

Effect of spacing on yield attributes and yield of ashwagandha

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ABSTRACT

A field study was conducted on loamy sand soils of Regional Research Station, Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar. The yield attributes viz., number of branches, number of berry per plant, number of seeds per berry, test weight, root girth, dry root yield and seed yield were recorded higher when crop was sown at 22.5 cm x 10 cm spacing. Where as, plant height, root length and root : shoot ratio was significantly higher with broadcasting method, but it was statistically at par with 22.5 cm x 10 cm spacing. Broadcasting method of sowing produced significantly higher dry root yield as compared to 15 cm x 10 cm and 30 cm x 10 cm spacing. 22.5 cm x 10 cm spacing produced significantly higher seed yield as compared to 15 cm x 10 cm spacing.

KEY WORDS : Ashwagandha, Yield attributes, Yield, Berry, Withanolids

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INTRODUCTION

Among the various medicinal plants *Withania somnifera* Dunal, commonly known as Ashwagandha in Ayurvedic literature is found as a weed and is known by the local name Asundha in this area. It is an important medicinal plant. It belongs to the family *Solanaceae*. It is a shrub found throughout drier parts of India, Pakistan, Baluchistan and Sri Lanka.

Ashwagandha is widely used in various preparations of Indian traditional system of medicine and Homeopathy and also find its use in allopathic medicine to cure several diseases. It contains many alkaloids of which, withanine and somniferine are important from commercial point of view (Dastur, 1970). Withanolids are the most important bioactive constituents of roots of ashwagandha. In India annual requirement of ashwagandha roots is around 7,000 tonnes, while production is hardly 1350 tonnes (Misra *et al.*, 1998). Due to the demand of ashwagandha roots in recent times and considering the future demand, there exists much scope for extensive cultivation of this crop.

The demand is said to be on account of its reported male sex stimulating properties (Joshi *et al.*, 1981).

Roots of ashwagandha show considerable variation in regard to its growth habit, yield potential and respond differentially to plant population. So, spacing play an important role in increasing root yield.

In view of the above facts, an experiment was conducted to study the effect of spacing on yield attributes and yield of ashwagandha.

MATERIALS AND METHODS

The field experiment was conducted at Regional Research Station, Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar, during ensuring *Kharif* season of 2006-2007. Ashwagandha variety WS-100 was used in this study. The experiment was conducted with randomized block design with four replications. Experiment included four treatments *i.e.* Broad casting- S_1 , 15 cm x 10 cm- S_2 22.5 cm x 10 cm- S_3 and 30 cm x 10 cm- S_4 . Gross plot size was 3.6 m x 2.7 m and net plot size of S_1 :3.0 m x 2.1 m, S_2 :3.0 m x 2.1 m, S_3 :3.0 m x 1.8 m and S_4 :3.0 m x 2.1 m. The soil of experimental plot was loamy sand in texture having pH 7.8 and 7.7 from 0-15 and 15-30 cm depth, respectively. It was low in available nitrogen (218 and 204 kg ha⁻¹ from 0-15 and 15-30 cm depth, respectively); medium in available phosphorus (26.31 and 22.33 kg ha⁻¹ from 0-15 and 15-30 cm depth, respectively) and potash (248 and 232 kg ha⁻¹ from 0-15 and 15-30 cm depth, respectively). Half dose of the

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