

FIELD EVALUATION OF RESISTANCE TO PERONOSPOROSIS OF SUMMER SQUASH SAMPLES OF VIR COLLECTION

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Downy mildew (*Pseudoperonospora cubensis* (Berk. & Curt.) Rostovzev) is one of the most harmful diseases of summer squash. The purpose of this study was to evaluate squash varieties from the VIR collection for resistance to downy mildew and to select initial material for breeding new resistant varieties. 36 varieties of summer squash were tested in the field conditions of the VIR Pushkin Laboratories during the years of natural epiphytotic (2019–2021). The field evaluation did not reveal immune or very resistant genotypes. Emerald Delight Zucchini and Dirani Lebanese from the USA were highly resistant with an average lesion score of 0.87–1 and a degree of disease development of 21.7–25%. Marcella F₁, Poseidon Hybrid from the Netherlands, Concordia SQ 10473 from France, Pascal F₁ from Spain and Charodey F₁, Povarenok, Dyadya Fyodor from Russia were moderately resistant with the average lesion score from 1 to 2 and a degree of disease development from 30.8 to 50%. The studied samples were characterized by significant variability in yield (CV = 20.4–29%). Regression analysis revealed a negative correlation between the average damage score and yield of the summer squash genotypes: a noticeable relationship ($r = -0.648$) in 2020, moderate ($r = -0.432$) in 2019 and weak ($r = -0.21$) in 2021. Accessions from the USA (Dark Star, Bush Zucchini, Garden Spineless) and a local accession (k-5534 from Primorsky Krai) were distinguished by tolerance to downy mildew and the formation of a high yield with severe plant damage. There was a high correlation ($r = 0.96$) between the degree of development of the disease and the average daily air temperature during the spread of the disease.

Key words: squash, peronosporosis resistance, yield, source material.