Role of Cooperative in Improving the Accessibility to Credit for Production Resources of Backyard Pig Raisers in Batangas, Philippines

Carlos C. FRADEJAS

Graduate Student, Hiroshima University, Graduate School for International Development and Cooperation, 739-8529 Higashi-Hiroshima-shi, 1-5-1 Kagamiyama, Japan.

E-mail: carlos_fradejas@yahoo.com

Keshav Lall MAHARJAN

Associate Professor, Hiroshima University, Graduate School for International Development and Cooperation, 739-8529 Higashi-Hiroshima-shi, 1-5-1 Kagamiyama, Japan.

E-mail: mkeshav@hiroshima-u.ac.jp

Abstract

The backyard (smallscale) pig sector is considered a key proponent in the development of Philippine agriculture, in general and of animal industry, in particular. For years, it outperforms the commercial pig sector in terms of the aggregate inventory, volume and value of production and number of direct dependents it employs nationwide. However, the marked increase of pork demand driven by rapid urbanization and population growth in major urban centers of Metro Manila and nearby provinces of Central and Southern Luzon regions hinder the local backyard pig sector to cope with the so-called "Livestock Revolution". With this phenomenon, backyard pig raisers are expected to upscale their farm operation in order to increase the domestic pork supply and to meet the rising demand of the people. The backyard pig raisers, having limited access to scarce production resources, find it difficult on their own to withstand the pressure exerted by commercial (largescale) pig operators especially in Central and Southern Luzon regions where the impacts of the "Livestock Revolution" is strongly felt. The assembly of backyard pig raisers to institutions like cooperatives is one of the potential measures promoted both by the government (public) and private sector to directly link them with the dynamics of the whole market chain ranging from procurement of critical production resources and services to the differentiated products of the output market. Cooperatives may improve not only their smallscale operation but their socioeconomic status as well. Based on a field survey, this paper aims to highlight the role of cooperatives in improving the accessibility of backyard pig raisers to credit for various production requirements to facilitate an optimum farm operation.

1. Introduction

Backyard pig operation is characterized by the main use of available household resources. The size

of animal holding is relatively small and usually accounts for only 2-4% of the commercial farm, thus hired labor is not normally required. The ownership of household labor at low opportunity cost is one of their comparative advantages with those commercial operators who require more hired labor to run their enterprise. However, being a resource poor and non-organized, they are unlikely to get on their own access to the limited resources relating to high quality genetic stocks, animal nutrition and health services and premium markets for output. Backyard pig raisers have been shown to be a heterogenous entity. They are engaged in diverse types of production activities, each with varying technical performance and efficiency measures. Some of them practice farrow-to-wean, farrow-to-finish, grow-to-finish or combination of these operations. The meaning conveyed by the conventional definition of "backyards" also poses lots of inconsistencies. While the Bureau of Animal Statistics (BAS) defines backyard scale operations as those having less than 10 sows or adult-equivalents, previous study of UPLB-ILRI-IFPRI (2002) has shown that household pig inventory can reach as high as 100 heads of sows or adult-equivalents (Delgado, 2003).

Nevertheless, this sector has been regarded as forefront of the country's agricultural growth by contributing the highest and consistent average annual growth of 4.6% in gross value-added in agriculture from 1990-2000 despite the financial crisis which struck Philippines and other Asian countries in the latter part of this decade. For years, this sector dominates the country's pig industry by producing 70% of the total domestic pork supply; comprising 80% of the aggregate pig inventory and providing livelihood to 3.8 million dependents that rely on this livestock activity as their substantial source of income. (Tibayan, 2003).

In the middle of 1990s, "Livestock Revolution", characterized by a tremendous increase in meat consumption, took place in many developing countries of Latin America and Asia. Delgado (2003) said that consumption for meat (pork and poultry in particular) in these regions increased by as much as 70 million metric tons (MMT). The market value corresponding to this increase is almost twice as the market value for the increase in consumption for cereals such as wheat, rice and maize under the better known "Green Revolution". Robust growth in the demand for meat in the Philippines in this period has been propelled fundamentally by continued high population growth rates, at about 2.3% per annum and rapid urbanization, particularly in the provinces around the National Capital Region (Metro Manila), within the regions of Central and Southern Luzon, Cebu in Visayas and Davao in the island of Mindanao. Demand growth for meat has been remarkable even with modest and often interrupted improvements in per capita income.

In order to cope with the phenomenal increase of pork per capita consumption from 13.26 kilograms on 1990 to 16.33 kilograms on 2001 (Swine Profile, 2003), local pig producers must upscale their operation at a much faster pace. The call for an expanded farm operation had received different responses from commercial and backyard pig raisers especially in the rich pig-producing regions of Central and Southern Luzon where the impacts of "Livestock Revolution" was very evident. Commercial pig raisers, due to their adequate production resources, readily responded to the call of an expanded operation in order to meet the growing requirement of the pubic consumers. However, backyard pig raisers' production pace was relatively slower due to their limited resources and they eventually reduced their market share against their commercial counterparts.

Costales' (2002) study on backyard pig raisers' production and market characteristics in Southern Luzon revealed that access to scarce production resources necessary for expanded smallholder participation is not a sole working of the market force and is unevenly distributed across locations

(provinces). It is found greater in areas with institutions like cooperatives where members are encouraged and taught to pool together their available scarce resources to benefit everyone in the group. As everyone gains access to these resources, they are enabled to expand their operation which consequently empowers them to gain more revenue, better profit, and greater income for the household. Thus, the challenge to assemble these backyard pig raisers into a functional organization like cooperatives which adheres to principles of cooperation is viewed as a potential measure to directly link them with the whole spectrum of market chain ranging from the provision of an available production resources and services to the efficient marketing of their differentiated final products. Based on a field survey, this paper aims to highlight the role of the credit programs of cooperatives in improving the accessibility of backyard pig raisers to various production resources like capital, animals stocks, feeds and veterinary supplies.

2. Research Methodology

2.1. Site Selection

The field survey was conducted on September 2004 and March 2005 in Batangas province based on the area's highly developed backyard pig farming, active operation of agricultural cooperatives and pronounced involvement of backyard pig raisers to diversified production activities. Batangas province is located 40 kilometers south of Metro Manila and is bordered by the province of Cavite in the northeast, Laguna and Quezon in the east, Verde Island passage in the south and South China Sea in the west (**Figure 1**). It is composed of 4 political (congressional) districts, 31 municipalities, 3 cities and 1,078 barangays which constitute the basic administrative units in Philippines. It has a total area of 316,581 hectares of which half is devoted to agriculture while the remaining portions are allotted for residential, commercial, institutional and industrial purposes. It is a major supplier of livestock and poultry products. Pig raisers in Batangas province supply 70% of their local produce to Metro Manila while the remaining 30% are supplied predominantly in two major cities –Batangas and Lipa– of the province.

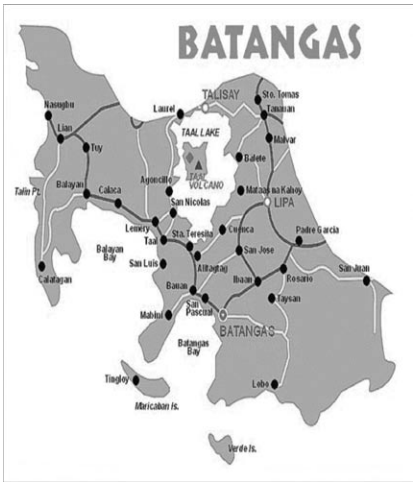

Figure 1. Map of Batangas Province Source.www.globalpinoy.com

Respondents from three barangays (Brgy)— Brgy. Rizal (447 registered households) in Lipa City; Brgy. Sorosoro (483 registered households) and Brgy. Dumuclay (423 registered households), both in Batangas City, were purposively chosen for the case study because of the areas' high pig inventory and number of households engaging in backyard pig raising. Each barangay has an average of 70-80% of registered households engaged in backyard pig raising. In addition, each barangay has a unique characteristic as far as its experience to cooperativism is concerned. Brgy. Rizal has a combination of cooperative and non-cooperative backyard pig raisers while Brgy. Sorosoro and Brgy. Dumuclay have purely cooperative and non-cooperative smallscale pig raisers, respectively. Sorosoro Ibaba Development Cooperative (SIDC) and Matatag Cooperative are the two representative cooperatives of the study which are located in Brgy. Sorosoro, Batangas City and Brgy. Rizal, Lipa City, respectively.

2.2. Sampling Procedure

The case study conducted in 3 barangays had a total of 1,353 registered households. Sampling of households was done by sequentially using (1) stratified purposive sampling, (2) maximum variation sampling and (3) purposive random sampling. Employing the first strategy, pig raisers in each barangay were categorized according to scale of operations in which raisers having less than 100 heads of sows or adult-equivalents are referred to as backyard (smallscale) raisers while those with more than these animal holdings are classified as commercial (largescale) raisers. Further stratifications among them were conducted according to their production arrangement either as cooperative or non-cooperative raisers. Respondents from Barangay Rizal, Lipa City were mixtures of cooperative and non-cooperative backyard pig raisers while Barangay Sorosoro and Barangay Dumuclay have purely cooperative and non-cooperative raisers, respectively.

