

# Profile of Pig Farms in Bantala Village Lewolema Sub-district East Flores Regency East Nusa Tenggara Province

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**Abstract**— Research objectives are to evaluate the farmers' characteristics and to analyze time allocation of household labors in the pig farms. Data collected are done in December 2018 up to May 2019 in Bantala Village Lewolema Sub-district East Flores Regency East Nusa Tenggara Province. A hundred (100) farmers categorized in scale I, II, and III are selected purposively as respondents based on the criteria that the farmers have an experience in raising pigs more than five years. Data are analyzed descriptively. The result shows that the range percentages of productive age of scale I is 92.00%, scale II is 96.67% and scale III is 90.00%. Average percentage of respondents' formal education is low since the farmers are graduated from Elementary School, with the percentage of scale I is 46.00%, scale II is 43.33%, and scale III is 50.00%. Average number of the pig farms household members of scale I, II, and III is 3-7. Average of raising pigs experience for more than 15 years of scale I for 38 respondents is 76%, scale II for 23 respondents is 76.67%, and scale III for 15 respondents is 75%. Therefore, it can be stated that most of the farmers are well experienced in running the pig farms. Average number of the pig raised by the scale I is 2.59 AU, scale II is 5.59 AU and scale III is 8.27 UT. Average time allocation of the household labors spent in the pig farms of each scale are as follows: scale I is 6.95 MWH/day, scale II is 7.04 MWH/day, and scale III is 7.93 MWH/day. Further, average of the farmers age is 51.5 years old, it means that the farmers are in productive age. Most of the farmers are graduated from Elementary School, so their education level is low. Average number of the pig farms household members is 5.5 persons, then their experience in raising pigs is more than 15 years in average. The average of the pig owned of scale I, scale II, and scale III is 2.59 AU, 5.59 AU, and 8.27 AU, respectively. Most of the time allocation spending by the household labors in the pig farms is on taking feed, which the scale I is 2.85 MWH/day, scale II is 2.92 MWH/day, and scale III is 2.95 MWH/day.

**Keywords**— Farmers' characteristics, man wok hour (MWH), pig farms, time allocation of labors.

## I. INTRODUCTION

Pig farms has been a part of culture for most of the people in East Nusa Tenggara Province (NTT), so do in East Flores Regency. Commonly, the pigs are raised in a sustain tradition, lasting from generation to generation, since the pigs are needed as the main requirement in cultural rites, wedding gifts, and family feast, etc. The existing conditions supported by a statistical data of pigs population in Indonesia where NTT has the highest population of pigs. Further, the pig population in NTT tends to increase, such as in 2012 is 1,957,252 heads, in 2013 is 1,751,805 heads, in 2014 is

1,755,058 heads, in 2015 is 1,812,449 heads, and in 2016 is 1,817,717 heads (BPS Dirjen PKH, 2017). Based on the data of the pigs population growth in NTT, it can be seen that the consumer demand of pigs and pork in NTT is very high. Therefore, the pig farms is categorized as the main farm of NTT community as well as the people of Flores, and the pig can be classified as an advantage commodity.

Riady (2004) stated that the livestock farm such as the pig farms raised by the most of villagers still as an additional farm. The livestock farm scale average is 10 heads/farmer and low market oriented. However, this typical of livestock farm has been the main source of income, meat producer, labor jobs' resources, agricultural and household waste user, and communities' saving. Hadi and Ilham (2002) mentioned that people livestock farm can be categorized as breeding and feeding farms in limited scale of livestock number. Moreover, according to Sihombing (2006), there are three categories of the people pig farm, namely breeding, feeding, and combination of breeding and feeding farms. Economically, the feeding farm contributes more profit than that of breeding farm. However, comparing with the breeding farm, the feeding farm needs a higher capital. In fact, an integration of those two kinds of the farms is applied by the farmers. Therefore, the breeding farm produces piglets both for breeding and feeding, while the feeding farm plays an important role as the piglets user.

