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Research Paper

**EFFECT OF FOLIAR APPLICATION OF COMBINATION OF NUTRIENTS
ON FLOWERING FRUITING OF RIDGE GOURD (*Luffa acutangula* L.)**

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Abstract

The experiment carried out to study of effect of combination of nutrients on flowering fruiting of ridge gourd. Eight treatments combination 00:52:34,13:40:13, calcium nitrate, zinc. The treatment given with combination as designed in treatment 45 DAS just before emergence of flowering. treatment was given at 7 days interval total 8 treatment was given 2 lines kept as controlled(without any treatment) observations recorded such as number of flowers, number of fruits , length of fruits, diameter of fruits.

Key words: ridge gourd, combination of nutrients, foliar spray, flowering fruiting.

INTRODUCTION

Ridge gourd is the fruit of a sub-tropical vine that belongs to the cucumber family and is native to central and eastern Asia, including the Indian subcontinent. The plant is quite hardy and easy to cultivate and is even grown indoors in regions with colder climates. Ridge gourd is popular as a vegetable in various regional cuisines in Asia, but the fruit is only edible before it ripens. As it matures, the fruit becomes increasingly fibrous, which makes it unfit for consumption, but great for use as a loofah or scrubber! The vegetable is often used in stir fries and soups in Vietnam and it is also an important feature in various regional cuisines in India, especially in Kerala, Karnataka, Andhra Pradesh and Maharashtra.

Nutrients play essential role in crop growth and development reproductive and fruiting stages of crop. Dificiencies causes several losses in yield. Where avilability of nutrients increases yield. Hence experiment was made to study the effect of foliar application of combination of nutrients on flowering fruiting.

MATERIAL & METHODS

The field experiment carried out to study effect of combination of nutrients foliar spray on fruiting, flowering, of ridge gourd at the experimental field at Nippani. Soil type is sandy clay, pH is 7.8.

Field experiment conducted with 8 treatment. The treatment include foliar spray of water soluble fertilizer market product 13:40:13, 00:52:34, Calcium nitrate, zinc sulphate, boron. Treatment given at 45 DAS. At the time of sowing RDF followed. At 20 days after sowing split dose of N also given. Treatment of combination of nutrient followed as shown in table below

Table-1 showing treatment details -

Treatment number	Treatment details
T₁	00:52:34(0.3%) + zinc (0.1%) + Boron (0.1%)
T₂	Calcium nitrate(0.2%) + Boron (0.1%)
T₃	13:40:13 (0.3%) + zinc (0.1%) + Boron (0.1%)
T₄	zinc (0.1%) + Boron (0.1%)
T₅	Boron (0.1%)
T₆	00:52:34(0.3%)
T₇	13:40:13 (0.3%)
T₈	Calcium nitrate (0.2%)
T₉	Controlled (without any treatment)

The market formulations of nutrients were used for foliar application viz.00:52:34 , 13:40:13, zinc , calcium nitrate , boron. Spraying was done using knapsack sprayer leaves were wetted with fine mist at 8:30 AM on the day of Treatment. During experiment observation recorded such as number of flowers, number of fruits. First treatment was given 45DAS just before emergence of flowers. 2 times application of treatment was given at 7 days interval. Observation taken after application of first treatment. second treatment was given 7days after first treatment like wise after second treatment observation recorded after 5 days of second treatment.

RESULT AND DISCUSSION-

The result of present conducted experiment indicates that the flowering fruiting of ridge gourd significantly influenced by foliar application of combination of different nutrients.

Effect of foliar application of combination nutrient on flowering-

Table -2 represents data on flowering influenced by various treatment among treatment the highest flowering was registered in T₁ {(Foliar spray of 00:52:34 – 0.3% +zinc 0.1% + boron 0.1%) @ 45and52 DAS } while lowest flowering 150 flowers recorded in T₉ (controlled). Increase in T₁ may be application of zinc , boron , 00:52:34 .

Role of Micronutrient-

Role of boron -Responsible for cell wall formation and stabilization, lignifications and xylem differentiation. Boron deficiency causes a remarkable decrease in the production of indole acetic acid (IAA) which induces Calcium deficiency. It imparts drought tolerance to the crops.Plays pivotal role in pollen germination and pollen tube growth in cereals and oilseeds. Regulates K/ Ca ratio and sugar translocation in tuber crops like potato, sugarbeet, etc., Essential for cell division & protein synthesis. Facilitates the transport of Potassium in guard cells. Diseases viz. Fusarium and Verticillium, potato wart and club root of crucifers are reduced with the supply of Boron.(Chaitanya et al., 2014, Pop. Kheti, 2(4): 38-41)

Role of zinc -Zinc activates enzymes that are responsible for the synthesis of certain proteins. It is used in the formation of chlorophyll and some carbohydrates, conversion of starches to sugars and its presence in plant tissue helps the plant to withstand cold temperatures. Zinc is essential in the formation of auxins, which help with growth regulation and stem elongation(<https://www.pthorticulture.com/en/training-center/role-of-zinc-in-plant-culture/>)