Maximum variation sampling involves the categorization of each cooperative and non-cooperative backyard pig raisers according to their production activities such as farrow-to-wean, farrow-to-finish, grow-to-finish, and combinations of the following operations. ***Farrow-to-wean (Type 1)*** involves raising of breeder pigs (sows[1] and boar[2]) and specializes in the production and sale of weanlings[3] exclusively. ***Farrow-to-finish (Type 2)***, like Type 1, also involves raising of breeder pigs but specializes only in the production and sale of slaughter pigs, commonly referred as finishers[4], instead. ***Grow-to-finish (Type 3)***, unlike Type 1 and Type 2, does not raise breeder pigs but only weanlings which are obtained from external sources for the purpose of fattening them to become marketable slaughter pigs. ***Combination (Type 4)*** involves Type 1 and Type 2 operations simultaneously, thus entails production and sale of weanlings and slaughter pigs together. ***Type 5,*** which is exclusively observed in Brgy. Sorosoro, involves selling of backyard raisers' weanlings to their own cooperative (SIDC) followed by the cooperative's contracting of the same member-raisers to raise the same sets of weanlings sold until they are ready to be marketed as slaughter pigs under the terms and conditions of the so-called "paiwi system". This local practice, technically referred to as contract growing arrangement, involves the cooperative's advance provision of intermediary production inputs such as weanlings, feeds, medicine and veterinary services to the raiser-members who invest on his own labor, facilities and other utility services in raising the

1. Female breeder pigs which have already farrowed or given birth.

2. Male breeder pigs which have been used for breeding gilts and sows.

3. Piglets aged 1 to 2 months which have been separated from their sows.

4. Pigs aged at least 4 months old and are ready to be marketed.

animals. After evaluating the total production cost and sales for a particular production cycle, profit sharing between the cooperative and member- raisers is done in a 50-50 basis.

Finally, a total of 165 (85 cooperative and 80 non-cooperative) backyard pig raisers having close representation from each type of production activities were randomly selected in the three study areas. Structured questionnaires related to the objectives of the study were used to obtain primary data while secondary materials were also used in order to support the survey findings. **Table 1** and **Table 2** shows the sampling distribution / categorization and summary of characteristics of different production activities practiced in the study areas, respectively.

Table 1. Sampling distribution of backyard pig raisers according to production arrangement, production activities and location of origin in Batangas province.

Production Activities	Cooperative Raisers		Non-Cooperative Raisers		Total
	Brgy. Sorosoro	Brgy. Rizal		Brgy. Dumuclay	
Type 1	10	10	10	10	40
Type 2	10	10	10	10	40
Type 3	15	10	10	10	45
Type 4	5	10	10	10	35
Type 5	5	–	–	–	5
Total	45	40	40	40	165
	85		80		

Source: Field Survey, 2005

Table 2. Summarized characteristics of different production activities of backyard pig raisers

Parameters	Production Activities				
	Type 1 Farrow to wean	Type 2 Farrow to finish	Type 3 Grow-to-finish	Type 4 Combination of Types 1 & 2	Type 5 Combination of Types 1 & 3
Raises sow	Yes	Yes	No	Yes	Yes
Sell piglets	Yes	No	No	Yes	Yes
Sell finishers	No	Yes	Yes	Yes	Yes

Source: Field Survey, 2005

3. Role of Backyard Pig Industry in the Agricultural Economy of the Philippines

3.1. Overview of the Philippines and its Agricultural Economy

Philippines is an archipelagic nation that lies 800 km from the southeast Asian mainland and is bound by Taiwan in the north, Borneo (Malaysia) in the south, south China Sea in the west and Philippine Sea in the east. It has a total area of 300,000 km^2, of which 298,170 km^2 and 1,830 km^2 is occupied by land and water, respectively. The country is geographically divided into three main islands namely Luzon (north), Visayas (central) and Mindanao (south) which extends to 1,870 kilometers from both ends. It is enriched with natural resources such as timber, petroleum, nickel, cobalt, silver, gold, salt, and copper.

The prevailing climate is humid and dry and has an average annual temperature of 26°C. As a tropical country, it has a pronounced dry season from March to May and wet season for the rest of the year. In 2003, the country's population is 85 million with a growth rate of 1.92%. Sixty percent are concentrated in rural areas; 40% are below the poverty line; and 96% are considered literate. The labor force which is estimated at 33.7 million is employed in various agricultural, service and industrial activities nationwide.

Philippines is predominantly agricultural as far as its area, population and employment distribution is concerned. Records reveal that 47% of its total land area is allotted for various agricultural activities while two-thirds of its rural-based population depends on agriculture for livelihood. In terms of employment distribution, 45% of the labor force is employed in the agriculture sector while the remaining 40% and 15% is absorbed by the service and industrial sectors, respectively. It is diverse and consists of crop, poultry, livestock, forestry, and fisheries sectors, each with its own contribution to the development of the national agriculture (**Table 3**). Agriculture has also been regarded as one of the major contributors of economic growth in recent years due to structural reforms. In 2000, the agricultural sector accounted for almost 20% of the P3.3 trillion GDP and registered a 3.59%-growth from the previous year. (Bureau of Agricultural Statistics, 2003).

Table 3. Distribution of gross-value added in agriculture by sector, Philippines, 1960-2000 (%)

Division	1960	1970	1975	1980	1985	1988	1989	1990	2000
Crops	48.0	55.2	62.6	58.8	60.8	56.2	57.3	56.2	59.0
Livestock	**17.0**	**11.3**	**8.2**	**6.2**	**6.2**	**7.3**	**7.8**	**9.5**	**14.0**
Poultry	5.0	3.8	3.9	6.0	9.1	10.0	9.9	9.6	11.0
Forestry	17.0	13.9	8.5	10.9	6.7	6.9	5.4	5.2	1.0
Fishery	13.0	15.8	16.8	18.1	17.2	19.6	19.6	19.5	15.0
Total	100	100	100	100	100	100	100	100	100

Source: Bureau of Animal Statistics (BAS), 2001

Among the components of agriculture, livestock and poultry sectors are the most significant drivers of development in the last decade by contributing the highest combined average growth rate of 4.9% (**Table 4**) despite the nationwide outbreak of Food and Mouth Disease (FMD) in 1995 and financial economic crisis in many Asian countries including Philippines in 1998. Livestock farming refers to any of the cattle (dairy and beef), carabao (water buffalo), goat and pig production while poultry farming involves duck and chicken (layers for egg; broiler for meat) production. Broiler raising is the most widely practiced activity in poultry production and its development has been propelled by the few largescale

Table 4. Rates of growth of value added in agriculture by sector, Philippines 1960-2000 (%)

Division	1960-70	1970-75	1975-80	1980-85	1985-90	1990-00
Crops	3.9	7.7	5.7	1.9	0.5	1.2
Livestock	**3.1**	**-0.7**	**1.6**	**2.8**	**8.5**	**4.3**
Poultry	**3.7**	**7.1**	**13.6**	**9.5**	**7.3**	**5.5**
Forestry	5.1	-8.6	1.9	-12.6	-3.4	-15.2
Fishery	6.9	4.3	3.9	2.7	3.9	1.3
Agriculture	4.2	4.5	5.2	2.1	2.4	1.6

Source: Bureau of Animal Statistics (BAS), 2001

(commercial) contract broiler growers. On the other hand, pig raising has turned to be the most important economic activity among various livestock producers and its development has been greatly participated by the backyard raisers for the last twenty years.

3.2. Overview of Pig Raising in the Philippines

The development of the livestock sector as a whole is driven primarily by the substantial contribution of the pig industry which experienced a tremendous growth in its production and inventory as well. **Table 5** vividly shows that pig raising is the most economically important livestock raising activities by contributing the highest (78%) share to the aggregate volume and value of production within the diverse livestock sector in 2003. In addition, the dominance of the pig industry is also manifested in the growth of its inventory from 1991 to 2002 (**Table 6**). However, prior to the steadfast growth of the pigs' inventory which transpired during the fiscal years 2000 to 2002, the pig industry was subjected to tremendous pressures. In 1995, a number of commercial and backyard pig farms in Central Luzon were inflicted by a contagious foot-and-mouth disease (FMD) which requires a massive killing of all the infected pigs in order to prevent its further widespread. This incident greatly reduced the growth rate of pig inventories from 8.7% in 1995 to only 1% in 1996. Due to the active participation and collective efforts of the government and pig raisers to recover from this widespread epidemic, the pig industry was revived in 1997. However, the financial and economic crisis which struck the Asian countries in 1998 adversely affect the country's livestock sector in general and its pig sector in particular. In 1999, pig farming along with carabao, cattle and goat raising became very inactive as seen in the reduction in the growth rates of their respective inventories. Livestock raisers lowered their volume of production in the market due to the consumers' difficulty to pay for these meat products. Consumers, on the other hand, tend to look for some cheaper alternatives for these commodities in order to satisfy their dietary preferences and nutritional requirements. In the midst of these adverse phenomenon, the pig industry

Table 5. Value and volume of production of different livestock in the Philippines, 2003.

