



Republic of the Philippines
Department of Agriculture

Upland Development Programme in
Southern Mindanao (UDP)

**A MARKETING EFFICIENCY STUDY
ON**

TOMATO

**IN BARANGAY TAGUIBO, MATI,
DAVAO ORIENTAL**

MAY 2001

PREFACE

This report is one of a series of market efficiency studies conducted in the UDP-covered areas for selected commodities. The marketing efficiency of tomato in Barangay Taguibo, Mati, Davao Oriental was evaluated through the deconstruction of existing marketing margins. Recommendations to improve marketing efficiency are herein offered.

This report was prepared by:

Jaymee Alcos
Elizabeth Supangco
Julianne Revilleza

May 2001

ACKNOWLEDGEMENTS

Report data were gathered from a series of personal and group interviews with producers of tomato in Barangay Taguibo, Mati, Davao Oriental, traders and processors. The time and effort that the respondents have placed into this study are acknowledged. The following were the farmer- and trader-respondents of the study:

Farmers:

Ernesto Tangaro
Saturnino Ellos
Henriquito Pormentera
Vicente Luberanes
Eduardo Rosario
Tita la Torre

Retailers:

Winnie Manabat
Benjamin Cayme

The valuable assistance extended by the Mati Municipal Agriculturist's Office and the Taguibo Barangay Council is also recognized.

TABLE OF CONTENTS

	Page number
Preface	i
Acknowledgements	ii
Table of Contents	iii
Definition of Terms	iv
Introduction	1
Marketing System of Tomato	3
Strengths	7
Weaknesses	7
Conclusion	8
Recommendations	8
References	9
Appendices	
A. Cost and Returns per unit of tomato in Barangay Taguibo, Mati	10
B. Breakdown of costs per unit of tomato in Barangay Taguibo, Mati	11

DEFINITION OF TERMS

Cash costs	-	costs where actual money is involved.
Cash returns	-	the earnings, where actual money is involved, from the sale of the farm produce.
Depreciation	-	the expense brought about by the wear and tear of a piece of equipment, building or tool used in an enterprise for a given period of time.
Economies of scale	-	the economic concept wherein production at a larger scale (more output) can be achieved at a lower cost.
Exchange labor	-	the value, non-monetary in nature, of the work (in man-days) put in by neighbors, friends or other laborers in exchange for the farmers help with similar farm activities in their respective farms.
Given away	-	the value, non-monetary in nature, of the farm produce given out by the farmer to others without any monetary payment.
Hired labor	-	the cash expense for engaging the services of farm laborers.
Home consumption	-	the value, non-monetary in nature, of the farm produce consumed by the farmer and his family.
Losses/shrinkage of produce	-	the value, non-monetary in nature, of the damages and spoilage sustained by the produce.
Market information	-	basic information on prices and quantities traded of major commodities, from all markets—assembly, wholesale and retail.
Marketing channel	-	the inter-organizational system composed of interdependent institutions tasked in moving the product from production to consumption.
Marketing efficiency	-	the maximization of the input-output relationship where inputs refer to resources (land, labor, capital) used in moving the products from point of consumption to the point of production and output referring to consumer

		satisfaction on goods and services made available in the market.
Marketing margin	-	the difference in prices between the different levels of the marketing system.
Marketing	-	series of services performed in moving the product from the point of production to the point of consumption.
Net farm income	-	returns of the use of capital and labor. The overall profit of the farm after all the expenses, cash and non-cash, have been paid off.
Non-cash costs	-	costs items used in the production process wherein no direct outlays occurred or the costs incurred are not monetary in nature.
Non-cash returns	-	the value, non-monetary in nature, of the farm produce consumed by the farmer and his family or those given away.
Opportunity cost of capital	-	the price of foregone opportunity in the use of the capital invested in the enterprise. It is usually pegged at the current savings interest rate.
Point of consumption	-	last sale of the product.
Point of production	-	point of first sale.
Profit margin	-	the return to the middlemen for their entrepreneurship, the risks and the cost of money.
Return on investment	-	measures the amount of cash that the entrepreneur gets from the capital investment after first paying the opportunity expenses on the value of family labor and management. It also determines how much money the producer got in return for every one peso invested.
Unpaid family labor	-	also called own labor. The value, non-monetary in nature, of work (valued in man-days) by the farmer and his family.

