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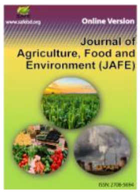

Research Article

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Introducing Perilla Oilseed (*Perilla frutescens* L) Crop in Bangladesh: Evaluating the Best Sowing Time

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ABSTRACT

To introduce a new oilseed crop, identifying the optimal sowing time is crucial. In Bangladesh, the perilla oilseed crop has been introduced relatively recently. However, research on determining the optimal sowing time is lacking. Therefore, this research aimed to evaluate the best sowing time of Perilla (*Perilla frutescens* L.) oilseed crop, with a view to introducing it as a commercial and profitable oilseed crop in Bangladesh. To evaluate sowing dates, 36 trial plots were set (Randomized Complete Block Design) in the Field Laboratory in Sher E Bangla Agricultural University, Dhaka. Sowing date were evaluated against seed germination (%), germination time (days), plant height (cm), branches per plant, duration between transplanting to flowering (days), flowering to harvesting (days), single plant dry weight (g), racemes per plant, raceme size (cm), 1000- seed weight (g) and yield (g/plant). Based on the observed lifespan (70–80 days) and seed production potential (1–1.5 t/ha), this research found mid-July to mid-August as the favourable planting dates for cultivating perilla in Bangladesh. With the 70-80-day life cycle, perilla can be harvested before 15 November, facilitating the timely sowing of winter crops in the cropping sequence. Commercial cultivation of Perilla in the Kharif-2 season can contribute to the domestic edible oil supply. The findings of the research will add policy insights for the commercial cultivation of Perilla as a profitable oilseed crop in Bangladesh.

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INTRODUCTION

Perilla (*Perilla frutescens* L.) is a short-day annual oilseed crop mainly produced and consumed in Korea, China, Japan, and other East Asian countries (Lee *et al.*, 2021). However, recently, it has been introduced to Europe and North America due to its nutritional superiority, medicinal value and economic prospects (Dhyani *et al.*, 2019). The market volume of the edible oil industry is projected to reach $268.9 billion by 2027, which was $212.6 billion in 2021 (FAO 2022). The market volume of perilla seed oil was USD 981.6 million in 2021, which is projected to reach USD 1.854 billion by 2030 (Business Research 2023).

Perilla seed contains 39–58% oil, and it is considered a healthy edible oil with about 13.78–20.93% monounsaturated fatty acids and 63.12–73.45% polyunsaturated fatty acids (Gwari *et al.*, 2014). Perilla seed oil is an important source of omega-3 fatty acids, with contents between 60 and 70% of α-linolenic acid in the varieties (Asif 2011). The ratio of saturated, monounsaturated, and polyunsaturated fatty acids in perilla oil was estimated to be 1: 2.26: 8.95 (Mojumdar *et al.*, 2021). Perilla oil, rich in α-linolenic acid, can reduce cardiovascular risk (Bondioli *et al.*, 2020). Perilla oil can cure the development of aberrant crypt foci, acting a preventive agent in the early stage of colon carcinogenesis. Perilla oil contains natural antioxidants such as caffeic acids, rosmarinic acids, luteolin, apigenin, and chrysoeriol (Ghimire *et al.* 2017). Furthermore, perilla oil is listed as a safe food flavouring for use in baked goods, dairy products, beverages, puddings, processed vegetables, and soups (Tabanca *et al.*, 2015). Non-food use of perilla oil, such as skin creams, soaps, lip balm, and medicinal preparations, makes this oilseed crop more promising. (Tabanca *et al.*, 2015). It also has anti-allergic, detoxicant, anti-inflammatory, and anti-cancer properties (Ghimire *et al.*, 2017). It can increase HDL cholesterol levels in the blood (Adhikari *et al.*, 2006, Jamal *et al.*, 2025). Erucic acid content in Perilla oil is nearly nil.

