DEVELOPMENT OF ALTERNATIVE CROPS FOR TOBACCO IN ILOCOS SUR

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ABSTRACT

This study was conducted in Ilocos Sur from 1988-1989 to: (1) identify and develop alternate crops that would equal or even surpass income benefits from tobacco in anticipation of future decline in tobacco demand; (2) further improve the agricultural sector with the introduction of more versatile crops mixes given the agro- climatic characteristics of the province; and (3) increase income of farmers and thereby uplift their socio- economic well-being.

Trials of test crops like: garlic, cotton, mungbean, watermelon and green corn were conducted in farmer's field in strategic places in Ilocos Sur with three farmer- cooperators for each test crop at an area of 1,000 square meters. Cost of production, yield, gross sales and income of the different test crops were compared to those of tobacco which was also represented by three farmer- cooperators.

Findings of the study revealed that a net return of P 58,378.00 was obtained from watermelon with a difference of P 38,570.00 as compared to tobacco; watermelon came next with a difference of P 38,570.00; green corn, P 1,921.00; and mungbean, P 666.00. The lowest was registered in cotton with a difference of P 5,572.00 in favor of tobacco.

Based on the findings, it is concluded that garlic and watermelon are the best alternative crops for tobacco because they registered the highest in net return as compared to the other test crops. Hence, they are highly recommended as alternate crops for tobacco.

INTRODUCTION

Tobacco producers worldwide have been concerned with the relenting movement to limit the consumption of tobacco because of its being perceived as a health hazard. The anti-smoking campaign, would mean declines in the demand for tobacco which would adversely affect the socio- economic status of the 19,000 registered Virginia Tobacco growers of Ilocos Sur who have been recorded to produce 70% of the yearly demand of the flue- cured tobacco. In view of the plight of these affected farmers, where forty-two percent (42%) of them have income below the poverty level, the researchers would like to determine substitute crops more socially and morally acceptable to the market. It is estimated that demand for the commodity would continue to decline although not drastically. There is enough lead time therefore for the agencies concerned to explore and develop alternative crops to offset the decrease of tobacco demand. Hence, this study was conducted.

OBJECTIVES OF THIE STUDY

The study was conducted to: I. identify and develop altemate crops that would equal **or even** surpass income benefits from tobacco in anticipation of future decline in tobacco demand; 2. further improve the agricultural sector with the introduction of more versatile crops mixes given the agro-climatic characteristics of the province, and demand and supply condition; and 3. increase income of farmers and thereby uplift their socio-economic well-being.

TIME AND PLACE OF THE STUDY

The study was conducted in Ilocos Sur from 1988-1989 utilizing 18 farmers as cooperators.

METHODOLOGY

The trials of test crops namely garlic, cotton, mungbean, watermelon and green corn were conducted in farmer's field in strategic places in Ilocos Sur with three farmers-cooperators for each test crop at an area of 1,000 square meters. Likewise, three farmer-cooperators were taken for tobacco. The usual farmers' practices in growing the crops were followed and implemented by the cooperators. Hereunder is the distribution of farmer-cooperators **for** each crop:

Test Crop	Municipality	Number
I. Garlic	Sinait	2
	Cabugao	1
2. Cotton	Candon	I
	San Juan	I
	Narvacan	I
3. Mungbean	Santa Maria	1
	San Esteban	
	Santa Cruz	
4. Watermelon	Santa Maria	
	Magsingal	
	Santa Cruz	
5. Green Corn	Santa Maria	1
	Burgos	I
	Santo Domingo	1
6. Tobacco	Santa Maria	1
	Galimuyod	1
	Santiago	1
Total		**18**

The data gathered included the following:

1. Cost of production (land preparation, seeds, fertilizer, chemicals, gasoline/ oil, labor and miscellaneous expenses);
2. Yield per test crop in hectare basis;
3. Gross sale per test crop in hectare basis; and
4. Net return per hectare in pesos.

The average cost of production, yield, sale and net return of the three cooperators per test crop were recorded then compared with tobacco as base crop in determining the difference.

