

## **ABSTRACT**

### **INPUT ENERGY REQUIREMENT FOR SUGARCANE PRODUCTION AT PT GUNUNG MADU PLANTATIONS**

**By**

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The objective of this research was to investigate input energy requirement for sugarcane production. The study was conducted at PT Gunung Madu Plantations (GMP). Data collection was performed by recording secondary data, interviews and direct observation on the sugarcane plantation in Divisi II PT GMP. Data acquisition included seed preparation, land preparation, planting and plant maintenance. Other activities supporting the production of sugarcane in PT GMP like road construction was also calculated. Energy inputs included the use of fuel, farm equipment and machinery, fertilizer, seeds, compost, herbicide, electricity and human labor. The Observation was made for both plant cane and ratoon cane methods.

The result showed that energy input consumption for plant cane method was 36.95 GJ/ha. Land preparation activities consumed 14.10 GJ/ha or 38.2% of the total input, road construction accounted for 4.47 GJ/ha or 12.1%, planting and seeding was 7.10 GJ/ha or 19.2%, and planting maintenance was 11.28 GJ/ha or

30.5%. Ratoon cane method of sugarcane consumed a lower energy, that was 24.845 GJ/ha with distribution for road construction activity was 3.06 GJ/ha or 12.32% of the total input, and plant maintenance was 21.78 GJ/ha or 87.6%. Energetic performance for sugarcane production at the PT GMP was 0.43 GJ/ton for specific energy and 2.31 ton/GJ for energy productivity.

Key words: sugarcane, energy input, specific energy and energy productivity.