Bangladesh is a net importer of edible oil, with the third-largest import volume and the fifth-largest consumption (BBS 2022). In 2021/22, Bangladesh imported 2.2 million tons of edible, spending USD1.94 billion in foreign currency (Bangladesh Bank 2022). During this period, the domestic production was only 0.3 million tons (BBS 2022). The current area under oilseed crop production is 0.9 million ha, and the yield is 1.2 t/ha (DAE 2022). Mustard is the main oilseed crop, representing more than 70% of national production (DAE 2022). Per capita consumption of edible oil and fat is on the rise (14 kg in 2010, 18 kg in 2020) with the rising income and changing food habits (BBS 2022, FAO 2022). Bangladeshi people consume the highest oil and fat among developing countries (Ebata *et al.*, 2021). The demand for premium-quality edible oils, such as extra-virgin olive oil, sunflower oil, canola oil, and perilla oil, is rising in Bangladesh, as well as globally. With this rising trend, the national demand for edible oil is projected to reach 3.2 million tons by 2030 (Ebata *et al.*, 2021). Thus, to meet the rising domestic demand, increasing national production is essential. The Ministry of Agriculture has set a plan to meet 40% of the national demand with domestic production (MOA 2023). Therefore, the introduction and intensification of high-yielding and promising oilseed crop species is strategically important. Considering the domestic demand and price, perilla is considered a promising oilseed crop in Bangladesh in the coming years.

While most oilseed crops are grown and harvested in the winter season, facing severe competition for land, perilla is cultivated in the wet season (Kharif-2). Many farmers keep their crop fields fallow after harvesting winter crops (Boro rice, wheat, maize, vegetables) or Aus rice until November. Rain-fed Aman rice cultivation is not feasible in many places. Due to heavy rainfall, cropping options are limited during this period. In the wet season (July to October), more than 0.4 million ha of crop fields remain fallow (BBS 2022) and 0.1 million ha (highland and medium highland) is suitable for perilla cultivation. Cropping system intensification and diversification are policy priorities for increased production of non-rice crops (e.g., oil seeds, pulses, spices) in land-scarce Bangladesh (Jamal *et al.*, 2022). Thus, perilla can be successfully inserted into the cropping system in suitable places. Introducing perilla in 50 thousand ha of crop fields can produce 70 thousand tons of perilla seeds, producing 30 thousand tons of premium quality edible oil. The market value of 30 thousand tons of perilla oil and 40 thousand tons of oilcake could be USD 320 million. Furthermore, perilla has some agronomic advantages over other oilseed crops. No irrigation is required for perilla cultivation. Insect and disease infestation is minimal compared to mustard. Therefore, the cost of production is less. Perilla oilcake is also of high quality and high value compared to mustard oilcake.

Perilla **-** as an oilseed crop **-** has been introduced recently in Bangladesh. The extraction of oil from perilla seed is quite similar to mustard or sesame seed and a traditional extractor can be used for perilla oil extraction. SAU Perilla-1 (Golden Perilla) is a newly introduced oilseed crop variety in Bangladesh. The yield potential (1.6 t/ha) of SAU Perilla-1 seed is higher than that of traditional oilseed crops. The market price of perilla oil (USD 25- 50/L) is higher than other premium quality edible oils, such as olive oil price (USD 6 to 10/L), canola (USD 4 to 6/L) and sunflower (USD 3 to 5/L) (DAM 2022). Perilla oil imported from Korea is now selling at USD 22/L in Bangladesh. Realizing the economic potential, market demand and production prospects, leading seed companies have already started seed production and marketing to the promising farmers. However, as a new crop, there is no research standardizing sowing time and other management practices. Therefore, the present study was undertaken to explore the best growing period (sowing time) with high yield potential of perilla in Bangladesh. This research could facilitate the commercial cultivation of this profitable oilseed crop in Bangladesh and even other countries.

MATERIALS AND METHODS

Biophysical characteristics of the study plots

The study plots are in the experimental field of Sher E Bangla Agricultural University, Dhaka. The biophysical characteristics are summarized in Table 1.

Table 1: Biophysical characteristics of the experiment site

Biophysical characters	Description
GPS position	Latitude 23.77170 N and Longitude 90.37520 E
Altitude	8.6 m above sea level
Agro-Ecological Zones	AEZ-28 (Madhupur Tract brown terrace soil)
Temperature	The average temperature from July to October ranged between 26.3 °c and 27.7 °c
Rainfall	The average precipitation/rainfall ranged between 353mm and 150mm
Humidity	The humidity from July to October ranged between 86% and 82%
Sunshine hours	The average sunshine hours from July to November ranged between 6.7 and 8.1.
Soil texture	Sandy loam to clay loam
Soil Ph	6.9

Seed collection and sowing in the seedbed

Perilla seeds were collected from South Korea and later preserved in a refrigerator. The 20-inch earthen pots were used for seed sowing. For soil preparation, 1/3 cow dung was mixed with 2/3 sandy loam soil and filled up earthen pots. For every sowing date, three earthen pots were used. Then 50 perilla seeds were sown on single earthen pots.

