

PARTNERSHIP MODEL OF REARING BUSINESS BETWEEN THE PUBLIC DAIRY DEMONSTRATION PLOT WITH SMALL HOLDER FARMERS IN WEST JAVA

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Abstract

The government's role is still dominant in the effort to development the dairy farmers including milk cooperatives in providing dairy cattle. Development of dairy cattle from government programs will be distributed to farmers through a partnership model. The purpose of this study was to determine the pattern of suitable partnerships between the public demonstration plots with dairy farmers in business rearing dairy cattle in West Java. Primary data obtained from public dairy demonstration plot and small holder dairy farmers who were selected purposively. On The primary data was carried out financial analysis. Beside that, the Meta Analysis as an analytical model used in this study based on research results related to cattle rearing business development partnership that has been done by various other research. The Nucleus-Plasma Model partnership between Public Demonstration Plot with dairy farmers in business rearing dairy cattle in West Java was designed by farmer aspiration and refers to the concept and basic partnership law, and uphold the meaning of equality, as well as run exchange system in kind. Key success factors of the partnership model is influenced by (1) internal factors, namely the quality of pregnant heifers, monitoring and evaluation mechanism, the mechanism of guidance, supervision and control, and (2) external factors, namely: quality and mentality of farmers, the motivation and the readiness of farmers, the quality of feed, and sanitation and milking equipment. The basic principle of partnership for mutual benefit in the calculation were fulfilled. The Public Dairy Demonstration Plot will gain: NPV; IDR. 237,977,671.72 IRR; 27.14%, and B/C ratio = 1.20 Dairy farmers as plasma obtained revenues of IDR. 825,500.00 per head per year and family income to IDR. 5,657,500.00 per head per year.

Key words: Model Partnerships, Business rearing and Aspirations

INTRODUCTION

The problems of dairy cattle breeding stock, on farm-level farmers who are members of dairy cooperatives in West Java, has not been able to anticipate replacement stock in a business planned. Besides, not many investors or private companies directly involved in dairy cattle breeding business that leads to efforts to obtain dairy breed standards through the improvement of dairy cattle breeding which includes categories of foundation stock, breeding stock and commercial stock. Thus, the government is still dominant role in the effort to mobilize all stakeholders and private sector including dairy cooperatives in working to make good dairy cows from the quality and quantity

aspect. For rearing business activities undertaken by the Government particularly useful for dairy farmers, it is necessary to a study of how design, strategy, and alternative patterns of efficient and effective cooperation between dairy farmers and the government.

Based on these phenomena, the problems identified are as follows: how the partnerships models are suitable to be applied between the public dairy demonstration plot with the dairy farmers in building a business rearing dairy cattle in West Java. While the purpose of this research is to find a suitable partnership between public dairy demonstration plots applied with the community in building a business rearing dairy cattle in West Java

MATERIAL AND METHOD

This study focused on the public dairy demonstration plots at Cikole Lembang within two months in June-July 2009. Respondents in this study determined purposively towards the dairy private company, Dairy Cooperative, Farmers Group and leader of dairy farmers who do cooperation in Dairy Cattle rearing activities and the public dairy demonstration plots at Cikole Lembang.

The Meta analysis used as a model in this study based on research results related to cattle rearing business development partnership that has been done by various universities or other research institutions. Based on research results are then performed linkage analysis between the various results of existing research, then presented descriptively. The meta analysis is a method of analysis used to take a conclusion of several studies that separate but interrelated (John M. Last, 2002).

RESULTS AND DISCUSSIONS

Nucleus-Plasma Model Partnership

Nucleus-plasma model of partnership is designed based on the aspirations of dairy farmers, and the modification of the models that have been running a reference to the West Java Governor Decree No: 91/2009 on Guidelines for Livestock Development Partnership of West Java Governor. In this partnership institution that became the nucleus is the government that optimize the function of the public dairy demonstration plot Cikole Lembang, while the plasma is small holder dairy farmers residing in the vicinity. Rationality the public dairy demonstration plot Cikole Lembang was chosen as the nucleus farm, as follow;

