The Pharma Innovation Journal 2023; SP-12(9): 1695-1699

www.ThePharmaJournal.com

The Pharma Innovation

ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2023; SP-12(9): 1695-1699
© 2023 TPI
www.thepharmajournal.com
Received: 09-06-2023
Accepted: 14-07-2023

Samskruthi PR
Department of Plantation, Spices, Medicinal and Aromatic Crops, College of Horticulture, Dr. YSR Horticultural University, Andhra Pradesh, India

KM Yuvaraj
Department of Plantation, Spices, Medicinal and Aromatic Crops, College of Horticulture, Dr. YSR Horticultural University, Andhra Pradesh, India

G Thanuja Shivaram
Department of Plantation, Spices, Medicinal and Aromatic Crops, College of Horticulture, Dr. YSR Horticultural University, Andhra Pradesh, India

Lalitha Kadiri
Department of Agronomy, College of Horticulture, Dr. YSR Horticultural University, Andhra Pradesh, India

VV Padmaja
Department of Plant Physiology, College of Horticulture, Dr. YSR Horticultural University, Anantharajupeta, Annamayya Dist. Andhra Pradesh, India

Corresponding Author:
Samskruthi PR
Department of Plantation, Spices, Medicinal and Aromatic Crops, College of Horticulture, Dr. YSR Horticultural University, Andhra Pradesh, India

Growth and yield performance of fenugreek varieties as influenced by different harvest intervals

Samskruthi PR, KM Yuvaraj, G Thanuja Shivaram, Lalitha Kadiri and VV Padmaja

Abstract
The present investigation on "Performance of fenugreek (*Trigonella foenum-graecum* L.) varieties for herbage yield and quality influenced by different harvest intervals in Rayalaseema region of Andhra Pradesh" was carried out during the year 2020-21 at College of Horticulture, Dr. YSRHU, Anantharajupeta, Annamayya district of Andhra Pradesh. The study includes 21 treatment combinations each replicated thrice in Factorial Randomized Block Design. The treatment combinations included seven varieties (Lam Sonali, Lam Sel-1, Lam Sel-2, Gujarat Methi-2, AFg-2, AFg-4 and AFg-5) and three harvesting intervals (15, 25 and 35 days after sowing). The results revealed that fenugreek responded well to plant densities and nitrogen levels as well as their interactions.

The morphological parameters like plant height (23.22 cm) and plant spread 11.13 cm^2), leaf area (11.04 cm^2), internodal length (4.00 cm), was recorded maximum in the variety AFg-2 which was harvested at 35 days after sowing (V_5D_3) number of primary branches (5.86) was recorded maximum in V_6D_3 combination. Among yield parameters, the maximum fresh leave per plant (5.26 gm $plant^{-1}$) total herbage yield (1575.39 kg ha^{-1}) was observed in the combination of and the dry weight of the leaves per plant (2.69 g $plant^{-1}$) was recorded in V_5D_3 combination. The physiological parameters like chlorophyll-a (0.009 mg g^{-1}), chlorophyll-b (0.067 mg g^{-1}) and total chlorophyll (0.073 mg g^{-1}) was noticed in treatment combination of V_7D_3, leaf moisture (3.62%) was observed in V_4D_3 treatment, leaf area index was recorded maximum in the varieties Gujarat Methi-2 (V_4) and Lam Sel-2 (V_2) (0.26) which was harvested at 35 days after sowing, leaf weight ratio (0.81) was recorded in the variety AFg-2 when harvested at 35 days after sowing and the specific leaf weight was noted maximum in the treatment combination of V_1D_1 (1.197 gm cm^2). Related to quality parameters the highest carotenoids and crude fibre was observed in the AFg-2 when harvested at 35 days after sowing, ascorbic acid content (6.51 mg g^{-1}) was observed maximum in the combination V_4D_3, maximum protein content (25.36 mg g^{-1}) was noticed in V_5D1, the highest amount of carbohydrates (0.075 mg g^{-1}) and phenols (0.074 mg g^{-1}) was noted in V_1D_3 treatment combination. The treatment combination of V_7D_3 was shown the highest calcium content (0.96%), potassium content was noted maximum in V_1D_2 (4.23%), iron content was recorded in the combination of V_4D_2 (0.09%) and the magnesium content was observed in the combination of V_4D_3 & V_5D_2 (16.81 ppm).

