

The Use of Modern Technology for Production of Traditional Tropical Small Ruminants

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ABSTRACT

The purpose of this paper is to put new technology into rumen animal production system of small farms, based on the present success experience and research results. Here will discuss the following topics in the paper: breeding good breed, AI and reproduction, lighting system, nutrition, management, housing, avoid heat stress, marketing, and training. Each item will discuss which modern technology can be used for small farm system.

INTRODUCTION

The purpose of this paper is to put new technology into rumen animal production system of small farms, based on the present success experience and research results. Small farm system is not equal to bad or low level of production system. Many animals can be included in small ruminant animals but here will concentrate on sheep and goats. There are four products can be produced by sheep and goats: meat, milk, leather, and wool.

Breeding good breed

High production of meat, milk, leather, and wool should have good breed. Good breed can grow fast, heavy and large body surface area, consequently the sheep and goats will have more meat, skin and wool. How to achieve this result, we can select the heavy birth weight, heavy weaning weight, and later mature weight. This is most easy way on breeding.

It also can select the daughter which produced by high milk production ewe of goats and sheep.

AI and reproduction

It is very important to separate male sheep and goat from female before mating season, consequently the conception rate can be improved (Chen and Hsia, 2016). AI is a very great tool to improve performance, however many people have no confidence to ask farmers to use AI. There are many successful examples to produce good goats and sheep in AI center and provide good progeny of sheep and goats to farms. It is also a good way to build an AI center nearby farms, so technician can do all this AI for sheep and goat farms. The only thing need to do is to teach farmers to learn how to observe heat of sheep and goats.

If possible, government can organize a pregnancy test team by using ultrasound pregnancy test machine to help farmers to check whether goat or sheep pregnancy.

Lighting system

Most tropical sheep and goats may not influence by lighting system on heat or estrous cycle, however some milk goat influence by this lighting program. So we need to teach them

how to match their management and the lighting system. It can make goats and sheep mating on the right time.

Nutrition

1. Balance mineral

It is very important to provide sheep and goats with good and balance mineral. This can let them have normal reproduction performance.

2. Flush

If we want to produce twin of sheep and goats, then we need to flush ewe before mating. It is really important to let ewe produce twin of progeny rather than single progeny. The result can let farmers earn more profit.

3. To avoid nutrition diseases

Many diseases of sheep and goats are due to nutrition diseases, so we need to teach them to avoid all these diseases.

4. To provide animal good nutrition

Good nutrition is the key to grow properly and grow fast. Goats and sheep not only eat grass but they need concentrate. To provide concentrate to ruminant not only can improve performance of animals but also can reduce greenhouse gas production from these animals.

5. Feeds

To provide sheep and goats with local plants which proved with no or low poison materials. Be careful to provide animal with no or low mold and/ or mycotoxin ingredients

Management

Good management always produces good performance. Before mating or mating season, we can separate male from female for a while, consequently female animal can get good conception rate. It also can separate male and female for a while and then mixed them together by natural mating. Move male from one pen to another is also a good management. This method can avoid if one male has not good semen quality, then still can compensatory by another male.

The slaughter weight of sheep and goat for different breeder is very important. If the farmers want to produce more economic final body weight animals, then they may need slaughter at a little bit young age. This will have much better feed efficiency and lower cost to produce sheep and goat meat (Jallow, 2009). If the farmers want to produce more marbling in meat then they need to keep animals a little bit old, let fat growing into muscle.

Housing

High raise house can maintain sanitation of animal house which can reduce disease problem and easy to collect faeces. The faeces can make compost and use as a fertilizer for vegetable and fruits (Hsia, 2008). To collect raining water from roof not only can easily get water, but also can have more cleaning water. This method also can avoid mud of surrounded area. The way of collecting water also needs very careful management.

Avoid heat stress

Good arrangement of animal house always can help animals have less heat stress. There are two ways to achieve this result. Firstly, cover the area with trees, but well protect the trees. Secondly, cover the roof with insulation material, e.g., palm tree leaves.

Marketing

1. How to lend money from farm association and bank

2. How to slaughter animal and store the carcass
3. How to store and process goat milk for the market
4. Train farmers to make meat products and cheese, etc.
5. Teach farmers how to sell products to market

Training

How to transfer knowledge from research to extension people and to farmers more efficiency becomes very important. If all the knowledge produce from research cannot use in farmers, then all the research become no use at all (Lee and Hsia, 2016).

