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Short communication

Effect of *Ghanjeevamrit* and *Jeevamrit* on Growth and Yield of Soybean (*Glycine max* L.)

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Abstract

A field experiment was conducted at the Integrated Research Farm, Department of Organic Agriculture and Natural Farming, Chaudhary Sarwan Kumar Himachal Pradesh Krishi Vishvavidyalaya, Palampur, during the *Kharif* season of 2024 to study the effect of *Ghanjeevamrit* and *Jeevamrit* on the growth and yield of soybean. The field experiment was laid out in a randomised block design with eight treatments and three replications. The results showed that growth parameters, such as plant height, dry matter accumulation, and primary and secondary branches, recorded the highest values in T_6 (*Ghanjeevamrit* (10 q/ha) + *Jeevamrit* 20 %). Yield parameters like seed yield, straw yield and harvest index were also highest in T_6 (*Ghanjeevamrit* (10 q/ha) + *Jeevamrit* 20 %), which was statistically at par with T_5 (*Ghanjeevamrit* (10 q/ha) + *Jeevamrit* 15 %). The lowest values of the parameters, as mentioned above, were noted in T_8 (control). T_6 (*Ghanjeevamrit* (10 q/ha) + *Jeevamrit* 20 %) proved to be the best treatment.

Keywords: *Ghanjeevamrit*, *Jeevamrit*, Farm Yard Manure, Soybean

Soybean (*Glycine max* L. Merr.), a major legume crop of the Fabaceae family, thrives in tropical and subtropical climates with an ideal temperature of 26–30°C. In Himachal Pradesh, it is grown both as a sole crop and intercropped with maize. Soybean is also known as yellow jewel, man–made meat, wonder crop, cyndrella crop, golden bean of the twentieth century, etc. In Himachal Pradesh, area, production and productivity of soybean during 2023–2024 were 430 ha, 340 ton and 790 kg/ha, respectively (Anonymous 2024). In India, it is mainly grown in the central regions like Rajasthan, Uttar Pradesh, Madhya Pradesh, West Bengal and Haryana. Soybean seed contains 20 per cent oil and 39–41 per cent protein. Its protein is rich in lysine, and its oil is rich in essential fatty acids like Omega-3 and Omega-6 (Thakur & Dhiman 2016). It has a high quantity of protein, high dietary fibre and low fat, so it is also known as poor man's meat. Soybean is a versatile oil crop with advantages such as nitrogen fixation, like building a symbiotic relationship with the bacterium *Bradyrhizobium japonicum*, adaptability to soil and climate and high yields as compared to other legume crops. One key issue affecting soybean productivity is the decreasing fertility of the soil. Its cultivation, despite being energy-rich and requiring a higher amount of fertilisers than other legumes, is experiencing declining productivity and profitability due to imbalanced fertilisation. Also, the excessive and indiscriminate use of synthetic fertilisers has led to negative effects not only on human health and natural resources but

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also on the sustainability of the agriculture production itself (Sharma *et al*. 2014; Sharma *et al*. 2016; Mylonas *et al*. 2020), but also leads to soil degradation due to the build-up of salts in the rhizosphere (Chandel *et al*. 2023).

Natural/Organic farming has gained popularity in recent years on account of chemical free crop produce, soil conservation, household food autonomy, income and health besides reduced farm expenses (Noori *et al*. 2023) and owing to the awareness of the inherent benefits it provides in terms of crop productivity as well as preserving dynamic soil nutrient status and a safe environment (Lokanath & Parameshwarappa 2006) finding its place. Natural/organic sources are a cost-effective and eco-friendly alternative to inorganic ones. These sources enhance soil health, biodiversity and soil quality by eliminating pesticides and utilising a diverse range of plants. Application of natural/organic inputs maintains and improves soil physical, chemical and biological properties, which in turn reflects in the crop yield and sustainability. Natural or organic farming utilising nutrient sources like farm yard manure, *Jeevamrit*, *Ghanjeevamrit, Beejamrit,* etc., is known to increase crop yield and promote sustainable agriculture development. Soil organic matter plays an indispensable role in the process of the soil ecosystem, including nutrient cycling, soil formation, carbon sequestration, retention of water and supply of energy to microorganisms. Natural/organic farming is an effective and environmentally friendly way to produce food. It aims at the welfare of mankind with a sustainable environment and follows the principles of health, ecology, fairness and care.

