

Atipwath Pluemklang 2011: Comparative Study on Production Performance of Dairy Cattle Fed Diets Containing Different Processed Rice Bran. Master of Science (Animal Nutrition and Feed Technology), Major Field: Animal Nutrition and Feed Technology, Department of Animal Science. Thesis Advisor: Assistant Professor Lerchat Boonek, Ph.D. 87 pages.

Three consecutive trials were carried out to evaluate quality of various rice bran products in dairy feed. The first study was to evaluate quality of fresh rice bran, solvent extracted rice bran and expeller rice bran which were stored in sealed plastic bag in room temperature for either 0 10 20 or 30 days in 3x4 factorial in CRD design trial. The second was to measure digestible organic matter and metabolizable energy of fresh rice bran, solvent extracted rice bran and expeller rice bran using in vitro Gas production techniques. and the final experiment was aimed to compare productive performance of crossbred Holstein dairy cattle fed diet containing various rice bran products in completely randomized design. The results showed that quality of different rice bran products with different periods of storage were significantly different ( $p < 0.01$ ). Average acid value (KOH/ gram of oil) and lipase activity (Unit/mg) during 30 days of storage of solvent extracted rice bran was lowest (3.51, 0.91) while that of fresh rice bran was highest (17.35, 8.02) followed by of expeller rice bran (11.70, 6.09) respectively. These results indicated that solvent extracted rice bran can be stored for a longer period of time than other rice bran products without affecting its quality. The results of in vitro gas production study indicated that digestible organic matter of solvent extracted rice bran was highest (76.26 %) ( $p < 0.01$ ) while expeller rice bran showed the highest value of metabolizable energy (12.88 MJ kg<sup>-1</sup> DM) ( $p < 0.01$ ). Milk yield per day and milk composition of dairy cows received experimental diet were all similar. However, cost of concentrate contained expeller rice bran was lower resulted in higher economic return compared to other groups.

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Thesis Advisor's signature