

## Chapter 5

### Economic analyses

As seen in the preceding chapter, the type of diet fed to pigs affects the biological efficiency of the pig-raising system. But what is most biologically efficient is not necessarily the most cost-effective. Farmers must balance their strategy for improving production efficiency with practices that are economically feasible for them. In backyard pig production, feed accounts for 70 to 80 percent of production costs. It is perhaps the most important factor in the determination of economic efficiency and profitability. The economic analyses presented here will focus especially on the economic effects of using different feed diets.

The same 33 farmers who participated in feed and weight record-keeping also recorded all costs and revenues involved in their pig-raising activities, during the period of four months. Benefit-cost analysis provides the overall picture of the profits gained after investment: net benefits indicate profitability, and the benefit-cost ratio and return to capital describe the economic efficiency of the enterprise. Results are averaged across the 33 households participating in the study. Furthermore, since perhaps the

most important economic measure of overall production efficiency is the production cost per unit of pig weight produced (Reilly, 1978), these costs are also calculated.

In order to compare the economic efficiency of different feed regimes or of raising different herd sizes, gross margin analyses are employed. Gross margin analysis is very useful for comparing relative efficiencies of management practices such as feeding, since basically it looks at differences in variable costs, while assuming that fixed costs such as overheads will be the same. It is also used to compare the economic returns for farmers who use different proportions of their own home-feed to bought feed. Finally, the efficiency of pig-raising is compared with other enterprises on the farm such as crop cultivation, in terms of capital returns to labor invested.

To establish the background information, however, results from informal interviews with Mae Taeng Livestock Officers, and from formal interviews with farmers will be discussed first, as they give an overall picture of the economic conditions and activities involving pig production at the backyard scale.

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## 5.1 Economics of pig-raising

### 5.1.1 Marketing conditions

In most cases, fattening pigs are bought from the farmer by village dealers, who transport the pigs to their own slaughterhouse. After one or two days the pigs are slaughtered. Some dealers will sell and deliver the carcass at wholesale prices to retailer stalls in the village market; others will also act as retailers themselves.

The local dealers generally pay the pig producers in cash. If more than two pigs were sold, however, payment may be divided into two equal parts, the second occurring one week later. The price of pork in the village, whether fat meat, lean or layered meat, is about equal to the price in the Chiang Mai city markets. However, the quality for sale in the village is not usually as high as in the city. In addition, the observed price of heads and entrails in the village was higher than in the city. This is influenced by the popularity of entrails consumption by rural northern people.

The Chiang Mai Provincial Internal Trading Committee is empowered to set the price of lean, fat and layered meat in

order to prevent profiteering. However, the wholesalers and retailers are able to increase the price of heads and entrails, which are not controlled by the government. Furthermore, dubious tactics in the weighing and cutting of meat may occur. The close relationship between wholesalers and retailers enables them to make high profits in village markets, while shutting out the pig producers, who are at a disadvantage.

#### 5.1.2 Investment and profit

The general financial analysis of investment and profit in pig-raising is described here according to the data results from the formal survey of 140 respondents. Thus, as in Chapter 2, the information from the respondents can be divided and averaged by paddy holding size, representing small, medium, and larger-scale farmers. The results are the estimates given by the farmers themselves, and therefore are approximate.

##### 5.1.2.1 Expenses in pig production

Farmers reported on their main expenses in pig raising: the price of piglets and cost of feed (Table 23). Piglet price did not vary much between farmers of different

Landholding: reported averages were 584 Baht per piglet. When farmers estimated the overall cost of purchased feed required to raise one piglet to saleable age the average cost was 863 Baht per pig.

Table 23. Main expenses in pig raising.

	Farm size			Average
	Small	Medium	Larger	
a. General investment				
Avg. raising time(days)	129.2	135.6	142	135.6
Avg. raising expense(Bt)	1,417	1,374	1,360	1,383.7
Avg. piglet price(Bt)	593.6	578.9	580	584.2
Avg. feed expense(Bt)	823.8	975	780	862.6
b. Activities associated with purchase of pig feed				
Purchase amount		(percent)		
1 to 5 kg	30.65	27.27	0.00	
6 to 10 kg	25.81	18.18	30.00	
30 kg sack	43.55	54.55	70.00	
Payment method		(percent)		
cash	98.39	93.94	60.00	
credit	1.61	6.06	40.00	
Milling rice		(percent)		
Avg. mill charge <sup>1</sup>	6.98	7.00	7.50	
Distance to mill (meters)	448.5	369.6	340.0	

<sup>1</sup> Miller's charge if the farmer wishes to keep rice by-products (Baht per 20 kg sack of rice paddy).

