SHORT COMMUNICATION

Performance of Strawberry (*Fragaria* x *ananassa* Duch) Cultivars under Mid Hills Condition of Himachal Pradesh

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In an evaluation study of 15 cultivars of strawberry for various fruit characters, Etna gave highest yield/plot (626.8 g) while maximum fruit weight of 9.97 g was recorded in cultivar Fern. Maximum fruit length (3.68 cm) fruit breadth (2.83 cm) and TSS (11.82°B) were recorded from fruits of Belruby, Etna and Blakemore, respectively. Like other characters highest sugar percentage at the tune of 6.47 was estimated in cultivar Tioga while minimum acidity (0.85%) was found in cultivar Addie and Pajaro. Highest postive significant correlation coefficient was found to be 0.84 between yield and fruit weight which was followed by 0.55 between fruit length and fruit breadth. All cultivars flowered in February-March, and fruits were harvested from April to May.

Keywords: Evaluation, Fruit Characters, Himachal Pradesh, Strawberry

Strawberry (*Fragaria* x *ananassa* Duch) is an important fruit of family Rosaceae and occupies an important place among the small fruits. The cultivated varieties of strawberry are octoploid (2n=56) and perhaps is the only fruit in which all the culitvars have been evolved by man through hybridization. Besides quick returns, strawberry fruits are attractive with distinct and pleasant aroma/flavour, rich in Vitamin C and minerals. Strawberry fruits have a special demand by fruit processing industries for preparing jam, jellies, candies, drinks and other products. The crop is grown throughout the world and is rated high on the list of preferred foods. The cultivation of strawberry is presently associated with many problems, as fruit yield and quality are influenced by plant vigour, soil conditions, irrigation, duration of rest period, photo period, soil conditions, irrigation, temperature and disease resistance coupled with transportation, marketing, storage and processing facilities. These factors individually and collectively have greatly influenced the successful cultivation of strawberry under specific environmental conditions. Amongst all characters, fruit traits have always remained of prime importance and are much influenced by environmental factors. Hence proper evaluation of cultivars under different environmental conditions is essential prior to their release for commercial cultivation. Keeping these consideration in view the present study was carried out.

The present investigations were carried out in the strawberry block of the Department of Fruit Breeding and Genetic Resources, situated at 30-50° N and 77.8°

Table 1. Five year (1995-1999) mean for different characters of some strawberry cultivars

Cultivars	Yield/plot (g)	Fruit weight (g)	Length (cm)	Fruit/size Breadth (cm)	TSS -B	Acidity (%)	Sugars (%)
1. Addie	319.2	7.7	3.6	2.5	10.28	0.85	5.4
2. Belruby	423.4	7.8	3.7	2.6	11.66	0.87	5.9
3. Blakemore	382.6	6.2	3.5	2.6	11.82	1.21	4.10
4. Brigton	389.0	7.2	3.2	2.4	10.28	0.90	5.2
5. Catskill	458.2	6.8	3.1	2.4	10.42	1.08	5.2
6. Chandler	447.0	7.8	3.3	2.7	11.39	1.04	6.1
7. Dana	549.2	9.7	3.3	2.6	10.35	1.06	5.10
8. Etna	626.8	9.8	3.1	2.9	9.46	1.07	4.10
9. Fern	486.0	9.10	3.4	2.8	10.25	0.94	4.10
10. Howard	394.0	6.9	2.9	2.3	11.77	0.98	5.8
11. Pajaro	527.0	8.8	3.2	2.6	11.74	0.85	5.2
12. Selva	507.6	8.9	3.2	2.8	10.49	0.94	5.2
13. Shasta	284.8	6.2	3.4	2.6	11.08	0.91	4.8
14. Tioga	550.2	6.9	2.10	2.4	11.09	1.03	6.5
15. Torrey	421.0	8.2	3.1	2.8	10.36	0.88	5.10
CD (0.05)	241.86	1.81	0.39	0.35	0.76	0.098	0.397
SE (Means)	120.73	0.91	0.19	0.18	0.38	0.048	0.948

E latitude at an elevation of 1275 metres above mean sea level. Data on various fruit characters were recorded from 1995 to 1999 (for five years) on 15 strawberry cultivars. The germplasm consisted of collections both from within India and abroad. The statistical analysis was performed as per Panse and Sukhatme (1985). A plot size of 1.44 m^2 was used for carrying out the experiment, which was replicated three times randomly.

Data regarding five years mean for various traits in different cultivars are presented in Table 1.

The yield varied from 284.8g to 699.0g per plot. The highest and lowest yield per plot were recorded in cultivars Fern and Shasta. These two cultivars differed significantly from each other. The cultivars Catskill, Dana, Etna, Pajaro, Selva and Tioga were at par with Fern.

Fruit weight varied between 6.2g in Blakemore to 9.10 g in cultivar Fern. The differences were significant between the two cultivars. The cultivar Dana, Etna, Pajaro, Selva, Addie and Torrey were statistically at par with each other.

Highest fruit length was measured as 3.6cm in cultivar Belrubi, while it was lowest in cultivar Howard (2.9cm). The recorded fruit length both minimum and maximum were statistically different from one another. Cultivars Blakemore, Shasta and Fern did not differ statistically.

Cultivar Etna produced fruit of maximum width (2.9cm), which differed statistically from the fruit breadth (2.3cm) observed in cultivar Howard and it was lowest amongst all the cultivars studied. Cultivars Belrubi, Chandler, Shasta, Fern and Torrey revealed no significant variation in the trait.

The Total Soluble Solids (TSS) ranged from 9.46^{0}B to 11.82^{0}B. The minimum and maximum values of TSS were recorded in cultivars Etna and Blakemore, respectively. All other cultivars differed significantly from Etna.

Minimum acidity of 0.85 per cent was observed in fruits of cultivar Pajaro, which differed significantly from cultivar Blakemore which registered maximum acidity of 1.21 per cent. Cultivars Catskill, Chandler, Dana, Etna and Tioga were statistically at par with each other.

Maximum sugar percentage was obtained in fruit of cultivar Tioga (6.47%) while it was minimum (4.8%) in cultivar Shasta. The accessions differed significantly from each other. About half of cultivars evaluated i.e. Addie, Belrubi, Chandler, Dana, Howard, Tioga and Torrey were similar in their sugar contents.

Flowering and harvesting period in all cultivars varied between February to March and April to May; respectively. Although Fern and Selva being day neutral, perpetual flowering was suppressed on account of high temperatures which prevailed from April to July.

Among various characters studied, highest positive significant correlation coefficient was observed between fruit weight and yield (0.8408). Fruit length and fruit breadth also gave positive and significant correlation (0.5471). The non-significant associations between different pairs of characters observed in the present study is an indication of independent nature of these characters.

In the present study wide range of values were recorded for various fruit characters. These ranges have also been observed by various workers. (Dhaliwal and Singh, 1983, Joolka and Badiyala, 1983, Awasthi and Badiyala, 1983, Dhaliwal and Grewal, 1984, Avidov, 1986, Kader, 1991, Veazi, 1995, Kidmore *et al.m* 1996 and Gupta, 1998).

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