

Durian peel as high-quality animal feed for the BCG Economy

OAE promotes durian peel as high-quality animal feed, driving the BCG economy with Pure Plus Farm as a model community enterprise



Chaisak Wutthisak, Director of the Office of Agricultural Economics Region 12 (OAE 12) in Nakhon Sawan, stated that the global focus on Sustainable Development Goals (SDGs), particularly the Zero Waste initiative, is gaining momentum.

In alignment with sustainable development, the Ministry of Agriculture and Cooperatives has formulated policies that drive the agricultural sector using the Bio-Circular-Green Economy (BCG Model).

This approach integrates technology and biotechnological innovations to enhance value, reduce agricultural waste that could cause environmental pollution, and minimize agricultural residue burning—one of the key contributors to PM 2.5 air pollution.

OAE 12 has conducted studies on GAP-standard beef cattle farming, monitoring the operations of Pure Plus Farm, a model community enterprise in Pak Nam Pho, Phra Non Subdistrict, Mueang District, Nakhon Sawan. The farm operates under the BCG Model framework.

The enterprise utilizes technology and innovation to produce cattle feed from agricultural waste materials such as durian peels, rice straw, and sugarcane residue.

These materials undergo microbial fermentation using low-energy plasma technology, reducing production costs while ensuring sustainable environmental practices.

Since its inception in 2018, the enterprise has grown to include 17 member farmers, most of whom are engaged in other agricultural activities but actively participate in and learn the production process.

Currently, the enterprise manages a 5-rai beef cattle farm housing 50 cattle. It collaborates with various organizations, including the National Innovation Agency (NIA), to research and develop low-energy plasma technology, which enhances microbial growth efficiency, resulting in high-quality fermented animal feed that meets farmers' needs.

Additionally, partnerships with educational institutions and government agencies, such as the University of Phayao, Chiang Mai University, the Department of Livestock Development, and the Department of Agricultural Extension, support further innovation research.

The primary agricultural waste used in feed production is durian peels, which contain high levels of fiber, fat, and protein, making them a suitable substitute for roughage and concentrated feed.

The enterprise processes durian peels into cattle feed during durian harvest season (February to August), when large quantities of durian peels are discarded daily. To maximize agricultural value and reduce waste, the enterprise collects durian peels from local vendors in Mueang District, Nakhon Sawan, averaging 60–80 tons per year.

The cost of producing fermented durian peel cattle feed averages 1.7 baht per kilogram, covering expenses such as fuel for collection, machinery operation, microbial cultures, labour for chopping, and depreciation of equipment and fermentation tanks.

In comparison, conventional roughage feed made from feed corn costs around 2 baht per kilogram. Each cow consumes approximately 30 kilograms of feed per day.

Beyond cost savings, fermented durian peel feed offers comparable nutritional value to traditional roughage and concentrate feed. It contains 8.42% protein, slightly higher than the 8.20% protein found in feed corn. Additionally, durian peels provide higher fat, energy, and fiber content, which contributes to improved cattle growth rates compared to conventional feed corn.

Due to its tangible success in implementing the BCG Model, the enterprise received the Outstanding Agricultural Tourism Award from the Nakhon Sawan Provincial Agriculture Office in 2022 and the Innovation Entrepreneur Award at the NSP Innovation Awards 2022, organized by the Northern Science Park in Chiang Mai.

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