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SG More
Ph.D. Scholar, College of Horticulture, S. D. Agricultural University, Sardarkrushinagar, Gujarat, India

VR Chudasama
Assistant Research Scientist, College of Horticulture, S. D. Agricultural University, Sardarkrushinagar, Gujarat, India

Corresponding Author:
SG More
Ph.D. Scholar, College of Horticulture, S. D. Agricultural University, Sardarkrushinagar, Gujarat, India

Performance of different varieties in respect of pest incidence and yield attributes of watermelon (*Citrullus lanatus* thunb mansf) under north Gujarat condition

SG More and VR Chudasama

Abstract
The experiment was laid out with eight varieties of watermelon (*Citrullus lanatus* Thunb Mansf) to evaluate superior variety against pest incidence under field conditions during *summer* season at Horticulture Instructional Farm, Department of Horticulture, C .P. College of Agriculture, S. D. Agricultural University, Sardarkrushinagar, Gujarat. The results showed that the minimum incidence of fruit fly was found with variety V_1 (Sugar Baby) which was statistically at par with V_2 (Arka Manik), V_4 (Durgapura Lal- RW-177-3) and V_3 (Asahi Yamato), respectively. The minimum incidence of red pumpkin beetle was observed in variety V_2 (Arka Manik) whereas, maximum was recorded in variety V_8 (GP- 3). Among the varieties Arka Manik (V_2) recorded the highest fruit yield per plant and yield per hectare.

Keywords: watermelon, varieties, pest incidence

Introduction
Watermelon (*Citrullus lanatus* Thunb Mansf) is an annual vegetable crop which belongs to family cucurbitaceae. It is believed to be originated from Africa. It is cross pollinated in nature having 2n = 22 chromosome number. Fruits are climacteric and rich in lycopene. Watermelon has high nutritive value and rich in vitamin 'C' (antioxidant) which is good for health, low sugar and calories because of high per cent of water present in it. Due to the monoecious type the production of staminate flower is considerably more in numbers than pistillate flowers, therefore only female flowers contribute to the yield, accordingly it is important to study the possibility of bringing about a shift of sex in favour of the pistillate flowers. The sex expression in most of the cucurbitaceous crops, which have monoecious plants, is governed by genetically as well as environmental factors. Dhillion (1966) and Stanghellini *et al.* (2002) reported increased male: female ratio with increase in light intensity. The success of crop production depends upon suitable variety selection. In North Gujarat work done on varietal evaluation of watermelon is very scanty. As it is pre-requisite to identify first of all suitable variety with better performance under North Gujarat condition.

Materials and Methods
The research was carried out at Horticulture Instructional Farm, Department of Horticulture, C. P. College of Agriculture, S. D. Agricultural University, Sardarkrushinagar, Dantiwada, Gujarat. The experiment was carried out by application of Randomized Block Design (RBD) with four replications. There are eight varieties of watermelon taken with treatments. The seeds of these varieties were procured from various reliable sources *i.e* Indian Agriculture Research Institute, New Delhi, Indian Institute of Horticulture Research, Bangalore**,** Indian Agricultural Research Institute, Regional Station, Katrain (Kullu Valley) H. P. and Agricultural Research Station, Durgapura (Rajasthan)**.** In general, 3 to 5 kg genetically pure seed is required per hectare for direct sowing. Two seeds were sown per dibble at desired spacing as per treatment. The farm yard manure (FYM) and fertilizer were applied at the rate of 30 tonnes per hectare and 100:50:50 NPK kg per hectare, respectively. The whole quantity of phosphorus and potassium was given as basal dose in the form of single super phosphate (SSP) and murate of potash (MOP), respectively. Whereas half quantity of nitrogen in the form of urea was applied as basal dose and remaining half dose after 30 days of sowing. A light irrigation was applied in each plot immediately after sowing. After seven days, gap filling was done for maintaining uniformity plant population. Subsequently irrigation, weeding,

interculturing and suitable plant protection measures were employed as per the package of practices for water melon as and when required.

