

# **The Loss of Interest in Keeping *Kambing Gembrong* – An Endangered Species of Goat- By Farmers in Karangasem Region, Bali, Indonesia**

By

Wayan Sayang Yupardhi, Ni Wayan Tatik Inggriati,  
Ni Luh Putu Sriyani and I Dewa Ketut Harya Putra

**ISSN 2319-3077 Online/Electronic**

**ISSN 0970-4973 Print**

**Journal Impact Factor: 4.275**

**Global Impact factor of Journal: 0.876**

**Scientific Journals Impact Factor: 3.285**

**InfoBase Impact Factor: 3.66**

**Index Copernicus International Value**

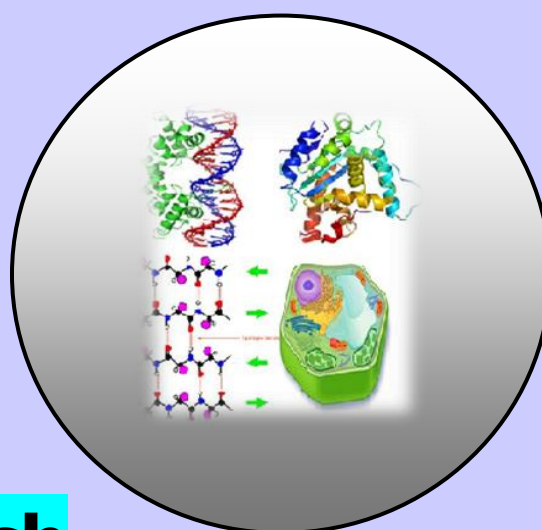
**IC Value of Journal 47.86 Poland, Europe**

**J. Biol. Chem. Research**

**Volume 34 (1) 2017 Pages No. 89-95**

## **Journal of Biological and Chemical Research**

**An International Peer Reviewed / Referred Journal of Life Sciences and Chemistry**



**Indexed, Abstracted and Cited in various International and  
National Scientific Databases**

**Published by Society for Advancement of Sciences®**

**J. Biol. Chem. Research. Vol. 34, No. 1: 89-95, 2017**

(An International Peer Reviewed / Refereed Journal of Life Sciences and Chemistry)

Ms 34/01/05/2017

All rights reserved

**ISSN 0970-4973 (Print)****ISSN 2319-3077 (Online/Electronic)**[http:// www.sasjournals.com](http://www.sasjournals.com)[http:// www.jbcr.co.in](http://www.jbcr.co.in)[jbiolchemres@gmail.com](mailto:jbiolchemres@gmail.com)**RESEARCH PAPER**

Received: 13/12/2016

Revised: 11/03/2016

Accepted: 12/03/2016

# **The Loss of Interest in Keeping *Kambing Gembrong* – An Endangered Species of Goat- By Farmers in Karangasem Region, Bali, Indonesia**

Wayan Sayang Yupardhi, Ni Wayan Tatik Inggriati,

Ni Luh Putu Sriyani and I Dewa Ketut Harya Putra

Faculty of Animal Science, Udayana University, Bukit-Jimbaran, Badung, Bali, Indonesia

**ABSTRACT**

*A particular hairy goat known locally as kambing gembrong is a source of local genetic material which exists only in Bali, Indonesia. Unfortunately, their population is nowadays critical and close to extinction and, thus, attempt should be made to conserve this species of goat. The present research work reported here was aimed to determine factors that may be related to the loss of interest of farmers in keeping kambing gembrong that, in turn, resulted in a decrease in its population. Thus, a survey was conducted by distributing proper questionnaires to goat keepers in six villages in Karangasem region, namely Desa Tumbu, Bunutin, Abang, Culik, Bugbug, and Sanghyang Ambu. A purposive sampling was made; the respondents were 7 members of "Wisnu Segara" farmer group who currently are still keeping the goat and 6 farmers who used to have the animals. The data collected were analyzed descriptively. Result of the current study showed that the loss of interest of farmers in keeping kambing gembrong is due to factors as follows. (1). Backgrounds or characteristics of farmers that include the low level of education, the negative perception and the inappropriate skills in keeping this hairy goat. (2). The lack of intention by the Government to conserve this endangered species of goat, shown by their lack of financial support and guidance to kambing gembrong keepers. (3). Above all of those, kambing gembrong has less economic values compared to other breeds of goat available locally. Thus, consequently, the goat keepers find very little or even have no benefit in keeping kambing gembrong. Therefore, we suggest that the Government should continuously conduct a kind of extension service and guidance concerning the keeping kambing gembrong to farmers as well as in providing facilities and funds in order to conserve or prevent of the disappearance of this animal.*