Note: Numbers in parentheses are standard deviations (std).

Source: Formal survey, 1990.

In terms of payment methods and practices, apparently the vast majority of small and medium-scale farmers pay for their expenses in cash (98 and 94 percent respectively), although up to 40 percent of the larger-scale farmers use credit. Expectedly, the larger-scale farmers frequently purchase feed in the large 30 kg sacks (70 percent), while 55 percent of small-scale farmers and 45 percent of medium-scale farmers only can afford to buy feed in small (1-5 kg) or medium (6-10 kg) sacks. This may also be related to the purchase of complete weaning food in large sacks by the larger-scale farmers who need it for their piglets, as discussed earlier. When farmers bring rice to the miller, if they want to keep the rice by-products they must also pay a mill charge. This is generally 6 to 8 baht per medium-large sack of rice (20 kg). The variation in charge reflects the quality of the bran and broken rice returned. On average, farmers must travel less than half a kilometer to reach the miller. Investment in terms of days spent raising pigs to sale also varies, with larger-scale farmers on average raising pigs for more days (142) than medium-scale farmers (136) or small-scale farmers (129), since they often buy quite young piglets.

Since feed costs are so important to the economics of pig production, farmers were asked to provide details on the

costs they incur during different developmental stages of their pigs. As shown in Table 24, the average feed cost apparently increases from piglet (11.2 baht) to weaning (14.6 baht) to fattening (17.6 baht), with little differences for farmers from different farm sizes.

Table 24. Daily feed cost according to age of pig.

Pig stage	Average cost per head of pig (Bt)			
	Farm sizes			Average
	Small	Medium	Larger	
Piglet	11.02	11.64	10.80	11.15
Weaning	13.83	15.04	15.00	14.62
Fattening	17.54	18.55	16.60	17.56

Source : Formal survey, 1990.

An overall look at pig-raising expenses, including only piglet price and purchased feed, can illustrate the different scale of investment put forth by farmers of different farm sizes and economic standing. The distribution of the expenses indicates that larger scale farmers tend to minimize their investments (Table 25, Figure 40). 80 percent of these farmers incur expenses per head of pig that total less than 1,400 Baht. On the other hand, the majority of medium scale farmers put out between 1,210 and 1,600 Baht (76 percent), as do small-scale farmers (86 percent). This may be because larger-scale farmers need to buy less commercial feed, having more rice by-products.

Table 25. Expenses incurred per head of pig.

Range of expenses	Percentage of expenses		
	Farm size		
	Small	Medium	Larger
1000 to 1200	9.5	19.4	40.0
1210 to 1400	50.8	47.8	40.0
1410 to 1600	34.9	28.4	0.0
1610 to 1800	4.8	4.5	20.0

Source: Formal survey, 1990.

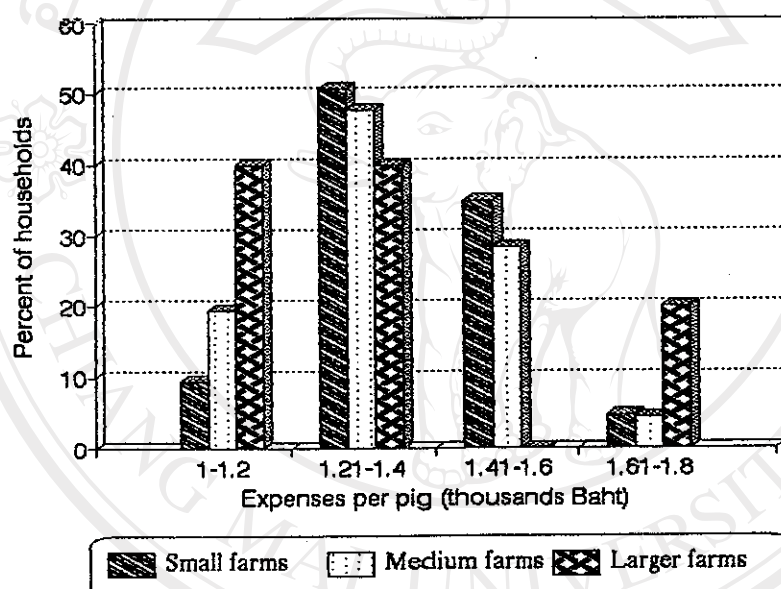


Figure 40. Distribution of annual expenses in pig production.

