

## FORAGE PRODUCTION AND UTILIZATION IN TAIWAN

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### ABSTRACT

Tropic forage grasses are grown in Taiwan. The amounts of the domestic forages produced can supply only 51% of the total forages required for the ruminant animals. The shortage of the forages are provided by the imported hays. The production cost of milk is high, partly caused by feeding dairy cows with imported hays. It is strongly suggested that some fallow lands should be used to grow forage crops to meet the requirement for the local ruminant animals. In addition, pasture is helpful for maintaining ecological environment and providing a good view for developing the leisure tourism.

**KEY WORDS** : Forage crops, Forage production, Grassland farming, Production cost.

### INTRODUCTION

Taiwan is located in subtropic and tropic areas. The climatic condition is suitable for growing tropic forage grasses. According to the numbers of ruminants raised in Taiwan (Fig. 1) (Council of Agriculture, 2006), the required forages for feeding the animals are about 477,405 mt a year. Domestic forages produced can supply only about 51% of the total forages required.

The shortage of the forages is provided by the imported hays. It is very expensive for the imported hays. The quantity and cost of imported hays for recent 5 years are shown in Table 1. It costed about US \$ 21 million yearly to import the hays to feed animals in Taiwan. Most of the imported hays come from USA, some from Canada and Australia. The production cost of milk in Taiwan is higher than those in the other countries. One of the reasons may be caused by feeding animals with the imported hays.

### FORAGE PRODUCTION AND UTILIZATION

Major species of forage crops grown in Taiwan are pangolagrass (*Digitaria decumbens*), napiergrass (*Pennisetum purpureum*), silage corn (*Zea mays*) and some green manure crops, *i.e.*, berseem clover (*Trifolium alexandrinum*) and soybean (*Glycine max*) (Hsu *et al.*, 1994). Nilegrass (*Acroceras macrum*) is a new forage grass with increasing planted areas (Shaug *et*

*al.*, 2002). The planted areas of domestic forage crops for recent 10 years are shown in Fig. 2 (Council of Agriculture, 2006). Total production amounts of domestic forages can supply only about 51% of the requirement for local ruminant animals. Both pangolagrass and Nilegrass are used as green chop, haylage and hay, while both Napiergrass and silage corn are used as green chop or silage.

Since Taiwan becomes a member of the World Trade Organization (WTO), many agricultural products are imported with reducing imported taxes. Most local products with high production cost can not compete to the imported products. The government encourages the farmers with fallow subsidy to grow green manure crops instead of growing rice or grain crops. Many fallow lands are not cultivated. However, the dairy farmers are expecting to produce more domestic forages to feed the dairy cows to reduce the production cost of milk.

Except providing the forages to feed animals, pasture can help holding the water from rainfall, maintain ecological environment and provide a good view for the people living around. Thus, it is suggested that government should consider to encourage farmers to use some fallow lands to grow forage crops. It may be helpful to develop the grassland farming in Taiwan in the future. In addition, the natural resource, *i.e.*, agricultural land, can be used completely.

## CONCLUSION

Grassland farming becomes more important widely in the world. It produces the forages for animals and plays an important role in sustainable agriculture. The natural resource is limited in Taiwan. It is strongly suggested that some fallow lands should be used to grow forage crops to meet the requirement of the local ruminant animals. Thus, the production cost of milk can be reduced and the competition ability can be increased. Further, the pasture is helpful for ecologic and environmental maintenance. It also provides a good view for developing the leisure tourism.

Table 1. Quantity and cost of hays imported to Taiwan for recent 5 years

Year	Quantity and cost	Alfalfa	The others <sup>*</sup>	Total
2001	Quantity (mt)	87,602	153,029	240,631
	Cost (US \$)	9,900,000	13,344,000	23,244,000
2002	Quantity (mt)	64,305	147,955	212,260
	Cost (US \$)	7,984,000	12,648,000	20,632,000
2003	Quantity (mt)	66,156	151,030	217,186
	Cost (US \$)	7,735,000	12,625,000	20,360,000
2004	Quantity (mt)	65,106	155,372	220,478
	Cost (US \$)	7,195,000	12,362,000	19,557,000
2005	Quantity (mt)	77,088	154,174	231,262
	Cost (US \$)	8,355,000	12,844,000	21,199,000
Mean	Quantity (mt)	72,051	152,312	224,363
	Cost (US \$)	8,234,000	12,765,000	20,999,000

<sup>\*</sup> Includes bermudagrass, timothygrass, ryegrass, oat and sudangrass hays.

