

RESPONSE OF CULTIVARS, PLANT GEOMETRY AND METHODS OF FERTILIZER APPLICATION ON PARTHENO-CARPIC CUCUMBER (*CUCUMIS SATIVUS* L.) UNDER ZERO ENERGY POLYHOUSE CONDITION DURING RAINY SEASON.

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Summary

An experiment was conducted in naturally ventilated polyhouse in rainy season during 2007-08 and 2008-09 at Rajasthan College of Agriculture, Udaipur (Raj.) to identify the most suitable cultivar, plant geometry and method of fertilizer application in cucumber. The results revealed that cultivar 'Hilton' was significantly superior to enhance vine length (3.29 m), leaf area (500.99 cm²), days to first harvest (44.40 days), fruit set (51.04 %), number of fruits per vine (30.89), average weight of fruit (105.28 g), fruit length (18.22 cm) and fruit width (3.62 cm) which ultimately gave maximum yield per vine (3.49 kg) during rainy season. Significantly higher yield along with the growth and quality parameters were obtained in spacing 60 x 50 cm. The fruit yield per plant was significantly more at 60 x 50 cm, whereas significantly higher yield per square meter was recorded at 60 x 30 cm and least yield was recorded at 60 x 50 cm. Fertigation practice recorded significantly higher yield (14.49 kg/m²) as compared to conventional method (13.22 kg/m²).

सारांश

खीरे में पालीहाऊस के लिए उत्तम प्रजाति, पौधों की संख्या तथा पोषण के चयन के लिए अध्ययन किया गया। हिल्टन प्रजाति वाइन की लम्बाई, पालीश क्षेत्रफल, फल संख्या, फल लम्बाई एवं चौड़ाई तथा उपज में सबसे अच्छी पायी गयी। पोषण विधि एवं 60x50 से.मी. पौध से पौध की दूरी का प्रभाव प्रचलित पद्धति की तुलना में सबसे अच्छा पाया गया।

Introduction

Polyhouse cultivation is still a new and emerging trend for growing vegetables in India. It is mainly grown in summer and rainy season in northern plains of India. Summer season crop is most successful due to lesser incidence of diseases and pests, but rainy season crop is always affected by diseases and pests, resulting into low productivity and poor quality of fruits. Protected cultivation has higher water and nutrient use efficiencies. Both of these factors are of vital importance for healthy and luxuriant growth of crop plants. But protected cultivation requires careful planning and attention including selection of varieties, suitable production technology like spacing, time of planting, water and nutrient management and plant protection to produce economic yield of good quality. In general, zero-energy polyhouse cucumbers are irrigated through drip system and fertilizers are also applied along with irrigation water according to the crop growth and season of cultivation. In view of importance of cucumber, the study was initiated to find out suitable cultivar, plant spacing and method of fertilizer application in cucumber grown under naturally ventilated polyhouse.

Materials and Methods

The experiment was conducted under naturally ventilated polyhouse at Hi-tech Horticulture Unit, Rajasthan College of Agriculture, Udaipur, Rajasthan during rainy season of 2007-08 and 2008-09. The trial was laid out in Factorial Completely Randomized Design with three replications under zero energy polyhouse. The size of the zero energy polyhouse was 28 x 32 m (896 m²) covered with ultra violet stabilized low density polyethylene sheet having 200 micron thickness. The experiment comprised of three cultivars namely, Hilton (V₁), Isatis (V₂) and Kian (V₃); three spacing 60 x 30 cm (S₁), 60 x 40 cm (S₂) and 60 x 50 cm (S₃) and two methods of fertilizer application viz., conventional method (F₁) with a recommended dose (NPK @ 9:5:4:10.8 kg per 1000 meter²) and second Fertigation (F₂). In case of fertigation, same dose of NPK was applied through irrigation water in the ratio of 5:3:6 twice a week with the following concentrations @ 3 liter water per sq. meter area.

- (1) Nitrogen – 0.300g N/3 liter water/m²
- (2) Phosphorus- 0.180g P₂O₅/3 liter water/m²
- (3) Potassium – 0.360 g K₂O/3 liter water / m²