#### 5.1.2.2 Income from pig-production

The sale price of a pig is usually determined by the buyer on a sight basis, rather than by weight. Since the



buyer will consider overall size, as well as general appearance and perceived fat content, those farmers who tend to raise their pigs longer also tend to get higher prices. Larger-scale farmers apparently achieve higher gross income from pig sales (Table 26, Figure 41). Sixty percent of larger-scale farmers received between 1,501 and 1,700 Baht per head, while the other forty percent actually sold their pigs at the price of over 1,900 Baht per head. In contrast, nearly half of small-scale farmers received between 1,300 and 1500 Baht (46 percent), with forty percent receiving between 1,501 and 1,700. Medium-scale farmers had a range of sale prices similar to the small-scale farmers, but with an extra 22 percent getting better prices, and a few (15 percent) actually getting over 1900 Baht per head.

Table 26. Income from pig production.

	Farm size		
	Small	Medium	Larger
a. Avg sales per head(Bt)	1583	1680	1850
b. Percent of range of sale prices per head			
1300 to 1500	46.0	31.3	0.0
1501 to 1700	41.3	31.3	60.0
1701 to 1900	9.5	22.4	0.0
over 1900	3.2	14.9	40.0

Source: Formal survey, 1990.

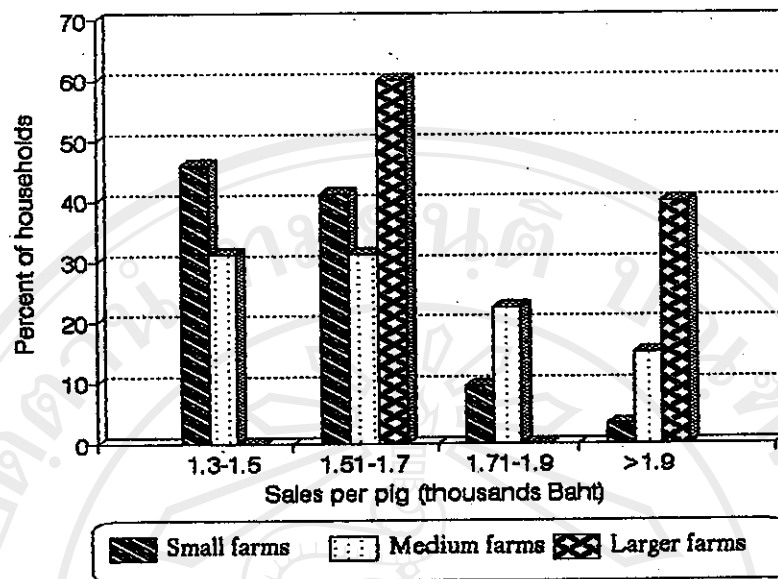


Figure 41. Distribution of sales prices per pig.

A general preliminary picture of net profit acquired per head of pig can be drawn by deducting the raising costs from sale price. Data in Table 27 and Figure 42 show that nearly two-thirds of the small-scale farmers net less than 200 Baht in profits per head of pig raised, with fully 22 percent getting zero profits or actually losing money. Medium-scale farmers do slightly better: only 7 percent gain nothing or lose money, while 70 percent net up to 400 Baht, and 22 percent net over 400 Baht. The larger-scale farmers, naturally, again make the greatest profits: none get less than 200 Baht, 60 percent make between 201 and 400 Baht, while 20 percent actually net over 800 Baht profit per one pig. Apparently the greater resources of the larger-

scale farmers enable them to gain relatively higher profits than the other farmers.

Table 27. Estimated net income (Baht per head of pig).

	Farm size		
	Small	Medium	Larger
a. Average profit	165.8	306.5	490
b. "Usual" profit <sup>1</sup>	176.1	338.8	540
c. Range of net income/pig(Bt)			
Less than 0	22.2	7.5	0.0
1 to 200	41.3	34.3	0.0
201 to 400	34.9	35.8	60.0
401 to 600	1.6	17.9	20.0
601 to 800	0.0	4.5	20.0

<sup>1</sup> Income as reported by farmers.