Livestocks	Value of Production (Million Pesos)	Volume of Production (1,000 Metric Tons)
Carabao	6,016.67 (5.1)	132.38 (6.0)
Beef cattle	14,277.71 (12.1)	258.42 (11.7)
Pig	**92,669.8 (78.7)**	**1,734.09 (78.5)**
Goat	4,535.47 (3.9)	73.58 (3.3)
Dairy cattle	187.54 (0.2)	11.25 (0.5)
Total	117,687.16 (100)	2,209.72 (100)

Source: Bureau of Animal Statistics (BAS), 2004

Note: $US 1= P56.25; ( ) indicates percent equivalence

Table 6. Incremental change in the inventory of different livestock, Philippines, 1991-2002,%

Livesock	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Carabao	-4.3	-2.6	0.0	-0.6	5.8	4.9	5.5	0.5	-0.2	0.6	1.4	1.6
Cattle	2.9	3.2	10.6	1.1	4.4	5.3	6.5	4.9	2.1	2.2	0.7	2.1
Goat	-2.9	7.7	11.1	2.8	7.4	5.4	1.4	2.0	-1.1	3.3	2.0	2.5
Pig	**1.0**	**-0.7**	**-0.8**	**3.4**	**8.7**	**1.0**	**8.0**	**4.7**	**1.8**	**3.0**	**3.3**	**5.3**

Source: Bureau of Animal Statistics (BAS), 2003

still played a special role in the country's agricultural economy by contributing the highest share to the gross-value added in agriculture in this period.

The continuous advancement of the pig industry has been observed nationwide but it is more pronounced in Southern Luzon, Central Luzon and Southern Mindanao where 45% of the country's aggregate inventories are concentrated. Due to its substantial contribution in the agricultural economy, the national government outlined its development plan to further advance the pig industry. The Department of Agriculture, with its attached government agencies– Livestock Development Council (LDC) and Bureau of Animal Industry (BAI)– worked together with various agricultural academic institutions, private sector and other livestock-related offices to call for a more enlivened pig industry. The introduction of imported purebred breeding stocks; establishment of extensive artificial insemination programs to upgrade inferior native pigs; conducting of largescale campaign against pig diseases; implementation of more rigid laws and strict supervision on pig feed manufacturing and breeding stations; and improvement of extension services like seminars and conferences about sustainable livestock operation had been intensified to achieve the national interest of a strong pig industry. These programs aroused the interest and enthusiasm of many farmers to venture into pig raising operation. Since then, pig raising became a very popular livestock enterprise in the Philippines resulting to the proliferation of numerous backyard and viable commercial pig farmers all over the country.

3.3. Overview of Backyard Pig Raising and Cooperatives in the Philippines

The nationwide phenomenal growth of the pig industry in Philippines for nearly two decades has been dominated by the backyard pig raisers. This is indicative of their substantial participation in the growth process that transpired in the pig industry during these periods. Based on the aggregate shares of pig inventories according to scale of operation (**Table 7**) and animal types (**Table 8**), backyard pig raisers are shown to play a key role in the national pig industry. However, this aggregate view is somehow deceptive and misleading when changes in the market structure in the main consumer demand centers caused by "Livestock Revolution" are taken into consideration. This is now the case in Southern Luzon where the impacts of the global "Livestock Revolution" is obviously observed (**Figure 2**). At present,

Table 7. Inventory of pigs according to scale of operation, Philippines, 1995-2003 (1000 heads)

Year	Backyard	Commercial	Total
1995	7,181 (80.3)	1,760 (19.7)	8,941 (100)
1996	7,239 (80.2)	1,787 (19.8)	9,026 (100)
1997	7,788 (79.9)	1,964 (20.1)	9,752 (100)
1998	8,031 (78.6)	2,180 (21.4)	10,211 (100)
1999	8,179 (78.7)	2,218 (21.3)	10,397 (100)
2000	8,327 (77.7)	2,383 (22.3)	10,710 (100)
2001	8,542 (77.2)	2,521 (22.8)	11,063 (100)
2002	8,936 (76.7)	2,717 (23.3)	11,653 (100)
2003	9,463 (76.5)	2,901 (23.5)	12,364 (100)

Source: Bureau of Animal Statistics (BAS), 2004
Note: ( ) indicates percent equivalence

Table 8. Pig inventory according to scale of operation and animal type, Philippines, 2001-2003 (1000 heads)

Animal type	Year		
Farm Classification	2001	2002	2003
Total	11,063 (100)	11,653 (100)	12,364 (100)
Backyard	8,542 (77.2)	8,936 (76.7)	9,463 (76.5)
Commercial	2,521 (22.8)	2,717 (23.3)	2,901 (23.5)
Sow	1,300 (100)	1,360 (100)	1,448 (100)
Backyard	1,021 (78.5)	1,045 (76.8)	1,125 (77.7)
Commercial	279 (21.5)	315 (23.2)	323 (22.3)
Gilt	543 (100)	498 (100)	608 (100)
Backyard	452 (83.2)	420 (84.3)	512 (84.2)
Commercial	91 (16.8)	78 (15.7)	96 (15.8)
Finishers	2,880 (100)	2,909 (100)	3,310 (100)
Backyard	2,256 (78.3)	2,356 (81.0)	2,557 (77.3)
Commercial	624 (11.7)	553 (19.0)	753 (12.7)
Growers	3,003 (100)	3,079 (100)	3,382 (100)
Backyard	2,310 (76.9)	2,386 (77.5)	2,576 (76.1)
Commercial	693 (13.1)	693 (22.5)	806 (23.9)
Others	3,336 (100)	3,807 (100)	3,617 (100)
Backyard	2,503 (75.0)	2,728 (71.7)	2,693 (74.4)
Commercial	833 (25.0)	1,079 (28.3)	924 (25.6)

Note: ( ) indicates percent equivalence.
Gilt is a sexually immature female pig that has not been bred.
Growers are pigs aged 2-4 months old.
Others include suckling (piglets which are given milk by sows), weanlings (piglets which are separated from sow), and boar (male pig used for breeding).

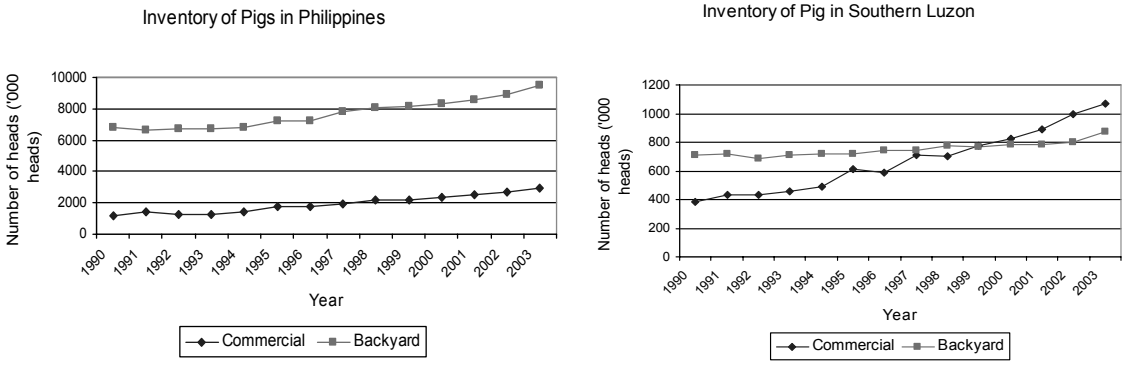

Figure 2. Comparison of the pig inventories of Philippines and Southern Luzon, 1990-2003
Source: Bureau of Animal Statistics, 2004.

the inventory from backyard pig raisers in Southern Luzon has already been surpassed by the inventory of the vertically-integrated commercial pig raisers operating in that region. Within Southern Luzon, the impacts of "Livestock Revolution" are felt strongly in Batangas province where both backyard and commercial pig raising is highly concentrated. (**Table 9**).

This phenomenon conveys a great deal of implications for the commercial and backyard pig operators in the national, regional and local level. The reduction of share in the national level from 80.3% in 1995 to only 76.5% in 2003 of the backyard pig inventory is a trend indicative of the rising dominance of commercial pig raisers and gradual displacement of backyard pig raisers in regions which cater to major meat-demand centers of the country. For the commercial pig raisers who possess and can readily acquire the essential production resources, the "Livestock Revolution", which requires an expanded farm operation to meet the increased pork requirement of the consuming public, is a favorable opportunity that will surely work for their own benefit. However, for backyard pig raisers who generally lack these scarce production resources, this phenomenon may seem to be unfavorable as it will potentially decrease their market share and will consequently reduce their revenue and profit. Given that millions of marginalized smallholders in the Philippines are dependent on pig raising as an economically important livelihood activity, it is necessary to support and protect the backyard pig raisers in order to prevent them from market displacement and losing a substantial source of living.

Table 9. Pig inventory according to scale of operation and number of registered operational agricultural cooperatives in the provinces of Southern Luzon, 2003.

Provinces	Pig Inventory by type ('000 heads)			*Registered Operational Agricultural Cooperatives
	Backyard	Commercial	Total	
Batangas	***216 (25)***	***528 (49)***	***744 (38)***	***396 (13)***
Cavite	55 (6)	92 (9)	147 (8)	223 (7)
Laguna	126 (14)	125 (12)	251(13)	553 (18)
Quezon	99 (11)	36 (3)	135 (7)	505 (16)
Rizal	2 (0.2)	279 (26)	281 (14)	269 (9)
Marinduque	97 (11)	–	97 (5)	186 (6)
Mindoro Occidental	60 (7)	2 (0.1)	62 (3)	409 (13)
Mindoro Oriental	44 (5)	7 (0.6)	51(3)	140 (4)
Palawan	120 (14)	1 (0.1)	121 (6)	358 (11)
Romblon	56 (6)	–	56 (3)	109 (3)
Total	875 (100)	1,070 (100)	1,945 (100)	3,148 (100)

Source: Bureau of Animal Statistics (BAS)

Note: *Cooperative Development Authority's (CDA) record as of March 2004

( ) indicates percent equivalence.