The experiment was conducted at the Integrated Research Farm of the Department of Organic Agriculture and Natural Farming at CSK Himachal Pradesh Krishi Vishvavidyalaya, located at Palampur, Kangra district, at an elevation of 1290 meters above sea level at coordinates 32° 11′ N latitude and 76° 32′ E longitude. The area falls in the mid-hills sub-humid agro-climatic zone of Himachal Pradesh, located in the North Western Indian Himalayas. The experimental soil was silty clay loam and acidic (5.26) in reaction with EC (0.104 ds/m), organic carbon (0.63 %), available nitrogen (226.4 kg/ha), available phosphorus (14.57 kg/ha) and available potassium (209.17 kg/ha). The field experiment was laid out in a Randomised Block Design (RBD) with eight treatments replicated thrice. The treatments of the experiment were T_1 – *Ghanjeevamrit*(5 q/ha) + *Jeevamrit*(10 %), T_2 – *Ghanjeevamrit* (5 q/ha) +*Jeevamrit*(15 %), T_3 –*Ghanjeevamrit*(5 q/ha) + *Jeevamrit* (20 %), T_4 – *Ghanjeevamrit* (10 q/ha) + *Jeevamrit* (10 %), T_5 – *Ghanjeevamrit*(10 q/ha) + *Jeevamrit* (15 %), T_6 – *Ghanjeevamrit* (10 q/ha) + *Jeevamrit* (20 %), T_7 – Farm yard manure (10 t/ha) and T_8 – Control. Soybean variety HIMSO-1685 was sown at a spacing of 45 cm*10cm, and the seed rate used was 100 kg/ha. In the first six treatments, seeds were treated with *Beejamrit* @ 200 ml/kg seed, and also mulch was applied as per natural farming treatments. Other recommended packages of practices for soybeans were also followed. The observations recorded were plant height at 30-day intervals, dry matter accumulation at 30-day intervals, primary branches and secondary branches under growth parameters. Seed yield, straw yield and harvest index were recorded for yield determination. The data recorded for various parameters were statistically analysed using analysis of variance as per the procedure suggested by Gomez and Gomez (1984).

Plant height and dry matter accumulation were influenced by different treatments at all growth stages. The tallest plants with the highest amount of dry matter content were observed in T_6 (*Ghanjeevamrit* @10 q/ha + *Jeevamrit* @20 %), and the shortest plants with the lowest dry matter were recorded in T_8 (control) at all growth stages. T_6 (*Ghanjeevamrit* @10 q/ha + *Jeevamrit* @20 %) and T_5 (*Ghanjeevamrit*@10 q/ha + *Jeevamrit* @15 %) were statistically at par in respect of all plant growth parameters at all the growth stages (Table 1). Higher *Jeevamrit* concentration accelerates organic matter decomposition, enhancing nutrient release (N, P, K), microbial activity and hormone production, leading to better root, stem growth and increased plant height and dry matter accumulation. Kumbar and Devakumar (2016) and Bharadwaj *et al.* (2021) reported similar results. A study conducted under the mountainous conditions of Himachal Pradesh revealed that treatments involving natural inputs like

Ghanjeevamrit and *Jeevamrit* significantly influenced soybean growth parameters, including plant height (Awasthi *et al*. 2020). Sridhara *et al.* (2023) observed similar results and reported that the foliar application of *Jeevamrit* recorded significantly greater dry matter accumulation in leaves and stems.

Table 1. Effect of *Ghanajeevamrit* and *Jeevamrit*on plant height of soybean

	Treatment	Plant Height (cm)					Dry Matter Accumulation(g/ plant)					Primary Branches/ Plant	Secondary Branches/ Plant
		30 DAS	60 DAS	90 DAS	120 DAS	At harvest	30 DAS	60 DAS	90 DAS	120 DAS	At Harvest		
T_1	*Ghanjeevamrit*(5 q/ ha) + *Jeevamrit*(10 %)	28.90	67.84	82.20	89.70	90.82	0.65	12.65	38.52	42.90	46.16	10.00	9.00
T_2	*Ghanjeevamrit* (5 q/ ha) +*Jeevamrit*(15 %)	28.33	68.87	81.40	91.09	92.31	0.66	13.52	39.36	43.51	46.33	10.33	9.67
T_3	*Ghanjeevamrit* (5 q/ ha) + *Jeevamrit* (20 %)	32.13	75.37	85.70	92.17	94.00	0.69	14.30	41.37	45.36	47.81	12.00	11.00
T_4	*Ghanjeevamrit* (10 q/ ha) + *Jeevamrit* (10 %)	33.50	79.63	86.43	94.20	94.81	0.72	14.70	41.95	46.56	49.71	12.00	11.67
T_5	*Ghanjeevamrit*(10 q/ ha) + *Jeevamrit* (15 %)	35.20	81.40	89.80	94.63	95.89	0.74	15.91	42.39	46.83	49.80	12.67	12.33
T_6	*Ghanjeevamrit* (10 q/ ha) + *Jeevamrit* (20 %)	36.80	87.53	91.70	96.30	99.33	0.79	18.82	46.64	50.87	53.69	14.33	13.33
T_7	Farm yard manure (10 t/ha)	29.60	71.30	82.47	91.55	92.50	0.67	13.64	39.82	44.08	46.59	10.67	11.00
T_8	Control	26.53	62.43	78.63	86.21	87.70	0.58	10.17	31.94	36.52	39.66	8.00	8.33
	SEm±	0.89	2.31	1.61	1.45	1.81	0.03	0.83	2.04	1.66	1.57	0.52	0.62
	CD (P=0.05)	2.70	7.00	4.90	4.39	5.49	0.08	2.52	6.20	5.02	4.77	1.58	1.87

