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Effect of plant growth regulators and potassium on growth and yield of Pearl millet (*Pennisetum glaucum* L.)

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Abstract

During the Kharif season of 2025, a field experiment on pearl millet was carried out at the Department of Agronomy's Crop Research Farm (CRF). In addition to the control (RDF: -80:40:40 kg NPK/ha), the treatment included potassium (20, 40, and 60 kg/ha) and plant growth regulators such as NAA (50 and 100 ppm) and Chlormequat (175 and 250 ppm). Ten treatments were used in the trial, which was set up using a Randomise Block Design (RBD) with three replications. The trial plot's soil had a sandy loamy texture, a soil reaction that was almost neutral (pH 6.8), low levels of organic carbon (0.46%), available N (225.42 kg/ha), available P (38.2 kg/ha), and available K (240.7 kg/ha). Application of Potassium 50 kg/ha + Zinc 25 kg/ha was recorded with the results which revealed that significantly highest growth attributes of Pearl millet at 80 DAS viz., Plant height (203.24 cm), dry weight (144.17 g), Ear head length (30.23 cm), grains/head (1848.78) and yield attributes such as Grain yield (4530.43 kg/ha), Stover yield (7246.59 kg/ha) and Harvest index (38.46%) were recorded highest in treatment 9 (NAA (50 ppm) + Chlormequat (175 ppm) + Potassium 60 kg/ha) as compared to other treatments. Maximum gross return (INR 1,09,857.7/ha), net return (INR 71,773.74/ha) and B:C ratio (1.88) was also recorded in the same treatment.

Keywords: Economics, growth, NAA, Chlormequat, pearl millet, potassium

Introduction

In India, pearl millet is also referred to as "cattail" and "bullrush millet," or Bajra or Bajri. Tropical western Africa is where it originated. It is a member of the Gramineae (Poaceae) family. The two farmed species are *Pennisetum purpureum* (2n=28), which is used for dry and green fodder, and *Pennisetum glaucum* L. (2n=14), which is utilised for grain. After rice, wheat, maize, and sorghum, pearl millet is the fifth most significant cereal crop in the world. It serves as both a staple diet for humans and animal feed. In 100 grams of bajra seeds, there are 360 calories, 67 grams of carbohydrates, 12 grams of protein, 5 grams of fat, and 2 grams of minerals. (Directorate of Millets Development, 2021-22; Project Coordinator Review, 2022) [3, 19]. It is regarded as food for the impoverished. Due to its many benefits, including early maturity, drought tolerance, low input costs, and a general lack of biotic and abiotic stressors, it is vital for food and nutritional security. The majority of small and marginal farmers in Asia and Africa cultivate pearl millet (*Pennisetum glaucum* L.) as a staple grain. It is a C4 plant with greater dry matter output, high photosynthetic efficiency, and the ability to withstand harsh agroclimatic conditions with fewer inputs and higher profits. Because pearl millet is early maturing, drought tolerant, and naturally able to withstand high temperatures up to 42°C during the reproductive phase, it is a climate resilient crop that is vital to the food and nutritional security of humans and animals in arid and semi-arid regions. Pearl millet was added to the Public Distribution System (PDS) and recognised as a nutri-cereal for production, consumption, and trade due to its exceptional nutritious qualities (Gazette of India, No.133 dtd 13th April, 2018) [4]. The most extensively grown crop with a significant role in world agriculture is pearl millet. Globally, it is grown on more than 30 million hectares, with the largest crop areas being in Asia (more than 10 million ha) and Africa (more than 18 million ha). After rice, wheat, and maize, pearl millet is the fourth most extensively grown food crop in India. In 2020–21, 9.35 million tonnes of bajra were produced on 7.41 million hectares of land at a productivity of 1,391 kg/ha. The states that produce the most pearl millet include Rajasthan (almost 45%), Uttar Pradesh (19%), Haryana (9%), Gujarat (9%), Maharashtra (6%), and Tamil

Nadu (2%). (Project Coordinator Review, 2022; Directorate of Millets Development, 2021–2022) ^[19, 3].

Fertiliser management is the primary production component that has increased pearl millet yield by 27%. The three main elements needed to boost agricultural productivity are nitrogen, phosphorus, and potassium. Among these components, nitrogen is one of the most important and costly inputs that controls the production of cereal crops by improving the effectiveness of applied nitrogen in pearl millet. It affects plant development the fastest and most noticeably. Inadequate nitrogen can significantly lower productivity and degrade produce quality. A helpful strategy for carefully controlling the nitrogen inflow is the split application of nitrogen fertilisers in accordance with crop growth stage.

