

Performance of Six Cucumber (*Cucumis sativus* L.) Genotypes in Swat-Pakistan

ABDUL HAMID, JALAL UD-DIN BALOCH[†] AND NAEEMULLAH KHAN[†]

University College of Agriculture Rawalakot, Azad Kashmir

[†]Faculty of Agriculture, Gomal University, Dera Ismail Khan-Pakistan

ABSTRACT

Performance of six cucumber genotypes viz; PARC-1, Peshawer local, Baby long, Ashly, Albeit and Swat local were studied in the environmental conditions of Swat. Maximum (72.3%) and minimum (48.2%) germination was observed in cultivars PARC-1 and Albeit, respectively. Cultivar (cv) Peshawer local took maximum time (40 days) to initiate blooming while minimum time (34 days) was taken by cv Baby long. Maximum male flowers were observed in cv Ashly (14.0%) while minimum in Swat local (8.66%). Cultivar PARC-1 and Albeit depicted maximum (19.33) and minimum (12.0%) female flower percentage. Cultivar Albeit took maximum time (64 days) to initiate fruit setting (from sowing). While minimum days (85) to edible maturity were taken by cv Albeit and the opposite in this regard was PARC-1 (69 days). Maximum number of fruits were found in cv PARC-1 (11 fruits per plant). The cv Ashley produced the minimum (8) fruits per plant.. PARC-1 was the highest fresh fruit yielding cv with 10.66 tons ha⁻¹ while minimum yield of 8.33 tons ha⁻¹ was produced by cv Peshawer local, Albeit and Ashly.

Key Words: Genotypes; Cucumber; Cultivar; Performance

INTRODUCTION

The cucumber is sown in mixed cropping system as well as in separate field in the area of Swat. Non-availability of suitable varieties or the ignorance about the information of the excellent variety to the farming community is the major problem. Thus the newly evolved appropriate varieties are made known to the farmers. The factors responsible for low yield of cucumber are diseases, cultivation of inferior varieties and lack of suitable cultural practices (Fertilization, irrigation and hoeing etc.) Among these, the most common cause of low productivity is the cultivation of inferior varieties. Therefore, a number of workers have reported performance of different cultivars of cucumber (Silva *et al.*, 1979; Mangual, 1982; Kydryashov & Ktitorove, 1988; Uffelen & Hogendonk, 1989; Miano *et al.* 1991). This study was conducted to evaluate the performance of different cultivars (cvs) of cucumber in the local conditions of Swat.

MATERIALS AND METHODS

The research was conducted at N.W.F.P Agricultural Research Station Mingora. The cultivars evaluated were PARC-1 (V1), Peshawer local (V2), Baby long (V3), Albeit (V4), Ashley (V5) and Swat local (V6). The RCBD with three replications. Plant to plant and row to

row distance was kept 30 cm and 1 meter, respectively. The recommended doze of farm yard manure and fertilizers were applied. Irrigation and cultural practices were maintained properly. The parameters, germination percentage, days to flower, male and female flowers frequency, days to fruit initiation, days to edible maturity, number of fruits per kg, number of fruits per plant and yield per hectare etc. were studied and analyzed statistically. Duncan's multiple range test was applied to test the significance of results (Steel & Torrie, 1980).

RESULTS AND DISCUSSION

Results have been shown in Table I. Different cvs had non-significant effect on germination percentage. Different genotypes revealed maximum germination percentage (72.3%) in cv PARC-1 and minimum (48.2%) in Albeit cv. Other cvs Peshawer local, Baby long, Ashley and Swat local Showed germination percentage as 58.5, 60.7, 62.03, and 66.00%, respectively. Difference among the cvs for number of days taken to flowering from sowing in response to different cvs was highly significant. The cv Peshawer local took longer time (40 days) to get the first flowering followed by albeit (39 days), while cvs PARC-1, Ashley and Swat local took 38, 36 and 35 days, respectively. The variation in the number of days taken to flowering might be due to genetic nature of the different cvs, as the environmental conditions were same for all the cvs. Data for the flower frequency is non-significant,

Table I. Comparison of germination percentage, days to first flowering, male and female flower frequency

Cultivar	Germination percentage	Days to first flowering	Flower frequency	
			Male	Female
PARC-1	72.3	38.33abc	9.60	19.33
Peshawer local	58.5	40.66a	10.60	14.33
Baby long	60.7	34.00d	12.00	16.00
Albeit	48.2	39.66ab	12.00	12.00
Ashley	62.3	36.00bcd	14.00	15.33
Swat local	66.0	35.33cd	8.66	15.33

LSD_{0.1} 1.55

while that of female flower frequency is significant. Maximum number of male flowers (14.00) were noted for cv Ashley while and minimum (8.66) for cv Swat local. Maximum female flower frequency was shown by cv PARC-1 and male by Ashley.

