



UNIVERSITI PUTRA MALAYSIA

***PRELIMINARY SURVEY OF FARMERS COMPLIANCE ON PROPER
HERD HEALTH PROGRAM PRACTICE AMONG GOAT FARMS UNDER
LADANG ANGKAT PROGRAM,
FACULTY OF VETERINARY MEDICINE, UPM***

ABDUL MUHAIMIN BIN ROFIE

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UPM**

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A project paper submitted to the
Faculty of Veterinary Medicine, Universiti Putra Malaysia

In partial fulfilment of the requirement for the
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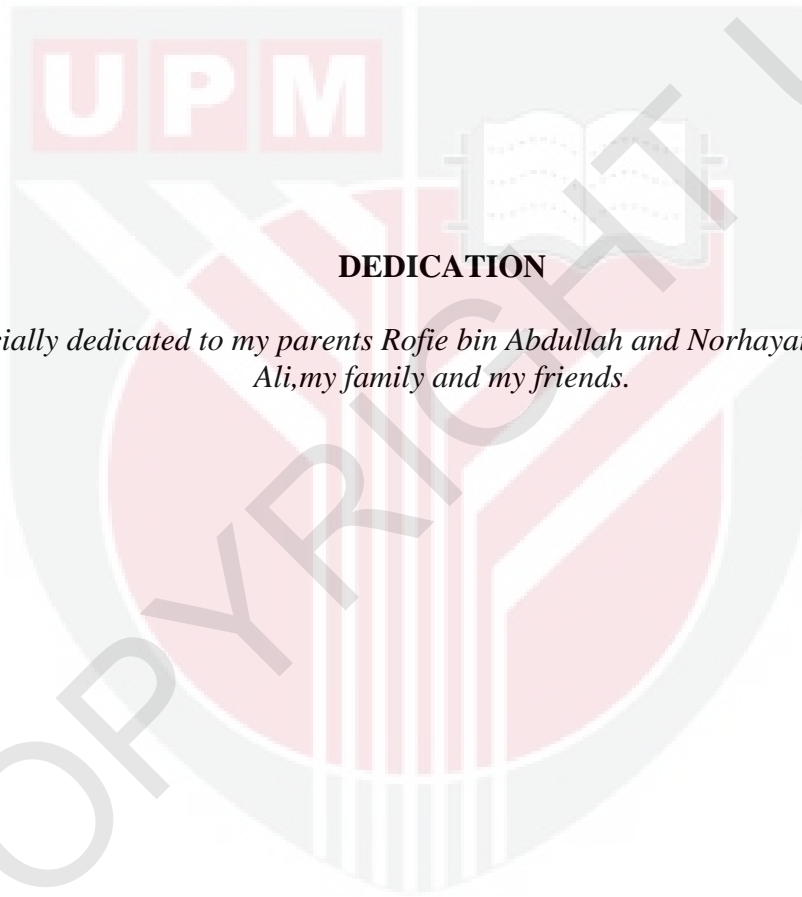
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It is hereby certified that we have read this project paper entitled “**PRELIMINARY SURVEY OF FARMERS COMPLIANCE ON PROPER HERD HEALTH PROGRAM PRACTICE AMONG GOAT FARMS IN THE LADANG ANGKAT PROGRAM OF THE FACULTY OF VETERINARY MEDICINE, UPM**” by Abdul Muhaimin bin Rofie and in our opinion it is satisfactory in terms of scope, quality and presentation as partial fulfilment of the requirement for the course VPD 4999 – Final Year Project.

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DEDICATION

Specially dedicated to my parents Rofie bin Abdullah and Norhayati binti Che Ali, my family and my friends.