Results and discussion

Data on periodical pest incidence as influenced by the different varieties are presented in Table1 and graphically depicted in Fig. 1. The minimum incidence of red pumpkin beetle was found with variety V_2 (Arka Manik) *i.e.* 8.95 which h was statistically at par with V_1 (Sugar Baby) and V_3 (Asahi Yamato) *i.e.* 9.83 and 10.00, respectively. Whereas, maximum incidence of red pumpkin beetle was observed with variety V_8 (GP- 3) *i.e.* 14.55. The minimum incidence of fruit fly was found with variety V_1 (Sugar Baby) *i.e.* 3.05 which was statistically at par with V_2 (Arka Manik) *i.e.* 3.13, V_4 (Durgapura Lal- RW-177-3) *i.e.* 3.13 and V_3 (Asahi Yamato) *i.e.* 3.40, respectively. Whereas, maximum incidence of fruit fly was found with variety V_6 (Sonam) *i.e.* 5.95. The result revealed that among all varieties, the minimum incidence of red pumpkin beetle was observed in variety V_2 (Arka Manik) whereas, maximum was recorded in variety V_8 (GP- 3). Among the varieties the minimum incidence of fruit fly was recorded with V_1 (Sugar Baby) whereas, maximum was recorded with V_6 (Sonam). The obtained results are verified with the resulted Thakur *et al.* (1994).

Fruit yield (kg/plant) were performed significantly by different varieties are presented in Table 1 and graphically traced in Fig. 2. Treatment V_2 (Arka Manik) recorded highest (11.563 kg/plant) fruit yield per plant and which was statistically at par with V_3 (Asahi Yamato) *i.e.* 10.308 kg per plant and V_6 (Sonam) *i.e.* 10.218 kg per plant. The lowest fruit yield (7.183 kg/plant) was recorded with V_8 (GP- 3). Fruit yield (q/ha) were performed significantly by different varieties are presented in Table 1 and graphically sketched in Fig. 3. The highest fruit yield per hectare (578.13 q) was found with treatment V_2 (Arka Manik) and which was statistically at par with V_3 (Asahi Yamato) *i.e.* 515.38 q/ha and V_6 (Sonam) *i.e.* 510.88 q/ha. The lowest yield per hectare (359.13 q) was noted with V_8 (GP- 3). Variety V_2 (Arka Manik) recorded superior value of fruit yield per plant and yield per hectare whereas, variety V_8 (GP-3) with lowest value of fruit yield per plant as well as yield per hectare. The difference with in varieties due to high dry matter partianing toward fruits. These results are in close conformity with the findings of Yadav *et al*. (2005), Rolania *et al.* (2004), and Vashistha *et al.* (1983) in watermelon, Lawande *et al.* (1991) and Thakur *et al.* (1994) in bitter gourd, Singh *et al.* (1990) in pointed gourd, Sarnaik *et al*. (1999) in ivy gourd.

Table 1: Performance of different varieties with respect to pest incidence, yield fruit/ plant and yield/hectare.

Treatment	Pest incidence (%)		Yield of fruits (kg/plant)	Yield of fruits (q/ha)
	Red pumpkin beetle	Fruit fly		
V_1 (Sugar Baby)	9.83	3.05	7.303	365.13
V_2 (Arka Manik)	8.95	3.13	11.563	578.13
V_3 (Asahi Yamato)	10.00	3.40	10.308	515.38
V_4 (Durgapura Lal- RW-177-3)	10.95	3.13	7.963	398.15
V_5 (Durgapura- RW-187-2)	11.45	5.00	8.250	412.50
V_6 (Sonam)	13.05	5.95	10.218	510.88
V_7 (GP- 42)	11.28	4.93	9.448	472.38
V_8 (GP- 3)	14.55	5.75	7.183	359.13
S.Em.±	0.60	0.35	0.56	27.74
C.D. at 5 %	1.77	1.03	1.65	81.59
C.V. %	10.68	16.39	12.42	12.31