Keywords: Yield performance, fenugreek varieties, harvest intervals

1. Introduction
Fenugreek (*Trigonella foenum-graecum* L.) belonging to the family Fabaceae, is an important leafy vegetable as well as prominent seed spice. Because of its copious uses, fenugreek stood in third position in seed spices after coriander and cumin in India. It is a versatile crop that can be utilised as a leafy vegetable, spice, fodder, or medicinal plant. Since ancient times, fresh delicate leaves and shoots have been utilised as a vegetable for human food, as feed for cattle, and in medicine (Govindaraj *et al*., 2019) [6]. The word fenugreek is derived from the species name "foenum-graecum," which refers to "Greek hay" (Flammang *et al*., 2004) [5].

It is an annual herb with light green pinnately trifoliate leaves, papilionaceous flowers that are long, narrow, curved, tapering to a slender point, and have little deeply wrinkled seeds. There are two economically significant *Trigonella* species: common methi (*Trigonella foenum-graecum*) and kasuri methi (*Trigonella corniculata*), which differ in growth habit, yield, and quality. The latter one is a slow growing type and remains in rosette condition during most of its vegetative growth period. The leaves and fruits have a pleasant aromatic odour. Fresh fenugreek leaves are used as an edible herb. In present days, the consumption of leaves has considerably gained attention in stabilizing the insulin, blood sugar, haemoglobin levels and condition of diabetes (Mehta *et al*., 2013) [12].

Fenugreek contains 23 to 26% protein, 6 to 7% fat and 58% carbohydrates of which about 25% is dietary fibre (US Department of Agriculture, 2012). Plants are also extensively distributed with flavonoids and phenolic compounds, which have been shown to have a variety of biological impacts, including 87 scavenging capabilities, among others (Aggarwal *et al*., 2013) [14]. Fenugreek is an iron chelator since it is a rich source of iron (Kumar *et al*., 2010) [8].

India is the largest producer of fenugreek with a total cultivated area of 122 thousand hectares and a production of 252.02 MT (NHB, 2021-22). Fenugreek is one of the India's most important export crop with 35055 tonnes and a value of 26680.17 lakh rupees. It is mainly cultivated in Rajasthan, followed by Gujarat, Madhya Pradesh and to a limited extent in Andhra Pradesh. Rajasthan is considered as "fenugreek bowl" of the country.

In Andhra Pradesh, the Rayalaseema region has the most potential for fenugreek cultivation for leafy vegetables as well as seed, but farmers are cultivating local types, and the performance of local types is low. The explanation could be a lack of knowledge about the types and the ideal day to harvest best suited for agro-climatic conditions. So, before recommending any variety fit for any place, it is vital to assess the aspect of genotypic compatibility and yield.

Given the foregoing facts, it was felt that an experiment on varietal performance with respect to different harvesting days on herbage yield of fenugreek was necessary in order to determine and recommend the best suited variety and to suggest an optimum date of harvest fenugreek in the Rayalaseema region of Andhra Pradesh.

