Comparative Advantages and Production of Baby Corn in An Giang Province

by Dr. BÙI VĂN TRỊNH & MEcon. NGUYỄN QUỐC NGHI

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ABSTRACT

The objective of project is to analyze production, consumption and the comparative advantages of baby corn in An Giang Province. The criteria-based classification is used to define main factors which affect directly to production and consumption. The linear regression is applied to analyze factors affecting productivity as well as price of baby corn. The method DRC (Domestic Resource Cost) is used to analyze the comparative advantages of baby corn produced in An Giang Province.

The result of research shows: the reason why farmers produce baby corn is the fact that it allows them to use waste to raise cows and the main difficulty is the high price of raw materials. The consumption of baby corn in the surveyed area is considered as favorable. However, the producers also have met with difficulties in selling their produce: fluctuations in the market price, lack of market information, and poor communications. Changes in productivity depend on the labor cost, price of fertilizer, and training. The price of baby corn is influenced by transport distance and destination. The production of baby corn in An Giang Province has many comparative advantages, because this product may bring about foreign exchange and benefits for both local residents and society.

1. Problem

An Giang Province is trying to change structure of its farm products with a view to making it appropriate to local conditions, and shaping reliable sources of farm products. The baby corn is considered as a breakthrough in the change in the structure of farm products.

In recent years, the baby corn area has changed continuously and producers met with a lot of difficulties, especially from changes in prices of both factor inputs and output in spite of various advantages they enjoyed.

To clarify the situation, our survey aims at examining the production and consumption of baby corn and comparative advantages of this business, thereby suggesting some measures to improve performance of this business.

2. Objective

The survey tries to analyze production and distribution of the baby corn conducted by peasants in An Giang, and identify factors affecting the production and distribution of this product. Results of the survey allow us to analyze the comparative advantages of the business.

3. Methodology

a. Data collection

- First-hand data: random and stratified sampling methods are used for collecting firsthand data

through interviews with 60 peasant families producing the baby corn and six small traders of this product.

- Secondary data include reports, projects and statistics prepared by the An Giang Service of Agriculture and Rural Development; surveys by An Giang Center for Agricultural Extension; documents and information from An Giang Agricultural Technical Services; opinions from experts and relevant studies in the past.

b. Analysis

The criteria-based classification method is used for identifying main factors that affect the production and consumption of the baby corn. Linear regression is used for analyzing factors affecting the productivity and selling price at peasant family level. The DRC is used for comparing the opportunity of producing the product domestically with the added value it generates (according to Tsakok 1990). Comparative advantages in producing the baby corn are measured by comparing the DRC with the shadow exchange rate.

Table 1: Costs for 1,000 square meters of baby corn

Cost items	Volume	Cost (VND)	%
I. Materials		567,760.32	95.65
- Seed (kg)	2.64	119,000	20.05
- Fertilizer (kg):		230,309.83	38.80
+ NPK	5.020	23,781.92	4.010
+ Urea	22.15	106,391.17	17.92
+ DAP	10.44	59,068.92	9.950
+ Others	10.25	41,067.83	6.20
60 - Medicine:		51,244.33	8.630
+ Weed-killer		10,816.83	1.820
+ Medicament		7,627.50	1.280
+ Pesticide		13,336.33	2.250
+ Nutrient		19,463.67	3.280
- Irrigation		68,072.83	11.47
- Machine hiring		99,133.33	16.70
II. Labor (day)	14,056	25,850.83	4.350
- Home labor	12.96		
- Hired labor	1.096	25,850.83	4.350
Total		593,611.16	100

Source: a 2005 survey

4. Results and discussions

a. Production and consumption of baby corn in An Giang

- Average costs for production of baby corn on 1,000 square meters in An Giang

The table shows that the fertilizer accounts for a big share (38.8%) in total investment. The better part of this share comes from expenses on the urea fertilizer (17.92%). The second biggest expense is seed (20.05%). A kilogram of seed costs some VND45,000 and 1,000 square meters require 2.644 kilo of seed. This means that the seed for an area of 1,000 square meters costs VND119,000. The next is machine (16.7%) because corn planters have to hire tractors to prepare their land from sowing. Some others have to hire pumping machine to ensure the supply of water, which make the machine cost higher. Other remarkable expenses are on irrigation (11.47%) and medicine (8.63%).

Corn is easy to grow but it requires much labor, so it can help make the best use of idle labor in rural areas, and even children can help their parents in growing this crop. Our survey shows that the planters employ their home labor (92.2% of working days) and hired labor represents only a small share (7.8%) and its is used for preparing the land, harvesting and transporting the output.

Table 2: Performance of baby corn production

Indicator	unit	Max	Min	Average
Area	1,000m^2	8.0	1.00	2.705
Yield	kg/1,000m^2	200	69	119.47
Average selling price	VND/kg	7,500	7,000	7,175.5
Total cost (not including home labor)	VND/1,000m^2	971,000	334,600	593,611
Income	VND/1,000m^2	1,440,000	483,000	857,140.3
Net income	VND/1,000m^2	867,750	84,600	292,960.4
Profit	VND/1,000m2	570,250	382,100	73,369.5
Income/Cost	time	1.827	0.607	1.111
Net income/Cost	time	1.258	0.083	0.391
Net income/Income	time	0.689	0.134	0.309
Profitability ratio	time	0.827	0.393	0.111

Source: a 2005 survey

- Performance:

Analyses of cost and business performance show that the performance of baby corn farming is not high. Some 26.7% of producers suffer losses because they spent too much on factor inputs while output and selling price are not as high as expected.

