



Foliar nutrition for yield improvement in clove (*Syzigium aromaticum* L.)

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ABSTRACT

A field experiment was conducted by Krishi Vigyan Kendra at Maramalai village in Kanyakumari during 2007-2009 to find out the effect of foliar application of potassium salts and growth regulator NAA on yield attributes, yield and economics of clove cultivation. The study revealed that, foliar application of 1% KNO₃+ NAA 25ppm before flower bud initiation and application 1% KNO₃ alone without growth regulator during early stages of development *i.e.*, during the first fortnight of July and September, respectively increased the yield and yield attributes *viz.*, 100 flower bud weight (16.41g.), yield /tree (4.58kg) and total yield (1.25 t/ ha). The immature flower bud drop was also found to be very low (9%) when 1% KNO₃ and NAA 25ppm was sprayed. While computing the economics of cultivation the same treatment recorded the highest net profit of Rs.1,32,250/ ha.

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The clove of commerce is the fully grown unopened flower buds of the clove tree (*Syzigium aromaticum*) and it is one of the most ancient and valuable spices of the world. It is used for culinary, pharmaceutical and perfumery purposes. India produces about 1013 tonnes of clove in an area of 1981 ha (DASD, 2008). Though clove has been under cultivation in India for over 150 years, the area and production under the crop has not gone up to any appreciable extent and the quantity produced is not sufficient to meet the requirement of the country.

The low productivity is mainly due to the non adoption of improved crop management technologies especially inadequacy or lack of nutrient management practices. Clove responds very well to manuring. But often the growers believe that the clove trees do not require manures and fertilizers. In the absence of fertilization the life of the plant and yield decreases and susceptibility to pest and diseases increases. The immature flower bud drop is one of the major causes for the clove decline and it is mainly because of the inadequate fertilization. Foliar application of nutrients during the critical growth stages especially during flower bud initiation and differentiation stage found to be very effective in improving the nutrient status of the plant and their by yield. Growth regulators are reported to alter various physiological processes and are being used for increasing fruit set yield and quality in

various crops. Thus, the present investigation was carried out to find out the effect of foliar application of nutrients and NAA on yield and yield attributes of clove.

MATERIALS AND METHODS

The experiment was conducted by Krishi Vigyan Kendra, Kanyakumari during 2007-2009 at Maramalai village. For each treatment, 15 trees were utilized for recording observation. The age of the trees was 25 years old and they were spaced at a spacing of 6x6m. The trail was laid out in Randomized Block Design with five treatments and four replications. A fertilizer dose of 300:300:1000g NPK/plant along with 50kg FYM, 50g each of *Azospirillum*, Phosphobacteria and *Pseudomonas* was applied in two equal split doses during May-June and Sep-Oct. to all the treatments. For the treatment T₁ foliar nutrition was not given and it was considered as control. The other treatments were supplied with 1% KH₂PO₄ + NAA 25ppm (T₂), 1% K₂SO₄ + NAA 25ppm (T₃), 1% KCl + NAA 25ppm (T₄) and 1% KNO₃ + NAA 25ppm (T₅). The nutrient and growth regulator spray was given during the first fortnight of July *i.e.*, before bud initiation. During September *i.e.*, the early stage of bud development only the potassium salt spray was given. Apart from the foliar nutrition the other cultural practices followed were similar to all treatments. Observations on number of flowers/panicle, 100 flower bud weight (g), yield/tree (kg)