



**S  
D  
G  
's**

**12 RESPONSIBLE  
CONSUMPTION  
AND PRODUCTION**



**R  
E  
P  
O  
R  
T**

# 12 RESPONSIBLE CONSUMPTION AND PRODUCTION



“Much of the world’s economy is based around producing things for consumption. This drives the engine of industry. If we want the world to develop sustainably, we need to understand how to be more responsible at both ends of this cycle. This means promoting resource and energy efficiency, having a sustainable infrastructure, and providing access to basic services for all.”

**-THE Impact Rankings**

Number of	
Amount of waste generated (mt)	<b>122</b>
Amount of waste recycled (mt)	<b>91</b>
Amount of waste sent to landfill (mt)	<b>31</b>

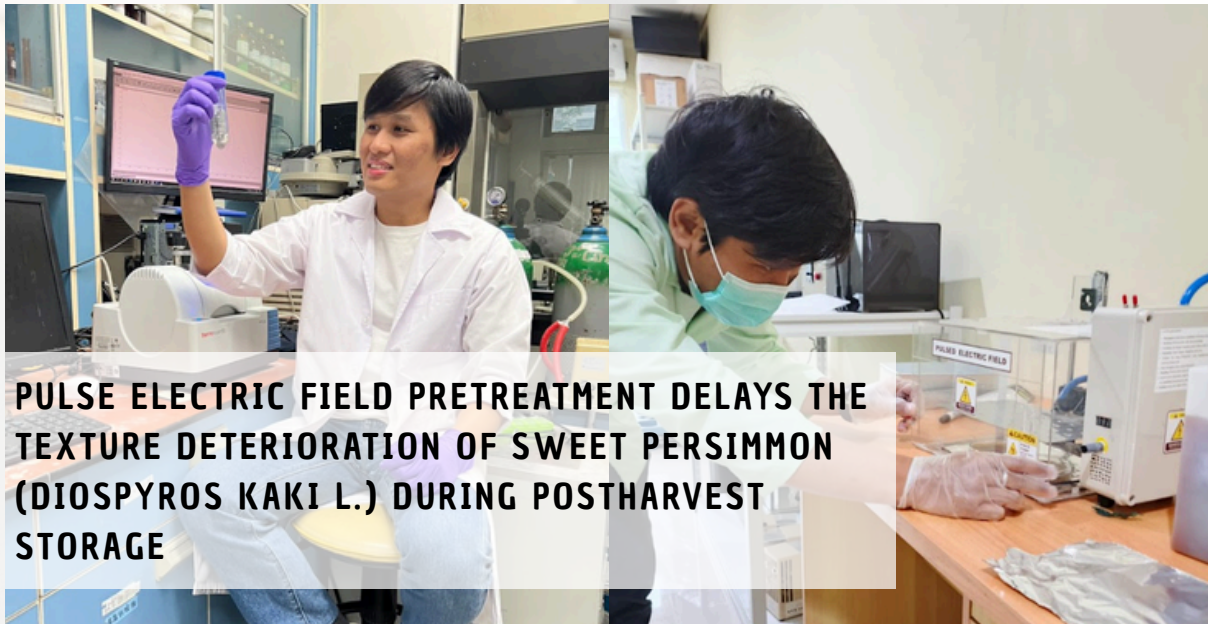
“  
**10.9**  
Impact Factor

RESEARCH IN NUMBERS (2024)  
  
**175**  
publications



Universitas Sebelas Maret (UNS) is committed to disseminating and implementing the values of SDGs 1-17 through a wide range of education, research, and community engagement programs. One example of this commitment is the dissemination of this research on

## SDG 12



**PULSE ELECTRIC FIELD PRETREATMENT DELAYS THE TEXTURE DETERIORATION OF SWEET PERSIMMON (DIOSPYROS KAKI L.) DURING POSTHARVEST STORAGE**

### RESEARCH ARTICLE

The study investigated how applying a **pulsed electric field (PEF) treatment** to persimmon fruit can **slow down texture softening** and extend its shelf-life. The results showed that **PEF effectively inhibited respiration rate, maintained firmness, and delayed softening** compared to untreated fruit, **making it a promising technique for post-harvest handling** and storage of persimmons.



**12 RESPONSIBLE CONSUMPTION AND PRODUCTION**



# ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION PATTERNS

## 1 | Waste Tracking as a Strategic Approach

As part of its strong commitment to addressing waste management challenges, Universitas Sebelas Maret (UNS) has implemented a systematic waste tracking initiative. **By enabling the university to measure, monitor, and mitigate the environmental impact** of its waste generation. Through a **comprehensive and well-documented tracking system**, UNS ensures that data on campus waste is accurately recorded, forming a solid foundation for effective environmental management.

In 2024, the total amount of waste generated by the university reached 535.79 tons, comprising organic, inorganic, and toxic categories. Impressively, 473.74 tons of this waste were successfully recycled, **representing an 88.42% recycling rate**. This achievement reflects UNS's proactive approach to sustainable resource management and its commitment to fostering a more environmentally responsible campus.

## 2 | Maggot-Based Waste Education for Young Learners



A team of lecturers from Universitas Sebelas Maret has introduced **innovative maggot-based waste management techniques to elementary school students** as part of an environmental education initiative. This outreach program aims **to cultivate early awareness of sustainable practices** by demonstrating how black soldier fly larvae can decompose organic waste into valuable by-products, such as compost and animal feed. This initiative **reflects the university's commitment to promoting environmentally responsible behavior** at the community level, supporting the achievement of Sustainable Development Goal 12 on responsible consumption and production.

TOTAL WASTE

259.53 ton/year



224.29 ton/year



51.97 ton/year



RECYCLED

210.40 ton/year



213.07 ton/year



50.27 ton/year



**12** RESPONSIBLE CONSUMPTION AND PRODUCTION



# ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION PATTERNS

### 3 | Research-Community Partnership: UNS & Sukoharjo Waste Bank



The Environmental and Natural Resources Management Research Group of Universitas Sebelas Maret collaborated with the Waste Bank Community in Kabupaten Sukoharjo **to promote sustainable waste management practices at the community level.** This activity focused on **strengthening community-based waste sorting and recycling initiatives to reduce environmental pollution and increase public awareness.** The collaboration also aimed to integrate academic research with practical solutions by providing training, knowledge sharing, and capacity building for waste bank members. Through this partnership, the university **supports community empowerment, circular economy practices, and the advancement of Sustainable Development Goal 12** on responsible consumption and production.

### 4 | Biogas from Organic Waste: UNS Physics Research Outreach

The Advanced Materials Research Group of the Physics Study Program at Universitas Sebelas Maret conducted a community service program focusing on **the utilization of organic waste for alternative energy production through biogas technology.** This initiative aimed to introduce and promote the use of biodigester systems to local communities and educational institutions as a sustainable **solution for managing kitchen waste, vegetable scraps, and other organic residues.** Through practical demonstrations and educational sessions, participants were guided to understand how biodigesters can convert organic waste into useful biogas and nutrient-rich organic fertilizer.

