

STRATEGY ON THE DEVELOPMENT OF SMALL- AND MEDIUM-SCALE RABBIT FARMING BASED ON FARMERS COOPERATION. A CASE OF RABBIT PRODUCTION IN INDONESIA

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ABSTRACT

The situation in Indonesia and unique potential of the rabbits provides the opportunity for rabbit development. Rabbits form an integral part of the complex farming activities. Its farming activity is characterised by small in scale, limited capital investment, limited knowledge of technical farming operation, and in some areas lack of ability to market products and also lack of cooperation among raisers. In this last 4-5 years, rabbit farming has been gaining its popularity in Indonesia. A significant increase, not only in rabbit population, but also in numbers of areas and farmers interested in raising rabbits is recorded. A shift from improving family health and nutrition, through rabbit meat consumption, to an increased income-oriented farming occurs almost everywhere. It is a profitable farming practise, with the Benefit/Cost ratio that varies from 1.1 to 2.7 depending on the system and scale of farming. Scale of farming varies from 5 to 500 does, with different farming system operations. At micro- (<20 does) to small-scale operation (20-50 does) a self forage-providing is very common, while at larger scale operation (>50 does) a combination of forages and commercial feed is practised. For micro and small scale operation, especially in a new growing area, where market is initially less available, a strong cooperation of farmers is suggested. A strategic development, as partly applied to an area in Central Java, involving a group of farmers, is considered succesful. This strategy, introduced as 'Rabbit Village Concept', includes training of member-farmers, village breeding, strengthening the program and management of the organization, creating market and promotion of rabbits.

Keywords: Rabbit village, Strategic development, Small- and medium-scale.

INTRODUCTION

Rabbit production in Indonesia, eventhough small in scale, plays an important role in farmers earnings. For most farmers raising rabbits, is aimed at providing meat for family consumption, saving of cash income, source of organic fertilizer and to some extent as a buffer if there is loss from the main farming commodity. Therefore, its farming system is usually traditional and is depending primarily on the feed availability of the surrounding. This type of farming practise occurred with the rabbits in the 1980s (Sitorus *et al.*, 1982). Recognizing the potential of rabbits, i.e. being small in size, ability to utilize forages efficiently, ability to live in a simple hutches, fit for micro scale operation, together with the unique situation of Indonesia, i.e. large rural population, shortage of protein consumption by village people, high rate of unemployment, yet abundant availability of forages, and the support of the Government, rabbit production may have great potential to develop in Indonesia (Cheeke, 1983). In the 80's, the Government set a program for rabbit raising (DGLS, 1983), aiming at self-sufficient meat consumption, improving nutritional status of the poor in the village. The program involved distribution and redistribution of a package of rabbits to farmers, mainly in Java, similar to a 'Passing the Gift' model (Lukfahr and Goldman, 1985). During this era, terms such as 'mini meat factory', 'rabbit day' and 'biological refrigerator' was popular. Not for long, however, in rabbit raising decreased and rabbit population declined significantly (Sastrodihardjo *et al.*, 1988). Weekly consumption of rabbit meat for the farmer family was no longer popular and cash income was more preferred, but market was hardly

available. However, a drastic change occurred in this last 3–4 years. Nowadays, with the wide-open availability of markets yet short of supply, the aim of rabbit raising, even though at micro-scale operation, has shifted to income-oriented farming. Depending on the area, rabbits are mostly marketed for meat and pet animal, and at a limited number, are sold for laboratory needs and for fur. Rabbit farmings are growing not only in numbers of farmers but also in the scale of farming. This growing interest in rabbit farming is spread to other islands (Himakindo, 2007, pers. com). Problems existed are quality of breeding stock, availability of forages for small and medium scale farming, cooperation and networking of farmers and to a certain degree is further market availability. A concept of 'Kampoeng Kelinci' ('Rabbit Village') is offered. This concept involves the management of a farmer group(s) and rabbit farming in a village, village breeding centre, training of member-farmers, and marketing and promotion of products.

