

## Introduction

UK millers remain committed to using home-grown wheat that conforms to ACCS or similar assurance standards and more than 80% of wheat used is grown in the UK. Currently, there are a number of examples of UK bakers and retailers using 100% UK wheat in their bread products. This strengthens the market for quality bread making wheat and further adds to the move towards 'provenance' as a key benefit within the wheat chain.

Because of our reliance on UK wheat, we devote much time, energy and finance to assisting breeders and the HGCA to identify baking potential of new varieties at the earliest possible stage. Each year members of our Varieties Working Group test candidate varieties from the National and Recommended List (RL) trials using a range of milling and baking systems. The information obtained is then conveyed to the British Society of Plant Breeders and by the **nabim** members of the RL Wheat Committee as part of the selection process.

## New varieties

For millers, consistency of milling and baking performance is an essential criteria for any wheat variety. This means that new varieties introduced to the RL which fully meet the miller's requirements will continue to be used until they become agronomically outclassed, or less popular with growers for other commercial reasons. With yield improvements and the constant threat of new strains of disease, wheat varieties tend to have a relatively short life-cycle. Therefore, it is essential that there is a constant supply of new 'improved' varieties coming forward.

Gallant joined the RL in 2010. Like all new 'quality' varieties the big test is whether results from the three years of testing by **nabim** members will be confirmed once commercial quantities are milled. It is only when these quantities start being delivered to mills that proper assessments can be made of the milling and baking performance. Information gathered during 2010 indicates that Gallant is living up to expectations and it is now taking its place alongside Solstice as a reliable Group 1 variety.

This year, there is one new Group 1 spring wheat variety (Mulika). There is also a very promising new winter Group 2 variety (KWS-Podium) together with a spring-sown variety (KWS-Willow). There are three new 'biscuit' wheats in Group 3 (Cocoon, KWS-Target and Tuxedo).

## Wheat and Flour testing

In order to understand the characteristics of individual wheat varieties, flours or doughs, millers carry out a range of tests.

These are used throughout the industry and act as comparative performance standards. An understanding of these tests and how they are performed is useful to both farmers and others in the wheat-supply chain. **nabim** has produced a booklet 'Wheat and Flour testing' which is available free from **nabim** or can be seen on the website ([www.nabim.org.uk](http://www.nabim.org.uk)).

## Economics

In the middle of 2010 we were again reminded that volatility in the wheat market is a fact of life. Drought in Eastern Europe led to a 30% reduction in output and subsequent political decisions in Russia and the Ukraine to ban wheat exports. Wet weather conditions leading to poor crop establishment in Canada led to both a reduced crop and a marked decline in quality. Similar problems in Germany and Australia led to downgrades in quality there. Meanwhile currency conversion rates have fluctuated in response to the latest economic news. This affected many commodities and resulted in a rise in wheat prices on a par with 2007/8. At the close of 2010 the London Wheat Futures market rose to a record level, in excess of £200 per tonne, up nearly £100 per tonne in the last six months. Baking wheat was also back at peak levels, with May 2011 physical prices in the North-West of England approaching £240 per tonne. This is a reminder that wheat is a 'world crop' with international events having a significant effect on the UK market and UK producers.

Whilst input prices increased, the aforementioned rise in wheat values continues to provide competitive gross margins for quality wheat growers. Early indications predict total winter wheat acreage to rise by circa 3% and with new crop November futures trading at circa £160 per tonne gross margins continue to look attractive.

Due to a 35% decrease in the forecasted exportable surplus and competitive pricing, the UK has attracted good demand from traditional, and sometimes unusual, importing nations. As a result the exportable surplus has been shipped and replacement materials will be required, leaving the 2010/11 supply and demand situation finely balanced.

One of the features of the food market is that demand is consistent even when raw material prices fluctuate. Bakers and food manufacturers still require wheat flour even when the grain market is firm. They may be more demanding in terms of quality, but this consistency of demand is of great value, allowing growers to capture the benefit of higher prices when they occur. Other wheat users are more price sensitive meaning that demand is reduced as they switch to alternative materials as prices rise.

