Identification of Weeds in Sugar Cane (*saccharum officinarum* L) in Kebun Kwala Madu KSO PT Sinergi Gula Nusantara

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Abstract

This study aims to identify weed species growing in sugarcane (*Saccharum officinarum* L.) plantations and to determine their dominance level and impact on crop growth. Weeds are one of the major limiting factors in sugarcane cultivation because they compete with the main crop for water, nutrients, light, and growing space, which can reduce productivity. The research was conducted at Afdeling VII, Rayon KMB, Kwala Madu Estate, PT. Sinergi Gula Nusantara, in September 2025 using field survey and morphological identification methods. Data were collected through direct observation of weed species, density, and frequency, followed by analysis to determine the importance value and dominance of each species. The results are expected to provide information on the composition of dominant weeds in sugarcane fields and serve as a basis for selecting effective and efficient weed control strategies to support sustainable sugarcane production.

***Keywords**: Sugarcane, Weeds, Identification, Pominance, Productivity*

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Introduction

Sugarcane is a crop that grows well in Indonesia. According to collected data, sugarcane plantations in Indonesia cover an area of approximately 321,000 hectares, 64.74% of which are located on the island of Java. Indonesia is a suitable area for sugarcane cultivation because its climate is ideal for its growth. Sugarcane requires a rainy season for planting and minimal rainfall during the harvesting process. This sweetener has been known since before the Common Era and produces 27 million tons annually. Sugarcane is a tropical plant with characteristics similar to sorghum (Lubis et al., 2015).

Sugarcane is also a grass, an annual crop whose main stem is cut to extract its sugar. The liquid sugar produced from this liquid ultimately becomes white sugar. As a perennial crop that continues to grow, a single sugarcane plant can be harvested three to six times (Nadya, 2021).

Chemical weed control is the most commonly used method because it is effective, easy, and flexible. Herbicides are commonly used on sugarcane and other crop plantations to suppress or kill weeds without harming the sugarcane plantation. The increased use of herbicides on plantations is possible due to several factors, including the high economic value of plantations, which can cover the costs of chemical control (Yusdarni, 2024).

Various factors govern herbicide use, such as the dominant weed species, field conditions, and the growth phase of the sugarcane crop. Some of the most commonly used herbicides are Diuron, Glyphosate, and Paraquat. Diuron, for example, works well to control weeds before they can germinate. Systemic herbicides like glyphosate are absorbed by the leaves and then spread throughout the weed, including the roots, making them highly effective against broadleaf weeds and grasses. These herbicides work by inhibiting photosynthesis in weeds, which causes slow cell death. Paraquat is often used to control established weeds and suppress their rapid growth (Harianto, 2018)

Paraquat Herbicide 1000 ml / 13L of water is not effective in controlling weeds up to 14 HSA, it is only able to control 85% of weeds, thus giving a percentage chance of weeds to survive of 35% but is able to reduce the dry weight of weeds by up to 32.20%. The recommended dose of Glyphosate based on research is 1000 ml / 13 L of water, because this dose of Glyphosate herbicide is able to suppress total weed growth. Thus, it is recommended for farmers or for people who need to use Glyphosate herbicide with 1000 ml / 13 L of water to control weeds (D S P S Sembiring et al., 2019)

Research Method

Identification of weeds found in each observation plot was carried out by visually observing the morphological form, then matching it with the literature (Ratnawati, 2022).

Result

Table 1. Identify the type of weed

No	Gulma	Nama Lokal
	Rumput	
1	E. *indica*	Belulang
	Teki	

2	C. *rotundus*	Teki Ladang
	Daun Lebar	
3	A. *spinosus*	Bayam Duri

Source: Primary data analysis 2026

The results of weed observations on the Kwala Madu sugarcane plantation of PT Sinergi Gula Nusantara KSO show that the types of weeds identified are generally 3 types. Table 1 shows that the weed species included in the grass weed is E. indica. The weed species included in the sedge weed is C. rotundus. And the weed species included in the broadleaf weed is A. spinosus.

The vegetation identification at the Kwala Madu sugarcane plantation of PT Sinergi Gula Nusantara KSO indicates a diversity of weed species representing three primary groups based on morphological classification:

Grass Weeds: The species *Eleusine indica* (Goosegrass) was identified. It is characterized by flattened stems and a robust root system, making it highly competitive against the main crop for essential nutrients.

Sedge Weeds: The species *Cyperus rotundus* (Nut grass) was identified. This species is known for its high resilience due to its underground tuber reproduction system, which often makes it difficult to control through mechanical means.

Broadleaf Weeds: The species *Amaranthus spinosus* (Spiny Amaranth) was identified. This weed features broad leaf morphology and a thorny stem structure, which can hinder the accessibility and movement of field workers.

The active ingredients that can be used are Ametrin and 2,4-Diamine, which can suppress weed growth for up to 30 days.

Conclusion

The weed composition on the Kwala Madu plantation consists of varieties with a high level of adaptation. The presence of these three groups (grasses, sedges, and broadleaf weeds) indicates the need for a specific Integrated Weed Management (IWM) strategy, given that each group has varying levels of sensitivity to herbicides and mechanical action.

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