrogen supply, is 150 kg N/ha. In 2019 this delivered a yield of 11.35t/ha. What captures my interest, however, is that to produce the same yield with winter wheat requires an additional 75kg N/ha. As regulators attach greater significance to nitrogen use efficiency as an indicator of sustainability, I expect grower attitudes to rye to change dramatically,” says Mr Anderson.

www.kws.com



Eric Anderson in a trial plot of hybrid rye

day deliver the business plan was not without its challenges. Even for Mr Palmer whose entire working career has been spent in the whisky industry, distilling whisky from rye was a new learning curve.

“We did our homework in the US where we were warned that rye produces high concentrations of beta glus, has a high viscosity and can be difficult to filter. The latter point being significant in our decision to purchase a hammer mill rather than the more popular roll mill along with the mash filter as opposed to the usual lauter tun. Our biggest concern, however, was that rye would produce high levels of foam during the fermentation process.

“We were prepared for this but couldn’t make foam at all. It seems that by pure good fortune, we found that the amount of foam produced is dependent on the variety used. The high-foaming varieties used to make crisp breads simply don’t suit distilling. We have now specified three varieties with our grower that suit our system.”

Identifying which varieties suit distilling has been a case of trial and error, but aside from foam there is precious little to separate varieties, much to the frustration of Mr Palmer.



The InchDairnie Distillery, built in 2014 in Glenrothes

“It is my opinion that the current view of cereal development is two dimensional: agronomic yield because this is what the grower needs to maintain profitability; and alcohol yield because this is what the distiller needs. This is a production efficiency mindset and while it is fine for those wanting to make ethanol, as a whisky distillery this focus falls short of our needs because it overlooks the importance of flavour. We

will pay more for a grain that produces a flavour we cannot get elsewhere.

“We need varieties that provide degrees of flavour and give the growers the return they need. Only by recognising that all parties in the supply chain have a vested interest in seeing this succeed can we expect to develop an integrated supply chain from seed to distillery that secures a long-term future for all parties,” he says.