Effect of Integrated Nutrient Management on Growth, Yield and Quality of Radish (*Raphanussativus* L.) Cultivars

SUMMARY

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Supervisor
Dr. R.S. Verma
(Assistant Professor)

Submitted by
DharmrajMeena
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DEPARTMENT OF HORTICULTURE
SCHOOL OF AGRICULTURAL SCIENCES AND TECHNOLOGY
BABASAHEB BHIMRAO AMBEDKAR UNIVERSITY
(A CENTRAL UNIVERSITY) NAAC- A++
VIDYA- VIHAR, RAE-BARELI ROAD, LUCKNOW-226025
(U.P.) India

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SUMMARY

The current finding of the experiment entitled **"Effect of Integrated Nutrient Management on Growth, Yield and Quality of Radish (*Raphanus sativus* L.) Cultivars"** conducted at Horticulture Research Farm-1, Department of Horticulture, School of Agricultural Sciences and Technology, Babasaheb Bhimrao Ambedkar University, Lucknow, (U.P.), India, during the Rabi season 2021-22 and 2022-23, respectively. The study was undertaken on vegetative growth, yield and quality. The result was discussed in light of literature available and research work reported by earlier workers on radish and related crops. The experimental finding is now summarized and presented below:

Effect of varieties:

1. The maximum germination percentage (97.22%) was observed in treatment V_3(Kashi Mooli-40), followed by V_2 (Kashi Sweta). While the minimum germination percentage (96.76%) was noticed in V_1(Kashi Aarorus).
2. The maximum plant height (10.73cm) at 30 DAS and (26.16cm) at harvesting stage was obtained under the treatment V_3 (Kashi Mooli-40), followed by V_2 (Kashi Sweta). While, the minimum plant height (10.39cm) at 30DAS and (24.97cm) at harvesting stage was noticed in V_1 (Kashi Aarorus).
3. The maximum number of leaves per plant (10.05) at 30 DAS and (15.24) at harvesting stage were obtained under the treatment V_3 (Kashi Mooli-40), followed by V_2 (Kashi Sweta). While, the minimum number of leaves per plant (9.91) at 30DAS and (15.03) at harvesting stage were noticed in V_1 (Kashi Aarorus).
4. The maximum length of leaves per plant (8.34cm) at 30 DAS and (21.37cm) at harvesting stage was obtained under the treatment V_3 (Kashi Mooli-40), followed by V_2 (Kashi Sweta). While, the minimum length of leaves per plant (8.00cm) at 30DAS and (20.21cm) at harvesting stage was noticed in V_1 (Kashi Aarorus).

5. The maximum width of leaves per plant (4.44cm) at 30 DAS and (5.56cm) at harvesting stage was obtained under the treatment V_3 (Kashi Mooli-40), followed by V_2 (Kashi Sweta). While, the minimum width of leaves per plant (4.11cm) at 30DAS and (5.10cm) at harvesting stage was noticed in V_1 (Kashi Aarorus).

6. The maximum fresh weight of leaf/ plant (g) (261.58g) was observed in treatment V_2(Kashi Sweta), followed by V_3 (Kashi Mooli-40). While the minimum fresh weight of leaf/ plant (g) (252.80g) was noticed in V_1(Kashi Aarorus).

7. The maximum length of root (cm) (21.68cm) was observed in treatment V_3(Kashi Mooli-40), followed by V_2 (Kashi Sweta). While the minimum length of root (20.36cm) was noticed in V_1(Kashi Aarorus).

8. The maximum diameter of root (cm) (3.50cm) was observed in treatment V_3(Kashi Mooli-40), followed by V_2 (Kashi Sweta). While the minimum diameter of root (3.16cm) was noticed in V_1(Kashi Aarorus).

9. The maximum weight of root (g) (159.79g) was observed in treatment V_3(Kashi Mooli-40), followed by V_2 (Kashi Sweta). While the minimum weight of root (151.97g) was noticed in V_1(Kashi Aarorus).