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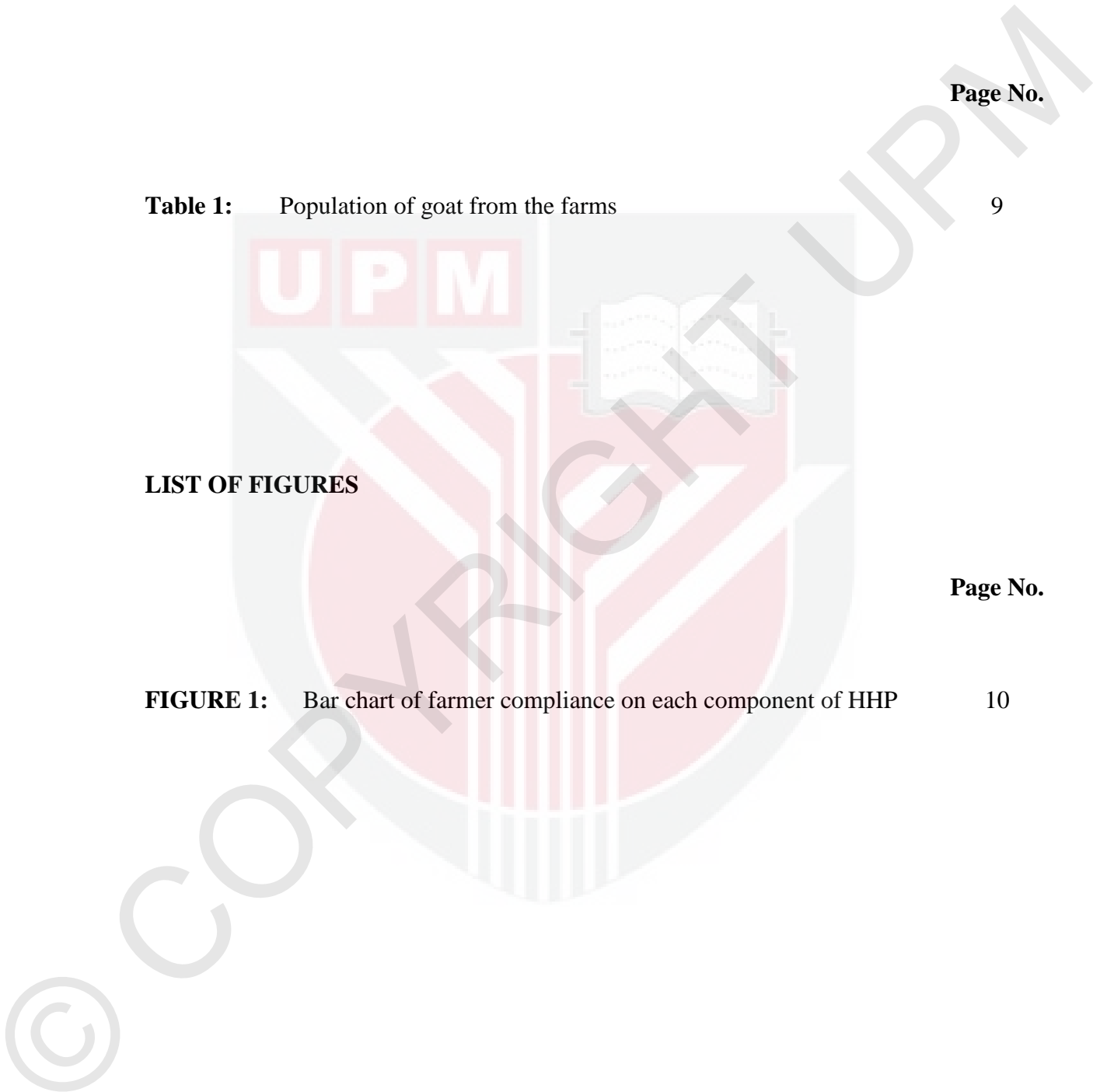
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ABSTRAK

Abstrak daripada kertas projek yang dikemukakan kepada Fakulti Perubatan Veterinar untuk memenuhi sebahagian daripada kursus VPD 4999 - Projek.

**KAJIAN AWAL PEMATUHAN PENTERNAK TERHADAP AMALAN
PROGRAM KESIHATAN BERGEROMPOK DALAM KALANGAN
LADANG KAMBING DIBAWAH PROGRAM LADANG ANGKAT
FAKULTI PERUBATAN VETERINAR, UPM**

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Pengurusan kesihatan gerompok yang baik akan membantu mengelakkan penyebaran penyakit yang tidak terkawal dan mengurangkan kerugian dari segi ekonomi. Walau bagaimanapun, maklumat mengenai pematuhan penternak pada program kesihatan gerompok (PKG) yang sepatutnya diamalkan di ladang ruminan kecil di Malaysia adalah sangat kurang. Oleh itu, satu kaji selidik telah dijalankan untuk mengkaji pematuhan penternak pada amalan PKG di ladang kambing pedaging (n=6) dibawah Program Ladang Angkat, Fakulti Perubatan Veterinar,

UPM.borang soal selidik berstruktur telah dibangunkan berdasarkan Skim Amalan Ladang Ternakan (SALT) daripada Jabatan Perkhidmatan Veterinar Malaysia untuk mengumpul maklumat mengenai profil ladang dan pengamalan PKG. Skor diberi dalam bentuk peratus mengikut pengetahuan penternak dan amalan pada setiap komponen PKG. Semua ladang yang dikaji telah diuruskan dalam sistem intensif untuk pengeluaran kambing pedaging. Kebanyakan petani (83.3%) sedar akan kewujudan PKG. Peladang (n = 6) memperolehi $56 \pm 7\%$ (min) dalam amalan PKG pada keseluruhannya dengan skor maksimum pada pengurusan sisa (75%) diikuti dengan pengurusan alam sekitar (73%), program kawalan parasit (70%), biosekuriti (67%) , pengurusan makanan (59%), pengurusan perubatan (59%), program pemantauan penyakit (54%) dan skor minimum adalah pengurusan pembiak bakaan (48%). Tiada penternak yang mengamalkan program vaksinasi di ladang ternakan mereka. Walau bagaimanapun, semua penternak sanggup melabur wang untuk amalan PKG yang menjamin keuntungan pada jangka panjang di masa depan. Kesimpulannya, lebih perhatian dan pendedahan perlu diberikan ke atas komponen PKG yang kurang dipatuhi oleh penternak tanpa mengabaikan komponen lain untuk pembangunan amalan PKG yg lebih baik.

Kata Kunci: Program Kesihatan Gerompok, kaji selidik, kambing pedaging, pematuhan.

ABSTRACT

An abstract of the project paper presented to the Faculty of Veterinary Medicine in partial fulfillment of the course VPD 4999 – Project.