TOMATO

INTRODUCTION

1. Tomato (*Lycopersicon esculentum mill*), usually taken as a vegetable, is classified as a fruit. It is a vine-like plant that belongs to the nightshade family. Originally domesticated by the Incas of South America, the tomato plant thrives in a sunny, hot and humid environment.
2. Tomato is very versatile. It is commonly used in salads and in various dishes. It can also be made into tomato paste and further processed into tomato sauce, tomato juice and tomato catsup. Or can be used as the medium for sardines and other canned foods.
3. Mindanao has a favourable weather condition suited to tomato farming. Farmers can grow tomatoes anytime of the year, since tomato production is not seasonal in this region.
4. In Barangay Taguibo, Mati, Davao Oriental, where vegetable farming is the main activity of the farmers, tomato is one of the main produce, among other crops such as *okra* and *sitaw*. The farmers normally plant tomatoes three times in a year with an average yield of 765 kilograms per hectare.
5. Production activities include seedbed preparation, land preparation, planting/transplanting, fertilization, weed control, and finally harvesting. After two months from the time of transplanting, the tomatoes are ready for harvest.
6. The marketing efficiency study for tomatoes in Barangay Taguibo, Mati was conducted last March 12, 2001.

Objectives

7. The main objective of the study is to assess the impact of existing marketing systems of tomato vis-à-vis income of the farmers.
8. Specifically, the study aims to determine the levels of participants in the marketing chain of tomato;
9. Determine the marketing practices involved in terms of storage, handling, pricing, delivery systems and terms of payment;
10. Determine the percentage of consumer price that the producer receives through the deconstruction of marketing margins of tomato at each level in the system, exclusive of production costs;
11. Identify strengths and weaknesses of the existing marketing system of tomato; and

12. Determine appropriate marketing interventions needed to improve economic efficiency of tomato in Barangay Taguibo, Mati.

Methodology

13. From the initial agribusiness profile of UDP-Davao Oriental Barangay Taguibo, Mati was identified as the sole tomato-producing area in Davao Oriental. Purposive sampling of in Barangay Taguibo was done and seven (7) tomato farmers were interviewed.

14. The farmers were asked about their production and marketing practices, production and marketing costs of tomato. They were also asked on available market information with emphasis on what they need to know to improve their production and marketing practices, thereby increasing the farmers' income.

15. The respective buyers of tomato from each farmer were then traced accordingly.

16. The traders were, in turn, asked about their marketing, costs, and the problems and constraints they have encountered in the marketing of tomato.

17. The marketing margins (MM), or the total value added to the tomato per kilogram as it moves along one marketing channel to another, were then deconstructed and the profitability of each marketing participant was also analysed. The Net Farm Income (NFI) of the farmers was determined. An NFI greater than zero (0) would mean that the production and marketing activities of the tomato farm is profitable, whereas an NFI less than zero (0) would mean that the farm is at a loss.

18. The Return on Investment (ROI) of the traders was compared with the opportunity cost of capital, pegged at the current savings interest rate of eight percent (8%) per annum. An ROI higher than the opportunity cost of capital would mean that marketing tomato is more profitable than just saving the trader's money in a bank. While an ROI less than the opportunity cost of capital would mean that it would be more profitable for the trader to invest his money in a bank rather than spend it on marketing tomato.

19. The percent share to the consumer peso of each marketing participant was also determined by getting the percentage of the marketing participant's selling price (in the case of traders, less their buying price) relative to the final buying price of the consumer. This indicates the proportion of the final buying price that goes to each marketing participant for tomato.

20. Moreover, focused group discussions (FGDs) with key informants and selected farmers were conducted to probe into the importance and the demand for market information in each province. This provided rapid feedback on the available market information and the information dissemination strategies existing in the area.

21. Also, key informants such as the Municipal Agriculturists and the Agricultural Technicians were interviewed to obtain an overview of the local agriculture industry.

Limitations and Constraints

22. Upon interview, the farmers only recalled past production level, income, farm tools and equipment used, as there were no records kept of their operations. Thus the cost and return that were analyzed were only estimates. The Return on Investment (ROI) was excluded on the analysis of the farmer's income due to the ambiguity of the values arrived at, as some factors on capital investment were not quantified. For instance, land valuation was excluded because none of the farmers hold titles to the land that they cultivate. Land, therefore, was not considered a fixed investment in this enterprise and was merely considered as an expense through the credit of land cost (land tax if owned, rent if tenanted).