Various institutions are conducting a number of programs in order to support the backyard pig industry. Tibayan (2003) reported that a collective effort among a number of government agencies, local government units (LGUs) and private livestock organization has been directed in order to boost the backyard pig sector. For instance, the National Federation of Hog Farmers Inc. (NFHFI), a nationwide association of commercial pig farm owners in the Philippines, conceived and proposed a project designed to improve the backyard pig raisers production coefficients such as average daily gain, gain

feed conversion, efficiency and weaning weights. This scheme would entail road shows, technical seminars and information conducted by various private companies, suppliers of breeder stocks, feeds and veterinary medicines in complementation with the Department of Agriculture and Local Government Units (LGUs).

One of the most evident supports of the national government to backyard pig raisers is its encouragement for the latter, as an entrepreneurial entity in the private sector, to organize themselves into a cooperative. According to the Cooperative Code of the Philippines which was approved by the Philippine govennment in 1990, "the state (government) must foster the creation and growth of cooperatives as a practical vehicle for promoting self-reliance and harnessing people power towards the attainment of economic development and justice. The state shall encourage the private sector to undertake the actual formation and organization of cooperatives and shall create an atmosphere that is conducive to their growth and development. Towards this end, the government and all its branches, subdivisions, instrumentalities and agencies shall ensure the provision of technical guidance, financial assistance and other services to enable said cooperatives to develop into viable and responsive economic enterprises and thereby bring about a strong cooperative movement that is free from any condition that might fringe upon the autonomy or organizational integrity of cooperatives. Further, the state recognizes the principle of subsidiarity under which the cooperative sector will initiate and regulate with its own ranks the promotion and organization, training and research, audit and support services relating to cooperatives with government assistance where necessary". With these supports from the government, the welfare of the smallholder farmers in general and backyard pig raisers in particular can be secured by being protected from the threats of unemployment.

3.4. Role of Cooperative's Contract Growing Arrangement (Paiwi System) in Backyard Pig Raising

The concept of contract growing has a long history which can be traced originally in Europe since the 19th century. It was initially practiced in dairy farming and the traditional Danish dairy cooperative was a form of contract growing. More recently, contract farming for other livestocks including pig and poultry has appeared in various agricultural countries in Europe, Asia and Latin America.

The form of contract varies greatly across countries and regions and is determined primarily by four factors. First, the changing needs of markets require also changing of product attributes which, in turn, will enable all processors to gain a higher degree of quality control under these circumstances. Second, different commodities embody different types of cost, and thus require different forms of institutional solutions. Third, contract farming is a sharing of risks and benefits between the producers and buyers. Fourth, some risks, especially those related to environmental pollution penalties, may be much easier for large numbers of smallscale producers to bear jointly than one large farm.

The contract consists of two actors—an institution, which reduces the adverse effects of information and resource deficiencies across market players, and smallholders, who also interact with the other market actors and complement the economic activity or production of the integrator. Through this contract, farmers are enabled to get higher prices from a buyer who is confident that the farmer will deliver him high quality pork. It also enables economies of scale in bulk purchasing of inputs. In the local context of pig raising, a contract growing arrangement or "paiwi" is generally a contract between an integrator, who supplies the intermediate inputs and procures the output, and a grower, who provides the primary inputs in the production process. The integrator provides the growing stocks (weanlings),

feeds, veterinary supplies and services and implements the final marketing of output. On the other hand, contract growers typically provide space and facilities (land and housing), equipment, utilities, labor and farm management. There are two main types of contract growing arrangements—fee (wage) contract and forward-price and profit-sharing contract. They differ mainly in the mode of grower compensation; in the accounting and shouldering of the growing stocks and feeds; in the need to monitor production activities; in the incentives, penalties, risks and provisions for defaults.

3.4.1. Fee or Wage Contract Growing System

Fee (wage) contracts are mostly undertaken by large multi-national or national integrators whose scale of operations is generally around the "commercial" scale. In fee contracts, the integrator typically bears all the cost of growing stocks, feeds and veterinary supplies and services. Generally, the integrator bears both the market and production risks. Therefore, the grower does not share in the benefits of increasing output prices and in the losses due to falling output prices. Integrators usually monitor the production closely in order to prevent slacking off by the growers and diversion of the integrators' inputs like feeds and veterinary supplies to non-contract uses. For the part of the contract growers, they received a guaranteed fix fee for each live animal that is successfully harvested in a condition that conforms to the integrator's guidelines. Payments on the basis of weight, rather than per head, are designed to give the grower a stake in performance. To ensure the contract growers' active participation, fee contracts typically have built-in incentives and penalties to meet the integrator's set of minimum performance standards. Some of these standards include the animals' feed conversion ration (FCR), average daily gain (ADG), and harvest recovery (HR). Additional compensation is given to the growers for surpassing each of the performance standards and likewise, corresponding deductions from the contracted fee is imposed for growers who fall below the set standards.

However, fee contracts have two main drawbacks which limit their widespread practice with smallholder pig raisers. First, the task of the integrators to closely monitor production makes this an uninviting option for all except for locally-based integrators. Second, to be able to participate in fixed fee contracts, the potential contract growers are mandated to post a bond per head of animal with the integrator before engaging in the contract. Bonds commonly required are cash bond which is verifiable as a deposit in bank or another financial instrument. The average cost of bond for each animal is very close to the cost of one head of each weanling as delivered to the contract grower. If the grower defaults on the contract, the integrator keeps the bond.

3.4.2. Forward-price and Profit-Sharing Contract Growing System

Forward-price and profit-sharing contracts are generally undertaken by relatively small local feedmillers with contract growers that they know well. Generally, this system is widely practiced in Batangas province where a considerable number of cooperatives, like SIDC, are involved in local feedmilling and engage their own members as the contracted growers. In forward-price contracts, the cooperative, oftentimes the integrator, advances the cost of growing stocks, feeds and veterinary supplies and services and later charge in full to the contract growers at the time of harvest and sale before compensation is paid. In essence, growing stocks and feeds are provided by the integrator on credit and are evaluated at prevailing market prices upon the sale of the final output. In this arrangement, close supervision is not required since the chances of diverting the integrator's inputs to other uses are minimal. Similar to fee (wage) contracts, market risk is borne by the integrator but the production risks

like mortality are borne by the contract growers instead. For forward-price contracts, the integrator must find ways to deal with the incentive that growers have to default when output market prices rise. To resolve this issue, equal sharing of profit is undertaken to compensate the participation of both the integrator and growers in the production process.

One important difference for smallholders engaged between forward-price and fee (wage) contracts is that the former does not require bond prior to engaging in price contracts. However, the main deterrent on the part of contract growers in price contracts is that the cost of growing stocks, feed and veterinary supplies are to be charged at the end of the cycle whether the activity makes a profit or not. Thus it is in the interest of both parties that the activity itself generates positive profit.

4. Profile of the Surveyed Cooperatives in Batangas Province

4.1. Profile of Sorosoro Ibaba Development Cooperative (SIDC)

Sorosoro Ibaba Development Cooperative (SIDC) is a primary cooperative whose members consist of natural or individual persons only. Its office is located at Brgy. Sorosoro Ibaba in the eastern part of Batangas City where it was established by Victoriano E. Barte on March 19, 1969 initially as Sorosoro Ibaba Farmers' Association. The association was co-founded by 59 members who voluntarily contributed P200 each for a total capital of P11,800 in order to initiate the operation of its first goods store that offered basic commodities needed by the residents. In 1972, the association became Samahang Nayon ng Sorosoro Ibaba in consonance with the "Samahang Nayon" Program of late President Ferdinand Marcos. The success of operation has encouraged additional members to a total of 500, large enough for an organization to qualify as a full-fledged cooperative and was renamed Sorosoro Ibaba Consumers' Cooperative in November 1978. By 1983, it was registered with the Ministry of Agriculture as a development cooperative and was renamed Sorosoro Ibaba Development Cooperative (SIDC) which is also the name currently used. As of 2004, it has a total of 2,900 strong, active and committed members.

At present, the business activities of the cooperative are highly diversified to meet the various needs of its members. SIDC is currently involved in feedmilling, contract-growing (paiwi), and loan and savings extension. It also operates meat stalls, pig selling pen, rolling meat shop, artificial insemination, rentals and piggery farms in order to support pig raising which is the primary income source of most of its members. Some of their services for members include free medical check up, hospitalization subsidy, scholarship grants to members and employees, mortuary aid, barangay development fund, technical trainings, seminars, veterinary assistance, pollution control measures, and employment opportunities and others. The cooperative operation has been fruitful as seen by strong linkages, increasing assets and income, expanding businesses, optimum services, effective workforce and others. In more than 30 years of its operation, the organization has proven to be a primer mover of development in the community by providing its constituents better yet humble means of livelihood.

4.2. Profile of Matatag Cooperative

Matatag Cooperative is also a primary cooperative and operates mainly in Brgy. Rizal, Lipa City. It was established in 1992 through the initiative of Pablo Magnaye, Lourdes Caringal, and Alfredo Aranes. It started its operation with only 16 members who unanimously considered naming their organization as "Matatag", a local term for "durable" to depict its similarity to a wall which continues to stand firmly despite the troubles and challenges that may come its way. In 1997, the cooperative was registered to the

Department of Trade and Industry (DTI). It was allowed to acquire credit amounting to P50,000 from Landbank to initiate its procurement of feeds for sale to members. As of 2004, the cooperative has a total of 220 registered members.