Source: Formal survey, 1990.

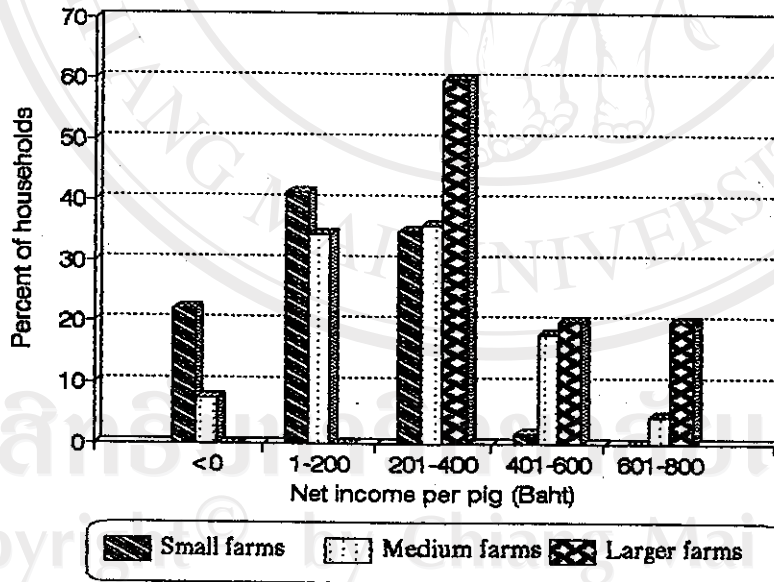


Figure 42. Distribution of estimated net income per pig.

In the following sections, a more detailed benefit-cost analysis will be presented, along with comparison of the economics of different management practices.

## 5.2 Benefit-cost analysis

The benefit-cost analysis provides a useful picture of the costs leaving the system and the benefits coming in. These costs and returns can also be divided into cash and non-cash items, which allows one to calculate the return to capital, in other words, the effectiveness of one monetary unit of investment in producing profit. Benefit-cost ratios also identify the proportion of income to expense, and are a good measure of the economic profitability of the enterprise. Usually the opportunity cost of family labor can be included in this measure. This was calculated for the study participants. However, the family labor used was often by elders who would not otherwise be working, or else by adults who provided care at brief intervals early in the day or in the evening, again at times that they would not be able to work at something else. So net benefits and benefit-cost ratios were calculated a second time, excluding the labor cost, in order to see the benefits that may more realistically represent the farmers' situation.

Benefit-cost results are displayed in Table 28, which includes data averaged for farmers using various diet types. Farmers using Diets 1 and 2 (the diets including vegetables) had both low gross income from the sale of pigs (1,460 Baht) as well as low production costs (1,401 Baht). In comparison, farmers who did not add vegetables (Diets 3 and 4) had higher income and higher production costs (1,550 and 1,552 Baht respectively). Apparently, the vegetable providers gained more net benefits than those not using vegetables, in terms of either cash benefit or overall net benefit. This affected their higher benefit to cost ratio (1.08 versus 1.01), and higher return to capital (1.18 versus 1.11). The table indicates that non-cash costs were similar for the two groups; the differences in benefit mainly resulted from the lower feed cost which the vegetable group incurred.

The vegetable group can be expected to spend extra time in gathering and preparing vegetables, approximately 30 minutes to prepare five kilograms of fresh-weight vegetables, or less if the vegetables come from their own crop waste. However, the total time that this group spent was about the same, even slightly less than the farmers not adding vegetables, so the conversion to Baht revealed few differences (133 versus 136 Baht). The reason is that the

Table 28. Benefit-cost analysis of pig production (Bt per pig).

