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Abstract: The present investigation entitled “Effect of nitrogen and phosphorus levels on growth, yield and quality of Broccoli” was carried out during rabbi season of 2016-17 at the Main Garden, Department of Horticulture, Dr. P. D. K. V., Akola, to ascertain the effect of nitrogen and phosphorus levels on growth, yield and quality and to find out the suitable combination of nitrogen and phosphorus level for growth, yield and quality of broccoli. The experiment was laid out in Factorial Randomized Block Design with three replications. The treatment consists of four nitrogen levels (0, 125, 150 and 175 kg N ha⁻¹) and four levels of phosphorus (0, 25, 50 and 75 kg P₂O₅ ha⁻¹). The experiment was thus conducted with sixteen treatment combinations. The results of present investigation indicated that, the growth parameters in terms of plant height, leaves plant⁻¹, leaf length, leaf area and diameter of stem were recorded maximum with the application of nitrogen 150 kg N ha⁻¹ and phosphorus 50 kg P₂O₅ ha⁻¹. The earliness to curd initiation and curd maturity was recorded earlier with an application of nitrogen 150 kg N ha⁻¹ and phosphorus 50 kg P₂O₅ ha⁻¹. Similarly, in respect of yield and yield attributing characters like curd yield plant⁻¹, curd yield plot⁻¹ and curd yield (82.36 q) hectare⁻¹ were found significantly maximum with an application of nitrogen 150 kg N ha⁻¹ and phosphorus 50 kg P₂O₅ ha⁻¹ combinely. As regard to quality parameter viz., weight of curd, curd length, curd diameter and compactness of curd were also found maximum and superior in 150 kg N ha⁻¹ and 50 kg P₂O₅ ha⁻¹ application. The highest B : C ratio of broccoli were also obtained with an application of 150 kg N ha⁻¹ and 50 kg P₂O₅ ha⁻¹.

Description: Broccoli has a great demand to nitrogenous, phosphatic and potassic fertilizers. They early and rapid vegetative growth of the plant is necessary for soft and succulent head and stem for quality crop that is influenced by the macro-nutrients. Among the 17 essential nutrients require for proper growth and development of plant, nitrogen, phosphorus and potassium is a prime nutrient plays an important role and its deficiency may cause several disorders in broccoli plants, which ultimately affect the yield and quality. Broccoli crop gives higher response to nitrogen and phosphorus. Most of Indian soils are deficiency in nitrogen so response of nitrogen is mostly remunerative, proper use of nitrogenous fertilizers during last few years has brought radial change into improving yield of many vegetable crop and economic return too. The early and rapid vegetative growth of the plant is necessary for soft and succulent head and stem for quality crop that is influenced by the nitrogenous fertilizer. Improper application of nitrogenous fertilizer increases of hollow stem, which is considered as bar market quality and also consumer do not prefer for hollow stem broccoli. So proper nitrogen application is essential for quality production of broccoli. As broccoli crop gaining the importance due to its high nutritive value and anticancer properties, it is very necessary to investigate its nutritional demand to increase the production and this can be achieved by using proper dose of chemical fertilizer like nitrogen and phosphorus. Keeping this view the study was undertaken on “Effect of Nitrogen and Phosphorus levels on growth, yield and quality of Broccoli”.

Subject: Vegetable Science

Theme: The present research is carried out to study the effect of nitrogen and phosphorus levels on growth, yield and quality of broccoli

Research Problem: In the present research an attempt has been made to study the effect of nitrogen and phosphorus levels on growth, yield and quality of broccoli and to find out the suitable combination of nitrogen and phosphorus levels for growth, yield and quality of broccoli.

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