For nearly thirteen years of its operation, Matatag Cooperative still has limited services and business activities to offer its members. These include feed sales, loan extension, seminar and training, and patronage refund. However, many members are not satisfied with the operation of their cooperative due to the various problems and challenges that beset their operation, membership and management. They are also convinced that their cooperative requires a great deal of participation and involvement among its members in order to strengthen the spirit of cooperation within their organization.

For SIDC and Matatag Cooperative, membership requirements include attending the pre-membership seminar in order to educate the applicants about cooperativism and their privileges and responsibilities as a cooperative member. Membership agreement, bio-data, birth, marriage and police certificate, medical examinations, membership fee and minimum capital share are also required as part of the application procedure.

5. Reasons of Backyard Pig Raisers for Joining Cooperative

Prior to analysis of the backyard pig raisers' access to credit for essential production resources, which is found to be their primary reason for joining cooperative, it will also be equally important to determine their other motivations. Based on a field survey participated by 45 SIDC and 40 Matatag members, seven reasons for joining a cooperative were identified as follows: **(1)** for access to credit (51%); **(2)** for patronage refund (32%); **(3)** for socioeconomic services (22%); **(4)** for good and affordable products /services (21%); **(5)** for marketing assistance (11%); **(6)** for proximity of input source from residence (11%) and lastly, **(7)** for technical assistance (7%). **Table 10** summarizes these findings.

Table 10. Perceived reasons of backyard pig raisers for joining cooperative

Reasons	Brgy. Sorosoro (SIDC) (n=45)	Brgy. Rizal (Matatag)(n=40)	Total (n=85)
For access to credit	25	18	43 (51)
For patronage refund	9	18	27 (32)
For socioeconomic services	10	9	19 (22)
For good and affordable products / services	3	15	18 (21)
For marketing assistance	3	6	9 (11)
For proximity of input source from residence	–	9	9 (11)
For technical assistance	2	4	6 (7)

Source: Field Survey, 2005

Note: Multiple answers were given; ( ) indicate percent equivalence

It is worthy to note that the credit programs offered by cooperative to its qualified members are the strongest motivations which drive the backyard pig raisers for joining a cooperative. The extension of credit addresses the backyard raisers' problems related to procurement of expensive production resources

and lack of liquidity by receiving in advance these inputs necessary for their farm operation. Generally, credit programs for pig raising given to qualified member-raisers can be either in the form of cash or non-cash. Those who pass the cooperative's screening for credit application are entitled to an expanded credit line. Under this scheme, they can apply for credit specifically for fattening or breeding programs with each having different loan ceiling. These loans are secured by collateral and are given in the form of feeds, not cash. Both are payable in very affordable terms from five to six months after which time pigs are already marketed. In addition, they can also obtain credit in cash for the construction of pigpens if the member wishes to start his business. With these credit programs, backyard pig raisers increase their access to scarce production inputs.

Patronage refund is also an attractive incentive scheme given by cooperative to members who patronize its products and services. The refund, sometimes referred to as dividend, is equitably distributed at the end of certain accounting periods among cooperative raisers depending on the amount of feeds, veterinary supplies and other household commodities purchased in the cooperative's store. Thus, members with great amount of purchases frequently from their cooperative are expected to receive greater refund than members who seldom buys from it. It is also understood that cooperative raisers who do not make any transaction from the cooperative's store at all are not entitled to any patronage refund except for the limited compensation that he can obtain from the share capital he gave as part of his requirement for membership (Pimentel and Cua, 1994). With this program, cooperative raisers are able to acquire greater savings from their own increasing purchases.

Member raisers have also special privileges to avail wide range of socioeconomic services available from their organization. These include free medical check up, subsidized hospitalization, educational programs ("Study Now, Pay Later") and scholarship grants, mortuary aid, job opportunities, rental services, savings and loan (housing and car) and others (SIDC Profile, 2004).

Backyard raisers are also motivated by the good quality and affordable products such as feeds, veterinary supplies, piglets and other commodities which are all produced by the cooperative itself. In cooperative, systematic grading and standardization of products for sale is undertaken in order to eliminate speculative merchandizing. It also makes research on efficient methods and techniques to further improve the quality of the products in order to keep it abreast with modern changes and with competition. With these practices, cooperative raisers gain confidence as they patronize the various products and services of their cooperative.

Another attraction of cooperative among the backyard pig raisers is the marketing assistance it provides its members. Cooperative helps its members find potential buyers for their own produce. Once the member-raisers' pigs are ready for market, they can now bring and keep the animals to the cooperative's centralized pig selling pen even prior to the arrival of the buyers in the area. This program is mutually beneficial for the buyers and pig raisers by enabling the former to choose from a wide range of marketable pigs gathered in the cooperative's selling pen and by protecting the latter's farm from being infected by any potential transmissible diseases brought by the buyers who might have gone to other farms to purchase other animals. Member-raisers can also sell their marketable animals to the cooperative which in turn will be slaughtered and sold to the cooperative's meat stalls in different parts of the city.

Raisers also found it convenient to procure their production requirements and other basic commodities from the cooperative store due to its proximity to their own residence. Cooperative conducts its operation and other affairs at the barangay level where the backyard raisers are conducting their day-to-

day activities as well. They need not go to municipal or city public market which entails some transport cost, thus saving a considerable amount of money.

Finally, backyard raisers are motivated by the technical assistance and services rendered by cooperative among its members in order to improve the efficiency of their operation and to increase their profit and income consequently. Free training and seminars for the cooperative raisers are done on a regular basis. Cooperative's suppliers of production resources like ingredients, nutritional and veterinary supplies conduct technical presentations and seminars concerning proper feeds and feeding, controlling diseases, proper waste disposal and advance management practices and other related topics to further expand the cooperative-raisers understanding of their livestock enterprise. In addition, free veterinary services are provided by the cooperative's veterinarian to any members whose animals have health problems. The establishment of laboratory tasked to diagnose animal diseases enables veterinarians and farmers to maintain the animal's good quality and institutes the rational use of drugs to treat and prevent diseases. Other veterinary assistance includes providing diagnostic test for necropsy, bacterial isolation and identification, antibiotic sensitivity testing, fecalysis, and quantitative aflatoxin testing.

6. Access of Backyard Pig Raisers to Credit for Various Pig Production Resources

6.1. Access to Credit for Capital for the Construction of Pig Pens

Table 11 shows the number of backyard pig raisers in general and of cooperative and non-cooperative pig raisers in particular who obtain their capital for animal housing by credit from various sources to begin their pig business. As far as the general context of the backyard pig raisers in the area is concerned, findings revealed that there is an extremely low incidence of obtaining credit for capital for this purpose as depicted by the small proportion (9.1%) of respondents who obtain credit from various sources to facilitate the construction of their pig pens. Within this group of backyard pig raisers, two different cases are noted which prompt them to apply for credit from any of the possible credit sources. First, there are backyard pig raisers who seek credit from sources which can provide them with greater amount of

Table 11. Access of backyard raisers to credit for capital for facilities and equipments

Production Resource And Sources	Cooperative	Non-Cooperative			Coop Total (n=85)	Non Coop Total (n=80)	Grand Total (n=165)
	Sorosoro (n=45)	Rizal (n=80)		Dumuclay (n=40)			
		(n=40)	(n=40)				
Number of pig raisers who obtain capital for facilities by credit	8 (17.8)	4 (10.0)	2 (5.0)	1 (2.5)	12 (14.1)	3 (3.8)	15(9.1)
Sources of Credit							
Bank	5 (62.5)	3 (75.0)	1 (50.0)	1 (100)	8 (66.7)	2 (66.7)	10 (66.7)
Relative	–	1 (25.0)	1 (50.0)	–	1 (8.3)	1 (33.3)	2 (13.3)
Cooperative	3 (37.5)	–	–	–	3 (25.0)	–	3 (20.0)
Total	8 (100)	4 (100)	2 (100)	1 (100)	12 (100)	3 (100)	15 (100)

Source: Field Survey, 2005

Note: ( ) indicate percent equivalence

principal to enable them to begin their operation involving relatively bigger animal holdings. Second, there are also some smallscale raisers who, despite the relatively small number of animals they intended to raise, still don't have any means to construct their pig pens from their own financial resources. However, when the remaining (90.9%) respondents are asked of their reasons for not applying credit, majority of them answered that their available capital for the construction of pig pens for the number of animals which they intend to raise in the beginning of their operation is enough to cover the expenses.

As far as the production arrangements of the sampled respondents as cooperative or non-cooperative raisers are concerned, it is noted that more (80.0%) of the former (cooperative raisers) constitute the representative of the sampled backyard raisers who obtained credit for capital. Between the cooperative and non-cooperative, it is further observed that the number of raisers from the former group who applied for credit for capital is four times as many as those from the latter group. Each of the cooperative and non-cooperative raisers are found to apply for credit to any of the three common sources of capital including banks, cooperative and other individuals (relatives and friends) from their areas depending on the amount of money they need. Both groups considered banks as their main source of credit (66.7%) primarily because of its higher amount of principal (P49,833), longer duration for repayment (341 days) and considerable interest (18.9%/year) as compared with the other credit sources. (**Table 12**). With these kinds of provision among its borrowers, raisers can be enabled to construct pig pens for a relatively greater number of animal holdings which they intend to raise at the start of their operation.