**PRELIMINARY SURVEY OF FARMERS COMPLIANCE ON PROPER
HERD HEALTH PROGRAM PRACTICE AMONG GOAT FARMS UNDER
LADANG ANGKAT PROGRAM, FACULTY OF VETERINARY
MEDICINE, UPM**

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Good herd health management will help to prevent the development and spread of diseases and reduces economic losses. However, there is lack of information regarding the farmers' compliance on proper herd health program (HHP) practised by the small ruminant farms in Malaysia. Therefore, a survey was conducted to study the farmers' compliance on HHP practised at selected goat farms (n=6) in Ladang Angkat Program, Faculty of Veterinary Medicine, UPM. Structured questionnaires was developed based on the Skim Amalan Ladang Ternakan (SALT)

by Department of Veterinary Services (DVS) of Malaysia. The scores were given in percentage according to the farmers' knowledge and practice on every component of HHP. All of the farms surveyed were managed in intensive system mainly for meat production. Most farmers (83.3%) were aware of the existence of herd health program. Farmers (n=6) scored $56\pm 7\%$ (mean) for overall HHP practice with maximum score on waste management (75%) followed by environmental management (73%), parasite control program (70%), biosecurity (67%), feeding management (59%), drug management (59%), disease monitoring program (54%) and minimum score on reproductive management (48%). No farmers practiced the vaccination program in their farm. However, all farmers were willing to invest money for herd health program that guarantee long term profitability in the future. In conclusion, more attention and exposure need to be given on the HHP components that are less complied by the farmers without neglecting the other components for future development of improvised herd health programs.

Keywords: Herd Health Program, survey, meat goat, compliance

1.0 INTRODUCTION

Livestock industry in Malaysia is dominated by non-ruminant sub-sectors. Statistics by MARDI on livestock population for year 2010 revealed that: Small ruminant population was 280 times lesser than poultry population. The country is expected to achieve 35% self-sufficiency for the small ruminant production by 2015. It is envisaged that the ruminant industry especially small ruminants will increase with the implementation of many commercial goat husbandry projects by the government and private sectors. In order to develop this industry, proper programs for livestock farms should be planned and implemented. Herd health program is designed to improve the herd's productivity through general husbandry, nutritional management, parasite control, vaccination, and environmental management (Mobini, 1999). Meanwhile, the herd health program for small ruminants comprises of sound nutrition and feeding management, parasite control, vaccination program, disease screening and monitoring program, appropriate hoof care, biosecurity, and predator management. Good herd health management will help to prevent the development and spread of diseases and reduce economic loss. However, there is a lack of information regarding the farmers' compliance on proper herd health program practised by the small ruminant farms in Malaysia. This information is important to increase the productivity of the farm and for the future development of improvised herd health programs for small ruminant farms. Therefore, this study was designed to determine the farmers' compliance level on proper herd health program practised in small ruminant farms that are involved in the *Ladang Angkat Program* of the

Faculty of Veterinary Medicine, UPM. The information and data obtained from this study can be used to know how well the herd health programs are practised by the farmers. This data will be useful to construct an appropriate strategy or plan in order to improve the productivity in *Ladang Angkat* and may as well improve the livestock industry of the country in future.

The objective of this study is to identify the farmers' compliance level on Herd Health Program practised on small ruminant farms in *Ladang Angkat Program* of the Faculty of Veterinary Medicine, UPM. This study will also recommend an ideal herd health program to be implemented in small ruminant farms in *Ladang Angkat Program*, Faculty of Veterinary Medicine, UPM.

2.0 LITERATURE REVIEW

2.1 Small ruminant industry in Malaysia

Small ruminant especially goats are valuable in developing countries, because of their ability to consume scarce grazing and tolerate unfavorable climates (NAMC, 2005). The contribution of the small ruminant industry to the agriculture output growth is becoming more important and significant. It plays a vital role in terms of value-added and employment. Among the livestock in Malaysia, small ruminant is the fourth major livestock after swine, chicken and cattle. Comparatively this industry is small compared to other livestock commodities. In term of self-sufficiency in, chicken industry lead with (103.06%), eggs (117.77%) and cattle (29.77%) but self-sufficiency small ruminant meat production in 2013 was only 13.45%. The remaining 86.55% was imported from other countries such as Australia, Indonesia and Vietnam (DVS, 2014). The main problems in small ruminant farming in Malaysia are feed cost, breed performance, stock price and fluctuation of meat price. Besides that, farmers do not have enough knowledge and skills about the farm management which lead to poor animal husbandry practice (Melissa, et al. 2014). Many farmers are familiar with the economic consequences of clinical disease to their animals but are not fully aware of the existence of subclinical disease. Often, they do not recognize that subclinical disease can impair productivity and, on a herd basis, can be a greater source of economic loss than clinical disease. They are also not fully aware of the economic returns that are possible by practicing proper herd health program.

2.2 Developmet of *Ladang Angkat Program*

According to Saharee et al. (2015) Ladang Angkat Program is a partnership agreement that was made on September 2011 between the Faculty of Veterinary Medicine, UPM, specifically University Veterinary Hospital, and 24 smallholder cattle, sheep and goat farmers located around Selangor, Kuala Lumpur and Negeri Sembilan. The objective of this program was: To create access to the farm for the Doctor of Veterinary Medicine (DVM) students for hands-on practice on routine and non-routine health and productivity management activities and to provide herd health program advice and services to the farms and supported by the Faculty's clinicians and para-clinicians in the disciplines of nutrition, reproduction and laboratory diagnosis. Execution of this program will go through 3 stages:

1. Observation

The farms will be visited to collect and screen for baseline data on the current status, specifically farm environment, management, housing, nutrition, health programme, productivity and reproduction. The information was obtained using a survey questionnaire.