The primary nutrient needed by pearl millet is nitrogen, which has been demonstrated to have varying effects on yield and growth. Depending on the species or variety, healthy plants have a nitrogen concentration of one to five percent. As a result, it enhances the protein content of food grains and the quality of fodder while also promoting the growth and development of all living tissues. Pearl millet has a reputation for thriving in environments with minimal nitrogen management. However, a number of studies have demonstrated that applying nitrogen can improve the efficiency of millet production (Singh *et al.* 2016) ^[8]. Sharma *et al.* (2008) ^[9] similarly showed that yield attributes improved as nitrogen levels increased. In general, nitrogen-deficient plants are stunted, mature later, and produce fewer blooms and shrivelled grains.

Plant growth regulators (PGRs) are natural or synthetic chemical compounds-often called phytohormones that manage plant development, including cell division, elongation, flowering, and fruit ripening, at very low concentrations. They act as growth promoters (auxins, gibberellins, cytokinins) or inhibitors (abscisic acid, ethylene) to increase agricultural productivity and production. PGR effectiveness depends on proper timing, dosage, plant species, and environmental conditions. They are essential in modern agriculture for improving crop quality without increasing cultivated land area.

The hormone Naphthalene Acetic Acid does not occur naturally and like all auxins, is toxic to the plants at higher concentrations. NAA is one of the most widely used synthetic auxins. It is a plant growth regulator used for the purpose of inducing flowering and preventing shedding of flower buds. It stimulates the cell division, cell enlargement and cell elongation in apical region of the plant. As auxins are concerned, the increase in linear growth of stem is caused by cell elongation. The growth is brought about by auxin due to the uptake of a large quantity of water which leads to enlargement of vacuole. This results in the enlargement of the cell along the longitudinal axis (Krishnamoorthy, 1980) ^[11].

One of the main minerals needed for plant growth and development is potassium. It increases plant resilience to a variety of biotic and abiotic stressors and raises agricultural output yield and quality. It is primarily involved in photosynthesis, glucose metabolism, and physiological activities such root development, water use efficiency, protein and amino acid synthesis, and enzyme activation (Choudhary *et al.* 2014) ^[12]. Potassium is absorbed by plants in the ionic form as (K⁺). It is one among the plant's most mobile components, moving from older to younger tissues. During the vegetative growth phase, it accumulates in large quantities. In the process of filling grains, it converts sugar to starch. It has a significant impact on the water balance of the plant system, activating about 60 enzymes, modulating stomatal function, and managing water relations, particularly in rainfed crop production (Mengel 1996) ^[13]. Therefore, little exchangeable

potassium availability results from multiple potash depletions in soils under long-term continuous cropping without additional potash. In this case, the reserve K fraction provides the crop or crops with the K they need (Ch, Srinivasarao *et al.*, 2013) ^[14].

Therefore, the growth parameters (plant height, tillers, leaf area) and yield attributes (ear head length, grain weight) of pearl millet are greatly improved by the use of appropriate plant growth regulators in conjunction with sufficient potassium fertilisation, leading to a larger grain and fodder output. The current study, "Effect of Plant growth regulators and Potassium on growth and yield of Pearl millet (*Pennisetum glaucum* L.)," was carried out with the following goals in mind.

Materials and Methods

The experiments on the effect of Plant growth regulators and Potassium on growth and yield attributes enhancement of Pearl millet were conducted at Kharif season of 2025-2026 at Crop Research Farm, Department of Agronomy, Naini Agricultural Institute, SHUATS, Prayagraj which is located at 25° 24' 42" N latitude, 81° 50' 56" E longitude and 98 m altitude above the mean sea level. This region is located approximately 5 kilometers from Prayagraj city on the right bank of the Yamuna River beside Prayagraj Rewa Road. A composite soil sample was taken between 0 and 30 cm down. It was crushed, let to air dry, and its chemical and physical qualities examined. The soil reaction of the sandy clay loam was 7.6, the organic matter content was 0.69 (0.72%), the available nitrogen was 152.7 kg/ha, the phosphorus was 10.4 kg/ha, the potassium was 174.0 sulfur content was 7.2 mg/kg, the zinc was 0.72 mg/kg, and the available B was 0.56 mg/kg. To apply nutrients as a spreading method, 4-5 cm deep furrows were dug along the seed rows using a hand hoeing. Once germination occurred, the gaps were closed by transplanting ten days following sowing. Seedlings were clipped off as needed to keep the spacing between them at 45 cm by 10 cm. Intercultural operations were conducted at intervals of 25 to 40 days to decrease crop density and weed competition. Plant growth characteristics, including plant height (cm), dry weight (g/plant), CGR, and RGR, were measured at regular intervals from germination until harvest. At 20, 40, 60, and 80 DAS, yield metrics were measured, including Ear head length, seeds/ Ear head, test weight (g), seed yield (kg/ha), straw yield (kg/ha), and harvest index (%). Ten treatments' observed data were statistically examined using analysis of variance (ANOVA) in relation to randomised block design.