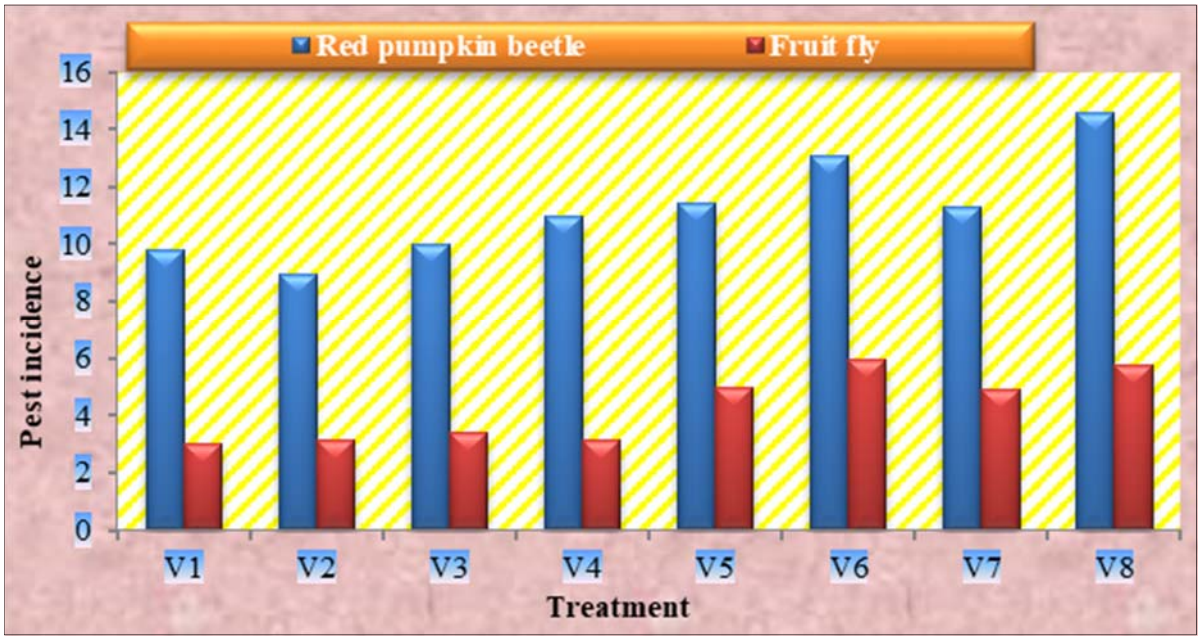

Fig 1: Performance of different varieties with respect to pest incidence.

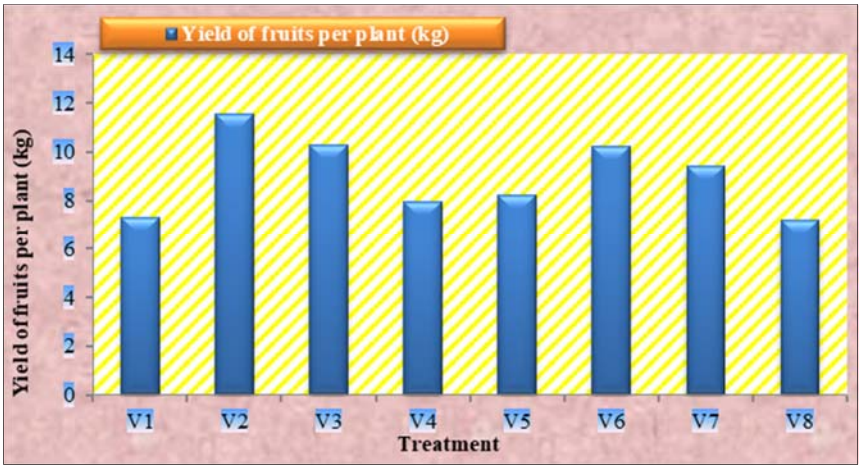

Fig 2: Performance of different varieties with respect to yield of fruits (kg / plant).

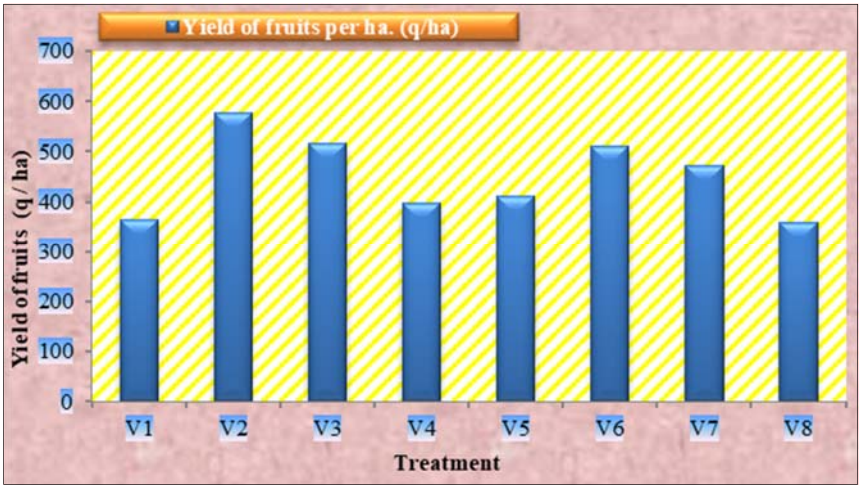

Fig 3: Performance of different varieties with respect to yield of fruits (q / ha).

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