



ISSN (E): 2277-7695
 ISSN (P): 2349-8242
 NAAS Rating: 5.23
 TPI 2023; 12(12): 129-131
 © 2023 TPI
www.thepharmajournal.com
 Received: 13-10-2023
 Accepted: 16-11-2023

Tomar Bhavna
 Rajmata Vijayaraje Scindia,
 Krishi Vishwa Vidyalaya,
 Gwalior, Madhya Pradesh, India

Gupta Niharika
 Rajmata Vijayaraje Scindia,
 Krishi Vishwa Vidyalaya,
 Gwalior, Madhya Pradesh, India

Manekar Uarwash
 Rajmata Vijayaraje Scindia,
 Krishi Vishwa Vidyalaya,
 Gwalior, Madhya Pradesh, India

Chandravanshi Neha
 Rajmata Vijayaraje Scindia,
 Krishi Vishwa Vidyalaya,
 Gwalior, Madhya Pradesh, India

Tomar Shobhana S
 Rajmata Vijayaraje Scindia,
 Krishi Vishwa Vidyalaya,
 Gwalior, Madhya Pradesh, India

Bhadoria
 Rajmata Vijayaraje Scindia,
 Krishi Vishwa Vidyalaya,
 Gwalior, Madhya Pradesh, India

Singh SK
 Rajmata Vijayaraje Scindia,
 Krishi Vishwa Vidyalaya,
 Gwalior, Madhya Pradesh, India

Tomar Shobhana
 Rajmata Vijayaraje Scindia,
 Krishi Vishwa Vidyalaya,
 Gwalior, Madhya Pradesh, India

Corresponding Author:
Tomar Bhavna
 Rajmata Vijayaraje Scindia,
 Krishi Vishwa Vidyalaya,
 Gwalior, Madhya Pradesh, India

Impact of dates of sowing on growth and yield of pearl millet (*Pennisetum glaucum* L.) varieties growing in semi-arid region

Tomar Bhavna, Gupta Niharika, Manekar Uarwash, Chandravanshi Neha, Tomar Shobhana S, Bhadoria, Singh SK and Tomar Shobhana

Abstract

Pearl millet is an important source of energy and protein for millions of people. Millet produces better grain than other grains under adverse weather conditions such as poor soil, high temperature and long drought. An experiment was conducted at RVSKVV Agricultural College, Gwalior, in the summer of 2016. Combined treatments were used with three sowing dates (20, 30 July and 9 August) and five pearl millet varieties (Big B, Crystal Dhoom, Boss-65, Ankur-045 and 86M86). The experiment was adapted to a split-plot design and repeated three times. The results showed that the Crystal Dhoom variety had better yield and B:C ratio (benefit-cost ratio) on the first day of sowing (July 20). Variety Crystal Dhoom reported that the yield was higher at 1989.70 kg/ha, followed by Boss-65 1162.54 kg/ha, Ankur-045 1792.75 kg/ha, 86M86 1675.52 kg/ha and Big B 1768.1768. It shows. The highest return (Rs./ha) was given for the Crystal Dhoom variety of Rs. 19,066 (Rs./ha), followed by Boss-65 variety at Rs. 5,713 (Rs./ha), Ankur-045 at Rs. 14,550 (Rs./ha), 86M86, Rs. 13,321 (Rs./ha). Ha) Ha) Big B gives 15066 (Rs./ha) respectively. There are significant differences in growth and adverse outcomes between different planting dates. According to statistics, the highest yield was 1976.94 kg/ha on the first sowing day (20 July), 1737.82 kg/ha on the second sowing day (30 July) and 1318.45 kg/h on the third sowing day (9 August). Ha. Similarly, statistics on the first sowing day (20 July) show the maximum returns (Rs./ha) at 17941 (Rs./ha), followed by the second sowing day (30 July) at 14919 (Rs./ha) and 7770 (Rs./ha) shows/ha) on the third day of sowing (9 August).

Keywords: Growth, yield, pearl millet, *Pennisetum glaucum* L.

Introduction

Pearl millet (*Pennisetum glaucum* L.), a member of the Poaceae family, is a drought-tolerant kharif plant grown in rain-fed regions. In adverse weather conditions such as poor soil, high temperature and long drought, millet can produce better grains than other grains (Jan *et al.*, 2015) [3] In India, pearl millet is often called Bajra making. Pearl millet (*Pennesirum glaucum* L.) is the most drought tolerant of all domesticated grains, producing grains with rainfall as low as 200 to 250 mm (Bidinger and Hash, 2003) [1], making it direct Rain. Trustworthy. Cereals are fed in arid and semi-arid tropical regions. India is Asia's largest producer with area (about 8.1 million hectares) and yield of 1,186 kg/ha (9.6 million tonnes). (Pearl Millet All India Coordinated Research Project, Jodhpur 342-304, Rajasthan, 2011-Planting time is the very input affecting crop yield. Sowing seeds at the right time increases production by providing a good environment for all stages of growth. Upadhy *et al.* (2001) [9] reported that the yield of summer pearl millet planted on March 15 was higher, but they found that delaying planting resulted in lower yields. Determining the pearl millet planting time is important for the growth and development of the plant.