Transplanting in the trial plot

Healthy seedlings raised in the earthen dish were used for the experiment. Thirty (30) days old seedling was transplanted for every sowing date. The research was done at the field laboratory of Sher-e-Bangla Agricultural University, Dhaka. There were 36 treatments (sowing date) with 03 replications. A total of 36 sowing dates were examined at intervals of ten days during the experimentations from July 19, 2018 (SD_1) to July 11, 2019 (SD_{36}).

Experimental design

The field experiment was set following Randomized Complete Block Design (RCBD). Data were collected on seed germination (%), days to germination, plant height (cm), number of branches plant^{-1}, transplanting to flowering time (days), flowering to harvesting time (days), single plant dry weight (g), number of racemes per plant, size of single raceme (cm), 1000- seed weight (g) and yield (g seed/plant).

Data Analysis

Mean comparisons of the effect of treatment and indications found significant from the analysis of variance (ANOVA) were adjudged by Least Significant Difference (LSD). Computations of the raw data and regression analysis, along with the required graphics, were done by the data management program, Microsoft Excel.

RESULTS AND DISCUSSION

Germination (%)

Seed germination differed significantly among the sowing dates (Appendix I). From Error! Reference source not found., it was observed that the highest germination (77%) was from the sowing dates SD1 (from 19 July 2018), SD3 (9 August 2018), and SD_{36} (11 July 2019). On the other hand, it was observed that the lowest germination was 62% on sowing dates 9 December 2018 (SD_{15}) and 19 December 2018 (SD_{16}). Fallahi *et al.*, (2015) found base temperature, optimum temperature and maximum temperature for green basil 6.11°C, 28.97°C and 43.58°C respectively, based on the regression between germination rate and temperature. The temperature range (maximum temperature – base temperature) for purple and green basil was obtained 34.84 °C and 37.47 °C, respectively. They showed that basil needs higher temperatures for germination.

Days to germination

Days needed for seed germination differed significantly among the sowing dates (Appendix I). It was observed that (Error! Reference source not found.) seven to eight days were required for the best germination (77%) and SD_1, SD_3, and SD36 showed this germination performance. It was the lowest days needed to germinate. The lowest germination (62%) was recorded from SD_{15} and SD_{16}, requiring 25-26 days to germinate. From the table, it was also observed that the highest days (25-26 days) needed to germinate on sowing date from 29 November 2018 (SD_{14}) to 29 December 2018 (SD_{17}). It took more days to germinate in the case of lower temperature (19- 23 °c). Masumoto and Ito (2010) found that germination rates at 4 °c under dry conditions were fairly good (65-70%) for 5-8 years after harvest but dropped to almost 0% for mericarps stored more than 9 years.