The data regarding to fruit initiation, days to edible maturity, number of fruits per kg, number of fruits per plant and fresh yield per unit area (t ha^{-1}) showed that the differences are significant (Table II). Maximum number of days (64.40) were taken by cv Albeit and minimum (53.00) for cv PARC-1. Days for other four cultivars Peshawer local, Baby long, Ashley and Swat local took 61.00, 57.66, 57.66 and 58.33 days, respectively. Differences for edible maturity in response to different cvs were highly significant. Cultivar Albeit took maximum time (85.66 days) and the cultivar PARC-1 took minimum time (69.33 days). Same data for cvs Peshawer local, Baby long, Ashley and Swat local were 79, 77, 81 and 81 days, respectively. Results for number of fruits per kg were non-significant. Maximum number of fruits per kg (7.00) was recorded for cv Albeit and minimum (3 fruits) for cv Swat local. Number of fruits per plant showed non-significant results. Maximum number of fruits per plant (11.66) were recorded for cv PARC-1, while minimum (86 fruits per plant) for cv Ashley. Cultivars Peshawer local, Baby long, Albeit and Swat local produced 10, 10, 9 and 11 fruits per plant, respectively. Yield per unit area in response to different cvs was found to be non-significant. Maximum yield ($10.66 \text{ tons ha}^{-1}$) was produced by PARC-1 while minimum yield ($8.33 \text{ tons ha}^{-1}$) was given by cv Peshawer local, Albeit and Ashly.

Data regarding germination percentage exhibited non-significant difference and all the cvs had shown the medium germination percentage. The difference for days to initiate flowering was highly significant. The variation in flower initiation amongst the cvs may be due genetic diversity. The difference of male flowers for all cvs was

Table II Comparison of days to fruit initiation, days to edible maturity, number of fruits per kg, number of fruits per plant and fresh yield per unit area

Cultivar	Days to fruit initiation	Days to edible maturity	No. of fruits per kg	No. of fruits per plant	Fresh yield t ha^{-1}
PARC-1	53.00b	69.66b	5.00	11.6	10.66
Peshawer local	61.11a	79.33b	4.66	10.0	8.33
Baby long	57.66ab	77.00b	5.33	10.0	9.33
Albeit	64.00a	85.66a	7.00	9.00	8.33
Ashley	57.00ab	81.00ab	6.00	8.60	8.33
Swat local	58.33ab	81.33ab	3.00	11.00	9.66

LSD_{0.1} 4.00 6.08

non-significant however; due to monoecious nature of crop the female flowers have prime importance for getting good production. Significant difference of female flower frequency amongst cvs indicated that PARC-1 proved more profitable due to more number of female flowers and cv Albeit was found uneconomical due to smallest number of female flowers. Significant difference of data for days to fruit initiation and edible maturity denoted that different genetic constitutions of the cvs affected the performance of cvs differently. The difference for number of fruits per plant and fresh yield per hectare amongst cvs was non-significant however, cv PARC-1 found to be high yielding and suitable for cultivation under Swat condition as compared to other cvs. Our findings are some what different from those of Silva *et al.* (1979), Mangual (1982), and Uffelen and Hogendonk (1989). It may be due to different environment, soil and other inputs provided differently in both the cases.

REFERENCES

- Kydryashov, S. and Ktitorove, 1988. Varieties and hybrids for the BAM zone. *Kartofel, Ovoshei*, 2: 30–31.
- Mangual, G., 1982. Pickling cucumber (*Cucumis sativus* L.) cultivar evaluation in North Western Puerto Rico. *J. Agri. Univ. Puerto Rico*, 66: 177–80.
- Miano, N.M., G.H. Memon, A.N. Ghilzai and A.M. Khushik, 1991. Varietal trial on Cucumber (*Cucumis sativus* L.) *Sindh J. Res.*, 8: 30
- Silva, A.C., J.J.V. Muller and S. Yokohama, 1979. Behaviour of cucumber cultivars for processing in the Baixo Vale of Ithajai in the state of Santa Catarina [*Hort. Abst.* 51 (12): 9380; 1981]
- Steel, R.G.D. and J.H. Torrie, 1980. *Principles and Procedures of Statistics*. McGraw Hill Book Co., New York, USA.
- Uffelen, J.A.M. and L. Hogendonk, 1989. Cucumbers. Wide choice of cultivars for autumn culture. *Groenten en fruit*, 44: 44–45.

(Received 03 August 2002; Accepted 28 August 2002)