23. On the marketing aspect, the respondents interviewed were the middlemen identified by the farmers. Most of who also based their answers on their memories since they too do not keep records of their marketing operations.

24. On the analysis of the marketing efficiency of the farmers, only the Net Farm Income (NFI) analysis was utilized since the available data could only allow for this kind of analysis and not the more complicated input-output efficiency analyses.

25. Lastly, the size of the tomato market, specifically, the estimation of demand was not included in the study.

Margin of Error

26. Aside from the UDP Agribusiness Profile, there are no other available data on the population size of tomato producers in the area. The margin of error on the analysis, therefore, cannot be established since the formula requires not only the sample size, but the population size as well.

THE MARKETING SYSTEM OF TOMATO

Marketing Channels

27. The marketing participants involved in the tomato marketing system in Barangay Taguibo, Mati are as follows:

a. Farmer

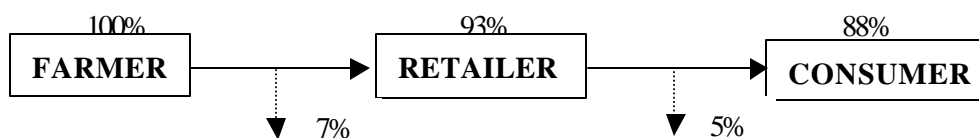
A person engaged in tomato cultivation for sustenance or commercial purposes. They sell their produce directly to retailers in the Mati Public Market; and

b. Retailers

Based in the Mati Public Market, a person who procures tomato from the farmers then sells it to the consumers.

28. Based on farmer interviews, an estimated 8,912 kilograms of tomatoes were sold in one cropping season and the following product flow was established:

Figure 1. Product flow of Tomato from Barangay Taguibo, Mati.



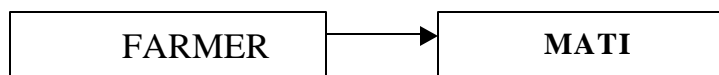
Selling Price (P/piece):

Farmer	Retailer
6.00	8.00

29. Figure 1 shows that the farmers directly sell their produce to the retailers. Transport of tomato from the farm to the market accounts a seven percent (7%) loss for the farmer. While an estimated five percent (5%) loss was incurred during the trade between the retailer and the consumer.

30. The produce is sold directly to the public market of Mati since the farmers cannot penetrate to the other markets such as Davao City, Compostela Valley and other nearby markets. Figure 2 illustrates the geographical flow of the produce.

Figure 2. Geographical flow of tomatoes from Barangay Taguibo, Mati.



Marketing Practices and Costs

31. The main marketing activities done by the farmer is to clean, select and pack the tomatoes. On wet seasons, the tomatoes are cleaned and wiped with dry cloth. Removing tomatoes with holes or those with rotten parts, good tomatoes are then selected and packed into baskets of 70 kilograms each.

32. Since tomato is a highly perishable crop, storing is strongly discouraged. After harvesting the tomatoes in the morning, it is then disposed for sale immediately at the market in the afternoon.

33. Tomato easily rots if the packaging is poor. Thus, losses incurred during transport are attributed to poor packaging and bad farm-to-market roads.

34. The primary mode of transportation from the farm to the market is passenger jeeps plying the route. The farmers load the produce onto the jeeps themselves and sell it to their buyers in the market, the retailers. The retailers pay the farmers in cash.
35. In selling the produce, the retailers use ordinary plastics for packaging. They do not accept credits from their buyers.
36. Table 1 shows the costs and profit by each participant in the marketing chain.

Table 1. Marketing costs for different marketing levels of tomatoes (P/kg).

ACTIVITY	FARMER	RETAILER
Cleaning	0.07	<i>na</i>
Grading/Sorting	0.09	<i>na</i>
Packing	0.04	<i>na</i>
Transportation	0.24	0.08
Labor	<i>na</i>	0.03
Supplies and materials	<i>na</i>	0.02
Utilities and other fees	<i>na</i>	0.25
Non-cash costs	<i>na</i>	0.32
TOTAL	0.44	0.70

37. Results show that the retailers incurred a higher cost compared to the farmers. This cost can be attributed to the high stall rentals and other overhead expenses.
38. Losses incurred are considered excessive for farmers. This can be attributed to the mishandling of the tomatoes. Tomatoes are only packed in sacks or baskets. Thus, when the baskets are stacked in the passenger jeepney, those on top crush the tomatoes below it.
39. On the other hand, losses incurred in the retail level were due to the perishable nature of the tomato.