	Diet 1&2	Diet 3&4	Avg 1,2,3&4	Diet5
<b>Income</b>				
1. Cash (A1)				
Sale of pigs	1430.3	1517.4	1470.8	1997.0
2. Non-cash (A2)				
Manure	29.3	33.0	31.0	12.7
<b>A. Gross income</b>	<b>1459.6</b>	<b>1550.4</b>	<b>1501.8</b>	<b>2009.8</b>
<b>Costs</b>				
1. Cash cost (B1)				
Piglet	488.9	490.9	489.8	517.8
Feed	810.1	968.6	883.7	1254.5
Medicine	20.7	19.8	20.3	55.0
Subtotal (avg)	1255.2	1368.9	1291.9	1741.2
2. Non-cash (B2)				
Labor <sup>1</sup>	133.2	136.2	134.7	38.6
Depreciation <sup>2</sup>	15.4	15.5	15.2	15.5
Interest <sup>3</sup>	28.2	31.5	29.8	40.1
Subtotal (avg)	175.5	183.2	179.1	94.1
<b>B. Gross cost</b>	<b>1400.7</b>	<b>1552.1</b>	<b>1471.0</b>	<b>1835.3</b>
<b>C. Net benefit (A - B)</b>	<b>58.9</b>	<b>-1.6</b>	<b>30.8</b>	<b>174.5</b>
<b>D. Net benefit (excl. labor) (A - (B-labor))</b>	<b>192.1</b>	<b>134.6</b>	<b>165.4</b>	<b>213.0</b>
<b>E. Net cash benefit (A1 - B1)</b>	<b>205.2</b>	<b>148.5</b>	<b>178.8</b>	<b>255.9</b>
<b>F. Ben:cost ratio (A/B)</b>	<b>1.08</b>	<b>1.01</b>	<b>1.05</b>	<b>1.10</b>
<b>G. Ben:cost ratio (excl. labor) (A/(B-labor))</b>	<b>1.20</b>	<b>1.13</b>	<b>1.16</b>	<b>1.16</b>
<b>H. Return to Capital(RTC) (A1/B1)</b>	<b>1.18</b>	<b>1.11</b>	<b>1.15</b>	<b>1.15</b>

<sup>1</sup> Labor costs were calculated as Baht per day ( Bt/hour)

<sup>2</sup> Depreciation value used the straight-line method.

<sup>3</sup> Interest (or opportunity cost of capital) was calculated as cash cost multiplied by local interest rate of 7% per year.

Note: All data are averaged from 33 benefit-cost tables for each of 33 farmers. Therefore within this table, figures do not add up.

Source: HHRK, 1990.

vegetable group apparently spend less time in general care and management. When labor is excluded from the benefit-cost ratio and returns to capital, the data indicate that the vegetable group can be considered profitable and efficient (BCR = 1.20 and RTC = 1.18).

In contrast to the first four diets described above, the farmers using compound feed only (Diet 5) had highest gross income and highest production costs (2010 and 1853 Baht respectively). They can be described as close to a semi-commercial orientation. An important difference is that their labor costs are significantly lower (only 39 Baht versus 135 Baht average for the other diets); this is because their ready-made diet is very simple and quick to prepare and give. This group showed the highest net benefit (175 Baht), which was greater than the vegetable and non-vegetable groups by as much as 115 and 176 Baht respectively. This gap narrows when labor costs are excluded, which were rather high for the Diet 1 through 4 types. In that case, diet 5 had the advantage over vegetable and non-vegetable groups by only 21 and 78 Baht respectively.

The benefit-cost ratio of Diet 5 was also better than that of the other four diets (1.10 versus 1.05), but when

labor costs were excluded the average BCR of the other four diets was as high as of Diet 5 (1.16 for both). In fact, the BCR without labor for the vegetable diets (Diets 1 and 2) was actually the highest of all diet types (1.20). Return to capital for Diet 5 was 1.15, slightly better than the non-vegetable diets (1.11), but surprisingly lower than the RTC for the vegetable diets (1.18). Overall, farmers using Diet 5 had the highest profits per pig produced. However, the efficiency of their capital investment (RTC) and the efficiency of their cash plus non-cash investment (excluding labor costs) was surpassed by those adding vegetables to their diets.

### 5.3 Production cost per unit liveweight produced

In a previous section, feed cost per unit liveweight produced was examined. This provided a measurement of feed efficiency. The overall economic efficiency of the enterprise can be evaluated by calculating the production cost per unit of liveweight achieved at time of sale, which includes all cash costs such as feed, piglet price, and medical costs. Family labor was not included. Production costs per one kilogram of liveweight at sale are given in Table 29, along with income and profit per kilogram sale



weight. The figures are separated for pigs raised on the five diets.

Table 29. Production (cash) cost, cash income and cash benefit per one kilogram sale weight (Baht).

