

CLOSING ADDRESS: A DEVELOPING COUNTRY PERSPECTIVE

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It is an honour to present this closing address for the XVIII International Grassland Congress and I do it on behalf of colleagues in Africa, Asia and South America. The thirty themes and over 800 papers presented reflect the growing complexity of our grasslands in shaping the general well-being of people on this planet. The XXIX Congress, to be held in Brazil in 2001, will move the frontiers of knowledge concerning sustainable use of grassland resources even further.

This address is being made from the perspective of developing countries that contain the majority of tropical pastures. This region of the world is characterized by low per capita income (less than (US) \$500), a complex agro-ecology from humid to arid as well as fragile environments, and especially for Africa, a general food deficit. In addition, there is a poor awareness of the need to invest in grasslands as a sustainable commodity for livestock agriculture within the context of a traditional grassland based ruminant livestock production.

Realizing that approximately 43% of the World's grassland resources lie in the tropics, the XVIII Congress devoted considerable time to presentations by invited speakers on tropical grasslands. It has been clearly established that:

- Tropical pastures in either arid or semi-arid lands are more resilient than previously thought and that the botany of the plant adapts to changing environments to ensure sustainability. The role of browse and crop residues are crucial to the sustenance of ruminants in these parts of the world.
- Under the situation of low external inputs into agriculture in the tropical zone, legumes have a critical role to play for the enhancement of livestock, as well as crop production.
- Participatory planning, management and research into tropical grasslands must involve farmers to ensure the sustainability of grassland use. A clear understanding and respect for indigenous knowledge is a prerequisite for technology development and transfer in these regions of the world.
- The breakdown in traditional authority is very relevant to current problems of poorly managed communal grazing lands.
- Deferred grazing is a potent tool for rangeland rehabilitation.

FUTURE RESEARCH NEEDS

Despite the tremendous effort of the XVIII International Grassland Congress to address key issues on tropical pastures, the following areas require additional attention:

- Forages and Grassland Management: Out of 105 offered papers on this subject, only two originated from research in Africa, although there were 24 presentations from South America, predominantly Argentina.
- Grazing Management: Out of 109 offered papers on this theme, only one originated from research in Africa. The author of this

paper was unable to attend due to lack of sponsorship.

- Toxicity of browse plants requires further research and this should consider the nutritional and environmental implications. Ethology studies should form a component of this research since the animals' ingestive behaviour appears to set the limit for toxicity.
- Further research is required into the integration of crops and livestock, and how this relates to nutrient recycling.
- Future research into forages and grasslands should be more holistic, by taking into account biological, environmental, economic and social variables.
- There is a need for accurate indices to measure sustainability of different ecosystems.
- The role of fire in the sustainable management of tropical grasslands requires greater attention.
- Land policy research for communal grazing land is required.
- Issues of gender in both the planning and management of grasslands should receive attention.
- Technology transfer case studies in tropical environments should receive greater attention in the future.

FUTURE GOALS

- Participants in the International Grassland Congress from developing countries, especially in Africa, are still disappointingly few. A great ideal of future Congresses would be to enhance the level of funding to enable delegates from developing countries to attend. Contact with developing countries could be further enhanced if additional copies of the Proceedings of International Grassland Congresses could be made readily available to libraries of universities and government research stations.
- During the 70 year history of the International Grassland Congress, all continents with the exception of Africa, have hosted the event. It is hoped that Africa will submit a bid to host the XX Congress, which should be held in the year 2005. This goal was a dream of the late Dr. Ray Brougham, President of the XVII Congress.

On behalf of all delegates to the XVIII International Grassland Congress from Africa and developing countries, sincerest appreciation and gratitude is expressed to the organizers of this congress, to Canada and the Provinces of Manitoba and Saskatchewan, in particular. I trust that experiences of organizers of this congress will be shared with organizers of the next Congress, in Brazil.