



**Supplementary Fig. 1.** The result of PCA mix analysis used 10 agronomic traits. The distribution of (a) is affected by (b) variability. (a). PCA-X score plot. cluster 1: unused wheat (blue), cluster 2: used wheat(sky), cluster 3: Korean cultivars (red), cluster 4: controls (yellows). The cluster 3 concentrated to the 4th quadrant. (b). PCA-X Loading plot. Growth habit (GH), Auricle Anthocyanin (AA), Heading dates after sowing (HD), Erectness of flag leaf (EF), Stem length (SL), The maturity after sowing (TM), Panicle shape(PS), Panicle length(PL), Awn length (AL), Seed color (SC). The sky spot (TM) is for distinguish the green spot (HD). The (GB) and (AL) affect to the 4th quadrant direction of germplasms distribution.

**Supplementary Table 1.** Genetic diversity index of 5 cluster.

Cluster	Na	Ne	I	Ho	He	P (%)
1	3.500±0.454	2.225±0.213	0.820±0.118	0.435±0.058	0.447±0.059	75.0
2	3.917±0.470	2.613±0.313	0.930±0.127	0.476±0.058	0.488±0.059	87.5
3	2.667±0.253	2.224±0.219	0.794±0.093	0.464±0.05	0.526±0.057	87.5
4	2.792±0.330	1.929±0.208	0.650±0.113	0.350±0.058	0.365±0.061	66.7
5	4.042±0.505	2.521±0.302	0.949±0.122	0.479±0.054	0.494±0.055	87.5

Na, No. of Different Alleles; Ne, No. of Effective Alleles; I, Shannon's Information Index; Ho, Observed Heterozygosity; He, Expected Heterozygosity; P, Percentage of Polymorphic Loci.

**Supplementary Table 2.** Specific haplotype combinations that can be used to identify Korean origin germplasm.

Cluster	Marker(size)
1, 4	wmc278(169)
	Xgwm304(196, 202, 210, 212, 214, 216, 218)
	Xcfd8(151, 153, 155, 161, 163)
	gwm437(104, 108, 110, 114, 116, 120, 122, 124)
	Xgwm610(171, 173, 175)
	Xwmc264(131, 133, 137, 139)