

THE CORN MARKETING SYSTEM

A RAPID MARKETING APPRAISAL IN THE SOUTHERN MINDANAO REGION

By

**Rachel Manalaysay
Merle Menegay
Edgar Soguilon
Gloria dela Pena
Nilda Burgos
Samson Mate
Jose dela Cruz
Herminigildo Montalvo
Celedonio Ines**

A JOINT PROJECT OF THE

**PHILIPPINE CHAMBER OF COMMERCE AND INDUSTRY
FOOD, AGRICULTURE AND FORESTRY COMMITTEE**

AND THE

DEPARTMENT OF AGRICULTURE

under the

**ACCELERATED AGRICULTURAL PRODUCTION PROJECT
OF THE DEPARTMENT OF AGRICULTURE AND THE
UNITED STATES AGENCY FOR INTERNATIONAL
DEVELOPMENT**

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LIST OF ACRONYMS

DESCRIPTION

AAPP-PMO	Accelerated Agricultural Production Project/ Project Management Office
DA	Department of Agriculture
FAFCom	Food, Agriculture and Forestry Committee
NAFC	National Fisheries and Agricultural Council
NFA	National Food Authority
PCCI	Philippine Chamber of Commerce and Industry
PCG	Project Core Group
P&O	Peace and Order
PPA	Philippine Port Authority
PS	Private Sector
RMA	Rapid Marketing Appraisal
SARSA	Settlements and Resource Systems Analysis Project (USAID)
SCIPSI	South Cotabato Interisland Port Services, Inc.
USAID	United States Agency for International Development
USM	University of Southern Mindanao

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PREFACE

This study was undertaken by the Food, Agriculture and Forestry Committee (FAFCom) of the Philippines Chamber of Commerce and Industry (PCCI) together with the Department of Agriculture (DA) through a grant under the ACCELERATED AGRICULTURAL PRODUCTION PROJECT of the United States Agency for International Development (USAID) and DA.

This report contains the results of the application of Phases I and II of a four-phased research methodology called the MARKETING ASSESSMENT developed by the Small Farmer Marketing Access Project of USAID. This study was conducted in the Province of South Cotabato, Region XI from August-September, 1987.

This report presents an "Agenda for Action and Research" based on the problems/constraints identified in the course of this study. PCCI hopes that the government and agribusiness community work together to solve the problems by implementing this proposed agenda.

March 1988

ACKNOWLEDGEMENTS

The FAF Committee would like to thank the Project Group for the effort and hard work they have put into the project.

The Committee would like to express its gratitude to the Department of Agriculture for believing in this project and to the United States Agency for International Development for supporting and funding this project.

Likewise, the Committee expresses its gratitude to the following government agencies and personnel whose support and cooperation have made this project successful:

DA Region XI Director : Alex Yadao

DA South Cotabato

Provincial Agricultural Officer	:	Domingo Nicolas
Maisagana Officer	:	Abraham Batara
Municipal Agricultural Officers	:	Roberto Allaga Elias Corpuz Pepito Dondiego Larry Fronda

USAID - Lydia Martinez and Lina Vensen

DA - Davao/Cebu/Dumaguete

Bureau of Agricultural Statistics (BAS) - Manila/Koronadal/Davao/Cebu

Bureau of Animal Industry South - Cotabato

National Food Authority (NFA) - South Cotabato/Cebu/Dumaguete

National Irrigation Authority - South Cotabato

Philippine Ports Authority (PPA) - South Cotabato/Cebu/Dumaguete

South Cotabato Interisland Port Services, Inc. (SCIPSI)

Tupi Seed Farm

During the conduct of this study, the Project Group solicited the help and support of many people without whose assistance and cooperation, the success of this project would not have been possible. Regrettably, there are so many that we have decided not to list them for fear that we miss some names.

PCCI FOOD, AGRICULTURE AND FORESTRY COMMITTEE

Chairman	:	ANGELITO SARMIENTO President P.S. Sarmiento & Sons, Inc.
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Vice-Chairmen : SOLEDAD AGBAYANI
 President
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 President
 Republic Flour Mills Corporation

VICENTE LIM, JR.
 Executive Director
 Accelerated Agricultural Production Project
 Department of Agriculture

Members : DR. AMADO BALADAD
 President
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DULCE GOZON
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 Senior Vice President
 San Miguel Corporation

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 Philippine Cotton Corporation

MANUEL LIM, JR.
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 JVA Management Corporation

JOSE MANGLICMOT
 Executive Vice President
 Confederation of Filipino Rice and
 Corn Associations of the Philippines

CARLOS ORTOLL
 Assistant Vice President
 San Miguel Corporation

IGNACIO PABLO
 President
 Philippine Chamber of Food Manufacturers, Inc.

FRANKLIN PANAHON
Director
Resource Catalysts, Inc.

ROSALINO PEREZ
Senior Assistant Vice President
San Miguel Corporation

ERNESTO SANVICTORES
President
Daily Harvest Manufacturing Company

JOSEPH SIAHETIONG
President
Daily Harvest Manufacturing Company

ANGELESIO TUGADO
President
Tobacco Inter-Agency Committee

MIGUEL UNSON III
Senior Staff Assistant
San Miguel Corporation

PROJECT CORE GROUP

Project Officer:	FRANKLIN PANAHON
Asst. Project Officer:	RACHEL MANALAYSAY
Principal Investigator:	HERBERT ROSALES
DA Central Representative:	HERMINIGILDO MONTALVO
Regional DA Representative:	CELEDONIO INES
USAID Consultant:	DR. MERLE MENEGAY

ASSESSMENT TEAM

Senior Researcher:	EDGAR SOGUILON
Junior Researcher:	NILDA BURGOS
	JOSE DELA CRUZ
	GLORIA DELA PENA
	SAMSOM MATE
	ANTONIO MARTINEZ

ADMINISTRATIVE SUPPORT STAFF

Bookkeeper:	ANGELITA MARTE
Administrative Assistants:	FEDELYNN JEMENA
	REBECCA TAPUCAR

EXECUTIVE SUMMARY

An effective and progressive commodity system enhances the productivity and profitability of those who grow, buy/sell and use a commodity such as corn. Such performance depends heavily on a strong and viable marketing system organization as well as the existence of adequate support infrastructure. Likewise, the comparative advantage in domestic production is greatly affected by how the marketing activities are done within that marketing system organization. Thus, it is essential to understand the complete commodity system from production to distribution and end-uses, in order to identify problems and constraints, to diagnose their probable causes and to find proper solutions for improving the system's performance.

This study of the corn system which originates in the supply area of South Cotabato and extends to major demand areas was decided upon in response to this need to understand the entire commodity system. South Cotabato was chosen as the primary research site because it is the largest single corn producing province in the country, contributing at least 20% of the total national output and at least 80% of Region XI's total corn production. With such production volume, the role of its production/marketing system directly influences the performance of the nation's corn system. Corn prices and supply in the major demand areas are substantially affected by conditions in this province, especially during the peak harvest season. Likewise, this province is the home of the major hybrid seed companies which have continued to develop improved varieties of hybrid corn.

The Philippine Chamber of Commerce and Industry (PCCI) through its Food, Agriculture and Forestry Committee (FAFCom) conducted this study by using the initial two phases of the Marketing Assessment methodology. This methodology entails four phases: Phase I - Background Information Collection and Analysis; Phase II - Rapid Marketing Appraisal for System Overview and Problem Identification; Phase III - In-depth Analysis of Priority Problems; and Phase IV - Monitoring and Evaluation of Corrective Actions as Implemented. This latter monitoring phase occurs during the implementation of projects, programs and/or policy reforms based on the in-depth research.

The principal objective of this study is to analyze the organization, operation, and performance of the corn system that originates in the Southern Mindanao Region and extends to the main demand areas of Cebu and Manila. The specific objectives are: to gather and analyze basic information on the corn system, to identify problems/constraints that impede that system's performance, and to propose an action/research agenda responsive to its priority problems.

Earlier in this decade, the main demand for corn was in terms of milled white corn as grits for human consumption and yellow and white corn as feed ingredients for animal raisers. The supply of corn consisted of both domestic production of white and yellow corn and imports of yellow corn. Imports of feed grain were fueled by the rapidly expanding demand from the large scale Integrators, i.e. feedmilling/animal raising/meat processing in one firm. However, following the farmers' outcry when arrivals of imports overlapped with and

depressed the farm prices of corn during their peak harvest season, a ban was placed on imports of corn and feed grains in 1986. This ban assumed that the domestic corn market would adjust and respond to this increased demand for feed corn, even though everyone recognized the seasonality of local production and historical "lean months".

Unfortunately, this change from imports to no imports was more rapid than the domestic marketing system and infrastructure could accommodate. The infrastructure and organization of the domestic marketing system were not adequately prepared to change from its prior emphasis on a surplus disposal approach to a more demand driven approach. Likewise in the countryside during this 1986-87 period, the transformation of the political system with rising expectations and a weak economy dampened consumer expenditures on several commodities, including higher valued foods, such as meats. Those conditions also narrowed the profit margins of agribusinesses and generally discouraged their investment in improved marketing and post-harvest facilities in the supply areas.

Historical, extreme seasonality in domestic harvests could not match the steady demand by large scale feed millers/animal raisers without the accommodation of large scale storage facilities which are not available in the supply areas. Likewise, since 1984 the decreasing, real price of corn, especially during the peak harvest period, discouraged farmers from increasing production and/or improving quality of their corn. In short, this corn system displayed very few examples of progressiveness and demonstrated a limited degree of effectiveness in terms of domestic supply only partially matching demand requirements, either in terms of aggregate amounts or timely availability of adequate quality. The Rapid Marketing Appraisal (RMA) was undertaken within this situation.

Impacts of limited quantities of corn during the lean months included extreme cyclical reductions in animal stocks just prior to the peak harvest season for corn, thereby reducing the demand for feed (corn) and further lowering farm prices. Other impacts included irregular or poor quality of corn delivered to distant end users, undependable shipments of grain from supply to demand areas, and inadequate incentives for the expansion and improvement of corn production/harvesting.

Reactions at the macro level, involved the prevailing economic and market conditions which did not provide adequate returns for the infrastructural and facility investments needed. Meanwhile, the Integrators were still preoccupied with their import preference/bias and doing little to improve the domestic infrastructural and post harvest inadequacies. At the micro level, the policies of major end-users of corn included, limited investments, few forward contracts, and lack of agreement on or enforcement of quality standards which combined to discourage rather than encourage expansion and quality enhancement of domestic supply.

Severely constrained infrastructure in terms of limited vessels and inadequate loading facilities as well as the inefficient organization and operation of the ports compounded that situation.

Insufficient post-harvest facilities in supply areas and undesirable trading practices, such as mixing good and poor quality of corn, resulted in high levels of dirty quality corn entering the marketing channels. Since this practice of mixing qualities could better accommodate the needs of feed-millers - (lower quality can be used for animal feeds) - than for corn millers - (higher quality for human consumption of grits), the increased activity of feed millers in the domestic market might contribute to its perpetuation, especially given perceived shortages.

FINDINGS AND INSIGHTS

Overview

This overview highlights the setting, builds on the findings and insights of the RMA, and sets the stage for evaluating the corn system's effectiveness and progressiveness. The performance indicators provide guidelines for prioritizing problems within the current system and expose the constraints to corn production expansion and quality enhancement within the province of South Cotabato. An agenda for action and research is proposed along with basic ideas on how to implement the agenda.

The corn commodity system can be understood as having four horizontal levels which are vertically linked by means of formal and informal buying/selling arrangements as commodities, information and money flow through the various channels. After a brief description of the macro setting and the situation at each level of the system, the vertical linkages will be summarized.

"Setting"

In recent years there has been a gradual shift from corn consumed primarily in the form of grits by the peoples in and from the Central part of the Philippines to a substantially increased demand for corn as a feed ingredient. The increased consumption of meat products and the emergence of centrally located, large scale Integrators (feed milling/animal raising/meat processing within one firm) has accelerated that use of corn in feeds. The Integrators former reliance on imported corn was curtailed with a ban on imports in 1986. This situation stimulated a struggle within the domestic market as suppliers tried to service that additional demand. Rainfall patterns caused farmers to plant corn at similar times, thus resulting in the highly seasonal harvests of corn. However, that did not match the consistent demand for feeds. Consequently, the sudden switch from imports during the lean months to complete reliance on the domestic corn supply has caused some serious side effects as documented by this RMA.

At the national level expanded consumption of corn is primarily attributed to strong demand for feed ingredients, fueled by increasing consumer demand for animal products. Although imports of feed corn and corn substitutes were banned in 1986, 50 thousand m.t. of Thai corn, 106 thousand m.t. of Canadian barley, and about 20 thousand m.t. of rice for feed use were imported in 1987 to supplement domestic feed ingredients, according to the "Agricultural Situation Report. That

situation tends to confirm the domestic market's inability to produce sufficient quantities of feed ingredients even though the wet season crop for 1987 has been at record levels.

"Production Level"

At this level the study captured the broad spectrum of production conditions under which corn was produced in South Cotabato. There were both upland and lowland areas with the latter comprised of settlements in which farm size for most sample corn producers was between 3 to 6 hectares with land ownership as the main tenure pattern. Farm plots varied from irregularly shaped fields on hillsides to those banded on flat land; from fertile loams to those with unfertile sandy soils; and from micro climates with distinct dry and wet seasons to those with less pronounced rainfall patterns. Consequently, there was considerable variability in yields which ranged from 1 to 4 metric tons per hectare and quality of output over the three pronounced harvest seasons and between fields in the flat versus hilly lands.

Although almost 60% of the sample farmers mentioned some affiliation with cooperatives or farmers associations, only farmers in the barangays of Malaya and Malalag Cogon were part of active associations. Thus, corn farmers made independent decisions regarding corn production/marketing or consulted with their main financiers, i.e., usually local traders.

The farmers grew both white and yellow types of corn with white corn dominating by about a 3 to 1 ratio in terms of volume during 1986. Farmers had several open-pollinated and hybrid varieties from which to select their seed material. Decisions regarding the variety to plant were related to the appropriateness of the season, agro-climatic conditions, relative farm size and availability of financing.

Farmers generally opted for the more traditional, white varieties in lieu of yellow hybrids under conditions of environmental stress, poor soils, and/or lack of financing. Hybrids have been considered the hope of the future because they usually have higher yields than open-pollinated varieties. However, the vulnerability of hybrids to droughts and diseases meant that there were more risks of crop failure and greater exposure to heavy cash losses, if planted under inappropriate conditions.

The hybrid seed industry should be the main catalyst for the expansion of domestic corn production in response to the feed millers strong demand for yellow corn. However, the South Cotabato area planted to hybrid varieties has decreased from the peak of approximately 30,000 hectares in 1983 to about 14,700 hectares in 1986. Yet, that peak may have been illusionary, representing farmers' response to the government's subsidized input program in support/promotion of the hybrid corn industry. Now that those programs have ended, the seed industry contends that its promotion strategy for farmers and traders is causing a sustainable upturn in hybrid seed use, beginning in 1987.

Beyond the production level, corn farmers in South Cotabato played only a minor role in facilitating the flow of their product to end-users. For the three principal physical marketing functions essential to the flow of corn, namely, transport, processing, and storage, little was done directly by farmers. Transport of corn from the farm was usually handled by local traders, except when farmers near the market towns delivered their corn to large traders. For processing, farmers usually had their corn shelled and sold the grain. The few farmers who did not shell their corn sold the unshelled cobs of corn for about half the grain price, i.e., P1.20/kg. unshelled or P2.40-2.50/kg. as grain. Although most farmers dried their grain and earned higher prices, some farmers sold wet corn because of limited access to driers during peak harvest times. For storage, less than 10% of the 81 farmers interviewed stored any corn. Those storing corn, stored it on the cob and later sold small lots whenever cash was needed or all at once when prices increased. Due to the farmers' immediate need for cash or inadequate holding/storage space, farmers seldom stored corn for commercial purposes.

In addition to those physical functions, the facilitating activities of grades and standards, financing, and information mechanisms should enhance commodity flow. In South Cotabato poor quality corn was bought at discounted prices and entered the market as "dirty corn", i.e., high levels of foreign materials. No quality standards were maintained. Both technical and institutional factors caused this condition. The technical causes included: inadequacy of drying facilities during the rainy season harvest; poorly formed cobs; and old shellers without blowers to remove chaff and debris. Institutional factors included the farmer's decision to harvest premature cobs before the price dropped and/or whenever the need for ready/immediate cash arose and the local trader's practice of mixing good and poor quality of corn in order to sell larger volumes of grain.

Most financing of the corn crop was done by traders and some hog raisers. However, a shrinkage of available farmer credit from formal and informal sources has recently occurred. Although this could cause a decrease in productivity in the long run, it might reflect a transition period from a "suki" system with interdependent, personal relationship between trader-creditor and farmer-debtor to a spot market system of independent, impersonal transactions in which farmers directly responded to price bids. The implications of this transition would include: a) farmers must provide more of their own capital and b) suppliers of inputs, especially hybrid seed companies, must handle many more small scale purchases and become more responsive to individual farmer's needs/repayment capacity. For the hybrid seed industry, this situation was in sharp contrast to the previous condition of larger scale purchase by big traders or the huge requirements of government promotion programs, such as the Expanded Yellow Corn Program.

Regarding market information, particularly prices, 70% of the sample farmers relied on the traders' market prices and contacted different traders to determine the prevailing prices. Farmers also asked price information from other farmers, farm organizations, agents of traders, landowners and the National Food Authority (NFA).

At the time of this study, government involvement in the corn marketing system was quite limited, except for the ban on corn importation. The Department of Agriculture (DA) had no large scale programs to promote, finance and/or

support corn production. The volume of NFA procurement of corn at the floor price was minimal.

Major problems of farmers ranked according to frequency were; low price of corn during the harvest period, lack of post-harvest facilities, limited availability of financing, recent drought conditions, and high costs of inputs. Farmers growing hybrids had more problems with costly inputs and sharp yield reductions due to adverse weather conditions.

"Distribution Level"

Traders represented the most complex set of marketing participants both within the province of South Cotabato and beyond. This was done not only to substantial variation in size and functions performed but also because several traders had multiple enterprises (hog raising, corn milling, and provision of production inputs) and diverse forms of ownership/management (family versus corporate). The scope of their buying area and management/ownership arrangement were the criteria used to classify traders in South Cotabato. Classification allowed the team to distinguish roles, to document changes in marketing organization, to associate problems with types of traders, and to understand causal factors for the problems cited. According to the scope of their buying area, there were barangay, municipal, and provincial/regional traders with the latter group containing trader/shippers. The trader/shippers were classified according to their ownership/management practices, namely: family businesses, family corporations, and corporations. Most of the other trader categories were family businesses.

The barangay trader, locally termed "buy and sell", regularly bought corn from farmers within his or a neighboring barangay and sold to a larger trader in the municipality (town) or directly to General Santos traders. Owners of "sari-sari" stores in the barangay were invariably traders because consumer goods credited to local farmers on credit during crop production periods were repaid in-kind or cash during the harvest periods. These traders had the most contact with farmers and played an important role in determining the quality of corn flowing into the marketing channels, by accepting or rejecting inferior corn.

The municipal trader was usually a medium to large scale commodity buyer who bought corn along with several agricultural commodities from barangays within or near his municipality. From his town-based shop, this trader usually sold to larger traders located in General Santos and provided an array of support services to farmers, such as drying, shelling, and transporting.

The provincial/regional trader was a medium to large scale commodity buyer who procured from more than two municipalities within the province or region and sold on a spot market or contract basis. The regional traders, sometimes termed "trader/shippers", usually hired ships to send corn to buyers outside Mindanao whereas provincial traders commonly supplied grain to this trader/shipper or large outside buyers who came to General Santos. Within the trader/shipper group the family businesses were mostly the younger generation of traders descending from the "old time" traders with 20 or more years of operation in General Santos. This group normally relied on its network of "suki"

relationships built over time with barangay and municipal traders to whom capital and equipment were given on credit. The corporate trader was the new emerging player in the trading business of General Santos. These traders used the spot market, paid slightly higher prices for good quality, and aggressively searched for corn sellers. Credit or cash advances were not commonly given by this type of trader.

"Suki" arrangements, i.e., regular commercial relationship, between the trader/financier and farmers were weakening although still common. Signs/causes of that trend included:

- recent high rates of default by farmers,
- traders restricting credit on inputs to selected farmers or withdrawing credit completely,
- "pole vaulting", i.e., a farmer not selling his complete harvest to his financier but to another buyer,
- changing attitude of "loyalty", and
- the "hunters/strikers" actively searching for corn from farmers and small traders while paying P0.05 - P0.10/kg more than locally prevailing prices. Such a practice seemed to favor farmers in the short run but had negative implications in the long run.

All trader/shippers displayed a high level of business diversification and integration into corn-related enterprises, such as corn milling, transportation, feed milling, and/or hog raising or poultry growing. This improved the utilization of their corn and by-products of corn processing while adding value to corn grain.

Poor quality corn entered the marketing system in relatively small lots when purchased by traders. However, the practice of some traders in South Cotabato was to mix poor and good quality corn thus giving this province the reputation of selling "dirty corn". Reasons that traders accepted poor quality corn included:

- traders with farmer-debtors accepted whatever quality was delivered, otherwise they might not be able to recover the debts,
- if a trader would not accept some poor quality along with good quality corn, other buyers would accept it and thereby decrease his market share,
- larger traders, i.e., provincial or regional traders, (mainly "oldtimers") without strict procurement standards and/or in urgent need to fill pending contracts/sales opportunities allowed their network of barangay/municipal traders, to mix the qualities in their inventories, and

traders with piggeries fed their hogs all qualities of corn whereas those with corn mills tended to process good quality white corn into grits, then mixed and sold poor quality corn as grain. With corn milling capacity increasing and hog raising decreasing in South Cotabato, there was additional poor quality corn in the market.

The NFA was previously active in buying and selling corn in support of the floor price scheme. Although its recent participation in the marketing system has waned, the NFA still had responsibility for registering traders, their equipment and facilities, and volumes shipped.

Major problems of traders ranked according to frequency included: intense competition, low recovery, of credit, lack of capital, and lack of driers. The traders/shippers emphasized lack of adequate vessels during the peak harvest period. Analysis of existing information substantiated the problem with low recovery rates for credit and suggested that the change in farmers attitude was related to the increased opportunities for farmers to sell to outside buyers who came to the farm during periods of intense competition for limited supplies of corn.

"Processing Level"

Corn millers, feed millers, and starch manufacturers were the three main types of corn processors. Vigorous competition among firms within each type of processing as well as between types of processors existed, especially since the import ban in 1986. Due to the shortage of yellow corn during the lean months from January to June, intense competition between corn millers and feed millers for white corn grain increased sharply. Without imports of yellow corn during those months, feed millers bid-up prices and reduced supplies of white corn for corn milling. Consequently, the substitution effect of white corn for yellow corn or trade-off between food for people and feed for animals has been a consequence of that import policy.

Historically, Cebu City has been the hub of the corn milling industry because of its central location, large size, and proximity to major consumption areas for grits. Since Cebu has been a deficit corn production area, Cebuano millers must purchase most of their white corn from Mindanao, process the corn grain into several grades of grits, and sell the grits locally or ship to neighboring islands. A restructuring of the corn milling industry began to emerge as large scale corn mills were established in port cities near major supply areas, such as Cagayan de Oro, Davao, General Santos, and Cotabato. The higher quality and increased volume of grits from these newer mills steadily gained a large market share in the major demand areas of Negros Oriental and Cebu City at the expense of Cebuano millers. Although the comparative advantage of corn milling has shifted from locations near major consumption areas for grits to locations near corn production, that has not yet occurred for feed milling. But since commercial feed mills use by-products from grits processing as feed ingredients, that shift in corn milling should affect the future location of feedmills in port cities near corn production areas.

The feed milling industry has undergone several changes within the past two decades. Historically, a wide array of feed millers of varied sizes processed yellow and white corn for sale to small to medium sized commercial piggeries and poultry farmers as well as backyard hog and poultry raisers. Some larger feed mills near Manila and Cebu shipped feeds through their distribution network to distant towns and cities. Recently, 5 - 6 large scale Integrators, i.e., integration of feed milling, animal raising, and meat processing within one firm, headquartered in the Manila area became the dominant force in the expanding livestock industry. During the early 1980's the Integrators imported considerable amounts of corn. They found it simple and cost effective to import yellow corn because quality was reliable, deliveries easily arranged and it was not necessary to worry about or invest in production credit, extension services, or post harvest facilities in the domestic market. However, the 1986 ban on corn imports has created substantial problems for this set of firms. In the meantime, medium to large scale poultry growers and/or hog raisers have included feed milling in their operations in order to survive in this competitive business. Unlike the corn milling industry, there has not been a shift in feed milling capacity to locations nearer the corn production areas.

There were indications of some restructuring of the Integrators form of business as exemplified by increased cases of contracting hog and poultry production with farmers, especially as the quantity and quality of corn supplies became less reliable and labor unrest threatened the operation of large scale hog farms (case of strikers closing the General Milling animal raising facilities).

Only one Integrator had bulk loading facilities in General Santos. Some large Integrators were initiating the practice of bulk loading at the dock, i.e., emptying bags of grain into the ship's storage compartments. Likewise a large trader in South Cotabato was looking into ways to bulk load trucks at the warehouse and dump the grain into ships. In most large Mindanao ports, port facilities and loading arrangements will require improvement in order to facilitate bulk handling.

The starch manufacturing industry was dominated by a few very large scale processors located in Manila and Cebu. There was little indication that those facilities would be moved closer to corn supply areas. Starch manufacturing heavily relied on white corn grain purchased during the peak harvest period, processed, and stored as starch for later sale to food processors, especially for snack food products.

Major problems for participants at the processing level varied somewhat by type. Corn millers in Cebu expressed problems with the lack of vessels in the route between General Santos and Cebu, the poor (dirty) quality corn from General Santos, intense competition between Cebu millers and those in the corn supply areas and the NFA's previous role in the market. The deteriorating relationship between Cebu millers and traders/shippers in General Santos exacerbated those problems. For large feed millers the inadequate quality of corn from General Santos was problematic because millers lacked adequate cleaning and drying facilities in Manila and quantity was insufficient during the January-June period. Shortages of vessels was mentioned by all types of millers.

"Consumption Level"

Consumers of corn are humans (fresh corn on the cob, grits, and starch-based products) and animals (feeds). Historically, Filipinos in the central and southern regions of the country ate grits from white corn grains as a staple. However, over time the per capita consumption of grits has declined steadily with studies indicating the negative income elasticity for grits. Thus, as income is increased, the consumption of grits should decrease. On the other hand, corn starch made from white corn grain has increased due to growing demand for noodle and snack foods.

The ever increasing role of meat in the Filipino diet has caused a strong demand for meats and thereby more animal feeds. Consequently, a gradual shift in major end uses of corn has occurred. With a ban of yellow corn imports and periodic shortages of domestic yellow corn for feed, the feed millers and animal raisers have strenuously sought white corn with adverse effects on the availability, quality, and cost of white corn for milling into grits.

Since animal feed was a major end-user of corn, animal raising located nearer the corn production areas meant cheaper feeds. Thus, the comparative advantage of owning and managing large scale hog and poultry operations within the corn supply areas, such as South Cotabato, versus near the meat demand centers, such as Manila, warrants further investigation. This is particularly relevant if regional development strategies include exports of value-added products rather than only raw materials. A key factor in exploiting this and other various forms of comparative advantage will be "increased availability and low cost shipping as well as technologies which reduce the weight loss of live weight shipments of animals".

The major problems cited by piggeries operating near General Santos were conditions at the end-market including: the poor condition of the receiving/holding lots for hogs in the Manila (especially when market gluts occur), weight shrinkage due to delayed arrival in Manila (especially for van shipments), and the necessity to always sell through brokers rather than directly to buyers. These conditions were especially problematic whenever too many hogs arrived in the Manila market.