2. Reorganisation

Based on the information that was obtained in the first stage evaluation, modification and changing existing farm practices into an improved program will be established to facilitate increase in productivity and income of the farms.

3. Measurement of Impact

Impact, productivity and economics of the farms will be determined as the program develops.

2.3 Herd Health Program

A comprehensive herd health program involves a combination of more that are effective management by the farmer, the accurate recording data, the use of new information, and the introduction of specific disease prevention technique such as vaccination and deworming program, regular visit by the veterinarian, improved nutrition and housing, improved breeding program and other variables that affects the overall production. Three major principles in developing herd health program are to prevent from disease exposure, to prevent the environment from becoming predisposing factor for diseases, and to keep disease resistance high (Walker, 2008). It has been suggested that herd health program for small ruminants comprises nutrition management and feeding management, parasite control, vaccination program, disease screening and monitoring program, appropriate hoof care, biosecurity, reproductive management and predator management (John *et al.*, 2004: Mobini, 1999). The components of the HHP can be categories into two types: health management and animal production management. The health management in HHP is based on the control and prevention of disease through the application of appropriate measures at strategic times, such as vaccination program and parasite control program. The appropriate time depends on the epidemiology of the disease on a particular farm. For example, the strategic use of anthelmintics requires a clear

understanding of the epidemiology of the parasites. The animal production management is based on the information and techniques of the animal sciences, with particular emphasis on nutrition, reproduction, housing, and welfare of the animals. The veterinarian acts as a consultant to the farmer by attempting to identify sources of economic loss, diagnose the causes, and formulate cost effective measures to eliminate the losses or to achieve optimal productivity (Galloway and Grant, 1994). Monitoring and advising are conducted in various areas including reproductive efficiency, internal and external parasite control, vaccination schedule for the control of infectious disease, nutrition and metabolic disease control, reproductive, pasture, and overall productivity (Radostits *et al.*, 1985). Contact between farmer and veterinarian is essential to carry out discussion on past performance of the farm and development of herd health management.

3.0 MATERIAL AND METHODS

3.1 Sampling and Questionnaire Methodology

A preliminary survey was conducted on 6 goat farms of *Ladang Angkat Programme*, Faculty of Veterinary Medicine UPM where the farms are located in Selangor, Negeri Sembilan and Kuala Lumpur. Questionnaire guided interviews was conducted with the farmers as respondents .

The questionnaire comprised of 2 sections which were section A (farm profile) and section B (farmer compliance on HHP). The questionnaire was designed based on ‘Skim Amalan Ladang Terbaik’ (SALT) by the Department of Veterinary Services (DVS), which consisted of two sections:

- Section A – Farm profile: details of operator, category of farmer, man-power, production for the year, type of housing, type of management system, and herd population.
- Section B – Questions that pertained to farmer’s knowledge, awareness and compliance of each component of herd health programs, which are as follow:
 - I. Environmental management
 - II. Feed and feeding management
 - III. Waste management
 - IV. Farm biosecurity
 - V. Reproductive management
 - VI. Disease monitoring program
 - VII. Drug/medication management

VIII. Vaccination program

Other than that, the information about the farm was also obtained through observation during the farm visit. (Sample of questionnaire is available in appendix)

3.2 Data Analysis

The respondents were given questionnaires that required dichotomous answer of either yes or no. The answer 'Yes' shows that the farmers comply with the components of HHP, while the answer 'No' is otherwise. The percentage of farmer comply with HHP was calculated based on the formula below:

1) Data on percentage of farmer compliance on each component in HHP:

$$i. \quad \text{Percentage Farmer 1 compliance for Component (a)} \\ = \frac{\text{number of 'Yes'}}{\text{total no of question in component (a)}} \times 100 = F1 \%$$

$$ii. \quad \text{Percentage of farmers (n=5) compliance on component (a)} \\ = \frac{F1+F2+F3+F4+F5+F6}{600} \times 100$$

The data acquired from the respondents was compiled in Microsoft Office Excel and was subjected subjected to descriptive analysis.

4.0 RESULT

4.1 Background of Target Farm

A total of 6 goat farms which represented 60% of the total goat farms under Ladang Angkat Programme of UPM surveyed in this study,. All the farm were

managed as fully- intensive system. In the aspect of training, all farmers had at least attended a short course in goat farming. The average labour used for each farm was 2 men per year. The maximum labour used was 4 and the minimum was 1. All farms raised either full blood or crossbred Boer and Jamnapari goat. Other goat breeds raised by some farmers include Katjang, Kalahari, Saanen. 100% of the respondents operated their goat farms for meat while dairy products and breed stock was only as a side income.

