

## Original Research Article

# Studies on different Hybrids Varieties of Bottle Gourd (*Lagensaria scieraria* L.) Cultivar under Bundelkhand Region of U.P.

Poornima Singh, Harpal Singh \*, Joginder Singh and Gaurav Ahirwar

Department of Horticulture, Institute of Agricultural Sciences, Bundelkhand University, Jhansi  
(U.P.) 284128 India

Janta Vedic College, Baraut (Baghpat) U.P., India

\*Corresponding author

## ABSTRACT

An experiment was conducted during summer season of 2017-18 at the Organic research farm at Karguanji, Bundelkhand University, Jhansi (U.P.). The present study evaluated the best hybrid variety amongst different hybrids varieties of bottle gourd. Morphological, phenological, yield characters were studied as per schedule doses of 100KgN + 50Kg P<sub>2</sub>O<sub>5</sub> + 50Kg K<sub>2</sub>O in this experiment. In term of morphological characters, Mahyward Mgh-4 resulted maximum vine length (37.50 cm), leaf area (274.40 cm), secondary branches (27.0 cm) and tertiary branches (19.50). However, phenological characters, Mahyward Mgh-4 resulted maximum number of male flowers count (29.0), number of female flowers count (39.0), pedicel length (7.1 cm). Yield characters were also significant with maximum number of fruits count (2.9), maximum length of fruits (50.0 cm), diameter of fruits (6.4 cm), weight of fruits (643.300 gm) was further recorded in variety Mahyward Mgh-4.

### Keywords

Hybrids, Variety,  
Bottle gourd,  
Cucurbits,  
Morphology,  
Phenology, Yield,  
Characters

## Introduction

Bottle gourd needs a well-distributed rainfall of 600-1500 mm and is adapted to semi-arid conditions. The optimum temperature for germination is 20-25°C; however, the germination rate declines below 15°C and above 35°C. It tolerates low temperatures, but if the temperature drops below 10°C, flowering is often reduced, due to its intolerance to frost. The desire of any farmer is to see the germination and growth of all seeds planted in a field. This way the farmer is assured to obtain reasonable yield if all

growing conditions are optimal Ethadul Ummah (2012). Improving vegetable productivity will put the prices of vegetables within the reach of urban and rural poor. In Pakistan, gourds are produced in large quantities in Pakistan and are exported abroad Jamal Uddin (2014). Low temperature and drought leads to flower and fruit abortion. Soils used for crop production are severely deficient of essential nutrient elements due to continuous cropping and numerous other reasons. In this modern era of globalization Indian farmers particularly in the Malwa tract of India is unaware of the

fact of the variety optimization as the prior information before hand is lacking to the farmers and so hereby it is furthermore very important to know the best variety which ultimately leads to profit maximization. Bottle gourd hybrids such as Chutki, Indian-204, Mahyward Mgh-4, Kirtifl-hybrid, N-shivani, PPG-bog3, N-jyoti were taken on account to conclude the derivation of best amongst many in term of morphology, phenology, yield characters which could impair certain light to the farmers. On account of the ignorance and lacking information to the farmers of the best suitable variety optimization present study was taken up.

### **Materials and Methods**

The experiment was conducted with a concise description of the materials used and methods adopted in carrying out the present investigation entitled “Studies on different hybrids varieties of bottle gourd (*Lagenaria siceraria* L.) Cultivar under Bundelkhand region of Uttar Pradesh is situated in at elevation 556 m (10824 ft) coordinates 22.55<sup>0</sup>N 75.76<sup>0</sup>E. The Latitude of Jhansi is 22.5556. The Longitude of Jhansi is 75.7708. The soil of the experimental field was deep medium black soil in texture which is slightly alkali in reaction with the pH. Morphological, phenological, yield characters were studied as per schedule doses of 100Kg N + 50 Kg P<sub>2</sub>O<sub>5</sub> + 50 Kg K<sub>2</sub>O in this experiment. Bottle gourd hybrids such as Chutki, Undam-204, Mahywardmgh-4, Kirtifal-hybrid, N-shivani, PPG-bog-3, N-jyoti were studied. Seed sowing was done on 20 June 2017 under 4m x 2m planting geometry using Randomized block design. The crop was harvested successfully after attaining full maturity phase.