**Keywords:** *Kambing gembrong, Endangered Species, Population, Characteristics and Farmers.*

## INTRODUCTION

A particular hairy goat known locally as *kambing gembrong* is a source of local genetic material that exists only in Karangasem region, Bali. Its existence in that particular region was reported by Devendra and Burns (1983) in their book distributed widely. As far as publication in international journal is concerned, very few reports about this particular species of goat have been published. Earlier reports by Rumich (1967) and Robinson (1970) also mentioned that its existence is only in Bali. Although some research works concerning *kambing gembrong* have been conducted by fellow scientists from the local university, University of Udayana, their findings were published locally.

It is now become a fact that *kambing gembrong* can be considered as an endangered species as its population is gradually decrease. Matram *et al.* (1993) reported that its population in Karangasem region in 1993 was 59 heads, but at present there are only 35 animal remaining. It was stated by the local farmers that the decrease in number of *kambing gembrong* was related to the facts as follows (Matram *et al.*, 1993). (1). A number of goats were killed by wild dogs that wandering around in bushes near the village. (2). When it was sold in the market, farmers did not receive good payment as the size of *kambing kembrong* is smaller than other breed of goat (crossbred Etawah) mostly kept by people. (3). In the past, people (i.e. fisherman) kept *kambing gembrong* in order to use the long hair as bait in fishing. But at the present time, it is not used any more since there are so many baits that can be bought easily. (4). For ritual purposes and during social events, people prefer to use the popular breed of goat rather than *kambing gembrong* due to its bigger body size. Thus, all of them have led to less and less people were willing to keep *kambing gembrong* that, in return, have resulted in a decrease in population from year to year. From topography point of view, the Karangasem region is actually favorable for goat keeping and production (Anon., 1998). However, on the other hand, as stated above the population of *kambing gembrong* is decreasing from year to year. Therefore, we have conducted a study in order to know factors that may be related to the loss of interest of farmers in keeping *kambing gembrong*. We hope that our findings can be used in planning and conducting its conservation by those who concern about this endangered species.

Thus, this article on *kambing gembrong* is written in order to get it published internationally. The aim is merely to let people know that in Bali, Indonesia there exist a particular species of goat that can't be found elsewhere but that is now considered as an endangered species. The result reported here is a kind of information that could add to those reported earlier by Devendra and Burns (1983) about types of goat available in the tropics.

## MATERIAL AND METHODS

The current study was conducted through a survey to farmers in the region of Karangasem, Bali, Indonesia in 2015. A purposive sampling was made involving seven farmers that still keep *kambing gembrong* and nine people that used to have the animals. They were people from villages that in the past and currently have been reported to have *kambing gembrong* kept by villagers. Those villages are Tumbu, Bunutin, Abang, Culik, Bugbug, and Sanghyang Ambu. In the village of Tumbu, keeping of *kambing gembrong* is performed by seven people of the "Wisnu Segara" farmers group.

In this survey, information about goat keeping and other related matters were obtained through distribution of previously prepared questionnaires. Moreover, in depth interview was made to selected respondents who should concern about goat keeping and production by the local community; they were staffs of the Unit of Livestock and Fishery, Region of Karangasem. The information collected from them could reveal the real or actual concern of the local Government of Karangasem towards community development which in this case of *kambing gembrong* kept by the local farmers.

Data obtained were descriptively analyzed focusing on factors that can be related to the actual fact of decreasing population of *kambing gembrong*. According to Black and Champion (1999), descriptive information can be directly focused on particular matters to be studied.