Results and Discussion

Plant Height (cm)

At the time of harvesting maximum plant height of (203.24 cm) was recorded with treatment 9 (NAA 50 ppm +Cholrmequat 175 ppm + Potassium 60 kg/ha), whereas treatment 7 and 8 (NAA 50 ppm + Chlormequat 175 ppm + Potassium 20 kg/ha and NAA 50 ppm + Chlormequat 175 ppm + Potassium 40 kg/ha) were statistically at par with treatment 9 (NAA 50 ppm +Cholrmequat 175 ppm + Potassium 60 kg/ha).

The plant height of Pearl millet increased significantly due to application of different levels of Potassium and Zinc. All amino acids, which are the building blocks of plant proteins and are crucial to the growth of plant tissues like cells, membranes, and chlorophyll, require potassium. Manwar and Mankar (2015) and Iqbal *et al.* (2013) observed similar findings. Potassium's role as a catalyst or stimulant in the majority of physiological and metabolic processes, as well as its significance in the synthesis of tryptophan, a component of some proteins and a substance required for the synthesis of growth hormones (auxins) like Indole

Acetic Acid (IAA), may be responsible for the increase in plant height. Reddy *et al.* (2021) ^[16] also observed similar findings.

Plant dry weight (g/plant)

The highest plant dry weight (144.17 g) was found in treatment 9 (NAA 50 ppm + Chlormequat 175 ppm + Potassium 60 kg/ha). However, treatment 5, 6, 7 and 8 (Chlormequat 250 ppm + Potassium 40 kg/ha, Chlormequat 250 ppm + Potassium 60 kg/ha, NAA 50 ppm + Chlormequat 175 ppm + Potassium 20 kg/ha and NAA 50 ppm + Chlormequat 175 ppm + Potassium 40 kg/ha) were statistically at par with the treatment 9 (NAA 50 ppm + Chlormequat 175 ppm + Potassium 60 kg/ha).

The addition of potassium considerably raised the dry weight of pearl millet. Potassium may have given plants a favourable nutritional environment, which contributes to its crucial involvement in a number of physiological and biochemical processes that are essential for the growth and development of plants in terms of dry weight. Zinc's function as a catalyst or stimulant in the majority of physiological and metabolic processes as well as a metal activator or enzyme that promotes plant growth and development may be the cause of the rise in dry weight. Vinod Kumar *et al.* (2018) ^[17] and Reddy *et al.* (2021) ^[16] also observed similar findings.

Crop growth rate (g/m²/day)

The data shows that crop growth rate increased at a low pace at the early stages of crop growth, however, during the mid-growth stages onwards drastic increase in crop growth rate was observed. The data was found to be significant at 60 -80 DAS intervals. Although, the statistical analysis of CGR during 60 - 80 DAS significant highest CGR value (43.07/m²/day) was observed in treatment 3 (NAA (100 ppm + Potassium 60 kg/ha). and accept treatment 9 and 10 (NAA 50 ppm + Chlormequat 175 ppm + Potassium 60 kg/ha and Control) which was not found statistically at par with treatment 3(NAA (100 ppm + Potassium 60 kg/ha). This suggests that the combined application of a higher concentration of NAA along with adequate potassium supply effectively enhanced physiological efficiency and biomass accumulation during the critical mid-growth phase. In contrast, treatments T₉ (NAA @ 50 ppm + chlormequat chloride @ 175 ppm + potassium @ 60 kg/ha) and T₁₀ (control) recorded comparatively lower CGR values and were statistically not at par with T₃. This indicates that neither reduced NAA concentration combined with growth retardant application (chlormequat chloride) nor the absence of growth regulators and nutrients (control) could match the growth-promoting effect observed in T₃. The results clearly highlight the synergistic role of auxin (NAA) and potassium in enhancing crop growth dynamics during the active vegetative stage.

