Influence of environmental conditions on the duration of ontogenesis phases in wheat-rye 5R(5A) substituted lines

Efremova T.T., Chumanova E.V., Khristenko I.M.

Institute of Cytology and Genetics SB RAS, Novosibirsk, Russia
E-mail: efremova@bionet.nsc.ru

Homoeologous group 5 chromosomes of wheat and rye possess genes that have a significant influence on the time of earing, growth habit and frost tolerance. The aim of this study is to investigate the effects of dominant and recessive alleles of the rye VRN-R1 gene in the wheat-rye 5R(5A) substituted lines on duration of interphase periods, growth habit and winter hardiness. The lines were growth in greenhouse, spring and winter sowing in the forest-steppe conditions near Novosibirsk. It has been established that by replacing chromosome 5A with chromosome 5R, depending on the genetic background of wheat can change the growth habit and influence winter hardiness. It has been shown that spring lines differ from the recipient varieties in the rate of development in ontogenesis and significantly differ in the duration of "tillering-first node" stage.

The research work was supported by the Russian Science Foundation (grant № 22-26-00085).

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

Efremova T.T., Chumanova E.V., Zhukova I. M. Winter hardiness analysis of wheat-rye 5R(5A)-substituted lines in Western Siberia // Cereal Research Communications (2022) 50: 25-35 doi.org/10.1007/s42976-021-00147-z

DOI 10.18699/PlantGen2023-19