"Vertical Dimension"

The system-wide or inter-level events or behavior which adversely affected the performance of the system merit attention. The poor quality of corn coming from certain farms was being mixed with good quality by farmers and traders in the supply area before shipment out of the province to distant end-users. The bulk of the early harvests were shipped out of the supply areas and stored/used nearer the demand areas but as the harvest season progressed the flow subsided and local warehouses were filled. Inadequate shipping seriously hampered the flow and increased the transportation costs. The largest scale, end-users in the feed industry were unwilling to either enforce standards or contract for good quality at premium prices while some end-users even practiced "zonal pricing", i.e., lower the initial bid price due to "reputation" of the location for "dirty or wet" corn. Consequently, the farmers, traders, millers, and hog raisers in South Cotabato did not receive

adequate price incentives to improve quality nor had the means for either improving quality (driers) or using the large amounts of poor quality corn (feeding hogs).

The transition from a hierarchically structured, "suki" system to the spot market system caused several forms of disruptions which hampered the marketing system's ability to respond to the increased demand for local corn. For example, the "suki" financing spread downward from the large traders to those providing inputs and/or loans to farmers. This credit accomplished both a money flow and a coordinating function in that the large traders instructed those in his network regarding the quality, quantity and timing of deliveries. Since this forms of coordination has been damaged, some other forms, such as contracting, should replace it otherwise a disorganized market condition will prevail.

Price information flows downward through the numerous transactions taking place throughout the system, but the information on "supply conditions" (harvested amounts and inventory levels) was very difficult to find. Large firms sent reconnaissance teams to supply areas during the harvest season whereas all others had to rely on "rumors" regarding the magnitude and availability of supply.

System Performance

Effectiveness and progressiveness are the two performance attributes examined from the commodity system's perspective. Effectiveness refers to the marketing system being able to match demand preferences with corresponding supply offerings. In the case of this corn system, common mechanisms for system effectiveness were not performing well. For example, since 1984 price fluctuations have increased rather than stabilized, opportunities of clearly communicating preferences were few, and competitive pricing occurred within unstable marketing conditions.

The critical point was that many end-users, especially the large Integrators, feed millers, and corn millers, did not receive adequate supplies of corn during the leanest months of January - February and May - June in 1986 and 1987. Integrators were not able to maintain optimal numbers of animals in line with livestock demand, their market share, and their level of technological sophistication due primarily to periodic corn shortages. In fact, such shortages have caused excessive liquidations of their animals.

Internal inconsistencies were also noted. Although several Integrators complained of receiving domestic corn of poor quality, few Integrators paid premium prices for good quality corn even when provided such quality by a major corn supplier. In fact, that supplier of quality corn has reportedly been losing orders for better quality corn during this past year. Similarly, those same Integrators did not issue many contracts with strict quality specifications during the lean months nor had they significantly expanded their grain cleaning/drying capabilities. Paying increasingly lower prices for poor quality, rather than premium price for good quality was their standard operating procedure. That strategy neither provided the local traders and farmers the funds to expand their

output and drying facilities nor the incentives to respond to the Integrators requested quality. In other words, that strategy inhibited the effectiveness of the corn marketing system.

In Cebu, though several corn millers recently received inferior quality corn contrary to their strongly stated preferences, they took positive steps to improve the effectiveness of their corn supply. While their Millers Association petitioned/negotiated with traditional suppliers who have been supplying poor quality, individual millers began setting-up direct links to the new grain trading firms entering major corn supply areas. Some millers even contemplated establishing branch buying stations/corn mills in the supply areas themselves. They were improving system effectiveness.

Effectiveness from a communications perspective was present in one form, i.e., the wide-spread use of telephones which allowed rapid communications of daily prices between Manila, Cebu, and General Santos. However, the lack of any established wholesale market place for grains and the problem of secrecy among Manila-based traders and end-users, hampered access to price data for persons or institutions outside the grain trade. In the production areas near General Santos City, the "Coffee Shop" phenomenon, i.e., informal gathering of buyers and arriving truckers at a roadside coffee shop each morning, helped "price discovery" and rapid dissemination of information on market conditions and prevailing prices. However, in the consumption areas, such as Manila, rumors on such topics as impending supply shortfalls, large stocks of corn being held at the farm level, and pending imports seemed to play a disproportionately large role. One could argue that a substantial amount of disinformation has been fed into the system via such rumors and that a Market Information System project by the government would be very timely given that situation.

Given the long distances between the major supply areas in Mindanao and demand areas, an essential key to reducing problems with the effectiveness of the system was the shipping industry. Yet shortages of vessels was the main constraint during the peak harvest season, according to our information. The lack of efficient and timely distribution of corn from the supply to the demand points was exacerbated by the lack of vessels which imposed additional costs on the marketing of corn.

A few indicators of progressiveness were observed at each level in the system. At the production level indicators were both technological and organizational in nature. Technological progress has been introduced by seed companies with new, higher yielding and locally adapted hybrid varieties. Also double drum shellers were locally designed, manufactured, and sold to farmers and traders, thus providing a way to improve quality by reducing the amount of broken grains. Organizational progress included; a) development of an improved seed sales strategy whereby large farmers who grew hybrids were directly serviced by seed companies in addition to input dealers; b) introduction of an appropriate input support service by which certain hog raisers and traders offered their farmer-creditors choice of seed variety/brand and amount/type of agro-chemical inputs in keeping with his field conditions, agro-climatic situation, and economic ability to grow corn; and c) a seed company's introduction of a seed multiplication

program by which selected farmers were given cattle for fattening and a share of the cattle sales profits, in addition to farmer income from hybrid seed multiplication.

At the distribution level technological progress seemed limited; a) the design/use of "van cages" for shipping live animals on container vessels, b) the construction/operation of a large silo drier and c) plans for testing various "bulk handling" technologies. Likewise, an organizational realignment among traders was emerging as "newcomers", i.e., trading companies with corporate or family corporate management styles, rapidly expanded in competition with traditional family firms by emphasizing corn quality improvement and paying higher prices. Also the establishment of local buying stations by some Integrators shortened the length of a major marketing channel. Also, larger traders who hired vessels for corn shipments were interested in shifting toward more use of time charters versus trip charters.

Firms at the processing level had introduced substantial technological progressiveness in this past decade, especially the large scale Integrators with their array of more sophisticated feed milling/animal raising/meat processing technologies. Future progress toward a set of technologies uniquely tailored to domestic versus imported raw materials would involve refinement and adaptability rather than sophistication of technology. Each succeeding generation of corn millers continued to improve on the basic design of their forefathers technology. A form of organizational progress was the larger Cebu corn millers change from indirect purchases of corn through Cebu traders to more procurement of white corn directly from traders in major production areas and the establishment of **branch mills** in select production areas. These new mills would allow for the selection of the best quality of corn for processing and shipment for higher valued grits (versus grain) directly to demand areas.

At the consumption level progress was limited. For example, in the feed sector "contract growing" of poultry and livestock has been initiated by an Integrator whereby inputs, technical services, and sales outlets were provided to farmers in exchange for their labor and facilities. In the food sector, the continuing development of new snack products, based on corn starch, has begun to broaden the scope of demand for white corn in the future.

From a vertical perspective, the system effectiveness and progressiveness fell short of what was needed, perhaps because the large end-users who had the resources, skill and position to become "channel captains", i.e., those facilitating coordination within the channels, and to invest in marketing system improvements had not yet done so. Yet, on the other hand, the lack of a stable institutional and policy environment had not provided the necessary incentives and encouragement for such a leadership role to be accepted.

Agenda for Action and Research

The formulation of these two sets of criteria, i.e., one for the prioritizations of problems and the other for choosing between possible solutions, has required a great deal of thought during the process of developing the "Agenda for Action and

Research". The first set of criteria enables a more systematic prioritization of problems identified during this study. Those criteria are:

- * **magnitude** - is the problem such that its resolution is likely to make a substantial impact on the effectiveness, progressiveness, and/or efficiency of the system and its participants,
- * **vertical impact** - does the cause of the problem create harmful consequences to participants at other levels in the system, thereby making it difficult for those affected to control/resolve the problem, and
- * **sequential** - is the resolution of this problem a pre-condition for making other major improvements in the system?

The second set of criteria helps the analysts select among several alternative solutions for each priority problem. These criteria include:

- * **highest impact** - largest number of people benefit (directly or indirectly) from the solution,
- * **least cost** - solution requires a relatively limited amount of financial and human resources that are available, and
- * **easy to implement** - solution can be managed with a minimal change in the existing "ways of doing things", such as within the existing legal, economic, political, and social systems.

Basically, the availability of sufficient information to make informed judgments and design corrective actions influenced whether an action or further research were proposed in the agenda relative to each problem. Each problem is stated in a capsule form, implications listed, summary action plan proposed, further research specified as needed, and components of the action and/or research strategy suggested whenever adequate information is available.

#1 INSUFFICIENT, TIMELY SUPPLY OF YELLOW CORN FOR THE FEED INDUSTRY DURING JANUARY-FEBRUARY AND MAY-JUNE:

Implications:

- causes heavy liquidation of animals which adversely affects lagged meat prices;
- leads to seasonal underutilization of facilities, technologies, and labor, especially for large scale firms; and
- discourages investments in facilities and improved technologies for poultry growing and hog raising.

Action:

- design farming system research and crops expansion programs for corn or feed substitutes to support the expansion of feed supplies during the lean months; and
- transfer NFA storage facilities to private traders for storage use beyond the peak harvest period.

Research:

- determine locally abundant, economical feed substitutes for yellow corn during those lean months; and
- investigate methods for encouraging more use of forward contracts and their compliance during those months.

Strategy:

Recognize that self sufficiency in corn may be desirable but not rapidly achievable. Thus, there is need for short and long term planning -- adequate financial/technical support -- creative/motivated implementation of effective programs. In other words, devise innovative approaches that encompass key components of the total system rather than confine the scope to disposal of surplus corn during the peak season. For example, evaluate the merit of exploiting fishery resources to make large quantities of fish meal as a feed ingredient and barter some of that for corn from neighboring countries, such as Thailand.

#2 INADEQUACY OF SHIPPING SERVICES RELATIVE TO THOSE NEEDED BY SHIPPERS OF CORN FROM MINDANAO

Implications:

- inhibits the timely delivery of contract orders from supply area traders;
- causes extended, unplanned storage periods for corn in the supply areas with adverse consequences for both corn quality and local trader's ability to continue purchasing corn from farmers;
- creates unwarranted risks and uncertainties associated with forward contracting by large scale buyers;
- hampers efficient management of inventories, processing plants and animal raising facilities by end-users because of delayed deliveries of unreliable quality; and
- leads to higher shipping margins as shippers bid-up the price to access limited vessels.

Action:

Request a policy and planning review of the entire shipping industry, because lower cost and better coordinated shipping is the key link between corn grown in the supply areas of Mindanao and the Manila-based, end-users. Improvements in the shipping industry would include support for R&D policies and activities as well as the following;

- re-evaluation of taxes on ship ownership, shipping rates and routing regulations and policies, given recent changes in the demand and supply of shipping services/facilities in Mindanao;
- formulation of backhaul schemes to reduce transportation costs to and from regions far from Manila;
- comparison of the costs/benefits of the present, single firm stevedoring arrangement relative to the previous competitive arrangements;
- financing and organization for the pilot testing of various bulk loading technologies at the General Santos port; and
- repair/construction of the port access road/bridge near General Santos.

Research:

There is the need to determine the nature, amount and timing of shipping services needed for corn grain/grits/hogs shipments from Mindanao. For example, estimates of the shipping volume/month needed per type of product from major ports should be determined. Likewise, research is required for designing, building, and testing the bulk handling technologies appropriate to and affordable for local trader/shippers. An engineering company experienced in designing and testing appropriate technologies should be hired to work closely with a few local trader/shippers on this effort.

Strategy:

The main point is to establish a task force to investigate the shipping industry. One source of field level information to support that investigation would be a local business research institute, such as Business Research Center in General Santos. NFA data on corn shipment would also be useful.

#3 INCONSISTENT AND UNEVENLY IMPLEMENTED IMPORT POLICY FOR YELLOW CORN

Implications:

- discourages investments in new technologies, such as bulk shipping, and storage facilities because future prices may not cover storage costs/losses if unexpected imports severely depress prices and/or reduce the number of buyers;
- creates risks and uncertainties associated with expansion or reduction in the inventories of animals, based on projected corn supplies; and
- inhibits large scale feed mills/Integrators from converting their procurement and processing technologies to more closely match the unique conditions of the domestic marketing system.

Action:

Develop in the short term an import strategy which supports the expansion of domestic production and investment in local marketing facilities with a set of balanced, consistently implemented import policies for yellow corn. Those policies should consider these characteristics;

- accommodates the timing and volume concerns of both large and medium scale feed millers/livestock raisers and Filipino corn growers;
- provides a gradual transition period from the Integrators former dependency on imported corn to a dominant market position for domestic corn;
- creates incentives for increased storage of domestic production to stabilize monthly corn supplies; and
- will be phased out as domestic production achieves self-sufficiency.

Research:

There is an urgent need to better understand the nature of the monthly demand and supply situation for livestock and corn before establishing an effective monitoring system of corn stocks and flows or publishing "Situation and Outlook Reports" for the government and industry. A small research team should conduct in-depth interviews with a wide range of industry leaders and key informants in demand areas and major trading centers in order to fully understand the key interrelationships, tradeoffs and motivations of all participants in the system.

Strategy:

At the time this report was drafted, the ban on imports was creating several "side-effects" for the industries using corn grain. The issues raised regarding this strategy directly address the need for a "systematic and well-planned policy" versus an ad hoc approach, including:

- * insertion of a "sunrise" clause in the import policy, meaning a major re-evaluation and/or rewrite of the import/domestic market strategies mandatory every 4 - 5 years in order to plan policy adjustments in response to major changes in the sector;
- * inclusion of a programmed level and date of limited import arrivals in relation to which the feed milling and animal raising industries can plan infrastructural or post harvest facility investment and technological adaptations required for improvements in the domestic marketing system. For instance, target the arrival of a fixed amount of feed corn imports (for example 50,000 m.t.) in February and another amount for arrival in May to be decreased by 10,000 m.t. per subsequent arrival for each of the next 3 years. Then, re-evaluate the need for imports.
- * establishment of import quotas for a few licensed, private importers, and
- * implementation of substantial fines for import deliveries outside of narrowly defined import periods.

#4 LIMITED AVAILABILITY OF POST HARVEST FACILITIES/TECHNOLOGIES GIVEN THE ERRATIC WEATHER CONDITIONS AND PERIODIC HARVEST GLUTS WITHIN MAJOR PRODUCTION AREAS:

Implications:

- causes inferior quality corn (high moisture content and excess foreign materials) to enter the marketing system on an irregular basis;
- makes it difficult for small farmers to invest in drying facilities because of their limited resources, the short period of facility use per farmer (2-3 weeks/year), and lack of assured price premiums for better quality; and
- may lead to larger traders undertaking more post harvest services, such as cleaning and drying, given economies of scale and longer periods of post harvest facility use.

Action:

Banga Municipality is judged the most problematic case and in urgent need of priority action, based on our analysis of the corn drying situation. The extended 4 month period of rainfall at over 200 mm/month, largest concentrated

area for the first season's corn harvest, farmers reporting 20 -25% losses due to the lack of driers, and limited drying floors space/harvested area confirms the magnitude of the problem. Given local circumstances, two initial approaches merit financial support with the local government as recipient:

- provide cement and related materials to the first 50 barangays that can assure adequate space and will provide local labor to construct dual purpose, public drying facilities, i.e., basketball courts in the dry season and drying floors during the rainy period and
- set-up a similar cost sharing approach for individual farmers or farmers' groups in the barangays and/or for local traders, perhaps even investigating the physical/economic feasibility of sponsoring poblacion-based facilities.

Following the implementation, monitoring, and evaluation of this support program in Banga, determine the need and appropriateness of this approach in other municipalities.

Research:

The research questions revolve around who in the system can most efficiently manage post harvest facilities for the benefit of all system participants, especially farmers. That research process will include:

- estimate the costs/returns to increased drying capacity for farmers versus barangay or municipal traders, especially given the implications of economies of scale and longer periods to use the facility when larger volumes are involved;
- determine the economic feasibility/viability of renting the use of a mechanical drier in a centrally located and accessible site in the poblacion or nearby trading centers;
- estimate the costs and returns to subsidizing farmer and barangay purchases of mobile shellers and cleaning machines, initially for the Banga area; and
- conduct a spot check survey in major demand and supply areas regarding the arrival quality (moisture content and foreign matter) from different locations and from certain suppliers in order to; a) estimate the value loss and percentage of quality mixture together with its likely causes, such as handling practices, maturity of the grain, and shelling damages, and b) relate quality with transaction method, origin (location and season), length of storage, and end-use (food versus feed). The value lost could serve as a basis for estimating price premiums needed to obtain better quality as well as projecting the benefits from investments in drying, cleaning, and storing facilities.

There are indications that farmers will benefit from cleaning and drying their grain if the costs are not excessive and facilities are available. On the other hand, it is quite clear that the large end-users will benefit from improved quality in the market both directly (better feed inputs and less chance of aflatoxin) and indirectly (no need to invest in their own post-harvest equipment and facilities).

Improved storage facilities can be constructed and operated in supply as well as in the demand areas. An understanding of the trade-offs between those sites and implications for farmers' income and market stability are needed before allocating large sums of money or encouraging investment. Given the structural change in procurement patterns for the "channel captains" from imports to domestic supply and their strategic response, a study of tradeoffs should be delayed until their strategies become more recognizable.

#5 LOW FARM PRICE FOR CORN DURING PEAK HARVEST SEASON

Implications:

- seriously reduces farmer's income and increases exposure to debt;
- encourages farmers to harvest corn prematurely, to attempt sales of poor quality, and to minimize cash costs for fertilizer; and
- signals end-users that farmers can and will continue production even at that price level whereas in reality many are actively searching for profitable alternatives.

Action:

- expand drying facilities so farmers can access higher prices within the current price spread due to better quality;
- target imports and/or expanded yellow corn production during the lean months so that the animal industry has maximum numbers to create more demand for corn during the peak harvest;
- support seed production and commodity marketing of non-corn crops during the peak season for corn so farmers can shift out of corn, thus reducing peak season supply;
- add more charter vessels during July and August so that supply area traders can increase their turnover rate and more traders can remain active in the market; and
- expand hog raising, corn milling, and starch manufacturing in Mindanao so that value-adding can occur and additional local demand for corn can arise.

Research:

Much of the research relevant to the low farm price for corn and these agenda for action has already been laid out in the foregoing sections. The additional research agenda should respond to several inter-related components in keeping with regional value-added strategy,

- investigation of constraints for increasing the hog raising enterprises in South Cotabato by a comparative analysis of cost/returns for hog raising/marketing in areas near Manila relative to hog raising/marketing in South Cotabato, including problems and constraints within both areas (competitive position);
- determine "under what conditions" can the January-February harvest of corn be increased in Mindanao, citing specific locations with the most promise;
- determine the technical feasibility and economic returns for corn starch manufacturing/marketing which can absorb lower quality corn; and
- review previous research on the alternative feed ingredients for the hog industry and determine current strategies of corn substitutes in lean months and feasibility of supporting allied sectors, such as fish meal.

Once that agenda is accomplished policy can be based on informed judgments versus assumptions.

I. INTRODUCTION

The corn commodity system involves an estimated 1.3 million farmers. Corn serves as a staple food for 20% of the Filipino population and is a major input for the livestock and poultry feed industry. This study focuses on determining the problems and constraints of the corn system's performance and viability. It is important because the corn situation affects so many farmers and consumers as well as has a substantial contribution to the national economy. The identification of alternative solutions and implementation of appropriate ones would make a considerable contribution to the agricultural development of the Philippines.

The reason for this study was the need to understand the complete corn commodity system as it originates in the Province of South Cotabato, Southern Mindanao, and extends to end-users throughout the country (Figure 1.1). South Cotabato was chosen because it produces at least 20% of the national corn crop. This is not intended as a scholarly thesis but rather as a practical treatment which can be understood and appreciated by businessmen, policymakers, progressive farmers, and scholars alike.

A. Objectives

The general objective is to describe and analyze the organization, operation and performance of the corn marketing system. The specific objectives and/or output expectations are as follows:

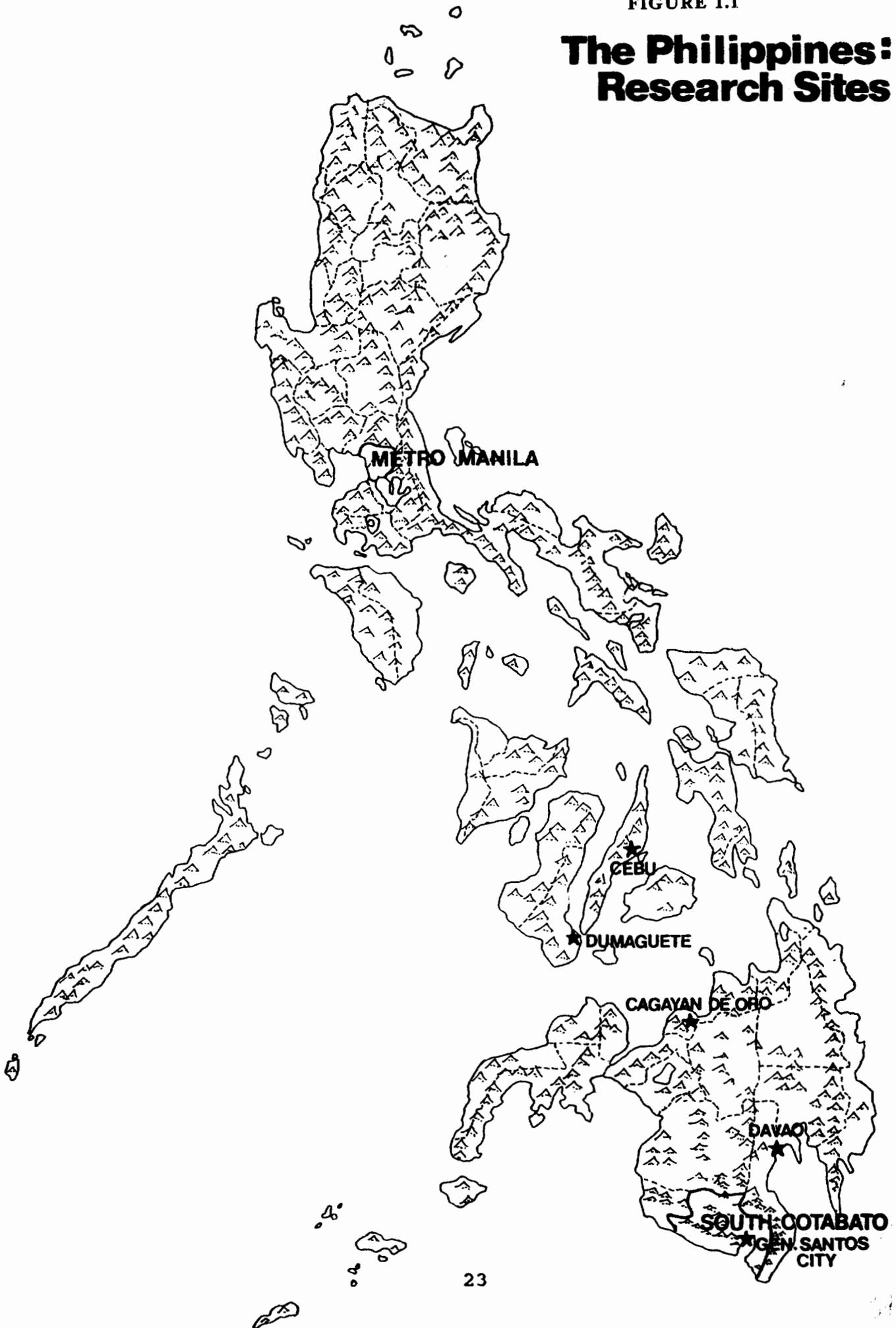
- * to describe an overview of the corn commodity system as originating from the supply area in Region XI and extending to major demand areas;
- * to identify and diagnose problems/constraints to the effectiveness and progressiveness as well as the productivity and profitability of the system participants;
- * to prioritize problem areas that require follow-up, in-depth research and analysis for the identification of alternative solutions; and
- * to suggest ways to approach alternative solutions to priority problems in the corn system.

The performance dimensions of effectiveness and progressiveness mean the following:

- 1) **effectiveness** - the ability of the marketing system to match the demand preferences at each stage of the system with corresponding supply offerings. This is usually accomplished through such mechanisms as competitive pricing, minimization of price fluctuations, and opportunities for clear communication (articulation) of preferences.

FIGURE 1.1

The Philippines: Research Sites



- 2) **progressiveness** - the marketing participants actively search for and adopt; a) technologies to improve product quality and/or increase output/throughput, b) management methods and institutional arrangements that reduce risks and/or costs, and c) ways to enhance coordination among system participants, including relevant public sector organizations or agencies.

B. Research Methodology

The first two phases of the Marketing Assessment methodology were used. Phase I entailed the collection and analysis of pertinent Background Information while Phase II, i.e., Rapid Marketing Appraisal (RMA), involved a series of interviews with every type of marketing system participant, including key informants. A detailed discussion of this approach is given in Appendix 1.

1) Team Composition

A Project Core Group (PCG), composed of a member and staff from the Food, Agriculture and Forestry Committee within the PCCI and one officer from the Department of Agriculture, was responsible for overall supervision of the project. A research team was formed to conduct field interviews, make detailed observations of corn production/marketing, and analyze the resulting information for this report. This team was headed by the PCG, guided by a marketing specialist from USAID, and composed of six persons: a) three researchers from the University of Southern Mindanao, b) one staff member of the Bureau of Agriculture Statistics in Koronadal, and c) two former agri-businessmen from General Santos. The previous research experience and knowledge of the area provided by the latter two gave the team access to key informants and insights into "how things worked" in South Cotabato. The combination of persons with experience in academia, private business and government service is an important feature of this research approach. The institutional affiliation of the team members and their assigned responsibilities are given in Appendix 2.

2) Implementation Strategy

The primary sources of information for this methodology were select participants at every stage/level in the marketing system. These key informants were purposively selected through a sample stratification process, starting at the farm level. The team began in sample barangays within the supply area of South Cotabato Province and traced the flow of these farmers' harvest through the various channels to the trading centers of Koronadal and General Santos, and then to the major demand areas of Dumaguete, Cebu, and Manila. Interviews along the way from supply toward demand areas included the different types of marketing participants, such as, farmers, traders, feed millers, corn millers, starch manufacturers, shipping firms, piggeries, poultry growers, fabricators and distributors of corn shellers, hybrid seed companies, and agricultural input dealers. Likewise, officials of various government agencies, such as the National Food Authority, Bureau of Animal Industry, Bureau of Agricultural Statistics, Philippine Port Authority, and Department of Agriculture, were interviewed.

The questionnaires and checklists were based on an interview frame which centered on the following: a) identifying the firm/participant by key characteristics; b) learning about competing firms; c) exploring each firm's relationship with suppliers and buyers; d) understanding the basic features of the firm's internal operations; and e) probing for problems within the individual firm and the industry, along with "perceived" causes. This frame was adjusted to accommodate the unique features of each type of respondent, i.e., farmer, trader, miller, animal raiser and shipper.

The major research components of this approach were: a) background information b) technical crop/commodity characteristics, c) marketing system organization, d) marketing system operation, e) economics, f) infrastructure, and g) institutions/power. For an elaboration of this approach consult the Assessment Wheel in Appendix 1.

3) Sampling Frame and Coverage

The coverage, i.e., sample size and distribution, followed from the "tracing" or "snowball" sampling procedure. The sampling began with two barangays in each of four target municipalities in South Cotabato Province, extended into the trading centers of Koronadal and General Santos, onward to transshipment ports, such as Davao and Dumaguete, and finally to the distant demand areas of Cebu City and Manila. This progression provided the complete picture of the commodity system.

This system of tracing respondents (seller to buyer) resulted in interviews with 81 farmers, 73 traders, three feed mills, six fertilizer-seed-feed dealers, three poultry growers and a hog raisers, three seed companies, three shipping lines, and four sheller fabricators just within the supply areas and over 20 interviews beyond South Cotabato. The distribution of samples is shown in Figure 1.2 while the table with the Sampling Frame in Appendix three specifies the number of samples by type and location. The criteria for selecting research sites and participants and classifying the participants are discussed in later sections.

