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Evaluation of Growth and Yield Parameters of Okra (*Abelmoschus esculentus*) Varieties at Chakarghatta, Sarlahi

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Abstract Farmers continue to struggle with the productivity and production of Okra. One of the main causes of the low productivity of Okra is lack of high yielding varieties. In order to determine the yield of various okra types under open field circumstances, field experiments were conducted from 2025 March 2 to June 14. Seven treatments with three replications in RCBD made up the trial. The treatments included seven different varieties of okra: Arka Anamika, Selection no.07, Bhindi F1, Rohini, Super Anamika, NOL 303 Julie and Swaraj Pan 2155. Among the various variety maximum plant height was obtained in Bhindi F1(9.80 cm) and minimum plant height was obtained in Selection no. 07 (6.93 cm) at 30 DAS. The maximum leaf number was observed in Selection No.07 (47.93) and minimum leaf number was observed in Swaraj Pan 2155 (26.20) at 70 DAS. Moreover, the highest number of primary branches were found in Selection No.07 (3.58). Arka Anamika reached the earliest among the varieties in days to 50% flowering (52.67 DAS). On contrary to this Swaraj Pan (10.46) obtained the maximum number of pods. The pod length was highest in Swaraj Pan 2155 (13.39 cm) and lowest in NOL303 Julie (9.64 cm). Further, the study shows no difference in the girth of pod and individual weight of pod. Maximum yield was obtained by Swaraj Pan 2155 (7.04 t/ha) and minimum in Super Anamika (3.91 t/ha). So, from our study Swaraj Pan 2155 is inferred as high yielding variety and best suited for Chakarghatta, Sarlahi.

Keywords Okra (*Abelmoschus esculentus*); Growth parameter; Replication; Variety

1 Introduction

Okra (*Abelmoschus esculentus* L. Moench) is one of the most widely cultivated and utilized vegetable crops belonging to the family Malvaceae, and it possesses the highest chromosome number (2n=130) among cultivated vegetables. The crop is known by various local names across the world, such as "lady's finger" in England, "gumbo" in the United States, "bhindi" in India, and "bamia" in Ethiopia (Mkhabela et al., 2022). It is an economically important vegetable crop grown widely in the tropical and subtropical regions of the world (Oyelade et al., 2003). India is the world's leading okra-producing country, with Uttar Pradesh, Bihar, and West Bengal as the major producing states (Swamy, 2023).

Despite these shared nutritional and economic benefits, individual okra genotypes differ considerably in their growth habit, flowering behavior, pod characteristics, and yield potential. These differences arise not only from genetic makeup but also from strong genotype-environment interactions, meaning that a variety bred or selected for one agroecological zone does not necessarily perform equally well under different soil, temperature, and photoperiod conditions. Consequently, varietal performance evaluation trials are essential before recommending a cultivar for a new production environment, since a single variety is unlikely to be optimal across all climatic and agroecological conditions.

In Nepal, several studies have evaluated okra varieties across different agroecological regions, and their results consistently demonstrate that varietal performance is location-dependent. In Chitwan, trials on spacing and mulching have shown clear yield and growth responses under local conditions (Jha et al., 2018). More recent