Primary and secondary branches per plant were significantly influenced by different treatments. The maximum number of primary and secondary branches was recorded in T_6 (*Ghanjeevamrit* @10 q/ ha + *Jeevamrit* @20 %), while the minimum number of primary and secondary branches was in T_8 (control) (Table 1). The vigorous shoot growth and branching at 60 Days After Sowing (DAS) may result from improved nutrient and water uptake due to microbial stimulation. Beneficial microbes release growth hormones like cytokinin, which promote lateral bud development and branching. Cytokinin specifically encourages lateral bud growth and increases branching. Similar results have been reported by Kumbar and Devakumar (2016) and Joshi *et al*. (2023). Improved root and shoot systems under *Jeevamrit* application led to a higher number of branches in soybean (Babu *et al* 2019).

The highest seed yield was recorded in T_6(*Ghanjeevamrit* @10 q/ha + *Jeevamrit* @20 %) which was statistically at par with T_5 (*Ghanjeevamrit*@10 q/ ha) + *Jeevamrit* @15 %). The lowest seed yield was recorded in T_8 (control). This might be due to better nutrient availability, enhanced microbial activity, and improved plant growth. This treatment enhanced pod and seed numbers, improved nutrient transfer for seed filling and along with natural inputs, created a robust soil environment, resulting in optimal yields and superior seed production. Babu *et al*. (2019) found that the combined use of *Ghanjeevamrit* and *Jeevamrit* significantly increased seed yield in pulses due to better nutrient cycling and microbial support. Nasratullah *et al*. (2021) found that the seed yield of black gram increased significantly with the application of natural farming components in totality with the application of *Ghanjeevamrit* + *Jeevamrit* mulching. Straw yield was significantly affected by different treatments. T_6 (*Ghanjeevamrit* @ @10 q/ha + *Jeevamrit* @20 %) recorded a higher straw yield, which was significantly at par with T_5 (*Ghanjeevamrit*@10 q/ ha) + *Jeevamrit*@15 %). T_8 (control) recorded a lower straw yield. This might be due to the use of *Ghanjeevamrit,* which supports enhanced vegetative

Table 2. Effect of *Ghanjeevamrit* and *Jeevamrit*on yield (q/ha) and harvest index (%) of soybean

	Treatment	Seed Yield	Straw Yield	Biological Yield	Harvest Index
T_1	*Ghanjeevamrit*(5 q/ha) + *Jeevamrit*(10 %)	16.5	32.2	48.7	33.9
T_2	*Ghanjeevamrit* (5 q/ha) +*Jeevamrit*(15 %)	17.4	33.0	50.4	34.5
T_3	*Ghanjeevamrit*(5 q/ha) + *Jeevamrit* (20 %)	19.5	35.5	55.0	35.4
T_4	*Ghanjeevamrit* (10 q/ha) + *Jeevamrit* (10 %)	20.9	36.8	57.7	36.2
T_5	*Ghanjeevamrit*(10 q/ha) + *Jeevamrit* (15 %)	21.5	38.1	59.5	36.0
T_6	*Ghanjeevamrit* (10 q/ha) + *Jeevamrit* (20 %)	23.1	39.4	62.5	37.0
T_7	Farm yard manure (10 t/ha)	18.5	34.8	53.4	34.7
T_8	Control	13.5	28.0	41.6	32.6
	SEm±	0.7	0.7	1.0	1.0
	CD (P=0.05)	2.1	2.2	3.1	NS

growth and biomass during the crop period, and 20 per cent *Jeevamrit* enriched the rhizosphere with beneficial microorganisms, boosting root activity and nutrient uptake, ultimately resulting in stronger plants with more foliage, thicker stems, and higher post-harvest straw yields. Similar results have been observed by Chaudhary *et al.* (2023) and Joshi *et al.* (2023). There were no significant effects observed on the harvest index due to different treatments. However, numerically higher harvest index was recorded in T_6 (*Ghanjeevamrit* @10 q/ha + *Jeevamrit*@20 %) while a lower harvest index was in T_8 (control). This was due to its higher grain yield relative to total biological yield, indicating a more efficient translocation of assimilates toward economic parts, with enhanced nutrient availability and microbial support under T_6 (*Ghanjeevamrit* @10 q/ha + *Jeevamrit* @20 %), promoting better growth and resource allocation, ultimately leading to improved harvest efficiency. Sridhara *et al.* (2023) reported a higher harvest index by the foliar application of *Jeevamrit*.

