

**Research Note :****IMPACT OF DIFFERENT FERTIGATION LEVELS ON MORPHO-PHYSIOLOGICAL TRAITS AND YIELD OF CUCUMBER UNDER GREENHOUSE CONDITION****S.P. Tiwari***Precision Farming Development Centre, Indira Gandhi Krishi Vishwavidyalaya, Raipur (C.G.)***E-mail: shashiprakash30@gmail.com*

ABSTRACT: The experiment was carried out at Precision Farming Development Centre (PFDC) Deptt. of Horticulture, Indira Gandhi Krishi Vishwavidyalaya, Raipur (C.G.) during *Kharif* 2012. Experiment was conducted in RBD comprising of five treatments viz. 60%, 80%, 100%, 120% and control fertigation (water soluble fertilizers) levels under the greenhouse condition. Observations were taken on vine length, vine girth, chlorophyll content, days to first flowering, days to first fruiting, fruit length, fruit diameter, fruit weight and fruit yield. Results revealed that most of the parameters studied showed maximum values with fertilization with 100% RDF.

Keywords: *Fertigation, greenhouse, chlorophyll content, cucumber, yield.*

Cucumber (*Cucumis sativas*) is most important horticultural crop of our country being cultivated in all over India. It have more nutritive value so cucumber is apart of human diet. Fertigation allows nutrient placement directly into root zone around the plants through a dripper network with the help of emitters near the consumptive use of plants during critical periods of nutrient requirement. Thereby, losses of water and nutrient can be minimized substantially as fertigation is economically feasible, socially and environmentally acceptable. Fertigation of NPK (water soluble) nutrient along with optimum quantity of micro nutrients are required for improving vegetative and reproductive characteristics leading to higher yield. The micronutrients play key role enhancing the growth and metabolic activities at specific growth stages. In view of above facts a study on the impact of water soluble fertilizers on morphological, physiological and parameters and yield of cucumber was carried out.

The experiment was conducted under green house at Precision Farming Development Centre Indira Gandhi Krishi Vishwavidyalaya, Raipur (C.G.) during *Kharif* season of 2012. Experiment was comprised of five levels of fertigation (water soluble fertilizers) viz. 60%, 80%, 100%, 120% and

control. The design adopted for experiment was randomized block design with four replications using the spacing between row to row and plant to plant 90 60 cm. Observations were recorded on five randomly selected plants in each plot with different characters *i.e.*, vine length, vine girth, chlorophyll content, days to first flowering, days to first fruiting, fruit length, fruit diameter, fruit weight, and yield. Data were statistically analysed as per the standard procedure.

The results (Table 1) revealed that the treatments were significantly different in the greenhouse condition. Treatment T₅ (120% RDF) exhibited maximum vine length under the greenhouse condition whereas the minimum vine length was recorded in control. It might be due to the optimum availability of moisture which facilitated for production of better root biomass resulting better nutrient uptake from the soil. Vine girth was noticed maximum in T₄ (100% RDF) followed by T₅. This might be due to greater CO₂ concentration and improved soil temperature enhancing the vegetative growth of plants. The maximum chlorophyll content was recorded with 100% RDF (T₄) under the greenhouse condition whereas the minimum chlorophyll content was noticed in control (T₁). The increase in chlorophyll

Table 1: Effect of different fertigation levels on morpho-physiological traits and yield of cucumber under greenhouse condition.

Treatments	Vine length (cm)	Vine thickness (cm)	Chlorophyll content	Days to first flowering	Days to first fruiting	Fruit length (cm)	Fruit weight (g)	Yield q/ha
T ₁ -Control	153	1.15	35.65	48	54	13	120	2.34
T ₂ -60% RDF	180	1.44	42.59	46	52	16	150	3.97
T ₃ -80% RDF	192	2.49	54.19	41	47	18	180	4.48
T ₄ -100% RDF	201	2.97	55.28	35	41	22	250	4.89
T ₅ -120% RDF	256	2.85	53.65	39	46	20	235	4.72
C.D. (P=0.05)	3.79	2.99	3.58	6.41	6.75	6.48	4.53	6.57

of cucumber might be due to the presence of Mg which is an essential element and constituent of chlorophyll and plays a key role in chlorophyll formation under the polyhouse (Singh *et al.*, 4).

Treatment T₄ exhibited minimum days to first flowering and first fruiting under the greenhouse condition. where as the maximum days to first flowering and first fruiting were found in Treatment T₁. The temperature plays a key role in flower growth, development and fruit set in cucumber. Fertigation under the greenhouse affect the temperature of micro climate around the plants. The greater influence of temperature and increased photosynthesis might have influenced to the initiation of first flowering, number of flowers per plant due to different levels of fertigation. Results are corroborated with the findings of Locher *et al.* (2) and Hartz *et al.* (1) in sweet pepper. Treatment T₄ (100% RDF) exhibited maximum fruit yield per hectare under the greenhouse condition whereas the minimum fruit yield per hectare was recorded in T₁ (control). The results are directly correlated with fruit

yield per plant or per plot. Results are in close conformity with the finding of Ombodi *et al.* (3) in sweet pepper.

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