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Effect of time of planting on physical and quality attributes of snapmelon (*Cucumis melo* L. var. *Momordica* Roxb. Duthie & J. B. Fuller)

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Abstract
The present investigation was conducted at the Department of Vegetable Science, College of Horticulture, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Dist. Ratnagiri in year 2024-25. The experiment was laid down in Randomized Block Design (RBD). Experiment comprises seven time of planting as treatments *viz*., T_1 - Planting on 1st week of April, T_2 - Planting on 1st week of May, T_3 - Planting on 1st week of June, T_4 - Planting on 1st week of October, T_5 - Planting on 1st week of November, T_6 - Planting on 1st week of December, T_7 - Planting on 1st week of January and which were replicated thrice. Among all treatments, T_1 - Planting on 1st week of April demonstrated superior performance with respect to physical parameters of fruit such as fruit length (30.29 cm), fruit diameter (20.34 cm) and fruit weight (1.66 kg). Snapmelon planted on 1st week of May was performed better in terms of quality parameters like TSS (6.23 °B) and acidity (0.10%). The minimum cracking (20.00%) was observed in T_5 - Planting on 1st week of November and highest edible portion (88.78%) and lowest Non-edible portion (11.23%) was recorded in T_1 - Planting on 1st week of April.

Keywords: Snapmelon, Cucurbitaceae, time of planting, physical parameters, quality parameters

Introduction
Snapmelon is an underexploited crop having immense potential as a fruit vegetable. It is belonging to the family cucurbitaceae with chromosome number of 2n=24. India considered as secondary centre of origin for snapmelon. Snapmelon is a warm-season crop, mostly grown in tropical and subtropical areas. Although it may be grown in a variety of soil types, it thrives best in sandy loam or loam soils. The suitable pH for crop growth is 6.5 to 7.5. The areas with medium rainfall and humidity are suitable for cultivation of snapmelon. Snapmelon is rich in nutritional attributes; 100 g of edible snapmelon fruit contains 15.6 g of carbohydrates, 18.6 mg of vitamin C, 0.3 g of protein, 95.7% of moisture (Peter and Hazra, 2012) [9] and 74.0 kcal of energy (Goyal and Sharma, 2009) [5]. In recent times, the juice of snapmelon is gaining popularity as a refreshing drink due to its cooling effects (Pareek *et al*., 1999) [8]. The fruits can be used as a cooling light cleanser or moisturizer for the skin. They are also used as a first aid treatment for burns and abrasions. The flowers are expectorant and emetic whereas fruit has stomachic properties, which can aid digestion by promoting appetite or improving stomach function. The seed is antitussive, digestive, febrifuge and vermifuge. It is then necessary to take a purge in order to expel the tapeworms or other parasites from the body. The roots are diuretic and emetic (Anno., 2024) [2]. Planting time is contingently related to changes in temperature, relative humidity, rainfall and photoperiod (duration of day length). By matching the plant's developmental stages with ideal environmental factors, it influences the snapmelon's growth cycle. Planting time also alters to prolong the snapmelon production and produce acceptable yields with high internal quality.

Material and Method
The experiment "Effect of time of planting on physical and quality attributes of snapmelon (*Cucumis melo* L. var. *momordica* Roxb. Duthie & J. B. Fuller)"

was conducted at College of Horticulture, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Dist. Ratnagiri during year 2024-25. The experiment was laid down in Randomized Block Design (RBD) with seven treatments replicated thrice. The treatments applied were Planting on T_1 - 1st week of April, T_2 - Planting on 1st week of May, T_3 - Planting on 1st week of June, T_4 - Planting on 1st week of October, T_5 - Planting on 1st week of November, T_6 - Planting on 1st week of December, T_7 - Planting on 1st week of January. Seedlings of snapmelon were produced in the nursery, were vermicompost and cocopeat in the ratio of 1:1 used as rooting medium. The seeds of snapmelon were sown in trays on 15th march, 15th April, 15th May, 15th September, 15th October, 15th November, 15th December 2024. The experimental area was 572 sq. m. After field preparations, the seedlings were planted on 10 m long and 1.5 m of wide raised bed at a distance of 60 cm apart from each other as per treatments. Plants were fertilized and irrigated using a drip irrigation system.

Results and Discussion

Physical parameters of fruit: The data regarding various physical parameters of fruit are presented in Table 1.

