

Research Note**PERFORMANCE OF CUCUMBER CULTIVARS AT LOW HILL DURING
SUMMER-RAINY SEASONS****M. D. Sharma and S. P. Bhattarai**

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ABSTRACT

This experiment was conducted in randomized block design with three replications in the farmers' field conditions at Yampaphant, Tanahun during April - July 2000. The cultivars included in this study were one commercial namely Bhaktapur Local and the four exotic cultivars and hybrids namely Malini, Korean White, Japanese Green and Green Long. The hybrid Malini was found significantly more vigor and earlier (first picking at 42 days) and produced significantly higher number of fruits (252 thousands/ha) and significantly higher yield (69.6 t/ha). The commercial variety Bhaktapur Local remained androecious and did not produce fruit when grown during summer -rainy season.

Key words: Cucumber, summer-rainy season, marketable yield**INTRODUCTION**

Most diversified cucumber landraces are grown in the different agroecological regions of Nepal. The probable wild ancestor (*Cucumis hardiwickii* Royle) of cultivated cucumber found in the hills of Nepal produces small and bitter fruits (Prokharov *et al.*, 1981). The authors further noted that the evolution of cultivated cucumber might be held from the original forms of Himalayan cucumber, which belonged to *C. sativus* L. sp. *himalaicus* Fil. Hence, it is believed that the mid and low hills of Nepal are the native place of the cultivated cucumber. The cucumber plants have been adapted to the monsoon period. In traditional cultivation, the seeds are sown in early monsoon period. The plants grow up luxuriantly and produce mainly male flowers when the weather is warm and humid. At the later period of monsoon, the air temperature declines, rainfall decreases and the day length also relatively shortens then the growth rate of plants ceases, the plants initiate to produce more number of female flowers and produce fruits. In this way, Nepalese landraces have been adopted to produce quality fruits in the short day, humid and mild temperature conditions.

In Nepal, commercial cucumber varieties, such as Green Long and Poinsett have been suggested for terai while Kusule and Bhaktapur Local for hills for spring-summer crop (Pandey and Adhikari, 1996). The performance of these varieties when planted in summer- rainy season, they yielded poor because of preponderance of maleness (Subedi *et al.*, 1997). Therefore, this study aimed assessing the performance of exotic cultivars in the summer-rainy season in lower part of mid hill.

MATERIALS AND METHODS

This experiment was carried out in a randomized block design with three replications at Yampaphant, Tanahun during April - July 2000. The cultivars included in this study were one commercial namely Bhaktapur Local and the four exotic hybrids namely Malini, Korean White, Japanese Green and the open pollinated variety Mahyco Green Long. Each replication was located separately in the field of three farmers'. The size of the individual plot was 5m² containing five plants. Pits were dug. Manure and fertilizers used were 20 t farm yard manure and 120:60:50 NPK kg/ha. The full dose of manure, phosphorus, potash and one sixth of the nitrogen were applied at the time of pit filling. Four to five seeds were sown on 26th April 2000. Of the remaining five fertilizer splits, the first one was applied at 25 days after sowing and the other at 10 days interval. Weeding and inter row cultivation were made at the time of side dressing. Tree branches were used to stake the plants. Surface irrigation was given before the initiation of monsoon. Kriloxyl (fungicide), Cripcord and Rogor (insecticides) were sprayed twice during the crop-growing period. Two sprays of Multiplex were applied at the early stage of flowering and fruiting. The first harvest was in June 13-25 and the last harvest in July 11-20. The fruits were harvested when they attained a size of 200-250 g.

In this experiment, plant stand per plot at harvest, duration from sowing to first staminate and pistillate flowers, first male as well as female flower bearing node, and total nodes, branches and biomass per plant, harvest duration and frequencies total number of fruits and total yield per plot and percent marketable fruits and yield per plot were recorded. MSTAT computer software was used to analyze the data.