On the other hand, fewer cooperative raisers (8.3%) than non-cooperative counterparts (33.3%) seek the assistance of other individuals (relatives or friends) for credit due to the relatively smaller amount of principal (P10,500) it can provide (**Table 12**). For non-cooperative raisers, this source is important alternative for non-cooperative raisers who will not qualify to avail of the bank's credit program. Being an informal source of credit, terms and conditions governing the credit merely depend on the mutual agreement of the lender and the borrower involved. It is common that the borrower may not be charged with interest and in rare cases, he may not be even bound by a scheduled repayment due to the mutual trust and close relationship which exists between the two parties involved.

Cooperative raisers are exclusively allowed by their own organization to obtain credit for this particular purpose. Cooperative requires a shorter duration for repayment of credit (90 days) and a lower amount of principal (P32,666) than banks in order to allow more of its members to obtain its credit program. It also charges its members with lower interest rates (9.5% annually) than banks to enable its members to easily repay their credit (**Table 12**).

As far as the number of backyard pig raisers across the four study groups who obtain capital for their animals' housing, it is revealed that 53.3%, 26.7%, 13.3% and 6.7% of the Sorosoro-cooperative, Rizal-cooperative, Rizal-non-cooperative and Dumuclay non-cooperative raisers, respectively, did so by credit. Among the 45 raisers from Brgy. Sorosoro, 17.8 applied for credit for capital either from banks or their own cooperative. Findings reveal that majority (62.5%) of them obtain credit from banks than from their cooperative ((37.5%) because banks can provide them with much greater principal averaging P61, 000 (or ranging from P50,000-P100,000) payable at an average of 332.5 days (or ranging from 10-12 months) at 18% interest annually. These raisers started their operation with relatively greater number of animal holdings, thus required more amount of principal and longer duration of repayment period for the construction of the required pig pens. On the other hand, smaller proportion of these cooperative raisers obtain credit from their own cooperative because of its limited and relatively smaller principal averaging P32,666 (or P50,000 at most) payable within 90 days at 9.5% interest per year. SIDC, which is the

backyard pig raisers' cooperative based in Brgy. Sorosoro, has a program known as Extended Credit Line (ECL) for Hog Pen Program in which the member may be lent with cash at a maximum amount of P50,000 to construct a pig pen in starting his business. With the limited provision of this program, raisers can only grow a limited number of animals that is proportional to the kind of pig pen that can be constructed from the principal obtained from the cooperative's ECL for Hog Pen Program (SIDC Profile, 2004). For the 40 cooperative raisers of Brgy. Rizal, 10% applied for credit from banks and their relatives. Among them, 75% obtained credit from banks with principal averaging P108,333 (or ranging from P110,000-P200,000) payable within an average of 486.7 days (or ranging from 12-24 months) at an interest of 19.3% per year. Twenty-five percent obtain credit from their own relatives/friends with a principal averaging P10,000 and payable within 30 days without any interest. Matatag Cooperative does not provide its members credit for the construction of pig pens due to the cooperative's lack of program for this purpose. On the other hand, only 5% of the 40 non-cooperative raisers of this barangay obtain credit for capital equally from banks and their relatives/friends as well. Principal obtained from bank is P25,000 and is payable in 36 days with an interest of 18% annually while the principal obtained from relatives/friends averages P11,000 with no specified repayment date and interest rate. Lastly, the only respondent from Brgy. Dumuclay obtain a P5,000-credit from bank which is expected to be repaid within 6 months with an interest of 18% annually (**Table 12**).

Table 12. Characteristic of the credit arrangement extended by various sources

	Banks			Cooperative			Relatives/Friends		
	Payment Period (Days)	Principal (Pesos)	Interest/year (%)	Payment Period (Days)	Principal (Pesos)	Interest/year (%)	Payment Period (Days)	Principal (Pesos)	Interest/year (%)
Sorosoro (Coop)	332.5	61,000	18.0	90	32,666.7	9.5	–	–	–
Rizal (Coop)	486.7	108,333	19.3	–	–	–	30	10,000	–
Rizal (Non-coop)	365	25,000	18	–	–	–	–	11,000	–
Dumuclay (Non-coop)	180	5,000	18	–	–	–	–	–	–
Average	341	49,833	18.3	90	32,666	9.5	30	10,500	–

Summing up all these findings, it is generally conclusive that majority of backyard pig raisers, regardless of their production arrangement as cooperative or non-cooperative, have lower incidence of obtaining a credit for the construction of their animal houses to initiate their smallscale operation because they primarily utilize whatever available financial resources on hand. Low credit application can also be attributed to the relatively low investment required for raising a fair number of animals at the onset of their pig business.

This observation is supported by Delgado's (2003) own findings in his comparative study concerning the investment of various pig raisers who are categorized according to scale of operations. He found out that an extremely low application of credit for production purposes was not only limited to smallholder

pig raisers (10.3%) but among medium-scale independent commercial producers (8.0%) as well. In comparison, incidence of obtaining production loans was relatively higher for large independents (23.5%) and large contract growers (26.7%) because their average investment is almost 50 times greater than the average investment of the backyard pig raisers. Normally, backyard pig raisers who really don't have any means to start their operation primarily seek financial assistance from external sources. In addition, those who started their operation beyond their normal capacity and those intending to upscale their operation along the way may also obtain credit for housing to possible sources to facilitate the construction of their animal houses for relatively bigger animal holdings.

As far as the sources of credit for capital for housing is concerned, it is observed that banks, cooperatives and raisers' own relatives and friends have their own roles to play among the backyard pig raisers in general and between cooperative and non-cooperative raisers represented across the four groups of the studied samples. As a formal and an organized financial institution, bank still plays the most important role for extending credit not only for the cooperative but for the non-cooperative raisers as well.

6.2. Access to Credit for Growing Stocks

Table 13 shows generally the number of backyard pig raisers and particularly the number of cooperative and non-cooperative pig raisers who can acquire their animal stocks by credit from their respective sources during the course of their operation. As far as the access to credit for animals stocks are concerned, it is generally observed that there is also a very low incident (14.5%) of obtaining animal stocks by credit from external sources among the backyard pig raisers. For these animals, breeder stocks like sows and boars are not basically obtainable on credit thus, backyard pig raisers especially those engaging in farrow-to-weaning operation (Type 1) are required to obtain capital from other external sources (not from suppliers of breeding stocks) or to generate from own sources. On the other hand, grower stocks like weanlings can be obtained by qualified contract growers under a contract growing arrangement (paiwi) with an integrator. Raisers who obtain their animal stocks (growers) by credit are

Table 13. Access of backyard raisers to credit for growing stocks

Production Resource And Sources	Cooperative		Non-Cooperative		Coop Total (n=85)	Non Coop Total (n=80)	Grand Total (n=165)
	Sorosoro (n=45)	Rizal (n=80)		Dumuclay (n=40)			
		(n=40)	(n=40)				
Number of pig raisers who obtain animal stocks by credit	15 (33.3)	6 (15.0)	1 (2.5)	2 (5.0)	21 (24.7)	3 (3.8)	24 (14.5)
Sources of Credit							
Cooperative	15 (100.0)	5 (83.3)	1 (100.0)	–	20 (95.2)	1 (33.3)	21 (87.4)
Other farms	–	–	–	1 (50.0)	–	1 (33.3)	1 (4.2)
Other people	–	1 (16.7)	–	1 (50.0)	1 (4.8)	1 (33.3)	2 (8.4)
Total	15 (100)	6 (100)	1 (100)	2 (100)	21 (100)	3 (100)	24 (100)

Source: Field Survey, 2005

Note: ( ) indicate percent equivalence

prompted primarily by two main reasons which can either be due to their lack of own financial resources to acquire the animals or their own discretion to engage in grow-to-finish operation (Type 3) under a contract growing arrangement with an integrator (cooperative). On the other hand, majority of the backyard raisers who do not apply for credit for grower stocks have sufficient capital to procure them from their own financial means.

Comparing the cooperative and non-cooperative raisers, the former constitutes the bulk (87.5%) of the total number of raisers (24 raisers) who obtain their grower stocks by credit from their respective sources. Between them, more cooperative raisers (24.7%) obtained their grower stocks by credit mainly from their own cooperatives while only 3.8% of the non-cooperative raisers did so from any of the possible sources in their localities. Cooperative raisers mainly use their own organization as an integrator from which they can obtain their grower stocks under the cooperative's contract growing arrangement system (95.2%) while few (4.8%) of them who may either be not qualified or not prioritized from the cooperative's "paiwi" obtain their growers by credit from other individuals. On the other hand, non-cooperative raisers obtain their growers under a normal credit arrangement from any of their known commercial or other backyard pig raisers in their area. In rare cases, some non-cooperative raisers may even obtain some grower stocks from a cooperative provided he has some "close or favorable" relationships (through "kumpare" system) from an influential cooperative officer who will provide him credit for grower stocks although this practice is technically unauthorized.

