

PA-90

Effects of Organic Manure on Maize Growth in Barren Land

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[Introduction]

Organic manure helps with a balanced supply of nutrients, including micronutrients, increased soil nutrient availability due to increased soil microbial activity, decomposition of harmful elements, improved soil structure and root development. (Han et al. 2016). According to Murmu et al. (2013), when tomato and maize were grown in acidic soils, organic fertilizer application improved crop productivity, nitrogen utilization efficiency and soil health compared to chemical fertilizers. The objective of this study is to investigate the effects of organic manure treatment on maize growth in barren land.

[Materials and Methods]

This project was conducted by creating a barren land (reclaimed using mountain soil) at Dongguk University Ilsan Agricultural Research Station. A total of 4 maize hybrids (Gwangpyeongok, Pungmiok, Singkwangok, and Shinhwangok 2) was used. Organic manure composed of 30% poultry manure, 10% cattle manure, 10% swine manure, and 55% organic matter was used in this study. The growth and yield characteristics of maize were investigated, such as days to silking date (day), plant height (cm), ear length (cm), ear width (cm), weight of 100 grains (g), and yield (kg/10a).

[Results and Discussion]

As a result of confirming the effect of organic manure on the initial growth of maize, the maize was much taller and had better leaf development in the barren land treated with organic manure. On the other hand, in the barren land that was not treated with organic manure, the maize was short and poorly developed. All varieties showed excellent growth and yield in the fields treated with organic manure. It was confirmed that organic manure application had an effect on maize growth and yield. These results can be used as basic data to develop an organic manure fertilization method to improve maize productivity in barren land in the future.

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