

# FINDING NEW SOURCES OF SEPTORIA RESISTANCE IN WHEAT

Septoria Leaf Blotch (*Zymoseptoria tritici*) is an important foliar disease that limits the cultivation of wheat worldwide (Figure 1). Its chemical control accounts for over 70% of northern European fungicide use on wheat.

High levels of genetic diversity found within wild pathogen populations contribute to the rapid decrease in the effectiveness of current fungicide and varietal resistances used. This evolution of pathogens explains the declining trends in winter wheat varietal Septoria resistance, particularly in lines that have 'Cougar' in their pedigree.

To limit Septoria infection in the future, it is essential to find new sources of robust genetic resistance. NIAB has developed a new population of resynthesised wheat (also known as SHW) by crossing durum wheat with a diverse selection of wild goatgrasses (*Aegilops tauschii*) (Figure 2).

This population has captured a wide range of genetic traits (Figure 3), which may be useful in the breeding of resource use efficient and disease resistant commercial wheat varieties. The population is now being explored in the context of Septoria resistance in the field, with natural infection, and under laboratory conditions using strains of the pathogen relevant to UK wheat farming.

By exploring this new resource, and understanding fundamental aspects of Septoria resistance, this research will provide breeders with powerful genetic tools to produce the next generation of Septoria resistant wheat varieties, requiring lower fungicide application.