CONCLUSION

The combined application of *Ghanjeevamrit* @10 q/ha and *Jeevamrit* @20% significantly enhanced crop growth and yield of soybean.

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REFERENCES

Anonymous 2024. State or season-wise area, production and productivity of soybean in India. Ministry of Agriculture and Farmers Welfare, Government of India.

Awasthi N, Upadhyay RG, Singh A, Kumar R and Sharma GD 2020. Effect of different organic inputs on growth and yield of soybean (*Glycine max* L.) under mountainous conditions of Himachal Pradesh. Environment Conservation Journal **21(3):** 195-199. https://doi.org/10.36953/ECJ.2020.21324

Babu R, Meena RK and Sharma AK 2019. Effect of organic formulations on growth and yield of pulse crops. International Journal of Agricultural Sciences **11(3):** 456-459.

Bharadwaj M, Lakhawat SS, Upadhaya B, Pilania S, Jain D and Bunker RN 2021. Effect of organic liquid manures on vegetative growth and yield of pea (*Pisum sativum* L.). The Pharma Innovation Journal **10(9):** 1360-1364.

Chandel A, Sharma A, Sharma P, Rana SS, Rana RS and Shilpa 2023. Seed yield, nutrient absorption and soil health as influenced by sowing time, fertility and genotypes of garden pea (*Pisum sativum* L.). Horticultural Science **50(2):** 142-151. https://doi.org/10.17221/138/2022-HORTSCI

Chaudhary DR, Surve VH, Bambhaneeya SM, Raj AD and Deshmukh SP 2023. Effect of organics on yield, quality, nutrient content and uptake of soybean [*Glycine max* (L.)] under rainfed condition. International Journal of Agricultural Science **8:** 286-298.

Gomez KA and Gomez AA 1984. Statistical Procedure for Agricultural Research. 2nd edition. Wiley Inter Science, New York, USA. p. 680

Joshi M, Sahu RP, Jamre PS, Ahirwal A, Prajapati R, Kochale P, Gulaiya S and Sharma, A 2023. Effect of different nutrient management practices on crop growth, yield and yield attributes of soybean (*Glycine max* L.) under Kymore Plateau and Satpura Hills agro-climatic zone. International Journal of Environment and Climate Change **13(11):** 3852-3858 https://doi.org/10.9734/ijecc/2023/v13i113565

Kumbar B and Devakumar N 2016. Effect of Jeevamrit and Panchagavya on growth, yield and microbial population of French bean (*Phaseolus vulgaris* L.). Advances in Life Sciences **5(9):** 3619-3623.

Lokanath HM and Parameshwarappa KG 2006. Effect of

organics on the productivity of Spanish bunch groundnut under the rainfed farming situation. Congress of Soil Science, p. 62-63.

Mylonas I, Stavrakoudis D, Katsantonis D and Korpetis E 2020. Better farming practices to combat climate change. In Climate change and food security with emphasis on wheat. Academic Press. p. 1-29. https://doi.org/10.1016/B978-0-12-819527-7.00001-7 PMid:32624326.

Nasratullah KR, Manuja S, Sharma RP, Sharma GD and Verma S 2021. Evaluation of different components of natural farming in black gram (*Vigna mungo* L.) under mid-hill conditions of Himachal Pradesh. Himachal Journal of Agricultural Research **47(2):** 175-179.

Noori R, Sharma A, Rana SS, Lata H, Sharma P and Rana RS 2023. Differential response of nutrient management practices on different varieties in chilli-garden pea cropping system. Himachal Journal of Agricultural Research **49(1):** 84-92.

Sharma A, Sharma RP and Singh S 2016. Influence of *Rhizobium inoculation*, split nitrogen applications and plant geometry on productivity of garden pea (*Pisum sativum* L.) in an acid alfisol. Legume Research **39(6):** 955-961. https://doi.org/10.18805/lr.v39i6.6642

Sharma A, Sharma RP, Sharma GD, Sankhyan NK and Sharma M 2014. Integrated nutrient supply system for cauliflower-French bean-okra cropping sequence in humid temperate zone of north-western Himalayas. Indian Journal of Horticulture **71(2):** 211-216.

Sridhara MR, Nandagavi RA, Nooli SS and Biradar AH 2023. Effect of liquid organic foliar spray on chickpea (*Cicer arietinum* L.) under rainfed condition. International Journal of Environment and Climate Change **13(7):** 298-308. https://doi.org/10.9734/ijecc/2023/v13i71880

Thakuri S and Dhiman KC 2016. Effect of seed coating with synthetic polymer and additives on storability of soybean seeds under mid-hill condition of Himachal Pradesh. Himachal Journal of Agricultural Research **42(1):** 22-28.