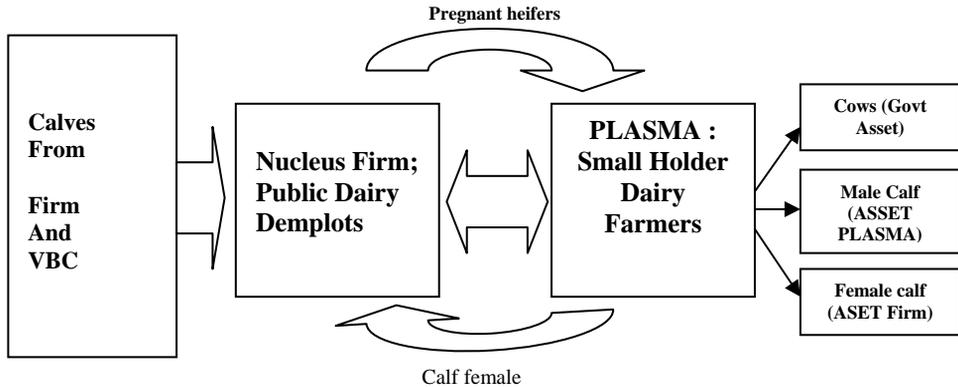
- a. As the implementation of West Java Governor Decree No. 91/ 2009 on Guidelines for Livestock Development Partnership of West Java Governor.
- b. Dairy cattle breeding are the responsibility of the government in accordance with the Indonesia Act No. 18/2009 on Animal Husbandry and Animal Health.

- c. Business rearing dairy cow gives less incentive than the dairy cattle business, and its business has not been carried out professionally by the small holder dairy farmers.
- d. Business rearing is one part of the operations of the dairy cattle breeding business of supplying high quality of dairy cattle breed.

Design concept of partnership in accommodating the aspirations of community willingness dairy farmers to current and anticipated business activities in the future. The Aspirations of dairy farmers of this partnership are:

- a. This model is intended for development of the small holder dairy cattle, not for beginners' dairy farmers.
- b. The dairy cattle in partnership model to the farmers are pregnant heifer.
- c. The plasma business Product is the production of milk and calf male or female off weaning.
- d. Small holder Dairy farmers as plasma receive pregnant heifers that will be returned to public demonstration plots as the nucleus firm.
- e. All production costs on plasma are charged to the plasma.
- f. Mortality risk was assessed based on the cause, if due to negligence it is responsible of plasma.

In this partnership model, the Public Dairy Demonstration Plot conducting "business rearing dairy cattle", the products this business are pregnant dairy heifers which are distributed to small holder dairy farmers as a plasma. The Design Partnership aspiration model can be seen in Illustration 1.



Calves who grew up in the Public Dairy Demonstration Plot Cikole derived from itself and comes from the "village breeding center". After the plasma produced calf, the female calf can be returned to the Public Dairy Demonstration Plot. The Public Dairy Demonstration Plot is obliged to do development and empowerment of plasma.

The advantage of plasma in this model, they will get all the milk produced, male calves and the opportunity to do business independently rearing. While the government will obtain the benefits, security of the quality of dairy breed, increased productivity of dairy cattle which have an impact on regional economic improvement, revenue enhancement dairy demonstration plots and other social benefit.

Requirements, Implementation and Partnership Mechanism

This provision is based on articles in the West Java Governor Decree No. 91/2009 on Guidelines for Livestock Development Partnership of West Java Governor, as follow:

- a. The Groups of dairy farmers and all its members as evidenced by the identification cards.
- b. The Groups of dairy farmers as plasma capable of kipping dairy cattle.
- c. Willing to follow instructions and technical guidance and training is hosted by Livestock Government services.
- d. The requirements the location of the partnership model :
 - accordance with general plans and regional spatial planning;

- is an area of livestock development has the potential of natural and human resources;
 - land carrying capacity in part the provision of feed and livestock business is still possible;
 - availability of facilities, infrastructure and dairy technical workers for dairying development;
 - free from infectious animal diseases;
- e. Determination of the location model of partnership should be established by the Province Government after being verified by the Local Government Livestock Office.
 - f. General requirements for dairy cattle breeding, including: (i) healthy and no physical disability (ii) there is no reproductive abnormalities.
 - g. The requirements and specifications of dairy cattle determined by public dairy demonstration plot as nucleus firm.
 - h. The partnership model is implemented based on mutual agreement between the Nucleus Firm with selected farmer groups in accordance with the suggestions and recommendations from Local Government Livestock Office

Mechanism of the Partnership model:

- a. The group farmers (members of Cooperative Milk) received one package pregnant dairy heifer with a maximum 7 months of gestation.
- b. The number of cattle packed determined by the nucleus firm.
- c. The Calves (female) in plasma, after weaning off its sent back to the nucleus firm to enter the program rearing.