2. Material and Methods

The experiment was conducted during Rabi season 2020-21 Dr. YSR. Horticultural University, College of Horticulture, Anantharajupeta, which falls under tropical zone with an average annual rainfall of 900 mm and is situated at an altitude of 162 meters above mean sea level and 13.98 ^{0} North latitude and 79.40^0 East longitude. Plot size -2m x 2m: Number of treatments-21 with 3 Replications and the design used was Factorial randomized block design. Factor-1: Varieties (V_1: Lam Sonali-1; V_2: Lam Sel-2; V_3: Lam Methi-2; V_4: Gujarat Methi-2; V_5: Afg-2; V_6: Afg-4; V_7: Afg-5; Factor -2: Days to harvest; D_1: 15 Days After Sowing; D_2: 25 Days After Sowing; D_3: 35 Days After Sowing. The following seed material of fenugreek varieties was collected from the following research centres Lam Sonali, Lam Selection-1 and Lam Selection-2 were collected from All India Coordinated Research Project (AICRP) on seed spices Lam, Guntur Gujarat Methi-2 was collected from Sri Konda Laxman Telangana State Horticultural University (SKLTSHU) AFg-2, AFg-4 and AFg-5 were collected from National Research Centre for Seed Spice (NRCSS) Ajmer, Rajasthan.

The observations recorded are days required for 50% seedling emergence. The number of days required for 50% seedling emergence was recorded by counting the days from the day of seeds sown. Various observations were recorded from five randomly selected plants in each variety in each replication. The selected plants were tagged for recording observations at 15,25 and 35 days after sowing. The details of parameters are enlisted below. Plant height (cm): The height of the plant was measured with the help of scale of at 15, 25 and 35 DAS from the base to tip of the plant from five randomly tagged plants per replication in each treatment and their mean was calculated and expressed in centimetres. Number of primary branches per plant: The number of primary branches per plant were counted from five randomly tagged plants at 15, 25 and 35 DAS and their mean was worked out and expressed as number of primary branches per plant. Plant spread (cm^2): The plant spread (E-W and N-S) were recorded on five randomly selected plants and average was expressed in cm^2. Internodal length (cm): Internodal length is calculated at second inter node from each of the plant at the time of harvest and after computing the mean, it was recorded as Inter-nodal length in cm. Leaf area (cm^2): Randomly selected leaves were plucked at 15, 25 and 35 DAS and leaf area was measured with the help of leaf area meter (LA-3100) and their average was expressed in cm^2. Fresh leaf yield (g $plant^{-1}$)**:** Fresh harvested from the five tagged plants were weighed separately and average is expressed in grams. Dry weight of leaves (g $plant^{-1}$): Five randomly selected plants from each treatment were collected and dried in hot air oven until constant weight is reached at 60 °C. After drying weight was recorded and the mean was expressed in grams. Total leaf yield (kg ha^{-1}): Plants from each treatment and replication were harvested at different harvesting intervals was weighed separately and leaf yield per hectare was calculated and their mean was expressed in kilograms.

3. Results and Discussions

3.1 Days to 50% seedling emergence

The data in respect of days required for 50% seedling emergence the significant difference between the varieties (Table 1). Among the varieties, the variety Lam Sel-1 had shown the minimum days (3.82 days) for 50% seedling emergence which was followed by Gujarat Methi-2 (4.00 days), and the variety AFg-4 had recorded the maximum number of days for 50% seedling emergence. The variation in days to 50% seedling emergence in different varieties might be due to genetic constitution and response of particular variety to the prevailing ecological conditions.

3.2 Plant height (cm)

The data pertaining to plant height as influenced by varieties and different harvesting intervals were presented in (Table 1) The mean data represented non-significant related to the plant height among varieties of fenugreek. The highest plant height was noticed in AFg-2 (13.31 cm) followed by AFg-5 (12.21 cm) whereas the lowest was noticed in the Lam Sonali (13.59 cm). With respect to different harvesting intervals, the mean data showed the significant variation. The maximum height (17.40 cm) was observed at 35 DAS followed by 25 DAS (11.98 cm) while, the (6.67 cm) was recorded at 15 DAS.

