CURRENT STATUS OF LIVESTOCK REPRODUCTION AND THE USE OF ADVANCED REPRODUCTIVE BIOTECHNOLOGIES IN LAO PDR

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ABSTRACT

Laos PDR is known as an agricultural country in which the agriculture contributed 23.5% of National GDP in 2014. Livestock production is one of the main agricultural activities which are defined as diversified rural farming system. Though, we have medium and small scale of the farming, the small has varieties of chicken, duck, pig, cattle, and buffalo productions, and less numbers of goat and sheep productions. Livestock production is facing some challenges such as low yield breed, poor quality and quantity of locally available feeds and high-cost of commercial feeds, inadequate research, limitation of human resources, and lack of in-hand policy to improve both small scale and industrial aspect for development of production and marketing. Moreover, there has been no reproductive biotechnology existing in the country and it’s important to have human resources and governmental policy to have it for livestock production and national economic improvement.

Keywords: Reproductive biotechnology, artificial insemination, embryo transfer

INTRODUCTION

Overview of Livestock Production in Lao
The Lao People’s Democratic Republic (Lao PDR) is a landlocked county located in the heart of the Southeast Asian region, with a geographical area encompassing 236,800 square kilometers. It shares its borders with China on the north, Cambodia on the south, Viet Nam on the east, Myanmar on the northwest and Thailand on the west. The topography of the Lao PDR is characterized by two main geographical zones; the center plains along Mekong River and mountainous region to the north, east and south. The climate of Lao PDR is typically tropical. During the rainy season from May to October monsoon rains provide annual average precipitation rate of around 1,600 mm. The dry season stretches from November to April with a few summer showers in between. In 2014, the population of Laos is estimated at 6.9 million, majority of population lives in rural area. Agricultural contribute to National GDP was 23, 5% as of 2013. The livestock production has mainly smallholder production systems in which the raising systems are traditional and subsistence. Livestock production is an important component of smallholder farming systems in Lao PDR, as livestock plays important roles as the saving and source of income. The livestock supplies more than 90 % of total meat consumption in the Laos people. Livestock production in is shown in Table 1.

Table 1.

<table>
<thead>
<tr>
<th>Species</th>
<th>Population ( million) head</th>
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</thead>
<tbody>
<tr>
<td>Cattle</td>
<td>1.691.800</td>
</tr>
<tr>
<td>Buffalo</td>
<td>1.185.000</td>
</tr>
<tr>
<td>Goats and Sheep</td>
<td>471</td>
</tr>
<tr>
<td>Pig</td>
<td>2.793.680</td>
</tr>
</tbody>
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EMBRYO TRANSFER AND OTHER REPRODUCTIVE BIOTECHNOLOGY

Lao is a developing country and the advanced reproductive biotechnologies such as synchronization, embryo transfer and cloning in cattle have never existed. We don’t have policy on the biotechnology. The Lao’s limited finance has constraints on application of advanced reproduction biotechnologies in animals, acquisition of human resources and proper equipment needed for them to improve livestock production.

ET is still at developing stage in Lao PDR. The participation of embryos and technical manpower in ET is still experimental and no other biotechnologies have been carried out in Lao PDR.

1. However, we have one private company (non-government) which performs artificial insemination for local cattle. Cattle have been produced by natural breeding in my counties.

2. Reproductive biotechnologies have the important potential to develop crossbreeding of local cattle to increase genetic modified hybrid to protect against disease related to reproductive system and to adjust to the climate and environment change of Laos. The weather conditions of Thailand (Laos?) are characterized as hot and humid with a mean temperature of 27 °C.

3. At present I woke at the Faculty of Agriculture, National University of Laos. After getting knowledge, capacity, and skill of advanced reproductive biotechnologies in cattle by this training course I would like to try to improve breeding of local cattle in my faculty and counties because we have about 50 heads of local cattle. I am planning to develop teaching of reproductive biotechnologies to my students to develop breeding of cattle farm at the Faculty of Agriculture in the future. AI recognized as one of the major techniques for livestock development is the most commonly used biotechnology in the country. The technique has been used since the establishment of the National Artificial Breeding Center (NABC) in 1965. As a part of the continuing efforts to improve the genetic value of our livestock animals the Philippine Department of Agriculture (DA) harmonized the AI efforts of the national agencies through the Unified National Artificial Insemination Program (UNAIP). Started in 2001, UNAIP provides better opportunities for livestock farming communities to use AI by enhancing their competitiveness through an institutionalized AI delivery system at the village level.

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