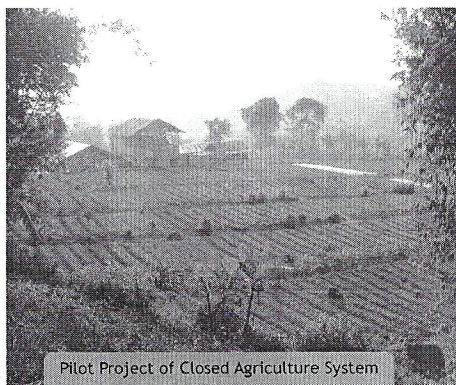




CLOSED AGRICULTURE SYSTEM AS AN ALTERNATIVE FOR VEGETABLE CROP PRODUCTION

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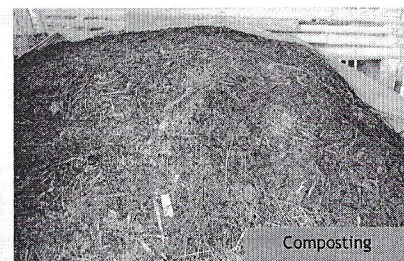
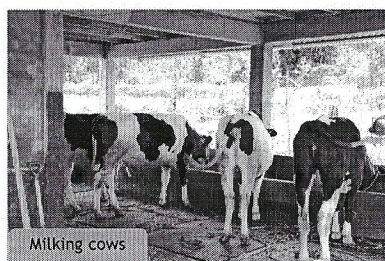
INTRODUCTION



The use of inorganic fertilizer and pesticide for vegetable crop production in Air Duku Village, Rejang Lebong has increased since last 10 years. This agricultural practice has caused negative impact on environment as well as farmers' health. Intensive agricultural practices in the humid tropic adversely influence on soil condition, water quality, biological diversity, climate pattern, and long-term agricultural productivity (Committee on Sustainable Agriculture and the Environment in the Humid Tropics, National Research Council, 1993). Mukhtar et al. (2011) reported that farmers in Air Duku Village applied excessive pesticide and overdosed inorganic fertilizer for vegetable production. Application of pesticides in the field was rarely following the common regulation. Clinical test confirmed that heart and kidney deterioration were encountered on some farmers. However, in recent year, middle and high class community awareness for healthy food and good environment has been increasing significantly. Closed agriculture system is one of alternatives to address the phenomenon.

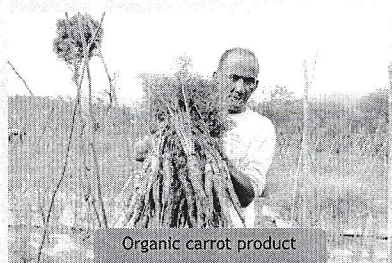
MATERIALS AND METHOD

Closed Agriculture System was developed by applying organic farming with utilization of local resources without external input. Pilot project of the system is located in Air Duku Village, Rejang Lebong. We develop integration of 3 activities, organic vegetable farming, dairy cow farm, and composting technology. We cultivated variety of vegetable crops as part of cropping system during the last 3 years. The need of organic fertilizer for vegetable crop production was fulfilled from dairy cow and vegetable wastes.



RESULTS AND DISCUSSION

From 3 year experience, even though the yield of vegetable crops such as carrot, broccoli, tomato, cabbage, sweet corn, etc. was relatively lower than those of conventional farming, the vegetable crops were free from inorganic fertilizer and pesticide and the soil fertility was well maintained. In the long term, the price of those commodities will also be higher than those of conventional farming system, due to their specific market for middle and high community. Our experience also showed that the need of organic fertilizer could be fulfilled from production of composting of dairy cows and vegetable wastes. Waste production of 5-6 milking cows was sufficient to fertilize about 1 ha of vegetable land. Another advantage of this system is that we were able to produce biogas for cooking or other energy need.



CONCLUSIONS

In summary, the closed agriculture system could become an alternative organic farming for healthier vegetable crop and prevent environmental hazard.

LITERATURE CITED

- Committee on Sustainable Agriculture and the Environment in the Humid Tropics. 1993. Sustainable Agriculture and the Environment in the Humid Tropics. National Academic Press. 720 p. <http://www.nap.edu/>
- Mukhtar, Z., S. Sujatmiko, B. Toha, and M. Asteria. 2011. Farmers are sacrificing their health for production of vegetables. International Conference on Sustainable Agriculture and Food Security: Challenges and Opportunities. Bandung. 27-28 September 2011.