## Milling Wheat Challenge

In 2010 UK flour millers, together with Crops Magazine, ran a competition - the 'Milling Wheat Challenge' - to find the best grower of consistently high-quality milling wheat. The three finalists demonstrated a clear understanding of both growing the crop and marketing it. A DVD of the finalists has been produced by the HGCA and is available to farmer discussion groups. The competition will be run again in 2011. Full details will appear in 'Crops' magazine and on the **nabim** website.

## Mycotoxins

UK farmers and processors have adjusted, over the past four years, to managing the threat of mycotoxins entering the food chain. Much has been learnt and the wheat sector has collaborated to produce a workable system that continues to protect food safety whilst minimising potential disruptions to grain supply. However, the risk of mycotoxin contamination remains a major food safety issue.

Without robust varietal resistance to fusarium head blight, growers are forced to rely on cultural methods to reduce the risk from mycotoxins formed by the fungi. However, with weather the main predisposing factor, this can be challenging. In two of the past four years conditions resulted in major challenges from levels of both deoxynivalenol (DON) and zearalenone (ZON). Growing conditions for the crop harvested in 2010 were relatively benign which led to a second year of low DON levels. Nevertheless, some flour customers and other secondary processors remain very concerned about mycotoxins. It may take time to regain their confidence. All wheat growers will now be aware that mycotoxins are a food safety issue for which they have a legal responsibility.

In 2010/11, most millers are content with suppliers stating the risk assessment value with each load of grain arriving at intake. Others, for commercial reasons, may still require DON (and in some cases ZON) values also to be supplied. Milling wheat should only be marketed when a reliable risk assessment has been made or where levels of mycotoxins present have been quantitatively determined prior to delivery.

The strategy for the 2011 harvest will be the same as that used in 2010. From the start of harvest all wheat being sent to a flour mill (and some other primary processors) will have to be accompanied by both the DON risk assessment score and a statement of the actual level of DON present in a representative sample of grain. This requirement may be relaxed once the overall mycotoxin threat for the year has been determined.



# Wheat Varieties 2011

The **nabim** Wheat Guide lists the flour milling industry's views on wheat varieties and gives marketing guidance on their likely relative values in the UK market. It complements other information on wheat varieties provided in the HGCA Recommended List 2010/11. It should be noted that just as a variety can vary in agronomic performance from year to year, end-use performance might also vary due to climatic conditions throughout the growing season.

Increasingly, contracts specify single varieties of wheat, since the variety is the most important element in determining end-use performance. Wherever possible, different varieties should be separated within stores in order to maintain their full value. Even where varieties are of apparently similar value, mixing can reduce their marketability; a factor that is brought out in some of the comments below.

UK flour millers produce consistently high-quality products where the reliability and safety of the wheat is of paramount importance. All millers purchase wheat that has been grown to assured standards such as the Assured Combinable Crops Scheme, the Scottish Quality Crops Scheme or other schemes providing similar assurance standards.

Varieties are listed in alphabetical order within each of the **nabim** groups

**Group 1:** These are the varieties that produce consistent milling and baking performance. Providing they achieve the specified quality requirements including 13% protein, 250s Hagberg Falling Number and a specific weight of 76kg/hl millers will offer a premium above base prices. Lower protein Group 1 wheat will also be of value, but will attract a lower premium. Group 1 varieties are not interchangeable and some are better suited to specific uses than others. Therefore, it is important to understand the end-use requirements of your customer.

