# OPTIMIZATION OF THE SEED SPACING UNIFORMITY PERFORMANCE OF A PRECISION PLANTER

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#### **Abstract:**

The objective of this study was to optimize the seed spacing uniformity performance of a precision planter using response surface methodology (RSM) and to verify the optimum levels of the variables. The variables considered in the study consisted of the vacuum on the seed plate, the diameter of seed holes and the peripheral speed of the seed plate. Different crop seeds were used for planting and experiments conducted in this study were based on the central composite design (CCD), one of the designs in RSM.

Data obtained in the laboratory were divided into three different groups in order to obtain values of the multiple index, quality of feed index and miss index. An additional performance criterion was also proposed and used as an indicator of the sowing performance. This was the root-mean-square deviation from the theoretical seed spacing. The data obtained in the laboratory were then used to develop functions in polynomial form that allowed the calculation of the optimum level of each independent variable considered in the study.

### Biography:

Born in 1961 and graduated from the Department of Agricultural Machinery, Faculty of Agriculture, Ege University in 1983. He received his MSc degree in 1985 and his PhD. Degree from Michigan State University and became an Assistant and Associate Professor in 2000 and then became professor in 2006. His special area of interest is precision planting, mathematical modeling and simulation. He has held various administrative roles at Ege University, acted as the chairperson of the Department of Agricultural Engineering & Technology between 2009 and 2011.

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