Considering the number of backyard pig raisers across the four study groups who obtain credit for their growers stocks, it is revealed that 33.3%, 15.0%, 2.5% and 5.0% from Sorosoro-cooperative, Rizal-cooperative, Rizal-non-cooperative and Dumuclay non-cooperative raisers, respectively, did so by credit. All raisers from Brgy. Sorosoro obtain their grower stocks by credit under their own cooperative's (SIDC) contract growing arrangement. With the implementation of this program exclusively among its members, this has contributed a great part in the mutual development of the cooperative and its member-raisers living. For cooperative raisers who might have difficulties in procuring their own growers due to financial constraints, this program gives its members fair opportunity to raise pigs at a very economical way by receiving in advance a maximum number of 90 heads of fatteners. The cooperative will also bear the marketing of the slaughter pigs and will equally share the profit to its members after the cost of the growers in the whole production system has been evaluated. Thus, contract growers of the cooperative will always receive only half of the total profit for all the whole production system. However, most cooperative raisers who have adequate financial resources prefer to procure their grower stocks and other production requirements on their own in order to receive the whole benefits (profit) of their production. For the raisers of Matatag Cooperative in Brgy. Rizal, only few members are given an opportunity to obtain grower stocks under its "paiwi" system due to its limitations in carrying such kind of program. Therefore, it is evident that, unlike SIDC members who obtain credit for such purpose purely from their own cooperative, Matatag Cooperative raisers still look for some possible sources from where they can obtain grower stocks by credit. For Brgy. Rizal's non-cooperative raiser, it is technically unauthorized to obtain credit for grower stocks from Matatag Cooperative just because of his association to a cooperative official. Its credit program is ought to be exclusive only among its members and must not be compromised for the sake of the so-called "kumpare system" which gives merit to some who is not really worthy of something. Dumuclay raisers expectedly obtain credit from other commercial or backyard pig raisers in their area.

6.3. Access to Credit for Feeds and Veterinary Supplies

Feeds, among other inputs, constitute the bulk of the total cost irrespective of the diverse types of production activities in which a backyard pig raiser is engaged. Thus, feeds and even veterinary supplies have become commonly obtainable by credit from various sources as seen in **Table 14**. It is observed that nearly 60% of the total sampled backyard pig raiser obtains these production resources by credit from various sources in their respective localities. It is further noted that among them, majority (72.6%) are represented by raisers who are linked to a cooperative. Like the raisers who obtain credit for their grower stocks, those for feeds and veterinary supplies are likewise compelled by financial constraints while others obtain them by credit through the contract growing arrangement between the raisers and their cooperative. Nearly 40% of the total sampled respondents do not apply for credit for these commodities from any sources due to their financial capabilities to procure and sustain their animals' feed requirements until the animals are ready for market.

Table 14. Access of backyard raisers to credit for feeds and veterinary supplies

Number of pig raisers who obtain feeds and veterinary supplies by credit	Cooperative		Non-Cooperative		Coop Total (n=85)	Non Coop (n=80)	Grand Total (n=165)
	Sorosoro (n=45)	Rizal (n=80) (n=40)	(n=40)	Dumuclay (n=40)			
Number of pig raisers who obtain feeds and veterinary supplies by credit	34 (75.6)	27 (67.5)	10 (25.0)	13 (32.5)	61 (71.8)	23 (28.8)	84 (50.9)
Sources of Credit							
Cooperative	29 (85.3)	22 (81.5)	4 (40.0)	1 (7.7)	51 (83.6)	5 (21.7)	56 (66.7)
Dealers	1 (2.9)	1 (3.7)	3 (30.0)	9 (69.2)	2 (3.3)	12 (52.2)	14 (6.6)
Other people	–	2 (7.4)	–	1 (7.7)	2 (3.3)	1 (4.3)	3 (3.6)
Salesman	4 (11.8)	2(7.4)	3 (30.0)	2 (15.4)	6 (9.8)	5 (21.7)	11 (13.1)
Total	34 (100)	27 (100)	10 (100)	13 (100)	61 (100)	23 (100)	84 (100)

Source: Field Survey, 2005

Note: ( ) indicate percent equivalence

Between the cooperative and non-cooperative raisers, 71.8% and 28.8% of them, respectively, can obtain feeds and veterinary supplies by credit to various sources such as cooperatives, private dealers, salesman and other individuals. Cooperative raisers are found to obtain their feeds and veterinary supplies by credit principally from their own organization (83.6%) under the terms and conditions of "paiwi" system. However, it is also notable that some non-cooperative raisers (221.7%) who technically are not allowed to obtain anything including feeds and veterinary supplies by credit from cooperative can do so due to some illegalities which compromise the principles governing the cooperative's operation. Dealer of feeds and veterinary supplies is the main source of credit of non-cooperative raisers (52.1%) among others. These dealers are normally the immediate market channels used by private feed and veterinary manufacturers to direct their products to the end-users. Dealers can also be regarded as the cooperative's main competitor and normally sells feeds and veterinary supplies at a much lower price in order to attract more raisers in the community to purchase their farm inputs from them instead.

The transaction with a dealer is also relational and can be negotiated depending on the degree of closeness of relationships between them and the raisers. Non-cooperative raisers also regard salesmen (21.7%) as their potential source of credit for feeds and veterinary supplies. Salesmen are normally the mobile representative of the companies which provide the raisers credit lines ranging from 30-90 days depending on the policy of the company represented by the salesmen.

Considering the number of backyard pig raisers across the four study groups who obtain credit for feeds and veterinary supplies, 75.6%, 67.5%, 25.0% and 32.5% from Sorosoro-cooperative, Rizal-cooperative, Rizal-non-cooperative and Dumuclay non-cooperative raisers, respectively, did so by credit. Among the 34 raisers of SIDC in Brgy. Sorosoro who obtain these inputs by credit, 85.3% of them are done through their cooperative's various credit programs. For the cooperative's "paiwi" system, half of the total feed and veterinary cost incurred during the growing period will be included in the computation of the cooperative raisers' patronage refund. This is one of the advantages of the cooperative raisers under their organization's contract growing program. In addition to the paiwi system of this cooperative, SIDC also offers its qualified members a program known as Expanded Credit Line (ECL) for Hog Fattening Project. Under this program, a member may apply for a credit at a maximum of P200,000. This scheme secures collateral like land titles and credit is exteaded in the form of feeds, not cash. It is payable after 5 months after which time the pigs are already marketed. Some additional credit sources utilized by other SIDC members for feeds and veterinary supplies include private dealers (2.9%) and salesman (11.8%). For the 27 cooperative raisers of Brgy. Rizal who obtains credit for feeds and veterinary supplies, majority (67.5%) of them applied through their own cooperative's (Matatag Cooperative) "paiwi" program. However, many Matatag Cooperative raisers complain about the limited number of beneficiaries that its "paiwi" program can serve due to the cooperative's poor operation. It even extends credit for feeds and veterinary supplies even among non-member raisers who have close associations from the cooperative's officials. This malpractice is observed to 40% of the 10 non-cooperative raisers of Brgy. Rizal who indicates Matatag Cooperative as their chief source of credit for these kinds of inputs. Raisers of Brgy. Dumuclay cite the private dealers as their principal source of credit for feeds and veterinary supplies in the absence of any cooperative operating in their barangay.

7. Contribution of Backyard Pig Raising to Household Economy

Pig raising has been regarded as an important entrepreneurial livestock activity. Based on survey, it was found out that 73% of the sampled backyard raisers consider pig farming as their primary source of income (Survey, 2005). **Table 15** shows the contribution of income from pig raising to the total household economy of cooperative and non-cooperative raisers in general and of four study groups in particular. In the context of smallholder pig operation, income may come to any of the 5 types of production activities commonly engaged into by the backyard pig raisers. For each production activities, cooperative raisers are seen to have higher monthly net income from pig raising as compared to the non-cooperative raisers mainly because of the former's various programs which increase their access to credit for necessary production resources like capital, growing stocks, feeds and veterinary supplies to facilitate an optimum operation. Comparing the cooperative and non-cooperative raisers monthly net income from pig raising, it is observed that the former's monthly net income of P 15,955.9 is nearly twice as much as the non-cooperative raisers average monthly net income of only P 7,807.7. Despite the substantial difference between them, it is still noted that their respective contribution to the total

household economy is very significant as seen on the 79.9% and 61.9% share of pig raising income to the total household economy of the cooperative and non-cooperative raisers, respectively. Such findings are also observed across the four sampled study groups where the monthly net income from pig raising and its contribution to the total household economy is greater among the cooperative raisers from Brgy. Sorosoro and Brgy. Rizal than their non-cooperative counterparts in Brgy. Rizal and Brgy. Dumuclay.

Table 15. Monthly income, expenses and savings of backyard pig raisers

Income Sources	Coop		Non-Coop		Coop (n=85)	Non-Coop (n=80)
	Sorosoro (n=45)	Rizal (n=80)		Dumuclay (n=40)		
		(n=40)	(n=40)			
Pig raising Income/household	20,921.2 (84.4)	8,870 (71.2)	7,724.9 (65.9)	7,890.4 (58.5)	15,955.9 (79.9)	7,807.7 (61.9)
Non-pig raising income/household*	3,858.9 (15.7)	3,586.2 (28.8)	4,001.5 (34.1)	5,600.8 (41.5)	3,722.6 (20.1)	4,801.2 (38.1)
Total income/househod	24,780.1 (100)	12,456.2 (100)	11,726.4 (100)	13,491.2 (100)	18,482.9 (100)	12,608.9 (100)
Total expenses/household**	**10,530.9**	**6,525.3**	**5,970.8**	**5,827.2**	**8,528.1**	**5,899**
Total savings/household	13,978.6	5,930.9	5,755.6	7,664	9,954.8	6,709.8

Source: Field Survey, 2005

* Note: Non-pig raising income comes from other agricultural activities (crop and poultry farming) and other non-farm livelihood like smallscale entrepreneurial activities, salaried job, remittance and others.