Among the interaction, the highest plant height (18.91 cm) was noticed in the treatment consist of AFg-2 harvested at 35 days after sowing (V_5D_3) followed by (18.15 cm) Gujarat Methi-2 harvested at 35 days after sowing (V_4D_3), whereas the lowest plant height (5.66 cm) was found in AFg-4 harvested at 15 days after sowing (V_6D_1). The variation in plant height among different varieties found dissimilar might be due to changes in the genetic constitution of the fenugreek varieties and its response to ecological conditions. With advancement of age, photosynthesis is great enough to produce more sugar that is needed for plant growth which resulted in an increased reserve carbohydrate and its utilization for growth and development of plant. The results were in conformity with the findings of Latye *et al.* (2016) [10] and Aggarwal *et al.* (2013) [14] in fenugreek and Duwal *et al* (2019) [4] in coriander.

3.3 Plant spread (cm^2)

Significant influence on plant spread by various varieties and harvesting intervals was observed at 15, 25 and 35 days after sowing and was depicted in (Table 1). From the perusal of the data, it was evident that plant spread varied among different varieties of fenugreek. The variety AFg-2 recorded maximum plant spread (6.59 cm^2) which was at par with Gujarat Methi-4 and AFg-4 (6.51 cm^2) while, the minimum spread was found in the variety Lam Sonali (5.51 cm^2). The mean data of three harvesting intervals showed that the maximum plant spread (10.27 cm^2) was observed at 35 DAS which was followed by 25 DAS (5.71 cm^2) and the minimum plant spread (2.40cm^2) was recorded at 15 days after sowing. Among the interactions, the treatment combination of AFg-2 harvested at 35 days after sowing (V_5D_3) recorded the maximum plant spread (11.13 cm^2) which was followed by AFg-4 harvested at 35 days after sowing (V_6D_3) (10.75 cm^2) and the least plant spread was noted in the treatment combination of V_2D_1 (2.39 cm^2). The variation in plant spread among the cultivars and harvesting intervals might be due to variation in number of branches, genetic makeup and agro-climatic conditions, which indirectly governs the morphology of the plant. These results were in conformity with the findings of Akshata *et al*. (2018) [2] coriander.

Table 1: Days to 50% seedling emergence, Plant height and Plant spread of fenugreek varieties influenced by different harvest intervals

Varieties	Days to 50% seedling emergence				Plant height (cm)				Plant spread (cm^2)			
	Harvest intervals				Harvesting intervals				Harvest intervals			
	D_1	D_2	D_3	Mean	D_1	D_2	D_3	Mean	D_1	D_2	D_3	Mean
V_1	4.84	4.82	4.82	4.83	6.27	10.41	17.46	11.38	2.40	4.98	9.14	5.51
V_2	3.86	3.80	3.80	3.82	7.15	11.79	15.81	11.58	2.39	4.91	9.96	5.75
V_3	4.26	4.36	4.26	4.30	6.47	12.85	16.60	11.97	2.65	4.83	10.71	6.06
V_4	4.26	3.86	3.86	4.00	6.50	11.16	18.15	11.93	2.57	7.24	9.70	6.51
V_5	4.40	4.40	4.40	4.40	7.41	13.6	18.91	13.31	2.44	6.21	11.13	6.59
V_6	5.73	5.73	5.73	5.73	5.66	12.01	17.56	11.74	2.61	6.18	10.75	6.51
V_7	4.2	4.2	4.20	4.20	7.25	12.07	17.31	12.21	2.61	6.18	10.53	6.19
Mean	4.51	4.45	4.44		6.67	11.98	17.40		2.40	5.71	10.27	
Source	V	D	V X D		V	D	V X D		V	D	V X D	
S.Em ±	0.08	0.0052	0.139		0.158	0.104	0.274		0.03	0.02	0.054	
CD at 5%	0.23	NS	NS		0.454	0.279	0.787		0.09	0.06	0.155	

