

Piyamaporn Chalarnsuk 2010: Effects of Chemical Fertilizer Application with Perlite on Growth and Yield of Maize (*Zea mays* L.) Planted in Kamphaeng Saen Soil Series. Master of Science (Soil Science), Major Field: Soil Science, Department of Soil Science. Thesis Advisor: Assistant Professor Chaisit Thongjoo, Ph.D. 66 pages.

This study investigated the effects of chemical fertilizer application with perlite on growth and yield of maize (*Zea mays* L.) planted in Kamphaeng Saen soil series on early and late rainy season. RCBD was applied in this study. The overall study revealed that the use of 100% chemical fertilizers (IF_{100%}+P₀) gave the highest of maize's height nearly the same as the use of 100% and 70% chemical fertilizers with perlite (IF_{100%}+P₄₀ and IF_{70%}+P₄₀). Further, the use of 100% chemical fertilizers with perlite (IF_{100%}+P₄₀) gave the highest of maize's leaf collar height nearly the same as the use of 100% chemical fertilizers (IF_{100%}+P₀) and the use of 70% chemical fertilizers with perlite (IF_{70%}+P₄₀), respectively while the control treatment (IF_{0%}+P₀) gave the lowest of plant height, leaf collar height and leaf greenness (SPAD reading) at all growth stages.

Further, it was found that the use of 100% chemical fertilizers with perlite (IF_{100%}+P₄₀) gave the highest numbers of ear per plant and numbers of full ear of maize nearly the same as the use of 100% chemical fertilizers (IF_{100%}+P₀), the use of 70% chemical fertilizers with perlite (IF_{70%}+P₄₀), and the use of 70% chemical fertilizers (IF_{70%}+P₀), respectively while the control treatment (IF_{0%}+P₀) gave the lowest numbers of ear per plant and numbers of full ear of maize. Further, the use of 100% chemical fertilizers with perlite (IF_{100%}+P₄₀) gave the highest of maize's ear not husk weight, husk weight, and grain weight, then the use 100% chemical fertilizers (IF_{100%}+P₀) nearly the same as the use of 70% chemical fertilizers (IF_{70%}+P₀) and the use of 70% chemical fertilizers with perlite (IF_{70%}+P₄₀), respectively while the control treatment (IF_{0%}+P₀) gave the lowest of ear not husk weight, husk weight, grain weight and percent of grain weight while effecting on the highest of percent of cob weight.

Student's signature

Thesis Advisor's signature