RESULTS AND DISCUSSION

Plant stand, sex expression and morphological characters

Vegetative and reproductive attributes are presented in Tables 1, 2. Plant stand was found relatively poor in the Korean White compared to the hybrid Malini and others (Table 1). Duration from sowing to first male flower was found the shortest in Malini (28.3 days) and the longest in Bhaktapur Local (50.0 days). Bhaktapur Local produced first male flower on the significantly different upper node (9.0), while all other cultivars produced on lower 4th node. The hybrid Malini produced the first pistillate flower significantly earlier (34.0 days) than the Korean White and Bhaktapur Local (41.0 and 42.6 days, respectively). The Green Long produced the first pistillate flower on the significantly upper node (8.6) than other cultivars. The cv. Bhaktapur Local remained androecious. Subedi *et al.* (1997) also reported similar results. The differences between cultivars were found not only in sex expression but also in morphological characters of the plant. The hybrid Malini and the Green Long had significantly higher number of total nodes per plant than Korean White and Japanese Green. The highest number of total branches (11.6/plant) was recorded in the hybrid Malini. Similarly, the hybrid cultivar produced the highest amount of biomass (2.6 kg/plant) followed by Green Long.

Table 1. Growth performance and sex expression of five cucumber cultivars at Yampaphant, Tanahun in summer-rainy seasons, 2000

Cultivars	Plant stand per plot at harvest	Days to first staminate flower	First male flowering node	Days to first pistillate flower	First pistillate flowering node	Total nodes per plant	Total branches per plant	Biomass (kg/plant) at the end
Malini	5.0	28.3	4.00b	34.00c	6.33b	55.0a	11.66a	2.600a
Korean White	3.0	37.6	4.33b	41.0b	5.66b	30.6b	0.33b	0.467b
Japanese Green	4.0	33.3	4.0b	35.66c	6.00b	32.0b	3.33b	0.467b
Green Long	4.6	29.6	4.33b	42.66a	8.66a	55.3a	5.66b	1.433b
Bhaktapur Local	4.0	50.0	9.00a	-	-	42.6ab	2.00b	0.333b
CV	18.21	10.24	21.34	7.73	14.79	18.09	64.43	83.31
SEM \pm	0.4346	1.9986	0.6325	1.7105	0.5693	4.5049	1.7111	0.5098
LSD 5%	ns	ns	2.063	5.919	1.970	14.69	5.580	1.663

Harvest duration, number of pickings and yield

In the hybrid Malini and the Japanese Green, the first harvest was significantly earlier (42.0 days after sowing) than in Korean White and Green Long. The longest harvest duration (36.0 days) was recorded in hybrid Malini followed by Japanese Green and Green Long. The number of pickings was found significantly the highest in hybrid Malini. This hybrid cultivar produced significantly the highest number of total fruits (252 thousand/ha with the highest yield (69.6 t/ha), the highest percent of marketable fruits (77.8%) and yield (77.067%) followed by Japanese Green (in total fruits) and Green Long (in total yield and percent marketable yield). The performance of Korean White and Japanese Green was found poor. The hybrid Malini performed very well and was found resistant to heat. In future program, hybrid cultivar better than hybrid Malini in the amount of yield and quality need to be developed for summer-rainy season crop for inner terai, river basin and lower part of the mid hills.

Table 2. Yield performance of five cucumber cultivars at Yampaphant, Tanahun in summer-rainy seasons, 2000

Cultivars	Days to first harvest	Days to last harvest	Harvest number	Total fruits per ha ('000)	Marketable fruits (%)	Total yield t/ha	Marketable yield (%)
Malini	42.0b	78	7.00a	252.0a	77.8	69.6a	77.067a
Korean White	52.66a	74.0	3.00c	19.3b	3.33	4.466b	4.167b
Japanese Green	42.0b	70.3	5.00b	66.6b	10.63	13.4b	9.967b
Green Long	50.33a	78.0	4.33b	38.0b	27.66	14.1b	27.933b

Table 2. Cont.

Cultivars	Days to first harvest	Days to last harvest	Harvest number	Total fruits per ha ('000)	Marketable fruits (%)	Total yield t/ha	Marketable yield (%)
Bhaktapur Local	-	-	-	-	-	-	-
CV	3.89	6.42	10.34	21.01	-	33.43	55.10
SEM \pm	1.0497	2.7839	0.2887	5.7001	-	2.4505	9.4747
LSD 5%	3.633	ns	0.9989	39.46	-	16.96	32.79

The cultivation of cucumber hybrid cultivars did well even in summer sowing and broke the seasonality of cucumber production induced by long photoperiod and high temperature conditions.

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