3.4 Number of primary branches

The data pertaining to number of primary branches had shown the significant difference might be due to varieties and different harvesting intervals at 15, 25 and 35 days after sowing (Table 2). Among seven varieties of fenugreek evaluated, the maximum number of primary branches (4.30) was recorded in the variety Afg-5 which was at par with Lam Sel-1 (4.28) and Afg-4 (4.15) whereas the lowest number of primary branches (3.76) was recorded in the variety Gujarat Methi-2.The data of different harvesting intervals at 35 DAS the maximum number of primary branches (5.59) was observed, which was followed by 25 DAS (4.52) and the lowest number of primary branches (2.21) was noticed at 15 days after sowing. Among the interaction effect, the treatment combination of Afg-4 which was harvested at 35 days after sowing (V_6D_3) (5.86) was recorded maximum number of primary branches which was on par with V_1D_3 and V_5D_3 (5.80 and 5.80) and the lowest number of primary branches (1.96) was observed in the variety Gujarat Methi-2 harvested at 15 days after sowing (V_4D_1). The branching of plant is an important character that indicates the response of different fenugreek varieties. The variation might be due to genetic constitution and their response to climatic conditions. These results are similar line with Chandra *et al*. (2000) [3] in fenugreek, Latye *et al*. (2016) [10] and Aggarwal *et al*. (2016) [1] in fenugreek.

3.5 Leaf area (cm^2)

The results obtained regarding leaf area had shown the significant difference on fenugreek varieties and different harvesting intervals at 15, 25 and 35 DAS are presented (Table 2). The variety Afg-2 was found maximum leaf area (6.52 cm^2) and preceded with Gujarat Methi-2 (6.21 cm^2) and Afg-5 (6.19 cm^2) whereas the minimum leaf area (5.09 cm^2) was recorded in the variety Lam Sonali among the 7 varieties of fenugreek. The mean leaf area was recorded maximum at 35 days after sowing (9.83 cm^2) which was followed by 25 DAS (4.83 cm^2) and the least leaf area was observed at 15 DAS (2.95 cm^2) of different harvesting intervals in fenugreek. The variety Afg-2 harvested at 35 days after sowing (V_5D_3) was recorded maximum leaf area (11.04 cm^2), next maximum was noted in the variety Afg-5 harvested at 35 days after sowing (V_7D_3) (10.40 cm^2) and V_4D_3 (10.36 cm^2) and the lowest leaf area (2.24 cm^2) was recorded in the variety Lam Sonali harvested at 15 days after sowing (V_1D_1). The leaf area is the most important parameter in leafy vegetable for judging its quality and yield potential. The significant difference might be due to the enhancement in the growth stages due to maximum size of the leaves and number of leaves leads to highest photosynthetic surface area as resulting by maximum leaf area. Similar results were reported by Prasad *et al*. 2020 [13] in fenugreek, Kuri *et al*. (2015) [9] in coriander and Layte *et al*. (2016) [10] in fenugreek.

3.6 Internodal length (cm)

The data pertaining to internodal length influenced by varieties and different harvesting intervals at 15, 25 and 35 days after sowing had shown the significant variation (Table 2). The effect of different varieties on internodal length the maximum internodal length was recorded in the variety Afg-2 (2.43 cm) which is followed by Gujarat Methi-2 (1.90 cm) and Lam Sonali (1.89 cm) whereas the minimum internodal length was noticed in the variety Lam Sonali (1.55 cm). At different harvesting intervals the maximum internodal length was observed at 35 DAS (2.62 cm) and next value is followed by 25 DAS (1.92 cm) whereas the lowest value was recorded at 15 DAS (1.02 cm). The treatment combination of Afg-2 harvested at 35 days after sowing (4.00 cm) was noticed maximum internodal length followed by Lam Sel-1 (2.88 cm) and Afg-5 (2.50 cm) at 35 days after sowing. The lowest internodal length (0.96 cm) was recorded in the variety Afg-2 harvested at 15 days after sowing. The significant variation

might be due to the genetic makeup of the varieties and the agro climatic conditions. The results might be similar with Layte *et al*. (2016) [10].