10. The maximum volume of root (cc) (99.47cc) was observed in treatment V_3(Kashi Mooli-40), followed by V_2 (Kashi Sweta). While the minimum volume of root (92.39cc) was noticed in V_1(Kashi Aarorus).

11. The maximum root yield (kg/plot) (4.04kg/plot) was observed in treatment V_3(Kashi Mooli-40), followed by V_2 (Kashi Sweta). While the minimum root yield (kg/plot) (3.80kg/plot) was noticed in V_1(Kashi Aarorus).

12. The maximum root yield (q/ha) (534.83q/ha) was observed in treatment V_3(Kashi Mooli-40), followed by V_2 (Kashi Sweta). While the minimum root yield (q/ha) (506.78q/ha) was noticed in V_1(Kashi Aarorus).

13. The maximum dry matter content in root (%) (9.43%) was observed in treatment V_3(Kashi Mooli-40), followed by V_2 (Kashi Sweta). While the minimum dry matter content in root (%) (9.18%) was noticed in V_1(Kashi Aarorus).

14. The maximum dry matter content in leaves (%) (7.87%) was observed in treatment V_3(Kashi Mooli-40), followed by V_2 (Kashi Sweta). While the minimum dry matter content in leaves (%) (7.41%) was noticed in V_1(Kashi Aarorus).

15. The maximum TSS (^{0}Brix) (4.09 ^{0}Brix) was observed in treatment V_3(Kashi Mooli-40), followed by V_2 (Kashi Sweta). While the minimum TSS ^{0}Brix (3.63 ^{0}Brix) was noticed in V_1(Kashi Aarorus).

16. The maximum ascorbic acid (33.60mg) was observed in treatment V_3(Kashi Mooli-40), followed by V_2 (Kashi Sweta). While the minimum ascorbic acid (30.90mg) was noticed in V_1(Kashi Aarorus).

17. The maximum pH of juice (7.16) was observed in treatment V_3(Kashi Mooli-40), followed by V_2 (Kashi Sweta). While the minimum pH of juice (6.66) was noticed in V_1(Kashi Aarorus).

18. The maximum gross return Rs/ha (267415.00) was observed in treatment V_3(Kashi Mooli-40), followed by V_2 (Kashi Sweta). While the minimum gross return Rs/ha (253387.50) was noticed in V_1(Kashi Aarorus).

19. The maximum net return Rs/ha (167020.50) was observed in treatment V_3(Kashi Mooli-40), followed by V_2 (Kashi Sweta). While the minimum net return Rs/ha (152993.00) was noticed in V_1(Kashi Aarorus).

20. The maximum B:C ratio (2.67) was observed in treatment V_3(Kashi Mooli-40), followed by V_2 (Kashi Sweta). While the minimum B:C ratio (2.54) was noticed in V_1(Kashi Aarorus).

Effect of nutrients

21. The maximum plant height (11.52cm) at 30 DAS and (27.18cm) at harvesting stage was found in nutrients N_5. Followed by N_8. While, the minimum plant height (9.21cm) at 30 DAS and (24.13cm) at harvesting stage was noticed in N_{11}.

22. The maximum number of leaves per plant (12.94) at 30 DAS and (17.96) at harvesting stage was found in nutrients N_5. Followed by N_9. While, the minimum number of leaves per plant (8.30) at 30 DAS and (12.91) at harvesting stage was noticed in N_{13}.

23. The maximum length of leaves (9.12cm) at 30 DAS and (21.62cm) at harvesting stage was found in nutrients N_5. Followed by N_8. While, the

minimum length of leaves (6.72cm) at 30 DAS and (19.64cm) at harvesting stage was noticed in N_{11}.