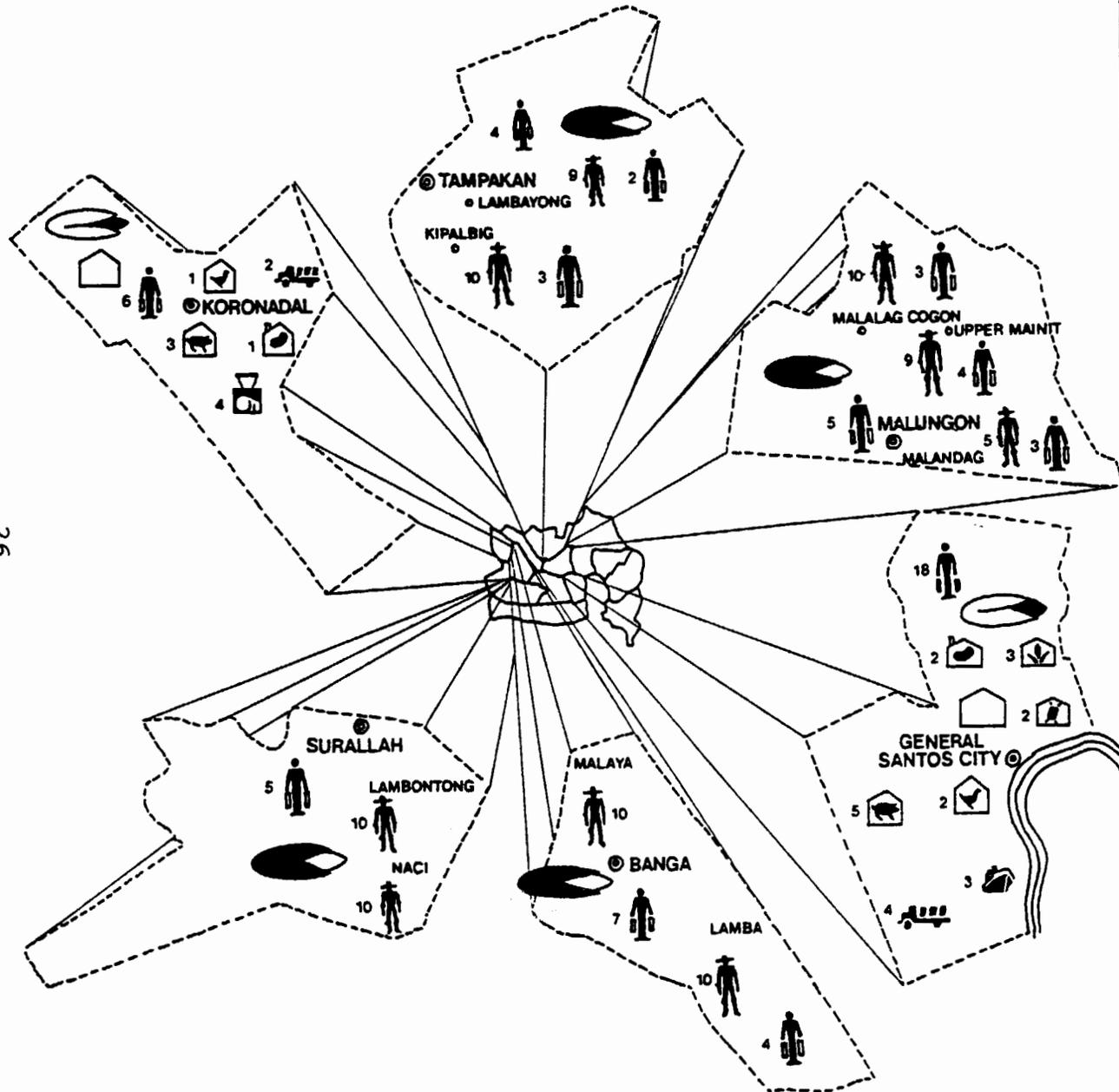
C. Limitations

This methodology required the conduct of field interviews within a very short period of time, yet covered a wide range of inter-related subjects. Time-related variables, such as monthly prices for several years, could not be collected through interviews, but rather had to be obtained from secondary data. The sampling focused on select key participants in specific sites and sought to provide information and insights on the "types" of marketing participants rather than acquire a "representative sample" for extrapolation purposes. Consequently, the reliability of time-related variables is dependent on the sources rather than this study.

One delimiting factor with the data collected in this comprehensive study was the difficulty in generating sufficient and reliable information at the processing-consumption levels of the system. The diversified firms at these levels were less than candid regarding key tradeoffs between internal use of grain as

Figure 1.2

DISTRIBUTION OF RMA INTERVIEWS BY TYPE OF RESPONDENT
PER SAMPLE SITE IN SOUTH COTABATO, AUGUST 1987



PROVINCE
OF
SOUTH COTABATO
REGION XI

LEGENDS:

- Major Corn Growing Municipalities
- Minor Corn Growing Municipalities
- Trading Center
- Farmer
- Trader
- Hog Raiser
- Poultry Raiser
- Shipping Company
- Fertilizer Seeds Dealers
- Corn Millers
- Feed Miller
- Seed Companies
- Sheller Fabricator
- Municipality
- Provincial Capital

feed or grits rather than selling as grains. Likewise, the further the tracing progressed beyond the supply area toward demand areas, the more complex the inter-relationships and less informative the respondents became.

II. BACKGROUND INFORMATION

A. Importance of Corn

This study will provide an overall picture of the corn system as originating from the Southern Mindanao supply area of South Cotabato and extending to major corn grain/grits demand centers, such as Manila, Cebu and Negros Oriental (Figure 1.1). The fact that South Cotabato is the largest corn producing province in the country suggests that its role in the corn market is critical to the issue of aggregate corn availability for the consumers of corn grits and feed industry. Background information on the macro dimension of corn will provide an initial understanding of the "context" within which this commodity system operates and indications of its importance to the agricultural economy of the Philippines. Later sections will treat the micro level effects of the pricing and transportation systems both within the corn producing province and in areas where corn is being distributed and consumed.

Corn has been the second most important crop in the country. But in respect to harvested area, the ranking of corn changed from 1983's second position relative to palay, to the largest share (29%) of aggregate harvested area in the country by 1986. At present, there are approximately 1.3 million farmers planting corn nationwide with more than 50% living below the poverty line. During the period of 1980-86, corn production consistently increased by 4% per year.

The average contribution of corn to the Gross Domestic Product over those seven years was 1.23% annually with sharp increases during the last two years of 1985-86. Relative to all agricultural crops, the value of corn produced during the same reference period represents 9.83% of the aggregate crop value, on average (Appendix 4).

Corn is not only a staple food for 20% of the populace but a major feed ingredient for the expanding, vigorous livestock and poultry industry. However, the major producing areas are in Mindanao while the major consumption areas for corn grains (feeds) and grits (food) are in Luzon and the Visayas, respectively.

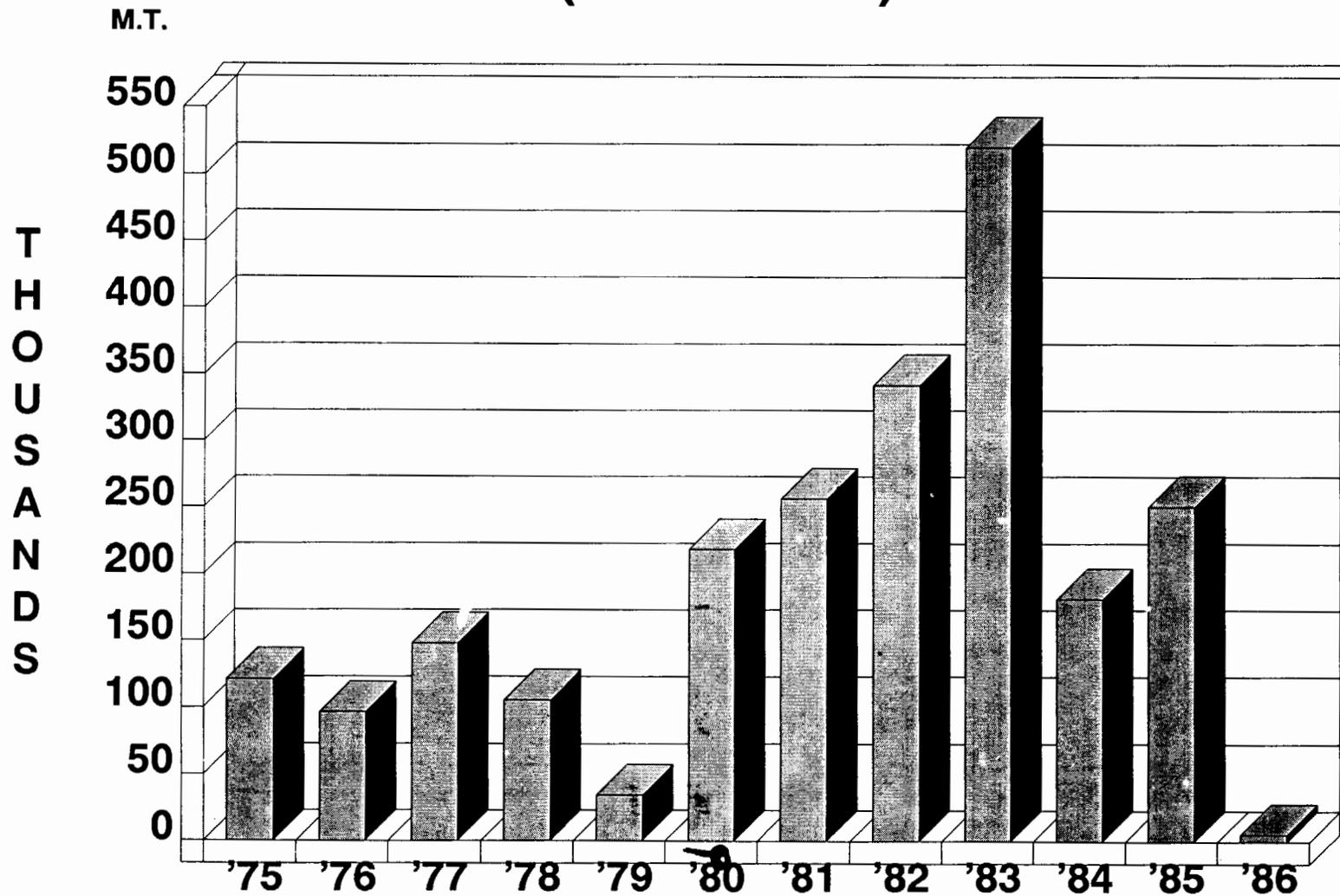
B. Corn Supply Trends

From 1980 to 1986, the volume of production has reportedly increased in an irregular pattern from 3.1 to 3.9 million metric tons (Appendix 5) at an average rate of 4.04%/year with a corresponding change in area harvested from 3.2 to 3.5 million hectares (Appendix 6) at an average rate of 1.79%. Over that period imports moved from 218 thousand metric tons in 1980 to a peak of 521 thousand metric tons in 1983 before being totally banned in 1986 (Figure 2.1). Thus, the change in total supply over that period was not as large as the production figures alone would indicate.

In 1986, the four major corn growing regions accounted for 60% of the total area in corn. Southern Mindanao and Central Mindanao had the largest area in corn with a 21% and 16% share of the total corn growing area, respectively. Other

Figure 2.1

VOLUME OF NFA CORN IMPORTS (1975 - 1986)



Source: National Food Authority

major producing regions are Central Visayas and the Cagayan Valley which contributed 14% and 9% to the corn growing areas, respectively. In terms of 1986 production, these four regions constituted 67% of total corn production and are ranked as follows: a) Southern Mindanao (30%), b) Central Mindanao (22%), c) Cagayan Valley (9%), and d) Northern Mindanao (6%). The higher yields of the Cagayan Valley caused its change in ranking relative to Central Visayas.

Nation wide droughts have been problematic for corn. Southern Mindanao's area in corn had reached its highest level in 1982 but due to the wide-spread drought of 1983, it experienced a temporary setback. However, from 1984 onwards a complete recovery occurred. Although Central Mindanao experienced a similar problem, its recovery led it to a peak period by 1986. Of the four regions cited above, only Cagayan Valley was not seriously affected by the 1983 drought though a slight decrease in corn production area was noted in 1984.

A critical feature of the domestic corn supply is its high degree of seasonality with minor harvests from January to June followed by very large harvests during the July to September period.

C. Commodity Demand Patterns

The main uses for corn are as corn grits for human consumption and corn grain for animal feeds. Corn grits have been the staple food for about 20% of Filipinos as well as a rice supplement (mixture of rice with corn meal) during times of rice shortages, such as during the 1973-74 global food crisis. The domestic production of white corn has traditionally been adequate for meeting the processing requirements for grits, at least until recently when white corn began to be bid away for processing into feeds.

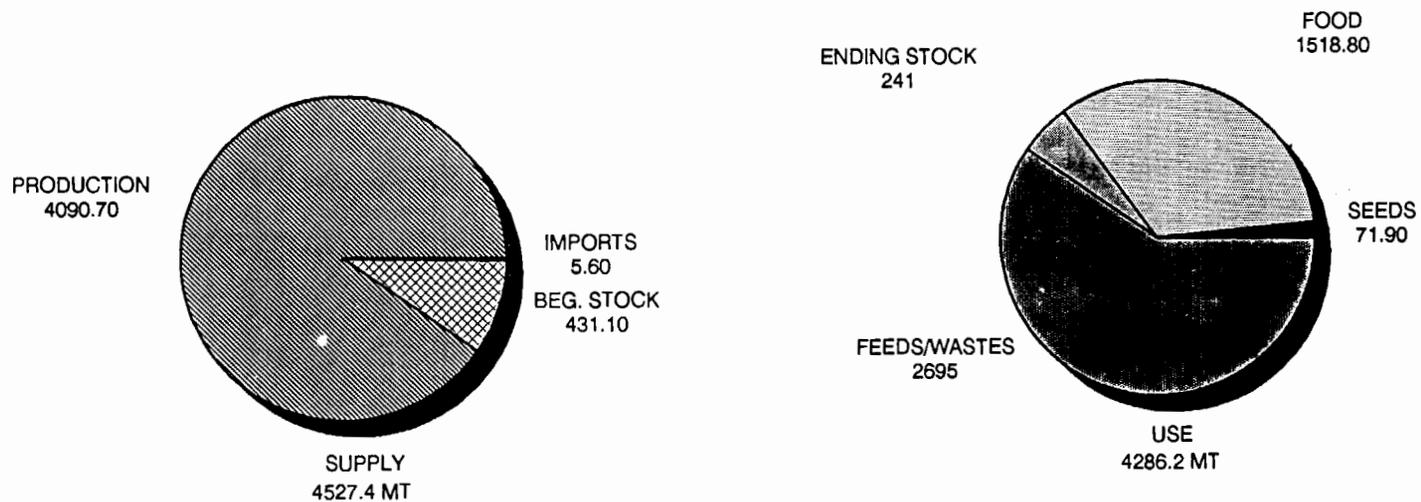
Corn is the major feed ingredient contributing 20-50% of hog rations and 50-75% of the rations for better quality feed for poultry. As such, it has a strong association with the demand for meat grown by the expanding livestock and poultry industries. Official statistics indicate that the percentage of corn used as feed has increased from 30% in the 1970s to almost 60% by 1985/86 (Appendix 7). Since domestic production of the preferred, yellow corn is totally inadequate for the feed industry and the imports of corn and feed substitutes were banned in 1986, feed demand has fueled pressures for the expansion of corn production while continuing to bid white corn away from corn milling uses.

An important feature of demand patterns for corn is the relatively consistent demand throughout the year for feed and food use, except for higher demand prior to certain major holidays. However, for processed forms of corn based products, only the extended storage period for corn starch can easily accommodate the substantial seasonality of corn production. Feeds and grits can be stored for only a month or two before serious deterioration takes place.

Other uses for corn include manufacturing in corn starch, corn syrup, corn oil, gluten and other derivatives, and extenders for other products. The statistics for corn supply use for the 1985-86 crop year are depicted in Figure 2.2.

Figure 2.2

**CORN: SUPPLY - USE
CROP YEAR 1985/86
(IN THOUSAND METRIC TONS)**



Various studies on the demand for corn have indicated that the income elasticity for corn grits as food was negative. This implies that corn grits is regarded as an inferior good which means as consumer income increases there would be a decrease in the consumption of grits and weakening of demand for the main ingredient for grits. However, since meats have a positive income elasticity, that means a strengthening of the demand for feed ingredients as incomes increase over time. Corn, being the major ingredient for feed, will have a comparative advantage in use in feed versus processing into grits.

D. Related Issues

Over the past decade, the Philippines has not been self-sufficient in corn production, according to official statistics. Thus, it was regarded as a net importer of yellow corn. According to available statistics, domestic corn production for the period 1979/80 - 1982/83 satisfied only 91% of the total requirement, on the average (Appendix 8). Starting in 1985 up to early 1987, the country's self-sufficiency level improved to 95% though still short of meeting the projected aggregate demand. This increase was primarily due to the increase in area and partially due to the improved yields (annual growth rate of 1.6%) as corn production posted a 4.04% annual growth rate.

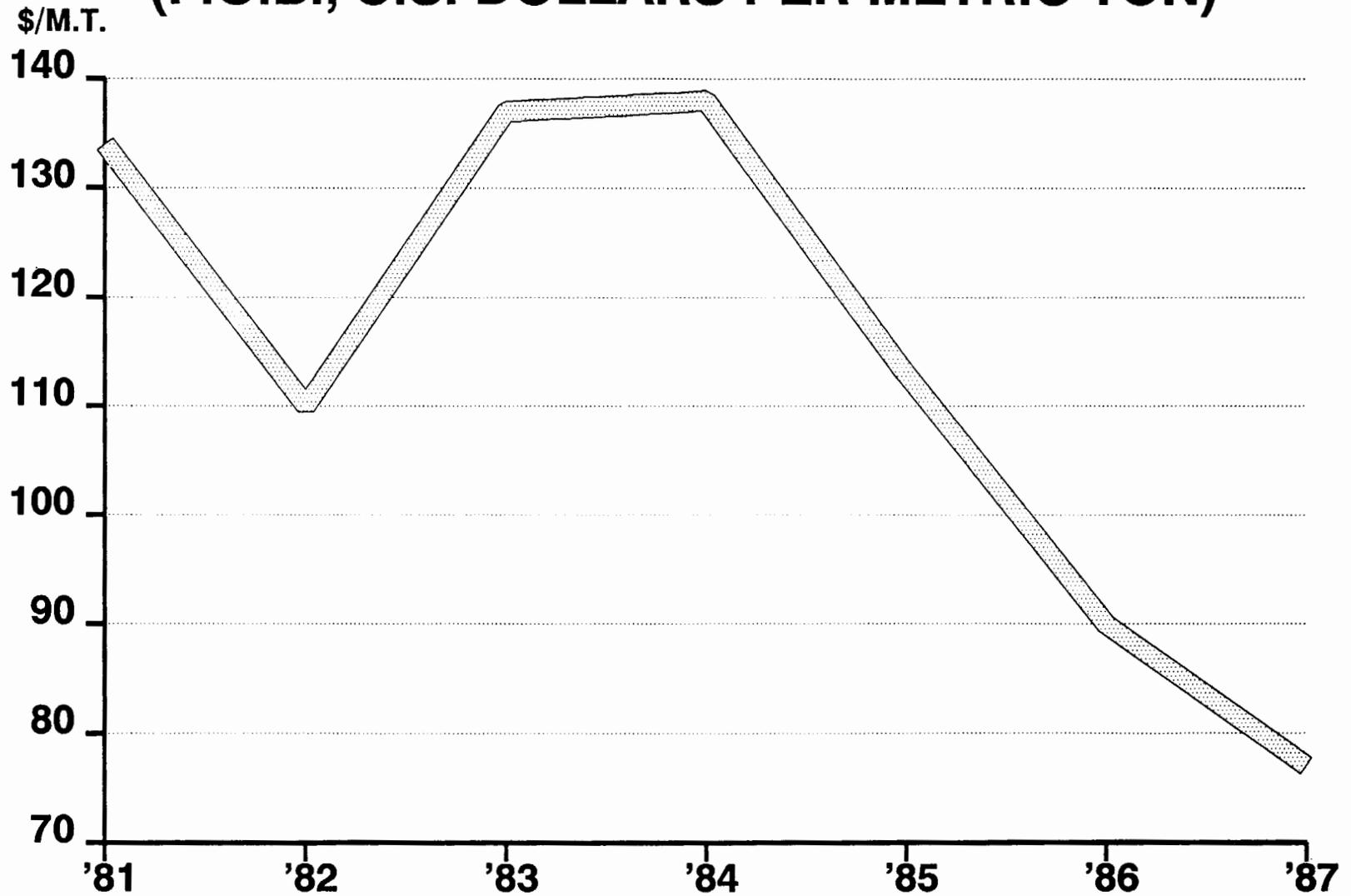
The government through the NFA had been resorting to imports to fill the yearly shortfall in domestic production relative to domestic requirements. However, the most critical issue regarding that past government intervention in the corn marketing system was the poor timing of imports. Imported corn frequently arrived prior to or as the peak domestic harvests entered the market thus directly competing with local corn production (Appendix 9). These late arrivals of imports not only depressed the farm price during the peak season but also were too late to supplement the corn shortage during the lean months. One consequence was the heavy culling of poultry inventories and liquidation of sows/hogs which in turn destabilized the prices of poultry, poultry products and pork. A total ban of the import of corn and feed substitutes was seen as a "manageable" solution.

Another major issue is the declining real prices for corn at the farm level during the peak harvest period. From the international corn market perspective, prices began falling sharply in 1986 and continued so through most of 1987 (Figure 2.3). The national domestic market in Manila experienced widely fluctuating wholesale prices of corn from the 1980-87 period. The yearly wholesale price of corn was steadily increasing in nominal terms but when deflated the trend was generally level (Figure 2.4) over that period. In fact, a study of "real" farm prices from 1972/73 to 1986/87 confirmed a very substantial price decline at the farm level. This pattern should be exerting a negative pressure on increased area under corn and may help explain the slowed rate of expansion since the 1978/79 period.

The comparison of monthly deflated prices of white and yellow corn at the major demand market of Manila (Figure 2.5) and the supply area of Koronadal (Figure 2.6) confirms that real prices have been declining during the peak harvest periods since 1980; prices in the peak harvest period are the most sensitive from the farmers perspective. In the supply area, the spread between highest and lowest monthly prices per year has been widening thus indicating a less stable market. The narrow price difference between the monthly price of white versus yellow

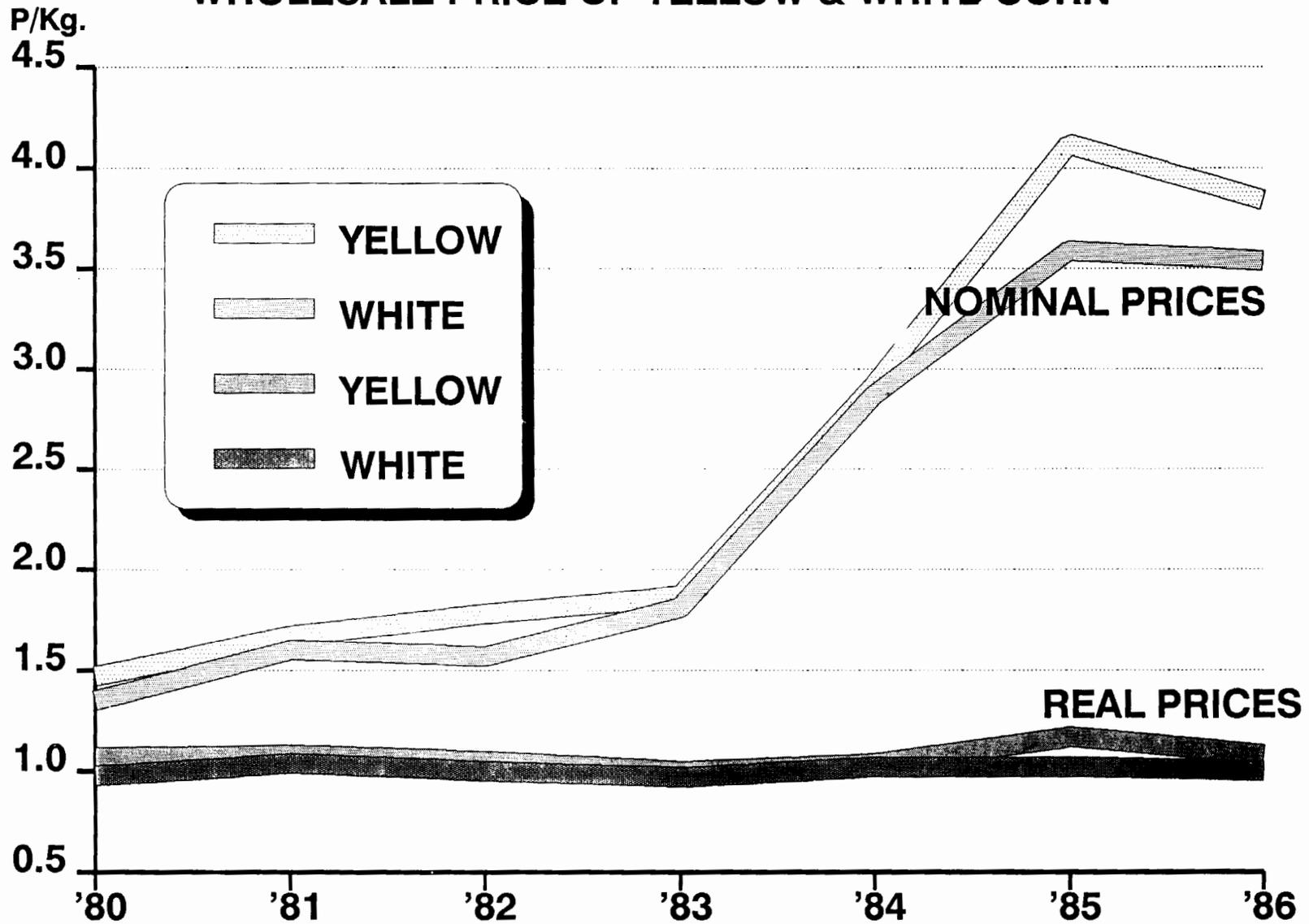
Figure 2.3

EXPORT PRICES FOR YELLOW CORN, U.S.GULF (F.O.B., U.S. DOLLARS PER METRIC TON)



Source: U.S. Department of Agriculture

NATIONAL TRENDS IN NOMINAL & REAL WHOLESALE PRICE OF YELLOW & WHITE CORN



Base Period of 1978 = 100
Source: National Food Authority

P E R I O D

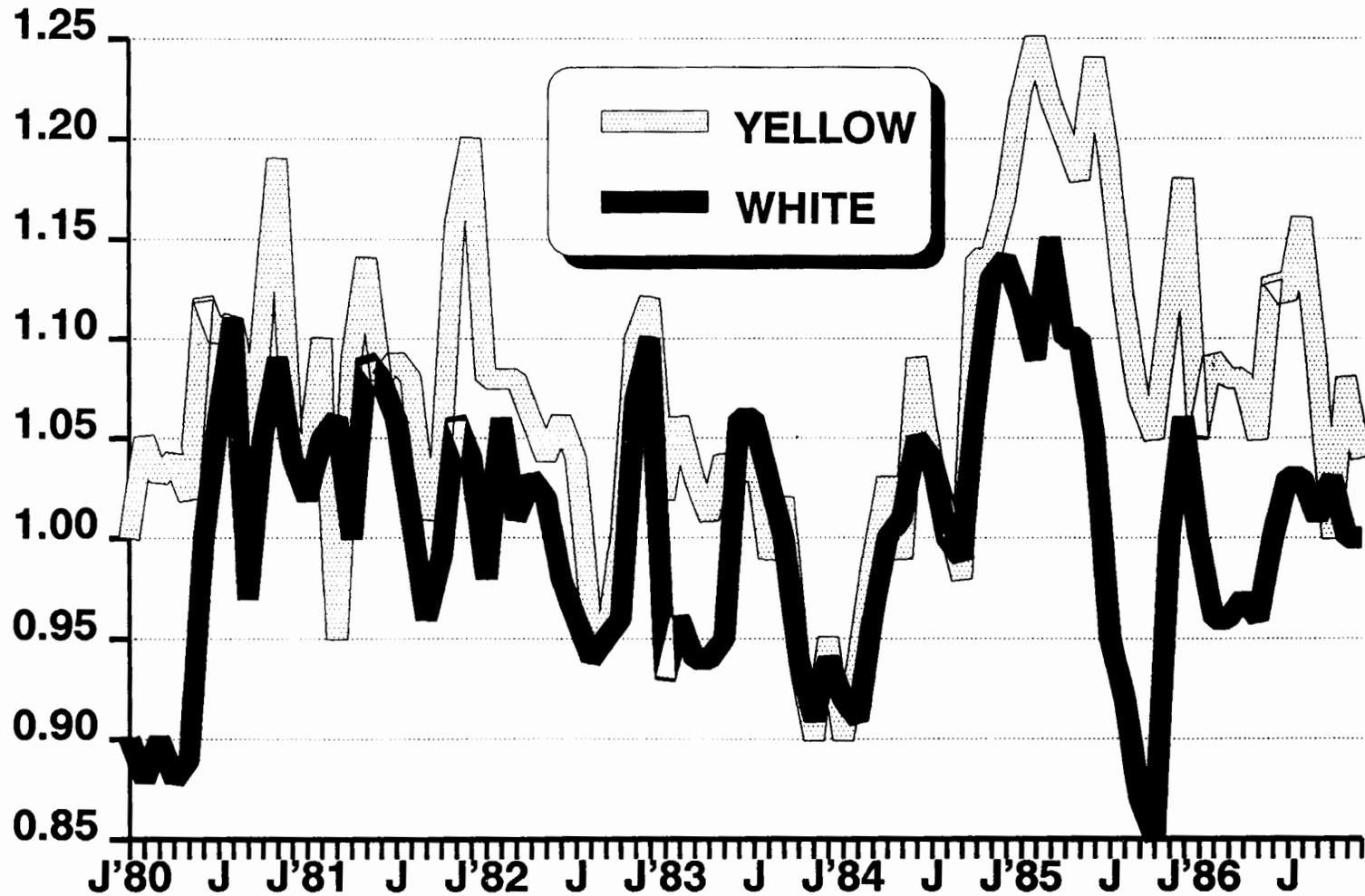
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Figure 2.5

NATIONAL REAL WHOLESALE PRICES OF CORN

(1980 - 1986)

P/KG.

