

Breeding wheat with resistance to FHB: concepts, methods and results

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The FHB resistance is race non-specific and species non-specific. FDK is the better trait for selection. About 50 % of the plus variants for FHB severity were discarded because of higher FDK indices. DON measurement was used for the end product. Spray inoculation was used as this measures the overall resistance to FHB. No marker assisted selection is applied, only the final line is checked. For crosses, other traits including yield, quality, resistance to other diseases, etc. were also considered. All generations were controlled by artificial inoculation from F3. FHB severity and FDK were checked for each entry. For the explicit lines also DON tests were made. In the first version of the breeding the local or native resistance sources were sought and used, in the other the exotic resistance sources were used. From the first version lines had maximally moderate FHB resistance, but lines in adapted form. From the second highly resistant lines were obtained with poor plant habits. We have now highly resistant genotypes in well adapted forms being suitable for cultivar breeding. The best lines are now in the registration process (09/09, 48/11). Large differences in resistance were found among local lines and variety candidates. We recommend therefore the introduction of artificial inoculation methods into the variety registration protocol. By this simple means, food safety could be improved by at least 50 %.

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