Table 2: Number of primary branches, Leaf area and of fenugreek varieties influenced by different harvest intervals

Varieties	Number of Primary branches				Leaf area (cm^2)				Internodal length (cm)			
	Harvest intervals				Harvesting intervals				Harvest intervals			
	D_1	D_2	D_3	Mean	D_1	D_2	D_3	Mean	D_1	D_2	D_3	Mean
V_1	2.13	4.46	5.80	4.13	2.24	4.49	8.53	5.09	0.97	1.64	2.05	1.55
V_2	2.40	5.00	5.46	4.28	2.49	5.05	9.09	5.55	1.02	1.79	2.88	1.89
V_3	2.33	4.53	5.40	4.08	2.29	4.97	9.97	5.74	1.06	1.75	2.35	1.72
V_4	1.96	4.13	5.20	3.76	3.48	4.79	10.36	6.21	0.96	2.30	2.43	1.90
V_5	2.00	4.33	5.80	4.04	3.08	5.43	11.04	6.52	1.02	2.28	4.00	2.43
V_6	2.40	4.20	5.86	4.15	3.62	4.35	9.44	5.80	1.10	1.91	2.16	1.72
V_7	2.30	5.00	5.60	4.30	3.48	4.71	10.4	6.19	1.01	1.78	2.50	1.76
Mean	2.21	4.52	5.59		2.95	4.83	9.83		1.02	1.92	2.62	
Source	V	D	V X D		V	D	V × D		V	D	V X D	
S.Em ±	0.09	0.06	0.16		0.016	0.11	0.29		0.065	0.043	0.113	
CD at 5%	0.28	0.18	0.48		0.48	0.032	0.84		0.018	0.123	0.324	

3.7 Yield parameters

3.7.1 Fresh weight of leaves (g plant^{-1})

The data related to fresh weight of leaves was shown the significant difference between the varieties and different harvesting intervals at 15, 25 and 35 days after sowing (Table 3).

The mean data of different varieties had shown the maximum fresh weight of leaves in the variety AFg-2 (4.30 g plant^{-1}) which was followed by Gujarat Methi-2 (3.72 g plant^{-1}) and Lam Sel-2 (3.69 g plant^{-1}) whereas the minimum weight was recorded in the variety AFg-5 (3.21 g plant^{-1}).

The fresh leaf weight of fenugreek at 35 DAS harvesting interval (4.62 g plant^{-1}) was found to be maximum and the next highest was recorded at 25 DAS (3.82 g plant^{-1}) harvesting intervals, whereas the lowest was noted at 15 DAS with fresh leaf weight (2.49 g plant^{-1}) among different harvesting intervals.

Among the different treatment combinations, the variety AFg-2 harvested at 35 days after sowing (V_5D_3) (5.26 g plant^{-1}) was shown the maximum fresh leaf yield which was followed by V_4D_3 (4.77 g plant^{-1}) and in the variety Lam Sel-2 at 35 days after sowing (4.70 g plant^{-1}) whereas, the lowest fresh leaf yield (2.14 g plant^{-1}) was recorded in the variety AFg-5 which was harvested at 15 days after sowing (V_7D_1).

The significant variation in the treatment combination might be due to the change in the genetic makeup of the varieties, a greater number of branches and the fresh weight may be positively influenced by the maximum plant height. Similar results under different set as influenced by the genotypes of fenugreek were reported by Latye *et al*. (2016) [10] and Aggarwal *et al*. (2013) [14] in fenugreek.

3.7.2 Dry weight of leaves (g plant^{-1})

The mean data had shown the significant difference regarding the dry weight of leaves might be due to varieties and different harvesting intervals at 15, 25 and 35 days after sowing (Table 3).

Among the seven varieties, the maximum dry weight of leaves was recorded in the variety Afg-2 (1.28 g plant^{-1}) which is followed by AFg-5 (1.22 g plant^{-1}) and Gujarat Methi-2 (1.21 g plant^{-1}) whereas the minimum weight was noticed in Lam Sonali (0.78 g plant^{-1}).

At different harvesting intervals, the maximum mean dry weight was observed at 35 days after sowing (2.32 g plant^{-1}) followed by 25 days after sowing (0.64 g plant^{-1}) whereas, the lowest dry weight of leaves was observed at 15 days after sowing (0.35 g plant^{-1}).