POTENTIAL AND DEVELOPMENT OF RABBIT PRODUCTION IN INDONESIA

Development areas

Initially, rabbit production in Indonesia was started in Java island, where large population of people live in the village and abundant of forages is available. A program, targetted for self consumption of meat for poor rural family, was started from Lembang (West Java) and was spread to other provinces. Three breeding centres, in West, Central and East Java were built. A package of breeding stock (1 male + 3 females) were provided by the Government, while farmers provided hutches and feed. In a year, farmers had to 'pay' 2 packages, which was redistributed to their neighbours. Market for rabbit meat was hardly available, except in some tourist areas. Known as main rabbit production areas were Pengalengan and Lembang (West Java), Brebes, Bandung and Tawangmangu (Central Java), and Sarangan and Batu-Malang (East Java). All of these areas are located at mid-high altitude areas and are traditionally centres for vegetable production, in which organic fertilizer is needed. Other areas, such as Bogor, Sukabumi and Cianjur (West Java), Kopeng, Kaliurang and Kulonprogo (Central Java and Yogyakarta) did have rabbit production but at very small number. There was hardly known if rabbit production existed in other islands of Indonesia. In 1988 Sastrodihardjo *et al.* (1988) reported that interest in raising rabbits declined significantly. No economic incentives earned for the farmers, as (a) market or demand for rabbit meat or breeding stock was hardly available (ii) farmers always tried to sell rabbits as breeding stock at high price, (iii) negative psychological effect to consume rabbit meat (similar to 'bunny syndrome'), (iv) few, if any, promotion on rabbit meat potential or rabbit production, (v) to a lesser extent, few people considered the meat is not 'halal', and (vi) the impression of rabbit meat is for poor people consumption. Nowadays, rabbit production is in contrast to the previous situation. Interest in rabbit raising grows tremendously; number of areas developing rabbit farming are high, scale of operation, even though mostly are still micro and small, is increasing to small and medium size, in which farmers are willing to spend their money for external inputs, and most importantly, markets for meat as well as for pets are widely open, and supply is always short. A shift from self-sufficient meat consumption to a commercial-oriented farming is taking place. Areas that become centres for rabbit production are not only developing in Java, but also in the other islands. Table 1 showed, beside the above named traditional centres, rabbit production now occurs almost in the whole country of Indonesia, and some of these areas are humid and hot. In the coming year, population data will be available as the rabbit will also be included in the survey of the Central Bureau of Statistics. Two areas are now becoming the main centres and references for micro and small scale rabbit production, i.e. Lembang in West Java and Magelang in Central Java. In 2002-2003 rabbit population in Lembang area were about 30,000 does plus another 10,000 does in the neighbouring areas, but in July 2007 IB-WRSA of Lembang (2007) reported that 3477 households in 32 villages involved with farming of 62,005 breeding does, plus another 61,512 does were raised by farmers in 6 districts around Bandung area. This means rabbit production grew almost tripled in the last 4 years. The scale of operation, however, is mostly small, with the average of 14 does per family, ranging from 4 to 280 does. Magelang is a rising star in rabbit production; from a hardly known to a most talked area for rabbit farming. In 2003, population of rabbit in Magelang was 9,983 adults (Parwati and Prawirodigdo, 2007). In 2005, population increased to 20,773 adult rabbits, involving 1840 families

living in 18 of 21 counties (Widodo, 2006). In 2007, all 21 counties in Magelang raise rabbits, involving 3394 families (almost doubled from 2006 figure) with 30,237 rabbit does. These figures mean that within a year progress in people involved and rabbit population is almost doubled. Average ownership is about 10–11 rabbits/family, ranging from 3–80 does.

Table 1: Identified areas with rabbit production in Indonesia*

Province (District)	Population (breeding does)	Year recorded
Sumatera: North (Brastagi, Simalungun) West (Nagari Sembilan), and South (Palembang), Jambi, Riau, and Lampung	12,000 ¹	2006
West Java (Lembang and the surroundings)	123,000 ²	2007
West Java (Bogor, Sukabumi, Cianjur, Garut, Tasikmalaya, Kuningan)	> 50,000 ²	2007
Central Java (Semarang, Klaten, Magelang, Banjarnegara, Banyumas, Pati, Wonosobo, Batang, Temanggung, Tawangmangu, Rembang, Tegal, Salatiga Brebes)	125,649 ³	2003
Yogyakarta (Sleman, Kaurang, Kulonprogo)	182,479	2005
East Java (Sarangan, Batu, Malang, Kediri, Blitar)	> 10,000 ²	2007
Other islands : Bali, Kalimantan, Lombok , Papua#	> 30,000*	2007
	> 2000*	2007