RESULTS AND DISCUSSION

Presented hereunder are the results of the study in textual, tabular and graphical forms.

1. Garlic versus Tobacco

The comparison of garlic and tobacco as to the cost of production, yield and net return per hectare is presented in Table I.

As shown in the table, garlic incurred a total production input of P 44,440.00 per hectare, while tobacco registered P 26,182.00

Garlic gave a net return of P 76,560.00 while tobacco produced a net return of P 18,182.00 per hectare with a difference of P 58,378.00.' This shows that in terms of net return, garlic outranks tobacco. Hence, garlic is a good alternate crop to tobacco especially in areas where poor quality tobacco leaves are produced.

Table 1. Comparison of Yield, Gross Sale, Production Cost **and Net Return per** Hcctare of Garlic and Tobacco

ITEMS	CROPS	
	Garlic	Tobacco
I. Yield per hectare (kg)	2,200.00	1,764.00
2. Gross sale (P)	121,000.00	44,364.00
3. Production Cost (P)	44,440.00	26,182.00
4. Net Return (P)	76,560.00	18,182.00
5. Difference (P)	58,378.00	

2. Cotton versus Tobacco

The comparison of cotton and tobacco as to the cost of production, yield and net return per hectare is presented in Table 2. In terms of the net return, cotton indicated a computed net return of P 12,610.00 per hectare which is lower than tobacco whose net return is P 18,182.00 per hectare with a difference of P 5,572.00 in favor of tobacco. However, cotton is fairly good for alternate crop to tobacco especially in saline soils because the production cost is much lower than tobacco.

Table 2. Comparison of Yield, Gross Sale, Product Cost and Net Return Per Hectare of Cotton and Tobacco

ITEMS	CROPS	
	Cotton	Tobacco
I. Yield per hectare (kg)	2,500.00	1,764.00
2. Gross sale (P)	21,875.00	44,364.00
3. Production *Cost* (P)	9,265.00	26,182.00
4. Net Return (P)	12,610.00	18,182.00
5. Difference (P)		5,572.00

3. Mungbcan versus Tobacco

The comparison of production *cost,* yield and net returns per hectare of rnungbean and tobacco is presented in Table 3.

As shown in the table, a production cost of P 9,652.00 per hectare was registered for mungbean which is lower than the production cost of tobacco at P 26,182.00. In terms of net return, mungbean gave a slightly higher net retum ofP 18,848.00 as compared to 18,182.00 for tobacco with a difference of P 666.00. Hence, mungbean is assessed as a good alternate crop for tobacco, provided a cropping pattern is programmed to ensure a year-round supply.

Table 3. Comparison of Yield, Gross Sale, Production Cost and Ner Retun per Hectare of Mungbean and Tobacco

ITEMS	CROPS	
	Mungbean	Tobacco
1. Yield per hectare (kg)	1,900.00	1,764.00
2. Gross sale (P)	28,250.00	44,364.00
3. Production Cost (P)	9,652.00	26,182.00
4. Net Return (P)	18,848.00	18,182.00
5. Difference (P)		666.00

4. Watermelon versus Tobacco

The comparison between watermelon and tobacco as to the cost of production and net return per hectare is presented in Table 4.

As shown in the table, watermelon registered a slightly lower production cost of P 24,917.00 as compared to P 26,182.00 for tobacco. In spite of a lower production cost, watermelon gave a much higher computed net return of P 56,753.00 per hectare as compared to P 18,182.00 for tobacco. This registered a difference of P 38,570.00. Therefore. watermelon is highly recommended as alternate crop for tobacco especially to cooperators with accessible transportation facilities.

Table 4. Comparison of Yield, Gross Sale, Production Cost and Ner Retun per Hectare of Watermelon and Tobacco

ITEMS	CROPS	
	Watermelon	Tobacco
1. Yield per hectare (fruit/kg)	11,666.00°	1,764.0O
2. Gross sale (P)	81,665.00	44,364.00
3. Production Cost (P)	24,913.00	26,182.00
4. Net Return (P)	56,753.00	18,182.00
5. Difference (P)		38,570.00

fruits per hectare
kilograms per hectare

5. Green Corn versus Tobacco

The comparison of green corn and tobacco as to the yield, cost of production and computed net return per hectare is presented in
Table 5.