Price Formation

40. The price for tomato is highest during the months of May and June (in time for the fiesta celebrations and the start of the school), and the Christmas season in December. Retail prices during these periods usually stand at P15.00 per kilogram while on lean months at P3.00 per kilogram.

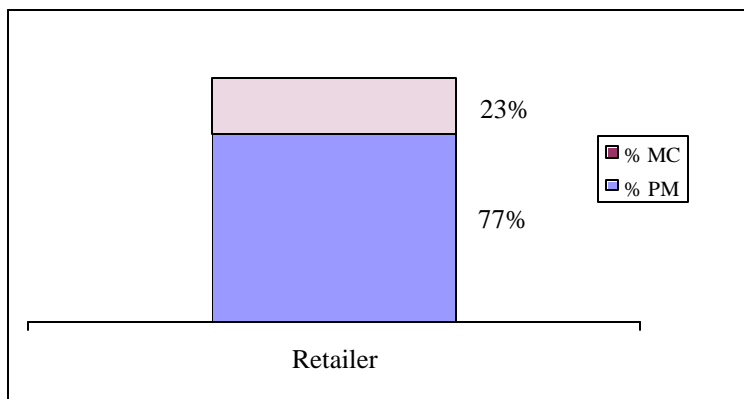
Marketing Margin

41. Marketing margin for the tomato retailer is shown in Table 2 and Figure 3. The Net Farm Income of the tomato farmer, as shown in detail on Appendix A, is also presented on the table below.

Table 2. Marketing margins and income for tomatoes at different marketing levels.

ITEM	Farmer	Retailer
Selling Price	5.00	8.00
Buying Price	<i>na</i>	5.00
Marketing Margin	<i>na</i>	3.00
Marketing Cost	0.44	0.70
Profit Margin	<i>nil</i>	2.30
Net Farm Income	0.09	2.30
MC as % of MM	<i>na</i>	23%
PM as % of MM	<i>na</i>	77%
% ROI	<i>nil</i>	40%
Opportunity Cost of Capital	<i>na</i>	8%

Figure 3. Marketing margin of a tomato retailer, Barangay Taguibo, Mati.



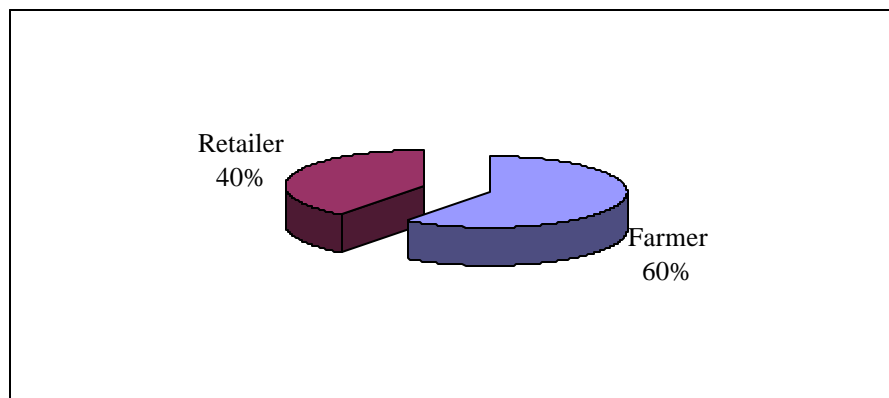
42. Marketing margin is the difference of the selling and buying price. It is also arrived at by adding the profit margin (77%) and marketing cost (23%). Note that profit margin dominates the marketing margin composition.

43. The breakdown of consumer peso is shown in Table 3 and Figure 4.

Table 3. Percentage share of tomato prices to the consumer peso (P/kg).

Marketing Participants	Selling Price	% Share
Farmers	5.00	60
Retailer	8.00	40

Figure 4. Percentage share of tomato prices to the consumer peso.



44. This indicates that 60% of the retail price goes to the farmer and the remaining 40% goes to the retailer. This suggests that for every peso spent by the consumer, P0.60 is enjoyed by the farmer and remaining percentage by the retailer.

