



# Plant Archives

Journal homepage: <http://www.plantarchives.org>

DOI Url : <https://doi.org/10.51470/PLANTARCHIVES.2024.v24.no.2.220>

## PERFORMANCE OF RIDGE GOURD HYBRID COH 1 IN VILLUPURAM DISTRICT OF TAMIL NADU, INDIA

R. Neelavathi

I.C.A.R.-Krishi Vigyan Kendra, Tamil Nadu Agricultural University, Tindivanam, Villupuram - 604 102, Tamil Nadu, India.

E-mail : [neelavathi@tnau.ac.in](mailto:neelavathi@tnau.ac.in)

(Date of Receiving-18-06-2024; Date of Acceptance-03-09-2024)

### ABSTRACT

The demonstration on cultivation of ridge gourd hybrid COH 1 was conducted at Nagar village, Tindivanam Taluk, Villupuram district, Tamil Nadu, India during January 2020 - April 2021. The germination percentage was significantly higher in ridge gourd hybrid COH 1 (95.66%) compared to private hybrid (81.30%). The vine growth, number of branches, fruit length, individual fruit weight and number of fruits were higher in hybrid COH 1 compared to private hybrid. The early harvesting was recorded in 34.30 days (COH 1) compared to private hybrid (44.66 days). The fruit length (43.80 cm) and individual fruit weight (245.40 g) were significantly higher in hybrid COH 1 than private hybrid with 24.60 cm of fruit length and 213.90 g of individual fruit weight. Number of fruits / plant (25.60) was significantly higher in hybrid COH 1 than private hybrid (18.20). The fruit yield was significantly higher in ridge gourd hybrid COH 1 (22.50 t/ha) compared to private hybrid (17.90 t/ha). The fruits of hybrid COH 1 were tender with soft pulp, less seeds and good taste. The ideal length of fruits (43.80 cm) found suitable for packaging in the plastic crates for long distance market. The higher net income of Rs.3,49,770/- was recorded in hybrid COH 1 with benefit cost ratio of 2.96 compared to private hybrid.

**Key words :** Ridge gourd, Growth, Yield, Net income, Benefit cost ratio.

### Introduction

Ridge gourd, *Luffa acutangula* (Roxb.) L. is one of the cucurbitaceous vegetable crops belongs to the family, cucurbitaceae. Ridge gourd is also called as kalitori, angled gourd, angled loofah, Chinese okra, silky gourd and ribbed gourd. It was originated from South East India including India. It is commercially cultivated throughout India in tropical and subtropical climate due to its wide adaptability. In South India, it is cultivated in summer season from January to April and rainy season from June to September. In India, it is cultivated in an area of 24,800 hectares with the production of 3.16 lakh tonnes. It is a monoecious cucurbitaceous vegetable crop which is highly cross pollinated by insects. The sweet juiciness and soft texture of tender fruits are preferred by consumers. The immature tender fruits are used as vegetables either cooked or fried. Fruits are low in calories and high in water content. It is

used in making curries, fries, sambar, dhal, chutney, pakora and raita. Fruits are rich antioxidants and dietary fibre which helps in reducing blood sugar levels in diabetic patients and helps in weight loss. Fruits are good blood purifier. Consumption of fruits eliminates toxins from the body and reduces internal inflammation of the body. The laxative properties of tender fruits help in relieving constipation. It is used in traditional medicine to treat jaundice and urinary bladder stones (Samvatsar and Diwanji, 2000; Katewa *et al.*, 2004). The edible portion of tender ridge gourd fruit contains carbohydrate (0.35 g/100 g), fibre (0.5 g/100 g), protein (0.5 g/100 g), carotene (37 mg/100 g), vitamin C (5 mg/100 g), iron (0.5 mg/100 g) and calcium (18 mg/100 g) (Hazra and Som, 2005).

Generally, the yield potential of ridge gourd varieties is lower compared to hybrids. There are several factors responsible for low yield. Lack of high yielding varieties

and hybrids is one of the reasons for low productivity in ridge gourd. The introduction of high yielding hybrids with desirable growth and yield characteristics into a particular region is necessary to increase the productivity. The market preference is influenced by size and shape of fruits. The long and slender fruits are preferred by consumers of Villupuram district and nearby districts of Tamil Nadu. The ridge gourd hybrid COH 1 was released by Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu. It is a very early flowering and high yielding hybrid. The fruits are long, straight, attractive, green tender which are preferred in the markets of Tamil Nadu. Ridge gourd is of great importance to vegetable growers of Tamil Nadu. Keeping this in view, technology demonstration was conducted to introduce high yielding ridge gourd hybrid COH 1 in Villupuram district.