Fruit length (cm)

The maximum fruit length (30.29 cm) was exhibited in T_1 - Planting on 1st week of April which significantly superior then all other treatments and minimum (19.79 cm) was recorded in T_3 - Planting on 1st week of June. The reason behind increased fruit length in April planting might be associated with improved vegetative and reproductive growth facilitated by ideal climatic conditions. These outcomes were in line with conclusions of Poonam *et al*. (2023) and Raveena (2024) [10, 11].

Fruit diameter (cm)

Significantly, highest fruit diameter (20.34 cm) was reported in T_1 - Planting on 1st week of April, whereas minimum fruit diameter (10.06 cm) was recorded in T_3 - Planting on 1st week of June. The findings also in agreement with results of Anusha *et al*. (2021) and Poonam *et al*. (2023) [3, 10].

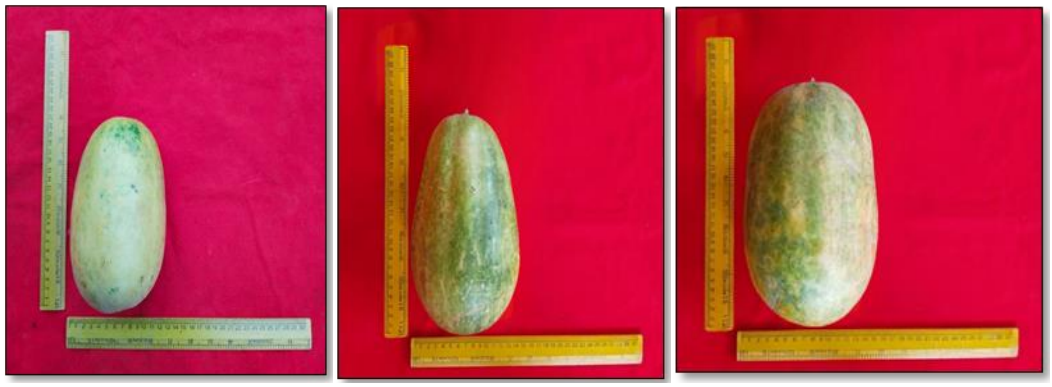
Fruit weight (kg)

The maximum fruit weight (1.66 kg) was observed in the T_1 - Planting in 1st week of April, while the minimum fruit weight (0.69 kg) was noted in the T_4 - Planting on 1st week of October. The planting during April exhibited better vegetative character which further reflected in bigger fruits. Anusha *et al*. (2021) [3] and Ahmad *et al*. (2021) [1] reported similar findings in respective crop.

Fruit colour

Fruit colour also varied significantly in various planting times and data are presented in Table 2. The fruit colour of T_1 - Planting on 1st week of April and T_2 - Planting on 1st week of May was recorded greenish yellow. Whereas, Pale yellow colour of fruits was observed in T_3 - Planting on 1st week of June and T_4 - Planting on 1st week of October, however T_5 - Planting on 1st week of November, T_6 - Planting on 1st week of December and T_7 - Planting on 1st week of January were recorded with yellow colour of fruit. These results are consistent with *Unal et al*. (2023) [12].

T_1 T_2 T_3 T_4



T_5 T_6 T_7

Quality parameters: Table 3 represents data on the effect of time of planting on quality parameters of snapmelon fruit.

TSS (°B): The examination of data revealed that the maximum TSS (6.23 °B) was noticed in T_2 - Planting in 1st week of May which was at par with T_1 - Planting on 1st week of April (6.03 °B), while minimum TSS (5.00 °B) was recorded in T_7 - Planting on 1st week of January. Variation in the TSS of fruit can be attributed to the temperatures available during the growth of the crop. Snapmelon requires high temperatures, lower moisture

content and dry weather at the time of fruit development which helps to accumulate more sugar imparting better flavour in May planting. These outcomes are in line with conclusions reported by Mehar *et al*. (2013) and Bhamini *et al*. (2017) [4, 6].

Acidity (%)

The minimum acidity (0.10%) was observed in T_2 - Planting on 1st week of May which was at par with T_1 - Planting on 1st week of April (0.11%), T_3 - Planting on 1st week of June (0.11%), T_4 - Planting on 1st week of October (0.11%) and T_5 - Planting on 1st week of November (0.11%), whereas maximum acidity (0.14%) was recorded with T_7 - Planting on 1st week of January. The reason behind, might be higher temperatures and abundant solar radiation throughout the fruit development and ripening stages may be the cause of the greater acidity percentage seen in May planting. These results are consistent with Mehar *et al*. (2013), Poonam *et al*. (2023) and Bhamini *et al*. (2017) [4, 6, 10].

