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*Short Communication*

# Evaluation of Ridge Gourd (*Luffa acutangula* (Roxb) L.) Genotypes for Higher Yield

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## INTRODUCTION

Ridge Gourd (Luffa acutangula (Roxb.) L.) is a monoecious and highly cross pollinated important tropical cucurbitaceous vegetable crop cultivated throughout India. Every 100g of the edible portion of ridge gourd contains 0.5g of fiber, 0.5 percent of protein, 0.35 percent of carbohydrate, 37 mg of carotene, 5.0 mg of vitamin c, 18 mg of calcium and 0.5 mg of Iron (Hazra and Som, 2005). There are number of cultivars available with wide range of variability in shape of fruits. The yield potential of existing cultivars is low and there are several factors responsible for low yield of ridge gourd in Tamil Nadu. Lack of high yielding variety is one of the main reasons for low yield of ridge gourd. In nut shell, to improve the yield and for developing a new variety, collection and evaluation of germplasm is a pre requisite in a specific crop improvement programme. Hence, an effort was made to identify the potential cultivar with desirable growth and yield parameters.

## MATERIALS AND METHODS

The present investigation was carried out at Department of Horticulture, Agricultural College and Research Institute, Tamil Nadu Agricultural University, Madurai during November 2013 to Nov, 2015. A total of 20 genotypes collected from different parts of Tamil Nadu were used for this study. The details of the genotypes were LA 1(PKM 1), LA 2 (Co 1), LA 3 (Chekkanurani Local), LA 4 (Usilampatti Local), LA 5(Kallampatti Local), LA 6 (Melur local), LA 7 (Periyakottai Local), LA 8 (Alagargoil Local), LA 9 ( Sivagangai Local), LA 10 (Thirumangalam Local), LA 11(Sedapatti Local), LA 12 (Virudhunagar Local), LA 13 (Kinnimangalam Local), LA 14 (Vedasanthur Local), LA 15 (Ottanchatram Local), LA 16 (Alathur Local), LA 17 (Kannapatti Local), LA 18 (Natham Local), LA 19 ( Seranma Devi Local) and LA 20 (Srirampuram Local). These genotypes were evaluated during Nov, 2013, October 2014 and August 2015. The experiment was laid out in randomized block design with three replications. The crop was raised by digging pits at a spacing of 2 m between rows and 1.5 m between plants and the vines were trained on trails system. The growth and yield parameters viz., first female flower node, days to first female flower opening, number of fruits per plant, fruit length, fruit diameter, fruit weight, yield per plant were recorded. The data collected in three years were pooled and subjected to statistical analysis adopting standard procedures of analysis (Panse and Sukhatme, 1967).

## RESULTS AND DISCUSSION

The mean performance of different genotypes evaluated for growth and yield characters is presented in table 1. The earliness is one of the important parameters for good variety which is measured in terms of days to first female flower anthesis and node at which first female flower appears. Among the 20 genotypes, LA15 recorded the earliest flowering (52.67 d) followed by LA6

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**Table 1. Mean performance of ridge gourd genotypes.**

