

## Title: Growth, Nitrogen Uptake of Maize (*Zea mays L.*) and Soil Chemical Properties, and Responses to Compost and Nitrogen Rates and Their Mixture on Different Textured Soils: Pot Experiment

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Integrated nutrient management, which primarily involves the combined application of organic and inorganic nutrient sources, is one of the simplest approaches to handle declining soil fertility challenges and increase crop productivity and production. Keeping in view this fact, a pot experiment was conducted to evaluate the effects of compost and inorganic nitrogen fertilizer and their mixture on soil properties, growth, and nitrogen uptake of maize on loam and clay textured soils at the Awada Agricultural Research Subcenter. Treatments comprised factorial combinations of five compost rates (0, 5, 10, 15, and 20 t•ha<sup>-1</sup>) and four rates of inorganic nitrogen fertilizer (0, 46, 92, and 138 kg•N•ha<sup>-1</sup>) laid out as a completely randomized design with three replications. Results showed that both the main and interaction effects of compost and mineral N fertilizer rates significantly affected the selected soil chemical properties and yield, and nitrogen concentration of maize. There were significant associations between plant parameters and soil nitrogen contents. The addition of 92 kg•ha<sup>-1</sup>•N+ 10 t•ha<sup>-1</sup> compost and 46 kg•ha<sup>-1</sup>•N+ 10 t•ha<sup>-1</sup> compost was the best treatments for loam and clay textured soils of the study areas, which improved shoot dry matter by 179.5 and 284.5%, compared to the unfertilized pot, respectively. From the results of this experiment, we concluded that the integrated application of compost and mineral nitrogen fertilizer enhanced soil chemical properties and thus improved nitrogen uptake and sustainable production of maize in the study areas.

### Biography

Currently, I am PhD student in soil science at Hawassa University College of Agriculture. Hawassa University College of Agriculture awarded me MSc in Agronomy, and Jimma University College of Agriculture and Veterinary Medicine awarded me BSc in Horticulture. I've been a Researcher in Soil Fertility and Health Management and crop husbandry at Wondo Genete Agriculture Research Center. I've been an active researcher and involved in the development of new research activities and projects since October 2005, by identifying problem-solving researchable concepts and undertaking various research activities linked to soil fertility and management, as well as crop husbandry/agronomy. Moreover, as a representative and national coordinator for the Natural Resource Management Research Process and the Inorganic Soil Fertility Management Research Program. I also spent five years as a crop production and protection specialist, as well as a coffee, tea, and spice team leader, in the Hadiya zone M/B/Woreda Agriculture office.