## **Keynote Address**

Kentaro HIMENO Director General National Grassland Research Institute

Ladies and Gentlemen, Distinguished Guests and Participants,

It is a great honor to have the opportunity, on behalf of the National Grassland Research Institute, to express our cordial welcome to all the participants and scientists, in particular the delegates from abroad who will attend the International Symposium on Pastures in the Tropics and Subtropics sponsored by the Tropical Agriculture Research Center.

Grassland agriculture and research in Japan are comparatively new fields which have made rapid strides for the past thirty years. Formerly, rice cultivation was the main agricultural activity in Japan and the diet of the people consisted essentially of rice and fish products. However, since the 1950s, with the remarkable development of the economy, there has been a steady change in the food habit and structure of agriculture in Japan. Horses and cattle for draft purposes which used to graze freely on natural pastures are no longer present with the increase in the number of tractors. They have been replaced by dairy and beef cattle and the natural grasslands have been transformed into established pastures with a high level of productivity. In addition, forage crops are cultivated in arable land including converted paddy fields. Also, for the past thirty years institutes and organizations have been established for the promotion of research relating to grasslands.

Presently in Japan, the area planted to forage crops amounts to 1,040,000 ha of which 450,000 ha are allocated to the establishment of pastures and there are 2,100,000 head of dairy cattle and 2,380,000 head of beef cattle. This remarkable expansion of grassland agriculture can be ascribed to the development and improvement of a technology based on sound research in the field of grassland. As a result, original techniques rooted in the traditions of Japan eventually evolved, including pasture establishment on steep slopes with a complex landform, methods of cultivation for high-yielding roughages of good quality grown on small fields, year-round supply of silage even under conditions of high relative humidity, etc.

On the other hand, presently, the limited expansion of grassland agriculture in the various countries of monsoon Asia, which contrasts with that achieved in Europe and in the United States is reminiscent of the situation which existed in Japan in the past. However in order to meet the increase in the consumption of dairy and meat products which is brought about by economic growth, it is essential to promote grassland agriculture. Likewise, in the savannas and steppes of the arid zone, the development of grassland agriculture is even more important.

In any case, grassland agriculture which links together pastures and livestock requires the development of original techniques adapted to the natural environment and socioeconomic conditions of the respective regions and the mere transfer of techniques already applied is not particularly useful.

Therefore, the technical reports presented during the symposium will deal with the development of local feed resources, increase of pasture productivity through the use of legumes, effective utilization of grasses for livestock, etc.

In addition, an excursion has been organized during which visits to a dairy farm with large-scale operation, a farm where animal husbandry is integrated into rice cultivation and public grazing pastures are being scheduled to enable exchanges of views and information on technical achievements and problems to solve, on the spot.

I do hope that the symposium will be successful and contribute to the future development of the collaborative research programs pertaining to grassland agriculture which are sponsored by the Tropical Agriculture Research Center.

Again, I would like to extend my heartfelt welcome to all the distinguished delegates and participants.

Thank you.