STRENGTHS

45. There is a high demand for tomatoes in Mati. The market alone absorbs all tomato produce from Barangay Taguibo and some surplus from Maragusan, Compostela Valley.

WEAKNESSES

46. The high influx of tomatoes from Maragusan, Compostela Valley is in competition with the Barangay Taguibo tomatoes since Maragusan tomatoes are sold at a much lower price. The Maragusan tomato traders could afford to lower their price because their productions costs are perceived to be lower brought about by the economies of scale given that there is a large production in that municipality.

47. Another problem in the marketing of tomato is the poor packaging material and practices that hasten tomato spoilage, thereby increasing losses on the part of the farmers and retailers.

CONCLUSION

48. With a Net Farm Income of P0.09 per kilogram, it can be concluded that the farmer is earning a profit in tomato production, thus, making them efficient.

49. For the retailer, results showed that profit margin has a larger share of 77% in the marketing margin compared to that of the marketing cost at 23% making the tomato retail enterprise efficient. By comparing the ROI with the opportunity cost it could also be concluded that the retailer is operating efficiently since the ROI (40%) is greater than opportunity cost of capital (8%).

RECOMMENDATIONS

50. Based on the strength, weaknesses and conclusions drawn from the study, the following recommendations are herein offered:

?? For the farmers and traders to increase their profit, marketing losses should be reduced by using proper packaging materials such as bamboo containers or newly developed plastic bags such as those utilized to ship vegetables from Baguio City;

?? Farmers are also encouraged to increase production to compete with the producers from Maragusan. However a market study should be done to determine the size of the market in Mati.

?? Farmer associations or cooperatives in Taguibo, Mati may also be formed so that they could assemble and sell tomatoes in a larger scale.

REFERENCES

- AGARRADO, R.E. et al. Marketing and Information Needs Assessment for Davao City. BAS-DA-USP, Davao City.
- CORRE, S. 1996. A Market Efficiency Study for Palay/Rice in Biliran Published under the Small Islands Agricultural Support Services Programme.
- REVILLA, R.S. 1999. Production and Marketing of Sinta Papaya in Laguna, 1998. Unpublished Undergraduate Thesis, CEM, UPLB, Laguna.
- UDP 1999. The Terms of Reference for Consultancy Services-Marketing Efficiency Study. UDP, Davao City.

APPENDIX A. Cost and returns per unit of tomatoes in Barangay Taguibo, Mati.

ITEM	P/kg
RETURNS	
Cash	
Sales	5.00
Total Cash Returns (A)	5.00
Non-cash	
Home consumption	0.01
Given away	0.01
Total Non-cash Returns (B)	0.02
TOTAL RETURNS (C)	5.02
COSTS	
Cash	
Land cost	0.23
Planting material (seeds)	0.87
Fertilizers	1.23
Pesticides	0.60
Hired labor	0.17
Transportation	0.16
Others (rope and baskets)	0.08
Total Cash Costs (D)	3.34
Non-cash	
Unpaid family and/or exchange labor	1.19
Depreciation	0.10
Losses/Shrinkage of produce	0.03
Opportunity cost of capital	0.27
Total Non-cash Costs (E)	1.59
TOTAL COSTS (F)	4.93
Net Returns Above Cash Costs (C-D)	1.68
Net Farm Income	0.09

APPENDIX B. Breakdown of costs per unit of tomatoes in Barangay Taguibo, Mati.

ITEM	P/kg
I. Production Cost	
Land cost	0.23
Depreciation	0.10
Planting material (seeds)	0.87
Fertilizers	1.23
Pesticides	0.60
Own labor	1.01
Hired labor	0.10
Others (rope and baskets)	0.08
Total Production Cost	4.22
II. Marketing Cost	
A. Cleaning	
Own labor	0.06
Losses/shrinkage	0.01
Sub-Total	0.07
B. Grading/sorting	
Own labor	0.08
Losses/shrinkage	0.01
Sub-Total	0.09
C. Packing	
Own labor	0.04
Sub-Total	0.04
D. Transportation	
Hired labor	0.07
Transportation	0.16
Losses/shrinkage	0.01
Sub-Total	0.24
Total Marketing Cost	0.44
III. Opportunity cost of capital	0.27
TOTAL COSTS	4.93