<b>Gallant</b>	This variety is significantly higher yielding than other Group 1 varieties. Results from the 2010 harvest reinforce those seen in the three years of trials. Its milling and baking qualities are consistently as good, as other current varieties. Commercial quantities have been available to millers since it joined the HGCA Recommended List, and these have performed well.
<b>Hereward</b>	First added to the List in 1991, Hereward still performs well but it is now outclassed in terms of yield. The variety remains popular with some millers, and because of its decline in acreage, they may offer contract growing schemes some of which offer further premiums for higher protein content to compensate for lower yields.
<b>Solstice</b>	Solstice is now lower yielding than Gallant but remains the most widely used Group 1 variety and is popular with both farmers and millers. It is favoured by millers because it has a good balance of protein content, milling characteristics, gluten properties and baking performance.
<b>Xi 19</b>	Now outclassed in terms of yield and no longer on the Recommended List. This variety tends to produce lower protein due to high yields. Correct agronomic management is therefore important. It has performed consistently in breadmaking tests. Low protein consignments are unlikely to be accepted by all millers.
<b>Spring wheats</b>	
<b>Mullika (NEW)</b>	This variety achieved RL status in 2011. Limited trial data indicates that it has yields from spring sowings that are 9% above those for Paragon. Over the three years of trials it appears to be similar to Paragon in most aspects of performance.
<b>Paragon</b>	A spring variety whose performance in breadmaking has been excellent. It remains the choice of most millers when buying spring wheats.

**Group 2:** This group comprises varieties that exhibit breadmaking potential, but are not suited to all grists. Some are consistent, but not as good as those in Group 1; some perform inconsistently whilst others are suited to specialist flours. Therefore these varieties are likely to attract varying market prices. Lower protein Group 2 wheats are also widely used by millers, but will attract variable premiums.

<b>Battalion</b>	A moderate yielding variety that performs well as a second wheat. Only limited commercial quantities have been available in the last two years, but it is unlikely to be a preferred variety amongst those in Group 2 due to it sometimes producing loaves that have a weak crumb structure.
<b>Cordiale</b>	This remains the group 2 variety of choice for most millers and growers. Moderate yields are compensated by early maturity and good second wheat performance. Higher than average HFNs, good protein levels and specific weights are also key features. Consistent milling and baking performance continue to be seen by millers.
<b>Einstein</b>	Einstein is a moderate yielding variety that is used by most millers. However, it has a tendency to produce lower protein levels with lower water absorption. For this reason, the variety requires careful agronomic management. Most millers will only be able to use restricted proportions of this variety in bread-making grists.

<b>Ketchum</b>	This variety has a high yield but with a tendency to produce a lower level of protein. Sometimes it has a tendency to produce bread that is less resilient and with a greater variability in crumb structure than some other varieties. Not widely available and unlikely to be a preferred Group 2 variety.
<b>Kingdom</b>	This variety achieved RL status last year but only limited commercial quantities have been available so far. It yields between Cordiale and Panorama. It achieves protein levels similar to those of Cordiale. Over the three years of testing the overall baking performance appeared to vary between seasons. This may mean that good agronomic management is required to maintain premiums.
<b>KWS-Podium (NEW)</b>	This variety achieved RL status in 2011. It has yields 1% above those of Cordiale. Over the three years of testing, this variety has performed better than Einstein and meets the intake criteria. However, flour extraction rates may sometimes be lower than expected. It is the only Group 2 variety with resistance to orange wheat blossom midge attack.
<b>KWS-Sterling</b>	This variety achieved RL status in 2010, and joined Panorama as the highest yielding wheat in Group 2. So far only limited commercial quantities have been available. Over the three years of testing, the variety exhibited some variability in protein levels but baking performance was acceptable. Good agronomic management may be required to attract higher premiums.
<b>Panorama</b>	This variety is a high yielding Group 2 variety which shows good grain and milling characteristics. Although only limited quantities of this variety have been commercially available, baking quality has been variable and overall it produces bread of variable quality. This is likely to make it more suited to uses in blends.
<b>Soissons</b>	This variety was removed from the 2010 RL because in yield terms it has been overtaken by more recently developed varieties. However, it continues to offer unique quality characteristics in specialist bread grists and some millers may offer specific contracts.
<b>Spring wheats</b>	
<b>Ashby</b>	This variety is seldom seen by millers.
<b>Granary</b>	Relatively small quantities of this variety have been seen by millers. Recent evidence suggested that it is better suited to spring planting.
<b>KWS-Willow (NEW)</b>	This variety joined the Recommended List in 2011. It has similar high yields to those of Tybalt. Overall, it has shown variability across the years of testing, in particular with baking performance. As a result it is more likely to be suited to uses in blends.
<b>Tybalt</b>	This is a spring variety, which has a tendency to low protein content and softer grain. It shows fair baking performance and will be used at low grist inclusion levels by most millers.

