Effects of interaction between alleles of *Vrn-A1* and *Vrn-B1* loci on the heading time of bread wheat lines of the winter cultivar Bezostaya 1

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The allelic diversity of Vrn genes largely determines the broad adaptation of wheat to environmental conditions. It is important to study the effect of *VRN-1* alleles and their combinations influencing the heading time. This work presents the results of studying the heading time and duration of development phases of Bezostaya 1 (Bez1) lines with different combinations of dominant alleles *Vrn-A1a, Vrn-A1L, Vrn-B1a* and *Vrn-B1c*. The combination of *Vrn-A1a*, which determines early heading, with *Vrn-B1a* and *Vrn-B1c,* and *Vrn-A1L*, which determines late heading, led to a decrease in the period to the first node and ear emergence relative to the initial NILs. The lines with the combination of *Vrn-A1a* and *Vrn-B1a/Vrn-B1c* did not differ from each other in the duration of the phases studied, whereas *Bez1 Vrn-A1L Vrn-B1c* was more precocious than *Bez1 Vrn-A1L Vrn-B1a*. At the same time, *Bez1 Vrn-A1L Vrn-B1c* was virtually indistinguishable from *Vrn-A1a. Thus, Vrn-A1L* can be successfully used in selection for precocity as a result of combination with dominant alleles of *Vrn-B1* locus.

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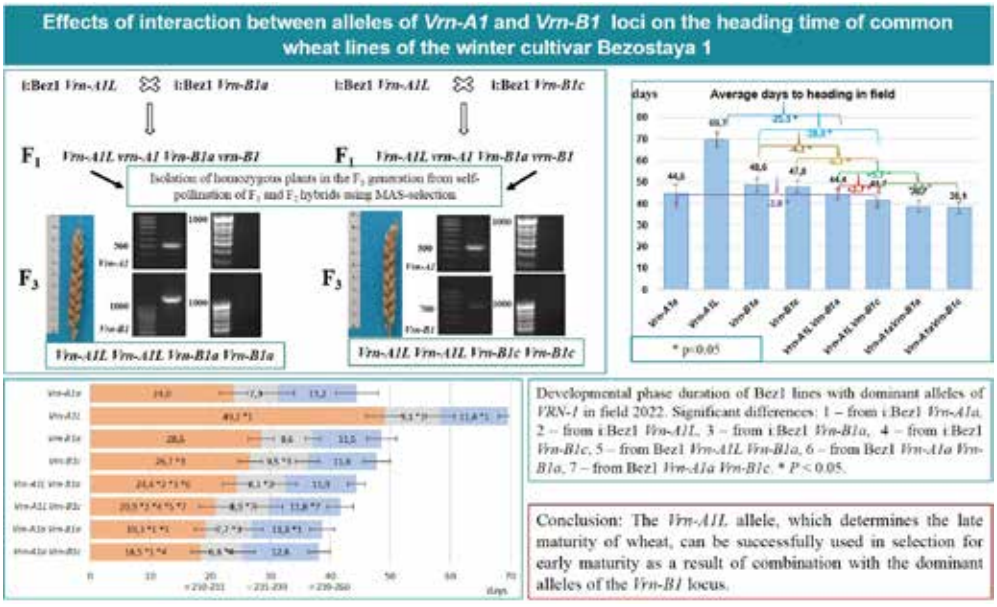
The main publications of authors on the subject of the abstract:

Chumanova E.V. et al. The effect of different dominant VRN alleles and their combinations on the duration of developmental phases and productivity in common wheat lines // Russian Journal of Genetics (2020) 56: 822–834. doi: 10.1134/S1022795420070029

Chumanova E.V. et al. Characterization of the VRN-A1 allele introgressed from T. aestivum ssp. petropavlovskyi that influences the heading time in bread wheat // Euphytica (2023) 219:53. doi: 10.1007/s10681-023-03178-1

Take-home message:

The *Vrn-A1L* allele, which determines the late maturity of wheat, can be successfully used in selection for early maturity as a result of combination with the dominant alleles of the *Vrn-B1* locus.



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