



Effect of mini-sprinkler and integrated nutrient management practices on growth and yield attributes of fenugreek (*Trigonella foenum-graecum* L.)

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ABSTRACT

A field experiment was conducted during *Rabi* season of 2008-09 at Soil and Water Management Research Farm, Navsari Agricultural University, Navsari to study the effect of mini-sprinkler and integrated nutrient management practices on growth and yield attributes of fenugreek (*Trigonella foenum-graecum* L.). The result of the experiment revealed that application of irrigation through mini-sprinkler at 0.8 IW/CPE ratio recorded significantly higher growth and yield attributes, seed and straw yield (1994 and 3488 kg ha⁻¹, respectively) compared to 0.6 IW/CPE ratio through mini-sprinkler. Amongst the integrated nutrient management practices, combined application of RDF + bio-compost @ 5 t ha⁻¹ registered higher seed and straw yield (1875 and 3284 kg ha⁻¹, respectively). Net realization was also higher with mini-sprinkler at 0.8 IW/CPE ratio with combined application of RDF + bio-compost @ 5 t ha⁻¹ (Rs. 52884 and 54566 ha⁻¹, respectively).

KEY WORDS : Fenugreek, Mini-sprinkler, Bio-compost, Net realization

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INTRODUCTION

Fenugreek (*Trigonella foenum-graecum* L.) commonly known as *Methi*, is one of the important seed spices of India. The use of fenugreek is multipurpose. Its seeds are used as condiment and vegetable for human consumption and as a concentrate for cattle. It is believed that the place of origin of fenugreek lies between Iran and North India. In India, fenugreek occupies an area of about 32.66 thousand hectares, producing 35.71 thousand tonnes of seeds with an average productivity of 1093 kg ha⁻¹ (Anonymous, 2007). In India, it is widely grown in the states of Rajasthan, Gujarat, Tamil Nadu, Uttar Pradesh, Himachal Pradesh, Madhya Pradesh and Andhra Pradesh.

Mini-sprinkler is an advanced system of micro-irrigation (Sivanappan, 1987). This method of irrigation offers opportunity for reducing the total depth of irrigation.

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Further, it offers the benefit of fertigation and increase the fertilizer use efficiency which not only reduces the application cost of fertilizers, but curtail fertilizer dose also. Bio-compost improves physical as well as properties of soil. It inadvertently added some amount of major and micro nutrients in the soil. The productivity of fenugreek can be enhanced considerably if proper nutrient and water management practices are followed. Keeping these points in view, the present investigation the feasibility study on mini-sprinkler in fenugreek with integrated nutrient management on growth and yield attributes was undertaken.

MATERIALS AND METHODS

Field experiment was conducted at Soil and Water Management Research Farm, N.A.U., Navsari during *Rabi* season of 2008-09. The 12 treatments comprising combinations of four levels of irrigation viz., 0.4 IW/CPE ratio (R₁), 0.6 IW/CPE ratio (R₂), 0.8 IW/CPE ratio (R₃) were applied through mini-sprinkler with 50 mm depth of irrigation water at each irrigation and 1.0 IW/CPE ratio (R₄) through surface method with 60 mm depth of irrigation water at each irrigation and three INM treatments viz., 20 kg N + 40 kg P₂O₅ ha⁻¹ i.e., RDF (F₁), RDF + FYM @ 5 t ha⁻¹ (F₂) and RDF + bio-compost @ 5 t ha⁻¹ (F₃) were tried in FRBD with 3 replications. The Fenugreek variety Gujarat *methi-2* was sown on 13