Role of 00:52:34 - Since P and K are specially structured and designed, this will give an excellent growth in all the stages of crop namely seedling stage, vegetative stage, reproductive stage and ripening stage.The nutrients are textured and cohesively balanced. Hence, this will give better result and excellent yield in all crops like fruits, vegetables, flowers, field crops, foliage crops etc.All horticultural crops will give awesome results with 00:52:34

Effect of treatments on fruiting-

As T₁ highly influenced by foliar spray number of fruit set highest recorded in T₁ number of fruit at first observation is 200(Photographs 1&2nd). Carried out 5 days after 1st treatment. While also same result obtained in second observation recorded after 5 days of second treatment.(Table 2&3rd)

Table -2 showing no. of flowers and no. of fruits at 5 days after first treatment

Sr. no.	Number of flowers	Number of fruits
T ₁	450	200
T ₂	330	160
T ₃	180	80
T ₄	220	100
T ₅	340	170
T ₆	280	140
T ₇	310	150
T ₈	190	140
T ₉	150	80

Table no.- 3 observation taken at 5 days after second treatment

Sr. no.	Number of flowers	Number of fruits
T ₁	443	250
T ₂	407	200
T ₃	215	100
T ₄	180	90
T ₅	301	117
T ₆	255	125
T ₇	345	180
T ₈	315	150
T ₉	225	100

Effect on harvesting –

As plantation followed in rainy season the rainfall is more in nippani area also the observation recorded in T₁ highest fruit yield in T₁ treated row 28kg at first picking lowest yield recorded in T₉ controlled row(Chart-3). Due to high rainfall problem of flower drop occurred due to this flower to fruit set was reduced observed during investigation of experiment.