Table 2: Effect of sowing date on yield attributes and yield of perilla

Treatments (Sowing date)	Germination (%)	Days to germination	Number of branches plant^{-1}	Flowering to harvesting time (days)
SD_1	77.07a	7.80mn	25.80i	30.10f
SD_2	76.87a	7.60mn	22.33j	30.10f
SD_3	76.40ab	8.60i-n	15.13k	32.11e
SD_4	73.80b-f	7.67l-n	14.73kl	35.12d
SD_5	70.27h-m	9.53h-m	26.67i	25.08i
SD_6	70.27h-m	9.87h-k	11.60m-o	35.12d
SD_7	70.67h-m	9.27i-n	12.87l-o	30.10f
SD_8	69.53i-m	12.53g	10.93n-p	26.09hi
SD_9	69.13j-n	15.47f	10.27o-q	30.10f
SD_{10}	69.20j-n	18.47e	10.73o-q	27.09gh
SD_{11}	68.00m-o	20.80d	10.53o-q	30.10f
SD_{12}	68.73k-n	22.33cd	10.67o-q	30.10f
SD_{13}	68.33l-o	23.80bc	8.93qr	30.10f
SD_{14}	66.00o	26.53a	8.13r	30.10f
SD_{15}	62.07p	25.13ab	9.20p-r	28.09g
SD_{16}	62.20p	26.47a	11.13n-p	31.10ef
SD_{17}	66.80	25.47ab	10.60o-q	30.10f
SD_{18}	72.07f-i	21.40d	13.27k-m	39.01c
SD_{19}	72.47d-h	16.60ef	39.47d-f	41.07b
SD_{20}	70.40h-m	11.47gh	41.33bc	40.13bc
SD_{21}	70.73g-k	9.80h-k	42.27b	45.15a
SD_{22}	71.80f-j	9.47h-m	39.80cd	44.15a
SD_{23}	71.40f-k	10.20h-j	45.73a	40.13bc
SD_{24}	72.47d-h	9.47h-m	47.53a	40.13bc
SD_{25}	73.53c-f	10.40hi	39.73c-e	40.13bc
SD_{26}	70.27h-m	9.53h-m	37.53e-g	40.13bc
SD_{27}	72.40e-h	9.53h-m	39.07d-f	40.13bc
SD_{28}	75.13a-d	9.67h-l	36.60g	40.13bc
SD_{29}	72.40e-h	8.60i-n	38.80d-f	40.13bc
SD_{30}	70.73g-l	8.20j-n	38.60d-f	40.13bc
SD_{31}	75.07a-e	8.20j-n	40.00cd	40.13bc
SD_{32}	*73.33c-g*	7.67l-n	37.80e-g	40.13bc
SD_{33}	76.00a-c	7.67l-n	31.40h	30.10f
SD_{34}	76.60a-c	7.40n	25.87i	30.10f
SD_{35}	76.47ab	8.13k-n	26.47i	30.10f
SD_{36}	77.53a	7.40n	27.20i	30.10f
$LSD_{(0.05)}$	2.678	2.035	1.945	1.949
CV (%)	2.43	10.74	4.84	3.52

Branches per plant

A significant variation was observed in the number of branches per plant due to sowing dates. The highest number (45) of branches per plant was recorded f from the crop sown on 01 March 2019 (SD_{23}) and 11 March 2019 (SD_{24}). The lowest number (10) of branches per plant was observed from crop sown on 09 October 2018 (SD_9), 19 October 2018 (SD_{10}), 29 October 2018 (SD_{11}) and 09 November 2018 (SD_{12}). From the Table 2. It was observed that the branch/plant gradually decreased from the crop sown on 11 March 2019 (SD_{24}) and 01 March 2019 (SD_{23}). Kim *et al.*, (2021b) found that the number of first branches and clusters was influenced by the delayed sowing time. Ju *et al.*, (2012) also showed that as the sowing date was delayed, the number of branches also decreased.

Flowering to harvesting time

Time required for lowering to harvesting varied significantly with the changes in sowing time (Appendix I). In most cases, the time required for flowering to harvesting was found to be 30-35 days. Only 3-4 sowing dates needed 40-45 days (Table 2). SD_{21}(09 February 2019) and SD_{22} (19 February 2019) took 45 days from flowering to harvesting. The lowest number of total days (25 days) required for flowering to harvesting was found in SD5 (29 August 2018). Kim *et al.* (2002) observed a relationship between delayed seeding date with the days to emerge, and flowering and maturing date.

After 30 days of sowing or seedling transplanting, the flowering time varied significantly due to sowing time (Appendix I). The highest number of days (170 days) required from transplanting to flowering was found for the crop sown on 01 March 2019 (SD_{23}). The lowest number of days (9 days) required from transplanting to flowering was recorded from the crop sown on 09, 19 and 29 October 2018 (SD_9, SD_{10}, SD_{11}). It was observed that the total number of days required from transplanting to flowering gradually decreased from the sowing date of 19 July 2018 (SD_1) and it continued until 29 October 2018 (SD_{11}) (**Figure 1**). Kwak *et al.* (2018) found that as the sowing time is late, the days of growth from sowing to flowering were shortened. Then it was further increased up to 29 January 2019 (SD_{20}). Then again, flowering time decreased for the next two sowing times. From the sowing date 19 February 2019 (SD_{21}), the next flowering days required 140 days more than sowing on 01 March 2019. Kim *et al.* (2002) observed that days to flowering were delayed as the seeding date was delayed. Again, after 01 March 2019, the days required for flowering time gradually decreased on 11 July 2019 (SD_{36}). The flowering of perilla was sensitive to day length (Lee & Yang 2009). Kim *et al.* (2021a) observed that with early sowing under low temperature and long day conditions, it took about 132 days from sowing to flowering.