Table 1: Population of goat from the farms (n=6)

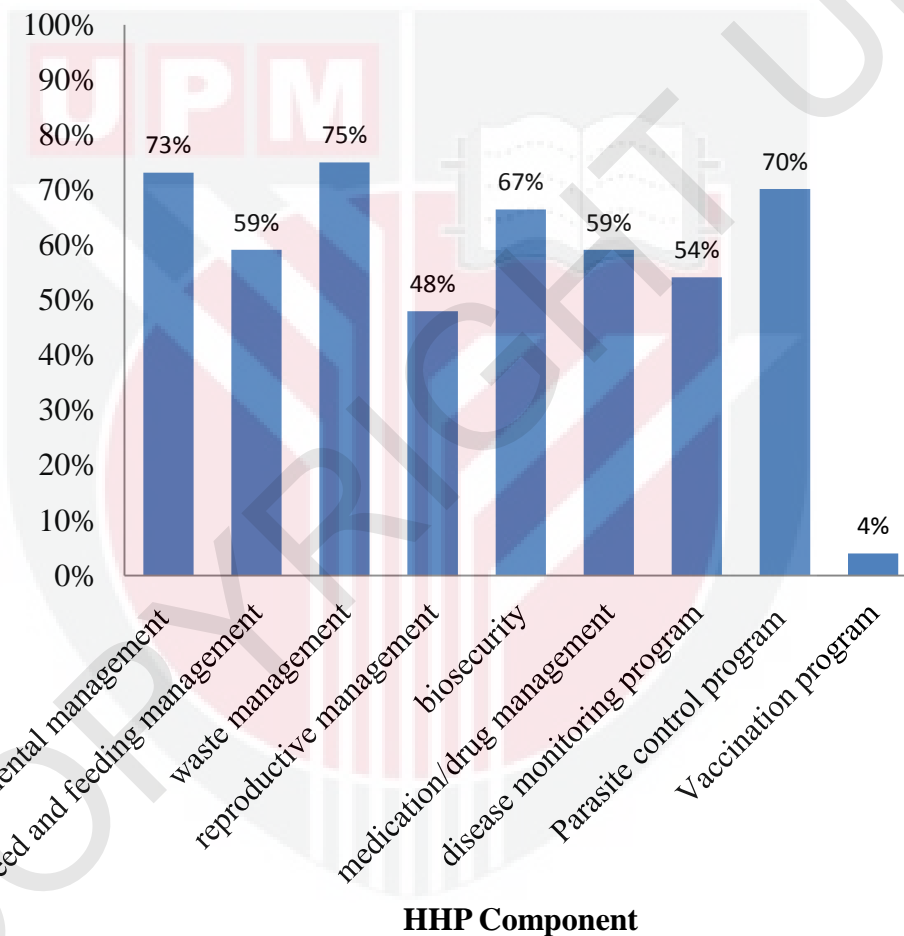
Categories of					
Animal	Total(head)	Min	Max	Mean	std. deviation
Buck	36	3	10	6.00	2.61
Doe	569	40	200	94.83	60.27
Other	416	32	124	69.33	39.28
Total	1021	80	300	170.17	94.79

4.2 Level of farmer compliance on components of HHP

Figure 1 showed the level of the farmer compliance (n=6) on each component of HHP with mean \pm SD ($56 \pm 7\%$) and standard error of 3.6%. The lowest farmers compliance percentage was the vaccination program (4%), followed by the reproductive management (48%), disease monitoring program (54%), feed

and feeding management (59%), drug management (59%), biosecurity (67%), parasite control program (70%), environmental management (73%) and the highest was waste management (75%).

Figure 1: Bar chart of farmer compliance on each component of HHP (%)



5.0 DISCUSSION

Vaccinations help to curtail the emergence of disease and limit its spread from animal to animal based on the prevalence of the specified region. In Malaysia, DVS is responsible for the implementation of vaccination program based on the

prevalence of the specified region; the current vaccination practice is concerned with the vaccination against FMD and pneumonia. However, it was not practiced by most of the farmers. This problem occurred due to the lack of request from farmers because of the lack of knowledge and awareness about vaccination program as a prevention method against infectious disease. The recommendation for this problem is to educate the farmers on the importance of immunization. The other recommendation is proper record keeping of vaccination in order to maintain adequate level of immunity system of the animals, and to enable the veterinarian to evaluate the compliance of the farmers in term of vaccination.

Following the vaccination program, reproductive management had the second lowest mean score. It was attributed to lack of farm record, which resulted in non-productive mating, inbreeding, and no selection for or against traits that positively or negatively affected economic loss. Record keeping would help the farmers to identify the suitable time for mating, selecting animals for traits that were financially beneficial, such as twinning, and removing animals with traits that caused financial loss, such as low milk production (Doye, D. 2004). It also enabled the provision of adequate nutrition to develop body condition that was appropriate for specific stages of reproduction (D.Z. Caraviello et al., 2006).

The main factors that diminished the quality of nutrition were low quality cut grass due to improper time of harvest, inappropriate rations, and improper storage that caused fungal toxin contamination of pallet or grass. The recommendation is to educate the farmers to harvest grass at the correct stage and provide nutrition based

on animal cycle or growth stage, which must be consulted by veterinarian nutrition specialist (Morand-Fehr et al., 2007). Protein and mineral, especially calcium, must be provided at higher quantity for animals at growing, late-gestation and lactating stages. Also, the animals at late-gestation and lactating stages would also need more energy to meet the demands of musculo-skeletal growth and development of their young, which would prevent the manifestation of a variety of metabolic diseases (Jimmy, S et al., 2010).