*Predicted Data, from members of IB-WRSA (2007), ¹Only in Brastagi, ²(Parwati and Prawirodigdo, 2007), # Nggobe (2007)



Figure 1: Area of rabbit development in Indonesia

Management of farming

Most type of farming in these two above areas are micro and small in scale. Rabbits are raised in the backyard, cages from available cheap local materials, feed from forages and/or agriculture waste, and using family labour - as also reported by Becerril-Perez and Pro-Martinez (2007). About 20% farmers raise 20-50 does, and about 2-3% raise more than 50 does. There are farmers, including those at Brastagi (North Sumatera) and Bali who have 550 and 300 does. Raising more than 50 does, involving almost 400–500 animals in a time, is considered as a small scale, while more than 100 does is called a medium scale operation. In these scales of production, farmers use external inputs such as, buying materials for cages and hutches, feed is partly using commercial pellet diet and also using hired labor. Through this practise litters can be increased from 4 to 6 times in a year. Most breeds of rabbit raised are crossing of meat-type rabbit (FG, NZW, English spot, etc), pet rabbit (dwarf, Angora, Hotot, Tan, Lops, Fuzzy, Dutch, etc). Litter size at birth and weaning ranged from 5.1–7.6 and 3.9–7.1, respectively. While mortality and slaughter weight varied from 6–43% and 1.8–3.6 kg, respectively. In micro and some small-scale farming operation, feeds is entirely depending on available forages or vegetable waste. In a vegetable centre area, carrot leaf, cabbage and cauliflower waste are often fed. Occasionaly, a limited amount of by-product meal, such as rice bran and/or soybean curd waste is given. In some small and medium scale farms, the use of commercial diet has become more and more common, especially when the availability of forages is limited during dry season. Sastrodihardjo and Raharjo (1992) suggested that combination of limited concentrate diet with *ad lib* forages is more pofitable than feeding concentrate diet alone. Some available tropical forages and by-product feeds, such as rice bran, peanut meal coconut meal are reviewed (Raharjo, 1994); the nutritive value of palm kernel meal was studied (Iskandar and Raharjo, 2007).

Economic aspect

Aim of farming is very much determined by the area, which is influenced by the market demand. However, mostly only two types of rabbit are raised, pet or meat-type. For example, farmers in Lembang focusing their farming for pets, eventhough there are many rabbit meat restaurants. On the other hand, farmers in Magelang have the priority to breed meat-type rabbits and sell weanlings for fryer. Few growing rabbits are sold for laboratory need. Supply, demand and market of rabbits in some areas are presented in Table 2. The above data shows that supply is short, while demand is high. Supply ranges because it depends on the weather. At rainy season high mortality occurs, hence production is low and consequently supply also decreases. There is no standard for pet price; it depends very much on the breed, appearance and preference of the consumers. In Brastagi (North Sumatera), the price for rabbit is extremely high. An export of 'white rabbit' from Tanah Karo to Malaysia was also reported. An economic analysis of micro to small scale raising rabbit at rabbit farmers in Magelang showed a Benefit-Cost (B/C) ratio of 2.0 and 2.7 with or without the inclusion of labour cost, respectively (Herawati and Juarini, 2007). At different scales of production in a semi-intensive farming, Sastrodihardjo and Raharjo (1992) reported the B/C ratio of 1.1-1.7, with the Internal rate of Return was more than 50%. Raharjo (2007) calculated a B/C value of 1.31. It is therefore not surprising that many rabbit farmers shift their interest from self-sufficient meat consumption into a business-oriented farming. Besides, this situation also attract interest of dairy and beef cattle farmers, chicken farmers whom suffer from the widespread case of Avian Influenza, jobless people, and social group or NGOs that work to support increase welfare of rural or jobless people.

