GOAT UNDENIABLY PLAYS A VITAL ROLE IN THE RURAL ECONOMY of many developing countries in Asia. Throughout the region, goats are very important in the protein diets of the people, as well as a good, stable source of livelihood especially for the poor in the rural areas. Goat production is mostly carried out by smallholders where the animals are kept in small flocks at an average of 5-10 head/family. While rearing of goat remains at a subsistence level, its contribution to the total farm income is substantial. Goat production fits well in the rural landscape as well as in the resource capacity of smallholder farmers. It requires low initial capital and guarantees a high return on investment in as fast as two years; hence, it is an attractive undertaking among rural households. However, the contributions of goats to the people and economies of developing countries is well underestimated, basically because their production is considered as small in scale, and goat products seldom enter a formal marketing system. For these reasons, goats are accorded a low status and given a low priority in national development in most Asian countries.

In recognition of its importance, several advanced technologies have been developed to increase goat production in some advanced countries. This technology improvement widely ranged from reproductive techniques and seasonal breeding, to silage making, agricultural by-product utilization, slotted slat barn facilities and total mix ration. However, most Asian small-scale goat farmers do not have access to these relevant information and advanced technologies for increased outputs, giving them very limited opportunities to improve their production as well as their livelihood.

Goat forum for Asian countries
There is an enormous potential for small-scale, low-input goat production to make an important contribution to poverty alleviation and rural development in the Asian region. Goats are a most likely alternative source of animal protein, and can efficiently provide meat and milk to complement cattle and buffalo production. For these reasons, FFTC, together with the Research Institute for Animal Production (RIAP) of Indonesia and the Livestock Research Institute, Council of Agriculture (LRI, COA) of Taiwan ROC, joined forces to organize the international seminar on Production Increases in Meat Goat and Dairy Goat by Incremental Improvements of Technology and Infrastructure for Asian Small-Scale Farmers. Held in Bogor, Indonesia on August 4-8, 2008, the seminar primarily aimed to provide a forum for the sharing and exchange of technology and information among countries within the region toward contributing to the improvement of small-scale goat meat and milk production and to poverty alleviation and the attainment of improved food quality and livelihood especially in the developing countries.

Status of goat production in Asia
Currently, there is a surge in the demand for goats, paving the way for what some countries now call as the "goat revolution". Goat raising has become not just for the Asian rural farm households. It has emerged as a popular business option for many affluent entrepreneurs in some Asian countries. Seeing great economic potentials, many have gone into goat raising as a business, with some importing exotic stocks and venturing into breeding on a commercial scale. Therefore, the goat industry has continuously been growing as local demand for goat meat and milk increases.

In addition to daily consumption, goat meat has been recognized traditionally as a healthy or functional food, or for health-giving purposes other than for dietary purposes. For instance, in Korea, goats are generally regarded as a healthy food source that helps the human body to get used to seasonal climatic changes.

The production systems practiced by smallholders depend on many factors such as investment, herd size, availability of grazing areas, and availability of feed supplies that can be categorized into extensive, semi-intensive, intensive, and integration with tree crops.
Extensive or free-range and semi-intensive systems are the most common practice among smallholders in Asia. The livestock-tree crop integrated system, where the animals are reared under tree crops such as rubber, oil palm and fruit trees, is also commonly practiced. However, as the goat industry continues to grow, the production system has gradually improved toward a more commercial oriented management system. Hence, it is important to provide small-scale farmers with scientific and technological information, as well as support services such as credit and infrastructure assistance, to enable them to thrive and compete in this growing industry.

Issues and constraints in goat production
The major constrains in goat production system in most Asian countries are recognized as follows:
1) Rearing system: unavailability of suitable breeding goats; lack of suitable land and feed resources; inadequacy of knowledge of goat husbandry among farmers; lack of effective disease prevention and control program; and lack of good production practice program for farmers.
2) Management systems: inadequate planning and system to utilize goat by-products; inadequacy in technical knowledge; and insufficient farm labor.
3) Marketing: inadequate promotion of goat product consumption; lack of continuous marketing promotion for live goat and its products; higher prices of goat meat and milk compared with other sources; inadequate market for goat products.
4) Food culture: goat meat is not commonly a part of the meal of most Asians except those of Malay, Arab and Chinese descents; and people have aversion over the strong smell in goat meat and milk.