## **Results and Discussion**

### **Morphological parameters**

The data in the Table-1 reveals that during all the different stages, 75 days after sowing observation such as Vine length, leaf area, number of secondary branches, number of tertiary branches depicted significant effect at different stages of growth at 15 days interval dose (100 Kg N + 50 Kg P<sub>2</sub>O<sub>5</sub> + 50 Kg K<sub>2</sub>O).

Observation recorded 75 days after sowing, pertains that treatment (T<sub>3</sub>) variety Mahyward-Mgh-4, was found significant amongst all the treatments and showed better results in term of vine length followed by treatment (T<sub>2</sub>) Indam-204. The results corroborate with those of Singh *et al.*, (2014) and Mohammad *et al.*, (2015), Mangala and Tirumalesh (2013) Devi S. Nirmala (2011).

### **Phenological parameters**

The data in Table-2 reveals that during all the different stages observation such as number of male flowers, length of pedicel, depicted significant effect at different stages of growth at 15 days interval dose (100KgN + 50Kg P<sub>2</sub>O<sub>5</sub> + 50Kg K<sub>2</sub>O). Observation recorded pertains that treatment (T<sub>3</sub>) variety Mahyward Mgh-4, was found significant amongst all the treatments and showed better results in term of male flowers count, similar pattern of observation was recorded at 75, 90, days whereby the treatment (T<sub>1</sub>) variety chutki was statistically significant and was slightly good over the days. Data recorded at 90, 105 DAS number of female flowers treatment (T<sub>3</sub>) variety Mahyward Mgh-4, was found significant, followed by (T<sub>2</sub>) variety Indian-204 which was also significant.

**Table.1**

<b>MORPHOLOGICAL CHARACTERS</b>					
		<b>VINE LENGTH (cm)</b>	<b>LEAF AREA (cm)</b>	<b>SECONDARY BRANCHES</b>	<b>TERTIARY BRANCHES</b>
<b>Treatment</b>	Varieties	75-D.A.S.	75-D.A.S.	75-D.A.S.	75-D.A.S.
<b>T<sub>1</sub></b>	CHUTKI	33.00	236.000	23.600	13.300
<b>T<sub>2</sub></b>	INDAM-204	35.60	266.600	23.700	14.00
<b>T<sub>3</sub></b>	MAHY.MGH-4	37.50	274.400	27.100	19.500
<b>T<sub>4</sub></b>	KIRT F <sub>1</sub> -HYBRID	35.70	220.400	26.800	18.800
<b>T<sub>5</sub></b>	N.SHIVANI	33.20	210.200	23.200	13.100
<b>T<sub>6</sub></b>	P.P.G. BOG-3	31.80	236.800	24.600	14.100
<b>T<sub>7</sub></b>	N-JYOTI	32.20	158.800	23.600	14.200
<b>C.D.</b>		3.6101	31.7687	2.3288	2.3031
<b>S.E.(m)</b>		1.1719	10.3121	0.7559	0.7477
<b>S.E.(d)</b>		1.6571	14.5813	1.0688	1.0572

