



Figure S2 Five categories of polymorphism markers which can be used in genetic study in double cross populations. In Category I or ABCD, each marker shows four identifiable alleles between the four inbred parents, represented by *A*, *B*, *C* and *D* (see the four different colors in Figure S1). In the double cross population, four genotypes can be identified, represented by *AC*, *AD*, *BC* and *BD*. In Category II or *A=B*, one allele can be seen in parents *A* and *B*, and two alleles can be seen in parents *C* and *D*. In the double cross population, only two genotypes can be identified, represented by *XC* and *XD*, where *X* can be either *A* or *B*. In Category III or *C=D*, two alleles can be seen in parents *A* and *B*, and one allele can be seen in parents *C* and *D*. The two identifiable genotypes in the clonal population are represented by *AX* and *BX*, where *X* can be either *C* or *D*. In Category IV or *A=CB=D*, parents *A* and *C* show the same homozygous genotype, and parents *B* and *D* show the same homozygous genotype. The two alleles in four parents are represented by *A* and *B*, and three genotypes in their progenies are represented by *AA*, *AB* and *BB*. In Category V or *A=DB=C*, parents *A* and *D* show the same homozygous genotype, and parents *B* and *C* show the same homozygous genotype. The two alleles in four parents are represented by *A* and *B*, and three genotypes in their progenies are represented by *AA*, *AB* and *BB*.