** Includes food, utility services (electricity, water), transportation, medication, education and others.

It is also observed that cooperative and non-cooperative raisers still both have additional sources of income from other agricultural activities (crop and poultry farming) and other non-farm livelihood like smallscale entrepreneurial activities, salaried job, remittance and others. This is a wise decision for both groups of raisers in order to have greater amount of savings for their household. For incomes generated from these activities, it is observed that non-cooperative raisers in general and those from Brgy. Rizal and Brgy. Dumuclay in particular have relatively higher income as compared with the cooperative raisers from Brgy. Sorosoro and Brgy. Rizal. These observations may be viewed as a coping strategy of non-cooperative raisers to further increase their household total income given the lesser income that they can obtain from pig raising. Consequently, the contribution of income from non-pig raising activities to the total household economy of non-cooperative raises is much greater (38.1%) than the cooperative raisers with only 20.1%. Combining their income from both sources, cooperative raisers' monthly total income (P18,482.9) is greater than the non-cooperative raisers (P12,608.9) by as much as 46.5%. Across the four study groups, Brgy. Sorosoro is found to have the highest monthly average income (P24,780.1) followed by Brgy. Dumuclay-non-cooperative raisers (P13,491.2) who also happens to earn the highest monthly income (P 5,600.8) from other secondary economic activities; Brgy. Rizal cooperative raisers with P12,456.2 and its non-cooperative raisers with the least at P11,726.4.

The level of income generated by cooperative and non-cooperative raisers from pig raising and other additional economic activities is an indication that the living conditions of each raisers are improved by

having an adequate means of meeting all their basic socioeconomic needs and other priority expenses. On the average, cooperative raisers are found to incur greater monthly expenses amounting to P 8,528.1 than the non-cooperative raisers who only have monthly expenses averaging at P5,899.0. As far as the four study groups are concerned, Brgy. Sorosoro, Brgy. Rizal cooperative and non-cooperative, and Brgy. Dumuclay raisers have monthly average expenses amounting to P10,530.9, P6,525.3, P5,970.8 and P5,827.2, respectively.

Table 16 shows the allocation of the monthly expenses of cooperative and non-cooperative households. It is evident that that bulk which constitutes 50-60% of the households' monthly expenses is allotted for food while the next priority among these expenses is the education of the raisers' children. Other expenses are directed to meet the households' basic socioeconomic needs like utility services (electricity, water, gas), medication, clothing, transportation and communication.

In addition to meeting the households' basic socioeconomic needs, it is also necessary to set aside a considerable part of the income for savings purposes. It is observed in the study that generally, cooperative raisers have more monthly savings averaging to P9,954.8 than the non-cooperative raisers who keeps a fair savings amounting to P6,709.5. However, this general finding is not observed across the cooperative and non-cooperative respondents in the four sampled barangays. Brgy. Sorosoro cooperative raisers have the highest monthly savings with P13,978.6; Brgy Dumuclay non-cooperative raisers with P7,664.0; Brgy. Rizal cooperative raisers with P5,930.9 and its non-cooperative raisers with P5,755.6.

Summing this section up, it is worthy to note that there is a trend that directly relates the membership to a well-managed cooperative with higher level of income from backyard pig raising. It is also implied that the monthly net income obtained from pig raising alone is not only enough to cover a month's household expense but to provide a fair savings for them as well. Thus, it becomes indicative that backyard pig raising truly plays substantial role in the improvement of the household's overall economy. The income obtained from other additional economic activities can be viewed as something which no longer seek to make the households' both ends meet but to further increase their respective savings in order to improve their living conditions all the more.

Table 16. Distribution of expenses of backyard pig raiser household, %

Income Sources	Coop		Non-Coop		Coop (n=85)	Non-Coop (n=80)
	Sorosoro (n=45)	Rizal (n=80) (n=40)	(n=40)	Dumuclay (n=40)		
Food	43.8	55.6	62.6	60.1	49.7	61.4
Education	19.5	18.5	4.8	10.1	19.0	7.5
Medication	3.5	2.11	7.8	4.3	2.8	6.1
Clothings	1.7	0.8	0.2	1.3	1.3	0.8
Utility Services						
Water	9.5	4.3	4.6	4.4	6.9	4.5
Electricity	9.0	5.8	5.9	6.7	7.4	6.3
Gas	2.9	2.13	2.0	2.3	2.6	2.2
Transportation	7.2	8.3	11.2	7.5	7.8	9.4
Communication	2.9	2.4	0.9	3.2	2.7	2.2
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Field Survey, 2005

8. Conclusion

This paper has shown that the backyard pig industry has been an important component of the country's economic growth by playing a substantial role in the agricultural economy of the Philippines in general and in the household economy of the smallholder raisers in particular. The emergence of the "Livestock Revolution" in areas with substantial increase in pork demand caused the backyard pig industry to hardly expand their smallscale operation in order to cope with the growing livestock demand of the consuming public. This prompts the government and private sectors within the animal industry to assemble backyard pig raisers into organized institutions like cooperative in order to protect their welfare against the commercial pig industry which gains dominance in the midst of the "Livestock Revolution".

The promotion of cooperative movements are supported by backyard pig raisers who became motivated to join a cooperative in their respective localities due to the various programs and services which they will be entitled to upon membership. These programs and services are intended primarily to promote the socioeconomic welfare of smallholder farmers in general and to improve the backyard pig operation of its members in particular. Access to credit for essential production resources has been found to be the backyard pig raisers' most widely perceived motivation for joining a cooperative and has been regarded as a viable measure which will enable them to be linked to the whole spectrum of the market chain ranging from the procurement of various production inputs like capital, growing stocks, feeds and veterinary supplies to the marketing of products in a dynamically growing animal industry.

Backyard pig raisers, regardless of their production arrangement as cooperative or non-cooperative, are found to have low incidence of obtaining credit for capital for the pigs' housing requirements due to their sufficient capital for the construction of pig pens for the fair number of animals which they intend to raise in the beginning of their operation. However, raisers who need credit for capital for housing to initiate their relatively bigger operation choose their potential sources that can meet their own production requirements. Cooperative raisers are found to have wider access to credit for this purpose than their non-cooperative counterparts.

On the other hand, the incidence of obtaining credit for growing stocks, feeds and veterinary supplies among backyard pig raisers are relatively higher than in credit for capital. For cooperative raisers, credit for this purpose is facilitated through the cooperative's contract growing ("paiwi") arrangement. With this program, member-raisers are given the opportunity to raise pigs at a very economical means. It is an effective scheme not only to provide livelihood opportunities to the member-raisers but it also improves their access to essential but limited resources for pig production. However, some malpractices in "paiwi" which are noted in some areas, like Brgy. Rizal, include the extension of credit for growing stocks, feeds and veterinary supplies to non-cooperative raisers due to the prevailing "kumpare" system in the area. Ideally, cooperative credit services for various production resources are intended for member raisers only but non-cooperative raisers, who have some relatives affiliated to cooperative, can make use of their name in order to gain access to credit from that cooperative as well.

There is a direct relationship found between membership to a well-managed cooperative, like SIDC and higher level of income from backyard pig raising. The monthly net income obtained from pig raising alone is not only enough to cover a household's one-month expense but to provide a fair savings for the raisers' household as well. This, backyard pig raising plays substantial role in the improvement of the household's overall economy. The income obtained from other additional economic activities can be viewed as something which no longer seeks to make the households' both ends meet but to further

increase their respective savings in order to improve their living conditions all the more.

References

Anonymous. (2002), *Sorosoro Ibaba Development Cooperative Profile, Batangas,* Philippines, Sorosoro Ibaba Development Corporation.

Costales, Achilles C. (2002), *Market and Policy Changes Impacting on Smallholder Hog Producer's Participation in the Growing Philippine Market.* College of Economics and Management (CEM), University of the Philippines Los Baños (UPLB), Laguna, Philippines.

Delgado, et al. (2003), *Project on Livestock Industrialization, Trade and Social-Health- Environment Impacts in Developing Countries.* International Food Policy and Research Institute (IFPRI), 2033 K Street, NW Washington, DC 20006-1002 USA.

Government of the Philippines. (2004), *Registration of Cooperatives (by type/categories/others)*. Region 4 Cooperative Development Authority, Calamba, Laguna, Philippines.

Government of the Philippines. (2001), *Swine Industry Performance Report,* Bureau of Animal Statistics (BAS), Manila Philippines.

Government of the Philippines. (2002), *Swine Industry Performance Report,* Bureau of Animal Statistics (BAS), Manila Philippines.

Government of the Philippines. (2003), *Swine Industry Performance Report,* Bureau of Animal Statistics (BAS), Manila Philippines.

Government of the Philippines. (2004), *Swine Industry Performance Report,* Bureau of Animal Statistics (BAS), Manila Philippines.

Pimentel, Aquilino Q. Jr, et al. (1994), *Cooperative Code of the Philippines. Theory, Law and Practice with CDA Memorandum Circular 1992-1999*. White Orchids Printing and Publishing Company, Manila, Philippines.

Tibayan, Mayette U. (2003), *Backyard Hog Farming Gets Boost*. The Philippine Star. Manila, Philippines. http://www.philstar.com/philstar/Business200312204503.htm. January 8,2004.