Post Harvest Observation

Ear head length (cm)

A significant impact was experiential by the statistical analysis of ear head length. Treatment with Potassium 50 kg/ha along Zinc 25 kg/ha was recorded highest ear head length (30.23). However, treatment 7 and 8 (NAA 50 ppm + Chlormequat 175 ppm + Potassium 20 kg/ha and NAA 50 ppm + Chlormequat 175 ppm + Potassium 40 kg/ha) were found statistically at par with treatment 9 (NAA 50 ppm + Chlormequat 175 ppm + Potassium 60 kg/ha). Increased dry matter accumulation, which may be the result of increased nutrient availability to plants during the flowering stage, may lead to greater effective tiller formation and ultimately longer ears. NPK application can be linked to a general development in plant growth. Tryptophan synthesis and

physiological and metabolic processes that depend on zinc may be responsible for the growth in ear head length (cm). A number of proteins that generate growth hormones (auxins) like IAA depend on zinc. Sharma *et al.* (2008) ^[9] and Sharma *et al.* (2012) ^[10] reached the same conclusion in two different investigations.

Number of grains/ear head

The statistical analysis of the amount of grains per ear head revealed a significant influence. The highest and most notable amount of grains per ear head (1848.75) was found in Treatment 9 (NAA 50 ppm + Chlormequat 175 ppm + Potassium 60 kg/ha). On the other hand, treatments 5, 6, 7, and 8 (Chlormequat 250 ppm + Potassium 40 kg/ha, Chlormequat 250 ppm + Potassium 60 kg/ha). PGR's function as a catalyst or stimulant in the majority of physiological and metabolic processes, a constituent of certain proteins, and a substance necessary for the synthesis of growth hormones (auxins), such as Indole Acetic Acid, may be connected to the general improvement in plant growth and increased nutrient availability to plants at the flower primordial initiation stage. This may have contributed to more efficient tiller formation and, eventually, an increase in the number of grains/ear head and ear head length. Similar results were also reported by Reddy *et al.* (2021) ^[16], Vinod Kumar *et al.* (2018) ^[17], and Chouhan *et al.* (2015) ^[18].

Test weight (g)

The statistical analysis on test weight was found to be non-significant. However, highest test weight (8.22 g) was recorded with treatment 9 (NAA 50 ppm + Chlormequat 175 ppm + Potassium 60 kg/ha) and lowest test weight (5.71 g) was recorded in control. Test weight was not influenced by the application of different Plant growth regulators and Potassium which might be due to characters highly influenced by its genetic make-up. Observations regarding grain yield (kg/ha), straw yield (kg/ha) and harvest index (%) of Pearl millet as influenced by different Plant growth regulators and Potassium are shown in table 4.6.

Grain yield (kg/ha)

Increased grain yield was obtained due to Plant growth regulators and Potassium and RDF treatment combinations. The highest grain yield (4530.43 kg/ha) was obtained in treatment 9 (Potassium 50 kg/ha along with Zinc 25 kg/ha) whereas, treatment 8 (NAA 50 ppm + Chlormequat 175 ppm + Potassium 40 kg/ha) were statistically at par with treatment 9 (NAA 50 ppm + Chlormequat 175 ppm + Potassium 60 kg/ha). Potassium may be used to enhance vegetative development, most likely by the uptake and utilisation of other elements enticed by its extensive root system created by NPK mimicry. The increase in grain output may be attributed to zinc's function as a "catalyst" in the synthesis of tryptophan as well as the plant's growth and development. Similar results were previously reported by Singh *et al.* (2016) ^[8] and Sharma *et al.* (2012) ^[10].

Stover yield (kg/ha)

Application of Plant growth regulators and Potassium has significantly impact on stover production of the Pearl millet. At NAA 50 ppm + Chlormequat 175 ppm + Potassium 60 kg/ha, the highest stover yield (7246.59 kg/ha) was obtained whereas, treatments 6, 7 and 8 (Chlormequat 250 ppm + Potassium 60 kg/ha, NAA 50 ppm + Chlormequat 175 ppm + Potassium 20 kg/ha and NAA 50 ppm + Chlormequat 175 ppm + Potassium 40 kg/ha) were obtained statistically at par with the treatment 9 (NAA 50 ppm + Chlormequat 175 ppm + Potassium 60 kg/ha). Applying potassium may enhance vegetative development, most

likely through the uptake and utilisation of other elements captivated by its extensive root system. The stover yield determines the biological yield. Tryptophan, an essential amino acid for the growth and development of plants, depends on zinc. The same findings were discovered by Singh *et al.* (2016) ^[8] and Sharma *et al.* (2012) ^[10].

