

Influence of soil and foliar application of nutrients on growth attributes in gherkin (*Cucumis sativus* L.) cv. AJAX HYBRID

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ABSTRACT

A field experiment was conducted to study the effect of soil and foliar application of nutrients on growth attributes in gherkin cv. AJAX HYBRID. There were 13 treatments comprised of soil application of organic manures viz., FYM (25 t ha⁻¹), press mud (25 t ha⁻¹) and vermicompost (5 t ha⁻¹) combined with foliar application of vermiwash (1:5 dilution), panchagavya (3 %) and humic acid (0.2 %) along with recommended dose of inorganic fertilizers @ 120: 90: 50 kg NPK ha⁻¹. The experiment was laid out in a Randomized Block Design in three replications. The study revealed that application of pressmud @ 25 t ha⁻¹ combined with recommended dose of inorganic fertilizers and humic acid @ 0.2 per cent recorded the highest vine length (213.39 cm), number of leaves (69.54), leaf area (163.52 cm²), inter nodal length (17.98 cm) and dry matter production (7.93 t ha⁻¹) followed by the treatment that received vermicompost @ 5 t ha⁻¹ along with recommended dose of inorganic fertilizers and humic acid @ 0.2 per cent when compared to other treatments

Key words : Gherkin, Farm yard manure, Pressmud, Vermicompost, Panchagavya, Humic acid

In the context of modern Indian agriculture with the development of high yield in different crops during past three decades, the consumption of fertilizers and pesticides for commercial crop production had almost reduced the soil unsuitable for further cultivation. In fact 60 per cent of our agricultural land, currently under cultivation suffers from serious problem of soil health mainly due to indiscriminate use of chemical fertilizers. Organic farming promises a balanced environment and quality food to our people in India, who are dependent on agricultural sector for their livelihood. Integrated nutrient management is the most effective and practical way to mobilize all available, accessible and affordable plant nutrient sources in order to optimum the productivity of the cropping system. Gherkin (*Cucumis sativus* L.) being a short duration cucurbitaceous crop puts forth continuous vegetative growth and its yield and quality are largely influenced by the application of nutrients. Hence, there is a need to maintain high nutrient status in soil for its satisfactory growth and yield. With this objective the present investigation was carried out to study the effect of various sources of nutrients as soil and foliar application on growth attributes in gherkin.

MATERIALS AND METHODS

The experiment was conducted in the Department of Horticulture, Faculty of Agriculture, Annamalai University, Tamil Nadu during 2006 to study the influence

of soil and foliar application of organic nutrients on growth in gherkin (*Cucumis sativus* L.) cv. AJAX HYBRID. The organic manures viz., farmyard manure (25t ha⁻¹), pressmud (25 t ha⁻¹) and vermicompost (25 t ha⁻¹), were applied as soil application whereas, vermiwash (1:5 dilution), panchagavya (3%) and humic acid (0.2%) were applied as foliar spray. The experiment was conducted in a Randomized block design with thirteen treatments in three replications. The field was prepared into fine tilth and divided into plots. The dimension of each plot was 3m x 4m. Each main plot consisted of two rows of 2 m length with a spacing of 1 m between rows. Seeds were sown at the sides of ridges of two seeds per hill. Ten days after germination thinning was done to maintain one seedling per hill. When the seedlings were 15 to 20 days old, staking was provided. The plant population per treatment was 12. The crop was raised by following the recommended intercultural and plant protection practices.

Observations on growth parameters such as vine length, number of leaves, leaf area, internodal length and dry matter production were recorded. In each plot, six plants were selected at random and tagged for observations. The physico-chemical properties of the soil and organic components (FYM, pressmud, vermicompost) were analysed as per the standard procedure (Jackson 1973). Panchagavya was prepared as per the procedure given by Natarajan (2000). The foliar application of organics viz., humic acid, panchagavya, and vermiwash