The successful of the pig farms in NTT can not be separated from human and capital resources. The owners of those two resources are the farmers who manage their farm to increase the household economy income. The human and capital resources depend very much on the other factors in supporting the successful of the pig farms. The factors are: number of household members, farmers' age, number of pig raised, experience of raising pigs, level of farmers' education, number of household members participate on the raising pigs, time allocation of the household labors, and farm range. The farmers' characteristics, then, formulate the farmers' mind pattern in managing on-farm pig process. Further, the characteristics figure activities result gained which needed to reach people welfare through the household economy income.

The pig farmers have some social economy characteristic factors. The factors are pigs' number, farmers' age, farmers' education level, duration time of raising pigs, number of pig owned, and number of the pig farm household members. Those factors play a very important role in a pig farm. Further,

the farmers’ characteristics also formulate the farmers’ mind in managing the pig farms. The characteristics and the management of running the pig farms will show the successful of the farm.

Based on the existing conditions above, a research is conducted to evaluate the farmers’ characteristics and to analyze the time allocation of the household labors in the pig farms. The research site is located in Bantala Village Lewolema Sub-district East Flores Regency East Nusa Tenggara Province (NTT).

II. RESEARCH METHODOLOGY

A. Location and Time

The reseearch is conducted in Bantala Village Lewolema Sub-district East Flores Regency East Nusa Tenggara Province (NTT). The reason is the Village of Bantala has been being the center of the pig farms development in East Flores Regency. Data collection are done in December 2018 up to May 2019 using interview technique based on prepared quistionnaires. The samples cover 100 farmers. The samples are divided into

three categories based on the three scales of the pigs owned. The three scales are scale I covers 50 farmers with ≤ 5 AU , scale II covers 30 farmers with 5-10 AU and scale III covers 20 farmers with ≥ 10 AU of pigs. The samples are selected based on *purposively sampling*. The samples criterias are the farmers have been raising the pigs for more than 5 years and the farmers are the members of the village farmers’ group.

B. Research Materials

Condition of the pig farms in the research site is described by applying descriptive analysis consist of tabulation model, table analysis, frequency distribution, and percentage of every variable. Regarding the farmers’ characteristics, the analysis focused on age, education level, number of pig owned, number of family member participate on the pig farms, and the farmers’ experience in raising pigs. Additionally, the variable of the household labors’ time allocation is analyzed based on working time proportion spent by the household members (husband, wife, and children) on the pig farms.

TABLE 1. Quantity and Percentage of Pig Farmers’ Characteristics in the Research Site, Year of 2018

No	Characteristics of Breeders	Scale I		Scale II		Scale III	
		Quantity	%	Quantity	%	Quantity	%
1.	Age (years)						
	- Productive age (30-64)	46	92,00	29	96,67	18	90,00
	- Age Not Productive (65-73)	4	8,00	1	3,33	2	10,00
	- Elderly (60-73)	14	28,00	5	16,67	4	20,00
2.	Education						
	a. Formal education						
	- Elementary School	23	46,00	13	43,33	10	50,00
	- Junior High School	10	20,00	10	33,33	3	15,55
	- Senior High School	6	12,00	4	13,33	6	30,00
	- University	11	22,00	3	10,00	1	5,00
	b. Non-formal education						
	- Agricultural Counseling & Training	50	100	30	100	20	100
3.	Number of Household Members						
	- 3 persons	4	8,00	4	13,33	1	5,00
	- 4 persons	16	32,00	9	30,00	2	10,00
	- 5 persons	18	36,00	7	23,33	9	45,00
	- 6 persons	6	12,00	7	23,00	3	15,00
	- 7 persons	6	12,00	3	10,00	4	20,00
	- 8 persons	0	0,00	0	0,00	1	5,00
4.	Experience of Raising Pigs (Year)						
	- 5-15	12	24,00	7	23,33	5	25,00
	- 16-20	16	32,00	10	33,33	7	35,00
	- 21-30	14	28,00	8	26,76	3	15,00
	- 31-39	5	10,00	3	10,00	3	15,00
	- > 40	3	6,00	2	6,67	2	10,00
5.	Number of Pig Owned	Quantity of AU	%	Quantity of AU	%	Quantity of AU	%
	- Starter	0,34	13,13	3,42	61,18	4,73	57,19
	- Grower	0,56	21,62	0,36	6,44	0,74	8,95
	- Finisher	1,65	63,71	1,04	18,60	1,78	21,52
	- Swine	0,04	1,54	0,77	13,77	1,02	12,33
	- Number of Pigs	2,59	100	5,59	100	8,27	100