Harvest index (%)

The data showed significant difference in harvest index, however, NAA 50 ppm +Cholrmequat 175 ppm + Potassium 60 kg/ha recorded highest value of (38.46%) and lowest value (34.41%) was recorded in T 1 with NAA 100 ppm + Potassium 20 kg/ha respectively.

When the amount of applied potassium was increased to 30 to 50 kg/ha, pearl millet's grain and stover yield improved dramatically. Increased vegetative growth may arise from the use of different potassium fertilisers. This could be due to the plant's vast root system's efficient uptake and utilisation of other nutrients. Grain and straw yields determine the biological yield. Therefore, enhanced grain and straw yield characteristics and yield may be responsible for a notable rise in biological yield with the application of various potassium. Vinod Kumar *et al.* (2018) ^[17] and Reddy *et al.* (2021) ^[16] also observed similar findings.

Economic Analysis

Observations regarding economics of different treatments of Pearl millet are given in table 4.7.

Cost of Cultivation (INR/ha)

The lowest cost of cultivation was found in the control plot

(34,144.00 INR/ha) and the highest cost of cultivation (38,144.00 INR/ha) was observed treatment 9 (NAA 50 ppm +Cholrmequat 175 ppm + Potassium 60 kg/ha) because of higher doses of Potassium and Zinc.

Gross Return (INR/ha)

Gross returns (1,09,857.70 INR/ha) were found highest in treatment 9 with application of NAA 50 ppm +Cholrmequat 175 ppm + Potassium 60 kg/ha and the minimum gross return (84,006.92 INR/ha) was found statistically at par in treatment 1 with application of NAA 100 ppm + Potassium 20 kg/ha as compared to other treatments.

Net returns (INR/ha)

According to the data net returns as affected by different treatments. In comparison to other treatments, treatment 9, which applied NAA 50 ppm + Chlormequat 175 ppm + Potassium 60 kg/ha, had the highest net returns (71,713.74 INR/ha), while treatment 1, which applied NAA 100 ppm + Potassium 20 kg/ha, had the lowest net returns (47,462.92 INR/ha).

Benefit cost ratio (B:C)

Table 4 presents data regarding the B:C ratio as affected by different therapies. When compared to other treatments, treatment 9 with the application of NAA 50 ppm + Cholrmequat 175 ppm + Potassium 60 kg/ha had the highest benefit cost ratio (1.88), while treatment 1 with the application of NAA 100 ppm + Potassium 20 kg/ha had the lowest benefit cost ratio (1.30).

Table 1: Influence of Plant growth regulators and Potassium on growth attributes of Pearl Millet.

S. No.	Treatments	Plant height (cm)	Dry weight (g)	CGR (g/m ² /day)
		80 DAS	80 DAS	60-80 DAS
1.	NAA 100 ppm + Potassium 20 kg/ha	176.70	131.93	42.57
2.	NAA 100 ppm + Potassium 40 kg/ha	177.83	133.17	42.29
3.	NAA (100 ppm + Potassium 60 kg/ha	181.80	135.87	43.07
4.	Chlormequat 250 ppm + Potassium 20 kg/ha	185.11	136.74	42.26
5.	Chlormequat 250 ppm + Potassium 40 kg/ha	187.17	137.93	41.76
6.	Chlormequat 250 ppm + Potassium 60 kg/ha	191.67	139.82	42.32
7.	NAA 50 ppm + Chlormequat 175 ppm + Potassium 20 kg/ha	195.68	141.90	42.34
8.	NAA 50 ppm + Chlormequat 175 ppm + Potassium 40 kg/ha	198.92	143.10	41.41
9.	NAA 50 ppm + Chlormequat 175 ppm + Potassium 60 kg/ha	203.24	144.17	39.47
10.	Control (Farmer Practice)	168.85	118.62	33.42
	F test	S	S	S
	SEm±	3.70	2.17	1.74
	CD (P=0.05)	11.01	6.45	5.18

Table 2: Influence of Plant growth regulators and Potassium on Yield attributes of Pearl millet

