

## **ABSTRACT**

### **THE POSSIBILITIES OF DETERMINING IN-ROW SEED DISTRIBUTION OF PRECISE SEED DRILLS USING PIEZOELECTRIC MEASUREMENT SYSTEM**

Necmiye ÜÇER

PhD. Thesis, Department of Agricultural Machinery  
Supervisor: Prof. Dr.İbrahim YALÇIN  
2015, 94 pages

In this study, piezoelectric measurement system is used in order to determine in row seed distribution at Precision Drill. System measured time data are calculated as seed spacing. Experiments were carried out by using different type of seeds (corn, cotton, sunflower, watermelon) with different physical properties. Piezoelectric Measurement System's working parameteres are identified by preliminary tests. Experiments were conducted at different speeds such as 0.5, 1.0 ve 1.5 m/s. Beside, acceptable seed spacing, multiple index, miss and coefficient of variation values are identified during the reserch. The test were repeated with the sticky belt stand and the results compared with Piezoelectric Measurement System in the study. Times were recorded during 2 different test ways. According to the research results, max KETA values have been found out %97.75 for 0.5 m/s feed rate in corn seed, %90.24 for 1 m/s feedrate in cotton seed and %88.00 for 1 m/s feed rate in sunflower seed. It was observed that all type of seeds which were tested would be used at Piezoelectric Measurement System. During the study, watermelon seed KETA value results are observed below %80 and watermelon seeds results showed as nonparametric distribution. According to the time-related test results, time consumption belt systems process orders are 2.26 times greater than Piezoelectric Measurement System.

**Key words:** Precision seeder, in-row seed distribution, piezoelectric, sticky belt