Cracking (%): The minimum cracking (20.00%) was noticed in T_5 - Planting on 1st week of November which was at par with T_3 - Planting on 1st week of June (40.00%), T_6 - Planting on 1st week of December (33.33%), T_7 - Planting on 1st week of January (40.00%), whereas maximum cracking (66.67%) was reported in T_1 - Planting on 1st week of April. Less cracking percentage occurs in November planting because of more consistent and moderate conditions that promote uniform fruit development.

Edible portion (%)

The maximum edible portion (88.78%) in snapmelon fruit was recorded in T_1 - Planting on 1st week of April which was at par with T_2 - Planting on 1st week of May (84.96%), T_3 - Planting on 1st week of June (80.36%) and T_7 - Planting on 1st week of January (88.05%). However, minimum edible portion (61.94%) in fruit was exhibited by T_4 - Planting on 1st week of October.

Non-edible portion (%)

The minimum Non-edible portion of fruit (11.23%) was observed in T_1 - Planting on 1st week of April which was at par with T_2 - Planting on 1st week of May (15.03%), T_3 - Planting on 1st week of June (19.63%), T_7 - Planting on 1st week of January (12.35%), whereas maximum Non-edible portion of fruit (38.07%) was recorded in T_4 - Planting on 1st week of October.

Conclusion

From the result of investigation, it could be concluded that planting on 1st week of April was superior with respect to various physical parameters of fruit over the all planting times. Planting snapmelon on 1st week of April had given better results with respect to quality parameters *viz.* TSS, acidity, edible and Non-edible portion. Thus from present investigation it can be concluded that planting on 1st week of April demonstrated superior performance with respect to physical and quality parameters of snapmelon fruit.

Table 1: Effect of time of planting on fruit length (cm), fruit diameter (cm) and fruit weight (kg) in snap melon

Treatment	Fruit length (cm)	Fruit diameter (cm)	Fruit weight (kg)
T_1 - Planting on 1st week of April	30.29	20.34	1.66
T_2 - Planting on 1st week of May	22.75	17.90	1.03
T_3 - Planting on 1st week of June	19.79	10.06	0.77
T_4 - Planting on 1st week of October	21.54	11.51	0.69
T_5 - Planting on 1st week of November	21.15	12.77	0.72
T_6 - Planting on 1st week of December	26.23	18.48	1.06
T_7 - Planting on 1st week of January	28.39	19.88	1.51
Mean	24.31	15.85	1.06
S.Em.±	0.29	0.08	0.04
C.D @ 5%	0.88	0.23	0.13

Table 2: Effect of time of planting on fruit colour of snap melon

Treatment	Fruit colour
T_1 - Planting on 1stweek of April	Greenish yellow
T_2 - Planting on 1st week of May	Greenish yellow
T_3 - Planting on 1st week of June	Pale yellow
T_4 - Planting on 1st week of October	Pale yellow
T_5 - Planting on 1st week of November	Yellow
T_6 - Planting on 1st week of December	Yellow
T_7 - Planting on 1st week of January	Yellow

Table 3: Effect of time of planting on quality parameters of snap melon fruit.

Treatment	TSS (°B)	Acidity (%)	Cracking (%)	Edible portion (%)	Non-edible portion (%)
T_1 - Planting on 1st week of April	6.03	0.11	66.67	88.78	11.23
T_2 - Planting on 1st week of May	6.23	0.10	53.33	84.96	15.03
T_3 - Planting on 1st week of June	6.00	0.11	40.00	80.36	19.63
T_4 - Planting on 1st week of October	5.67	0.11	26.67	61.94	38.07
T_5 - Planting on 1st week of November	5.53	0.11	20.00	65.94	34.03
T_6 - Planting on 1st week of December	5.30	0.12	33.33	75.01	24.97
T_7 - Planting on 1st week of January	5.00	0.14	40.00	88.05	12.35
Mean	5.68	0.22	40.00	77.86	22.19
S.Em.±	0.04	0.00	6.51	3.04	3.47
C.D @ 5%	0.11	0.01	20.05	9.38	10.70

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