

## ***MODIFICATION OF THE CUTTING BLADE IN A 100 KG/HOUR CAPACITY ANIMAL FEED CHOPPER***

*Name* : Fahmi Kurniawan

*Student Number* : 2103221224

*Supervisor* : 1. Rahmat Fajrul, S.T., M.T.

2. Agnes Arum Budiana, S.Pd., M.Pd.

### ***ABSTRACT***

*The modification of cutting blades in a 100 kg/hour capacity animal feed chopper was carried out to improve the efficiency of chopping vegetable waste for use as organic fertilizer. The initial problem was coarse output and long processing time, which was addressed by redesigning the blades with a combination of 18 ST-37 steel plate blades and 15 chainsaw bar blades arranged at a 60° angle. Testing was conducted at three rotational speeds (880 RPM, 1517 RPM, and 2021 RPM), both with and without fixed blades. The best results were achieved at 2021 RPM with fixed blades, producing fine vegetable pulp in 50 seconds with a capacity of 179.86 kg/hour. Hardness testing showed that chainsaw bar material had a higher average hardness (77.56 HRB) than ASTM A36 steel (70.44 HRB), indicating greater wear resistance. This modification effectively increased production capacity, improved chopping fineness, and reduced processing time. The design can serve as an efficient and sustainable solution for processing vegetable waste into organic fertilizer while supporting agricultural productivity and sustainability.*

***Keywords:*** *Blade Modification, Chopper Machine, Animal Feed, Vegetable Waste, Organic Fertilizer.*