

DETERMINATION OF YIELD AND YIELD COMPONENTS AND REACTIONS TO BACTERIAL BLIGHT DISEASE OF WINTER PEA (*Pisum sativum* L.) GENOTYPES UNDER MEDITERRANEAN CONDITIONS

MART Dürdane, <https://orcid.org/0000-0002-2944-1227>

Eastern Mediterranean Agricultural Research Institute, Adana, Türkiye

Corresponding e-mail: durdane.mart@tarimorman.com.tr

Objective: This study aimed to determine the agronomic and morphological characteristics of selected dry pea (*Pisum sativum* L.) genotypes grown as winter crops under Mediterranean conditions, identify superior genotypes for grain yield and yield components, and evaluate their adaptation to winter cultivation and reactions to bacterial blight. It also aimed to identify high-yielding, regionally adapted, and disease-tolerant genotypes as promising materials for pea variety development.

Materials and Methods

The study was conducted from 2019 to 2021 at the Adana location of the Directorate of Eastern Mediterranean Agricultural Research Institute. Twenty nationally sourced dry pea genotypes were evaluated in three replications using a Randomized Complete Block Design. Four-row plots were established with 45 cm between rows, 8 cm between plants, a plot length of 5 m, and a plot area of 9 m². Before sowing, 2-3 kg N and 5-6 kg P₂O₅ per decare were applied. The experimental site was located at 36°51'17.21" N and 35°20'41.61" E, at 23 m above sea level. Grain yield, 100-seed weight, days to flowering, days to pod setting, plant height, first pod height, and reactions to bacterial blight were evaluated.

Results and Conclusion

Grain yield varied across years and genotypes. In the first year, the highest yield was obtained from TB-2012(36-3)-69 (453.41 kg/da) and the lowest from TB-2013(29-2) (196.22 kg/da). In the second year, TB-2013(29-2) had the highest yield (235.26 kg/da), while TR-53749-Tekirdağ had the lowest (73.93 kg/da). In the third year, the highest yield was recorded for TR-46020-Trabzon (344.59 kg/da) and the lowest for Türkiye-16-16pop (155.70 kg/da). Three-year mean grain yield ranged

from 178.86 to 295.65 kg/da, with the highest value in TB-2012(36-3)-69 (295.65 kg/da) and the lowest in TR-53749-Tekirdağ (178.86 kg/da). Three-year means ranged from 14.62 to 22.42 g for 100-seed weight, 59.50-74.50 days for flowering, 78.17-90.67 days for pod setting, 78.14-132.78 cm for plant height, and 34.60-57.51 cm for first pod height. Bacterial blight development and severity were influenced by both genotype and environmental factors, particularly temperature, rainfall, and humidity. The genotypes TB-2012(36-3)-69, Türkiye-3, Antalya-23, and TR-46020-Trabzon were identified as promising materials based on grain yield, agronomic and morphological traits, and disease reactions for further cultivar registration studies.

Keywords: Pea (*Pisum sativum* L.), bacterial blight, grain yield, yield components, genotype, winter cultivation.