

Theerayut Juntanam 2013: Forage Sorghum [*Sorghum bicolor* (L.) Moench] Utilisation Pattern for Dairy Production. Doctor of Philosophy (Animal Science), Major Field: Animal Science, Department of Animal Science. Thesis Advisor: Assistant Professor Somkiert Prasanpanich, Ph.D. 138 pages.

To study forage sorghum utilisation pattern for dairy production, there were 4 experiments. Trial 1, there were 2 groups of sole forage sorghum for group 1 and lablab legume intercropped with forage sorghum for group 2. The results revealed that sole forage sorghum produced DM yield of 1,694 kg./rai with 19.87, 9.50, 68.74 and 48.45 % of DM CP NDF and ADF, respectively, while DM yield of 1,883 kg./rai with 21.22, 13.85, 60.56 and 44.75 %, respectively were found in lablab legume intercropped with forage sorghum. Total DM yield of sole forage sorghum from 4 cutting was 4,017 kg./rai. Trial 2, twelve Holstein-Friesian crossbred cows were divided into 3 groups under Completely Randomized Design. Animals in group 1 were provided a basal diet with purple guinea grass. Animals in group 2 were fed forage sorghum and animals in group 3 were given lablab legumes mixed with forage sorghum. All animals were also supplemented with meal concentrate of 17% CP. The results revealed that animals in group 3 did have the significantly higher daily roughage dry matter intake, total dry matter intake and % BW of total daily dry matter intake than those groups ($P < 0.01$). Actual milk yield and milk composition in all treatments were not significantly different. Trial 3, using twelve Holstein-Friesian crossbred cows under Group Comparison, 6 animals in group 1 were provided with purple guinea grass while cows in group 2 were fed forage sorghum at second cut. All cows were also supplemented with meal concentrate of 18% CP. The results revealed that daily dry matter intake, actual milk yield, and milk composition were not significantly different. Trial 4, using 8 Holstein-Friesian crossbred cows under Group Comparison, 4 animals in group 1 were provided with forage sorghum silage while cows in group 2 were fed silage from forage sorghum mixed with lablab legumes. All cows were also supplemented with meal concentrate of 19% CP. The results revealed that daily dry matter intake, actual milk yield, and milk composition were not significantly different between treatments. In conclusion, forage sorghum can be harvested for 4 times with sufficient nutritive values for dairy production. In addition, lablab legumes intercropped with forage sorghum can improve CP content in roughage. It can imply that forage sorghum can be utilised in both fresh cut and silage for dairy production during feed shortage to maintain milk yield and increased economic return.

Student's signature

Thesis Advisor's signature