Source: Primary Data Analysed, 2019.

III. RESULTS AND DISCUSSION

A. Profile of the Pig Farms in the Research Area

The pig farms can not be separated from the community life of East Flores – NTT since pig has multi utility. The multi utility of the pig comprises two advantages namely

economical and social cultural advantages. Concerning social and cultural aspects, the pig plays important roles in traditional rites such as wedding and death. Ly (2016) describes that the pig’s role for NTT’s people from generation to generation are as follow: 1) pig is the main requirement in cultural ceremonies and wedding as well as in the family feast;

2) the pig can increase a person social status, for instance, the higher the social status either man or woman, the higher the wedding gifts value and number; moreover the higher the quantity of pigs slaughtered, the higher the value of the people feast. This fact makes the pig as a popular livestock in NTT community, particularly in Flores people. There is an old proverb that "the feast without pork is not delicious". It shows that the availability of the pig and pork in a feast or ceremony is important.

### B. Characteristics Analysis of the Pig Farms

The pig farms household characteristics are a figure and a unique internal characteristic found in the household. The pig farms household characteristics observed are the farmers' age, the farmers' education level, number of the household members, and the farmers' experience in raising pig. According to the explanation of Hartono (2010), the farmers' household characteristics can be used as a figure of a household condition in relation to its ability to get a chance in order to gain information access and an ability to develop any resource owned. The ability include innovation and technology adoption as a facility to increase the household's income and welfare.

The result shows that most of the pig farmers in the research site in each scale are categorized in a productive age. The average age is 51.5 years old. Then, the percentage of productive age range of scale I is 92.00%, scale II is 96.67%, and scale III is 90.00%. Therefore, it can be assumed that the farmers in Bantala Village have an ability to manage the pig farms. However, the old farmers whose categorized in non productive age play an active role in raising pigs, so the raising pattern management in the research site still fanatic on local tradition. This condition is supported by Soekartawi (2002) who stated that the old farmers usually fanatic on tradition and it is difficult to be explained in relation to change their mind and orientation to improve their farm, way of work, and way of life. Moreover, the old farmers are more apatic to a new technology.

Average of formal education level of the respondents is low since most of them are graduated and ungraduated from Elementary School. In relation to the education level of the Elementary Scholl (graduated and ungraduated), the farmers of scale I covers 46.00%, scale II covers 43.33%, and scale III 50.00%, therefore their capability in managing the pig farms is low. Refers to Ahmadi (2003) explanation that the limitation of skill and education of a farmer causes the limitation of ability to be an employment.

In contrast, all of the respondents have jointed non formal education such as extensions on the farms of crops and plant include livestock. Actually, the respondents joint the extension programs because all of them are members of the farmers' group. However, the extension focused on raising the pig farms is done incidentally in field of feeding, health and disease care, pig housing, and fattening management. In addition, there is no advisor anymore. Therefore, the pig farms management still done in traditionally ways.

Average of the pig farmer household members is 5.5 persons of each scale as follows: scale I and scale II is 3-7 persons, respectively, and scale III is 3-8 persons. It means, the percentage of the scale I is 36% with the number of the household members is 5 persons, scale II is 30% with the household members is 4 persons, and scale III is 45% with the household members is 5 persons.