Prospects and recommendations
Through the years, research and development have resulted in advanced technologies and efficient cultural practices in improving goat production. Specific studies on the crossing of local goats with introduced breeds, nutrition and feed resource availability and quality, animal health management, and product processing have led to improved goat production, especially when introduced for adoption to local farmers through village demonstrations on sustainable livestock farming systems. The potential to develop and further expand goat production systems has been recognized, such that collaborative research programs among livestock experts in the Asian region must be pursued toward stimulating further the development of goat production.

In view of the growing demand for goat meat and milk, each country must formulate a long-term development plan considering the following factors: a) fostering goat production especially where sources of raw feed materials are abundant; b) provision of credit assistance to encourage private investment; c) development of an integrated goat production center; d) selection and improvement of the best available genetic resources of goats; and e) human resources development throughout the milk and meat value chain (production, processing and marketing).

Improved goat production can also be realized through the application and adoption of breeding technologies, better utilization of local feed resources, and establishment of milk collection and processing systems in a sustainable integrated livestock farming system. Meanwhile, the challenge for increasing goat meat production is a huge and exciting task. The main objective is to increase the goat population in terms of both quantity and quality. The establishment of several nucleus farms will pave the way for the development of the goat industry.

Assisted reproductive technologies must also be addressed as vital tools in enhancing goat breeding improvement programs. However, the effectiveness of these reproductive techniques and the expected benefits to the goat farmers will largely depend on the accuracy of identifying the best bucks and does through a well planned breeding objective, selection and mating program.
International Seminar on Production Increases in Meat and Dairy Goats by Technology and Infrastructure Improvements for Asian Small-scale Farmers

Held in Bogor, Indonesia, August 4-8, 2008
No. of participating countries: 7 (Taiwan ROC, Korea, Thailand, Philippines, Vietnam, Malaysia and Indonesia)
No. of papers presented: 11
No. of participants: 11 speakers and about 40 local participants/organizers
Co-sponsor: Indonesian Research Institute for Animal Production (IRIAP)

List of papers
1. Results of research and development of goat production in Vietnam
   - Dinh Van Binh, Goat and Rabbit Research Center, National Institute of Animal Husbandry, Vietnam
2. Breeding and reproduction of goat in Malaysia
   - Abdul Rashid Baba, National Animal Embryo Centre, MARDI, Malaysia
3. Goat genetic resources and production in Indonesia
   - Subandiyo, IRIAP, Indonesia
4. Increasing goat-raising efficiency through the utilization of agricultural by-products and improvement of infrastructures in Taiwan
   - An-Kuo Su, Livestock Research Institute, Council of Agriculture (COA), Taiwan ROC
5. Feeding management to improve productivity of Korean black goat
   - Sun-Ho Choi, National Institute of Animal Science, Korea
6. Recent progress on the improvement of goat management and production system under the smallholders condition in Malaysia
   - Nor Ismail bin Mat Shukor, Strategic Livestock Research Center, MARDI, Malaysia
7. Goat production in the Kingdom of Thailand
   - Chaiyawan Wattanachant, Dept. of Animal Science, Faculty of Natural Resources, Prince of Songkla University, Thailand
8. Overview dairy goat production development in Vietnam
   - Ngo Thanh Vinh, Goat and Rabbit Research Center, NIAH, Vietnam
9. Trends in goat production in the Philippines
   - Anna Marie P. Alo, Livestock Research Division, PCARRD, Philippines
10. Current status of goat meat and milk processing in Taiwan
    - Rung-Jen Tu, Animal Products Processing Division, LRI-COA, Taiwan
11. Goat development in Indonesia
    - Tjeppy D. Soedjana, Livestock Services, Ministry of Agriculture, Indonesia

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