Table 2: Price, supply and demand of rabbit in some areas

	Lembang (West Java) ¹	Magelang (Central Java) ²	Brastagi ³ (North Sumatera)
Price of Carcass (US\$/kg)	3.33	3.11 -3.55	5.55
Price of weaned pet (US\$/head)	1.1 – 3.3	2.78 – 8.33	1.67 – 44.4
Price of adult pet (US\$/head)	16.67 – 88.89	11.1 – 44.4	66.7 – 111.1
Supply of meat (kg/month)	4000 – 4500	600 – 800	250 – 300
Supply of pet (head/month)	7000 – 10,000	3000	3000 - 4000
Demand of meat (kg/month)	6000 - 6400	2500 – 3000	500
Demand of weanlings, meat-type and pet (head/month)	12000 - 15000	7500	7000

¹Dase (2007, pers. com.); ²KIPPK (2007); ³Purba (2007, pers.com.); US\$ 1 = Rp 9000

STRATEGY FOR THE DEVELOPMENT BASED ON FARMERS COOPERATION

Livestock smallholders, including rabbit farmers, especially if the type of farming is traditional, are usually lack of capital, limited knowledge of technical skill, lack ability to market products, having poor bargaining power and lack of cooperation among raisers. Cooperative built within them could theoretically support the management system. This, in many cases, however, do not work as it is expected. Mainly due to lack of managerial skill of the cooperative management (usually appointed from the farmer group) as well as less awareness of the farmers on the importance of being in a group. Current rabbit production in Indonesia, as shown above, indicates a strong aim for commercial purpose, eventhough type of farming are mostly small. Therefore a cooperative type operation is strongly suggested. A concept of strategy for development of rabbit production for this purpose should involve (i) cooperative/group, (ii) availability of breeding centre, (iii) training of farmers, (iv) strengthening the program and management of the organization, and (v) creating market and promotion of rabbits, (vi) own-rabbit meat consumption, and (vii) support from the Government. This concept is termed as 'Kampung Kelinci' (Rabbit Village). A cooperative group is formed through a Participatory Rural Appraisal mechanism and the appointment of 'first generation trainees' to become 'cadres' (Lukefahr, 2007) are decided by the group. Being in a group, several benefits may be gained. Village breeding is built to improve breeding stock and acts as a core to supply rabbit to the farmers. This has to be a commercially-based activity. Financial could be from the members or from other source, including Government, Bank, etc.. Profit earned should be returned partly to the member-farmers. In 2005, Research Institute for Animal Production made a cooperation with farmers in

Magelang in an 'Open Nucleus Program', in which breed improvement is the aim. A recording breeding system is carried out by cooperating farmers and some quality bucks is transferred to farmers. Training of farmers is carried out through a 'Training for trainers' system. Training materials include proper farming, management of the cooperative, product processing, marketing and promotion. Strengthening program and management of the cooperative is usually conducted through periodic meetings. Program in which objective, planning, operation, control and finance should be set by the group. Market is a very critical aspect. For this time, market is wide open. However, high price of pets and meat may soon be competed by other commodities. Pet market is very fluctuating, and it may become a danger if this market declines in a sudden, especially because pet market nowadays is much higher than for meat. Market for meat is more stable. A demand driving research was carried out in 2006 in Magelang, in an attempt to develop markets for the rabbits. Group of farmers in certain area are urged to (i) have at least one rabbit meat restaurant in their area. Supply of rabbit comes from the member. In 2005, there were only 3 rabbit meat restaurants, now there are 13 restaurants monitored by the Group in Magelang. This group is also member of IB-WRSA; (ii) create market for live animals in a certain area at a certain time. In 2005, rabbit market took place in one area every five days. Now everyday there is market for live rabbit in different area; (iii) produce and sell processed meat, e.g. frankfurters, meat ball, burger, etc. These products are very well sold especially during exhibition or festivity. However, processing rabbit meat nowadays is rare, if any, due to short of meat supply; (iv) have a mobile marketing tent. This tent should present in any exhibition or festivity and sell the meat, processed meat or cooked meat. The meat is purchased from or supplied by the members, the organization should arrange and/or rotate the person in charge in this activity. Any profit gained should partly be going to the Cooperative; and (v) carry out periodic Contest and Exhibition of food from rabbit and live animals. In conclusion, rabbit production in Indonesia grows rapidly, not only in Java but also in other islands. The orientation has been shifted from self-consumption of the meat to a commercial operation. The farming activity is considered profitable. Attention however, should be paid to this booming market.

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