As shcwn in the table. green corn registered a cost of production of P 11,082.00 which is lower than the cost of production for tobacco wliich is P 26,182.00. Even with a lower production cost, green corn exhibited a slightly higher net return of P

20,103.00 with a difference of P 1,921.00 as compared to the computed net return for tobacco of P 18,182.00 per hectare. Hence, green corn is also recommended to selected cooperators as alternate crop for tobacco on a staggered basis.

Table 5. Comparison of Yield, Gross Sale, Production Cost and Ner Retun per **Hectare** of Green Corn and Tobacco

ITEMS	CROPS	
	Garlic	Tobacco
I. Yield per hectare (ears/kg)	62,370.0O	1,764.00..
2. Gross sale (P)	31,185.00	44,264.00
3. Production Cost (P)	11,082.00	26,182.00
4. Net Return (P)	20,103.00	19,182.00
5. Difference (P)		1,921.00

ears per hectare
+ kilograms per hectare

6. Comparative Cost of Production of the Different Test Crops

The itemized cost of production per hectare of the different test crops is presented in Table 6, and the total cost of production per test crop is further illustrated in Figure 1.

As shown in the table, garlic registered the highest cost of production with a total expenses of P 44.440.00 per hcctare followed by tobacco with a computed cost of P 26,182.00; watermelon, P 24.913.00: green corn, P 11,082.00; mungbean, P 9,652.00, and the loves was registered in cotton with a total expenses of P 9,265.00 per hectare.

The high cost of production of garlic is attributed to the cost of labor and management, and the high cost of planting and mulching materials. On the other hand, tobacco incurred so much expense on the cost of labor and fuelwood for fluecuring. Watermelon registered high expenses on labor. land preparation, chemicals and gasoline for watering. The other test crops (green corn, mungbcan and cotton) exhibited more or less uniform expenses on all items.

Table 6. Comparative Cost of Production of the Different Test Crops in Ilocos Sur

Nature of Expenses	TEST CROPS					
	Garlic	Cotton	Mungbean	Watermelon	Green Corn	Tobacco
). Land Preparation	2,500	1,200	1,000	3,000	1,200	2,200
2. Seeds	12,000		600	350	600	1,000
3. Fertilizer	2,710	1,580	1,292	1,580	1,300	**2,540**
4. Chemicals	1,330	1,310	*560*	2,150	945	1,870
5. Gasoline & Oil	700	800	500	1,500	800	700
6. Labor	24,200	4,375	5,700	16,333	6,237	
7. Other Materials	1,000					9,000
8. Total	44,440	9,265	9,652	24,913	11,082	26,182

