

## ***ABSTRACT***

*Until now the field of electronic technology and control systems continues to develop very rapidly to ease the work of farmers in saving energy in drying grain. When post-harvest grain has a moisture content of 20-26% RH, problems arise when the grain drying process requires energy, operational costs, time during the rainy season and land. In this exploratory research study, it aims to reduce the moisture content of wet grain with a moisture content of 36,8-37,2% RH from the use of DC Heaters so that the moisture content reaches 14-16% RH to produce superior and highest milling yields. The prototype design of the grain dryer and fuzzy control system has been completed, the implementation of the fuzzy control system provides an impressive comparison. In the Time Settling (ts) test without the use of a fuzzy control system takes 4510 seconds and the parameters continue to change past the set point without reaching Steady State. Unlike if you use a fuzzy control system, get Time Settling (ts) within 2830 seconds and the system can Steady State at set points so that grain can dry quickly and get the appropriate RH value. The effect of fuzzy control has a significant influence on system performance because the use of fuzzy control is able to increase energy efficiency in grain drying by responding to any changes in order to remain Steady State between parameters and set points, as evidenced by good system response can get Time Rise (tr) 180-210 seconds, with Time Settling (ts) 2820-2850 seconds, and Steady State Error (SSE) of 0,2-0,6% within 60 minutes 30 seconds with an average moisture content in grain of 16,3% RH.*

**Keywords:** *Fuzzy Logic, Sugeno Method, Humidity, Temperature, Grain Dryer.*