

Effect of placement of fertilizers and poultry manure under drip irrigation on growth and yield attributes of brinjal (*Solanum melongena* L.)

S.M. SALUNKHE, S.S. PINJARI*, R.S. DEORE AND T.R. BIRARI

Department of Agronomy, Mahatma Phule Krishi Vidyapeeth, Rahuri, AHMEDNAGAR (M.S.) INDIA

ABSTRACT

A field experiment was conducted to study the effect of placement of fertilizers and organic manure under drip irrigation on growth and yield attributes of brinjal (*Solanum melongena* L.). Results of the investigation showed that growth and yield attributing characters viz., number of branches, number of leaves, days required for 50 per cent and 100 per cent flowering, fruit length (cm), number of fruits per hill were not significantly influenced due to placement of fertilizers. Yield and yield attributing character such as weight of fruits per hill and weight per fruit recorded significantly higher under treatment RDCF application below dripper over rest of the treatments except RD through mixed fertilizer and urea below dripper and RD through NPK briquettes below dripper. While the growth and yield attributing characters influenced significantly with the poultry manure placement below hill than rest of the treatments except poultry manure placement below dripper.

Key words : Brinjal, RDCF, RD, Placement, Dripper, Fertilizers, Poultry manure

INTRODUCTION

Drip irrigation system is one of the advanced method of irrigation. The system is popular in arid and semi-arid regions with high evaporation, scarcity of water and salt problems. Looking to the advantages of the system, the cultivators are using this system for high value crops like vegetables and orchards.

Manures and fertilizers are critical factors which limits the plant growth and yield of crops, specially vegetable crop like brinjal. The average yield of brinjal in Maharashtra is low because of manures and fertilizers are not being applied at proper stage with proper method of placement. Lack of knowledge of manures and fertilizer management practices, results in low production. Application of organic manures to the soil, improve the physical and chemical properties of soil and which enhance the plant growth and yield. Suitable method of application of manures needs to be develop for judicious and economic use of costly manures. It supplies macro and micro nutrient to the plant throughout the growth period by slow releasing the nutrients.

Placement of manure and fertilizers is of prime importance in drip irrigation where limited quantity of water is applied at spot unlike surface irrigation methods. In surface irrigation fertilizers applied at spot can be distributed in root zone after dissolving it in irrigation water. Therefore, necessary to apply the fertilizer and manures where water is applied in drip irrigation *i.e.* below dripper.

MATERIALS AND METHODS

The present investigation was under taken at the

Department of Agronomy Farm, College of Agriculture, Dapoli during the *Rabi*-hot weather season, 2005-2006 in split plot design with five main plot treatments as placement of fertilizers and four sub plot treatments as poultry manure placement. The soil of the experiment field was clay loam in texture and medium acidic in reaction. It was medium in available nitrogen and low in available phosphorus and moderately high in potassium. Two seedlings were transplanted at each spot, at 3-5 cm depth. The transplanting was done at the spacing 90 x 30 x 30 cm (paired row planting) as to maintain the uniform plant population per hectare in all the plots.

The experiment was laid out in split plot design (Panse and Sukhatme, 1967) with three replications and placement of fertilizers as main plot treatments with five placements : F₁- RDCF, band placement along the rows; F₂- RDCF, application below dripper; F₃- R.D., through mixed fertilizer and urea, below dripper; F₄- R.D., through NPK briquettes, below dripper; F₅- R.D., through soluble fertilizer/ urea (fertigation) and Poultry manure placement as sub plot treatments with four placements : M₁- Band placement along the rows; M₂- Band placement below lateral; M₃- Placement below dripper; M₄-Placement below hill.

Brinjal (cv. SUVARNA PRATIBHA) was transplanted in third week of November. All the recommended cultural practices were followed. Picking of brinjal fruits was started from last week of January to last week of March.

RESULTS AND DISCUSSION

The results obtained from the present study as well as relevant discussion have been presented under

* Author for correspondence.