

Effect of Different Phosphorus Levels on Vegetative Growth of Maize Variety

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Abstract : Introduction: Maize is the most domesticated of all the field crops. Wild maize has not been found to date and there has been much speculation on its origin. Regardless of the validity of different theories, it is generally agreed that the center of origin of maize is Central America, primarily Mexico and the Caribbean. Maize in Africa is of a recent introduction although data suggest that it was present in Nigeria even before Columbus voyages. After being taken to Europe in 1493, maize was introduced to Africa and distributed (spread through the continent by different routes. Maize is an important cereal crop in Ethiopia in general, it is the primarily staple food, and rural households show strong preference. For human food, the important constituents of grain are carbohydrates (starch and sugars), protein, fat or oil (in the embryo) and minerals. About 75 percent of the kernel is starch, a range of 60.80 percent but low protein content (8-15%). In Ethiopia, the introduction of modern farming techniques appears to be a priority. However, the adoption of modern inputs by peasant farmers is found to be very slow, for example, the adoption rate of fertilizer, an input that is relatively adopted, is very slow. The difference in socio-economic factors lay behind the low rate of technological adoption, including price & marketing input. Objective: The aim of the study is to determine the optimum application rate or level of different phosphorus fertilizers for the vegetative growth of maize and to identify the effect of different phosphorus rates on the growth and development of maize. Methods: The vegetative parameter (above ground) measurement from five plants randomly sampled from the middle rows of each plot. Results: The interaction of nitrogen and maize variety showed a significant at ($p < 0.01$) effect on plant height, with the application of 60kg/ha and BH140 maize variety in combination and root length with the application of 60kg/ha of nitrogen and BH140 variety of maize. The highest mean (12.33) of the number of leaves per plant and mean (7.1) of the number of nodes per plant can be used as an alternative for better vegetative growth of maize. Conclusion and Recommendation: Maize is one of the popular and cultivated crops in Ethiopia. This study was conducted to investigate the best dosage of phosphorus for vegetative growth, yield, and better quality of maize variety and to recommend a level of phosphorus rate and the best variety adaptable to the specific soil condition or area.

Keywords : leaf, carbohydrate protein, adoption, sugar

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