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Nitrogen fertilization strategy for *Moringa oleifera* as an introduced leafy vegetable crop in Egypt

اختيار اللغة |

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Abstract

Moringa oleifera is becoming more popular in Egypt as leafy vegetable crop. The current investigation was conducted in order to determine the ideal nitrogen application strategy for moringa leaf production. Two field experiments were carried out in sandy soil in open field of the Experimental Station of the National Research Centre (2013 and 2014). Moringa seeds were sown 30 cm between rows, 15 cm between hills, double plants per hill, on February 15th in both growing seasons. This study aimed to obtain the best fertilization strategy for moringa when grown as a leafy vegetable crop. Recommended fertilization supplement of 150:125:100 kg NPK ha⁻¹ were applied for all treatments. In addition, 25 kg N ha⁻¹ was applied after each cutting. Ammonium sulfate (21.5% N) was used as mineral "M" source, plant compost (2% N) was used organic "O" nitrogen source and a mix of *Azospirillum* spp. and *Acetobacter* spp. "Nitrobin" was used as bio-nitrogen "B" source. The effect of five nitrogen fertilization strategies were investigated i.e., 1) 100% M, 2) 50% M + 50% O, 3) 50% M + 50% O + B, 4) 25% M + 75% O, 5) 25% M + 75% O + B. The whole plant canopy was cut 5-10 cm above soil surface, three times, 90, 135 and 180 days after sowing, as green yield. Plant growth parameters (plant length, stem thickness, leaf number, leaf area, plant fresh and dry weight) were recorded each cutting time. Nitrogen, vitamin C, carotene, Ca, Zn and Fe content were determined. Moreover, total canopy yield was recorded. The full mineral treatment gave the best results but the 50% M + 50% O + B nitrogen fertilization strategy can alternatively be followed. However, the lowest value for all investigated parameters were obtained when 25% M + 75% O without bio-enrichment followed. Accordingly, it could be recommended to fertilize moringa grown in sandy soil with 150:125:100 kg NPK ha⁻¹, in addition to 25 kg N ha⁻¹ applied after each cutting using nitrogen source consisting of 50% Ammonium sulfate + 50% plant compost + Nitrogen Fixing bacteria enrichment after emergence in order to produce higher leaf yield with good quality.

Citation

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