Significantly maximum dry weight of leaves (2.69 g plant^{-1}) was recorded in the combination of V_5D_3 which was statistically identical with V_4D_3 (2.77 g plant^{-1}) whereas, minimum dry weight of leaves was recorded in the V_1D_1 (0.27 g plant^{-1}).

There is an initial increase in the dry weight of leaves, which is mainly due to enlargement of the cell. These results corroborate with those reported by Gowda *et al*. (2006) [7] and Aggarwal *et al*. (2013) [14] in fenugreek.

3.7.3 Herbage yield (kg ha^{-1})

Herbage yield showed statistically significant variation as influenced by varieties and different harvesting intervals at 15, 25 and 35 days after sowing (Table 3).

Effect of varieties on herbage yield was shown the significant difference, the maximum herbage yield was recorded in the variety AFg-2 (V_5) with 13.18 q ha^{-1} followed by Lam Sel-2 (V_3) with 13.07 q ha^{-1} whereas, the minimum herbage yield was noticed in the variety Lam Sonali (V_1) with 12.37 q ha^{-1}.

At the days of harvesting intervals, 35 days after sowing harvesting intervals (15.28 q ha^{-1}) showed the maximum herbage yield which was followed by 25 days after sowing (12.73 q ha^{-1}) and the lowest herbage yield (10.19 q ha^{-1}). was recorded at 15 days after sowing.

The interaction effect between varieties and different harvesting intervals on herbage yield was found to be significant. The maximum herbage yield was observed with V_5D_3 (15.75 q ha^{-1}), followed by V_4D_3 (15.75 q ha^{-1}) and the minimum herbage yield (10.00 q ha^{-1}) was recorded in the combination of V_1D_1.

The significant difference might be due to difference in response of different fenugreek varieties to agroclimatic conditions and different vegetative characters of cultivars. Similar results under different set of climatic conditions by cultivars of fenugreek by Latye *et al*. (2016) [10] and Mandal *et al*. (2013) [11]

Table 3: Fresh weight of leaves, dry weight of leaves and herbage yield of fenugreek varieties influenced by different harvest intervals

Varieties	Fresh weight of leaves				Dry weight of leaves				Herbage yield			
	Harvest intervals				Harvesting intervals				Harvest intervals			
	D_1	D_2	D_3	Mean	D_1	D_2	D_3	Mean	D_1	D_2	D_3	Mean
V_1	2.49	4.11	4.44	3.68	0.27	0.58	1.50	0.79	10.03	12.00	15.11	12.38
V_2	2.54	3.94	4.51	3.66	0.33	0.67	1.71	0.90	10.05	12.17	15.18	12.47
V_3	2.41	3.97	4.70	3.69	0.37	0.69	2.33	1.13	10.44	13.17	15.62	13.07
V_4	2.26	4.13	4.77	3.72	0.36	0.61	2.68	1.21	10.55	12.55	15.71	12.94
V_5	3.37	4.26	5.26	4.30	0.38	0.76	2.69	1.28	10.25	13.53	15.75	13.18
V_6	2.14	3.22	4.41	3.26	0.42	0.52	2.65	1.20	10.03	12.82	14.42	12.42
V_7	2.22	3.12	4.29	3.21	0.37	0.63	2.67	1.22	10.01	12.88	15.16	12.68
Mean	2.49	3.82	4.62		0.36	0.64	2.32		10.19	12.73	15.28	
Source	V	D	V X D		V	D	V × D		V	D	V×D	
S.Em ±	0.03	0.02	0.052		0.026	0.017	0.046		6.09	4.00	10.56	
CD at 5%	0.08	0.056	0.149		0.076	0.05	0.131		17.48	11.45	30.28	

4. Conclusion

Among the different varieties, the variety AFg-2 had recorded maximum plant height (14.71 cm), plant spread (6.51 cm^2), leaf area (6.52 cm^2), internodal length (2.43 cm), fresh weight of leaves (4.30 g $plant^{-1}$), dry weight of leaves (1.28 g $plant^{-1}$) and the herbage yield (13.18 q ha^{-1}) and the maximum number of primary branches was recorded in the variety AFg-5 (4.30). At different harvest interval 35 days after sowing found to be optimum day to harvest for herbage yield. The variety AFg-2 which was harvested at 35 days after harvest was observed to be most ideal for herbage yield. As there is increase in plant height with the advance of age, there is increase in number of primary branches, plant spread and internodal length which indirectly there is increase in yield of fenugreek.