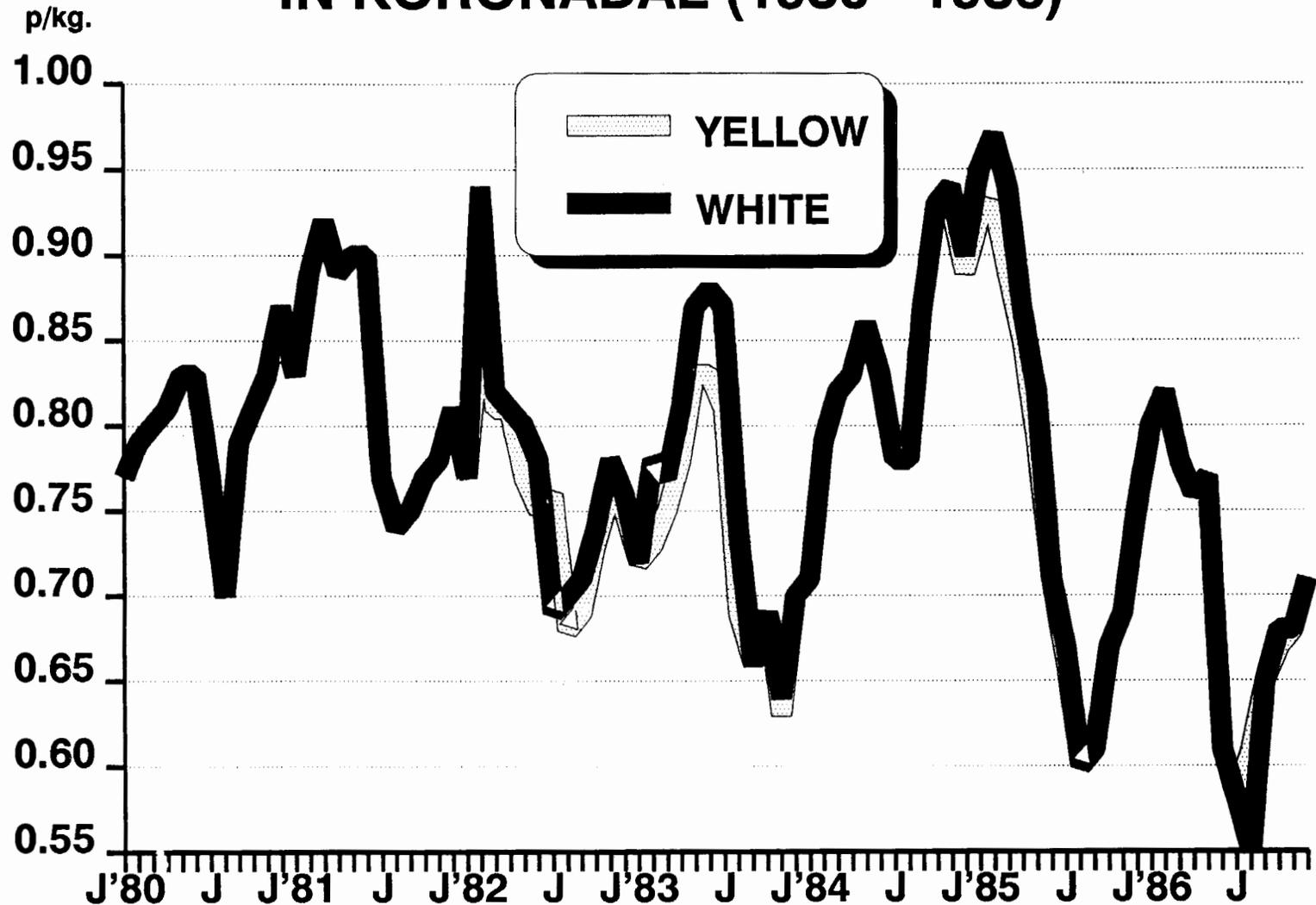


Base Period of 1978 = 100

Source: National Food Authority

Figure 2.6

REAL WHOLESALE PRICES OF CORN IN KORONADAL (1980 - 1986)



Base Period of 1978 = 100

Source : Bureau of Agri. Statistics

corn in the production area suggests little differentiation of uses at that level (close substitutes) whereas at the national level, yellow corn has been earning a markedly higher price, especially during the lean months from January to July.

III. CROP AND COMMODITY CHARACTERISTICS AT RESEARCH SITES

Southern Mindanao is one of the major corn producing regions in the country with its province of South Cotabato as a "supply area" research site because it is the largest single corn producing province in the country. This province is located on the southern rim of Mindanao, consists of General Santos City with its port and 18 municipalities and has major corn growing municipalities along its northeast and northwest boundaries (Figure 3.1). On its 746,880 hectares (2.5% of the country's total land area) there were 161,042 hectares of effective corn growing area in 1986.

The "demand areas" were within this province as well as in cities in the central and northern parts of the country. Within South Cotabato, most commercial hog raisers, feed mills and/or corn mills were located in Koronadal, General Santos, and along the road between Koronadal and General Santos. Outside of Mindanao the main demand areas for local corn grain or grits were Dumaguete, Cebu, and areas near Manila. In tracing the corn commodity system originating in South Cotabato, a wide array of corn users were found, observed and interviewed. This section will outline pertinent characteristics regarding those locations and their implications for the corn system's performance.

A. Supply Areas

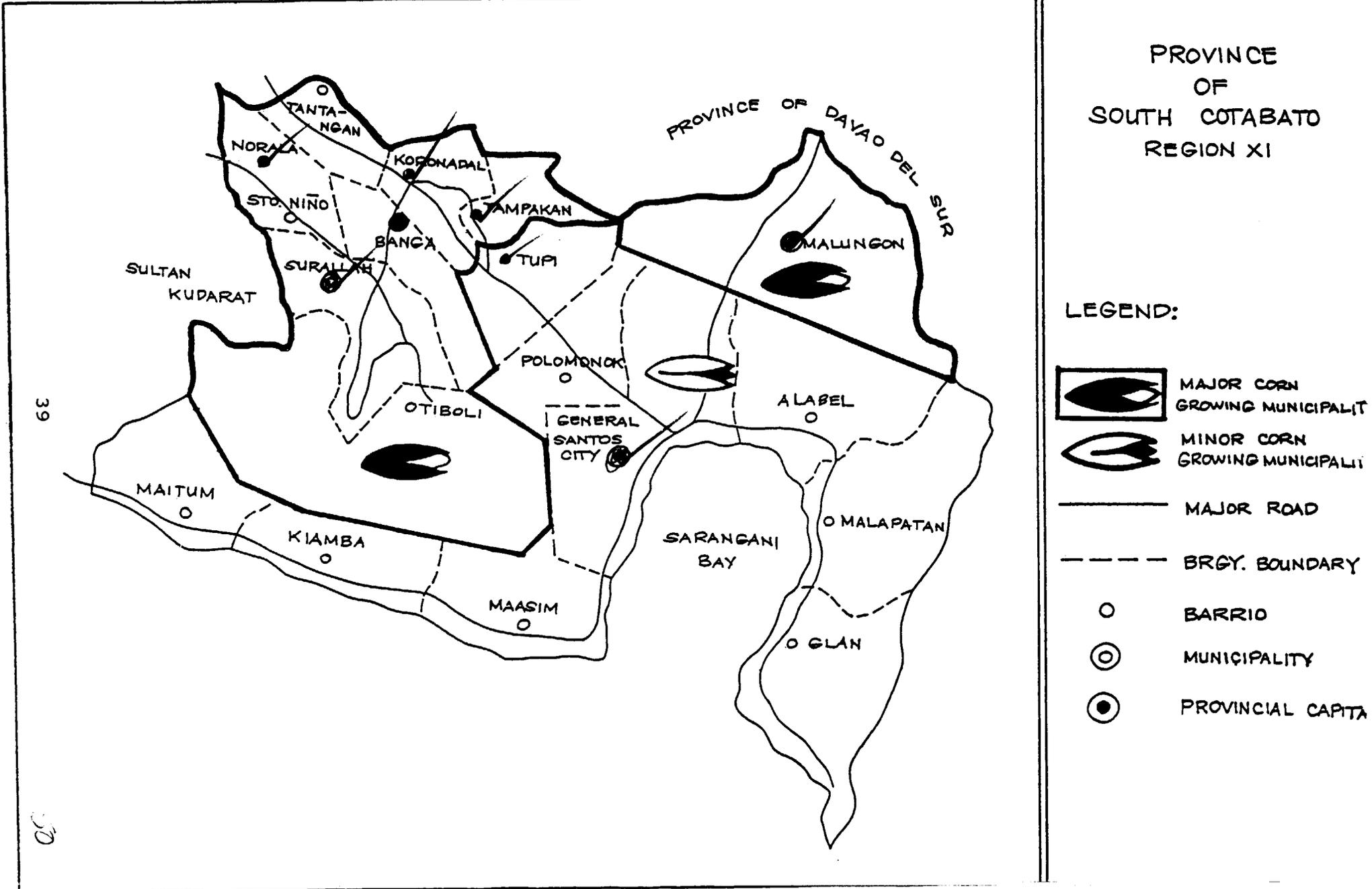
The progression of this analysis begins with the broad setting of the sample municipalities and their distinctive characteristics which affect the corn system; then moves to the barangay profiles which depict the agro-ecological and economic conditions in which farmers make decisions; and finally focuses on the production/marketing decisions and problems of farmers growing hybrid versus non hybrid varieties of corn.

In South Cotabato the team used the following criteria to select the target municipalities; a) major corn producing area, b) dispersed locations around the province, and c) reasonably stable peace and order (P&O) situation. Then, it consulted the Provincial and Municipal Agricultural Officers before confirming the selection of Malungon, Tampakan, Banga, and Surallah Municipalities.

Within each municipality at least two sample barangays were selected based on the major importance of corn, accessibility in the rainy season, and relative peace and order (P&O) conditions. The following barangays per municipality were selected and are displayed according to relative accessibility to major roads.

<u>Municipality</u>	<u>Barangay</u>
1) Malungon	Malandag, Malalag Cogon, Upper Mainit
2) Tampakan	Kipalbig, Lambayong
3) Banga	Malaya, Lamba
4) Surallah	Lambuntong, Naci

FIGURE 3-1 MAP OF CORN GROWING MUNICIPALITIES IN SOUTH COTABATO



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1. Municipalities

In 1986, these four municipalities covered 36% of total corn area and provided 39% of total production in South Cotabato, according to the estimates of the Bureau of Agricultural Statistics, Table 3.1. Since "settlers" were prominent members of this agricultural community, the mother tongue of the residents varied widely within and among sample municipalities, Table 3.2. The population of Banga and Surallah was predominantly Ilongos whereas in Malungon and Tampakan the Cebuano and Bilaan speakers provided a broader mix of dialects. Consequences of this mixture of peoples were their diverse experiences with corn cultivation practices, varietal preferences (Cebuanos prefer to eat corn grits made from some of their own white corn), and inter-communications between sub-areas as well as between farmers and traders. In fact, our team sometimes experienced problems with the terminology and dialects of certain respondents when moving between municipalities.

Other important characteristics of each municipality are profiled in Table 3.3. Among the common characteristics was the minimal variation in terms of climate where the driest months usually fell within the February, March, and April period. Thus, cropping patterns did not vary significantly between municipalities with planting seasons that usually began in the months of April, August and November. Harvesting for the first and main cropping season usually began in the months of July/August; for the second season in November/December; and the third by February/March. Since harvesting time began basically in the same months for all the municipalities, there was a simultaneous demand for post-harvest facilities as large quantities of grain entered the market.

Each municipality has some distinct characteristics, for example Malungon has the largest land area, consisting mostly of less fertile, rolling hills and mountainous terrain; least amount of road per square kilometer of area (.42) - explaining the difficulties with access to interior areas; furthest from the provincial capital (Koronadal) yet closest to the commercial hub/port city of General Santos; and only "relatively" stable peace and order conditions. Tampakan has the second largest area distributed between fertile plains in the west and rolling hills in the east; a fair amount of road coverage, though access to the major highway was over a poorly maintained gravel road; close to the provincial capital and second closest to the commercial hub of General Santos; and has stable peace and order conditions. Banga and Surallah are neighbors in the "upper valley" of northern South Cotabato with similar features in terms of large fertile, flat areas and an extensive road network with a concrete main road to the port via the provincial capital. However, they differed in that Banga has a longer wet season and a more stable P&O situation. Surallah is much drier, averaging only one month with over 200 mm of rainfall per year whereas Banga experienced over four such rainy months (Figure 3.2). This heavier rainfall pattern and the largest area in corn help explain why Banga farmers were much more concerned about limited post harvest facilities.

2. Barangays

The profile of sample barangays is meant to characterize each barangay as a "context" within which the corn system begins and/or environment within which

TABLE 3.1
CORN PRODUCTION PER MUNICIPALITY IN SOUTH COTABATO, 1986

<u>Municipality</u>	<u>Effective Area</u> <u>(ha.)</u>	<u>Yields</u> <u>(mt/ha.)</u>	<u>Total Production</u> <u>(m.t.)</u>
Alabcl	7,147	1.49	10,713.00
Banga	18,490	3.33	61,167.75
Glan	3,725	2.36	8,817.50
Kiamba	2,108	2.45	5,168.05
Koronadal	7,504	3.11	23,378.30
Lake Sebu	2,827	2.62	7,426.20
Maasim	2,125	2.44	5,206.00
Maitum	2,177	2.41	5,257.10
Malapatan	9,111	2.29	20,916.80
Malungon ^{1/}	14,737	2.91	42,997.10
Norala	9,238	2.84	26,303.10
Polomolok	7,286	2.78	20,316.35
Sto. Nino	5,809	2.68	15,598.40
Surallah	16,391	2.62	42,964.20
Tampakan	8,052	2.69	21,696.00
Tantagan	5,040	2.48	12,538.85
T'boli ^{1/}	19,184	3.31	63,645.35
Tupi	5,478	3.10	17,029.65
<u>Gen. Santos City</u>	<u>14,612</u>	<u>2.53</u>	<u>37,084.80</u>
Grand Total	<u>161,042</u>		<u>448,124.50</u>

Source: Bureau of Agricultural Statistics (BAS), Koronadal

1/ Some of these yield estimates are suspect based on our knowledge of or field work within those municipalities. For instance, the 300 hectares of irrigated land in hybrid corn in Malungon may yield 3-4 mt/ha but when averaged with the thousands of hectares of traditional varieties which yield 1-2 m.t./ha on the hill sides, there is no way to average 2.91 m.t./ha. A similar condition prevails in T'boli.

TABLE 3.2
POPULATION DISTRIBUTION BY MOTHER TONGUE IN
RMA MUNICIPALITIES OF SOUTH COTABATO

Mother Tongue	Municipality							
	Malungon		Tampakan		Banga		Surallah	
	(1975)		(1980)		(1975)		(1975)	
	(#)	(%)	(#)	(%)	(#)	(%)	(#)	(%)
Cebuano	8,665	29	7,004	39	3,246	5	1,470	3
Ilongo (Hiligaynon)	8,370	28	5,415	30	32,453	75	37,058	79
Bilaan	7,002	23	2,534	14	1,501	3		
Samar, Leyte (Waray-Waray)			910	5	-	-		
Ilocano			1,064	6	3,958	9		
Tagabile							2,125	4.5
Bicol							1,532	3
All Other Dialects or Not Stated	6,022	20	1,130	6	3,294	8	4,980	11
							112	11
Total	30,060	100	18,057	100	43,452	100	47,165	100

1_/ Actual population of only 7 of the 16 barangays

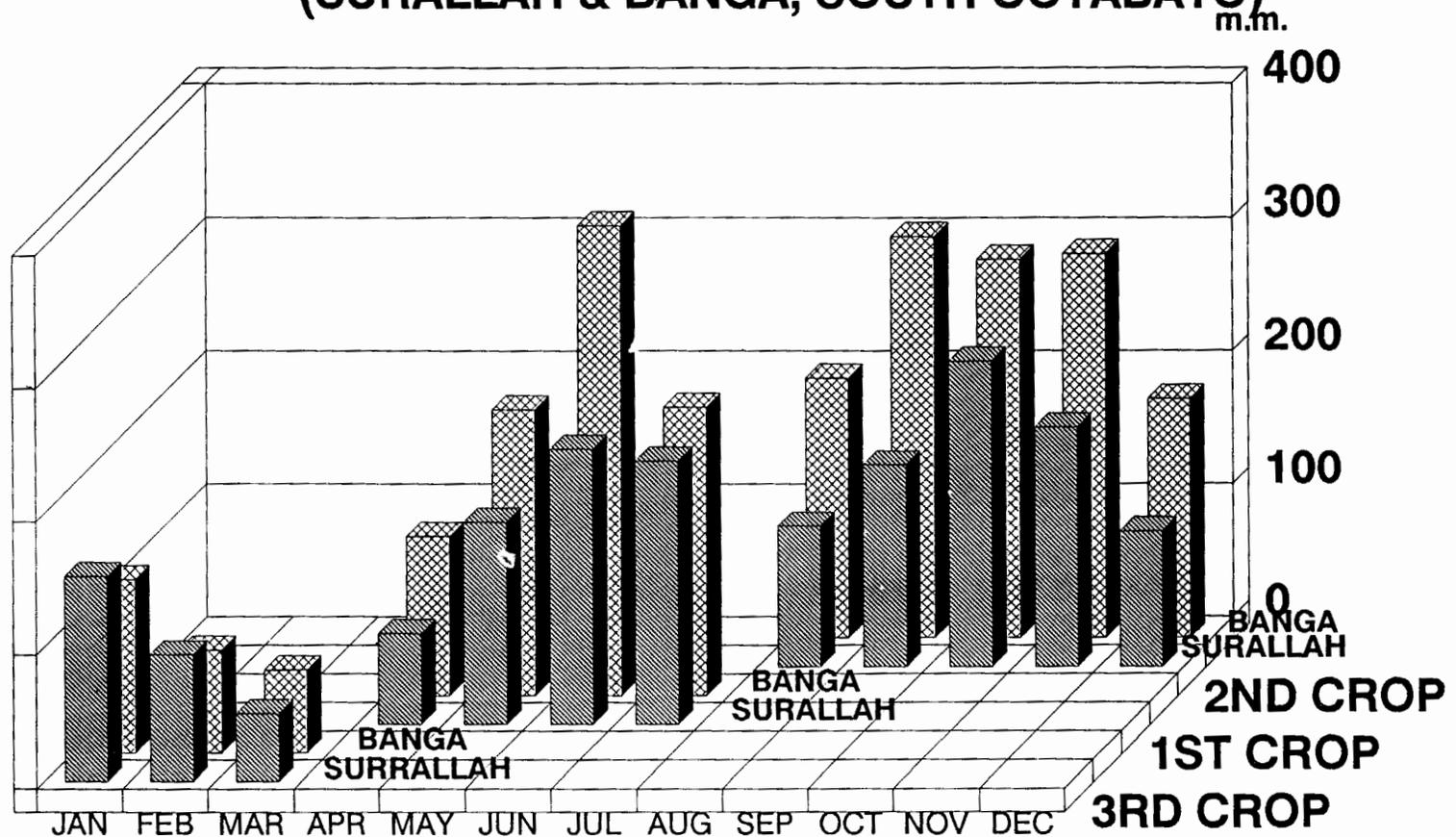
Source: Municipal Development Plan, 1983-1992
Ministry of Human Settlements, Municipality of Malungon, 1983
Municipal Development Plan, 1982-1992
Ministry of Human Settlements, Municipality of Tampakan, 1982

TABLE 3.3
PROFILES OF TARGET MUNICIPALITIES IN SOUTH COTABATO

Characteristics	Municipalities			
	<u>Malungon</u>	<u>Tampakan</u>	<u>Banga</u>	<u>Surallah</u>
Land Area	87,200	35,023	24,879	31,200
Terrain	Valley, rolling mountainous	Fertile plains (West), rolling hills & mountainous (East)	Fertile plains (Northwest), gentling sloping (West)	Flat and gently rolling, mountainous (West)
Slope	<8% (ha)	3,725 (4%)	7,704 (22%)	13,435 (54%)
	8-15(ha)	6,725 (8%)	17,526 (50%)	3,234 (13%)
	>15%(ha)	76,750 (88%)	9,792 (28%)	8,210 (33%)
Slope		19,700 (63%)	5,125 (17%)	6,375 (20%)
Road:				
- Network (km)	370.54	209.81	201.66	212.77
- Km./Sq. Km.	.42	.60	.81	.68
Conditions of Main Access Road	Newly asphalted	Graveled	Concrete	Concrete
Accessibility:				
- Kilometers to Prov'l. Cap.	85	14	13	20
- Kilometers to Port	33	52	71	77
Climate:				
- Driest (Mos)	Mar.	Feb-Mar., Aug.	Feb-Jun.	Apr.
- Wettest (Mos)	Nov.-Jan.	Jan., Oct.	Jul.-Nov.	Aug.
Timing of:				
- Planting	May/Aug.	Feb-Mar., Jul-Aug.,Nov-Dec.	Apr-Aug., Nov.	Aug.,Nov. Nov.
- Harvesting	Aug.,Nov.	Aug.,Nov.,Apr.	Jul-Aug.,Nov. Mar-Apr.	Aug.,Nov. Apr.
Dominant Tenure Pattern	Owner-Cultivator	Owner-Cultivator	Owner-Cultivator	Land-Owner
General Peace & Order Situation	Relatively Stable	Stable	Stable	Relatively Stable

Source: Ministry of Human Settlement's "Municipal Development Plans, 1983-1992" for each Municipality, plus key informant interviews.

RAINFALL PATTERNS & CORRESPONDING CROPPING PATTERNS FOR CORN (SURALLAH & BANGA, SOUTH COTABATO)



Source : Rainfall data average 1980 - 1986 period in Dajay (Surallah) and Liwanag (Banga) stations. Cropping pattern information from farmer interviews, August-September 1987.

farmers decide on varietal selection, input levels, and marketing practices as well as encounter problems with current production/marketing and constraints to enhanced productivity. Likewise, the local trader's strategies for doing business, i.e., the provision of support services for farmers and procuring-transporting-handling grain are responsive to the conditions in the barangays. Thus, by measuring select static and dynamic perspectives per barangay and comparing them across barangays, the analyst can find reasons for local exchange patterns for labor, consumer goods and cash; understand the composition and length of marketing channels; determine the nature of credit arrangements between farmers and traders; explore the nature of the price formation/discovery process at the farm level; and examine some of the problems encountered by marketing participants.

Our barangay selection criteria has somewhat predisposed our sample toward a larger number of hybrid corn growers because their higher yields contributed to that barangay ranking as a major corn producing area. However, every attempt was made to sort out the conditions under which both types of corn were grown and the consequences of varietal selection.

The nine sample barangays exemplified the considerable heterogeneity in South Cotabato's production areas, agricultural community, corn productivity, and access to markets.

The two main perspectives of the barangay are static descriptors, such as, size, access, and major enterprises, and dynamic events which focus on causes and results of recent changes affecting barangay households. The measures for the static and dynamic perspectives are given in each table as organized by the barangays per sample municipality (Tables 3.4, 3.5, 3.6 & 3.7).

The only common features of all barangay's were that corn was the major enterprise; there was a fairly consistent mix of animal enterprises in terms of hogs and chickens; and the majority of land was rainfed. Otherwise, substantial differences existed. From the standpoint of static variables, the barangays in Banga and Surallah were similar in terms of households, terrain, and access to their poblacions (town centers), whereas the barangays in the other two municipalities were quite different. For example, in Malungon the households/barangay ranged from about 3,000 households in Malandag to only 400 in Upper Mainit; terrain varied from level land in 30% of the barangay for Malandag and Upper Mainit compared to 80% in Malalag Cogon; and access to the poblacion ranged from 4 kilometers along a major highway to 7 kilometers of paths across hills. Whereas in Tampakan the households/barangay ranged from Kipalbig's 500 households to only 200 in Lambayong and terrain varied from level land in 95% of Kipalbig to 20% in Lambayong.

Government programs initiated in Malungon had differential impacts per barangay, for instance, the cotton program resulted in cotton becoming a major enterprise in the two very accessible barangays of Malandag and Malalag Cogon but of little or no consequence in the less accessible Upper Mainit where coconut was more prominent.

The number of resident traders in the barangay varied from "11" in Upper Mainit (the least accessible barangay) to "0" in Naci where P&O problems forced

TABLE 3.4
PROFILES OF TARGET BARANGAYS IN MALUNGON MUNICIPALITY

<u>Perspective</u> <u>STATIC</u>	<u>Barangay</u>		
	<u>Malandag</u>	<u>Malalag-Cogon</u>	<u>Upper Mainit</u>
Size			
-Households (No.)	3,000	700	400
-Land Area (Ha.)	19,850	3,960	4,450
Access-Distance to Town (Km.)	8 (good)	4 (good)	7 (poor)
Terrain-Level (%)	30	80	30
-Sloping (%)	70	20	70
Sources of Water:			
-Rainfed	most	entire	entire
-Irrigated	partial		
Tenure Pattern:			
-Owner/Cultivator	60%	60%	80%
-Tenant	40%	40%	20%
-Landlord	2	2	2
Major Enterprises:	corn, rice cotton chicken, hogs cattle	corn, cotton upland rice chicken, hogs goats	corn, rice coconut chicken, hogs horses
Commerce:			
-Traders	10 for corn 15 for rice Phil cotton Livestock buyers	7 for corn 4 for rice Phil cotton	11 for corn 4 for rice
-Sari-sari (No.)	n.a.	4	10
DYNAMIC ^{1/}	-----		
Reinforcing Growth:	nat. highway & irri-system hybrid seed prod.	cattle breeding center	
Reflecting Growth:			
-New Houses	30	n.a.	
-Vehicles	20 motorcycles 10 jeepneys & 5 trucks	4 motorcycles 2 jeep	15 motorcycles
Inhibiting Growth:	drought unstable P&O	drought lack of land	unstable P&O drought-7 mos

Source: Interviews with barangay captains and other barangay leaders; and Municipal Development Plan, 1983-1992

^{1/} "Dynamic" perspective at the barangay level focuses on recent changes (within 3-5 years.) which affected 25% or more of the barangay households.