- d. Milk production in the plasma during the lactation period belonged to farmers who marketed through Cooperative Milk.
- e. The Dairy cattle are in partnership model to use the "full system in kind" and returned to the Nucleus Firm accordance with the specified time period.
- f. The value depreciation of livestock is recorded as required.

Mechanism of Monitoring and Evaluation, and Reporting

This partnership model has the mechanism for monitoring and evaluation, and reporting, such as below :

1. local government livestock office who manage livestock development in this area, must be provide periodic progress reports about implementation partnership model to the provincial government that is responsible for the success of this partnership.
2. The nucleus Firm shall monitor, evaluate and report on the implementation of partnerships to the Head of the Provincial Livestock Services Office periodically.
3. focus of the material reported are :
 - Actual implementation of the partnership;
 - Development of implementation of the partnership;
 - Problems implementing partnership and effort to solve.

Feasibility Partnership Model

Technical Aspects:

Three main factors determine the level of success of dairy cattle business that are; breeding, feeding and Management. Breeding in terms of this partnership is the quality of pregnant heifer who lent nucleus firm to the plasma will determine the productivity and quality calf and milk production. Holstein Frisian dairy cattle's which is cooperated with the following conditions:

Cattle feed used by the plasma will also affect the amount of milk production. Management of dairy cows as part of management will also determine the success of the business, hence the need for managing standards. Standard procedure of which is run in accordance with the standards of the nucleus firm or cooperatives. Implementation of this model is based on several technical assumptions and zoo technique. Non-fulfillment of these assumptions will reduce the effectiveness of model performance, and will reduce efficiency and benefit both the nucleus and the plasma. Assumptions and the technical coefficient can be seen in Table 2.

Table 2. Assumptions and the technical coefficient

Item	Assumptions	
Scale of Business	10	heads
Land for stable	100	m ²
Space stable	2.5	m ² /heads
equipment:		
<i>Scoop</i>	1	each/years
<i>Hoe</i>	1	each/years
<i>Buckets</i>	4	each/years
<i>Brooms</i>	6	each/years
Concentrate	6	kg/heads/days
Forage	40	Kg/heads/days
Animal drugs	2	pack/heads/years
Artificial Insemination	2	times/heads
Labor	1	Man power
Output: pregnant heifer	7	Month
Duration of keeping	24	month
Calf death	5	%
Birth Ratio (male : Female)	1 : 1	
Culling weight	450	Kg/heads
Milk Production	14	ltr/heads/days

Table 1. Performance of Dairy Cattle

No.	Description	Term of Condition
1	Types of Cattle	Holstein Frisian
2	Gestation	7 month
3	Milk Production	14 liter/head/days
4	Condition	Healthy and not disabled

Financial Aspect

The financial analysis was conducted to measure whether the "aspiration model of partnership" to provide benefits to the nucleus and plasma or otherwise harmful. Indicators of financial feasibility for the nucleus Firm Cikole Lembang is based on several "investment parameters" such as Net

Present Value (NPV), Internal Rate of Return (IRR) and the balance between revenue and cost (B/C ratio). As for plasma measurement of eligibility is based on the amount of benefits and B/C ratio. Measurement of financial performance based on assumptions as shown in Table 3.

Revenue, Costs and Benefits

Scale of business rearing of dairying in the plasma level is 10 heads per package. This is based on economics of scale of business, labor skills, also aims to facilitate the submission of the budget. Source of revenue for "public dairy demonstration plot" is actually just came from the sale of male calf weaning off. But in measuring the amount of revenue, then the value of culling and the salvage value is calculated as revenue, because basically the asset is still owned by the government. This is in accordance with the Regulation of the Governor No. 91/2009, that the cattle belonged to the government in partnership. The result shows that the acceptance of public dairy demonstration plot every year there is increasing due to population growth dairy cows.

Table 3. Assumption Prices

No.	Item	Price (IDR/unit)
1	Pregnant Heifer	12,000,000 /heads
2	Calf Post Weaning:	
	- Male	2,500,000 /heads
	- Female	3,500,000 /heads
3	Price Live weight	17,000 /kg
4	Culling Cow	7,650,000 /heads
5	feed:	
	- concentrate	2,000 /kg
	- Forage	200 /kg
6	Milk Price	2,800 /liter

Public dairy demonstration plot Cikole Lembang as organizer of rearing industry requires a number of funds used to cover the needs of fixed and variable costs. Financing the first year of the greatest is to purchase a female calf weaning off. During the analysis (8 years) the number the greater the cost, this occurs due to the increase in the number of population, derived from returns on cattle plasma.