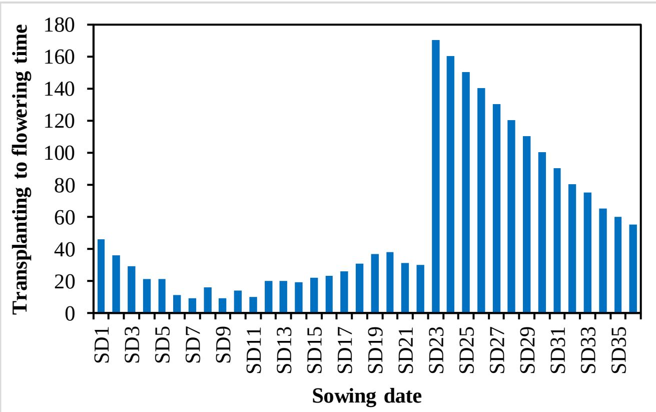

Figure 1: Effect of sowing date on the transplanting to flowering time of perilla

Plant height

Plant height varied significantly with the sowing dates (Appendix II). The highest height of plants (303.67 cm) was found in the crop sown on 11 March 2019 (SD_{24}), which was statistically identical to that sown on 01 March 2019 (SD23). The shortest plant height (30.33 cm) was observed on crop sown on 19 November 2018 (SD_{13}), which was statistically similar to those sown on 09 November 2018 (SD_{12}) and on 29 October 2019 (SD_{11}). From the **Figure 2** it was observed that plant height gradually decreased from the crop sown on 11 March 2019 (SD_{24}). (Kim *et al.*, 2021a) found decreased plant height with the delayed sowing time. Ju *et al.*, (2012) also showed decreased stem height with the delayed sowing date.

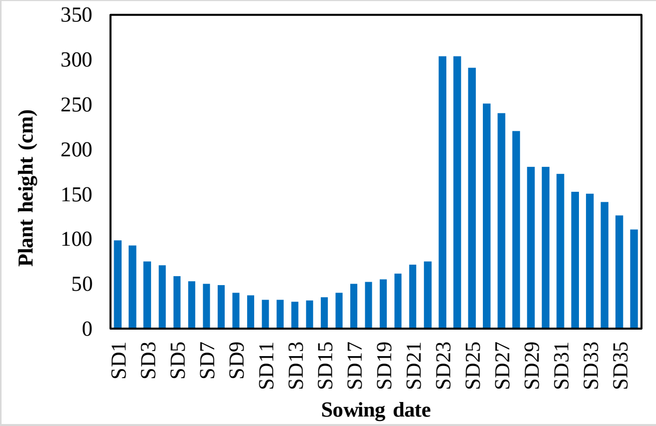

Figure 2: Effect of sowing dates on plant height

Plant dry weight

The plant dry weight (g/plant) varied significantly with sowing date (Appendix II). The highest single plant dry weight (181.38 g/plant) was found from crops sown on 01 March 2019 (SD_{23}), and the lowest single plant dry weight (15.07 g/plant) was found from crops sown on 19 November 2018 (SD_{13}). The plant dry weight was gradually decreased from 19 July 2018 (SD1) to 29 November 2018 (SD14) and then increased up to 11 March 2019 (SD_{24}). Further, it gradually decreases from sown on 11 July 2019 (SD_{36}). From Table 3, it was observed that as perilla is a photosensitive crop, sowing date has a great effect on plant dry weight. As the sowing date was delayed, the plant's dry weight also decreased. (Kim *et al.*, 2021a) identified that the plant height, the number of first branches and cluster, the weight of fresh and dried stems decreased with the delayed planting time.