Figure 1. Septoria Leaf Blotch

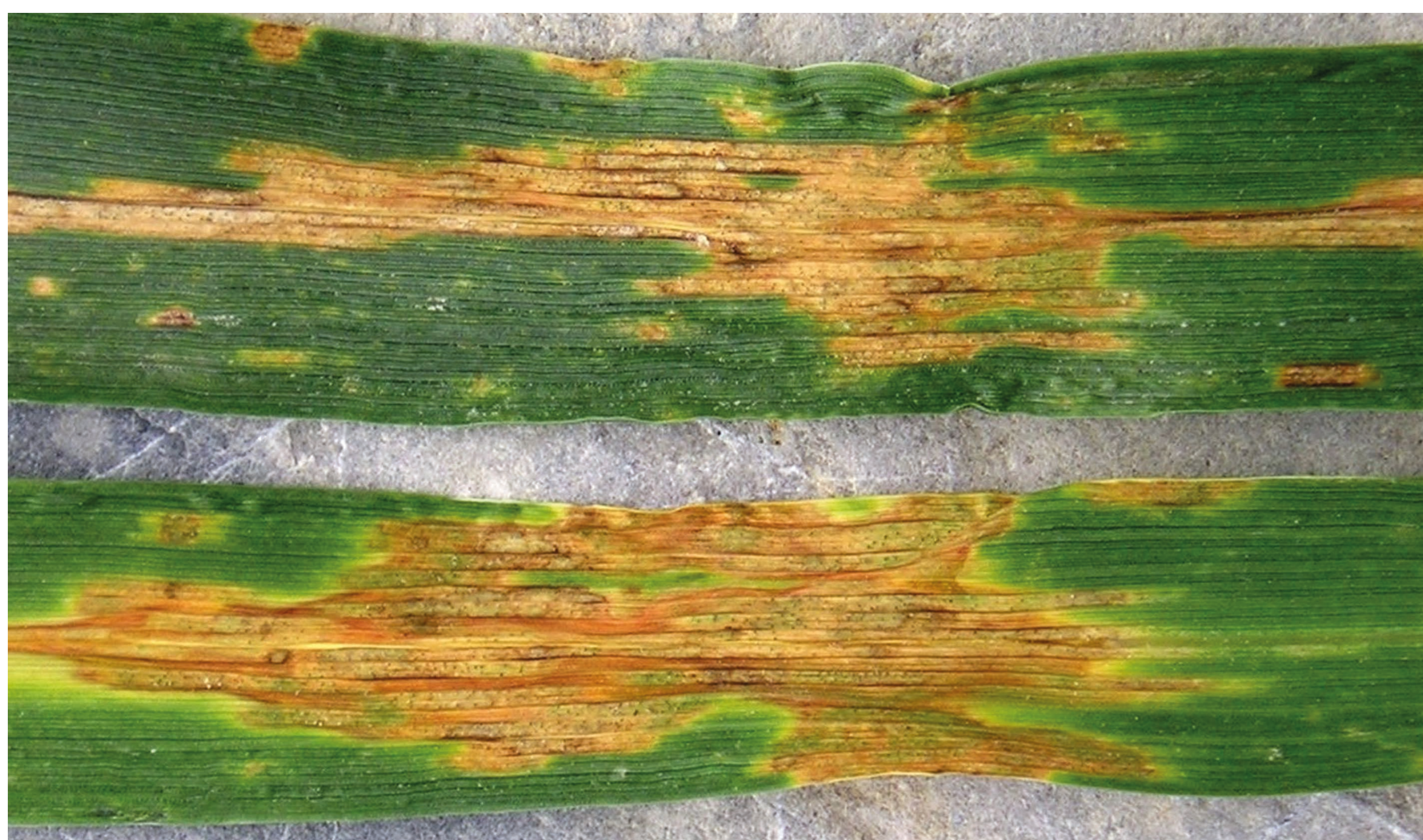


Figure 2. The wheat family tree

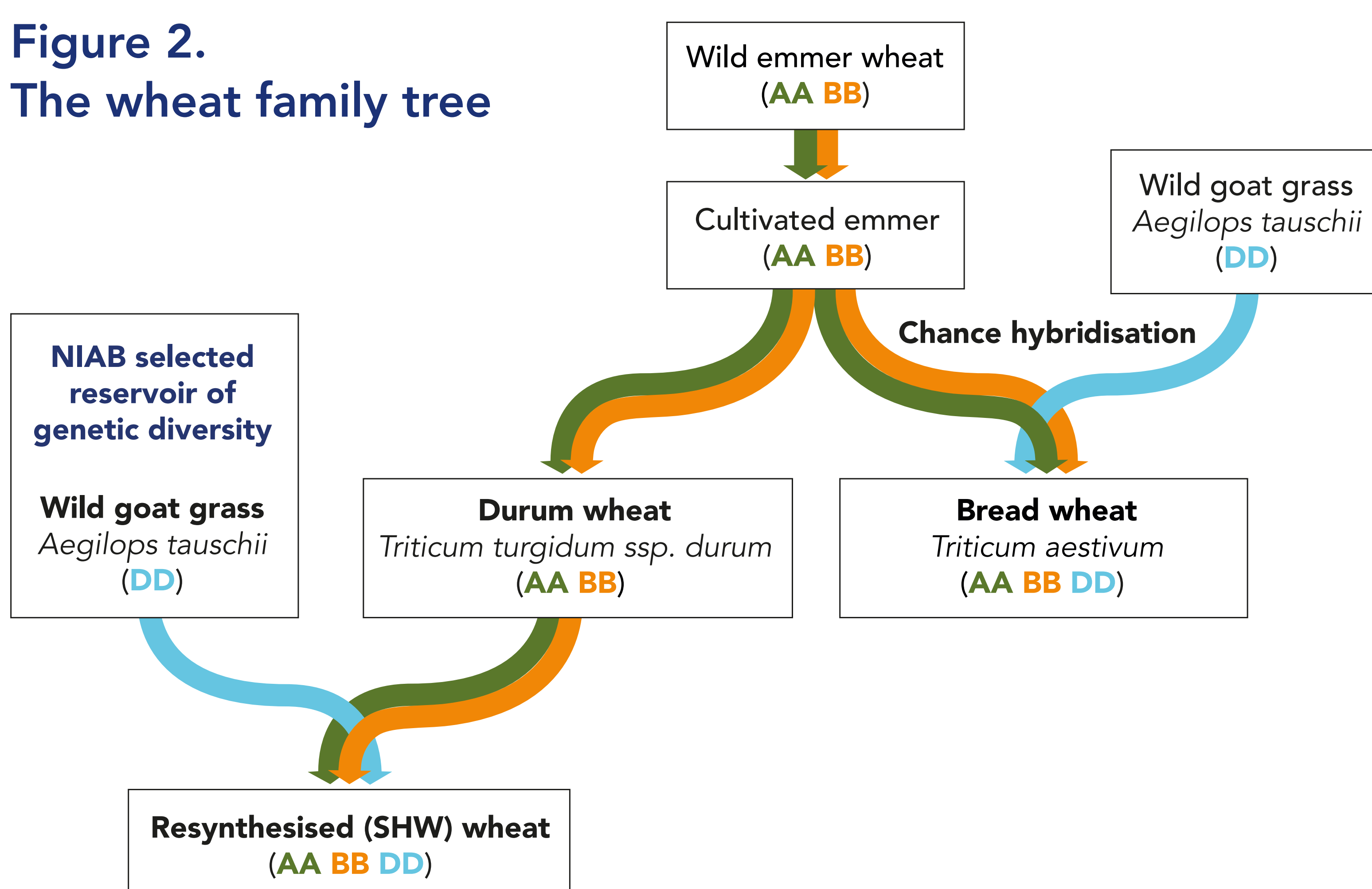


Figure 3. Resynthesised wheat crosses in the field