per hectare

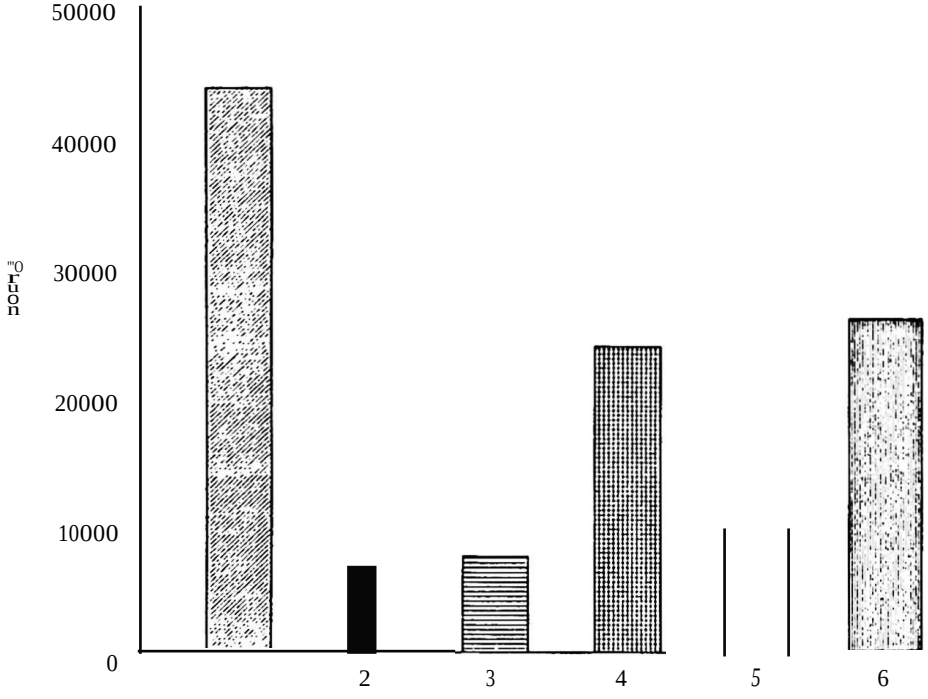

Figure I. *Cost of production of the different test crops per hectare in Pesos*

Legend:
1 Garlic
2 Cotton
3 Mungbean
4 Watermelon
5 Green Corn
6 Tobacco

7. Comparative **Yield,** Gross Sale and Net Return of the Different Test **Crops**

The comparison of the yield, gross sale and computed net return per hectare of the different *test* crops is presented in Table 7 and further illustrated in Figures 2 and 3.

The yield of cotton, garlic, mungbean and tobacco was quantificd in terms of kilograms per hectare. Cotton rcgistercd the highest yield with 2,500 kilograms, followed by garlic, 2,200; mungbean 1.900: and tobacco *got* the lowest yield of 1,764 kilograms of flue cured leaves per hectare.

Watermelon and green corn yields in terms of the number of fruits and ears per hectare were 11,666 and62,370 respectively. Based on the yield, it is evident that the difference on the gross sale was attributed to the varying buying price **per** unit or volume of the different commodities.

Among the crops tested, garlic registered the highest computed net return of P 76,560.00 per hectare, followed by watermelon, P 56,752.00; green corn, P 20,103.00; mungbean, P 18,848.00; tobacco, P 18,182.00; and cotton, P 12,610.00 with the lowest computed net return per hectare.

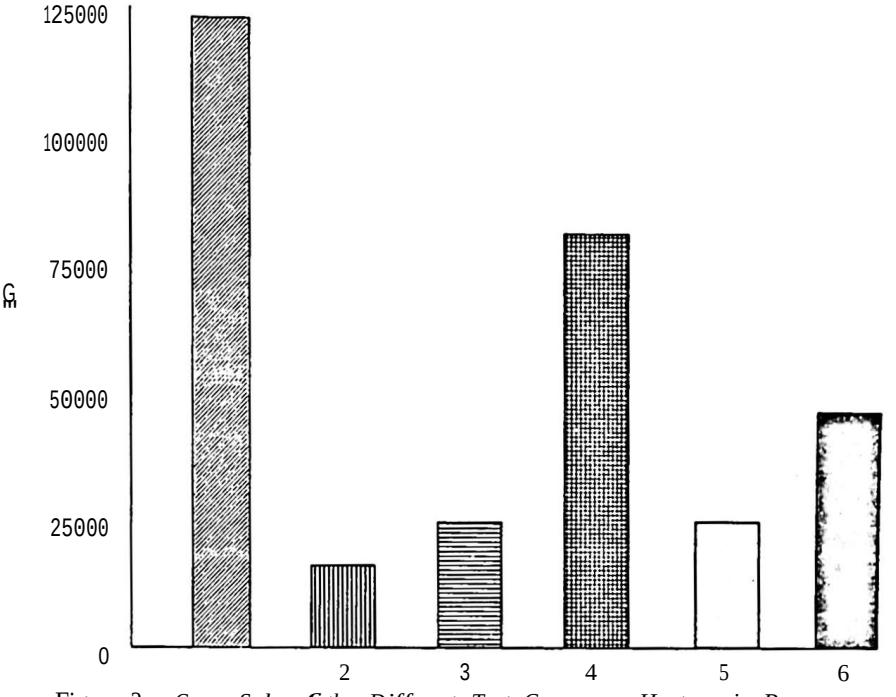

Figure 2. *Gross Sale of the Different Test Crops per Hectare in Pesos*

Legend: 1 - Garlic 3 - Mungbean 5 - Green Corn
2 - Cotton 4 - Watermelon 6 - Tobacco