5. Reference

1. Aggarwal KB, Ranjan JK, Rathore SS, Saxena SN, Mishra BK. Changes in physical and biochemical properties of fenugreek (*Trigonella sp.* L.) leaf during different growth stages. International Journal of Seed Spices. 2016;3(1):31-35.
2. Hongal1 A, Basavaraja N, Hongal S, Hegde NK, Kulkarni S. Evaluation of Coriander (*Coriandrum sativum* L.) genotypes for yield and quality under hill zone (Zone-9) of Karnataka, India. International Journal of current microbiology and applied sciences. 2018;7:2494-2502.
3. Chandra K, Sastry D, Singh D. Genetic variation and character association of seed yield and its component characters in fenugreek. Agric. Sci. Digest. 2000;20(2):93-95.
4. Duwal A, Nepal A, Luitel S, Acharya S, Pathak R, Poudel PR, *et al*. Evaluation of coriander (*Coriandrum sativum* L.) varieties for growth and yield parameters. Nepalese Journal of Agricultural Sciences. 2019;18:36-46.
5. Flammang AM, Cifone MA, Erexson GL, Stankowski LF. Genotoxicity testing of a fenugreek extract. Food and Chemical Toxicol. 2004;42:1769-1 775.
6. Govindaraj K, Balakrishnan S, Shoba N. and Somasundaram Influence of growing environment on growth and yield of fenugreek leaves under shade net and open condition International Journal of Chemical Studies. 2019;7(3):2102-2105.
7. Gowda MC, Halesh DP, Farooqi AA. Effect of dates of sowing and spacing on growth of fenugreek (*Trigonella foenum-graecum* L.). Biomedical sciences. 2006;1(2):141-146.
8. Kumar R, Khushal S, Shukla YR. Variability, Correlation and Path analysis studies in lettuce. International J. Veg. Sci. 2010;16:299-315.
9. Kuri BR, Jat NL, Shivran AC, Saharawat YS, Bana RS, Dadarwal RS. Research Paper Effect of sowing time, varieties and plant growth regulators on growth, physiological indices and productivity of coriander (*Coriandrum sativum*). Indian Journal of Agronomy. 2015;60(3):464-470
10. Latye PT, Bharad SG, Kale VS, Nandeshwar VN, Kholia A. Varietal performance of fenugreek under Akola conditions. International Journal of Minor Fruits, Medicinal and Aromatic Plants. 2016;2(1):32-34.
11. Mandal J, Dhangrah VK, Chakravorty S. Evaluation of vegetable amaranth under hot summer growing condition. Hort. Flora Res. Spectrum. 2013;2(4):352-55.
12. Mehta UM, Thirthalli J, Subbakrishna DK, Gangadhar BN, Eack SM, Keshavan MS. Social and neuro-cognition as distinct cognitive factors in schizophrenia: a systematic review. Schizophrenia research. 2013 Aug 1;148(1-3):3-11.
13. Prasad S, Singh A, Korres NE, Rathore D, Sevda S, Pant D. Sustainable utilization of crop residues for energy generation: A life cycle assessment (LCA) perspective. Bioresource technology. 2020 May 1;303:122964.
14. Aggarwal BB, Gupta SC, Sung B. Curcumin: an orally bioavailable blocker of TNF and other pro-inflammatory biomarkers. British journal of pharmacology. 2013 Aug;169(8):1672-1692.