- Factors affecting productivity:

Data from the Table 3 allow us to form the following equation:

$$Y = 43.716^{**} + 0.00014X_1^{**} + 0.00008X_2^{*} + 0.00009X_3^{ns} + 0.00003X_4^{ns} + 0.5320X_5^{ns} + 20.337X_6^{**} + 6.9410X_7^{ns}$$

Table 3: Factors affecting the productivity

Indicator	B	Std. Error	T	Sig
Constant	43.7160 **	17.597	2.484	0.016
Labor (X1)	0.00014 **	0.000	0.386	0.017
Fertilizer (X2)	0.00008 *	0.000	1.844	0.071
Medicine (X3)	0.00009 ns	0.000	0.569	0.571
Irrigation (X4)	0.00003 ns	0.000	2.474	0.701
Years of experience(X5)		0.791	2.446	0.504
Technical training(X6)	0.53200 ns	8.313	0.673	0.018
1=trained; 0=untrained	20.3370 **			
Seed (X7)				
1= imported one; 0=local one	6.94100 ns	11.975	0.580	0.565

Note:* * * : significant at 1% * * : significant at 5% * : significant at 10% ns : insignificant

F- test = 4.704 (Sig = 0.000)

With R^2 = 38.8%, we see that variables in the equation can only determine 38.8% of changes in the yield, and 61.2% were determined by factors that are not included in the model (technical issues for example).

- Factors affecting the selling price:

According to collected data, peasants in the surveyed district sell most of their produce to private purchasers, instead of processing factories, for cash; and the price is agreed upon by the two parties.

Data about the selling price gathered from 60 peasant families producing the baby corn are presented in the following table.

From the above results, we have the following equation:

$$Y = 709,3,3^{***} + 0.313X_1^{ns} - 22.363X_2^{ns} - 1.417X_3^{ns} + 48.984X_4^{**} + 126.9X_5^{**}$$

Table 4: Factors affecting the selling price

Indicator	B	Std. Error	T	Sig
Constant	709,3.3 ***	91.97	77.12	0.000
Yield (X1)	0.313 ns	0.584	0.536	0.549
Strain of seed (X2)	- 22.36 ns	61.06	- 0.336	0.716
1= imported one; 0 = local one				
Years of experience (X3)	- 1.417 ns		- 0.363	0.718
Transport distance (X4)	48.98 **	3.906	2.099	0.041
Destination (X5)	126.9**	23.33	2.549	0.014
1= the same commune; 0 = other commune		49.77		

Note:* * * : significant at 1% * * : significant at 5% * : significant at 10%
ns : insignificant

F-test = 3,685 (Sig = 0,006)

The analyses provide us with R^2 = 25.4%. This means that changes in the selling price of baby corn in An Giang depend up to 25.4% on variables in the equation, the remainder 74.6% are affected by other factors that are not included in the equation (because other variables are not identified.)

b. Comparative advantages

- DRC analysis:

To estimate the comparative advantage in producing the baby corn in An Giang, DRC as a measure of opportunity cost of domestic resources used for generating (or saving) a marginal unit of foreign exchange is used (Bruno 1972). The DRC compares the opportunity cost of domestic resources with the value their use generates according to the following formula (Tsakok 1990):

$$DRC_i = \frac{\sum_{j=k+1}^{n} a_{ij} V_j}{P_i^f - \sum_{j=1}^{k} b_{ij} P_j^f}$$

where:

a_{ij}, k +1 ...n: coeefficient of domestic resources and locally-made factor inputs (not imported ones).

bij, 1....K: coefficient of imported factor inputs.

V_j : shadow price of domestic resources or factor inputs that can't be imported.

P_i^f: FOB price of baby corn in foreign exchange.

P_j^f: CIF prices of imported factor inputs in foreign exchange.

With the shadow exchange rate is equal to the official exchange rate multiplied by 1.2, we have the following cases:

+ If DRC/SER < 1, comparative advantages exist, some foreign exchange could be earned by exporting the baby corn

+ If DRC/SER = 1, the situation is neutral.

+ If DRC/SER > 1, there is no comparative advantage, resources are wasted when producing the baby corn.

The Table 5 shows that production of baby corn in An Giang enjoys some comparative advantage and it can bring about some social benefits.

5. Conclusion

The following are our remarks on the production of the baby corn in An Giang.

- Production: The main reason why peasants grow the baby corn is the fact that they can use its by-products to raise cows. The biggest difficulty for them is the high prices of factor inputs. The profitability ratio of their business is still low.

- Consumption: The baby corn, according to our survey, is saleable but producers also meet with some difficulties: fluctuations in the market price; lack of market information; and poor communications.

- Factors affecting the production and consumption: Changes in the yield of baby corn in An Giang are determined by labor cost, price of fertilizer, and training process. The price of baby corn in An Giang is affected by transport distance and destination (buyer's address).

- Comparative advantage: The production of baby corn in An Giang enjoys some comparative advantages, that is, this business can bring about some foreign exchange and benefits for the local residents and society as a whole.■

Table 5: DRC by exchange rate

Item	Unit	Value
I. FOB price of baby corn	US$/ton	1,029.74
FOB prices converted	VND/ton	15,652.173
II. Marketing cost	VND/ton	
1. Marketing cost paid by purchasing agency	VND/ton	100,000
2. Marketing cost paid by exporter	VND/ton	556,250
3. Freezing, packing and preserving	VND/ton	2,173,391
4. Cost caused by loss	VND/ton	564,000
III. Comparative export price	VND/ton	12,258,533
IV. Production cost	VND/ton	
1. Domestic expense for a ton of baby corn	VND/ton	7,296,258.8
2. Imported expense for a ton of baby corn	VND/ton	3,577,608.8
V. DRC by exchange rate	VND/US$	12,775.5
VI. Shadow exchange rate	VND/US$	18,240
Vii. DRC/SER ratio		0.7004

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Pho to by Huỳnh Thơ