## RESULTS AND DISCUSSION

For the sake of logical sequences in presentation about *kambing gembrong* and problems related with its keeping by farmers in this region, we will provide the data and its discussion firstly about the farmers and many things that may provide support to goat production, then about the current goat population and problems in its keeping, and finally about various perceptions of respondents concerning this endangered species of goat.

### Characteristics of the farmers

Information about farmers who were surveyed is as follow. Their ages were 37 years in average. It could mean that they were at productive age as according to Indonesian Rule (Rule of Work Force No. 13, 2003), ages ranging from 15 – 64 years are considered as productive ages. About their formal education, majority of them (56.32%) only studied up to 6 years of Elementary School (SD), about 12.50% finished their 3 years of First Secondary School (SMP), 25.00% finished their 3 years of Secondary School (SMA), and up to 6.18% have no formal education at all. Thus, it can be concluded that the levels of education of *kambing gembrong* keepers are low. It has been shown by our colleagues (Nuraini *et al.*, 1988; Inggriati, 2014) that, in general, the low level of formal education of farmers may lead to less response to new innovation introduced to them. They are usually unresponsive and unwilling to try new innovative approaches.

About non-formal education, the farmers surveyed had only one chance to attend a kind of extension service and demonstration about goat keeping run by team from the local Udayana University. This was attended by farmers that grouped into Wisnu Segara farmer group. The rest have never attended such an activity. Thus, from extension service point of view, it could mean that the local authority that responsible for the community development, in this case the particular Unit of the local Government of Karangasem Region, did not aware and take action in preventing the decreasing population of *kambing gembrong*. Thus, there was no effort has been made to prevent the situation of getting worse. As reported by Inggriati (2014), level of knowledge of farmers can be improved by attending such a non-formal education run by professional extension workers.

The current respondents were majority (68.75%) worked as farmers. This could mean that, from occupation of farmer point of view, *kambing gembrong* should be able to keep by them properly. As part of farmer's daily activities, collecting grasses and green forages for their animals is a kind routine task.

Moreover, as stated earlier, the topography of the region (Anon., 1998) may further support the chance to increase the number of animal kept by people; about 91.26% of Karangasem region consist of non-rice field, i.e. dry land, plantation, bushes and forest, and so on. Thus, this region should provide abundance source of green forages for the goat. It has been known that the successful goat production is closely determined by the excessive availability of feed such as grasses and other green forages (Alveoli, 2008).

Furthermore, the average number of person in a farmer's household was 5.4 persons. From family labor point of view, farmers should be able to keep *kambing gembrong* that may provide extra family income when the animals are sold. Generally, it is quite common for farmers in Bali or in Indonesia, in addition to work in their rice field, they also have extra jobs such as work in plantation and keep livestock, such as cows, chickens, goats, and so on. Considering the excessive availability of green forages related to topography of the area and the characteristics of farmers in this area, all of them can be considered as factors that would support *kambing gembrong* production. However, that is not the case.

#### About *kambing gembrong* and respondent's perception

As shown in Table 1, the number of *kambing gembrong* kept by local farmers was decreasing. In 1993 the number was 59 heads Matram, et al., 1993), but in 2015 only 35 animals are remaining all of which are kept by the Wisnu Segara farmer group.

**Table 1. The number and physiological status of *kambing gembrong* kept by "Wisnu Segara" farmer group in Karangasem, Bali, Indonesia.**

| Number Amount of<br><i>kambing gembrong</i> | The year of 2009<br>(head) | The year of 2012<br>(head) | The year of 2015<br>(head) |
|---------------------------------------------|----------------------------|----------------------------|----------------------------|
| 1. Adult male                               | 21                         | 21                         | 5                          |
| 2. Growing                                  | 14                         | 09                         | 5                          |
| Male                                        |                            |                            |                            |
| <b>The number of male</b>                   | <b>35</b>                  | <b>30</b>                  | <b>10</b>                  |
| 3. Adult female                             | 27                         | 31                         | 15                         |
| 4. Growing                                  | 07                         | 04                         | 10                         |
| Female                                      |                            |                            |                            |
| <b>The number of Female</b>                 | <b>34</b>                  | <b>35</b>                  | <b>25</b>                  |
| <b>Total male and female</b>                | <b>69</b>                  | <b>69</b>                  | <b>35</b>                  |

It should be pointed out here that those 35 *kambing gembrong* are probably the only remaining animals that can be found nowadays. They still exist and kept by farmer group who to a certain degree obtain financial support from a kind of Government body (*Balai Pengkajian Teknologi Pertanian* – Institution for Studying Agricultural Technology).