### Materials and Methods

The demonstration on cultivation of ridge gourd hybrid COH 1 was conducted at Nagar village, Tindivanam Taluk, Villupuram district, Tamil Nadu, India during January 2020-April 2021. The experiment was conducted in Randomized Block Design (RBD) with 10 replications. The experimental soil was black soil in texture with pH of 7.1. After ploughing soil, pits were formed at a spacing of 2.4 m × 0.6 m. Before sowing, the seeds of hybrid COH 1 were treated with *Trichoderma viride* at the rate of 4g/kg of seeds. One treated seed was sown in 98 cavity protrays containing well decomposed cocopeat. About 15 days old seedlings were transplanted in pits at the rate of one seedling per pit. The vines were allowed to trail on pandhal system. The lateral branches were removed till primary vine reaches the pandhal height. Fertilizers were applied in the form of urea, single super phosphate and muriate of potash. Spraying of micronutrients was done. Weeding was done regularly. Irrigation was done through drip system. The integrated pest and disease management practices were followed. The data on growth and yield characteristics such as vine length, number of branches per plant, fruit length, individual fruit weight, number of fruits per plant, fruit yield, pest and disease incidence were recorded. The data were subjected to statistical analysis (Panse and Sukhatme, 1985).

### Results and Discussion

The seeds of ridge gourd hybrid COH 1 were germinated in 8.30 days. The germination percentage was significantly higher in ridge gourd hybrid COH 1 (95.66%) compared to private hybrid (81.30%). The growth and yield parameters are presented in Table 1. The vine length (3.30 m) and number of branches / plant (14.15) were

significantly higher in hybrid COH 1 than private hybrid with 10.80 branches. The earliness is one of the important characteristics of good hybrid, which is measured as early flowering. The first flowering was observed in 27.30 days (COH 1) compared to private hybrid (37.66 days). The earliness in ridge gourd was reported by Allirani and Jansirani (2014). The number of female flowers was comparatively higher in hybrid COH 1. The ratio of male and female was lower in hybrid COH 1 compared to private hybrid. Lower sex ratio of 5.20-5.62 was recorded in hybrids (Krishnamoorthy, 2019).

The fruit length and weight are important factors to decide yield, transport and marketability of fruits. The fruit length (43.80 cm) and individual fruit weight (245.40 g) were significantly higher in hybrid COH 1 than private hybrid with 24.60 cm of fruit length and 213.90 g of individual fruit weight. The marketable maturity was obtained 6-7 days after anthesis. The first harvesting was done after 34.30 days (COH 1) compared to private hybrid (44.66 days). There after tender fruits were harvested on alternate days. Number of fruits / plant (25.60) was significantly higher in hybrid COH 1 than private hybrid (18.20). The fruit yield was significantly higher in hybrid COH 1 (22.50 t / ha) compared to private hybrid (17.90 t/ha). The ridge gourd genotypes showed significant variation in growth, yield (Varalakshmi *et al.*, 2016; Krishnamoorthy and Ananthan, 2017) and quality of fruits (Choudhary *et al.*, 2014). The productivity was positively correlated with fruit length, weight and number of fruits per plant (Hanumegowda *et al.*, 2015). The integrated nutrient management influenced the yield and quality of ridge gourd (Kameswari *et al.*, 2011). The fruits of hybrid COH 1 were tender with soft pulp, less seeds and good taste. Development of fibres in fruits was not observed even harvesting is delayed by one or two days. The ideal fruit length of hybrid COH 1 found suitable for packaging in the plastic crates without damage and transporting to nearby markets.

The infestation of fruit fly was lower in hybrid COH 1 (6.33%) compared to private hybrid (12.60%). The infestation of sucking pests as significantly lower in hybrid COH 1 compared to private hybrid. The incidence of downy mildew was less in hybrid COH 1 and was easily managed by fungicides. Plants were not affected by viral diseases.

Cost economics of ridge gourd hybrid COH 1 is presented in Table 2. The gross income was significantly higher in hybrid COH 1 (Rs.5,28,660/ha) than private hybrid (Rs.4,80,960/ha). The higher net income of Rs. 3,49,770/ha was recorded in hybrid COH 1 with benefit

**Table 1 :** Growth and yield parameters of ridge gourd hybrid COH 1 cultivated in Villupuram district of Tamil Nadu, India.