Number of racemes per plant

The effect of the number of raceme plant^{-1} varied significantly due to sowing date (Appendix II). The highest number of raceme plant^{-1} was 304.33 sown on 01 March 2019 (SD_{23}), and the lowest number of spikes per plant was 16.33 sown on 19 November 2018 (SD_{13}). The number of racemes per plant was gradually decreased from 19 July 2018 (SD1) to 29 November 2018 (SD14) and then increased up to 11 March 2019 (SD_{24}). Further, it gradually decreased from sown on 11 July 2019 (SD_{36}). From the Figure 3, it was observed that as the sowing date was delayed, the number of branches per plant decreased, and as a result, the number of racemes per plant decreased. Wu *et al.* (2020) showed that with the delay of sowing date, the number of branches and raceme number per plant increased first and then decreased.

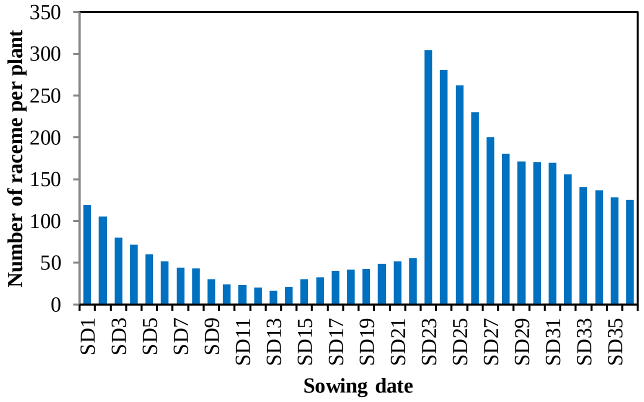

Figure 3: Effect of sowing dates on the number of racemes per plant

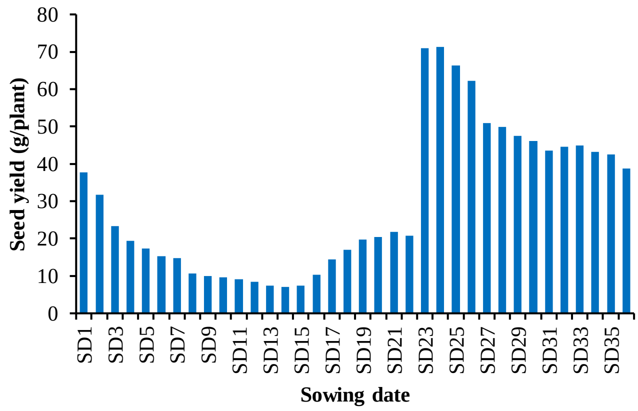

Figure 4: Effect of sowing dates on seed yield (g/plant) of perilla crop

Size of a single raceme

The effect of single raceme size varied significantly due to sowing date (Appendix II). The largest raceme size was 20 cm, sown on 19 July 2018 (SD_1) and 11 July 2019 (SD_{36}). The smallest raceme size was 7.54 cm, sown on 29 November 2018 (SD_{14}). From the Table 3 it was observed that the raceme size was comparatively big (15-20cm) from 19 July to 19 August 2018 and 11 July 2019. The sowing date on 01 March 2019 (SD_{23}) to 31 May 2019 (SD_{32}) the size of the raceme was only 8-9 cm. From Table 2, it was shown that as the sowing date was delayed after July, the size of the raceme was reduced.

1000 seed weight

Sowing date showed a significant effect on 1000-seed weight of perilla (Appendix II). The highest 1000-seed weight (4.09 g) was found from the crop sown on 09 October 2018 (SD_9). The lowest 1000-seed weight (3.47 g) was found from the crop sown on 21 April 2019 (SD_{28}). From the Crop sown from 19 July 2018 (SD_1) to 19 February 2019 (SD_{21}) resulted the 1000-seed weight of 4.0 g (Table 3**)**. But the sowing date from 01 March 2019 (SD_{23}) to 11 June 2019 (SD_{33}) yielded a 1000-seed weight of around 3.6g. It was found that as the sowing date was delayed, the 1000-seed weight increased. Kim *et al*. (2021b) found that the 1000-seed weight showed an increasing tendency with the delayed sowing date.

