THESIS TITLE: A Study on Requirements for the Delay of Deterioration of Wet Paddy by Using Piped Air Ventilation

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ABSTRACT

The purpose of this study is to assess the approach for the delay of deterioration of wet paddy by using piped air ventilation, when it is not possible to dry the rice in the sun or mechanically to reduce moisture. The study included divided into: a preliminary study to assess the form and possibility of piped air ventilation, a study to improve the ventilation by piped air and a field study. The study indicators were temperature at different points in the rice pile, the percentage of head rice, the percentage of milled rice and the whiteness of the milled rice. The results of the study were as follows

1. The preliminary study found that piped air ventilation resulted in percentage of head rice and milled rice close to those for rice without piped air ventilation. However, an obvious result was that the temperature of the rice pile with piped air ventilation was 18.17 °C lower than the rice pile without piped air ventilation, which resulted in a clear difference in colour of the rice, with the whiteness of the milled rice higher than that for rice without ventilation by 5.82 to 16.50 percent, and only 3 percent less than that for rice spread out to dry in the sun.

2. The results of the study to improve the ventilation by piped air were that using a buried pipe with holes gave a slightly less percentage of head rice than that from a rice pile with no piped air ventilation. The percentage of milled rice from all experiments was approximately the same. However, the temperature in a rice pile with no piped air ventilation was 28 °C higher than the temperature in a rice pile with piped air ventilation. This resulted in a lower whiteness for milled rice than the rice with piped air ventilation and rice spread out to dry in the sun.

3. The field study was performed with Khao Dog Mali 105 rice at Sraku Sub-district, Suwanapoom District, Roi Et Province by piling rice on a bamboo frame which was raised from the ground. Comparing with rice without ventilation and rice spread out to dry, it was found that wet paddy without ventilation gave a higher percentage of milled rice than with ventilation and spreading out to dry in the sun. However, the whiteness of the milled rice was lower than from the rice pile with ventilation and the rice spread out to dry at 18.34 and 22.00 percent respectively.

In conclusion, from the results of the experiments, the ventilation of air out of the rice pile by placing it on a bamboo frame which was raised from the ground is a method which is able to delay deterioration of wet paddy without significantly reducing the quality of the rice.