Problems associated with disease monitoring program is ineffective farm record keeping, whereas drug management problems were related to usage of drugs of low efficacy and improper storage. Biosecurity issues were associated with uncontrolled entry into the farm, poor hygienic practise by the workers, personal protective equipment, and introduction of newly arrived animals which have diseases into the farm (Nampanya, S. et al., 2010). There are several recommendations to improve these components. First, the number and rate of entry into the farm by visitors and vehicles must be kept at a minimal level. The vehicles must be thoroughly disinfected by employing facilities such as wheel dip, while visitors and workers must wear personal protective equipment such as disinfected boot and clean coverall, before entering and before leaving the farm to minimize the spread of disease. Animals must be bought from areas that employed strict biosecurity protocols and good disease control. Then, new arrivals must be isolated for at least 30 days to prevent the spread of disease from animals that have sub-clinical infection (Subasinghe, R. P. et al., 1996). Proper record keeping must be done to

enable effective disease surveillance. The drugs have to be stored properly to maintain efficacy of drugs (Geerts, S., and Holmes, P. H. 1998).

Parasite control program had the third highest score when compared with other components. There were several factors that contributed to such a high score. Firstly, it was due to the occurrence of common parasite problems that adversely affected the farms productivity. Consequently, the farmers would give more consideration for deworming program. Secondly, as the farmers were affiliated with UVH through Program Ladang Angkat, there was a high degree of compliance for parasite control program; in fact, they had already implemented the first stage in the Ladang Angkat Program. However, there is still room for improvement. Firstly, the farmers should rotate on the types of anthelmintic employed at regular intervals to prevent the development of parasite resistance to anthelmintic (Chandrawathani et al, 2012). Secondly, diagnosis and assessment of helminth infections can be improved. The faecal egg count reduction test is a routine test conducted to encourage farmers to be aware about anthelmintic resistance issues and to resort to alternative methods of control (Khadijah, 2006). One of the unique tools for assessing helminthiosis and currently gaining popularity is the use of FAMACHA which is an anemia guide, which indicated pale eye mucous membrane has a high probability of worm infections. Use of FAMACHA reduces the necessity of doing faecal egg counts to estimate worm burdens and is especially useful for smallholder farmers with few animals as they can monitor the helminth status of their animals regularly (Chandrawathani et al, 2012). Thirdly, herbal remedies can be used in worm control.

In Malaysia, neem and cassava leaves have been shown to reduce worm burdens by 30% to 40% (Chandrawathani et al., 2002 and 2006, Nurulaini et al., 2009).

Environmental and waste management had better scores as these components were the basics in farm management due to the efforts made by farmers to maintain the sanitation of the goat houses' floor. However, it was found that the drains were clogged due to improper disposal of goat manure. The manure has great potential to generate additional income for the farmers. Properly designed drainage system and storage site would ensure an effective collection and utilization of manure. Besides that, it will contribute to reduction of surface and underground water contamination level (Fafioye et al, 2012).

Factors contributing to farmer compliance on HHP practise.

There are two factors that contribute to the farmer compliance of HHP. Firstly, the farmers were not able to provide labour and equipment that were required for implementation of HHP due to cost constraint. Legesse *et al.* (2010) stated that while the implementation of HHP significantly increased the cost of management, the overall effect of implementation of herd health program had been shown to result in net saving to the farm. According to Molina (1994), planned health programs were used mostly on commercial farms. They can however be adapted for use on small-scale farms. Therefore, consultation from veterinarians is vital for the development of low cost and cost-effective HHP.

Secondly, the farmers and workers have inadequate knowledge and skill required for HHP. Consequently, corrective measures may only be taken when the

problems have reached to an extent when there are significant financial loss. This occurrence resulted in a passive response of veterinarian toward diseases, which is acknowledged by Miller *et al.* (2010) and Molina (1994). As such, the veterinarians must give advice and consultation on HHP.

6.0 CONCLUSION

Farmer compliance of the seven component of HHP is $56 \pm 7\%$. The compliance is influenced by two factors, which are the cost constraint, and inadequate knowledge and skill. The recommendations are provided for improvement of each component of HHP by the farmer with the cooperation of veterinarians.

7.0 RECOMMENDATION

Limitation of complete data is a major constraint. Therefore, selection of suitable parameter or data is important to improve the analysis accuracy. Further studies should be continued to examine association between farm performance and farmer's participation on HHP.

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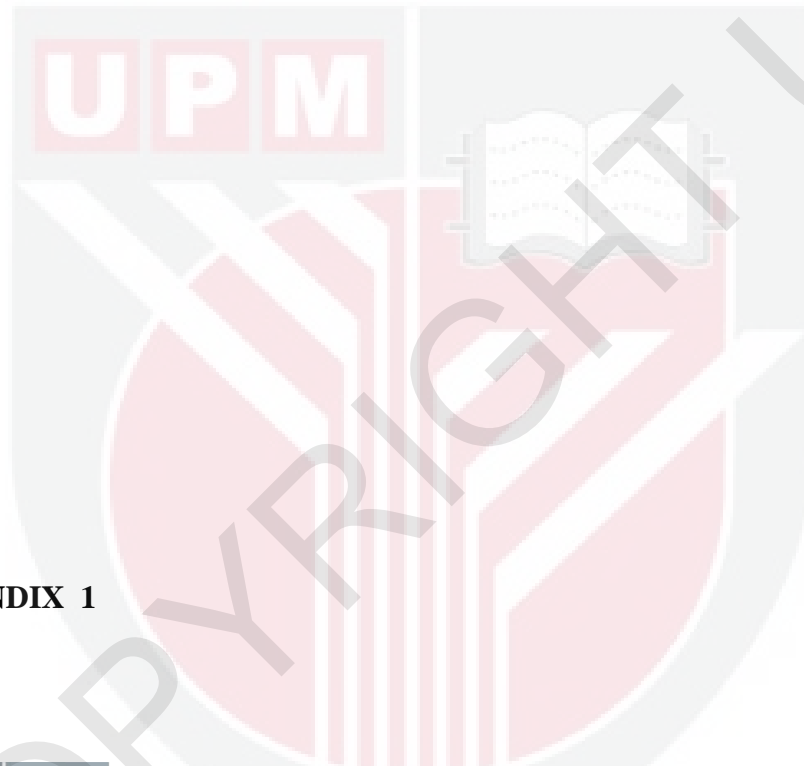
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APPENDIX 1