The benefit gained a public dairy demonstration plot Cikole Lembang in the early years of the analysis shows a negative number (- Rp. 88,295,000.00 and - Rp. 75,795,000.00), because this year public dairy demonstration plot have not received a calf from the plasma. The "public dairy demonstration plot" has obtained a benefit in second year, and the numbers continue to rise until year eight (the final year of analysis), see Table 4.

Table 4. Revenue, Cost and Benefit (IDR. 000)

No	Item	Years				
		0	1	2	3	4
A	Revenue	-	-	177,000	238,750	267,250
B	Fix Cost	12,580	80	80	80	80
C	Working Cap Permanent	75.715	75.715	156.544	214.563	234.584
D	Total Cost	88.295	75.795	156.624	214.643	234.664
E	Benefit	(88.295)	(75.795)	20.376	24.107	32.586
			years			
	<i>continue</i>		5	6	7	8
A	Reveue		412.788	589.972	720.481	886.371
B	Fix cost		80	80	80	80
C	Working Capital permanent		334.743	464.445	566.322	686.463
D	Total cost		334.823	464.525	566.402	686.543
E	Benefit		77.965	125.447	154.079	199.828

The result of financial analysis at the level discounto 7% indicated that "public dairy demonstration plot" Cikole Lembang will get accumulated: NPV Rp. 237,977,671.72 or Rp. 29,747,209.00/year, mostly live cattle. Measurement of rate of return on capital if the business is done commercially, achievement of its IRR is greater than the interest on the loan. Measurement capabilities in generating

capital gains shown by the achievements of B/C ratio of 1.20. It means business as a small holder dairy farmer of plasma with a scale 10 heads over 8 years of analysis will yield a profit of 20% (Table 5). Implementation model for the "public dairy demonstration plot" based on the investment parameters of NPV, IRR, and B/C ratio indicates that the business is feasible to develop.

Table 5. Parameter Value Investment

No.	Parameter Investment	Value	Indicators	worthiness
1	NPV	237,977,671.72	NPV > 1	feasible
2	IRR	27.14%	IRR > interest rate	feasible
3	B/C RATIO	1.20	B/C Ratio > 1	feasible

Small holder dairy farmers as plasma, an equal partners in this partnership obtained a loan of pregnant heifer and calf is obligated to return or pay back to Nucleus Firm. In this partnership, all loans charged to farmers as plasma. Farmers are entitled to all the milk produced by cattle that partnership. In connection with the rights and obligations then whether this model provides benefits to farmers?.

The production costs of dairy cattle business reach Rp. 8,923,500/heads/year. These costs are 90.75% for variable expenses and 9.25% for fixed costs. on variable costs, the largest cost incurred to feed (concentrate) reached 54.09% of total variable costs, or 49.08% of the total cost

The production of milk as much as 4,270 liters / year, and the price of milk IDR 2.800/liter, then the farmer's revenue amounted to IDR. 11,956,000/year from each head of cattle. Thus the plasma derive income from its business of IDR 825,500/year (Table 6).

The impact of the implementation of this partnership the absorption of family labor. The data in Table 6 has calculated the value of labor of farmers and their families. Based on this, the income of farmer families also contribute labor used in the business. Noted, labor income families in this business is IDR. 5,657,500 thus the family income of farmers plasma, derived from the sum of net farm income to labor income families, amounting to IDR. 6.483.000/years /heads

Table 6. The Income Analysis of Plasma

NO.	Items	Value (IDR)
1	Revenue Fresh Milk (4.270 liter/tahun)	11,956,000
	Total Revenue	11,956,000
2	VARIABLE COST	
	Concentrate	4,380,000
	Forages	2,920,000
	Drugs	500,000
	Vaseline	85,000
	Detergent	45,000
		168,000
	Total Variabel Cost	8,098,000
3	Gross Margin	3,858,000
4	Fixed Cost	
	Stable	180,000
	Labor	2,737,500
	Equipment:	
	Milk can	35,000
	scoop	40,000
	hoe	40,000
	Total fixed cost	3,032,500
5	NET FARM INCOME	825,500
6	FAMILY CONTRIBUTION ON FARM	
	a. forage	2,920,000
	b. Labor	2,737,500
	Total Family contribution in Farm	5,657,500
7	FAMILY INCOME	6,483,000

Operating profit per heads, in plasma level was slightly lower than standard Minimum Wage of West Java Province. According to the Ministry of Manpower and Transmigration (December 2008), in 2008 the minimum wage standard in West Java province IDR. 568,193.39/month or Rp. 6,818,320.68 per year, whereas in 2009 the minimum wage standard in West Java IDR. 628,191.15 per month or equivalent to IDR. 7,538,293.80 / year. Based on this, if in the business partnership between the public Dairy demonstration plot Cikole Lembang used two heads cows per farmers, this partnership will provide greater revenue than the minimum wage standard in West Java.