Diet	(Baht)		
	Cash cost per kg sale-wt.	Cash revenue per kg sale-wt.	Cash profit per kg sale-wt.
1 & 2	19.83	22.59	2.77
3 & 4	20.43	22.65	2.22
1,2,3 & 4	20.13	22.62	2.50
5	21.16	24.27	3.11

Source: HHRK, 1990.

The data indicate that the vegetable group (Diets 1 and 2) have lower production costs and higher revenue and profits per kilogram sale weight than the non-vegetable diets. The latter (Diets 3 and 4), which may substitute more commercial feed for vegetables, have production costs of 20.43 Baht (versus 19.83 Baht for Diets 1 and 2), and lower profits as well (2.22 Baht versus 2.77 Baht per kilogram weight). Most likely these production costs are strongly influenced by the feed costs. In contrast, the semi-commercial (Diet 5) gains more profit per kilogram of sale weight than the average of the other "low-profit" based diets (3.11 versus 2.5 Baht per kilogram liveweight). Thus, in addition to the advantage of better feed conversion by pigs fed compound feed only (Diet 5) as discussed in the

earlier chapter, they also achieve a higher economic profitability in terms of overall production costs.

#### 5.4 Gross margin analyses

Gross margin analysis enables one to compare the economic profitability of an enterprise under different management programs. Gross margin is the difference between gross income and variable costs for an enterprise. In this study, gross margins were calculated for pig production with pigs fed different diets, with farmers using different proportions of own (home) feed used, for different pig herd sizes, and for piglets raised from different initial weights.

##### 5.4.1 Comparison of diet

The gross margin analysis which compares economic effects of using the five different diets is presented in Table 30. When variable costs are deducted from gross income, the resulting gross margin for farmers using Diet 2 (compound feed with vegetables) was higher than for the other backyard-type diets (1,3 and 4). This higher number may be the result of lower feed costs, since the other costs such as piglet price, medical and veterinary expenses were

similar between all groups. When the vegetable diets are compared with the non-vegetable diets, the results confirm that the former group has a remarkably higher gross margin than the latter (234 Baht versus 181 Baht). In fact, it is even comparable to the semi-commercially oriented group of Diet 5, which had the highest gross margin of 269 Baht per pig. So this analysis points to the economic savings of farmers who add low-cost vegetables to their pig feed.

The gross margin of all 4 backyard type diets averages to 178.5 Baht. This represents only 66 percent of the gross margin achieved by the semi-commercial Diet 5, and again points to the favorable economic profitability of the latter.

Table 30. Comparison of gross margins by diet (Bt).

Diet	Gross income	Variable cost				Total cost	Gross margin
		Bought feed	Own feed	Piglet price	Medic costs		
Diet1	1495.1	811.8	199.5	522.2	26.7	1360.7	134.4
Diet2	1452.3	695.8	73.1	482.1	19.5	1197.4	254.9
Avg1&2	1459.6	715.5	94.6	488.9	20.7	1225.2	234.4
Diet3	1559.7	851.5	90.7	487.9	26.9	1366.3	193.3
Diet4	1510.8	894.5	119.2	495.9	7.7	1517.3	178.5
Avg3&4	1550.4	858.2	110.4	490.9	19.8	1368.9	181.5
Avg1,2,3&4	1510.8	764.5	119.2	495.9	20.3	1397.9	178.5
Diet5	2009.8	1254.5	0.0	517.8	55.0	1741.2	268.6

Source: HHRK, 1990.

## 5.4.2 Comparison by proportion of own feed used

Following the observation that own or home feed products will be much less expensive than commercial products, the hypothesis can be presented that the more home feed products are included in the diet (i.e. in greater proportions to bought feed), then the gross margins ought to be higher, because of reduced variable costs. Table 31 summarizes the gross margin data for pigs fed different proportions of home feed.

Table 31. Comparison of gross margins by proportion of own feed <sup>1</sup> (Baht).

Diet	Prop1	Prop2	Prop3
1 & 2	(none)	279.92	451.30
3 & 4	179.56	166.14	207.13
1, 2, 3 & 4	179.56	194.18	228.84

<sup>1</sup> Proportion 1 = 10 to 40 percent own feed  
 Proportion 2 = 50 to 70 percent own feed  
 Proportion 3 = 80 to 100 percent own feed

Source: HHRK, 1990.