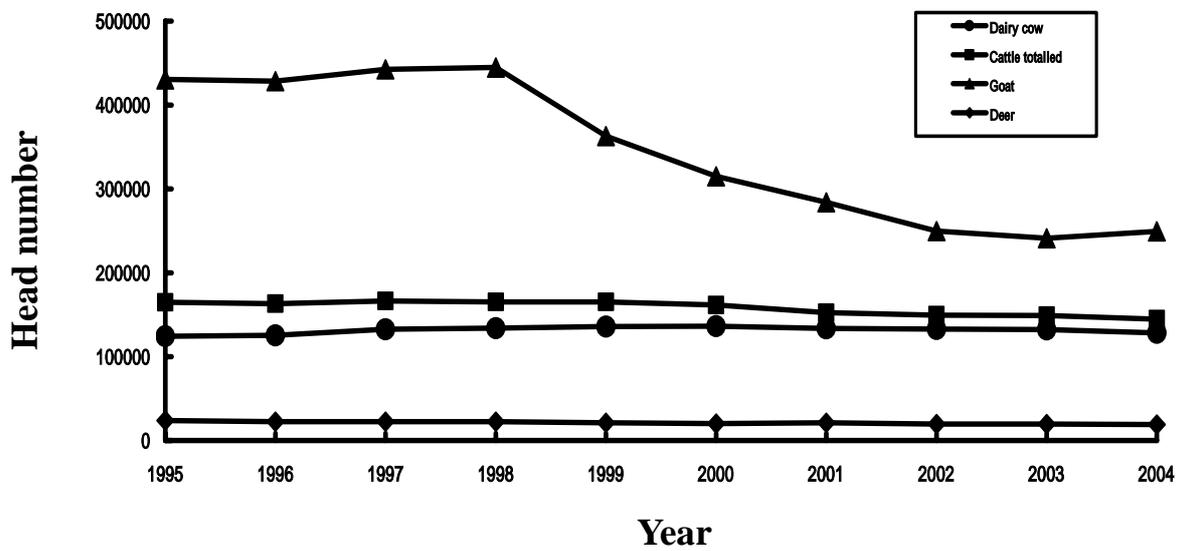


Figure 1. The head numbers of ruminants raised in Taiwan.

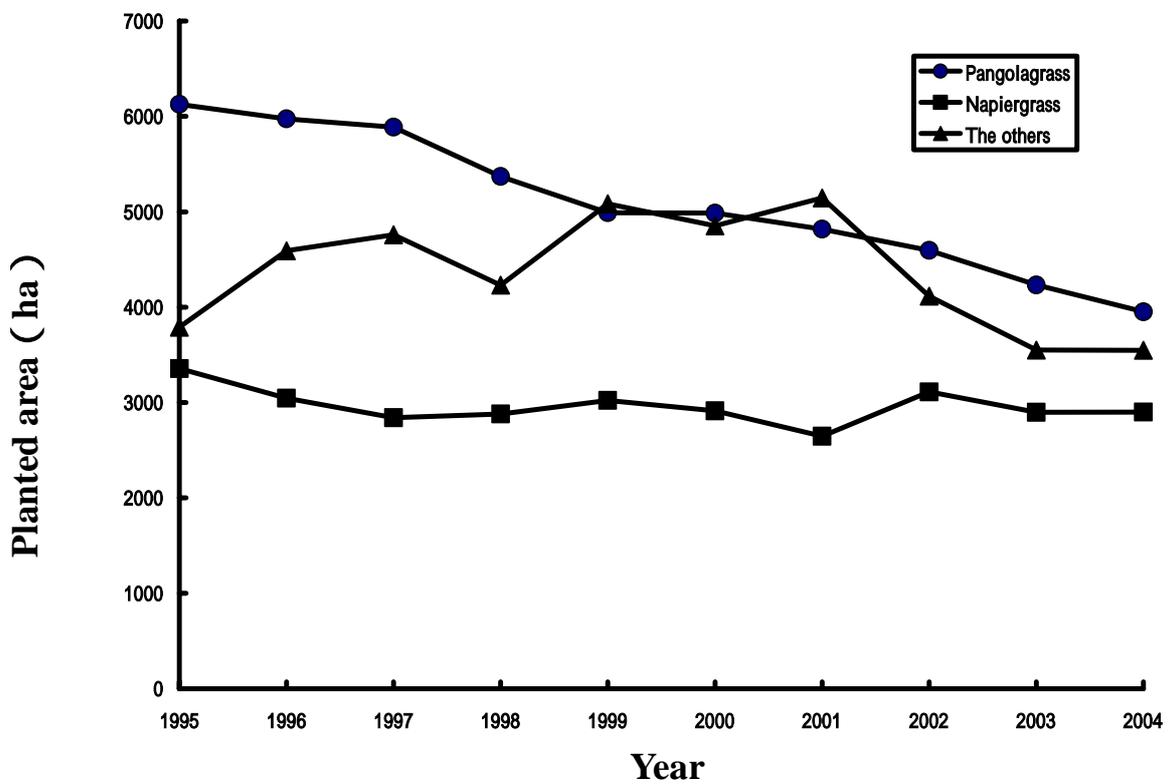


Figure 2. The planted areas of the forage crops grown in Taiwan.

## REFERENCE

Council of Agriculture. 2006. Yearly Report of Taiwan's Agriculture.

Hsu, F. H., Y. K. Cheng and M. J. Lee. 1994. Production and utilization of forage crops. Technical Bulletin No. 25 of Taiwan Livestock Research Institute.

Shaug, S. P, J. B. Lin, W. W. Jin, W. Chen, Y. Y. Chen, S. C. Chang and S. F. Yan. 2002. Breeding of Nilegrass Taishu No.1. Taiwan Livestock Res. 35: 91-100.