TABLE 3.5
PROFILES OF TARGET BARANGAYS IN TAMPAKAN MUNICIPALITY

<u>Perspective</u>	<u>Barangay</u>		
	<u>STATIC</u>	<u>Kipalig</u>	<u>Lambayong</u>
Size	-Households (No.)	500	260
	-Land Area (Ha.)	1,600	3,180
Access-Distance		6	5
	to Town (Km.)	(good)	(poor)
Terrain-Level (%)		95%	20%
	-Sloping (%)	5%	80%
Sources of Water:			
	-Rainfed	entire	entire
	-Irrigated		
Tenure Pattern:			
	-Owner/cultivator	70%	80%
	-Tenants	30%	20%
	-Landless	0	10
Major Enterprises:		corn,coconut sorghum cattle,hogs chicken	corn,rice coconut cattle,hogs goats
Commerce:			
	-Traders	3 for corn 1 for copra 2 agents for cattle	8 for corn 3 for copra
	-Sari-sari (No.)	14	10
	DYNAMIC ^{1/}	-----	
Reinforcing Growth:		jobs in post- harvest proces- sing	jobs for road maintenance hybrids increased
Reflecting Growth:			
	-New Houses	40	n.a.
	-Vehicles	40 motorcycles	10 motorcycles 12 cars/jeepneys
Inhibiting Growth:		drought 12/86- 12/87, corn price fluctuations gambling	price fluctuations poor roads during rainy season gambling

Source: Interviews with barangay captains and other barangay leaders; and Municipal Development Plan, 1982-1992.

1/ "Dynamic" perspective at the barangay level focuses on recent changes (within 3-5 yrs.) which affected 25% or more of the barangay households.

TABLE 3.6
PROFILES OF TARGET BARANGAYS IN BANGA MUNICIPALITY

Perspective	Barangay	
	Malaya	Lamba
<u>STATIC</u>		
Size		
-Households (No.)	600	560
-Land Area (Ha.)	1,800	1,140
Access-Distance	9	11
to Town (Km.)	(good)	(good)
Terrain-Level (%)	70	75
-Sloping (%)	30	25
Sources of Water:		
-Rainfed	most	entire
-Irrigated	partial	
Tenure Pattern:		
-Owner/cultivator	50%	20%
-Amortizing	40%	80%
-Tenants	10%	
-Landless	0	20
Major Enterprises:	corn, rice coconut cattle, hogs carabao	corn, coconut rice cattle, chickens carabao
Commerce:		
-Traders	2 for corn 2 for palay	8 for corn 8 for palay 4 for cattle
-Sari-sari (No.)	20	30+
<u>DYNAMIC</u> ^{1/}		
Reinforcing Growth:	concrete highway ramie plantation	nothing
Reflecting Growth:		
-New Houses	50	n.a.
-Vehicles	20 motorcycles 3 cars/jepneys/trucks	20 motorcycles 8 cars/jepneys
Inhibiting Growth:	floods/droughts unstable P&O price fluctuations	floods/droughts unstable P&O gambling

Source: Interviews with barangay captains and other barangay leaders; and Municipal Development Plan, 1980-1990.

1/ "Dynamic" perspective at the barangay level focuses on recent changes (within 3-5 yrs.) which affected 25% or more of the barangay households.

TABLE 3.7
PROFILES OF TARGET BARANGAYS IN SURALLAH MUNICIPALITY

<u>Perspective</u>	<u>Barangay</u>	
	<u>Lambuntong</u>	<u>Naci</u>
<u>STATIC</u>		
Size		
-Households (No.)	550	560
-Land Area (Ha.)	1,450	1,400
Access-Distance	9	7
to Town (Km.)	(good)	(good)
Terrain-Level (%)	100	100
-Sloping (%)	0	0
Sources of Water:		
-Rainfed	entire	entire
-Irrigated		
Tenure Pattern:		
-Owner/cultivator	20%	40%
-Amortizing		60%
-Tenants	80%	
-Landless	n.a.	10
Major Enterprises:	corn, rice chickens hogs	rice, corn chickens hogs cattle
Commerce:		
-Traders	1 for corn 1 for rice	none
-Sari-sari (No.)	23	30
<u>DYNAMIC</u> ^{1/}	-----	
Reinforcing Growth:	nothing	nothing
Reflecting Growth:		
-New Houses	40	5
-Vehicles	15 motorcycles 2 cars/jeepneys	25 tricycles 2 cars/jeepneys
Inhibiting Growth:	floods/droughts market instability major damage to road, electricity, etc.	unstable P&O price fluctuations

Source: Interviews with barangay captains and other barangay leaders; and Municipal Development Plan, 1980-1990.

^{1/} "Dynamic" perspective at the barangay level focuses on recent changes (within 3-5 yrs.) which affected 25% or more of the barangay households.

them to leave. While the tenure patterns in the barangays of Malungon and Tampakan reflected a larger portion of owner/cultivators, the sample barangays in Banga and Surallah, indicated the strong presence of the tenant system even though most farmers were reportedly owner/cultivators in this municipality, according to available statistics.

From the dynamic perspective, barangays varied quite a bit in events that reinforced growth with the completion of the national highway through and irrigation system within Malandag as especially prominent on the positive side. The barangays of Upper Mainit, Lamba, and both Lambuntong and Naci in Surallah reported no events which reinforced their growth. On the contrary, farmers in those latter 4 barangays have been facing "growth inhibiting" factors, such as unstable P&O conditions, droughts, and instability of the corn market without any off-setting support from growth "reinforcing factors". Factors reflecting growth or prosperity displayed such variation that it is difficult to relate them to the other dimensions without more information on the distribution of income within each barangay. However, our observations confirmed that households in Malandag, Kipalbig and Lambayong were better off than those in the other barangays.

3. Farmers/Crops

In this important corn producing province of South Cotabato, area planted in white corn varieties has been increased from 81% of total area in 1984 to 85% by 1986. In other words, white varieties were used on more than 75% of the total land planted in corn. For yellow corn hybrids, the municipalities of Banga, Tampakan, Tupi, T'Boli, and Malungon had the largest percentage in 1986 (Appendix 10). Dominant patterns of variety use by field conditions and farmer type were observed by the team. In farmers fields the basic pattern is white open-pollinated varieties were grown on accessible but quite hilly land or in less accessible locations and/or by farmers who were less willing or able to afford fertilizers or related inputs. This contrasts with the planting of yellow open-pollinated or hybrid varieties in accessible, less hilly fields by farmers who were able and willing to apply agro-chemicals and to buy the necessary seed. The more favorable the agro-climatic conditions (especially when irrigation was available) and the more accessible farmer financing, the more frequently the team observed farmers planting yellow hybrids. Although exceptions existed due to location-specific weather conditions or farmer income problems, these patterns were dominant.

A closer examination of the corn growing situation in South Cotabato revealed that; a) micro climatic conditions created weather stress in various locations as droughts and heavy rainfall occurred on an irregular basis, b) the corn borer was a major pest requiring applications of pesticides on each crop, c) downy mildew has traditionally been the major disease problem for which new hybrid varieties were bred for resistance, and d) in the dry season hybrid yields tended to be 0.5 - 1.5 m.t. higher than during the wet season. This situation or pattern suggested that the technical characteristics of corn as grown in farmers fields be examined according their varietal traits and farmer decision-making considerations.

A comparison of the technical characteristics of corn varieties by four main type is shown in Table 3.8. This comparison points out the greater vulnerability of hybrids which the higher yields clearly offset during favorable seasons on responsive soils but may only partially offset in more uncertain agro-climatic conditions for risk averse and/or less credit-worthy farmers. Hybrids did not hold-up as well as local varieties in periods of stress, such as droughts or excess rainfall. Yet, its short stature made it preferred by Banga farmers during the first cropping season because local varieties fell over (lodged) due to the strong winds during May/June.

Another important comparison made in that table is the difference between "expected yields" versus what sample farmers found to be their "normal" yields. For example, for hybrids the difference between the highest expected versus highest normal yield was about 2 m.t., thus indicating lower than necessary inputs for hybrids or less responsiveness under farmers' field conditions. Under the field conditions of our sample farmers we noted only a 0.5 m.t. difference between "improved" open-pollinated and hybrid varieties, thus raising the question of whether the profitability of hybrids was likely in locations/seasons with less than favorable agro-climatic conditions or for farmers with cash-flow problems. The dominant local variety of Tiniguib has more favorable characteristics under those two conditions. It also suggested that a strategy to support the increased cultivation of hybrids should be selective and focus initially on more favorable locations/seasons while promoting improved open-pollinated varieties under less favorable conditions. This is more crucial whenever market prices are unstable or particularly low.

Given this situation, how did the farmers view their selection of varieties? Since there was little difference in prices of white and yellow corn grain when sold at the farm level and no explicit price difference by the varieties of yellow corn during the peak harvest periods, the yield and cost related factors were especially important for the farmers. Since most of our sample farmers grew either white open-pollinated varieties or yellow hybrid varieties, we organized the factors that they said affected varietal selection according to those two groups. Less expensive to cultivate was the overwhelming reason for selecting white non-hybrid varieties whereas high yield was the key factor affecting the selection of hybrids, followed by resistance to strong wind and influence of the person providing financing. Farmers who ate corn grits had a stronger preference for white corn varieties. Although our questions regarding varietal selection were not associated with the different planting seasons, selection criteria also seemed to vary by season.

Since the development of the hybrid corn industry has been seen as the foundation of the Philippine corn expansion efforts its historical evolution, major participants and changing practices need a brief explanation. Beginning twelve years ago (1975) with the Pioneer Seed Company's establishment of a corn research station in General Santos, the hybrid seed industry grew slowly until by 1982 over 12,000 hectares of hybrids were planted. By that time the Pioneer, Cargill, and San Miguel Corporations were the three major corporations involved in this business. In the 1983-84 period with the Expanded Yellow Corn Production Program, KKK program, and financing from those corporations the area in hybrids reached over 30,000 hectares. After that peak, area sharply declined as government policies and economic condition changed.

TABLE 3.8
TECHNICAL CHARACTERISTICS OF OPEN-POLLINATED VS HYBRID VARIETIES

TECHNICAL CHARACTERISTICS	OPEN - POLLINATED			
	TINIGUIB	IPB VAR-1	^{1/} F2	HYBRID
YIELD RANGE: (m.t./ ha)				
A) Expected	1.5 - 3.0	2.5 - 4.0	2.5 - 4.0	5.0 - 6.0
^{2/} B. Farmers;				
- Best	3.1	4.0	4.0	4.0
- Normal	1.6 - 2.5	2.5 - 3.5	1.5 - 3.0	3.0 - 4.0
^{3/} Maturity (days)	95-100	105 - 110	105 - 115	105 - 110
Seeding Rate (kg/ha)	15 - 16	18 - 20	18 - 20	18 - 20
^{4/} Hardiness	Tolerant	Limited Tolerance	Limited Tolerance	Limited Tolerance
^{5/} Susceptibility	Resistant (0 Appl.)	Semi- Resistant (0-1 Appl.)	Semi- Resistant (0-1 Appl.)	Limited Tolerance (2-3 Appl.)
^{6/} Responsiveness	Somewhat Responsive (0-2 bags/ha)	Moderately Responsive (2-4 bags)	Moderately Responsive (2-4 bags)	Very Responsive (4-6 bags)
Seasonal ^{7/} Adaptability	2nd-3rd	2nd-3rd	2nd-3rd	1st-2nd

- 1/ Harvested grains from hybrid used as seeds.
2/ Information based on farmer interviews during first cropping, August 1987
3/ Growth period in terms of days from planting to harvesting.
4/ Hardiness refers to tolerance to drought, heavy rainfall.
5/ Susceptibility is in respect to resistance to insect infestation, with consequences for the number of pesticide applications needed.
6/ Responsiveness means a plant's ability to increase yield at high levels of fertilizer application and better soil condition.
7/ April to May for the first cropping, August to September for second cropping, December to January for third cropping.

The potential performance of hybrids was pegged at 5-6 m.t./ha under favorable weather and soil conditions, according to the companies. However, under farmers' field conditions and given the uncertain weather, the range of 3-4 m.t./ha was considered "normal" by sample farmers. The companies reported that the area in hybrid varieties has been expanding recently because the companies' strong seed promotion and farmer support efforts have offset the negative effects of the large increase in hybrid seed prices from P 320 in 1982 to P 720 in 1987 and farmers recent experiences with drought. A brief review of this industry is in Attachment 1.

B. Demand Area Sites

The selection of sample demand areas followed from the "tracing" sampling approach which led the team from farmers first sale to their buyers and in turn to the next level of buyers up the marketing channels. Consequently, end-users of corn grain were found in South Cotabato and beyond. South Cotabato was the only major producer and minor consumer of corn sampled whereas Negro Oriental, Cebu, and Manila were minor producers and major consumers. The multiplicity of corn uses relative to locations beyond the supply area of South Cotabato have been depicted in Figure 3.3. For exposition purposes, each site beginning with South Cotabato will be briefly examined with further analysis within the section on "marketing system organization".

1. South Cotabato

In South Cotabato the primary uses for corn were as hog feed ingredient and for corn milling. We estimated that the corn for local animal feed and for local grits consumption required up to 20% of the total provincial production of corn per year. Although most of the grits milled in General Santos was shipped to the central regions of the Philippines, there was a substantial population of corn grits consumers in and around General Santos City, especially those of Cebuano origin.

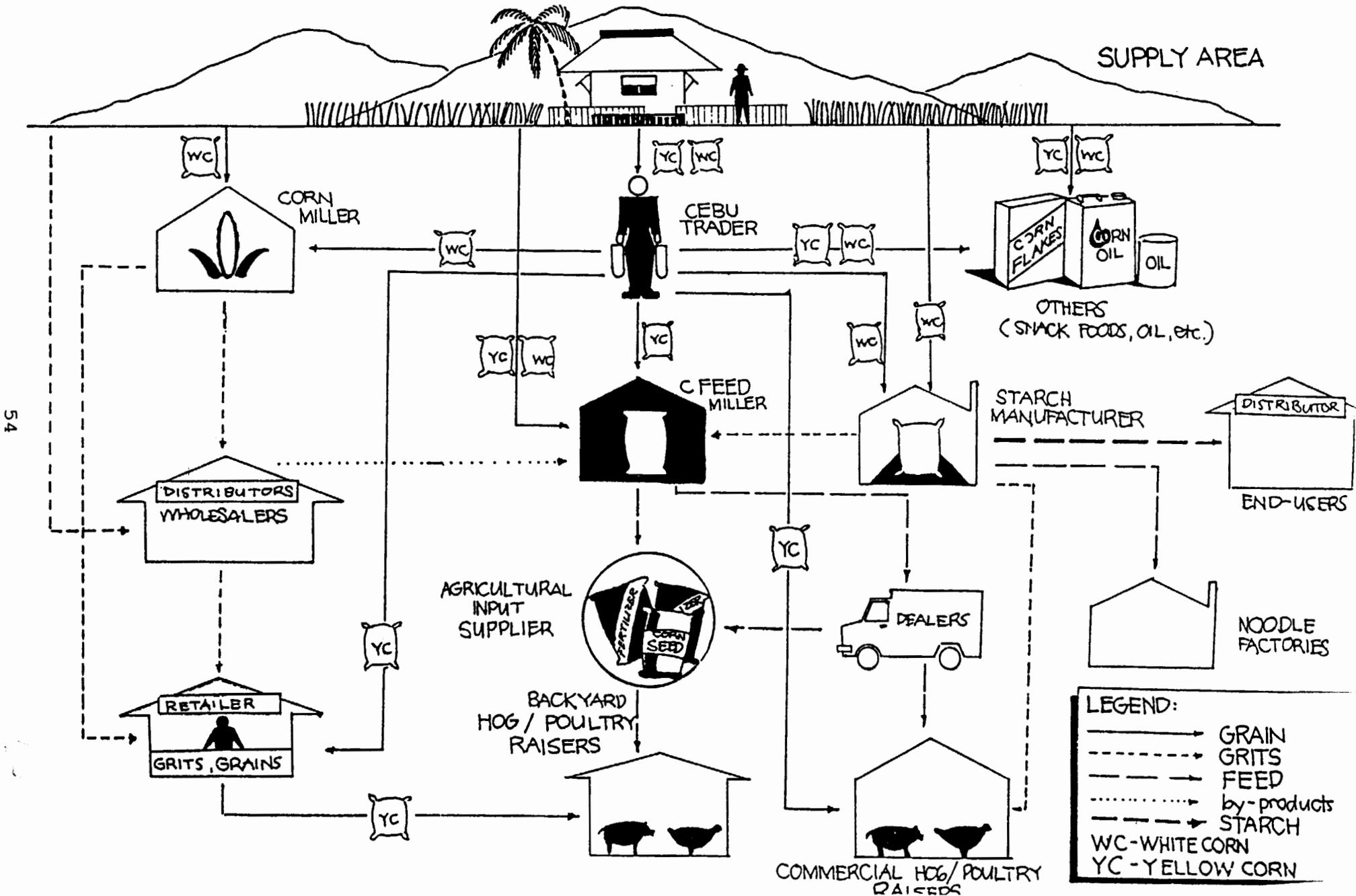
The backyard poultry growers and hog raisers used varying amounts of local corn in combination with commercial feeds and household materials. These animal raisers supplied much of the local meat. Medium and large commercial hog raisers shipped most of their hogs to outside markets, especially Manila. Based on available data regarding hog and poultry operations, we estimated that as much as 10% of total provincial corn production was used for local animal raising.

Another local use for corn was "green corn" which was consumed either as part of the main dish or roasted/boiled while still on the cob. Likewise, ground corn grain mixed with other special ingredients was sold by agricultural supply stores as fortified feed for "game cocks".

2. Negros Oriental

Although the largest producer of corn in Central Visayas (60% as white corn and 40% as yellow varieties), Negros Oriental's corn production satisfied only

Figure 3.3
 USES OF WHITE AND YELLOW CORN BEYOND THE FARM



about 20% of its total requirement. About 65% of its population ate corn as a staple with per capita consumption at 85 kg/person compared to a national average of 29 kg per person. Their few big corn mills supplied only a portion of local demand, thus corn grits from South Cotabato captured a major share of this market, which includes Siquijor, Dipolog City, and the adjacent area of Negros Occidental.

Since the several small medium scale piggeries and poultry raisers milled their own corn and no commercial feed mill operated in this immediate area, most of the locally grown yellow corn was shipped to Cebu.

3. Cebu

Corn grits of various textures has been the traditional staple food for 80% of the population and an essential part of the diet in this second largest city and trading center of the Philippines. Varied textures included larger grits for rural and finer grits for urban consumers, thus reflecting the refined and varied taste of corn eaters spread throughout this region. Previously, local produced white corn plus additional amounts from Mindanao was milled in Cebu and grits distributed throughout this area. But given its topograph and agronomic conditions, local corn production has not kept pace with population growth, thus large corn millers became more and more dependent on Mindanao corn grain, primarily from Cagayan de Oro, General Santos, and Davao. Cagayan de Oro's proximity meant that it was the major source of grain.

A recent development is the increased establishment of new large scale corn mills in the port cities of General Santos, Cagayan de Oro, and Davao which are near the main corn supply areas. Thus, the comparative advantage for milling has shifted, from proximity to demand areas, such as Cebu, to supply areas because sufficient quantities of quality grain can be procured and milled into higher quality grits. Recently, South Cotabato's corn grits in addition to grain have been finding their way into this market as well as Samar, Masbate, Leyte, and Romblon.

Three large commercial feed mills and many medium-large scale hog raisers and poultry growers used the corn grain shipped from Mindanao in two ways, i.e., directly as grain for processing into feeds and indirectly as by-products (tik-tik and corn bran) from the local corn millers. The combination of less expensive by-products as feed ingredients and the strong demand for meat from the large population of Cebu made this area attractive for feed millers and commercial animal raisers as well as a large market for South Cotabato grain.

Although processors of gluten and other products using corn were found here, the two large scale, starch manufacturers absorbed the major share of white corn grain for such products. During the peak harvest period for white corn, these two firms purchased very large amounts of white corn, quickly made starch and then stored it for extended periods as starch. Later sales were made to firms who processed starch-based products, such as noodles and snack foods. In fact, one of these manufacturers also processed a very popular brand of snack food.

4. Manila and Surrounding Areas

Manila is not only the political center and commercial hub of the nation, but also has the largest population, highest population density, and highest per capita income level of the Philippines. Some of the conditions described about Cebu apply here except for these major differences; a) rice and not corn is the primary staple, b) the demand for meat and animal products far exceeds that of Cebu, such that very large scale Integrators can profitably employ modern milling, animal raising, and meat processing technologies, c) very large traders are based here, d) the multiplicity of processed corn products is more extensive, especially use of corn starch in snack foods, and e) large amounts of corn are procured from the Cagayan Valley and nearby locations in addition to Mindanao. Manila area buyers procured about 43% of the white corn grain, 92% of yellow corn grain, and 1% of corn grits shipped out of General Santos in 1985-86.

White corn has become an important substitute for yellow corn in Manila. In fact, white corn constituted between 30-40% of two major feed millers corn requirements, especially during the January to June period. During this period, competition for white corn grain was intense between corn millers (especially in Cebu) and feed millers. That not only meant additional costs for carotene additives to poultry feed but had major implications for the availability and price of corn grits for human consumption. In other words, this substitution effect of white for yellow implied a tradeoff between food for people and feed for animals.

A sense of the magnitude of the feed milling and animal raising industry in and near Manila is depicted on Figure 3.4. Since this aspect was far beyond the scope of this study, the RMA used key informants to obtain a few insights into the current status of feed milling, and related matters regarding the corn system's trends, patterns and problems, as perceived by industry leaders. A major goal of the largest feed millers, i.e., the Integrators, was to gradually adjust the size of their animal population in response to changes in demand/supply conditions for meat rather than be forced to liquidate/cull large portions of their hog/poultry populations due to corn shortages during the lean months.

The Integrators used a combination of storage, imports and substitutes during the January to June period to mitigate the slaughter due to shortages. However, inventories extended for only 2-3 months, imports had been restricted and the substitutes, such as feed wheat and barley, had also come under import control. Consequently, the shift from those three options to only storage has proven very disruptive in the short term. In such an environment, they contended that orderly management of animals, non-interruption of operations, and efficient use of milling, animal raising, and meat processing facilities was extremely difficult.

LOCATION OF LIVESTOCK-BASED FOOD PROCESSING FIRMS AND FEED MILLS

LEGEND :

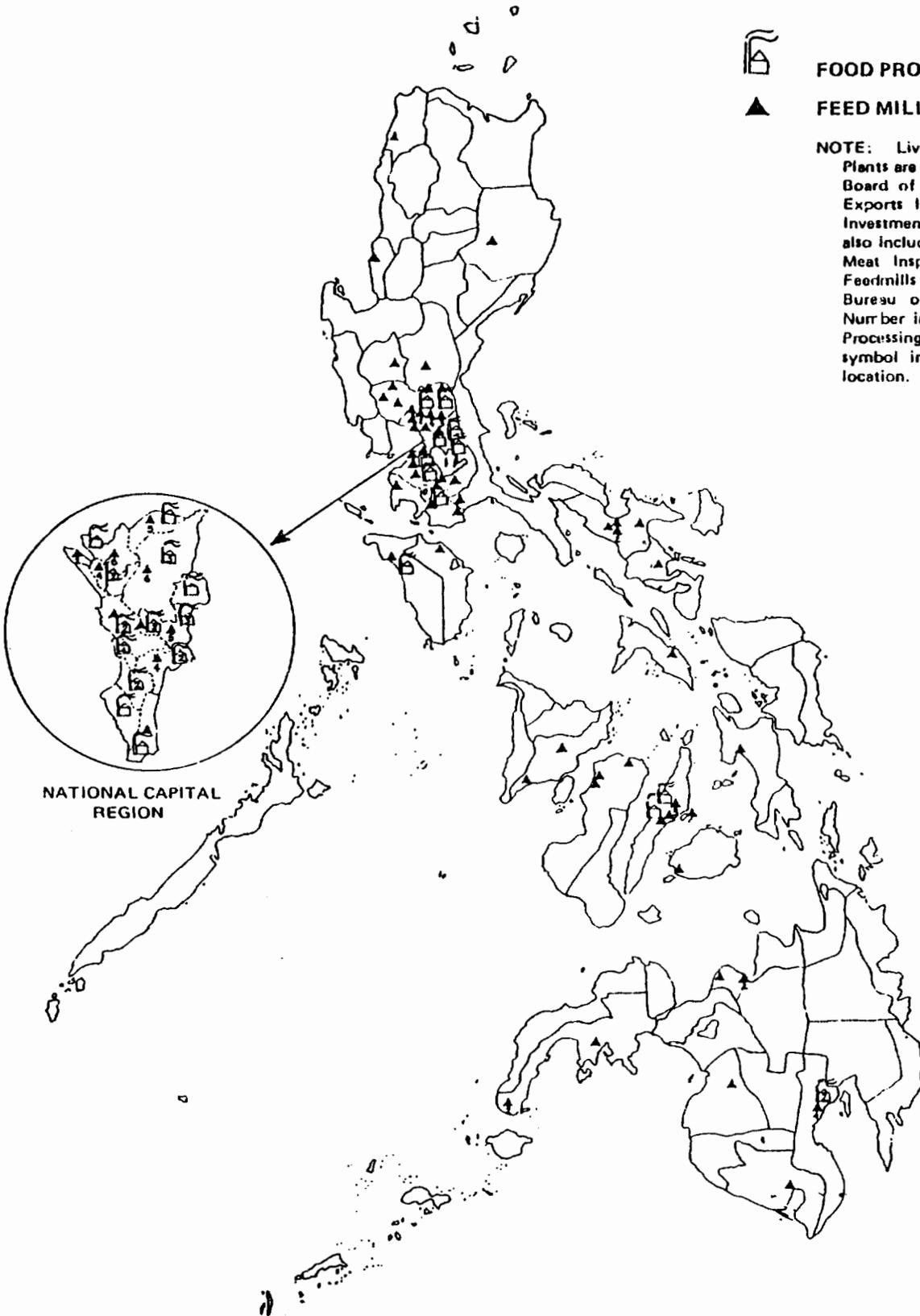


FOOD PROCESSING PLANT



FEED MILL

NOTE: Livestock-Based Food Processing Plants are primarily those registered with the Board of Investments under R.A. 6135 or Exports Incentives Act and R.A. 5186 or Investment Incentives Act as of 1979 but also includes those licensed by the National Meat Inspection Commission as of 1979. Feedmills are those registered with the Bureau of Animal Industry as of 1979. Number inside symbol indicates number of Processing Plants while number below symbol indicates number of mills in that location.



NATIONAL CAPITAL REGION

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IV. MARKETING SYSTEM ORGANIZATION

The organization of the corn marketing system refers to the characteristics of the system participants as affecting buyer/seller relationships, flows of commodity-information-money, prices and their behavior, and the nature of competition, including concentration of firms and barriers to entry. The organization of the total system extending from the South Cotabato supply area to the Cebu and Manila demand areas is understood by classifying marketing participants into meaningful groups, investigating the main trading patterns, depicting the spatial network of suppliers and end-users, and examining the degree of competition within and between trading patterns.

A. Participants

The eleven important types of enterprises actively participating in the corn commodity system were: a) hybrid seed companies, b) corn farmers, c) grain traders, d) trader/shippers, e) feed millers, f) corn millers, g) starch processors, h) hog raisers, i) poultry growers, j) Integrator, and k) the National Food Authority. Other participants, such as agricultural supply stores, retailers of grains and/or grits, hammer mills, meat retailers, slaughter houses, port authorities and shipping companies were involved in this marketing system but not as prominently, except for the shipping companies. Since this corn system consisted of four levels, i.e., production, distribution, processing, and consumption, each type of participant will be classified into meaningful subgroups within its respective level before focusing on the vertical linkage arrangements which form their trading patterns.