The research found that more than 75% of the pig farmers in the research site have an experience in raising pigs more than 15 year. The respondents with the experience of raising pigs for more than 15 years cover 38 respondents (76%) of scale I, 23 respondents (76.67%) of scale II, and 15 respondents (75%) of scale III. Therefore, it can be stated that all of the pig farmers are well experienced. This existing condition due to the roles of the pigs in the research site as livestock needed in cultural rites, wedding gifts, feasts, cultural and religion ceremonies. Moreover, the pigs also play an important role as a source of household economy income of the pig farmers. In relation to the feasts and cultural ceremonies, the pigs and pork must be prepared.

Number of the pigs owned is defined as the number of the pigs raised by the pig household farmers in the last one year. The research found that the development of the pig farms is a herintant of the parents. The pigs breed is a crossbred of local pigs and non local bred. The non local bred pigs are the crossbred of *landrace* and *duro*. The average of the pigs owned of scale I is 2.59 heads, scale II is 5.59 heads, and scale III is 8.27 heads. The value of animal unit (AU) of the pigs is as follows: a piglet (age < 6 months) equals to 0.1 AU, a grower pig (age 0.5 up to 1 year) equals to 0.2 AU, and a finisher pig (age > 1 year) equals to 0.4 AU.

### C. Time Allocation of the Pig Farm Household Labors

Time allocation of the pig farm household labors is defined as a proportion of working time spent by the household members (husband, wife, and children) in activities relation to the pig farms. The activities consist of: 1) taking feed (forage, agricultural waste, by-products of coconut oil processing, and food waste), 2) chopping the forage and agricultural waste, 3) mixing the feed, 4) fed the pigs, and 5) clean the pig housing. All of the activities are done in a different time allocation by every household member. The working time spent equalized to MWH (Man Working Hour) with conversion values are: 8 hours of an adult man (age > 15 years old) = 1 MWH, 8 hours of an adult woman (age > 15 years old) = 0.8 MWH and 8 hours of the children (age < 15 yeras old) = 0.5 MWH (Hartono, 2010).

Table 2 shows that the higher the number of the pigs raised, the higher the daily time allocation of the household member labors spent in the pig farms. The average of the time spending is 6.95 MWH/day for the scale I, 7.04 MWH/day of the scale II, and 7.93 MWH/day of the scale III. The highest percentage of the time spending is in taking feed activities. The time spending in taking feed of the scale I reaches 41.01% (2.85 MWH), scale II reaches 41.48% (2.92 MWH), and scale III reaches 37.20% (2.95 MWH).

TABLE 2. Averages of Number and Percentage of the Household Labors Time Allocation in pig Farms in the Research Area, Year of 2018

Scale	Kinds of Activity	Husband		Wife		Children		Total	
		Quantity	%	Quantity	%	Quantity	%	Quantity	%
I	Taking Feed Materials	1,34	19,28	1,12	16,12	0,39	5,61	2,85	41,01
	Chopping Feed	0,72	10,36	0,23	3,31	0,31	4,46	1,26	18,13
	Mixing Feed	0,12	1,73	0,23	3,31	0,18	2,59	0,53	7,63
	Fed	0,56	8,06	0,16	2,30	0,31	4,46	1,03	14,82
	Clean the Pig House	0,57	8,20	0,34	4,89	0,37	5,32	1,28	18,42
	Total	3,31	47,63	2,08	29,93	1,56	22,45	6,95	100,00
II	Taking Feed	1,4	19,89	1,23	17,47	0,29	4,12	2,92	41,48
	Chopping Feed	0,3	4,26	0,2	2,84	0,26	3,69	0,76	10,80
	Mixing Feed	0,21	2,98	0,38	5,40	0,26	3,69	0,85	12,07
	Fed	0,58	8,24	0,28	3,98	0,26	3,69	1,12	15,91
	Clean the Pig House	0,6	8,52	0,53	7,53	0,26	3,69	1,39	19,74
	Total	3,09	43,89	2,62	37,22	0,26	18,89	7,04	100,00
III	Taking Feed	1,42	17,91	1,27	16,02	0,26	3,28	2,95	37,20
	Chopping Feed	0,2	2,52	0,2	2,52	0,1	1,26	0,5	6,31
	Mixing Feed	0,38	4,79	0,45	5,67	0,26	3,28	1,09	13,75
	Fed	0,76	9,58	0,62	7,82	0,26	3,28	1,64	20,68
	Clean the Pig House	0,77	9,71	0,72	9,08	0,26	3,28	1,75	22,07
	Total	3,53	44,51	3,26	41,11	1,14	14,38	7,93	100,00

