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## **Fresh rice straw treated with urea and lime as feed for dairy cattle in An Giang province, Vietnam**

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### **Introduction**

In An Giang province, in the Mekong delta, in the South of Vietnam, the total cultivated rice area is more than five hundred thousand hectares, from which 2.6 million tons of paddy rice can be harvested yearly (Statistical Yearbook, 2003). It is estimated that a similar amount of rice straw is produced (Chowdhury *et al.*, 1995). In fact, this straw is underutilized, being left to rot in the monsoon season (flooding season) and burned in the dry season. Even with a small number of cattle in the province (52,800 head, Statistical Yearbook 2003) a sufficient supply of roughage is not easy to find during the rainy season. The reason is difficulties in drying the straw in the rainy season, and rice straw is an underutilized resource for feeding livestock.

Urea treatment is the most suitable method for preserving and improving the quality of rice straw. Urea treatment of rice straw increases the crude protein concentration and rumen degradability compared to untreated rice straw (Hai *et al.*, 1994); Chowdhury and Huque, 1996a), and also its rate of degradation (Ibrahim *et al.*, 1988). However, urea is expensive and a waste of resources when used at high levels to ammoniate straw. The amount of urea needed to effectively treat straw is considered to be more than the optimum amount of ammonia for microbial growth in the rumen. This has led scientists to examine the possibility of combining less expensive alkaline reagents with urea. Lime is one of the alternatives, and in An Giang province lime is available and cheap. Urea - lime treated rice straw gave higher  $\text{NH}_3\text{-N}$  concentration and total volatile fatty acids in the rumen than did untreated rice straw (Chanthai *et al.*, 1987). Integrating lime with urea can reduce the urea level needed and supply calcium to the ration. By applying this treatment, we can introduce farmers in this region to a convenient and profitable method in preserving and improving the quality of roughage.