Moreover, our survey revealed that no *kambing gembrong* is still kept by individual farmer in that region. Thus, individual farmers who reared this particular goat in the past do not have the animals anymore. We then used them as our respondents in the current survey.

As reported by Matram *et al.* (1993), problems encountered by farmers in keeping *kambing gembrong* that have resulted in decreasing population include killing by wild dogs and the socio-economic factors as stated earlier. The present findings to some degree confirm the previous results (Matram *et al.*, 1993; Yupardhi, 1998; Yupardhi *et al.*, 2009). We noted that farmers prefer to keep other breed of goat rather than *kambing gembrong* due to their economic values. Their consideration is quite logic as *kambing gembrong* is lighter than other breed of goat and the hair is no longer used for making bait by the local fisherman. Consequently, farmers have lost their interest in keeping *kambing gembrong*. Thus, without particular effort by those who care about saving this endangered species, *kambing gembrong* will sooner or later disappear from this planet.

Concerning the involvement of Government in supporting the community activities which in this case of *kambing gembrong* production, respondents from Unit of Livestock Farming and Fishery, Karangasem region stated as follows. They have no detail data about *kambing gembrong* population in their region and almost have no intention in promoting its production in the community. Thus, it could mean that the Government did not really care about this particular species of goat. The situation is quite different for other species of livestock such as cow, chicken, crossbred Etawah goat, and so on; the Government routinely encourage people to increase their production as it can provide extra family incomes. According to those respondents, the decreasing population of *kambing gembrong* is due to: the single born kid, its economic value which is the same as the local "kacang goat", its high mortality rate, the non-intensive keeping, and the lack of Government support and encouragement.

In regard to mortality rate, our survey to the existing *kambing gembrong* keepers that become member of the Wisnu Segara farmer group revealed results as presented in Table 2.

**Table 2. Distribution frequency of farmers stating the cause of mentality of *kambing gembrong* kid.**

| Number                        | Cause of death                  | Farmers  |   |
|-------------------------------|---------------------------------|----------|---|
|                               |                                 | Person   | % |
| 1.                            | Due to sickness<br>42.86        | 3        |   |
| 2.                            | Due to malnutrition<br>28.58    | 2        |   |
| 3.                            | Too small birth weight<br>14.28 | 1        |   |
| 4.                            | Unrecognized<br>14.28           | 1        |   |
| <b>Total</b><br><b>100.00</b> |                                 | <b>7</b> |   |

From the above table, it can be noted that death of kid due to sickness has the highest percentage. This may be related to lack of knowledge and skill of farmers in overcoming disease problems. Therefore, when there is an attempt to promote an increase in *kambing gembrong* production, the knowledge and skill of farmers in overcoming this problem should be put in priority. Second priority should be put on animal feed as provision of various green forages that provide balanced nutrition will lead to good health status and, therefore, less mortality rate of the animals.

As commonly stated, the motto “the man behind the gun” perhaps also apply in the keeping of *kambing gembrong* by the traditional farmers at Karangasem region. The farmer’s behavior, attitude, perception and motivation play important roles in the attempt of conserving this endangered species of goat. The idea of conservation should be put in their mind. Keeping of *kambing gembrong* is not just for economic purposes only, but it is also for conservation of their “belonging” which is nowadays critical and almost extinct from their area. Our survey revealed that the local farmers have relative low level of knowledge, attitude, and skill related to *kambing gembrong* keeping. Thus, when attempt is made to conserve *kambing gembrong*, the behavior, knowledge, attitude and motivation of farmers as “the real actor” of conservation at the level community should be first attended and improved. Indeed, from beneficial point of view, *kambing gembrong* is not a favorite animal to keep and, thus, is easily subjected to extinction. Whatever the condition is, will we let a source genetic materials that exist in this planet disappear permanently?

