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BREEDING INDICES OF OAT NAKED SAMPLES

An aim of our research was to determine the breeding indices in oat naked samples, correlations between them and yield and cluster distribution of samples for indices.

Experimental part of research was conducted in 2011–2013 on fields of laboratory breeding of grain and fodder cultures at conditions of breeding-seed growing crop rotation of Institute of Agriculture of Carpathian Region of NAAS. Forecrop – winter grain crops, agrotechnics – generally accepted for growing oat in zone of excessive moistening, mineral background – N_{60} P_{60} K_{60}.

31 variety-samples of different ecology-geographical origin that received from National Centre for Plant Genetic Resources of Ukraine and 7 breeding naked lines created in Institute of Agriculture of Carpathian Region of NAAS were used in study of oat naked genotypes. 9 breeding indices: harvest (HI), attraction (AI), microdistribution (Mic), mexican (Mx), poltavian (PI), intensification (SI), potential productivity (SPI), compaction of panicle (CP), linear compaction of panicle (LCP) were defined on ground of structural analysis of yield of oat naked samples.

The oat naked samples with minimum and maximum proofs of breeding indices were established that considerably widen the comparative valuation of genotypes.

The statistical parameters of breeding indices were defined. Only index of potential productivity (SPI) marked with insignificant variation (5,87 %) in accordance with coefficient of variation. Indices of attraction (AI), intensification (SI) and linear compaction of panicle (LCP) characterized with medium variation, but the other defined breeding indices have significant variability of proofs.

Yield of naked samples positive and reliable correlated with all indices for exception index of linear compaction of panicle. Harvest index have positive correlations almost with all indices except intensification and linear compaction of panicle. The most strong connections of harvest index were formed with index of attraction ($r = 0,67$) and compaction of panicle ($r = 0,62$). Index of attraction defined by strong correlative dependences with indices compaction of panicle ($r = 0,80$), mexican ($r = 0,78$) and poltavian ($r = 0,77$).

Clusterization for breeding indices direct to significant genetic divergation of naked samples for given proofs. Cluster formation was not happened for low meanings of Euclidean distances, but the majority of iterations passed in range from 3 to 5. For first iterations samples Krepysh / IZO 14 (V-35) and Krepysh (V-11) united with joining Grafton (V-39). The next iterations caused to union Brighton (V-13) and Inermis 2 (V-38), AC Fregeaur (V-18) and AC Baton (V-4), Krepysh / AC Belmont (V-34), Chernihivsky 27 / AC Lotta (V-and Terra (V-15), Avhol (V-2) and Skarb of Ukraine (V-3). Formation of clusters was materialized around these centres.