Seed yield

Oil can be extracted from perilla seed using common extractor used for mustard seed. Oil is edible for human and oilcake is edible for animals. The seed yield differed significantly among the sowing dates (Appendix I). The highest seed yield (70 g/ plant) was found from crops sown on 01 March 2019 (SD_{23}) and 11 March 2019 (SD_{24}). On the other hand, the lowest seed yield (7 g/plant) was found from crop sown from 19 November 2018 (SD_{13}) to 9 December 2018 (SD_{15}) (Figure 4). Kwak *et al*. (2018) found that the sowing time has a potential effect to increase the yield of perilla seed, and it reduces the shattering seed loss at harvest.

Table 3: Effect of sowing date on yield attributes and yield of perilla

Treatments	Size of single raceme (cm)	Plant dry weight (g)	1000- Seed weight (g)
SD_1	20.41a	46.18g-j	4.03a-e
SD_2	18.25b	45.46h-j	4.00b-f
SD_3	16.33c	38.83i-k	4.05a-c
SD_4	14.83d	35.39i-l	3.99c-f
SD_5	13.01ef	28.61k-n	4.00b-f
SD_6	12.20i	27.11k-n	4.03a-f
SD_7	11.41j	25.35k-n	4.05a-c
SD_8	10.99k	23.78k-n	4.07ab
SD_9	10.38l	20.45l-n	4.01b-f
SD_{10}	10.20l	18.41mn	4.01b-f
SD_{11}	9.62m	16.83n	4.00b-f
SD_{12}	9.25m-o	16.48n	4.09a
SD_{13}	8.21r	15.07n	3.97d-f
SD_{14}	7.54s	15.25n	3.97d-f
SD_{15}	8.36qr	16.69n	4.03a-e
SD_{16}	10.45l	20.53l-n	4.01b-f
SD_{17}	11.02jk	22.72l-n	3.94f
SD_{18}	12.76h	27.22k-n	3.95f
SD_{19}	13.07gh	28.60k-n	4.05a-c
SD_{20}	13.30g	32.42j-m	4.01b-f
SD_{21}	13.33fg	34.35j-l	4.01b-f
SD_{22}	13.73ef	35.03i-l	4.03a-e
SD_{23}	8.87op	181.38a	3.57hi
SD_{24}	8.73pq	176.29a	3.62gh
SD_{25}	8.92op	160.45b	3.56hi
SD_{26}	9.04op	135.02c	3.64g
SD_{27}	8.91op	120.45cd	3.52ij
SD_{28}	8.94op	108.0de	3.47j
SD_{29}	9.53mn	105.53de	3.55hi
SD_{30}	9.19no	102.72e	3.56hi
SD_{31}	8.92op	98.96e	3.62gh
SD_{32}	9.22m-o	96.09e	3.66g
SD_{33}	11.33jk	80.02f	3.64g
SD_{34}	12.70h	61.19g	4.03a-f
SD_{35}	14.08e	55.68gh	4.05a-c
SD_{36}	20.28a	50.52g-i	4.04a-c
$LSD_{(0.05)}$	0.410	15.56	0.069
CV (%)	10.74	4.84	3.68

CONCLUSION

Based on the findings of the present research work, it can be concluded that farmers in Bangladesh needed longer days to use the land, which was neither beneficial for them nor compatible with the cropping pattern. The lowest output, however, showed that Bangladeshi farmers required a short time to use their land and that this yield (315 kg/ha) was neither sufficient nor viable for the farmers. In our nation, farmers frequently cultivate oil crops on land for 80 to 100 days since it fits their cropping schedule. The sowing dates SD_1 (July 19) and SD_2 (July 29) offered 38 and 32 g yield, respectively. The plant needed 95-105 days to reach maturity for this yield, and the resulting yields were 1.7 and 1.4 tons/hectare. As seeds are sown in a seedbed, seedlings need to be transplanted after 30 days. Therefore, farmers only need 75-85 days to use their primary field to produce a yield of 1.4-1.7 tons/ha. Varietal improvement, genetic modification, and farming system research can further improve the profitability of the newly introduced oilseed crop. The successful introduction of Perilla in the Kharif-2 season (Mid-July to mid-November) could add an additional crop in cropping systems, increasing domestic production of edible oil. Therefore, research, extension and policy support are essential to intensify and popularize the new edible crop in Bangladesh.

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