**Group 3: This Group contains soft varieties for biscuit, cake and other flours where the main requirement is for soft milling characteristics, low protein, good extraction rates, and an extensible but not elastic gluten.**

<b>Claire</b>	An early-sowing biscuit wheat that continues to be the benchmark for Group 3. It is preferred by millers because of its milling qualities, bright white flour colour, and its gluten characteristics which result in high dough extensibility.
<b>Cocoon (NEW)</b>	This variety joined the Recommended List in 2011 with a recommendation for the east. It has similar yields to Invicta. In the three years of trials it has shown variability across the years for both grain hardness and rheological analysis. It is unlikely to be a preferred Group 3 variety for all millers.
<b>Consort</b>	This variety, which was especially recommended for the north, became agronomically outclassed by newer varieties and was removed from the RL in 2009. However, it remains a good biscuit wheat, which is still popular with millers for its dough extensibility.
<b>Invicta</b>	This variety joined the RL in 2010. Over the three years of testing it appears to be similar in biscuit performance to the Robigus control. The highest yielding Group 3 and a solid disease resistance package are also positive attributes.
<b>KWS-Target (NEW)</b>	This variety joined the RL in 2011. It is a high yielding variety, being marginally lower than Invicta. Over the three years of testing it appears to produce consistent results and is similar in biscuit performance to Robigus. It has resistance to orange wheat blossom midge attack.
<b>Robigus</b>	This is a moderate high yielding variety that is well-liked and widely used by the milling industry. It is ideal for biscuits but not as versatile as Claire due to the yellowish flour colour.
<b>Scout</b>	This variety has similar yields to Robigus and shows quality attributes similar to those of Claire. It appears to be consistently good in its processing qualities.
<b>Tuxedo (NEW)</b>	This variety joined the RL in 2011. It has similar yields to Invicta. Over the three years of testing there was evidence of variability between years for dough extensibility. It is unlikely to be a preferred Group 3 variety for all millers.
<b>Warrior</b>	2011 will be the first year when commercial quantities of this variety will be available. It has a very good disease resistance package and yields similar to Robigus. From the three years of trials it routinely met the biscuit wheat criteria and has shown consistency in its rheology.

**Group 4: These varieties are grown mainly as feed wheats. However some (such as the examples listed below) may be used by millers in certain general purpose grists if they achieve the contractual standards but are unlikely to attract a premium. Growers should take care and avoid mixing hard and soft varieties.**

<b>Hard:</b>	<b>Belvoir (spring), Conqueror, Duxford, Gladiator, Grafton, Humber, JB Diego, KWS-Santiago (NEW), Oakley, Stigg (NEW).</b> Of the varieties listed, Duxford has a stronger gluten quality and is worthy of keeping separate. With the other varieties, Gladiator, Humber and the spring variety Belvoir generally have higher protein contents, Hagberg Falling Numbers (HFN) and specific weights, whereas Oakley is a low protein, low HFN variety.
<b>Soft:</b>	<b>Although soft, these varieties are not generally suitable for biscuit flour. Alchemy, Beluga, Cassius, Denman (NEW), Glasgow, Gravitas (NEW), Istabraq and Viscount.</b> Alchemy, followed by Viscount, are the most popular varieties grown and may be used by some millers, but not where they require good gluten extensibility characteristics, which differentiates the soft Group 3 from the soft Group 4 varieties.



The best way to optimise the milling wheat offering is to understand the specific requirements of local millers. There are currently 30 companies operating 57 flour mills located throughout Great Britain and Ireland. Many smaller millers have developed niches ranging from retail flour mixes to flours for specific uses such as in speciality breads. During the milling process millers blend different wheats into a range of 'grists' that are then milled to produce up to 400 different types of flour. The result is that individual millers may require wheat varieties for specific purposes and are prepared to offer specific contracts for these. Millers are keen to explain their requirements to farmers, merchants and farmer-controlled businesses. Most millers welcome and regularly host visits from farmers groups, co-operatives and merchants.

