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## Reduction of Phosphatic and Potash Fertilizer in Sweet Corn Production by Pre-transplanting Application of Potassium Phosphate to Plug Seedlings

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**Abstract:** To develop a new fertilizing system with a reduced amount of phosphatic fertilizer in sweet corn production, we applied potassium phosphate to the plug seedlings before transplanting to the field, and examined its effects on growth, yield, photosynthetic activity and absorption of minerals. The amount of phosphatic and potash fertilizers necessary to grow sweet corn could be reduced by the pre-transplanting KP application (PTKPA) to the plug seedlings. We considered the mechanisms involved in the reduction of P and K application rate by PTKPA as follows; 1) PTKPA increased the P content of plant, which accelerated the root establishment. 2) The advanced root establishment not only reduced the duration of water stress, but also increased absorption of the essential nutrients such as N and Mg. 3) Higher content of N and Mg led to higher chlorophyll content and possibly protein content, which activated photosynthesis during the early growth stage. 4) Improved photosynthetic activities increased NAR during the early growth stage. 5) This increase in NAR accelerated leaf expansion, increasing LAI. 6) Larger LAI during the early growth stage led to larger LAI throughout the growing stage, resulting in a higher CGR and ear yield.

**Keywords:** [Phosphorus](#), [Plug seedling](#), [Potassium phosphate solution](#), [Pre-transplanting application](#), [Reduction in fertilizer use](#), [Sweet corn](#)

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