Based on the analysis, the model of this partnership will benefit both sides of the nucleus firm and plasma. If, used indicators of investment parameters, the efforts of public dairy demonstration plots at Lembang Cikole conducting proper rearing of dairy cattle were developed and provide social and financial benefits. Plasma Farmers who participate in this partnership model, also benefited from its business and labor used in the business.

CONCLUSIONS

1. Nucleus-Plasma Model partnership between the public dairy demonstration plots Cikole Lembang with small holder dairy farmers in the developing dairy cattle rearing business in West Java was designed by aspiration and refers to the concept and basic partnership law, and uphold the meaning of equality, as well as running the system of exchange in kind.

2. The success of partnership model is influenced by (1) internal factors (i) the quality of pregnant heifer, (ii) monitoring and evaluation mechanism, and (iii) the mechanism of guidance, supervision and control, and (2) external factors: (i) the quality and mentality of farmers plasma, (ii) motivation and readiness small holder dairy farmers as plasma, (iii) the quality of feed, and (iv) sanitation of stable and milking equipment.

3. The basic principle of mutually beneficial partnership in the calculation are met. where public dairy demonstration plot Cikole Lembang obtain: NPV = Rp.

237,977,671.72, IRR = 27.14%, and B / C ratio = 1.20. Small holder dairy farmer as plasma obtained revenues of Rp. 825,500.00 / head / year and get family income: Rp. 5,657,500.00/year from each head of cattle.

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REFERENCES

- [1] Coelli, T.J. 1996. A guide to DEAP Version 2.1, A Data Development Analysis (Computer) Program. *Centre for Efficiency and Productivity Analysis. Department of Economics.* University of England. Armidale, New South Wales Australia, 2351.
<http://www.une.edu.au/econometrics/cepa.htm>
[17/04/06]
- [2] West Java Government Of Livestock Services, 2007 Livestock Statistics 2007
- [3] West Java Government Of Livestock Services,, 2008. Livestock Statistics 2008.
- [4] Firmansyah, C. 2007. Performa Mikro Ekonomi Usaha Peternakan Sapi Perah Rakyat. Prosiding. Fakultas Peternakan Unpad. Bandung.
- [5] GKSI Jawa Barat, 2004. *Perkembangan Populasi Sapi KUD dan Koperasi Susu.* Gabungan Koperasi Susu Indonesia, Jawa Barat. Bandung.
- [6] Hadiana, H., 2007. Roadmap Pengembangan Sub Sektor Peternakan Provinsi Jawa Barat. Dispet Jabar dan Fakultas Peternakan Unpad. Bandung.
- [7] Hadiana, M.H., 2007. *Dampak Faktor Eksternal kawasan Terhadap Efisiensi Usahaternak Sapi Perah.* Program Pascasarjan. Universitas Padjadjaran.
- [8] Jhon M. Last, (2002) Mata Analisis Encyclopedia and Public Health
- [9] Noorjaya, T. 2001. Business Linkages: Enhancing Access of SME to Financing Institutions. ADB Technical Assistance SME Development. State Ministry for Cooperatives & SME. Jakarta.
- [10] Maryana, F. 2009. Analisis Manfaat Finansial pada Berbagai Pola Bagi Hasil Usahaternak Sapi Perah Rakyat di Desa Haurngombong Kecamatan Pamulihan Kabupaten Sumedang. Skripsi. Fakultas Peternakan Unpad. Sumedang.
- [11] Tawaf, Rochadi, Sri Rahayu, Achmad Firman, Sondi Kuswaryan, Hasan Hadiana, Adjat Sudrajat, Unang Yunasaf, Jajang Gumilar, dan Cecep Firmansyah. 2003. Analisis Kelayakan Usaha Kemitraan Sapi Potong, Sapi Perah Dan Ayam Ras. Kerjasama Dinas Peternakan Propinsi Jawa Barat dan Fakultas Peternakan Universitas Padjadjaran. Bandung.