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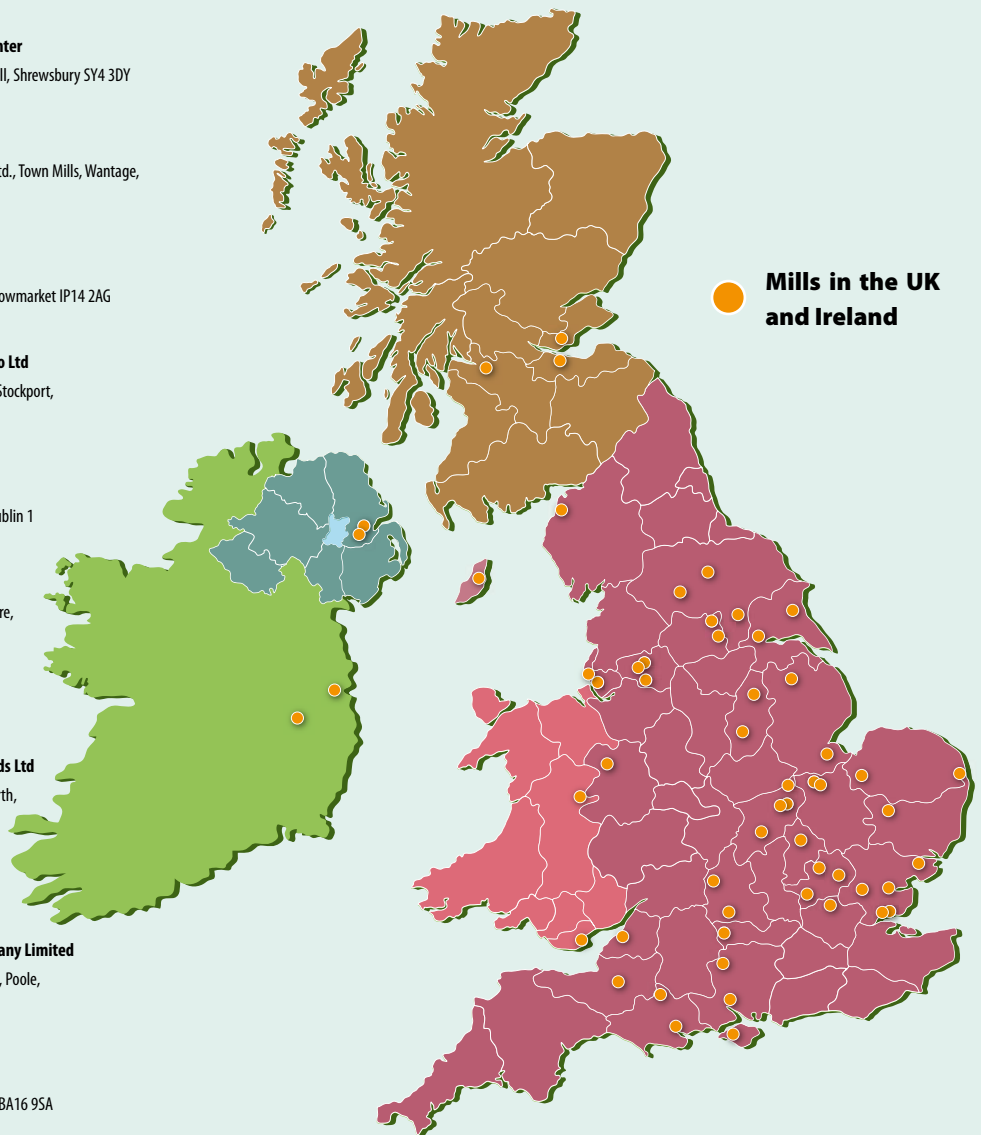
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