Materials and Methods

The study was conducted in the summer of 2016 at the Research Farm of the Department of Agriculture, RVSKVV Agricultural College, Gwalior (M.P.). Gwalior is located in Gede district at 26°.13' North latitude and 76° East longitude. It is located 14 meters east of Madhya Pradesh and at an altitude of 211.52 meters above sea level. The region has a subtropical semi-arid climate with extreme weather conditions, hot and dry summers and cold winters. Monsoon usually arrives in the last week of June. The highest temperature in summer can reach 460 degrees Celsius, and the lowest temperature in winter can reach 20 degrees Celsius. The average rainfall is between 80 and 90 centimeters and is mostly concentrated in July,

August and September. The average maximum temperature during the growing season is 41.6 °C and the minimum temperature is 13.2 °C, which is all rain during the growing season. The rainy season from June to October 2016 is 573.00 mm. After a few winter showers. The average annual precipitation is approximately 900 mm and is mostly concentrated from mid-July to mid-September. Before starting the experiment, both physical and chemical analyzes

of the soil were performed. Mechanical and chemical analyzes were carried out in the soil through experimental plans.

Mechanical Analyse

Mechanical analysis of soil properties sand, silt and clay is present in Table no. 01

Table 1: Mechanical properties of soil

S. No.	Properties	Value	Method employed
A	Physical properties		
1.	Sand (%)	56.75	Bouyoucos hydrometer method
2.	Silt (%)	19.82	
3.	Clay (%)	21.00	
4.	Textural class	Sandy loam	Triangular method (Loyn and Buckman 1952) [4]

Treatment details

I) Main plot (Sowing dates)

D1: 20th July

D2: 30th July

D3: 09th August

II) Sub plot – Varieties

V1: Big B

V2: Crystal Dhoom

V3: Boss 65

V4: Ankur – 045

V5: 86M86

Results and Discussion

After data analysis, the following results were obtained. Harvest the crop/plot after harvest and use the product to calculate the yield (kg/ha). Analysis of the collected data was performed as shown in Table 2; This showed that there was a difference in the harvest of different dates and varieties.

Table 2: Grain Yield, Stover Yield and Biological Yield of Pearl millet at harvest as influenced by different treatments.

Treatment Details	Grain Yield		Stover Yield (kg /ha)	Biological Yield (kg /ha)	Harvest Index (%)
	Kg /plot	Kg /ha			
D ₁	3.20	1976.94	3757.54	5734.48	34.47
D ₂	2.82	1737.82	3688.84	5426.65	31.78
D ₃	2.14	1318.45	3261.68	4580.13	28.76
SEm±	0.06	37.16	49.26	63.86	0.56
CD (at 5%)	0.24	145.89	193.38	250.71	2.22
V ₁	2.86	1768.18	3670.02	5438.19	32.46
V ₂	3.22	1989.70	4006.38	5996.08	33.13
V ₃	1.88	1162.54	3277.63	4440.18	26.23
V ₄	2.90	1792.75	3505.26	5298.01	33.58
V ₅	2.71	1675.52	3387.46	5062.97	32.94
SEm±	0.10	58.72	131.22	128.46	1.31
CD (at 5%)	0.28	171.40	383.02	374.96	3.83
Interaction (D×V) I	NS	NS	NS	NS	NS
Interaction (V×D) II	NS	NS	NS	NS	NS

Conclusion

Consequently, pearl millet variety Crystal Dhoom is best for sowing on 20 July. Growth and yield of pearl millet variety Crystal Dhoom and sowing date is July 20, considering good climate in Gwalior conditions for better growth and yield. If planting is done late and the weather is not suitable for the Crystal Dhoom variety, growth and yield will be affected and as a result, the yield will decrease.

References

1. Bidinger FR, Hash CT. Pearl millet, in Physiology and Biotechnology Integration for Plant Breeding, eds Nguyen H.T; Blum A; editors. (New York, NY: Marcel Dekker); c2003. p. 225-270
2. Jackson ML. Soil Chemical Analysis, Prentice Hall of India Pvt. Ltd., New Delhi; c1973.
3. Khan JA, Amanullah I, Ali S, Amir S. Sowing dates and sowing methods influenced on growth yield and yield

components of Pearl millet under rainfed conditions. J. Envir. Earth Sci. 2015;5(1):105-109.

4. Loyn, Buckman O, Brady NC. The nature and properties of soil. Sci. 1952, 116.3021.573.
5. Olsen SR, Cole CV, Watanabe FS, Dean LA. Estimation of available phosphorus in soils by extractions with sodium bicarbonate. U.S. Dept. of Agric. Circular; c1954. p. 939.
6. Panse VG, Sukhatme PV. Statistical methods for Agricultural workers, ICAR, New Delhi, 1967, 187-197p.
7. Singh RK, Chakraborty D, Garg RN, Sharma PK, Sharma UC. Effect of different water regimes and nitrogen application on growth, yield water use and nitrogen uptake by Pearl millet (*Pennisetum glaucum* L.). Indian J Agril. Sci. 2010;80(3):213-216.
8. Subbiah BV, Asija GL. A rapid procedure for estimation of available nitrogen in soils. Current Science. 1956;25:259-260.

9. Upadhyay PN, Dixit AG, Patel JR, Chavda JR. Response of summer pearl millet to time and method of planting, age of seedling and phosphorus grown on loamy sand soils of Gujarat. *Indian J Agron*. 2001;46(1):126-130.
10. Walkley A, Black A. An examination of Degtjareff Method of Determining Soil Organic Matter and a proposed modification of the chromic acid titration method. *Soil Science*. 1934;37(1):29-38.