indicators of cob structure and yield were observed in mid-late hybrid Chongar, after treatment with Avatar-1 microfertilizer.

## Reference

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# MANIFESTATION AND VARIABILITY OF THE TRAIT LEVEL OF "GRAIN MASS PER COB" IN THE PARENT LINES OF CORN HYBRIDS

Creation of the latest generation of high-yielding corn hybrids with strong adaptive potential, which would meet the requirements of commodity producers, is one of the crucial tasks facing breeders today. One of the directions for creating such a generation of corn hybrids is to involve in the hybridization of lines contrasting in FAO groups and different in genetic origin. Great prospects for such crossings are revealed in the irrigated conditions of the south of Ukraine, where thermal, nutrient and water regimes make it possible to use the genetic abilities of corn forms of all maturity groups from FAO 150 to 500.

The phenotypic and genotypic variability of the trait "grain weight from the cob" in parental lines was established and the level of heterosis for it in F1 hybrid combinations was established.

No significant diversity was observed among the Lancaster plasma for the "cob grain weight" trait. In the vast majority of its components, the "mass of grain from the cob" was within the average group indicator. The following lines were characterized by a low level of paratypic variability of the studied trait: DK2/17-3 (Vm =2.5%), DK296 (Vm =2.6%), Kr9698, X475 (Vm =2.7%). In all these lines, the value of Vm was lower than the group average, and in line X33 it was the minimum in the Lancaster plasma group and amounted to 2.2%.

The weight of the grain from the cob in the line of this plasma was the

maximum in the medium-late parental components X475 (FAO 420), Kr9698 (FAO 420) - 67.9 and 68.6 g, respectively. The medium-early line DK296 (FAO 250) showed the smallest grain weight - 34.5 g.

Among the parent components of Iodent plasma, the highest mass of grain from the cob was in the late ripening line DK411 (FAO 420) - 64.1 g. The lowest weight was shown by the mid-early lines DK2421, X22 (FAO 250) - 35.5, 36.1 g, respectively. In the rest of the lines of this group of lines, the mass of grain from the cob fluctuated around the average group value from 38.4 g in line X221 (FAO 270) to 57.3 g in DK205710 (FAO 380).

The paratypic variability of the studied trait in parental Iodent plasma components was at a low level (Vm=2.6%). The most variable was the mid-early line X221 (FAO 270) (Vm =3.3%).

The indicator of genotypic diversity in each of the groups of genetic plasmas exceeded the corresponding indicator of modification variability, which indicates the genotypic significance of the differences between the parental components for the trait "grain weight from the cob".

Indicators of paratypic variability (Vm) of the studied trait in the newly created lines (parental components) of all studied plasmas were at a low level according to the generally accepted classification and did not exceed 3%, which indicates a high level of stability of their manifestation in irrigated conditions (Table 3.5). The value of genotypic variability among newly created lines (parental components), on average, was 15.6%. The indicator of genotypic variability (Vg) within Lancaster plasma lines was almost four times higher than the indicator of modification variability - 9.7% versus 2.5%, respectively. A similar trend was recorded in the parent plasma components of Iodent and Mixed, where the genotypic variability rate was seven times higher than the modification rate - 19.3% versus 2.7%, and 18.3% versus 2.7%, which indicates strict control of the manifestation of the investigated trait by genotype.

Significant heterosis was observed in all F1 hybrids according to the trait "grain weight from the cob". Cob grain weight indicators in hybrid combinations were high and, in most hybrids, exceeded the corresponding indicators of the standards in all groups. Indicators of true heterosis ranged from 185% to 261%. In all hybrid combinations, the indicators of true and hypothetical heterosis exceeded 100% and the greatest value was obtained in hybrids in which newly created plasma lines were used as the maternal line. Mixed: XH-7-16 x XH-5-16 (FAO 300) %, Hhyp=230 %, Hcomp=118 %), XH-44-16 x XH-7-16 (FAO 250) (Hist=246 %, Hhyp=221 %, Hcomp=113 %), XH-7-16 x XH-5-16 (FAO 300) (Hist=230 %, Hhyp=230 %, Hcomp=118 %), XH-5-16 x XH-54-16 (FAO 390) (Hist=248 %, Hhyp= 233%, Hcomp=111%).

The maximum value of heterosis was shown by hybrids in which the base line DK 247 of the Mixed plasma was used as the mother form: DK 247 x XH-58-16 (FAO 280) (Hist = 242 %, Hhyp=249 %, Hcomp=129 %), DK 247 x XH-7-16 (FAO 280) (Hist = 261 %, Hhyp=255 %, Hcomp=139 %).

Indicators of paratypic variability of the trait "grain weight from the cob" in the

hybrid group were at a low level. Combinations of the mid-early FAO group proved to be the most stable: Kr 9698 x ХН-16-16 ($V_m$=3,1 %), DK 247 x ХН-20-16 ($V_m$=3,4 %), DK 205710 x ХН-7-16 (ФАО 280) ($V_m$=3,6 %).

The average values of the indicators of genotypic variability for the investigated trait were almost twice as much as the paratypic variability, which indicates a greater influence of the genotype on the phenotypic manifestation than the influence of growing conditions and the possibility of effective selection of newly created lines based on the weight of cob grain.

In parental components, the excess of genotypic variability over modification variability was more pronounced, which indicates a higher resistance of newly created hybrids to destabilizing growing conditions than in parental components, which can be explained by the manifestation of adaptive heterosis.

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## РОЗРОБКА ІННОВАЦІЙНОЇ ТЕХНОЛОГІЇ ВИРОЩУВАННЯ БУРКУНУ ОДНОРІЧНОГО

Буркун білий однорічний – зернобобова культура, що має високі кормові якості, ефективний фітомеліорант для осолонцьованих земель, гарний медонос. Для повноцінного введення його як конкурентоспроможної культури в аграрне виробництво необхідно проводити селекційну роботу з виведення нових адаптивних сортів і, разом з тим, розвивати сортову технологію вирощування в зонах його використання [1-3].

Отриманню високої насіннєвої продуктивності культури сприяє удосконалення елементів технології, що базується на встановленні ефективного способу сівби та дози застосування добрив. В зв’язку з цим, визначення оптимальних параметрів технології вирощування насіння з високими посівними якостями сортів буркуну білого Південний та Донецький однорічний є