24. The maximum width of leaves (5.11cm) at 30 DAS and (5.72cm) at harvesting stage was found in nutrients N_5. Followed by N_8. While, the minimum width of leaves (3.35cm) at 30 DAS and (4.38cm) at harvesting stage was noticed in N_{11}.

25. The maximum germination percentage (98.16%) was observed in treatment N_5, followed by N_{12}. While the minimum germination percentage (96.12%) was noticed in N_1.

26. The maximum fresh weight of leaf/ plant (g) (272.59g) was observed in treatment N_5, followed by N_8. While the minimum fresh weight of leaf/ plant (g) (243.34g) was noticed in N_{11}.

27. The maximum length of root (cm) (22.95cm) was observed in treatment N_5, followed by N_8. While the minimum length of root (cc) (19.69cm) was noticed in N_{11}.

28. The maximum diameter of root (cm) (4.64cm) was observed in treatment N_5, followed by N_8. While the minimum diameter of root (cc) (2.42cm) was noticed in N_{11}.

29. The maximum weight of root (g) (171.41g) was observed in treatment N_5, followed by N_8. While the minimum weight of root (g) (141.50g) was noticed in N_{11}.

30. The maximum volume of root (cc) (105.46cc) was observed in treatment N_5, followed by N_8. While the minimum volume of root (cc) (80.73cc) was noticed in N_{11}.

31. The maximum root yield (kg/plot) (4.35kg/plot) was observed in treatment N_5, followed by N_8. While the minimum root yield kg/plot (3.57kg/plot) was noticed in N_{11}.

32. The maximum root yield (q/ha) (572.40q/ha) was observed in treatment N_5, followed by N_8. While the minimum root yield q/ha (469.69q/ha) was noticed in N_{11}.

33. The maximum TSS ^{0}Brix (5.18 ^{0}Brix) was observed in treatment N_5, followed by N_8. While the minimum TSS ^{0}Brix (3.09 ^{0}Brix) was noticed in N_{11}.

34. The maximum ascorbic acid (33.77) was observed in treatment N_5, followed by N_8. While the minimum ascorbic acid (31.02) was noticed in N_{13}.

35. The maximum pH of juice (7.35) was observed in treatment N_8, followed by N_7. While the minimum pH of juice (6.63) was noticed in N_{10}.

36. The maximum dry matter content in leaves (%) (8.69%) was observed in treatment N_5, followed by N_{11}. While the minimum dry matter content in leaves (%) (7.04%) was noticed in N_9.

37. The maximum dry matter content in root (%) (10.10%) was observed in treatment N_5, followed by N_3. While the minimum dry matter content in root (%) (8.87%) was noticed in N_{11}.

38. The maximum gross return (286200.00) was observed in treatment N_5, followed by N_6. While the minimum gross return (234845.00) was noticed in N_{11}.

39. The maximum net return (185673) was observed in treatment N_5, followed by N_6. While the minimum net return (133615.5) was noticed in N_{11}.

40. The maximum B:C ratio (2.85) was observed in treatment N_5, followed by N_6. While the minimum B:C ratio (2.34) was noticed in N_{11}.

Interaction of verities and nutrients:

The interaction effect of variety and nutrients was found significant for all the growth yield and quality with expect seed germination % and number of leaves.

CONCLUSION

On the basis of present investigation, it was found that radish (*Raphanus sativus* L.) responded well in terms of varieties, growth, yield and quality. Among all the varieties, variety V_3 (Kashi Mooli -40) performed best in terms of growth, yield and quality. Among the nutrients management application of nutrients, N_5 (RDF 75% + Azotobacter + PSB) was superior for growth, yield and quality. The combined effect of varieties and management of nutrients was significant in all the characters except in number of leaves per plant and germination (%). Hence, the V_3 (Kashi Mooli-40) and N_5 (RDF 75% + Azotobacter + PSB) can be suggested as cost effective treatment for getting higher crop productivity along with overall betterment of radish production with B:C ratio of under Lucknow conditions.