S. No.	Treatments	Ear head length (cm)	No. of grains/ ear head	Test weight (g)
1.	NAA 100 ppm + Potassium 20 kg/ha	22.77	1279.65	5.80
2.	NAA 100 ppm + Potassium 40 kg/ha	23.21	1308.55	5.93
3.	NAA (100 ppm + Potassium 60 kg/ha	23.63	1339.06	6.31
4.	Chlormequat 250 ppm + Potassium 20 kg/ha	24.87	1409.91	6.76
5.	Chlormequat 250 ppm + Potassium 40 kg/ha	25.28	1516.07	6.94
6.	Chlormequat 250 ppm + Potassium 60 kg/ha	26.04	1610.44	7.55
7.	NAA 50 ppm + Chlormequat 175 ppm + Potassium 20 kg/ha	28.82	1629.51	7.66
8.	NAA 50 ppm + Chlormequat 175 ppm + Potassium 40 kg/ha	29.04	1715.03	7.92
9.	NAA 50 ppm + Chlormequat 175 ppm + Potassium 60 kg/ha	30.23	1848.75	8.22
10.	Control (Farmer Practice)	21.43	1215.07	5.71
	F test SEm±	S	S	NS
	CD (P=0.05)	1.17	80.20	0.40
		3.48	338.30	1.197

Table 3: Influence of Plant growth regulators and Potassium on yields Pearl millet.

S. No.	Treatments	Seed yield (Kg/ha)	Stover yield (Kg/ha)	Harvest index (%)
1.	NAA 100 ppm + Potassium 20 kg/ha	3359.37	6391.84	34.41
2.	NAA 100 ppm + Potassium 40 kg/ha	3490.14	6473.69	34.99
3.	NAA (100 ppm + Potassium 60 kg/ha	3573.38	6585.61	35.21
4.	Chlormequat 250 ppm + Potassium 20 kg/ha	3718.26	6660.26	35.87
5.	Chlormequat 250 ppm + Potassium 40 kg/ha	3854.11	6751.13	36.34
6.	Chlormequat 250 ppm + Potassium 60 kg/ha	3964.08	6958.59	36.29
7.	NAA 50 ppm + Chlormequat 175 ppm + Potassium 20 kg/ha	4171.65	7085.82	36.53
8.	NAA 50 ppm + Chlormequat 175 ppm + Potassium 40 kg/ha	4340.04	7176.40	37.69
9.	NAA 50 ppm + Chlormequat 175 ppm + Potassium 60 kg/ha	4530.43	7246.59	38.46
10.	Control (Farmer Practice)	3076.06	5689.70	36.79
	F test SEM±	S	S	NS
	CD (P=0.05)	113.02	165.13	0.99
		335.81	490.63	-

Table 4: Influence of Plant growth regulators and Potassium on economics of production of Pearl millet.

S. No.	Treatments	Cost of cultivation (INR/ha)	Gross return (INR/ha)	Net return (INR/ha)	Benefit Cost ratio
1.	NAA 100 ppm + Potassium 20 kg/ha	36,544.00	84,006.92	47,462.92	1.30
2.	NAA 100 ppm + Potassium 40 kg/ha	37,044.00	86,859.62	49,815.62	1.34
3.	NAA (100 ppm + Potassium 60 kg/ha	37,544.00	88,824.91	51,280.91	1.37
4.	Chlormequat 250 ppm + Potassium 20 kg/ha	36,844.00	91,945.48	55,101.48	1.50
5.	Chlormequat 250 ppm + Potassium 40 kg/ha	37,344.00	94,923.62	57,579.62	1.54
6.	Chlormequat 250 ppm + Potassium 60 kg/ha	37,844.00	97,669.17	59,825.17	1.58
7.	NAA 50 ppm + Chlormequat 175 ppm + Potassium 20 kg/ha	37,144.00	1,02,190.40	65,046.39	1.75
8.	NAA 50 ppm + Chlormequat 175 ppm + Potassium 40 kg/ha	37,644.00	1,05,826.80	68,182.80	1.81
9.	NAA 50 ppm + Chlormequat 175 ppm + Potassium 60 kg/ha	38,144.00	1,09,857.70	71,713.74	1.88
10.	Control (Farmer Practice)	34,144.00	76,514.40	42,370.47	1.24

*Data was not subjected to statistical analysis

Conclusion

From the results, it is concluded that application of NAA 50 ppm + Chlormequat 175 ppm + Potassium 60 kg/ha (Treatment 9) in Pearl millet has recorded highest grain yield, gross return, net return, and benefit cost ratio.

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