At the **production level** the farmers are classified according to the variety of corn planted, i.e., hybrid corn growers are farmers planting F1 hybrid yellow varieties and non-hybrid corn growers include farmers planting open-pollinated white or yellow varieties and a few with F2 generation of hybrid varieties. Due to our sampling of major production areas which often had more hybrids and our interest in determining why hybrids were not more popular, seventy percent (70%) of the farmer sample grew hybrid corn and thirty percent (30%) cultivated mostly the white, open-pollinated type of the "non-hybrid" varieties. This classification scheme allowed for a comparison of farmer and crop characteristics, such as input procurement practices, cultural practices and cost structures, marketing patterns, financing arrangements, and related factors. The comparison of farmers according to tenure pattern, i.e., owner-operators (65%), tenants (27%), and part owners (8%), did not yield any distinct differences in preference for hybrids or other noteworthy patterns. This suggests that if financing was provided to farmers, tenure pattern may not be a binding constraint to hybrid use. Likewise, although 60% of the sample farmers were affiliated with a farmers organization or cooperative (Appendix 11), this factor did not provide useful patterns because only farmers in Barangay Malaya had an active association (Samahang Nayon) which provided marketing services to the members. In other words, most sample farmers did not obtain pertinent information or services from local farmers groups.

At the **distribution levels** the marketing participants were classified by their main occupation, types of buyers serviced, scope of their buying area, functions performed, relative size and primary source of working capital. The two main groups of traders at this level are distinguished by their primary buyers: 1) "grain

traders" as those who primarily dealt with buyers within their locality and were often called the "buy/sell" and 2) "trader/shippers" as those dealing with large scale, outside buyers to whom grain was shipped by vessels.

The grain traders are further classified by the scope of their buying area into barangay, municipal, and provincial/regional traders. The trader/shippers are categorized according to their business practices as family, family corporation, and corporation and degree of integration. Beginning with grain traders each type of trader will be briefly explained and their role clarified.

A barangay ("buy/sell") trader resided in the barangay, regularly bought corn from neighboring farmers, and sold it to a larger trader either within the municipality or in General Santos. Other occupations for this part-time trader included large prominent farmer, owner/manager of a sari-sari store, transporter and/or operator of a corn sheller. Sari-sari store owners/managers received on a charge-to-crop basis either sacks of corn grain or cash after the harvest. This payment was for credited purchases of consumer items and/or credited inputs at the outset or during the crop cultivation period. Similarly, the larger land owner, transporter, and/or money lender was repaid in kind or cash soon after the corn harvest. This trading business involved; a) collecting limited quantities of corn within their own or nearby barangay, b) shelling and/or drying it, if necessary and facilities were available; c) loading jeepsneys or small trucks with sacks of corn, and d) delivering it to the larger traders. Some traders were members of a large trader's procurement network and, as such, received advances and/or acted as agents. These types of traders seemed to be more numerous in the more remote barangays, such as Upper Mainit, even though the volume grown was comparatively small.

In the poblacion (town proper) the municipal ("buy/sell") traders were usually a medium to large scale commodity buyer of corn and other local agricultural commodities as sold by the farmers or barangay traders within their own or neighboring municipalities. Although some of these full-time traders maintained storage rooms, most could not afford to store large quantities over extended periods. Several also operated a sari-sari store or corn related business, such as sheller or transporter. At this level the main reason for providing inputs or goods on credit to credit-worthy farmers (suki) was the effort to maintain or expand their market share of the corn harvests. Although this arrangement involved a certain degree of risk-sharing with the farmers and was a form of non-price competition among traders, it was usually in keeping with local customs and farmer expectations.

In the old trading center of Koronadal, there were a few provincial traders or branch buying stations of traders from the newer trading center of General Santos which has become the central trading center for the majority of provincial/regional traders. Although the buying areas for this type of trader extended beyond the province of South Cotabato, these traders usually did not ship corn to other parts of the country. They purchased other commodities besides corn and/or owned other enterprises, such as hog raising. Sometimes they sent out "viajeros" (itinerant traders) or "hunters/strikers", as they were locally called, to search for corn throughout the province. Viajeros looked for farmers or local traders willing to sell their corn immediately for a price that was P 0.05-0.10/kg

higher than the prevailing level. This type of trader became most active during periods of shortage, for example, whenever a large ship unexpectedly arrived but its charterer had insufficient grain in the warehouse to fill the vessel.

The "trader/shippers" are the other major trading group and represent a somewhat more complex set of enterprises. Their common characteristics included procurement areas beyond the province of South Cotabato, regular shipment of corn grain by vessels to other parts of the Philippines, and relatively large scale of operation. To better understand the unique characteristics of sub-groups, the traders/shippers have been classified according to their ownership patterns, i.e., family, family corporation and corporation, and compared according to select traits (Table 4.1).

The "family" type of firm included the "oldtimers" or their progeny with 3 to 23 years in the trading community of General Santos, business practices built around labor supervision and business management by the immediate family members, and the "suki" relationship with most of their corn suppliers, whether farmers, barangay/municipal traders, or others. Likewise, this type of trader usually has had "suki" relationships with its major buyers in Cebu and/or Manila. From a business perspective, this type of enterprise had an informal/personal management style, centralized most decisions in the head of the family, and taught their children business practices by "hands on" experience. Credit to farmers for their production and emergency cash needs was previously very common but now it is confined to select creditworthy farmers. Previously, advances and/or loans for purchasing trucks or shellers and/or building solar driers were commonly provided to barangay/municipal traders in their procurement networks. This practice has also become less common today.

The "family corporation" attempted to develop a more formal business style, such as requesting formal written contracts from larger buyers. Often its manager was a "second generation" trader who financed fewer farmers and consulted with more persons than just the head of the family regarding important business decisions. It was also common for these traders to have higher levels of education and training.

The "corporation" type of trader/shipper was a relatively new phenomena for South Cotabato. It had a formal organizational structure, followed more decentralized management practices with trained managers, preferred to buy corn on a spot market basis without financing farmers or other form of tie-in to suppliers, and had branches in other locations within and beyond Mindanao. One such firm refused to buy poor quality corn and paid a premium price of P0.05 - 0.10/kg for higher quality, especially for a low moisture content of 15% and 98% purity level. This was quite unusual for General Santos.

A type of trader which has recently become active is the "broker." Unfortunately this marketing participant proved rather elusive and was not interviewed during this study.

At the processing level, there are three main types of marketing participants, namely, the corn millers, feed millers, and starch manufacturers. In South Cotabato there are over 50 corn millers, 2 feed millers and no starch manufacturers.

Table 4.1
Large Trading Firms Classified by Ownership/Management Patterns

<u>CHARACTERISTICS</u>	<u>TYPE OF FIRM</u>		
	<u>FAMILY</u>	<u>FAMILY CORPORATION</u>	<u>CORPORATION</u>
1) Organizational Structure	Informal	Semi-Formal	Formal
2) Type of Manager Qualifications	Mostly has Experience	Experience with Training	Training with Experience
3) Decision-Making Process:			
- Basic Nature	Centralized	Centralized	Decentralized
- No. of Persons Consulted for Major Price Change	Self	One or Two	Few Depending on Situation
- Time Required for Major Pricing Decision	Less than 1 Day	1 - 2 Days	Few Days
4) Support to Farmers	Finance many Farmers	Finance few Farmers	Occasional or no Financing of Farmers
5) Trading Agreements	Verbal	Verbal & Written	Written & Verbal
6) Dominant Relationship to Sellers	Suki (Personal)	Suki (Personal)	Spot Market (Impersonal)

Note : Although there are some exceptions, these are the basic patterns observed.

Source : Discussions with key informants.

Corn millers consisted of about 40 small to medium scale firms who were also municipal/provincial grain traders. They mainly sold grits to local retail outlets while a few of the larger ones were diversified into hog raising in order to use the by-products of milling as ingredients of their animal feeds. Among the agri-business community of General Santos, enterprise combinations within the same family of ownership exemplified the "economies of scope" approach to business development, i.e. simultaneous production of two or more types of outputs within a single company.

A relatively recent development in South Cotabato was the 10 or so large scale with corn millers who shipped large quantities of grits to the major demand areas of Cebu and Negro Oriental in direct competition with Cebu-based millers. In terms of quality, South Cotabato grits were superior to most Cebu grits because these trader/shippers milled the better quality corn of locally procured grain and shipped out inferior quality of white grain to Cebu and Manila. In terms of quantity, about 90% of all corn grits processed in General Santos were shipped out. Of that amount in 1986, 73% went to Dumaguete, 26% to Cebu/Lapu-Lapu and 1% to Manila, according to NFA statistics.

In South Cotabato, there were only two small scale feed mills. They primarily supplied the backyard animal raisers in competition with ready-mix brands of feed shipped in from large feed mills in Cebu. The vast majority of local feeds were processed by the medium and large scale hog raisers and poultry growers themselves. They owned and operated a hammer mill for converting corn grain into feed for their own animals. They seldom sold feeds on a commercial basis and thus were not classified as feed mills. In fact, commercial scale hog raisers and poultry growers said they could not afford commercial feeds and only survived by mixing their own feeds.

In Cebu, there were at least 12 medium-large scale corn millers because this was within the area of the Philippines where corn grits is still a staple food for a large portion of the population. There were a couple of large feed mills and several smaller ones as well as 2 very large starch manufacturers. The former preferred yellow corn grain for feeds but used white corn grain and by-products of grits and starch manufacturing in their feeds. However, the starch manufacturers required only large quantities of white corn grain.

At the **consumption level**, the two main groups who consumed corn were humans who ate corn grits, fresh corn on the cob and some corn starch-based products and animals who were fed feeds with corn as a major ingredient. The previous section explained the demand patterns regarding these two groups while here the enterprises which serviced those demands will be examined, i.e., the hog raisers, poultry growers, and Integrators.

In this provincial market area of South Cotabato there were hundreds of backyard hog and poultry raisers, over 25 commercial hog raisers and less than 5 commercial poultry growers. At the aggregate level, the hog population in 1986 was estimated at 215,176 and 82% of this total (176,349) was shipped to Manila. Shipments of hogs reached its highest level in 1984 before experiencing a sharp decline with the closure of three large piggeries in General Santos. Other nearby areas also experienced wide fluctuations in the volume shipped. The two main

types of commercial hog raisers were; 1) those whose main source of income and occupation was animal raising and shipment of live hogs to Manila and 2) corn traders who were integrated forward into various degrees of hog raising but were more dependent on income from trading. Some of the large trader/shippers were examples of the latter group.

Some of the large scale hog raisers wanted assurance of adequate supplies of corn so they established contracting agreements with select farmers from nearby barangays. These contract farmers received hybrid seed and fertilizer on credit as a member of a local group of farmers and sold their harvest to the hog raiser at harvest time. Spot market purchases by these hog raisers supplemented the grain procured in this arrangement. For traders integrated into hog raising most of the corn from their procurement network was traded up the channel but adequate supplies were set aside for their animals. Poorer quality corn was for immediate use and better quality stored for the lean months.

The Integrators, as end-users, actively procured from the national market of which South Cotabato was only one supply area. One firm was diversified into production and sale of hybrid seeds through its South Cotabato facilities whereas the others had a buying station in General Santos, sent teams to buy there, or purchased through brokers or other intermediaries. Due to their size and position in the marketing channels, Integrators could assume the role of "channel captains". The buyer-seller relationships are part of the system interrelationships that should be coordinated within a market. As channel operations, the Integrators would help direct the vertical activities within channels and try to avoid or resolve channel conflicts. Agreement on grades and standards and forward contracts would be example of improved coordination that would benefit all marketing participants, including farmers.

The National Food Authority had previously purchased sizeable quantities of corn during the peak harvesting months when prices dropped below the current floor price of P 2.90/kg. However, during this RMA its role had diminished considerably because it was no longer able to support that floor price. The reasons for and implications of this reduced role will be explored in the "Institution/Power" section of this study.

B. Spatial Network

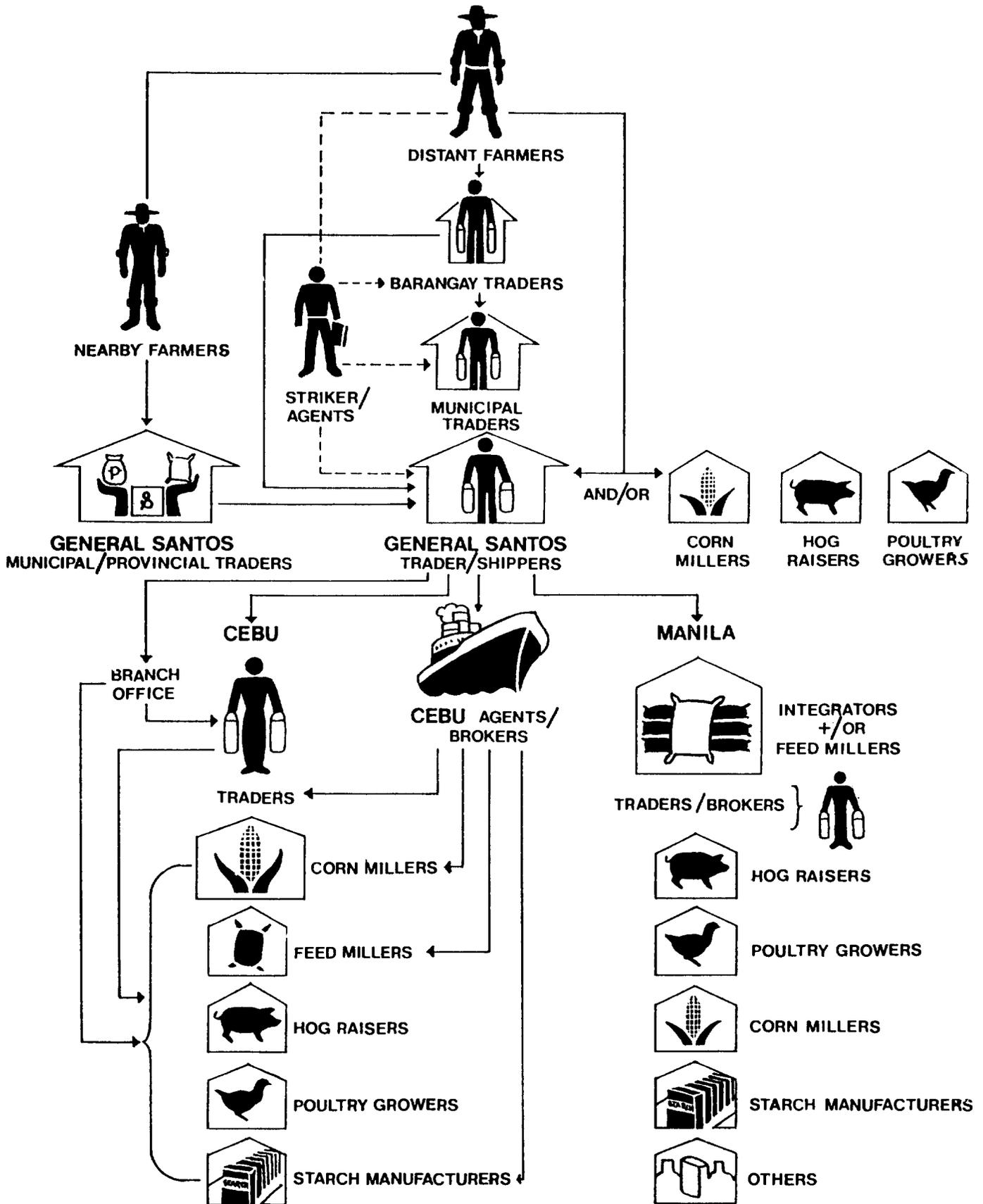
The two major components of the spatial network are the geographical flow of grain and other related products and trading patterns among those in the network. The characteristics and implications of each are discussed in this section.

1. Geographical Flows

The general flow of corn as grain and grits through the spatial network of buyers/sellers who are arrayed along the channels from major supply to demand areas is illustrated in Figure 4.1. The three main components of the network are: 1) movements from farmers through traders and to trader/shippers within the supply area (South Cotabato); 2) sea shipment from the supply area port to the ports in major demand areas, and 3) handling/distribution to types of traders

Figure 4.1

FLOW OF CORN FROM SOUTH COTABATO: TYPE OF BUYER AND LOCATION



and/or intermediate or end-users within those demand areas. Corresponding flows of information on prices, market conditions, and volumes/qualities needed or available were in both directions with the telephone as the popular media within the demand areas and between demand and supply areas, whereas word-of-mouth, radio transceivers, and occasional telephone calls were used within South Cotabato. The flow of cash payments came from the demand areas to the supply areas through many channels, such as bank transfers, hand delivery, and the like. General Santos City is the commercial hub of the province from which money flowed into the country side, especially, during the harvest season for corn.

Flows can be depicted in terms of relative volumes from the supply to demand areas or as movement through various channels. From the perspective of relative volumes, the flow of corn from the sample municipalities depended on their location relative to the major highways and the trading centers. Since Banga and Surallah are west of the secondary trading center, Koronadal, a small percentage of the grain went to and through Koronadal on its way to General Santos (Figure 4.2). Tampakán traders and farmers shipped about one third of their corn to the Tupi hog raisers/traders and two thirds directly to General Santos. Malungon's position on the major highway between Davao and General Santos meant trade with both, but mostly to the closer, General Santos. Flows out of South Cotabato had distinct patterns with grits mostly to Dumaguete, white corn to Cebu and Manila, and yellow corn primarily to Manila.

From the perspective of sale options available, farmers in Malungon Municipality sold the traders, hunter/strikers, agents, and millers in Davao, Padada and Digos as well as sent their corn directly to General Santos (Figure 4.3). Tampakán farmers sold either to the traders or hog raisers in Tupi, Koronadal, or General Santos (Figure 4.4). Whereas farmers in Banga and Surallah sometimes sold to traders in Koronadal or General Santos, depending on whomever offered the higher price (Figures 4.5 & 4.6). The transaction price, transportation costs, and the existence of any credit tie-up between the farmer and trader were important factors in selecting a buyer among the alternative channels. Accessibility in terms of road conditions, distance, and availability of vehicles was important for determining to whom and where corn was sold. This situation confirmed that alternative sales options were open to farmers, channel variations existed at the municipal level, and competition was evident in several forms.

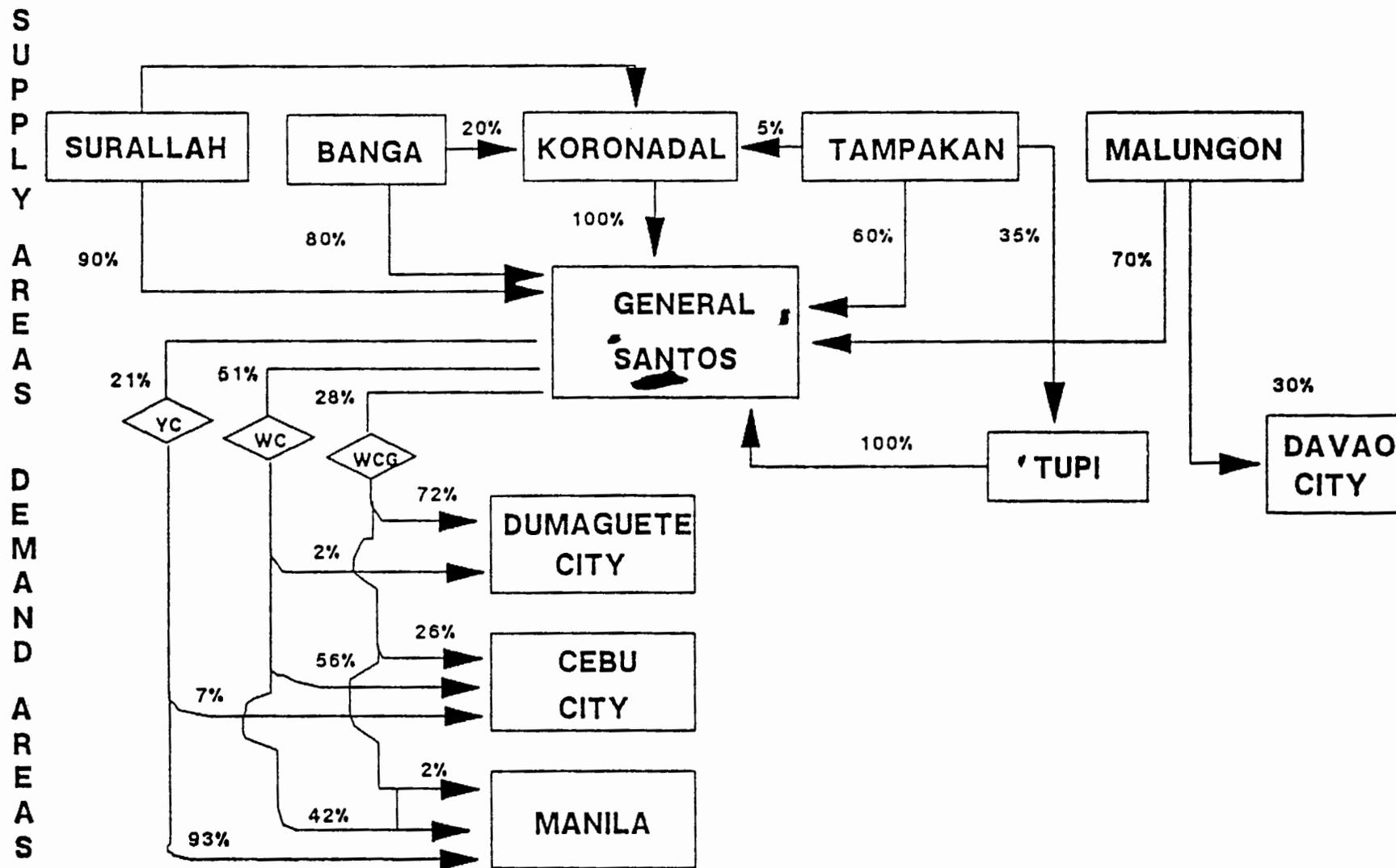
In general, the larger the farmer and his harvest, the further up the channel a farmer was likely to sell his corn. In fact, several large farmers were actually farmer-traders who sold directly to General Santos buyers.

2. Trading Patterns

Two main types of trading patterns are the "assembly" and "distribution" patterns as referenced to the situation in General Santos. Within the assembly patterns there were; 1) hierarchical networks extending backwards from the trader/shipper and/or large local processor through municipal/barangay traders to individual farmers with credit and suki commitments in place and 2) the spot market transactions reflecting no prior commitment and cash-on-delivery transactions whether the seller brought grain to the buyers or buyers (hunter/strikers) searched for sellers. Verbal transactions were common at this

Figure 4.2

VOLUME FLOWS OF CORN COMMODITIES FROM SUPPLY AREAS THROUGH GENERAL SANTOS TO DEMAND AREAS, AUGUST 1987



Note: YC = Yellow Corn Grain; WC = White Corn Grain; WCG = White Corn Grits
 Source: Estimates based on Trader Interviews

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Figure 4.3
FLOW OF CORN WITHIN & FROM MALUNGON
MUNICIPALITY, AUGUST 1987

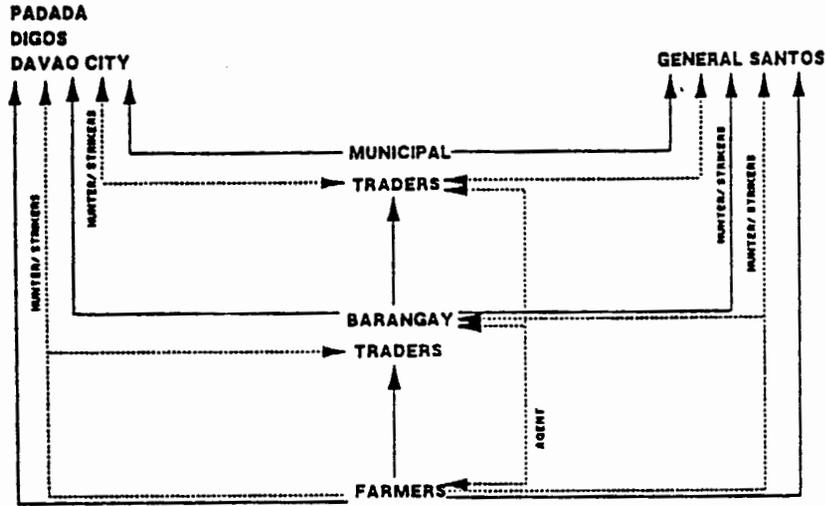


Figure 4.4
FLOW OF CORN WITHIN & FROM TAMPAKAN
MUNICIPALITY, AUGUST 1987

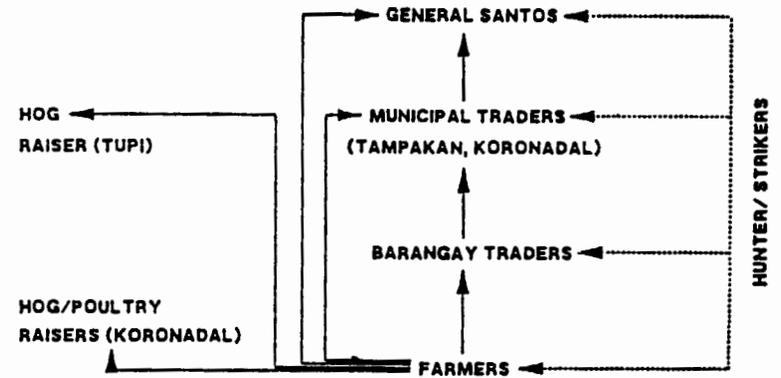


Figure 4.5
FLOW OF CORN WITHIN & FROM BANGA
MUNICIPALITY, AUGUST 1987

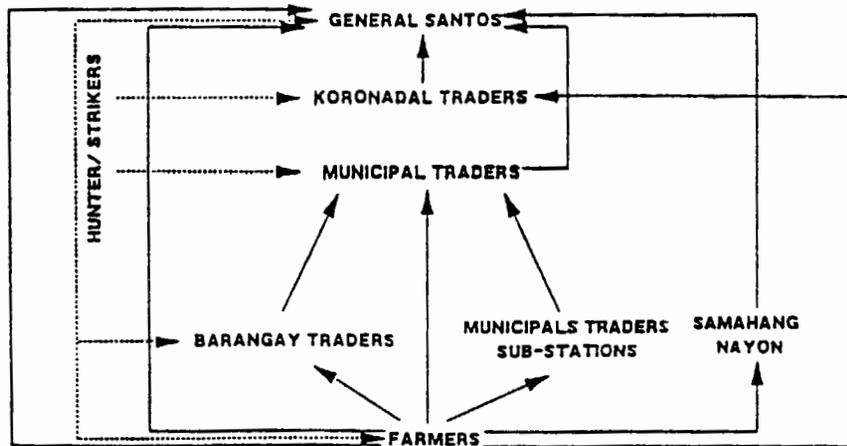
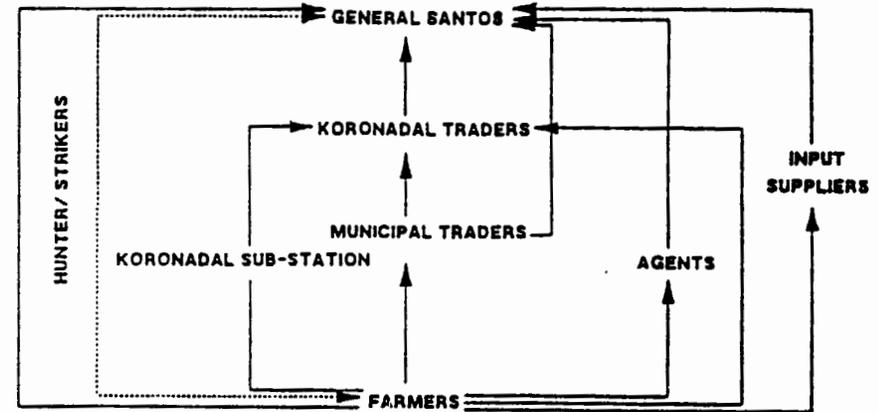


Figure 4.6
FLOW OF CORN WITHIN & FROM SURALLAH
MUNICIPALITY, AUGUST 1987



Source: Interviews

level, even when cash was advanced and delivery of specified volumes was arranged. During the recent years, more and more farmers and smaller traders sold a larger share of their grain through the spot market pattern. Unfortunately, there was insufficient data for estimating which pattern dominated during the 1987 peak season.

