

Effect of Planting Layouts And Fertilizer Levels On Yield And Yield Contributing Characters Of Amaranthus

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ABSTRACT

A field experiment was carried to evaluate proper/significant NPK fertilizer level dose, planting layout and their interaction effects on yield, and quality of amaranthus in FRBD with 4 replications. The treatment consists of 2 field layouts viz. Flat bed and Ridges and furrow and 4 fertilizer levels viz. 40:20:00, 60:30:00, 80:40:00 and 100:50:00 NPK kg/ha. The soil was low in available N (207 kg/ha), medium in P (8.3 kg/ha) and high in K (661 kg/ha) and slightly alkaline in reaction i.e. pH. 8.5 The yield contributing characters viz. Length of inflorescence (32.23 cm.), (133.66 cm.), seed weight/plant (12.96 gm), (14.38 gm) and test weight (678.39 mg.), (648.08 mg) were relatively more with the ridges and furrow layout than flat bed layout. These traits were also improved due to higher level of fertilizer i.e. 100:50:00 NPK kg/ha respectively as shown in second bracket. The grain, straw and stalk yield (18.59, 47.29 and 60.56 q/ha) were higher due to ridges and furrow layout. Similar substantially increased yield obtained due to fertilizer dose of 100:50:00 kg NPK/ha however it was on par with that of 80:40:00 NPK kg/ha. Thus growing amaranthus in ridges and furrow layout with fertilizer dose of 80:40:00 NPK kg/ha is better proposition for achieving higher productivity under irrigated condition in scarcity zones of Maharashtra state.

Key words : Fertilizer levels, planting layout, amaranthus.

INTRODUCTION

Amaranthus is one of the pseudo cereals grown in India. In India, the grain is well known as the permitted food on fast days amongst certain sections of the Hindu community. The grains are consumed in several ways. It ensures more significance as fancy food for industrial products like bread making, pastry, biscuits, flakes, crackers and in elaborating lysine rich food. It can also be exploited for production of high quality starch, natural dyes and laxatives.

In amaranthus, the basis problem is low productivity. For achieving higher productivity, there is no substitute for management of soil, plant water, fertilizer etc. of which soil and fertilizer management are most important to exploit the productivity potential of amaranthus. Therefore, in view of this the present investigation was planned to assess the proper layout and fertilizer levels.

MATERIALS AND METHODS

An experiment was conducted in *kharif* 1998 at Post Graduate Institute Farm, Agronomy Department, MPKV Rahuri in factorial randomized block design with 4 replications. Certified seed of Suvarna variety of amaranthus was used for the present investigation. The treatment

consists of 2 field layout viz. flat bed and ridges and furrow and 4 fertilizer levels viz. 40:20:00, 60:30:00, 80:40:00 and 100:50:00 NPK kg/ha. The N₂ through urea, phosphorus through SSP was applied as per the treatment. The half quantity of N₂ and full quantity of phosphorus was applied at the time of sowing as a basal dose and remaining half quantity of N₂ was applied 30 days after sowing. The intercultural operation carried out as and when required. The irrigation has given as per schedule. And observation was recorded on plant height, dry matter/plant, leaf area, length of panicle. The post harvest observations like seed wt./plant, test wt., grain, straw and stalk yield, and chemical analysis for trait NPK content in grain, straw and stalk, protein % age in grain, NPK uptake by crop kg/ha was recorded.

RESULTS AND DISCUSSION

Field Layouts :

The growth of amaranthus measured in terms of plant height and number of leaves (7% more) which was significantly increased with ridges and furrow than flat bed layout. Similar results were obtained by More (1979) and Trade (1984) respectively. The leaf area/plant (15% more) and dry matter accumulation/plant (5.02% more) was not significantly affected due to different field layout but it was

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