CONCLUSIONS

It is very important to use new knowledge to help farmers of small farms to build their business or industry.

REFERENCES

- Chen, Y. W. and L. C. Hsia. 2014. Seasonal variation of semen quality in Nubian goats and Barbado sheep. Proceedings of the 16th AAAP Congress (Full paper). p. 1555-1557. Yogyakarta, Indonesia.
- Hsia, L. C. 2008. Goat Housing and Facility. pp. 697-704. In: Animal Husbandry-Herbivorous Animals. Chinese Society of Animal Science, Taiwan, ROC.
- Jallow, D. B. 2009. Ruminant Degradation Characteristics and Amino Acid Composition of Various Ingredients Fed to Black Barbado Sheep. Master Thesis. National Pingtung University of Science and Technology, Taiwan, ROC.
- Lee, H. C. and L. C. Hsia. 2016. Study of extension services of academic people on animal production in Taiwan. The 17th Asian-Australasian Association of Animal Production Societies Animal Science Congress. Program and Abstracts. p. 357. Fukuoka, Japan.
- Hsia, L. C. 2016. Goat and Sheep Production in Taiwan. In: Workshop 4- Present situation and future prospect of goat production and the future direction in Asian-Australasian countries. The 17 AAAP, Fukuoka, Japan.
- Jallow, D. B. and L. C. Hsia. 2011. Effect of six feed supplements on ruminal degradation characteristics and amino acid profile of sheep. *Int. J. Anim. Veter. Adv.* 3(5): 367-373.
- Jallow, D. B. and L. C. Hsia. 2011. Effects of supplement type on fermentation parameters and amino acid profile in the rumen of sheep. *Int. J. Anim. Veter. Adv.* 3(5): 386-391.
- Jallow, D. B. and L. C. Hsia. 2014. Effect of sodium bicarbonate supplementation on carcass characteristics of lambs fed concentrate diets at different ambient temperature levels. *Asian-Aust. J. Anim. Sci.* 27(8): 1098-1103.
- Jallow, D. B. and L. C. Hsia. 2014. Effect of sodium bicarbonate supplementation on fatty acid composition of lambs fed concentrate diets at different ambient temperature levels. *Int. J. Anim. Veter. Adv.* 6(6): 162-168.
- Jallow, D. B. and L. C. Hsia. 2014. Effect of sodium bicarbonate supplementation and 2 different ambient temperatures on growth performance and carcass characteristics of lambs fed concentrate diets. *Turk. J. Vet. Anim. Sci.* 38: 557-563.

- Jallow, D. B. and L. C. Hsia. 2015. Ruminant degradation pattern and amino acid production in sheep fed six feed ingredients as influenced by time and day. *Int. J. Anim. Veter. Adv.* 7(1): 1-7.
- Jallow, D. B. and L. C. Hsia. 2010. Effect of Different Feedstuffs on Ruminant Volatile Fatty Acid Production and Amino Acid Profile. *Proceedings of the 14th Animal Science Congress of Asian-Australasian Association of Animal Production Societies*. Vol. 1: 630-634. Pingtung, Taiwan.
- Lee, H. C. and L. C. Hsia. 2009. A study on cognition of professional training sessions participation of workers in animal production. p.115. *Proceedings of the 17th Asian Dairy Conference: Dairy Cattle House*. Hokkaido, Japan.
- Lee, H. C. and L. C. Hsia. 2010. Current Situation of Extension for Livestock Industry in Taiwan. *Proceedings of the 14th Animal Science Congress of Asian-Australasian Association of Animal Production Societies*. Vol. 1: 211-215. Pingtung, Taiwan.
- Lee, H. C., and L. C. Hsia. 2012. Lifelong learning and motivation: creating conducive environments for adult learning in animal production in Taiwan. p.882. In: *Proceedings of the 15th AAAP Animal Science Congress*. November 26-30, 2012. Published by Aksornsiam Printing Co. Ltd., Bangkok. Thailand.
- Chen, Y. W., and L. C. Hsia. 2014. Effect of vitamin E on the reproductive performance of Nubian goats and Barbado sheep ewes. *Proceedings of the 16th AAAP Congress (Full paper)*. p. 1552-1554. Yogyakarta, Indonesia.