The distribution patterns were; 1) hierarchical networks projected forward through demand area traders to corn mills, feed mills, starch factories, hog raisers, and poultry growers with some lingering forms of suki relationships; 2) direct dealing of distant end-users with trader/shippers, often on a formal contract basis; and 3) new buying stations set-up in General Santos and/or buying teams coming from the Integrators and large feed mills for spot market purchases in General Santos. These latter were without any form of suki arrangements, though sometimes brokers became involved. Of these three, the first was clearly declining in importance with the second being favored by large Cebu corn millers while the third has become especially noticeable since the 1986 ban on imports. Although the first might dominate in terms of volume, the other two will soon become the most prominent patterns, assuming the import ban remains.

C. Market Entry and Competition

Of the several ways to assess competition and/or "competitiveness" this study analyzed market entry and alternative ways of competing for corn.

"Market Entry"

Within the supply area of South Cotabato, the business environment for corn trading did not show any signs of serious constraints to entering corn trading but was reportedly "overly competitive" in some places. Beginning in the early 1980's a large number of small firms entered the corn "buy and sell" business at the barangay and municipal levels. Several of the new entrants were "second generation" traders as daughters, sons, or relatives of the local "oldtime" traders. Others were set-up in business with the support of large traders in General Santos whose increased size made it disadvantageous to continue dealing with so many farmers (high transactions costs) but advantageous to deal through a network of reliable barangay and municipal traders (lower transactions costs). It appeared that the number of new entrants increased more rapidly than the volume of corn and in the process of competing among themselves has created distortions in the local market and thereby contributed to the demise of the suki system.

At the General Santos level 2 aggressive, large scale entrants have begun business within the past 2-3 years. Also, at least two large Integrators are planning to set-up buying stations in General Santos. This further verifies the competitive environment in South Cotabato in that entry occurred at both the farm level and in the trading center.

"Methods of Competing"

At the farm level most farmers had more than one type of sales option. With a financier the farmer delivered most or all of the harvest to the financier at locally prevailing price depending on whether a hunter/striker arrived and paid a higher price. The farmers with no credit ties and available transportation delivered and sold to whomever offered the best price, whether municipal or General Santos buyers. "Highest price" for the quality on hand was repeatedly cited as the farmers' sales criterion after considering all available options.

Yet, traders on their part, did not just wait for sellers but used various forms of non-price competition to enter this business or to expand their market share. At the farm level, credit as inputs, cash, and/or consumer goods served both purposes. For increasing market share, there was the provision of support services, such as, harrowing land, shelling, transportation, and/or drying or materials, such as sacks or purchase of all quality of grain including "wet or semi-wet" or either form of corn as grain or corn-on-the-cob. These alternatives forms of competition were used to earn some or all of a particular farmer's harvest.

At the distribution level, hierarchical incentives or inducements for joining a network included: a) larger traders paying advances during the harvest season; b) occasional provision of investment capital for trucks, drying floors, and/or shellers; c) use of their own trucks to collect the corn at the seller's warehouse or from the farmers field; and d) payment of a slightly higher price than the prevailing price. Those latter arrangements were usually reserved for suki relationships. Yet, even with those inducements, the small trader would sometimes hedge his returns by selling some stock to hunter/strikers who offered an attractive price. From a spot market perspective the price and perhaps provision of transportation were key factors.

D. Product Differentiation

A commodity, such as corn grain, is not easily differentiated by brand or association with a particular company but can be associated with grain quality characteristics coming from a particular location/season, such as "wet corn" from Cagayan de Oro during the rainy season or "dirty corn" coming from South Cotabato. In this case South Cotabato's reputation for "dirty corn" has gained it "non-preferential treatment" in pricing as well as a less preferred procurement location. In other words, although not a preferred supply area from which to procure grain, large buyers realized that its large volume made it necessary to deal there. Thus, they used various forms of discounts in negotiating contracts with South Cotabato suppliers.

The corn grits and hybrid seed components of the corn system displayed more favorable characteristics of product differentiation. In the corn grits market, there was a variety of brands with recognized quality characteristics. The brands from Mindanao were gaining ever larger shares of a stable or shrinking grits market while the traditional brands of the Cebu corn millers were losing markets. Better quality characteristics rather than price differences seemed to give Mindanao grits the comparative advantage. Although lower production and distribution costs for the Mindanao corn millers have been inferred by key

informants, our interviews could not verify that conclusion. The Cebu corn millers' market for milling by-products must also be considered in such a cost comparison.

At the other end of the commodity system, the brands of hybrid seed are becoming recognized and promoted for their disease resistance and yield responsiveness to the different micro climates and varied soil conditions of South Cotabato. Likewise the season and/or cultivation practices of certain farmers made a difference, such as a short stature variety which enabled it to withstand high winds. Even the financial constraints of low income farmers were being addressed by one company's promotion of small packets of seed with a low level of input requirements. With such a small market for hybrids, advertising, promotion campaigns, distributing inputs on credit and purchasing the harvest and other methods of differentiating their brands may decide which company survives in the hybrid seed industry of South Cotabato.

V. MARKETING SYSTEM OPERATION

An assessment of the operation of an agricultural marketing system would involve first understanding its tangible activities, i.e., vertical array of physical marketing functions, then examining exchange and coordinating functions, and finally focusing on each type of firm's behavior toward its suppliers, buyers, and competitors. Understanding marketing functions at each level in the system is relevant in order: a) to associate specific functions with each type of participant (firm) while identifying the conditions under which functions shift in importance among participants; b) to identify unnecessary duplication of functions and/or opportunities for further economies of scale, specialization, and integration within functions; c) to determine the impacts of technological or institutional interventions that affect the performance of such functions as transportation, storage, and processing; and d) to target technological advances to the type of participant best able and willing to improve system outcomes with that technology.

A. Marketing Functions

The main kinds of functions found within a marketing system are physical, exchange, facilitating and coordinating functions. In Table 5.1 each function is displayed according to the types of participants performing them and the form of the input/commodity handled, i.e., inputs fertilizers, pesticides, and seed and commodities - cobs of corn, grain, grits, by-products, feed, and starch. The multiplicity of forms handled by several types of participants indicates the sets of interrelationships which must be recognized when examining this total system.

The farmers prepared and sold corn in shelled (grain) or unshelled (cob) forms; the traders (some supplying production inputs) bought grain or cobs of corn and sold grain; corn millers, feed millers, and starch manufacturers bought grain and sold grits, feeds, by-products, and starch; and hog raisers and poultry growers bought grain and/or feeds/by-products and sold hogs, poultry, and/or eggs.

In general, farmers harvested, husked, dried, bagged, and transported the cobs of corn to their homes for shelling, drying, cleaning, and bagging the grain. If a mobile sheller was available, the shelling was done in the field, the grain bagged and the first handler picked it up in the field or the farmer used a carabao-sled or truck to transport it home or to the buyer. These alternatives varied by farmer and location. For farmers with a credit tie-up, the trader usually accepted the corn on a charge-to-crop basis or sometimes received cash if the farmer sold it elsewhere. For self-financed farmers, cash on delivery or pick-up was common. In either situation very limited amounts of corn, as unhusked cobs, were stored at the farm level.

The first handlers, i.e., those who purchase sacks of corn directly from farmers, included mostly barangay and municipal traders but also nearby hog raisers, "hunters/strikers" and trader agents who actively searched for corn from the farmers. These buyers shelled the cobs of corn before drying all grain to about 15 - 18% moisture content, rebagging and transporting it to those further up the channel. Within this supply area the number of times the grain was stored, transported, and sold varied according to the type of first handler, the distance

TABLE 5.1
MARKETING FUNCTIONS PERFORMED BY PARTICIPANTS IN THE CORN SYSTEM OF SOUTH COTABATO

	T R A D E R S									
	FARMERS	BGY.	MUN.	PROV'L./ REG'L.	TRD/ SHP	MUNTER/ STRIKES	CORN MILLER	FEED MILLER	RETAILER	POULTRY/ HOG RAISERS
Physical Functions:										
Harvesting	C	C	C							
Shelling	G	G	G							
Drying	C/G	C/G	C/G	G						
Storing			G	G	G					
Transporting	C/G	C/G	C/G	G	G	G	G	G		G/BP
Cleanings	G			G	G		G	G		
Processing/Mftg.							GT	F		
Consuming										F/BP/G
Exchange Functions:										
Buying		G/C	G/C	G	G	G	G	G	G/GT/F/BP	G/BP/F
Selling	C/G	G	G	G/GT/BP	G		GT/BP	F	G/GT/F/BP	H/PP
Collecting		C/G	C/G	G	G	G	G	G		G
Distributing Inputs		FT/S/CM	FT/S/CM							FT/S
Facilitating Functions:										
Financing		/	/	/						
Risk-bearing		/	/	/	/		/	/	/	/
Coordinating Functions:										
Grading							/	/		
Informing		/	/	/	/	/	/	/	/	/
Contracting				/	/		/	/		/

LEGEND

C - Cobs	BP - By-Products	FT - Fertilizer
G - Grains	F - Feeds	CM - Chemicals
GT - Grits	S - Seeds	H - Hogs
		PP - Poultry/Poultry Products

Note: BGY = Barangay Trader; MUN. = Municipal Trader; PROV'L./REG'L. = Provincial or Regional Trader; TRD/SHP = Trader/Shipper.

Source: Interviews

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from the main trading centers, the rate of price decline and whether it was the beginning or end of the harvest period.

In General Santos, the corn millers, feed millers and trader/shippers did further drying for semi-wet or wet corn. Sometimes the latter mixed wet and dry corn before shipping it out of South Cotabato. The cracked, grits and fine form of milled corn were shipped and/or sold locally soon after processing. The by-products became feed ingredients for hog raisers. Bagged feeds were stored, transported and sold mostly in this area. Since shelling, drying, transporting, storage, and processing were critical physical functions in this commodity system, they will be explained and associated with factors affecting their performance.

"Shelling"

The two common ways to shell corn were by hand or machine. In the more interior areas where machines were not readily available, transportation costly and not easily available, and yields relatively low, farmers were more likely to shell by hand. For our sample nearer the farm-to-market roads, mechanical shellers were used. The mobile and stationary forms of mechanical shellers were prevalent. The "traveling" shellers were fuel powered, smaller in size and more economical for farmers. This type of sheller saved transporting bulky cobs of corn, could be operated by harvesting laborers, and the empty cobs were left in the field rather than near the home or shop. They were affordable for larger farmers and could become an additional source of income if rented to neighbors.

The more expensive, larger capacity "stationary" shellers were electric or fuel powered, positioned in the traders and/or hog raisers place of business, operated by a team of laborers, and required larger amounts of corn for economical use. Both types of shellers were designed, manufactured and sold by local entrepreneurs in Koronadal with skills in fabricating machines with a combination of new and scrap metal. The recent introduction of the double drum sheller (mobile type) should improve grain quality by reducing the amount of broken grains.

"Drying"

Sun drying was done by spreading the corn on mats, along paved roads, or on flat or rippled concrete drying floors. Most traders had the latter type of drying floors. Barangays with basketball courts allowed farmers to use them as driers. During the rainy season harvest, drying corn was particularly difficult, costly, and time consuming because higher moisture content required longer periods for drying, caused farmers delays in grain sales, resulted in more broken grains during machine shelling and increased storage losses from rotting and aflatoxin. Whenever farmers were unable (limited space or climate) or unwilling (labor scarcity or urgent need for cash) to dry their corn to an acceptable degree of dryness, the first handlers either reduced the buying price or imposed a large "resec" (weight discount) on the sacks of wet corn and then used their own facilities to redry the corn before selling it to others. Most traders discouraged farmers from selling "wet" corn, however hog raisers had more options for buying such corn because they could quickly convert it to hog feeds for immediate use.

The computed costs/losses for the farmers who sold corn in varying degrees of wetness and dirtiness (Table 5.2) indicated the approximate income opportunity loss from this poor quality. However, the severity and frequency of such losses varied markedly by location with farmers in Banga reporting a 20 - 25% loss due to this condition whereas in other locations it was more of an occasional phenomenon.

A total of eight mechanical driers were owned by traders in General Santos and Koronadal. A couple of relatively new trader/shippers operated comparatively large mechanical driers, some of which used dry corn cobs as fuel. These mechanical driers were comparatively more expensive to operate than solar driers and thus were usually reserved for emergency situations, such as whenever rainy days preceded the shipment of large quantities of grain.

"Transporting"

From fields near the roadside, trucks commonly hauled the sacks of corn, however, from interior fields accessed by narrow trails the carabao drawn sleds were preferred. From the barangays to the poblacion the farmers or small traders either bought space on passenger vehicles (tricycles, jeepneys, or buses) or hired cargo vehicles (jeepney, pick-up truck, or 6-wheel truck). For transportation to further destinations the full range of vehicles from jeepney to 10 wheel truck (20-25 m.t. capacity) could be hired, depending on the volume to be shipped and the destination. Larger traders were likely to own and operate their own trucks with some trader/shippers having a small fleet of trucks, many of WWII vintage.

"Storing"

Farmers usually stored limited quantities of corn for seed or later sale as "pocket money" but seldom as a strategy for earning higher prices after the peak harvest period. Their storage practice involved hanging the unhusked cobs of corn on racks within or near their house. Likewise the small traders seldom had sufficient working capital for long term storage whereas larger traders and hog raisers with warehouses stored corn and other commodities depending on their needs for working capital and speculation practices. Most storage of large scale amounts of grain for commercial purposes would last for no more than three to four months. The larger corn mills saved inventories for their own use while the smaller feed mills and hog raisers purchased some of the stock from larger traders during the lean months.

"Processing"

The four main types of participants who processed corn were; corn mills, feed mills, medium to large scale hog raisers, and starch manufacturers. A few rice mills operated a small hammer machine in addition to their rice huller. This was a service to farmers or backyard hog raisers or poultry growers who brought sacks of grain to grind for their animals. Smaller corn mills processed corn and sold most of the grits to local consumers whereas the larger millers, especially if

Table 5.2 Farmers' Income Loss Associated with Selling
Different Qualities of Corn

CLASSIFICATION	WEIGHT (KG./SACK)	WEIGHT DEDUCTION MADE/BAG	EFFECTIVE PRICE	GROSS VALUE (P/BAG)	INCOME (LOSS) PER DEDUCTION (P/BAG)

MOISTURE CONTENT					
DRY	15% BELOW	60	NONE	2.70	162.00
SEMI-DRY	16-18%	65	8 - 10% (OF TOTAL WEIGHT)	2.45	160.00 (2.00)
WET	19-26%	70	18-20% (OF TOTAL WEIGHT)	2.15	151.00 (9.00)
FOREIGN MATERIALS					
CLEAN	>97%	60	A) 1-5 KG OR MORE DEPENDING ON DIRT CONTENT	2.66 - 2.48	159.30 - 148.50 (2.70) (13.50)
DIRTY	<97%		B) REDUCE PRICE BY P.10-.20/KG.	2.60 - 2.50	156.00 - 150.00 (6.00) (12.00)
=====					

Formula used in computing for effective weight discounts and price

$$W1 (1-m c) = W2 (1-m c2)$$

$$W2 = W1(1-m c1)/(1-m c2)$$

Source : Extracted from trader interviews

part of a trader/shipper business, shipped the grits to Dumaguete and/or Cebu. The technologies used in corn milling have been passed down from generation to generation of millers with those from Cebu claiming to be the originators of the popular design. Originally, the machines were mostly of wood but today's version includes mostly metal. Most medium to large scale hog raisers ground their grain in their own hammer mill and fed it to their animals. Those with excess grain sold it as grain or feed to nearby animal raisers. Feed millers ground corn both for sale as cracked, grits, or fine corn to owners of fighting cocks or for mixing with other ingredients as "feed".

"Buying and Selling"

Besides the physical functions discussed above, the nature of the exchange function, especially buying and selling, has undergone substantial changes in the past few years. The increased rate of farmer defaults on loans from the traders testifies to the degree of change. This situation was attributed to a change in farmer attitudes, and was not due to hardships or natural calamities. Perhaps the availability of higher priced, sales opportunities outside the suki system was a causal factor, along with the change in the marketing system organization and operation. Thus, there was a need to assess the existing exchange arrangements.

The traditional trading practices have been organized according to a "disposal of surpluses" philosophy, i.e., sending to traders up the channel whatever quality came off the farm in excess of local demand. Those traders located nearest the end-users were responsible for distributing qualities according to end-users requirements at a "going price" and sending the sales value minus a commission back down the channel. This system was built on and operated through a close "trust bond" between those within the channel and included effective ways to sanction misconduct by those in the system.

However, today's market environment has become more dynamic and requires actively "marketing" corn within a competitive environment which has distinct quality preferences rather than assuming acceptance of whatever quality is on-hand. Formal contracts between buyers and sellers have become an important method of organizing trade.

Today's market is in the stage of transition between those two conditions. From the Manila demand area, formal trading arrangements, such as forward contracts, have become more frequent for Mindanao corn. The usual terms were 30 - 45 days before delivery for specified quality, quantity, and price. Experience with defaults and payments of penalties were more common with the longer term contracts of 60 days. Currently, this formal trading arrangement represented only a fraction of the total volume exchanged because the hierarchical network of traders still handled the bulk of trade. Although it was proposed that Integrators use such contracts for trial volumes with farmers groups, no such arrangement has been observed. Since assurances of prompt delivery and adequate quality have been conditions that experienced traders found extremely difficult to meet, it would be unlikely that dispersed farmers organizations would fair much better, especially considering the problems with inter-island shipping.

Given the ban on imports, one consequence of the transition between the traditional and future buying and selling practices was noted with the issue of poor quality of South Cotabato's corn. For example, corn suppliers said they had little difficulty disposing of poor quality corn, implying that there was a demand for such quality. However, Integrators accused their own suppliers of providing "poor quality" corn which was problematic for Integrators who had inadequate drying area and/or cleaning capacity in the Manila area. Yet, when other suppliers guaranteed good quality for a premium price (P 0.10/kg above the prevailing price) to cover additional procurement and cleaning costs, they received fewer orders for good quality corn over time. One argument was that there was such intense competition for limited supplies that other buyers would buy poorer quality rather than face shortages. Since livestock feed could include cheaper/poorer quality corn, that user of cheaper corn was in a position to expand his market share of meat (reduced prices of meat) at the cost of the Integrators who restricted procurement to only higher cost/good quality. Thus, the perceived short supply, the increased residual amounts of poorer quality (after good quality was milled into grits) and the absence of an adequate "incentive" seemed to be at the heart of the matter in the current exchange system regarding quality.

B. Support Services

There were several forms of support services provided to favored farmers, such as land preparation (disc harrowing), technical extension, price information, rental or free use of sacks, drying floor space, sheller rental, trucking, inputs on credit and cash advances for personal/family needs (Appendix 12). Most of these were methods to increase the trader's market share in a very competitive market. The two support services deserving special attention were market information and credit.

1. Market Information

Although farmers had several sources of information on market price, such as the NFA, farmers organizations, neighboring farmers, landlords, and traders, almost two-thirds of our respondents cited traders as the main source (Appendix 13). Provincial/regional traders as well as trader/shippers generally had access to radio transceivers and/or telephones with which to contact several buyers in the trading centers and then to pass on the information to others within their network or to whomever sold corn to them. However, in the supply areas there was no "unbiased" source of daily price information from the major trading centers in order for farmers to learn about the basic movement of prices as well as their levels.

Information on new production technologies came from the agricultural extension service and the hybrid seed companies. However, information on the comparative advantages of post-harvest technologies, such as different types/brands of shellers and engines, only came from their distributors and manufacturers. There were no impartial tests conducted by any public agency.

2. Credit

Credit arrangements were locally termed "KBL", i.e., "kasal, binyag, libing" meaning "wedding, baptism, and burial" or in other words, loans to farmers extended beyond production purposes to include various forms of personal and family needs. Some farmers viewed loans as a form of risk sharing. This facilitating function of financing, from relatives, input companies, farmers associations, hog raisers and/or local traders to farmers as well as from the larger traders to the smaller local ones, is illustrated in Figure 5.1. In 1986, banks and informal sources were the main sources of capital for the provincial/regional traders. The financing of input and/or cash advances for farmers' personal/family needs was the main form of support service provided by financiers. Regardless of whether farmers grew hybrids (Appendix 14) or non-hybrid varieties (Appendix 15), traders were the farmers' main financiers. However, the traditional sources of credit were rapidly disappearing.

The farmer-trader relationship had traditionally been termed a "suki" arrangement and represented a form of risk sharing. Likewise the trader saw this as a way to maintain market share while insuring repayment of loans outstanding and demonstrating that each was indispensable to the other. However, recently traders have been experiencing high rates of default. Since there have not been wide-spread, low yields due to poor weather, unusually high levels of debt, nor other form of serious social/natural calamity, traders attributed this phenomenon to a change in farmers' attitudes and perhaps a structural change in the marketing system. Now the loyalty of most farmers is not to any trader-creditor but to whichever trader pays the higher price (Table 5.3). One consequence was that some traders have written-off the bad debt and no longer finance any farmers. Thus, the previous hierarchies which large traders coordinated through financing have shrunk as spot market transactions replaced many of the farmer-creditor sales arrangements. And even where those arrangements were maintained, only a portion of the entire harvest was likely to reach the creditor whenever the "hunter/strikers" arrived in the field. This condition may have profound effects on longer term credit mechanisms and use of fertilizers in the future.

C. Behavior

When purchases of mold corn were observed at the municipal trader level, it was explained as a "common practice" of some large traders in General Santos who mixed poor quality with good quality corn prior to resale. Thus, "Why shouldn't we do it before selling to them?" was this trader's retort. Later interviews with several traders throughout South Cotabato provided the following range of reasons for accepting poor quality corn:

- a) traders accept whatever quality their farmers-debtors bring otherwise they may not be able to recover farmer debts,
- b) if a trader will not accept some poor quality along with good quality corn, farmers will go to others who will and thereby decrease this trader's market share,

Figure 5.1

FLOW OF CREDIT TO CORN MARKETING PARTICIPANTS

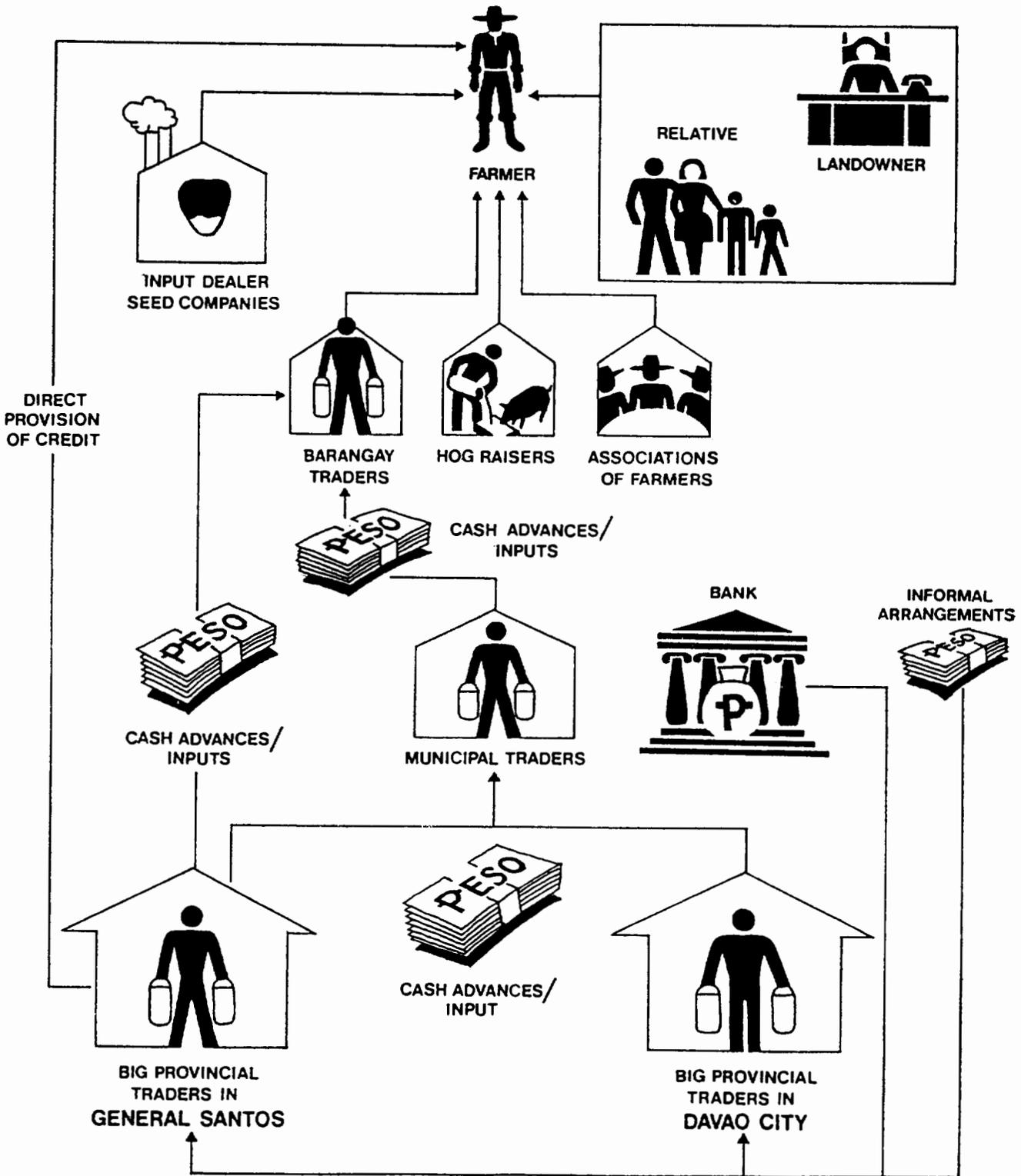


Table 5.3 EXPERIENCE IN FINANCING CORN FARMER BY TYPE OF TRADERS
AND TYPE OF LOAN IN SOUTH COTABATO - AUGUST 1987

TYPE OF TRADER	PROVISION OF PRODUCTION INPUTS								CONSUMPTION LOANS				REPAYMENT EXPERIENCE	
	SEEDS		FERTILIZER		PESTICIDE		CASH		IN KIND		CASH		REPAYMENT	REMARKS
	N	%	N	%	N	%	N	%	N	%	N	%	%	
Barangay N = 18	7	39	8	44	5	28	11	16	5	28	11	16	67	Traders are now carefully selecting & reducing the number of farmers to be financed
Municipal N = 33	9	27	13	39	6	18	19	58	5	15	17	52	77	Generally had bad experience in financing, thus, selecting and reducing farmers to be financed
Provincial/ Regional N = 11	3	27	3	27	1	9	3	27	0		4	36	-	Recovery not identified
								*						
								**						
T o t a l N = 62	19		24		12		35		10		32			
Percentage	3		39		19		58		16		52			

* = Cash payment directly to farmers and/or through farmers

** = Cash payment only through traders

Sources : Trader interviews

- c) larger traders, i.e., provincial/regional traders, who have no strict procurement standards and/or are in urgent need to fill pending contract/sales opportunities allow their suppliers to mix their inventory of poor quality corn in order to increase the volume supplied,
- d) traders with piggeries actually can use some of the lower quality corn by immediately processing and feeding it to hogs, and
- e) traders with corn mills process much of their good quality white corn into grits, then mix the remaining qualities and sell as grain.

There were cases of corporate traders maintaining strict quality standards, i.e., 98% purity level and 15% or less moisture content, by screening what they bought from farmers and/or used machinery to separate out the foreign materials. This indicated that the quality problem is manageable. Whereas many of the family firms gave weight discounts for poor quality but were not very strict in that regard. However, industry sources noted that those traders with better quality had not been able to gain additional contracts for the better quality which they procured nor to earn a premium to cover the additional costs. This might imply that the feed industry was not sufficiently worried about the quality issue at this time or quality undercutting was a preferred practice.

Another sign of non-price competition was the practice of certain traders to pay a "finders fee" to truckers who brought the farmers with their load of corn to General Santos. The truckers brought the farmer to these municipal traders, introduced the farmer to this buyer and helped convince the farmer that the buyer's price was reasonable. The truckers usually came back later to collect his commission. This commission meant less was paid to the farmer for his corn.

VI. ECONOMICS

The two main economic topics of concern are "prices" and "costs/returns". Price formation processes, as related to reference prices, price differences by season and location, and price behavior are explored in some detail. Due to the difficulties in obtaining adequate, reliable information and interpreting it for companies with multiple corn-related enterprises, such as corn trading, hog raising, corn milling, and transportation, the structure of costs and returns are examined, primarily at the farm level. The price dimensions will be considered before presenting information on costs/returns.