| Name of genotypes | First Female flower node | Days taken for first female flowering | Number of fruits / plant | Fruit length (cm) | Fruit diameter (cm) | Individual fruit weight (g) | Fruit yield per plant (kg) |
|---|---|---|---|---|---|---|---|
| LA1 | 18.43 | 119.67 | 28.58 | 21.81 | 24.37 | 292.00 | 4.63 |
| LA2 | 23.17 | 113.33 | 31.17 | 25.83 | 34.10 | 576.33 | 9.37 |
| LA3 | 20.97 | 103.70 | 32.03 | 24.66 | 34.97 | 268.00 | 4.65 |
| LA4 | 23.33 | 113.27 | 32.27 | 26.31 | 35.77 | 495.33 | 8.39 |
| LA5 | 20.73 | 118.67 | 30.40 | 23.96 | 33.77 | 482.33 | 5.88 |
| LA6 | 17.90 | 98.33 | 31.47 | 22.42 | 36.67 | 360.00 | 7.02 |
| LA7 | 20.80 | 110.83 | 31.57 | 24.39 | 28.53 | 539.33 | 8.09 |
| LA8 | 22.80 | 117.67 | 30.97 | 25.52 | 33.83 | 422.33 | 7.19 |
| LA9 | 22.57 | 115.07 | 29.37 | 24.83 | 26.00 | 460.67 | 7.14 |
| LA10 | 21.30 | 109.67 | 28.37 | 23.66 | 35.30 | 338.00 | 4.85 |
| LA11 | 20.23 | 117.07 | 29.00 | 23.16 | 28.68 | 252.67 | 3.91 |
| LA12 | 18.10 | 120.33 | 29.63 | 21.94 | 29.70 | 432.00 | 8.81 |
| LA13 | 20.13 | 110.32 | 31.00 | 23.76 | 29.50 | 461.67 | 7.79 |
| LA14 | 21.27 | 114.13 | 29.73 | 24.09 | 30.28 | 486.67 | 4.49 |
| LA15 | 11.23 | 52.67 | 11.50 | 11.32 | 11.53 | 176.67 | 2.60 |
| LA16 | 21.98 | 124.40 | 28.93 | 24.30 | 36.23 | 516.00 | 7.59 |
| LA17 | 16.57 | 121.78 | 29.90 | 21.01 | 33.40 | 215.33 | 3.45 |
| LA18 | 19.23 | 103.07 | 31.40 | 23.29 | 31.63 | 544.00 | 6.23 |
| LA19 | 23.27 | 117.20 | 33.47 | 26.67 | 29.83 | 377.67 | 5.70 |
| LA20 | 23.47 | 127.40 | 29.44 | 25.46 | 31.20 | 525.00 | 4.09 |
| S Ed | 0.55 | 2.79 | 0.81 | 1.84 | 1.07 | 18.84 | 0.46 |
| CD | 1.12 | 5.65 | 1.65 | 3.52 | 2.17 | 38.13 | 0.93 |

(98.33 d) and LA18 (103 d) and late flowering was observed is LA 20 (127 d). Similar results for variability in earliness were reported by Allirani and Jansirani (2014).

The node at which the female flower appears also decides the earliness of the variety. Among the 20 genotypes LA15 recorded the earliest female flowering node (11.23) followed by LA17 (16.57) and LA6 (17.90). The late flowering was observed is by LA20 (23.47). The number of fruits per plant decides the yield per plant. Among the 20 genotypes the mean value ranged from11.50 to 33.47. The highest number of fruits per plant was recorded by the genotype LA19 (33.47), followed by LA4 (32.27), LA3 (32.03).

The fruit length is also one of important factor which decides yield as well marketability of the fruits. The maximum fruit length was recorded by the genotype LA19 (26.67 cm) followed by LA4 (26.31 cm), LA2 (25.83 cm) and the least number of

fruits was recorded in LA15 (11.32 cm). The mean fruit diameter ranged from 11.53 to 36.67 cm. The genotype LA6 recorded the maximum fruit diameter (36.67cm) followed by LA16 (36.23 cm) and LA4 (35.77cm). The minimum fruit diameter of 11.53 cm was recorded in LA15. The mean fruit weight varied significantly among the genotypes. The mean fruit weight ranged between 176.67 g to 576.33 g among the genotypes. The genotypes LA1 (576.33 g) recorded the highest value followed by LA 18 (544 g) and LA 20 (525 g). The genotype LA 15 (176.67 g) registered lesser fruit weight among the twenty genotypes. The yield per plant is one of most important factor for yield potential. The fruit yield per plant in the twenty genotypes ranged between 2.60 to 9.37 kg. The genotype LA 2 recorded the highest yield (9.37 kg) per plant followed by LA 12 (8.81 kg) and LA 4 (8.39 kg). The genotypes LA 15 (2.60 kg) recorded lower fruit yield per plant. Similarly variation in yield per plant was reported by Allirani and Jansirani (2014) in ridge gourd.

## CONCLUSION

The study revealed that among the twenty genotypes evaluated, LA 2 recorded highest yield (9.37 kg / plant) followed by LA 12 collected from Virdhunagar (8.81 kg / plant). LA 15 collected from Ottanchatram recorded earliness in first female flowering node and first female flowering days (11th node and 52.67 d). The genotype LA 19 collected from Seranmadevi recorded high number of fruits per plant (33.47 Nos.), fruit length (26.67 cm), individual fruit weight (377.67g) with the average yield of 5.7 kg per plant. The genotype LA 1 (PKM 1), LA 18 (Natham Local) and LA 20 (Sreerampuram Local) recorded highest fruit weight (576.33 g, 544 g and 525 g, respectively). The high yielding genotype LA 2 recorded 31.17 number of fruits per plant and individual fruit weight of 576.33 g.

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