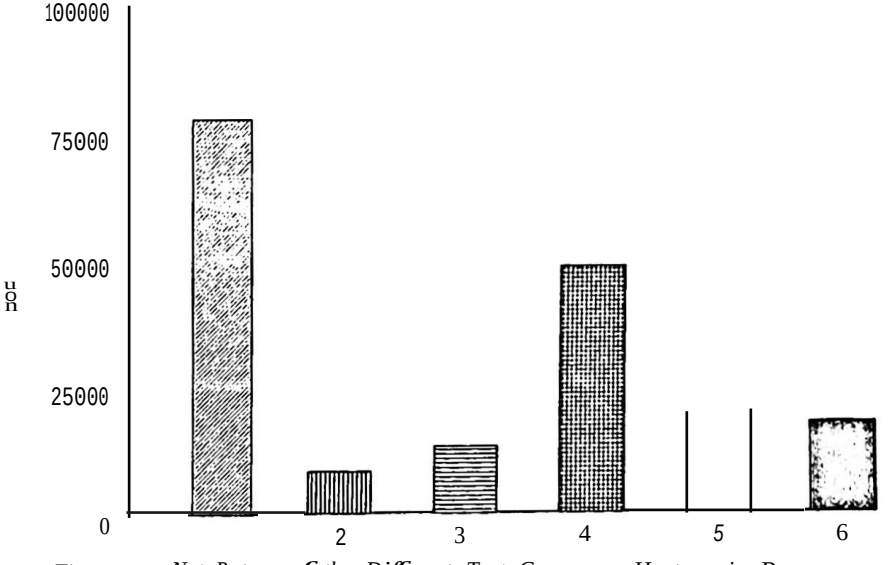

Figure 3. *Net Return of the Different Test Crops per Hectare in Pesos*

Legend: 1 - Garlic 3 - Mungbean 5 - Green Com
2 - Cotton 4 - Watermelon 6 - Tobacco

Table 7. Comparative **Yield,** Gross Sale and **Net Return Per Hectare of the Different Test** Crops in Ilocos Sur

Test Crops	Yield	Gross Sale	Net Return
1. Garlic	2200	P 121,000.00	P 76,560.00
2. Cotton	2500°	21,875.00	12,610.00
3. Mungbean	1900+	28,500.00	18,848.00
4. Watermelon	11666+	81,665.00	56,752.00
5. Green Corn	62370+++	31,185.00	20.103.00
6. Tobacco	1764	44,364.00	18,182.00

kilograms per hectare
+ fruits per hectare
+++ ears per hectare

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The production trials of various crops as alternate crops for tobacco were conducted in Sinait and Cabugao for garlic; Candon, San Juan and Narvacan for cotton; Santa Maria, San Esteban and Santa Cmz for mungbean; Santa Maria, Burgos and Santo Domingo for green corn; and Santa Maria, Galimuyod and Santiago for tobacco.

Findings of the study revealed that garlic gave the highest net return of P 76,560.00 per hectare with a difference of P 58,378.00 as compared to tobacco; watermelon came next with a difference of P 38,570.00 green cor, P 1,921.00: and mungbean, P 666.00. The lowest was registered in cotton with a difference of P 5,572.00 in favor of tobacco.

Based on the findings. it is concluded that garlic and watermelon are the best alternative crops for tobacco because they registered the highest difference in net return as compared to the other test crops.

Based on the findings and conclusions of the study, the following recommendations are forwarded:

I. Garlic and watermelon are the best crops to be used as alternate to tobacco in Ilocos Sur.
2. The fact that mungbean is a short season and soil-building crop, it could also be grown by the farmers.
3. Green corn is also good because it could be grown two to three times a year especially in areas where there is ample water supply, and in soils that are saline in nature.