Source: Primary Data Analysed, 2019.

Based on the daily time allocation of the household labors in the pig farms in the research site, it can be seen that the potency of the household labors has not been utilizing yet in the pig farms. The reason is the time spending of the household labors can be substituted by hiring the labors (Hartono, 2010). Additionally, the household labors tend to work at non-farm which has a higher wage or income (Hartono, 2010).

#### IV. CONCLUSION

Based on the result and discussion, it can be concluded that:

1. The linkage of the characteristics of the pig farmers households in Bantala Village, Lewolema Sub-district East Flores Regency in making decision to raise pigs are:
  - a. The farmers are in a productive age with the average of age is 51.5 years old.
  - b. The farmers education level is low because they are graduated from Elementary
  - c. Average of the pig farmer households members is 5.5 persons.
  - d. Average of the farmers experience in raising pigs is more than 15 years.
  - e. Average of the pigs owned on scale I, II, and III is 2.59 AU, 5.59 AU, and 8.27 AU, respectively.

2. The time allocation of the household member labors in the pig farms is mainly spent on taking feed, where scale I is 2.85 MWH/day, scale II is 2.92 MWH/day, and scale III is 2.95 MWH/day.

#### REFERENCES

- [1] Ahmadi, A. H., 2003. *Sosiologi Pendidikan*. Penerbit PT. Rineka Cipta, Jakarta.
- [2] Badan Pusat Statistik NTT. 2017. *Nusa Tenggara Timur Dalam Angka*. Katalog BPS: 1102001.53.
- [3] Badan Pusat Statistik Flotim. 2017. *Kabupaten Flores Timur dalam Angka*. Katalog BPS: 1102001.5309.
- [4] Hadi, P.U., dan N. Ilham. 2002. Problem dan prospek pengembangan usaha pembibitan sapi potong di Indonesia. *Jurnal Litbang Pertanian*. Vol 21(4). Badan Litbang Pertanian. Dep. Pertanian-Jakarta.
- [5] Hartono, B. 2010. *Upaya Peningkatan Ekonomi Rumah tangga Peternak Sapi Perah*, Cetakan Pertama, April. Penerbit UB Pres. Malang.
- [6] Riady, M. 2004. Tantangan dan Peluang Peningkatan Produksi Sapi Potong Menuju Tahun 2020. Paper pada Lokakarya Nasional Sapi Potong 2004. Dirjen Bina Produksi Peternakan. Jakarta.
- [7] Sihombing, D. T. H. 2006. *Ilmu Ternak Babi*. Ed. 2. Gajah Mada University Press. Bulaksumur, Yogyakarta 55281.
- [8] Ly, J., 2016. Evaluasi nilai Nutrisi Biji Asam Terfermentasi *Saccharomyces cerevisiae* Sebagai Suplemen Pakan Induk Dan Implikasinya Terhadap Kinerja Induk Dan Anak Babi Pra-Sapih. Disertasi. Program Pascasarjana, Program Doktor Ilmu Ternak Faakultas Peternakan. Universitas Brawijaya, Malang.
- [9] Soekartawi. 2002. *Prinsip Dasar Ekonomi Pertanian Teori dan Aplikasi*. Jakarta: PT. Raja Grafindo