FACULTY OF VETERINARY MEDICINE
UNIVERSITI PUTRA MALAYSIA, 43400 UPM
SERDANG, SELANGOR, MALAYSIA
Farm ID / State / Date ----- / -----



**QUESTIONNAIRE FOR THE SURVEY OF FARMER COMPLIANCE ON
PROPER HERD HEALTH PROGRAM PRACTICE**

This study is intended to determine farmer compliance on proper herd health program practice among goat farms in the Ladang Angkat Program of the Faculty of Veterinary Medicine, Universiti

Putra Malaysia and Veterinary Research Institute. The information received from this survey is **CONFIDENTIAL** and will be used for research purpose only.

Please mark (✓) in the appropriate boxes.

Section 1: Farm profile

1. Details of operator

Name	
Address	
Post Code	
State	
Phone	
e-mail	
website	

2. man-power

	No. of Staff	Training record [Please tick (/)]
Management		
Supervisory		
Veterinarians		
Clerical		
Laborer		

3. Present adult herd size

Number of goats: ____

Number of male: ____

Number of female: ____

Type of breed reared in the farm:

- Cross breed
- Indigenous
- Other (please specify) _____

4. production for the year (estimated)

	Live Animal (head) and Milk (liters) production
Output	Breeding : heads
	Slaughter : heads
	Liquid milk : Liter/kg

5. type of housing [Please tick (/)]

Open house system

- Single House on ground
- Single house on stilts with concrete basement
- Single house on stilts with no concrete basement
- Others (please specify)

Floor system

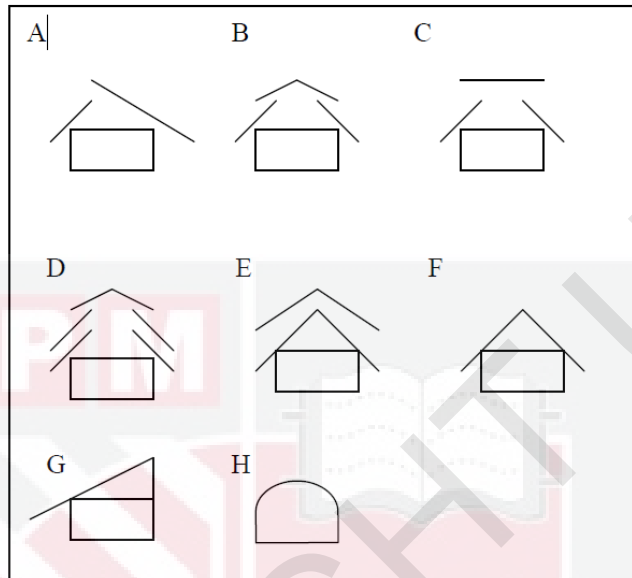
- Completely slatted
- Concrete flooring
- Others (please specify)

Drainage system

- Gutter/drain available around the shed
- Pool for drained water
- Others (please specify)

Roof Angle Pitch

(Please circle the abbreviation where appropriate)



6. Management system. Please tick (/)

Rearing system	Fully – intensive	
	Semi – intensive	
Feeding system	Manual	
	Mechanized	
	Both	
Type of drinkers used	Trough	
	Nipple	
	Others (please specify)	
Feeding regime	Type of feed	
	Commercially prepared (pellet)	
	Own prepared feed	

	Both own & commercial	
	Pasture (cut & carry)	
	Oil-palm frond (chopped/whole)	
	Silage (specify type	
	Mineral supplements	
Male to female breeding ratio	___ male : ___ female	

7. Disease: For all outbreak of diseases in farm – past one year

Disease	No. of animals affected	Total mortality

8. Herd performance

Parameters	Unit
Age of female for breeding	Day
Age of male for breeding	Day
Age of female at first kidding/lambing	Day
Kidding/Lambing rate	%
Kidding/Lambing interval	Day
Weigh of Male Kid at birth	Kg
Average Weigh of Male at Marketing Age	Kg
Marketing Age Male (Average)	Day

Kid/Lamb mortality	%
Mortality male	%
Mortality female breeder	%
Herd mortality	%

Section 2: Questionnaire

1. Do you know what herd health program is? Yes No
2. Are you aware of herd health program existence? Yes No
3. If you are aware, please tick (/) programs included in herd health program:
4. Where do you learn about the herd health program (can tick (/) one only)

Sources	
Course offered by Department of veterinary service (DVS)	
Private veterinarian	
UPM Ladang angkat program	
Internet	
Other farmer	

5. Are you practicing herd health program Yes No
6. If yes, do you think that you are practicing herd health program properly? Yes No
7. Please tick (/) which one did you practiced?