S. no.	Practices	Vine length (m)	No. of branches/plant	Fruit length (cm)	Individual fruit weight (g)	No. of fruits/plant	Yield (t/ha)
1.	Demonstration Hybrid COH 1	3.30	14.15	43.80	245.40	25.60	22.50
2.	Farmer practice Private hybrid	2.80	10.80	24.60	213.90	18.20	17.90
	Mean	3.05	12.45	34.20	229.65	21.90	20.15
	<b>SEd</b>	<b>0.24</b>	<b>1.05</b>	<b>1.87</b>	<b>2.61</b>	<b>2.08</b>	<b>0.68</b>
	<b>CD (0.05)</b>	<b>0.47</b>	<b>2.11</b>	<b>3.74</b>	<b>5.22</b>	<b>4.16</b>	<b>1.36</b>

**Table 2 :** Cost economics of ridge gourd hybrid COH 1 cultivated in Villupuram district of Tamil Nadu, India.

S. no.	Practices	Gross cost (Rs./ha)	Gross income (Rs./ha)	Net income (Rs./ha)	Benefit cost ratio
1.	Demonstration Hybrid COH 1	1,78,890	5,28,660	3,49,770	2.96
2.	Farmer practice Private hybrid	1,86,190	4,80,960	2,94,770	2.58

cost ratio of 2.96 compared to private hybrid with net income of Rs.2,94,770 and benefit cost ratio of 2.58.

### Conclusion

The vine growth, number of branches, number of fruits and fruit weight were higher in ridge gourd hybrid COH 1 compared to private hybrid. The fruit yield was significantly higher in ridge gourd hybrid COH 1 (22.50 t/ha) compared to private hybrid. The fruits of hybrid COH 1 were tender with good taste and soft texture. The net income of Rs.3,49,770/ha was recorded in hybrid COH 1 which is higher compared to private hybrid. The fruits of hybrid COH 1 were suitable for packaging in the plastic crates for long distance market.

### Acknowledgements

The author is thankful to ICAR- Agricultural Technology Application Research Institute, Zone X, Hyderabad, India for providing funding and all facilities.

### References

- Allirani, E. and Jansirani P. (2014). *Per se* performance of ridge gourd (*Luffa acutangula* Roxb. L.) germplasm for growth and lower characters. *Trends Biosci.*, **7(5)**, 347-350.
- Choudhary, B.R., Kumar S. and Sharma S.K. (2014). Evaluation and correlation for growth, yield and quality traits of ridge gourd (*Luffa acutangula* L.) under arid conditions. *Indian J. Agric. Sci.*, **84(4)**, 498-502.
- Hanumegowda, K., Shirol A.M., Mulge R., Shantappa I. and

Kumar P. (2011). Genetic variability, heritability and genetic advance for yield and yield contributing characters in ridge gourd [*Luffa acutangula* (L.) Roxb]. *Asian J. Hort.*, **7(4)**, 196-200.

Hazra, P. and Som (2005). *Vegetable Science*. Kalyani publishers, New Delhi. pp 5-10.

Kameswari, L.P., Narayanamma M., Riazuddin Ahmed S. and Chaturvedi Anurag (2011). Influence of integrated nutrient management in ridge gourd (*Luffa acutangula* (Roxb.) L.). *Veg. Sci.*, **38(2)**, 209-211.

Katewa, S., Chaudhary B. and Jain A. (2004). Folk herbal medicines from tribal area of Rajasthan, India. *J. Ethnopharmacol.*, **92**, 41-46.

Krishnamoorthy, V. and Ananthan M. (2017). Evaluation of ridge gourd (*Luffa acutangula* (Roxb) L.) Genotypes for Higher Yield. *J. Krishi Vigyan*, **6(1)**, 229-231.

Krishnamoorthy, V. (2019). Evaluation of ridge gourd (*Luffa acutangula* Roxb) hybrids during summer season for growth, yield and quality traits. *Asian J. Hort.*, **14(2)**, 17-22.

Panse, V.G. and Sukhatme P.V. (1985). *Statistical methods for agricultural workers*. pp 145-156. ICAR, New Delhi.

Samvatsar, S. and Diwanji V. (2000). Plant sources for the treatment of jaundice in the tribals of Western Madhya Pradesh of India. *J. Ethnopharmacol.*, **73**, 313-316.

Varalakshmi, B., Suchitha Y. and Sanna Manjunath K.S. (2016). Characterization and Evaluation of Ridge Gourd [*Luffa acutangula* (Roxb.) L.] Germplasm. *Indian J. Plant Genet. Resour.*, **29(1)**, 66-70.