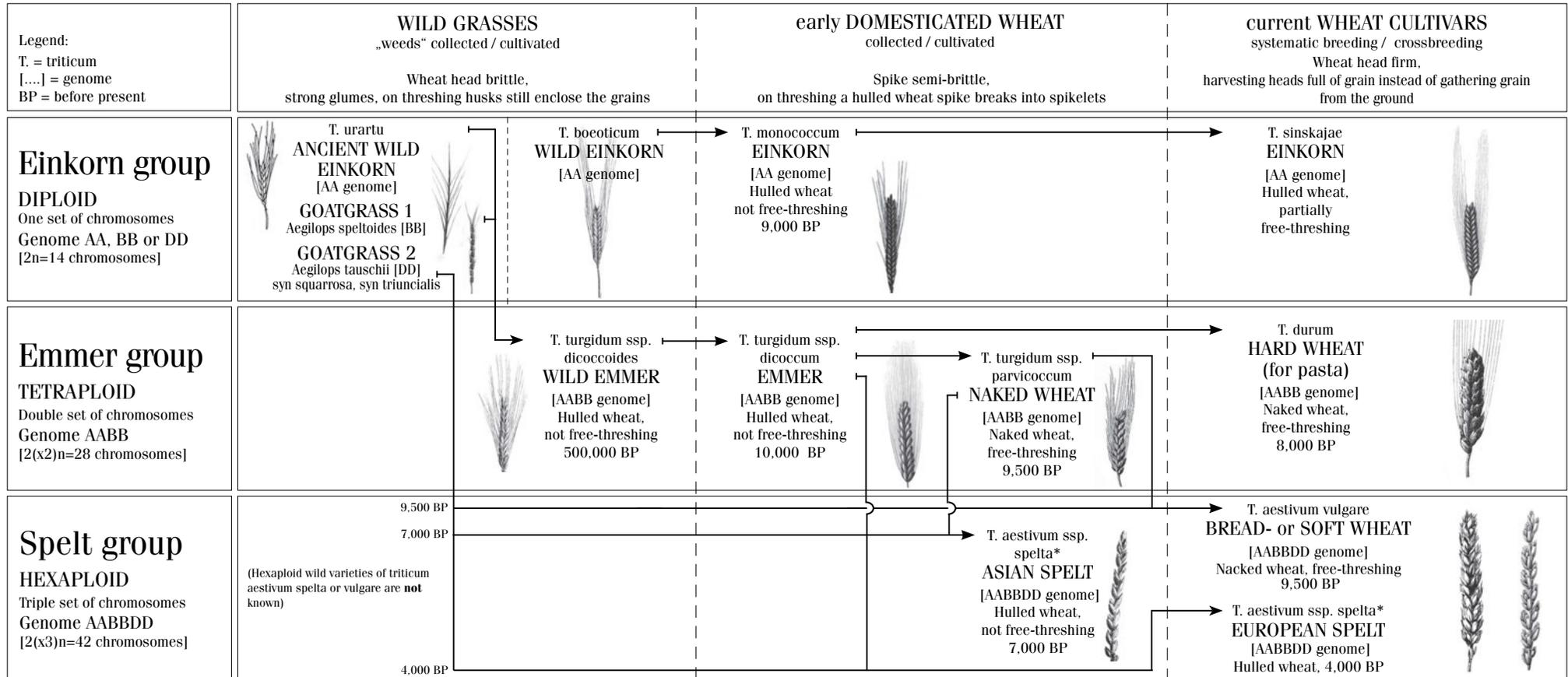


PHYLOGENETIC DEVELOPMENT OF WHEAT



The phylogenetic development of wheat follows two principles: the cross-breeding of related species and the selection of varieties with firm wheat head (ears) by man. The latter varieties are threshed for obtaining the kernels. The most simple wheat varieties are diploid; this means they contain two sets of seven chromosomes each. Cross-breeding resulted in tetraploid varieties with four sets of chromosomes each. From both varieties, wild grasses and domesticated varieties (i.e. wheat with rachis) are found, some of them are also free-threshing. Further cross-breeding resulted in hexaploid wheat varieties with six sets of chromosomes. These are the varieties used as bread wheat today. The combination of diverse genetic materials has resulted in a good adaptation of the wheat to new environmental conditions.

* Excursus on the different origins of European and Asian spelt: Asian spelt derived from an independent hybridisation of tetraploid wheat and *Ae. Squarrose*. European spelt (*Triticum spelta* L., genome AABBDD) does not derive from the hulled progenitors of bread wheat (*Triticum aestivum* L., AABBDD). European spelt evolved after the emergence of hexaploid bread wheat by a hybridisation of tetraploid wheat (Emmer) and free-threshing hexaploid wheat (Club Wheat). It has to be noted that modern spelt cultivars have been crossed with winter wheat varieties for an improvement of seed yield, lodging resistance, and the baking quality. Cereal scientists therefore differentiate between „pure“ spelt and „impure“ spelt.