a. Housing condition	Yes	No
Is your farm located in a free disease area		
Did you do any research/get consultation about the location before setting up your farm		
Do you think that the goat house is adequately ventilated		
Do you know hot environment causes heat stress to the animals		
Do you think the floor is safe and suitable for goat		

How many times do you wash the floor per day (circle the answer)	1	2	3
b. Feed and feeding management			Yes No
Do you store feed properly in closed container to prevent from any possible contamination such as pest or fungi			
Do you make sure that your pasture/grass does not has access from outside ruminant animal			
Do you know that harvesting grass at different growth stage contain different amount of nutrient			
Are you aware that different growth stage / function of animal have different nutrient requirement			
Did you give any feed supplement (please tick (/)) : Mineral block () multivitamin injection () other(specify) : _____			

c. Fly and Parasite control program		Yes	No
deworming program			
Do you deworm your goat			
Who did the deworming? (Circle your answer) : yourself / your worker / vet / dvs			
Answer these questions below, If you or your worker did the deworming			
When did you start to deworm (weeks old) (circle your answer) : 4 / 6 / 8 / 10 / 12 / 16 / 18 weeks. Dewormer use:			
How frequent did you deworm (circle your answer) : depend on fecal egg count or worm burden / every 3 months / other: _____ months			
Did you check the expiry date of the drugs before use			
Did you make sure the dose and volume given is correct			
Do you know that giving inadequate dose of dewormer can cause drug resistance			
Do you know that alternate use of different dewormer can reduce drug resistance			
Does your farm have fly and odour problem			
If yes, how do you control the problem (please tick (/))			
	Chemical use	Other methods:	
Fly	Larva stage <input type="checkbox"/> Adult stage <input type="checkbox"/>		
Odour			
d. Vaccination program		Yes	No
Do you vaccinate your goat			

Who did the vaccination (Circle your answer) : yourself / your worker / vet / dvs					
Do you know the vaccination protocol (at what age to start vaccine and booster)					
e. Farm biosecurity				Yes	No
Do you have isolation pen in the farm					
Do you isolate sick and new animal separately in different isolation pen					
Does your farm area (including pasture area secured) by fence					
If yes, do you always check the fencing is in good and safe from outside animal					
Did you do monitoring of wild dogs and other animals on farm					
If yes, what type of animals seen? Please tick (/)					
Stray dogs	Wild pigs	Monitor lizards	Migratory birds	Other (specify)	
Do you emphasize on using uniform and/or gum boot everyday					
Please tick (/) which one do you use:					
Vehicle disinfection	Manual spray				
	Manual high pressure spray				
	Open wheel dip				
	Covered wheel dip				
	Covered wheel dip with spray				
Footbath	Randomly place				
	Entrance to every house				
f. Waste management				Yes	No
Do you dispose farm waste properly					
How do you dispose dead animal (please tick (/))					
Incinerator	Burn	Pit	Bury	Other	
How do you dispose the cattle manure (please tick (/))					
Push it out from goat house	Flush with water and flow it into waste pond	Flush with water and let it flow into water stream or river	Collect and sell in wet form	Collect and sell in dried form	
g. Breeding program				Yes	No
Are you aware that keeping accurate reproductive record is very important to improve animal performance (eg: kidding rate, kidding interval)					
Does your farm practise artificial insemination () or natural mating ()					

Do you perform pregnancy diagnosis			
Do you carry out buck soundness examination before buying a breeder buck			
Do you perform routine hoof care to buck and doe to facilitate in mating process			
Please tick (/) which one Do you kept proper record			
1) kidding date		6) on heat date	
2) kidding difficulties		7) mating date	
3) Retained placenta		8) medication and hormonal drug use	
4) Abortion		9) mastitis	
5) abnormal vaginal discharge			
h. kid management		Ye s	No
Do you make sure that pregnant doe which are almost due to kidding get intensive monitoring for any assistant during kidding			
Do you make sure that the kid can stand up and get colostrum within 6 hours after born			
Do you trim navel if it is longer than 6 cm and then dip the navel with povidone iodine			
Do you tag or tattoo the kid within 1 week old			
Do you practice vaccination after 4 to 6 weeks old followed by the booster			
Did you properly record these: (please tick (/) which did you record			
Birth weight () Birthday () Tag no. () Buck tag no. () doe tag no. () Breed () Sex ()			
i. doe management		Yes	No
Do you gather all the doe which had just delivered together in a group to facilitate in examination for problems (eg: retained placenta, endometirits etc) in the future?			
Do you group goat according to stage (eg: on heat, pregnant, lactating, dry etc)			
Do you give extra supplement (eg: concentrates, molasses etc) to doe in late pregnancy			
At which month of pregnancy do you dry the doe? _____ months			
j. Animal identification		Yes	No
Did you perform tagging to all new animals			
Did you encounter problem of loss tag in animal.			
If yes, do you re-tag			
Do you agree that identification assist in record keeping			

Medication and disease control		Yes	No
Do your farm have ambulatory drug/drug box			
Did you check and update the drug used by your farm			
Do you record drugs used by your farm			
Did you aware that culling is one of the methods in managing animal health.			
please tick (/) procedure/program that your farm practice			
Sampling (blood, faecal, soil, feed, etc)	Post mortem	Antibiotic sensitivity test	Disease record and analysis



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