

RESPONSE OF SQUASH MELON (*CITRULLUS VULGARIS* VAR. *FISTULOSUS*) TO FYM AND MULCHING UNDER RAINFED CONDITION OF HOT ARID REGION OF RAJASTHAN

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ABSTRACT

A field experiment was conducted at Central Arid Zone Research Institute, Regional Research Station, Bikaner during *Kharif* seasons of 2012 and 2013 on Squash Melon (*Tinda*) crop under rainfed conditions to evaluate four treatments of Farm Yard Manure *viz.*, 0, 20, 30 and 40 t ha⁻¹ and three treatment of mulching *viz.*, no mulch, straw mulch and plastic mulch. Experiment was conducted in split – plot design with three replications using the *Tinda* cv. Selection 1. Vine length, numbers of fruits per plant and yield of squash melon (*Tinda*) crop were significantly influenced by FYM, mulching and their interaction during both the years of experiment. Application of FYM recorded significant improvement in yield up to 30 t ha⁻¹. Averaged across mulching, the yield with application of FYM @ 20, 30 and 40 t ha⁻¹ had 43.3, 83.9 and 87.4 % higher yield compared to control. Application of mulch brought significant improvement in yield and its component. The straw mulch recorded highest vine length, numbers of fruits per plant and yield. Plastic and straw mulch had 24.80 and 42.25 % higher yield than no-mulch. The response of mulch varied with level of FYM application. The highest yield was recorded with application of 40 FYM t ha⁻¹ combined with straw mulch, however the difference between FYM 30 t ha⁻¹ and 40 t ha⁻¹ was non-significant under both straw and plastic mulching.

Key words: Farm yard manure, Mulching, Rainfed, *Tinda*, Yield.

INTRODUCTION

Squash melon commonly known as *Tinda* (*Citrullus vulgaris* var *Fistulosus*) belongs to family cucurbitaceae and is one of the most important rainfed vegetable grown in arid area of Rajasthan. It is rich in vitamin and minerals and possesses great medicinal value. The yield of *Tinda* in arid region is very low and unstable due to erratic and low rainfall and consequently the income from the crop is hardly sufficient to sustain the livelihood of farming community. The population density is growing up as a consequence the demands for nutritious agricultural products especially vegetable are increasing. This increasing demand can be fulfilled by improving the productivity of vegetable crops like *Tinda*, which are widely adapted to arid environment.

Use of organic material such as farm yard manures (FYM) is an important component in sustainable agricultural production in many countries (Kumar *et.al.*, 1999). FYM promote sustainability due to its long term positive effect on chemical, physical and biological properties of soil (Sharma *et. al.* 2010). General improvement in the crop yield and quality obtained when adequate rates of organic manures are incorporated in the soil. In addition to supply major and micronutrients, FYM also conserve soil moisture by improving physical properties.

In the arid areas retention of the soil moisture and supply of nutrient is a big challenge. The use of mulch can help prove full in conservation of moisture. The effectiveness of mulches for moisture conservation has varied, depending upon the soil, climate, crop, type of material used and the degree

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