

WINTER WHEAT YELLOW RUST IN SPRING 2025



Unusually high levels of yellow rust on wheat varieties, officially rated 8 or 9 for adult plant resistance, were first noticed at Niab trials sites in the north-east of England in early 2025. Samples were also received by UKCPVS from other industry sources. Varieties included KWS Dawsum, Typhoon, and Champion, which showed strong resistance at the seedling stage in previous seasons (Figure 1).

In general, when a wheat variety is resistant at both the seedling and adult plant stages, that resistance is typically due to 'all-stage resistance' (ASR) genes. If this is the breakdown of a specific ASR gene, it is possible that resistance may also be lost at the adult plant stage. Some of these varieties may carry additional 'adult plant resistance' (APR) genes that could still kick in later in the season. Stacking both, ASR and APR genes, in varieties will provide robust and lasting protection.

Figure 2 outlines the estimated proportion of area sown of AHDB Recommended List (RL) and non-RL winter wheat varieties for the 2025 harvest. Varieties indicated in yellow have been confirmed to carry the *Yr15* resistance gene through recent genotypic analysis by Niab.

Of the full 2025/26 RL, 43% were screened using molecular markers for the presence of *Yr15*. Among those tested, 68% have a disease resistance rating of 8 or 9. Varieties confirmed to carry *Yr15* collectively represent 58.7% of the total certified seed market. Data shown pertain exclusively to certified seed and do not account for farm-saved seed. Growing wheat varieties with the *Yr15* resistance gene so widely in 2024 put huge pressure on the fungal population to evolve and overcome that resistance.

UKCPVS has now confirmed the breakdown of *Yr15* resistance. Yellow rust isolates sampled from varieties such as Champion and KWS Dawsum, readily infect the differential wheat line carrying *Yr15* (Figure 3).

UKCPVS is now working with collaborators to determine whether this is:

- a) a new incursion of yellow rust from outside the UK, or;
- b) a locally evolved race that has overcome previously effective resistance genes.

Figure 1. Yellow rust found in Spring 2025 on a winter wheat blend crop of KWS Dawsum/Champion (Northumberland)

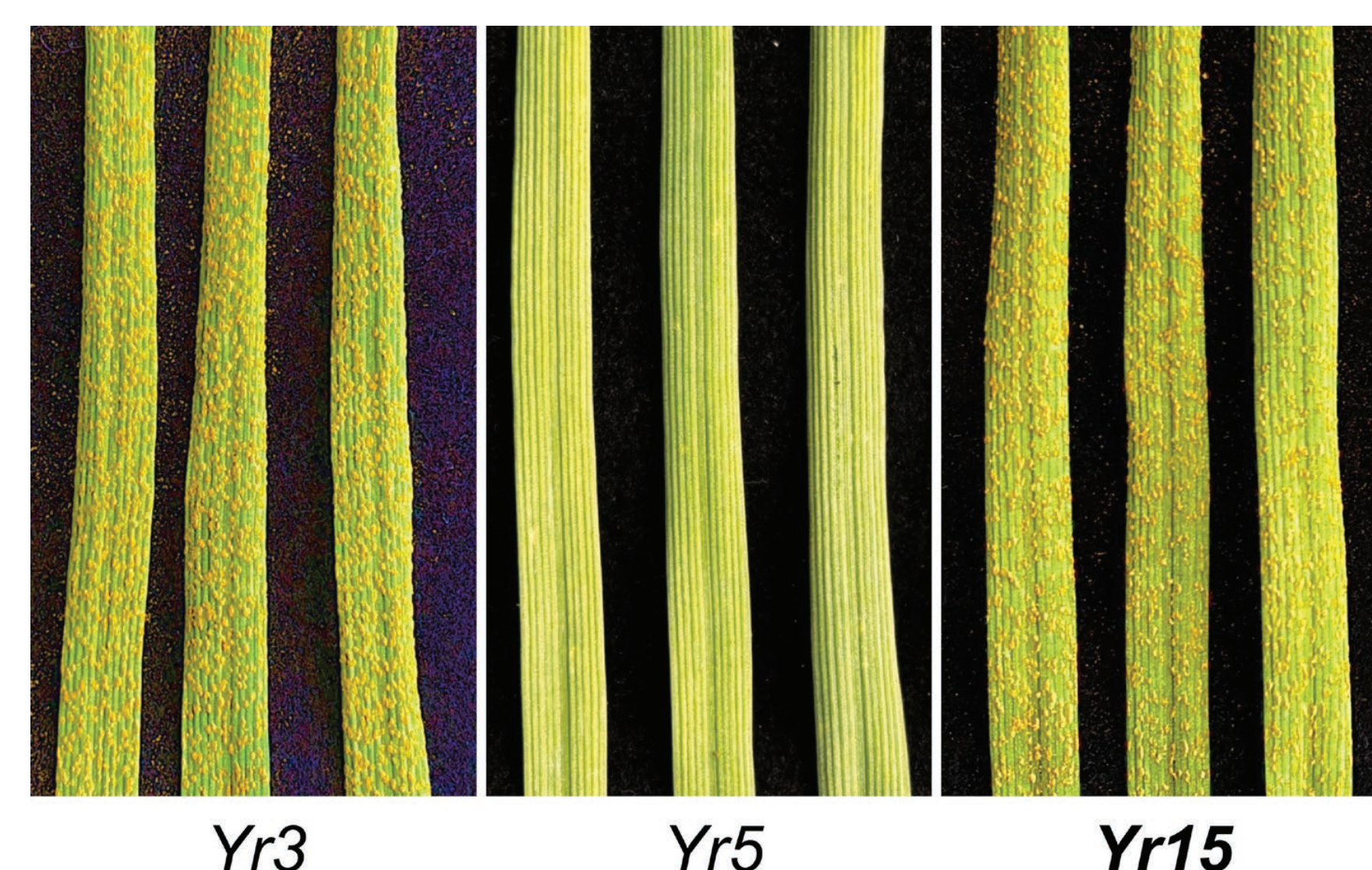


Photo is courtesy of Suzanne Horn

Figure 2. Estimated UK market share of specific winter wheat varieties for harvest 2025 (certified seed only). Yellow highlighted varieties carry *Yr15* stripe rust resistance gene

Variety	UK market share (%)
KWS Dawsum	13.1%
LG Typhoon	5.2%
Champion	9.8%
Other varieties carrying <i>Yr15</i>	30.6%
Varieties not carrying <i>Yr15</i>	11.3%
Untested	30%

Figure 3. Disease symptoms on leaves of three varieties from the UKCPVS differential set, each carrying specific *Yr* resistance gene. Plants were inoculated with the 2025 season isolate 25-034 from KWS Palladium



The UK Cereal Pathogen Virulence Survey (UKCPVS) monitors cereal rusts in the UK, detecting and warning industry and growers of new races of disease emerging on resistant varieties. It is funded by Defra and AHDB and has been managed by Niab since its inception nearly 60 years ago.