## CONCLUSION AND SUGGESTION

From the current study on *kambing gembrong* kept by farmers in Karangasem region, Bali, Indonesia, some conclusions can be made as follows. Population of this particular hairy goat is decreasing from year to year and nowadays has already reached a critical level; *kambing gembrong* could be considered as an endangered species. There are some factors that could be related to such decreasing population. The most affecting factor is on *kambing gembrong* itself; this animal has less economic values compared to other breeds of goat available. Consequently, the local farmers have lost their interest in keeping this particular species of goat; local farmers have no longer kept them as source of extra family incomes. Moreover, the critical population of *kambing gembrong* can also be related to the lack of support of the Government, at the local and central levels, in conserving this endangered species of goat that only exist in Karangasem region, Bali, Indonesia.

The idea of conservation of any endangered species should be understood and supported. Therefore, as our suggestion, attempts should be made by various components to conserve *kambing gembrong*. Farmers as the “real actor” of conservation at the level of community should be prioritized, such as by providing a kind of “incentives” in keeping the animals which is not a popular species to keep and also by improving their knowledge, attitude, skill, and motivation. In relation to that, the Government should also seriously encourage the conservation by providing a kind of “conservation funds” as well as expertise.

## ACKNOWLEDGEMENTS

We thanks our colleague Ir. Ni Ketut Nuraini, M. Agr. Sc for her assistance in preparing the questionnaires and also to Rector of Udayana University and Dean of Faculty of Animal Science for their supports so that the current study can be conducted properly.

## REFERENCES

- Anonymous (1998).** Pemetaan Distribusi dan Pengembangan Plasma Nutfah Kambing Gembrong. Yayasan Primnawisa. Jl. Kecubung 72, Denpasar, Bali.
- Alveoli (2008).** Hijauan Makanan Ternak. <https://alveoliwordpress.com/2008/03/28/hijauan-makanan-ternak-hmt/>. Diunduh tgl 20 Januari 2015.
- Black, J.A. and dan Champion, D.J. (1999).** *Metode dan Masalah Penelitian Sosial*. Bandung: PT Refika Aditama.
- Devendra, C. and Burns, M. (1983).** *Goat Production in the Tropics*. Commonwealth. Agricultural Bureaux.
- Inggriati, T.N.W. (2014).** Perilaku Peternak Sapi Bali perbibitan dalam system penyuluhan di Bali (disertasi). Denpasar. Program Doktor Ilmu Peternakan, Program Pascasarjana Universitas Udayana.
- Matram, R.B., Harya Putra, ID.K., Wirta, W., Yupardhi, W.S. and Putra IG.A.A. (1993).** Pemurnian dan Kinerja Kambing Gembrong di Bali Timur. Laporan Penelitian Fakultas Peternakan Universitas Udayana, Denpasar.
- Nuraini, N.K, I.G.N. Binawa, I. G. Sepatika and S.G.N.D. Darmaja (1988).** Sikap Mental Petani di Daerah Lahan Kering dan Lahan Basah dalam Hubungan dengan Keberhasilan Mereka dalam Beternak Kambing Peranakan Etawah (PE). (*Laporan Penelitian*) Denpasar.
- Robinson, D.W. (1977).** *Livestock in Indonesia*. Res. Rep. No. 1 Centre Anim., Pres and Dev., Bogor.
- Rumich, B. (1967).** *The Goat of Indonesia*. FAO Regional Office. Bangkok.
- Yupardhi, W.S. (1998).** Gambaran Fisiologis Darah Kambing Gembrong Penderita Skabies. Majalah UNUD, Vol. 29, No. 100, Okt. 1998.
- Yupardhi, W.S, I G.L. Oka and I. B. Mantra dan I. N. Suyasa (2009).** Evaluasi Fisiobiologi Kambing Gembrong (*Laporan Penelitian*). FAPET UNUD Denpasar.

---

Corresponding author: Wayan Sayang Yupardhi, Faculty of Animal Science, Udayana University, Bukit-Jimbaran, Badung, Bali, Indonesia  
Email: [sayang@unud.ac.id](mailto:sayang@unud.ac.id)