

Comparative Analysis of the Cutting Load in Accordance with the Angle of the Combine Cutting Knife

Byung Ok Jin, Min Ho Lee, Tae Jong Park¹, Chi Ho Kim¹,
Min Ho Heo² and Hyeon Tae Kim*

Department of Bio-Industrial Machinery Engineering
Gyeongsang National University
(Institute of Agriculture & Life Science), Jinju 660-701, Korea

ABSTRACT: *The current work is primarily focused on the development of a testing device To measure the cutting knife's cutting resistance and to measure cutting resistance during crop cutting. As a testing device of cutting knife's cutting load, the cutting knife's unit was manufactured using feed motor and LM guide to measure the cutting load. A load cell was attached to the equipment. The feed rate was 0 to 25 mm/sec and the measuring range of cutting force was 0 to 20 kgf to measure cutting load while an object was cut. In the experiment, crops were cut at five different speeds– 5, 10, 15, 20 and 25 mm/sec, followed by measurement of each cutting load. The experiment's results showed that as the cutting speed increased, the cutting load value decreased.*

Keyword: *Combine, cutting-load, cutting speed, cutting knife, cutting knife angle*

¹ Daedong Industrial Co., Ltd., Chang Nyong, 635-806, Korea

² Woosung Precision Industrial co. Ltd, Jinju 660-852, Korea

*. Corresponding Author: bioani@gnu.ac.kr