

RESEARCH HIGHLIGHTS

Effect of Nutritionally Balanced NPSZnB Fertilizer Blended with Cattle Manure on Potato Productivity

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The potato scientifically known as *Solanum tuberosum* is a cash-generating horticultural crop that belongs to the family Solanaceae and genus *Solanum*¹. Potato is the fourth most significant vegetable crop after wheat, maize, and rice and it ranked first among tubers and root crops². This vegetable is famous worldwide due to its extensive use in many recipes and its richness in starch contents.

It is considered as the most valuable vegetable crop and has been cultivated in several regions of Ethiopia for more than 150 years. The climate in Ethiopia is appropriate for potato production as well.

Unfortunately, the productivity of potato in this country is near to the ground 13.8 t ha⁻¹ in comparison with the world's average yield of 19 t ha⁻¹ (CSA)³ and the possible yield that could range up to 30 t ha⁻¹, if all the requirements are fulfilled. Various factors like poor soil and sub-optimal fertilizer rates could be attributed to the observed yield gap between actual and potential yield. Potatoes require elevated amounts of soil nutrients because of relatively poorly developed coarse and shallow root system⁴. Moreover, the crop produces an extensive amount of dry matter in a short duration which ultimately results in the elimination of heavy amounts of nutrients and this loss cannot be recovered by land immediately⁵.

Based upon these facts, a new study was designed to evaluate the influence of integrated use of cattle manure and blended (NPSZnB) fertilizer on yield and its components of potato under most areas of Banja district, Awi zone and increase the productivity of potato through improved soil fertility management technology⁶.

Soil of the areas under investigation were found to be a deficit in nitrogen, phosphorus, sulfur, zinc as well as boron nutrients. Therefore, 4 different levels of blended NPSZnB fertilizer (0, 65.7, 133 and 199 t ha⁻¹) and 4 levels of cattle manure (0, 10, 20 and 30 t ha⁻¹) were factorially combined and tested for their effect on the yield and yield component of potato in a Randomized Complete Block Design (RCBD)⁶.

At the end of the experiment, it was found that the tested combination of fertilizers and manure exhibited satisfactory results. Conclusively, scientists suggested the application of 199 kg ha⁻¹ blended NPSZnB fertilizer level with 30 t ha⁻¹ cattle manure in order to obtain a better yield. From the economic perspective, the combination of NPSZnB blended fertilizer with Cattle Manure (CM) is more profitable than the rest of the treatment combinations.

The crux of the matter is this study showed when nutritionally balanced NPSZnB fertilizer in blended form, applied with cattle manure results high yield than applying alone. These findings will ultimately help to enhance the productivity of potato and to meet with the increasing demands of this crop.

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