The overall gross margin for pigs fed a high proportion of home feed (in the amount of 80 to 100 percent) was the highest (229 Baht). This can be separated into the vegetable-fed group, with a gross margin of 451.30 Baht, and the non-vegetable group, with a gross margin of 207.13 Baht.

As the proportion of home feed products in the diet is decreased to only 10 to 40 percent, the gross margin also drops to an average 180 Baht. The conclusion would be that the more the farmer includes home feed products, then the greater the returns, as measured by gross margins. As previously discussed, those farmers who use the highest proportion of home feed are those individuals who also own rice mills.

#### 5.4.3 Comparison by herd size

Many studies have argued that backyard pig production is not economically profitable because it is small scale in nature. These studies generally propose only semi-commercial and commercial pig production enterprises to be economical. But the reality for average farmers is that backyard production is the scale they can accept into their farming system. So for these farmers it would be useful to know if small differences in herd size would affect their economic returns. The gross margins resulting from management of different herd sizes are compiled in Table 32.

Results show that a herd size of 6 to 10 pigs has the highest gross margin at the backyard level (336.1 Baht per pig), while the smaller herd size of 3 to 5 pigs has the

lowest gross margin (145.1 Baht). The largest herd size (over 11 pigs) has a intermediate gross margin of 250.2 Baht, which suggests diminishing returns per head of pig. On the other hand, since they raise many pigs they are likely to still earn an acceptable profit, even though it can be said that their enterprise is not as economically efficient on a per pig basis. The average gross margin for the smallest herd size of only 1 to 2 pigs was 181.8 Baht, which appears better than that for 3 to 5 pigs, but is still much less than the optimal herd size of 6 to 10 pigs.

Table 32. Comparison of gross margins by herd size (Baht).

Diet	Herdsizes 1 (1-2 pigs)	Herdsizes 2 (3-5 pigs)	Herdsizes 3 (6-10 pigs)	Herdsizes 4 (> 10 pigs)
1 & 2	174.4	60.77	348.07	314.23
3 & 4	186.07	229.46	324.19	137.08
1,2,3 & 4	181.82	145.11	336.13	250.26
5	(none)	135.02	(none)	(none)

Source: HHRK, 1990.

#### 5.4.4 Comparison by initial weight

When farmers decide to purchase piglets, they may have some choice of very young (light weight) piglets or older weaned piglets. The deciding factor may simply be the piglet stock available, and whether or not the farmer can afford the extra cash outlay required to raise very young

piglets on special weaning feeds. Gross margin analysis can provide information on the economic implications of raising piglets from different ages or initial weights.

Apparently, initial weight does not consistently affect gross margins in the same way, and some interaction with diet is suggested (Table 33). For example, for piglets fed on non-vegetable diets, the gross margin increases rapidly when initial weight is increased. Therefore pigs with small initial weights bring in only 124 Baht of gross margin, whereas pigs with heavier initial weights can get 318 Baht of gross margin. This type of trend suggests that if food quality or quantity is limiting, then the larger piglets will have an advantage, ultimately growing better and bringing higher sale prices.

Table 33. Comparison of gross margins by initial piglet weight (Wt)<sup>1</sup> (Baht)

Diet	Wt1	Wt2	Wt3
1 & 2	278.35	174.95	237.38
3 & 4	124.13	186.18	317.18
1,2,3 & 4	206.38	182.53	251.14
5	513.47	249.72	222.08

<sup>1</sup> Initial weight 1 = 12 to 15.9 kilograms  
 Initial weight 2 = 16 to 20.9 kilograms  
 Initial weight 3 = 21 to 29 kilograms

Source: HHRK, 1990.

On the other hand, pigs fed on compound feed only (Diet 5) show the opposite trend. The pigs with small initial weights in this case bring in higher gross margins (513.5 Baht) than the heavier piglets (222.1 Baht). This may reflect other differences in management practices as well. For example, perhaps the light-weight piglets were bought at an early lifestage and raised on special weaning compound feed, which resulted in good sales. On the other hand, the larger piglets may have been bought at a later lifestage, after they had already been raised by the piglet vendor on unknown feed, and so could not bring a good price to the farmers, even though they used Diet 5. Controlled studies at a livestock station can try to identify this interaction of diet and initial weight by controlling all other management variables, which is not so easy or practical to do in a study involving many individuals from different economic backgrounds with different management ideas.