

Efficacy of tricho-compost and vermiwash in the management of root knot nematode (*Meloidogyne incognita*) in okra

Name: Prajwal Regmi^{1*}, Pratishtha Adhikari², Oshin Sharma²

Affiliation: ¹Agriculture and Forestry University, Chitwan, Nepal, ²ICIMOD | Contact number: +977- 9869913645

Email address: prajwalregmi2057@gmail.com

Introduction

- Okra (*Abelmoschus esculentus* L. Moench): Summer vegetable crop grown in Terai, Inner Terai and Lower Hills of Nepal.
- Root knot nematode (*Meloidogyne incognita*): Causes galls on okra roots, leading to yield loss (up to 27%) and reduced quality (Sikora and Fernandez, 2005).
- Chemical control: Harmful to the environment and can develop resistance (Anastasiadis et. al, 2008).
- Trichoderma and vermiwash: Promising biocontrol agents.

Research questions

- To assess the efficacy of tricho-compost and vermiwash in combating root knot nematode in okra

Methodology

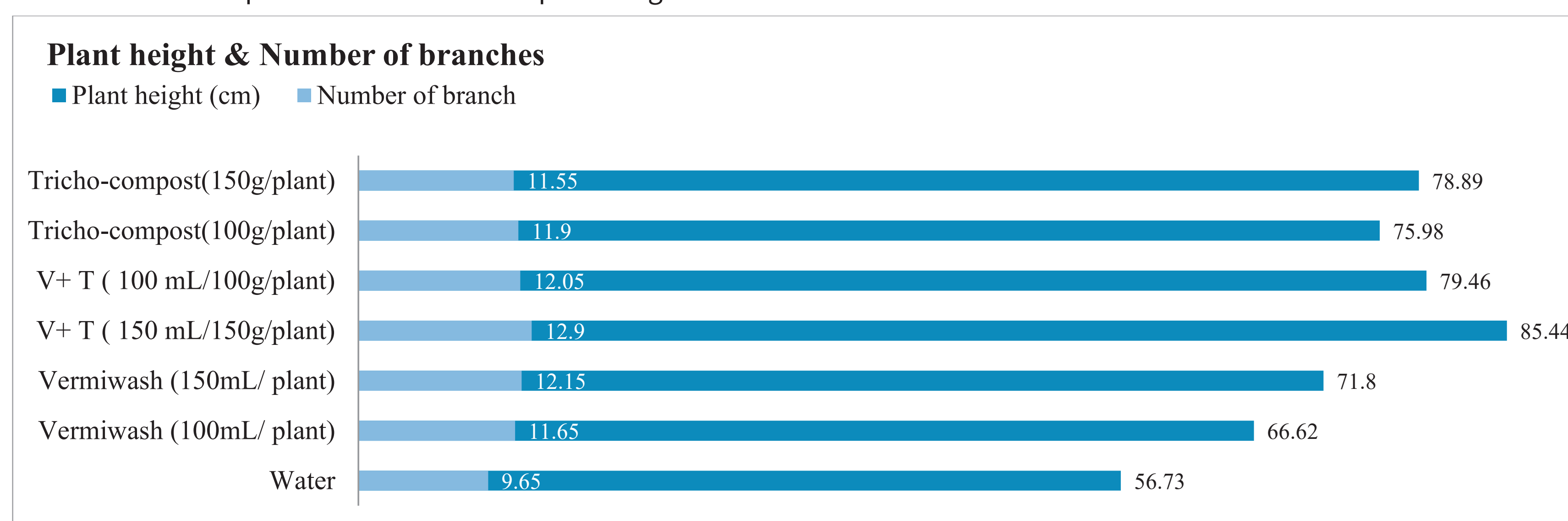
- Experiment site: Birendranagar Municipality-09, Chadanichowk Surkhet
- Design of experiment: Randomized Complete Block Design (RCBD) (4 replications and 7 treatments)
- Crop: Okra (variety: Arka Anamika)
- Data collected on plant height, number of branches, gall index, number of galls/plants, number of juveniles/100 gm soil, fresh root weight, shoot length, root length, yield and soil physiochemical parameters.
- Data analysis: Microsoft Excel, R-studio version 4.3.1 & Duncan's Multiple Range Test (DMRT)

Treatment	Details
T1	Control
T2	Vermiwash (100ml/plant)
T3	Vermiwash (150ml/plant)
T4	Vermiwash (150ml/plant) +Tricho-compost (150g/plant)
T5	Vermiwash (100ml/plant) +Tricho-compost (100g/plant),
T6	Tricho-compost (100g/plant)
T7	Tricho-compost (150g/plant)