**Table.2**

<b>PHENOLOGICAL CHARACTERS</b>							
		<b>NUMBER OF MALE FLOWER</b>		<b>NUMBER OF FEMALE FLOWER</b>		<b>PEDICEL LENGTH (cm)</b>	
<b>Treatment</b>	Varieties	75-D.A.S.	90-D.A.S.	90-D.A.S.	105-D.A.S.	90-D.A.S.	105-D.A.S.
<b>T<sub>1</sub></b>	CHUTKI	26.100	36.100	4.000	8.400	3.900	4.500
<b>T<sub>2</sub></b>	INDAM-204	19.600	34.200	34.200	43.500	5.500	6.600
<b>T<sub>3</sub></b>	MAHY.MGH-4	29.000	39.400	39.400	48.800	6.400	7.100
<b>T<sub>4</sub></b>	KIRT F <sub>1</sub> -HYBRID	17.600	26.200	26.200	37.600	5.200	6.400
<b>T<sub>5</sub></b>	N.SHIVANI	15.400	27.600	27.600	37.400	4.300	5.400
<b>T<sub>6</sub></b>	P.P.G. BOG-3	14.700	24.400	24.400	120.600	4.100	5.700
<b>T<sub>7</sub></b>	N-JYOTI	16.600	25.200	25.200	36.900	4.100	4.600
<b>C.D.</b>		3.4699	4.6402	4.6402	5.7639	0.7660	1.1566
<b>S.E.(m)</b>		1.1263	1.5062	1.5062	1.8709	0.2483	0.3755
<b>S.E.(d)</b>		1.5927	2.1298	2.1298	2.6455	0.3511	0.5309

**Table.3**

YIELD CHARACTERS							
		LENGTH OF FRUIT (cm)		FRUIT DIAMETER (cm)		WEIGHT OF FRUIT (cm)	
Treatment	Varieties	90-D.A.S.	105-D.A.S.	90-D.A.S.	105-D.A.S.	90-D.A.S.	105-D.A.S.
T <sub>1</sub>	CHUTKI	28.000	34.000	3.800	4.300	3.800	4.300
T <sub>2</sub>	INDAM-204	28.600	35.300	5.200	6.400	5.200	6.400
T <sub>3</sub>	MAHY.MGH-4	38.600	50.000	4.000	4.200	4.000	4.200
T <sub>4</sub>	KIRT F <sub>1</sub> -HYBRID	37.300	41.300	3.700	3.900	3.700	3.900
T <sub>5</sub>	N.SHIVANI	33.600	41.000	4.300	4.900	4.300	4.900
T <sub>6</sub>	P.P.G. BOG-3	36.600	44.000	4.100	4.300	4.100	4.300
T <sub>7</sub>	N-JYOTI	28.100	32.600	4.00	3.400	4.00	3.400
<b>C.D.</b>		3.7220	4.6574	0.6239	0.4375	0.6239	0.4375
<b>S.E.(m)</b>		1.2073	1.5118	0.2025	0.1414	0.2025	0.1414
<b>S.E.(d)</b>		1.7072	2.1377	0.2863	0.1999	0.3511	0.5309

At 90, 105, DAS pedicel length was treatment (T<sub>3</sub>) variety Mahyward Mgh-4, was found significant amongst all the treatments and showed better results in term of pedicel length followed by some fluctuation pattern observed in between treatment (T<sub>2</sub>) Indian-204 and treatment (T<sub>4</sub>) Kirti F<sub>1</sub> hybrid and Balai *et al.*, (2014).

### **Yield Parameters**

The data in Table-3 depicts following results at 90, 105 days after sowing maximum length of fruits was recorded in (T<sub>3</sub>) treatment, in variety Mahyward. Diameter of fruits was as per the data recorded at 90, 105 days interval with dose of 100KgN + 50Kg P<sub>2</sub>O<sub>5</sub> + 50Kg K<sub>2</sub>O. Diameter of fruits of fruits was recorded in (T<sub>2</sub>) treatment in all the varieties at different stages of growth, Indam-204. At 90 days after sowing maximum weight of fruits was recorded in (T<sub>3</sub>) treatment, in variety Mahyward. At 105 days after sowing maximum weight of fruits was recorded in (T<sub>3</sub>) treatment, in variety Mahaward. At 110 days after sowing maximum weight of fruits was recorded in (T<sub>3</sub>) treatment, in variety Mahyward, which the results are with close agreement with Vijay Kumar *et al.*, (2009) and Yadav and Kumar (2008), Yetisir (2008).

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