Table – 4 Effect on production of fruit yield

Sr. no.	Weight
T ₁	24
T ₂	20
T ₃	20
T ₄	18
T ₅	17
T ₆	15
T ₇	13
T ₈	11
T ₉	10

Chart 1 showing no. of flowers and no. of fruits at 5 days after first treatment

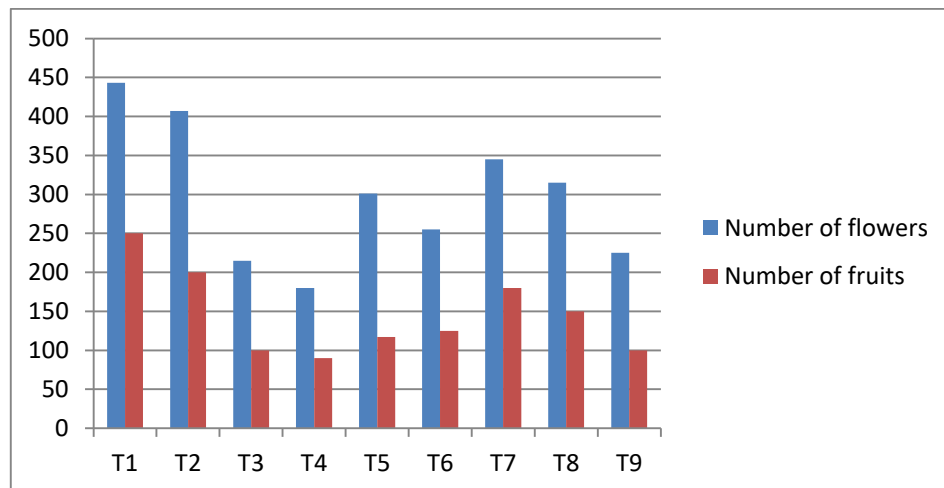


Chart -2 showing observation taken at 5 days after second treatment

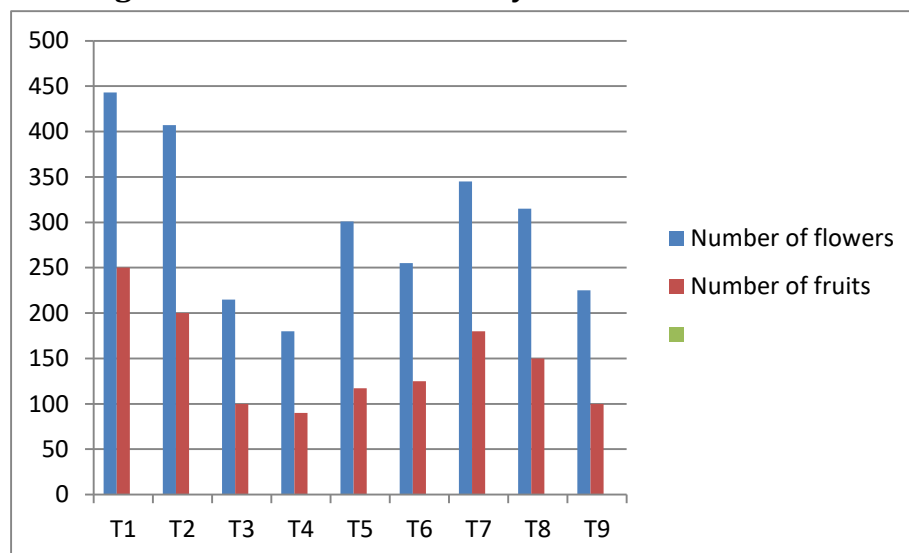
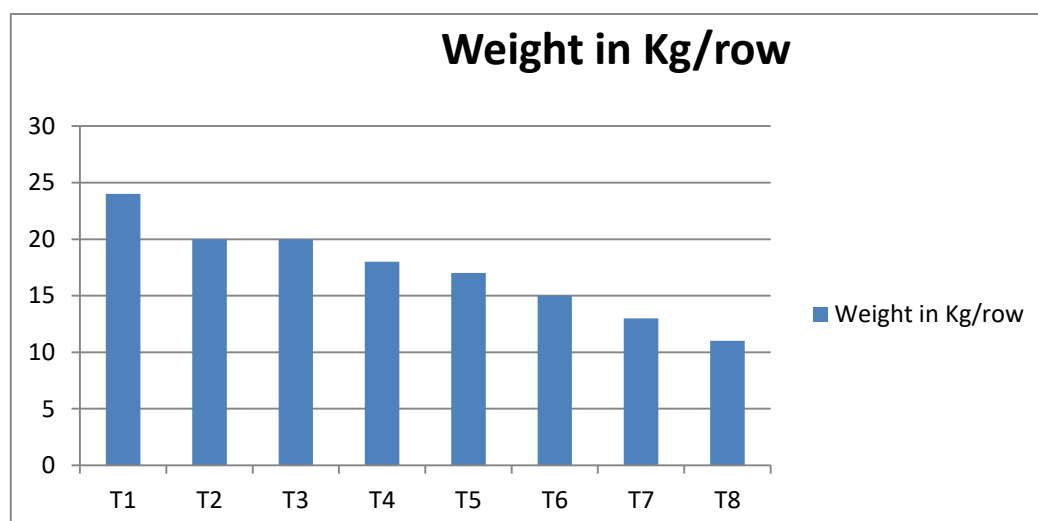
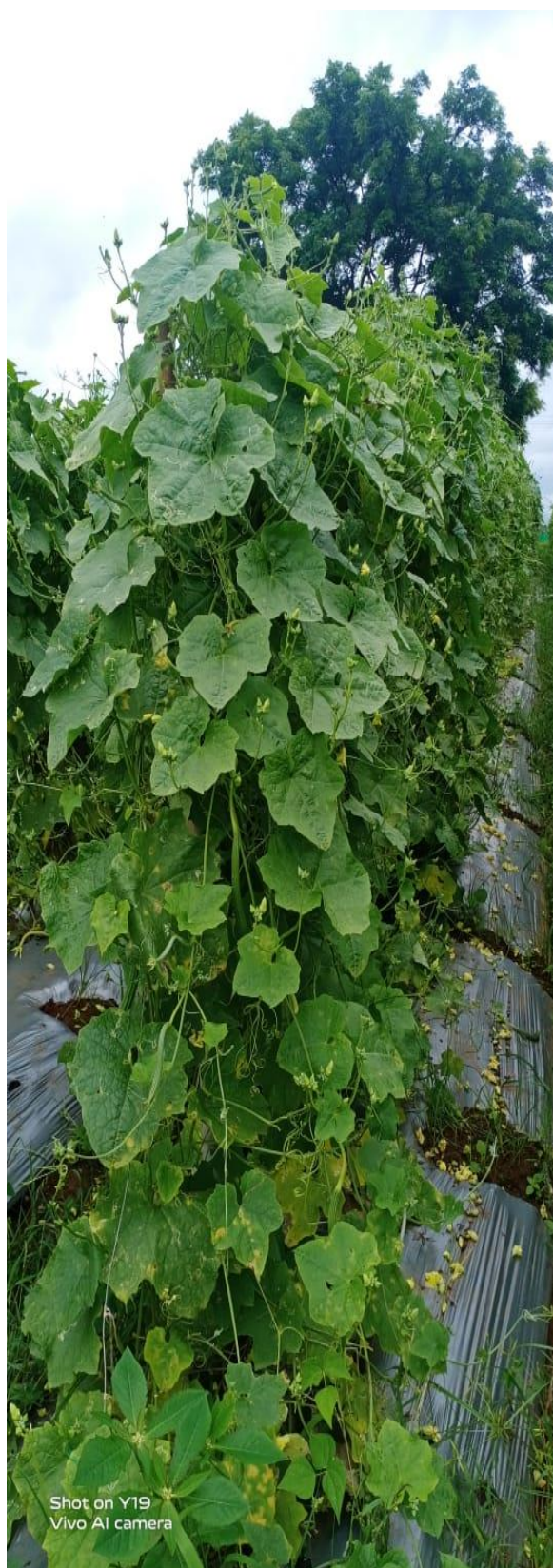


Chart -2 showing Effect on production of fruit yield



Photographs-1 showing Highest observation row and lowest observation row (controlled)



T₁



T₉

Photographs -2 showing harwested produce T₁ and T₉



T₁



T₉

CONCLUSSION -

As per conducted experiment foliar application of 00:52:34(0.3%) + zinc (0.1%) + Boron (0.1%) found effective to increase yield recorded. And cn be recomended farmers to increase to yield.

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