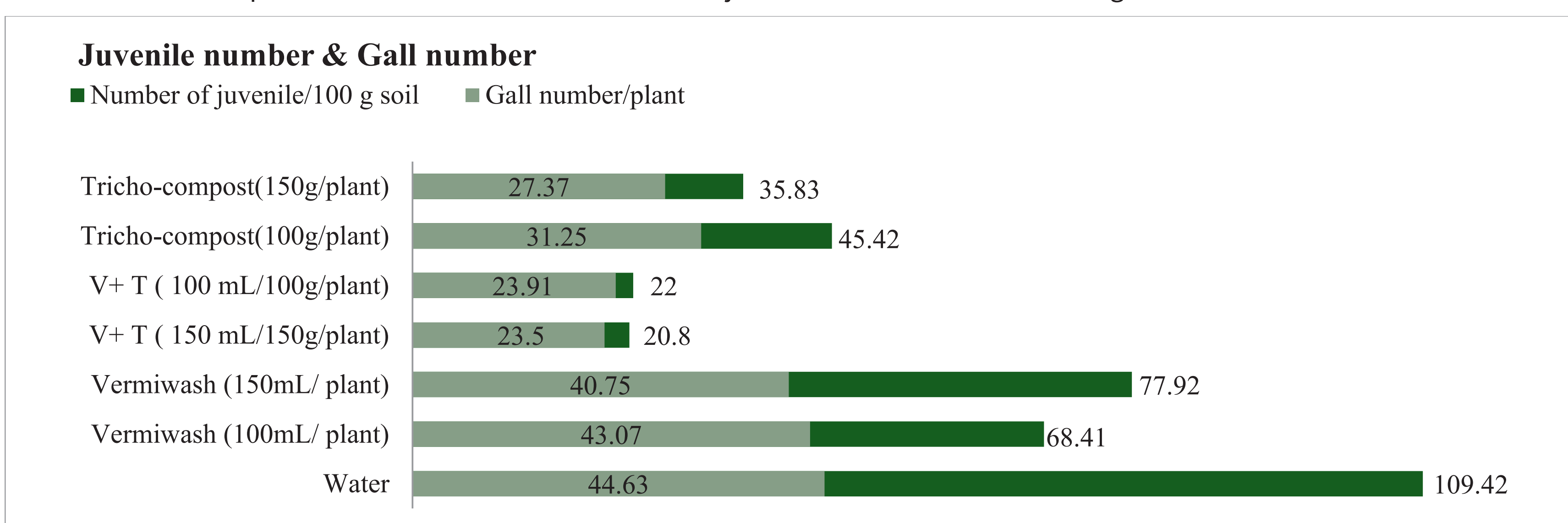
Key findings

The combination of vermiwash (150 ml/plant) and tricho-compost (150 g/plant) yielded the tallest plants, most branches, highest yield (31.25 t/ha), and improved soil organic matter (>3%) compared to the control. This treatment also reduced galls, juveniles, and root weight. T4, T5, and T7 had the highest Nitrogen content (0.17%), while T5 had the highest Phosphorus content (7.73%). Vermiwash-only plots had a higher pH (>7).

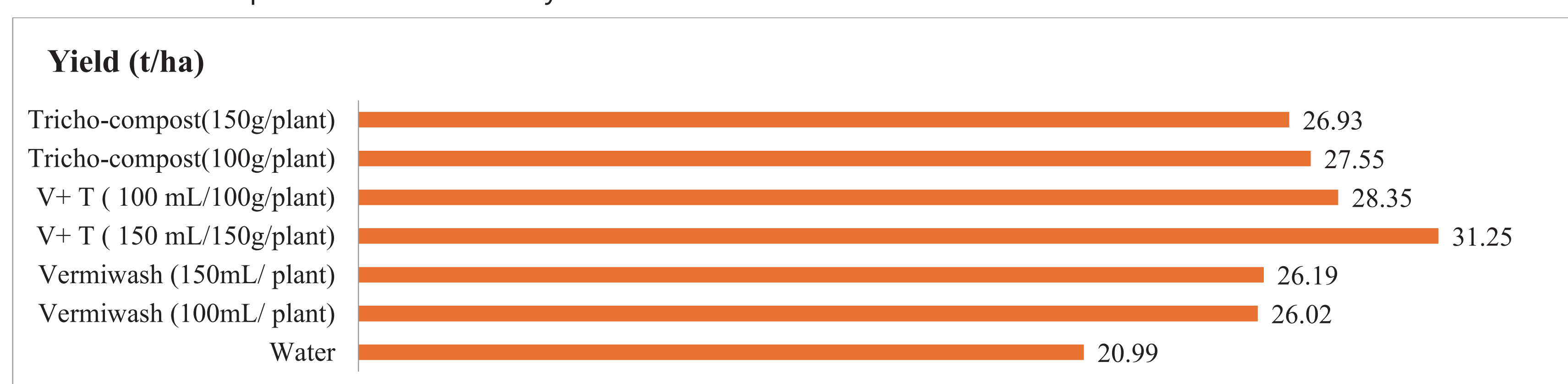
Effect of tricho-compost and vermiwash on plant height and the number of branches at 35 DAS.



Effect of Tricho-compost and Vermiwash on the number of juveniles in soil and number of galls.



Effect of Tricho-compost and Vermiwash on yield of okra



Conclusion

Root knot nematode (RKN) disease in okra, caused by *Meloidogyne* spp., can be effectively managed using tricho-compost and vermiwash, which improve growth and yield. These eco-friendly, cost-effective bioagents reduce reliance on nematicides and inorganic fertilizers, promoting sustainable agriculture. Further research is needed to optimize their application across various crops.