A. Pricing System

In section II of this report the macro price trends and patterns for the past several years indicated substantial declines in the real price of corn, especially during the peak harvest months; prices for domestic corn have remained higher than better quality imported corn; and in the Manila market yellow corn was priced higher than white corn during the lean months.

This section covers four basic aspects of the pricing system: 1) the price formation process, 2) price differences between locations, 3) seasonality of prices, and 4) price behavior. This analysis will attempt to maintain a system's perspective, distinguishing the differences in the general "macro" price conditions and responses by the individual firms (micro level). Instances of unusual behavior are explored, especially their implications for farm level transactions.

1. Price Formation

The discussion of price formation will be confined to the peak harvest, research period of July-August, 1987. Other periods usually involved sales out of storage and corresponded to periods of higher, less problematic, farm prices. The key sites in the marketing system which provided "reference prices" to which later transactions were referred, included: 1) the Manila-based prevailing prices (range) which primarily reflected "demand area" procurement by Integrators, large scale grain traders, and large hog/poultry raisers; 2) Cebu-based prevailing prices which included "demand area" procurement by corn millers, local feed millers, and a few large traders; 3) port trading centers nearest large "supply areas" around Mindanao, such as General Santos, Cagayan de Oro, and Davao; and 4) assembly-trading centers in or near Luzon, such as Pili in Bicol and Isabela in the Cagayan Valley.

The price formation process can be understood by identifying the prevailing market condition, i.e., a "buyers market" versus "sellers market" and looking from two main viewpoints; 1) the sellers perspective, i.e., beginning with farmers in the supply areas and moving forward to end-users, and 2) the buyers perspective, i.e., starting from the Integrators and other large scale buyers in the demand areas or end-markets and extending backwards to the farmers at the production level.

The market situation in which a transaction took place affected the price formation process. The two main situations were the "sellers market" and the "buyers market". The "buyers market" occurred whenever surplus amounts of corn

entered the market at one point in time, such as during the peak harvest period. In this case, sellers who searched for buyers were in a weaker bargaining position relative to buyers, such as the General Santos traders relative to Manila buyers in this situation. In other words, the Manila buyers "bid" price would be closer to the transaction price than the "offer" price of the suppliers.

The "sellers market" arises during the lean months when the inventories of end-users and their agents were depleted. This situation implied that the supply area traders or whomever had inventories would have a strong "offer" price as well as a good bargaining position. Normally, buyers made more profit in a "buyers market" and sellers earned more in the "sellers market". Traders confirmed that procurement contracts between large Manila-based buyers and the General Santos/Davao trader/shippers corresponded to two period-specific, sets of prices, i.e., the higher price range during the lean months (sellers market) and lower prices during the buyers market. However, given that scenario, if large scale imports were sanctioned, during the lean months, the traders in the supply areas who maintained stocks would lose much money.

From the sellers perspective everyone was searching for the highest priced buyer. For the corn farmer in South Cotabato, the prevailing price in the port trading center of General Santos was the reference price he referred to whenever selling to the local barangay/municipal traders (minus costs associated with transportation, transactions and quality variations). The farmer might accept or reject these traders' "bid price" which was made after examining the moisture content, degree of purity, and amount of broken grains. Some farmers preferred to sell to nearby commercial hog raisers who could support farmers with inputs on credit, paid slightly higher prices or accommodated lower quality than local traders.

Local traders searched among potential buyers for whomever was their suki and/or bid the highest price for the quality on hand. Municipal/provincial traders located in General Santos canvassed the largest regional traders or outside buyers for daily prices. The largest trader/shippers who shipped grain (and often grits) from General Santos looked toward prevailing "reference prices" in Cebu and Manila. They considered pending contracted volume/prices and stock on-hand/available, received price inquiries from outside and telephoned for information on prices in major markets, searched for or determined the arrival schedule of vessels for shipping grain, and finally determined the buying price of local competitors before quoting each day's selling price. A similar set of negotiations and information evaluation occurred in other port trading centers around Mindanao. If these traders also milled corn and/or raised hogs, the relative value of corn within those two enterprises must also be computed.

Sellers coming into General Santos could rapidly learn about prevailing prices by stopping at the "Coffee Shop" where several traders or their agents met every morning. These traders were aware of the prevailing prices in Manila and discussed the range of prices for the coming day's trading activities. The implications of this form of price exchange should receive further research attention.

From the buyers perspective, everyone was searching for the sellers with the lowest "offer" price for acceptable quality. During the early 1980s the Integrators heavily relied on imports, consequently they tended to continually compare domestic prices/quality to imports. Beginning in Manila and/or Cebu, the large scale users of corn (processors of feed, grits, starch, and the like) kept posted on prevailing prices and supply in each major trading port or nearby trading center taking into consideration quality differentials, transportation costs and availability, contractual commitments, inventory levels (about 2 months for large firms), and the like before bidding via select "buying agents" or directly to large suppliers. Sometimes buying teams traveled the circuit of trading ports and made agreements on price, volume, and specifications.

The larger regional traders determined the amount of grain needed and afforded, confirmed and probable selling prices, and market share arrangements before bidding for spot market grain and quoting slightly higher prices to traders/agents and/or farmers in their procurement network. If substantial changes in the buying price became necessary, traders/agents were immediately informed and given a few days of lead time to adjust their procurement price. Although credit outstanding was deducted from the total value of sales, that might not mean a lower quoted price, especially during tight market periods and/or fierce competition for limited supply.

The barangay/municipal traders quoted both prevailing price for spot market purchases and a somewhat higher price and/or provided additional services, such as providing a transport vehicle, sheller, and/or use of their bags for their suki. If prevailing farm level prices were higher than offered within their traditional channel, that information was quickly communicated to the higher level traders.

One situation which periodically caused noticeable distortions in farm level prices occurred when a large chartered vessel arrived but inadequate grain had been purchased to fill the ship. Brokers and/or certain traders sent hunter/strikers in small-medium sized trucks into the country side to pay farmers or barangay/municipal traders a cash premium of P0.05 - 0.10/kg above the highest local price. Thus, within hours the farmgate price increased, then dropped down again, causing confusion and broken agreements between farmers and this usual "suki" buyers.

At one point in time active buyers and prevailing prices in General Santos would vary by P 0.10 - 0.15/kg with increases from one type of buyer who paid a premium for better quality and another buyer who tried to rapidly fill the quota for a previous contract but had inadequate inventories; or decreases due to the withdrawal of a large buyer whose warehouses were fully stocked but no vessel was available to make delivery and a "buyer of last resort" who bought all amounts, even inferior quality, at a lower rate than other buyers. In other words, each firm's internal operations affected its bid price which in turn affected General Santos prices at that point in time.

"Organized/regular transactions" and "unanticipated/irregular transactions" are the two major types of market transactions which have had a substantial impact on price formation in General Santos. Organized transactions by trader/shippers in General Santos refer to their agreements to supply end-users on

a fairly consistent, planned basis or at least within normal channels. For example, one large trader had contracts with Manila-based feedmillers/traders, another had agents canvassing corn millers in Cebu, while another had sales contracts through its Cebu and Manila branch offices and one trading firm had an array of sales arrangements set-up before shipping its vessel loads of corn.

In the case of "unanticipated" transactions, large scale buyers periodically made unannounced buying trips to General Santos, contacted local brokers, and paid a somewhat higher price in order to attract corn sellers. If this transaction was urgent due to the impending arrival of a chartered vessel, the local brokers negotiated with municipal and provincial traders for some of their previously committed corn and also sent hunter/strikers out into the country-side to pay a premium price. The results of these incursions were not only rapidly fluctuating farm prices but also confusion in the orderly price formation process. Not infrequently, the trader/shippers had to delay promised shipments to their organized outlets because they and/or their network had depleted their stocks in order to respond to these "short run opportunities". This situation did little to encourage orderly marketing arrangements for the future.

2. Price Differences by Location

The two dimensions of locational price differences are: 1) locations within the "supply areas" whereby the bid prices decreased in relation to the distance from sources of grain, usually radiating out from General Santos or similar port trading centers considering (transportation and transaction costs and 2) distances between concentrated demand areas and dispersed supply areas. The price ranges of corn in early August at each juncture in the sample barangays, municipalities and trading centers are noted in Table 6.1. The pattern of highest prices at the demand centers and decreasing backwards to the trading center of General Santos and further to the barangays remained fairly consistent.

On September 21, 1987 at Cebu port the landed price of white corn grain coming from General Santos, Davao, and Cagayan de Oro was P 3.35, P 3.35 and P3.70/kg, respectively. These differences reflected not only transportation cost differences but also quality variation and preferences by the different end-users. This can serve as an indication of the relative price differences the buyer could expect in dealing with the major trading centers in the production areas at a given point in time. Yellow vs white corn, quality, prevailing demand/supply conditions and costs related to procurement all figured into the price differences.

3. Price Seasonality

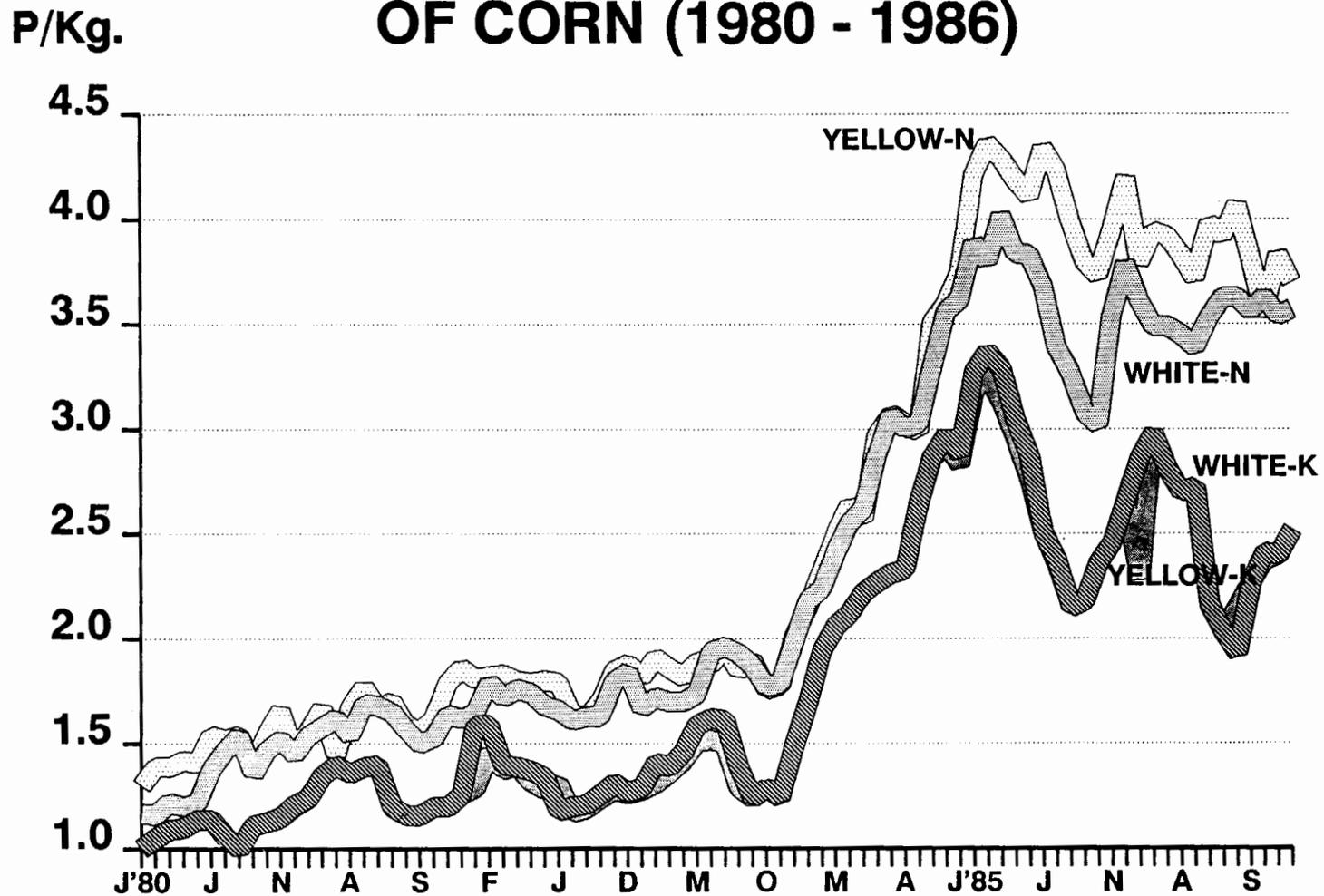
Since 1985, the seasonality of corn prices in South Cotabato has been fairly regular with the lowest prices during the peak harvest period of July - September and highest during the lean months around January - March (Figure 6.1). Also the harvests around March - April caused another dip in prices. This corresponded to the seasonality at the national level. The main important point is the widening spread in prices since 1984 with a steadily decreasing farm price during the peak harvest period and very high prices during the lean periods. This pattern clearly

TABLE 6.1
ILLUSTRATIVE ESTIMATE OF CORN PRICE DIFFERENTIALS
PER TYPE OF PARTICIPANTS, EARLY RAINY SEASON
AUGUST 1987

		<u>Transaction</u>		<u>Prices</u> (P/kg)
Manila-based	-Integrators	buy	@	3.50 - 3.60
Cebu-based	Corn-Miller	buy	@	3.30 - 3.40
South Cotabato	-Trader/Shipper	sell	@	3.30 - 3.60
		buy	@	2.70 - 2.80
	-Municipal/ Provincial Trader	sell	@	2.70 - 2.80
		buy	@	2.50 - 2.60
	-Barangay Trader	sell	@	2.50 - 2.70
		buy	@	2.40 - 2.45
	-Farmer	sell	@	2.40 - 2.70
	-Local Hog Raiser and Feed Miller	buy	@	2.50 - 2.65

Note: These price ranges reflect the values of clean and dry corn originating within trucking distance of buyers in South Cotabato.

Figure 6.1
NATIONAL & KORONADAL WHOLESALE PRICES
OF CORN (1980 - 1986)



Source : National Food Authority for National Prices and Bureau of Agricultural Statistics for Koronadal Prices

avored the end-users/speculators who stored corn and harmed the majority of corn growers, especially those who must plant at the same time whenever the rains arrived and harvested during the peak season.

4. Price Behavior

Recent events have raised questions regarding the pricing behavior of those who needed "feed grain". One large corporate trader in the supply area paid farmers and barangay traders a premium price for fairly dry/clean corn while refusing to purchase poor quality corn. Initially this trader depended on contracted sales to cover the additional costs incurred. However, soon the large scale end-users were "unwilling" to pay a premium for good quality citing competitors use of poor quality as "adequate" for feed purposes. Consequently, this innovative firm lost millions of pesos and had to reduce enforcement of quality specifications.

Another pricing anomaly was to periodically find a farm level price that was higher than the prevailing price in General Santos. This situation occurred whenever small aggressive traders who were outside the trading network of any particular regional trader used the previous day's reference price in General Santos when searching for farmer sellers. In the meantime, the reference price suddenly dropped. One consequence was that such a trader had to mix cheap, poor quality corn with his recent purchase in order to not incur a loss. Another effect was to heighten the farmer's belief that his financier's bid price on that same occasion was unrealistically low with the intention of taking advantage of the farmer. The uninformed buying practices of some aggressive traders might help explain why trader/financiers in some locations had more serious problems with debt recovery than in other places.

The supply area reputation for poor or good quality also affected the pricing behavior of large buyers. For example, some large buyers use "zonal pricing" which meant a lower bid price for corn coming from General Santos due to its reputation for lower quality corn. At a given point in time, the Cebu corn millers and traders would usually bid a higher price for corn supplied by Davao traders due primarily to quality considerations relative to that paid to General Santos traders.

Farmers responded not only to the prevailing prices but also found non-price incentives, such as the provision of sacks, transportation, and/or credit, to be important considerations in the selection of a buyer. Yet, even after committing his harvest to a trader in exchange for those incentives, some felt no qualms in "pole-vaulting", i.e., selling a portion of the harvest promised to the financier to others (hunters/strikers). Price expectations are a crucial point for transaction with Filipino farmers, more so than expectation regarding weights or measures used.

B. Costs and Returns

In this section, data on the types and magnitudes of costs associated with growing hybrid versus non-hybrid varieties of corn will be analyzed before deriving the costs incurred in distributing corn through the system. In both cases,

the data were indicative of the types of costs incurred and their general magnitudes related to the processes and practices of marketing participants in the system.

1. Production Costs

In an effort to substantiate and measure some of the problems expressed by farmers who grew hybrid versus non-hybrid varieties of corn, the team collected a small sample of production cost figures for the major types of varieties on a case study basis. Characteristics of the sample farmers included farm sizes ranging from 1 to 6 hectares, all but two farmers planted their entire farm in corn during the first cropping, all were owner/cultivators, harvested and sold their crop in August, and used family labor for part or all of their corn production activities.

The samples consisted of 4 hybrid corn growers and 6 growers of non-hybrid varieties from several barangays (Tables 6.2, 6.3 and 6.4). Although there was variation between samples, the following patterns were noted according to a comparison by variety and the structure of costs, i.e., expenditures per type of cost. The cash costs for growing hybrid varieties were always P 1,000-P 4,500/ha higher than for planting non-hybrid varieties. The largest cash cost was for fertilizer. Hybrid corn growers spent from P 1,520 - P 2,666/ha on fertilizer compared to the P0 - P 1,230/ha that non-hybrid corn growers spent on fertilizer. Usually seed cost was the second largest cash cost for materials. Hybrid seed cost ranged from P800 - P920/ha. Farmers using other varieties kept seed from last season's harvest or paid up to P 56/ha for non-hybrid seed. Pesticides were applied only when necessary which was more common for the hybrid corn growers.

For hybrid varieties, the "breakeven price", i.e. price to cover the total costs per kilogram of output ranged from P1.42-2.00/kg. during normal weather conditions. For the hybrid corn grower who experienced a drought reduced yield, that price was P7.06/kg. to cover his costs per kg. of output. Whereas for non-hybrid corn growers, the breakeven price ranged from P0.92/kg. to P1.65/kg. with good weather.

Yields varied considerably by location. In barangay Lamba the hybrid yielded about 490 kg/ha more than the non-hybrid, in Lambuntong it was 425 kg/ha higher yielding, and in Kipalbig the hybrid yielded over 2,200kg/ha more. However, under the drought conditions experienced in Naci, the non-hybrid variety gave 1,120 kg/ha higher yield with the hybrid corn farmer losing over P2,400/ha in cash whereas that non-hybrid corn grower earned over P 3,200/ha above cash costs. From a price perspective, price differences were not substantial except for one case of a hybrid corn grower earning a higher price. That situation was not due to the variety of corn.

Although acknowledging that the sample was small and indicative rather than representative, the emerging patterns for hybrids are higher cash costs, susceptibility to greater yield loss or higher cultivation costs during adverse weather or high incidence of pests, and greater demands on financial assistance to share the risk of unexpected losses due to occasionally poor harvests. These

TABLE 6.2
COMPARISON OF COSTS & RETURNS PER HECTARE FOR THREE NON-HYBRID CORN GROWERS
DURING RAINY SEASON IN BARANGAYS MALALAG COGON, UPPER MAINIT, AND KIPALBIG, SOUTH COTA
AUGUST 1987

ITEM	CASE 1		CASE 2		CASE 3	
	(P/HA)	(%)	(P/HA)	(%)	(P/HA)	(%)
CASH COSTS						
1. LAND PREPARATION	244	10.50	240	10.68	540	14.78
2. SEEDS	51	2.19			45	1.23
3. FERTILIZER			520	23.13	773	21.16
4. PESTICIDES					400	10.95
5. LABOR	90	3.87	340	15.12		
(1) SUB-TOTAL	385	16.56	1100	48.93	1758	48.12
NON-CASH COSTS						
(2) SUB-TOTAL	811	34.88	506	22.51	1065	29.15
TOTAL PRODUCTION COSTS	1196	51.44	1606	71.44	2823	77.27
PRE-MARKETING COSTS						
1. HARVESTING	543		642		446	
2. SHELLING	360				129	
3. DRYING	115				129	
4. TRANSPORTATION	111				127	
(3) TOTAL PRE-MARKETING COSTS	1129	48.56	642	28.56	831	22.73
TOTAL CASH COST (P)	1514		1742		2589	
(PRODUCTION & PRE-MARKETING)						
TOTAL COST (ALL COST)	2325	100.00	2248	100.00	3654	100.00
GROSS RETURN	5796		1932		5525	
NET RETURN:						
(CASH COST)	4282		190		2936	
(ALL COST)	3471		-316		1871	
BREAKEVEN PRICE:						
(CASH COST)	P0.60/KG.		P2.07/KG.		P1.17/KG.	
(ALL COST)	P0.92/KG.		P2.68/KG.		P1.65/KG.	

SIZE OF FARM (HA.)	3.00		1.00		3.50	
CORN AREA (HA.)	3.00		1.00		2.75	
TENURIAL STATUS	OWNER		OWNER		OWNER	
YIELD (KG./HA)	2520		840		2210	
HARVESTING TIME	AUGUST		AUGUST		AUGUST	
SELLING PRICE (P/KG)	2.30		2.30		2.50	
REASONS FOR LOW YIELD			DROUGHT			

TABLE 6.3
COMPARISON OF COSTS & RETURNS PER HECTARE FOR THREE NON-HYBRID CORN GROWERS
DURING RAINY SEASON IN BARANGAYS LAMBA, LAMBUNTONG, AND MACI, SOUTH COTABATO
AUGUST 1987

ITEM	CASE 4		CASE 5		CASE 6	
	(P/HA)	(%)	(P/HA)	(%)	(P/HA)	(%)
CASH COSTS						
1. LAND PREPARATION	300	11.10	460	13.74	270	14.29
2. SEEDS	60	2.22	56	1.67	50	2.65
3. FERTILIZER	1170	43.27	1230	36.73	504	26.67
4. PESTICIDES						
5. LABOR			510	15.23		
(1) SUB-TOTAL	1530	56.59	2256	67.37	824	43.61
NON-CASH COSTS						
(2) SUB-TOTAL	532	19.67	120	3.58	375	19.84
TOTAL PRODUCTION COSTS	2062	76.26	2376	70.95	1199	63.45

PRE-MARKETING COSTS						
1. HARVESTING	642		315		394	
2. SHELLING			150		105	
3. DRYING			148		105	
4. TRANSPORTATION			360		87	
(3) TOTAL PRE-MARKETING COSTS	642	23.74	973	29.05	691	36.55

TOTAL CASH COST (P)	2172		3229		1515	
(PRODUCTION & PRE-MARKETING)						
TOTAL COST (ALL COST)	2704	100.00	3349	100.00	1890	100.00

GROSS RETURN	6653		6734		4750	
NET RETURN:						
(CASH COST)	4481		3505		3235	
(ALL COST)	3949		3385		2860	
BREAKEVEN PRICE:						
(CASH COST)	P0.78/KG.		P1.34/KG.		P0.80/KG.	
(ALL COST)	P0.98/KG.		P1.39/KG.		P1.00/KG.	

SIZE OF FARM (HA.)	2.50		1.00		6.00	
CORN AREA (HA.)	2.50		1.00		2.00	
TENURIAL STATUS	OWNER		OWNER		OWNER	
YIELD (KG./HA)	2772		2405		1900	
HARVESTING TIME	AUGUST		AUGUST		AUGUST	
SELLING PRICE (P/KG)	2.40		2.80		2.50	
REASONS FOR LOW YIELD						

* Sold as cobs
Source : Interviews

TABLE 6.4
COMPARISON OF COSTS & RETURNS PER HECTARE FOR FOUR HYBRID CORN GROWERS
DURING RAINY SEASON IN BARANGAYS KIPALBIG, LAMBA, LAMBUNTONG, AND NACI, SOUTH COTABATO
AUGUST 1987

ITEM	CASE 7		CASE 8		CASE 9		CASE 10	
	(P/HA)	(%)	(P/HA)	(%)	(P/HA)	(%)	(P/HA)	(%)
CASH COSTS								
1. LAND PREPARATION	540	7.60	350	8.24	280	4.96	280	5.09
2. SEEDS	910	12.81	800	18.83	920	16.30	840	15.26
3. FERTILIZER	1760	24.77	1590	37.42	2666	47.24	2211	40.18
4. PESTICIDES	1440	20.27					1150	20.90
5. LABOR	90	1.27			510	9.03	250	4.54
(1) SUB-TOTAL	4740	66.72	2740	64.49	4376	77.53	4731	85.97
NON-CASH COSTS								
(2) SUB-TOTAL	660	9.28	836	19.68	479	8.49	475	8.63
TOTAL PRODUCTION COSTS	5400	76.00	3576	84.16	4855	86.02	5206	94.60
PRE-MARKETING COSTS								
1. HARVESTING	1290		673		310		180	
2. SHELLING	258				174		39	
3. DRYING	70				188		39	
4. TRANSPORTATION	87				117		39	
(3) TOTAL PRE-MARKETING COSTS	1705	24.00	673	15.84	789	13.98	297	5.40
TOTAL CASH COST (P) (PRODUCTION & PRE-MARKETING)	6445		3413		5165		5028	
TOTAL COST (ALL COST)	7105	100.00	4249	100.00	5644	100.00	5503	100.00
GROSS RETURN	11700		7205		6627		2535	
NET RETURN:								
(CASH COST)	5255		3792		1462		-2493	
(ALL COST)	4595		2956		983		-2968	
BREAKEVEN PRICE:								
(CASH COST)	P1.43/KG.		P1.14/KG.		P1.83/KG.		P6.45/KG.	
(ALL COST)	P1.58/KG.		P1.42/KG.		P2.00/KG.		P7.06/KG.	

SIZE OF FARM (HA.)	6.00		3.75		1.00		1.00	
CORN AREA (HA.)	6.00		3.75		1.00		1.00	
TENURIAL STATUS	OWNER		OWNER		OWNER		OWNER	
YIELD (KG./HA)	4500		3002		2820		780	
HARVESTING TIME	AUGUST		AUGUST		AUGUST		AUGUST	
SELLING PRICE (P/KG)	2.60		2.40		2.35		3.25	
REASONS FOR LOW YIELD							DROUGHT	

* Sold as cobs
Source : Interviews

patterns corresponded well with the types of problems expressed by farmers, especially considering the implications of low prices during the peak harvest season.

2. Marketing Costs

The two sets of "marketing costs" were the farmer's harvest/post-harvest costs, including drying, shelling, and transporting his grain and the trader's costs for post-harvest activities, storing and distributing the grain to end-users. The former set of information comes from the farmer interviews and the latter was gleaned from key informants and discussions with traders.

At the farm level the costs for harvesting, shelling, drying and transporting the harvests varied relative to the yield, size of the field, and proximity of the field to roads. For the sample, those costs ranged from P 297/ha with a yield of 780 kg/ha to P 1,705.50/ha for a yield of 4,500/kg.

Land-based transportation costs varied by location and mode. For example, in mountainous areas of Malungon a trip from the farm to poblacion by horse cost farmers P 10-12.50/sack. Whereas in the fairly level areas of Banga the trader would send his truck to pick-up his suki's harvest for a charge of only P 0.10-0.15/kg (less than P8/sack). If the farmer had his corn shelled and dried at the trader's place, transportation was free.

The costs associated with moving the corn from the farm to end-users outside of the province centered around land and sea transportation. The transportation costs for trucks coming from the sample poblacions and going to General Santos were P 0.15, P 0.11, P 0.10, and P 0.05-0.10/kg from Surallah, Banga, Malungon, and Tampakan, respectively. Cargo charges from the port in General Santos to Dumaguete or Cebu wharf were between P 0.22 - P 0.224/kg by tramp vessels and to Manila port were reported as about P0.25/kg by containership or P0.29/kg by tramp vessel. However, other sources quoted P0.50-0.60/kg. port to port for tramping vessels. This latter figure is more likely given the condition of the shipping industry. The tramping vessel was used far more frequently than the former due to availability and competing types of cargo preferred by the container vessels.

Labor charges for the 2 - 4 times of loading/unloading sacks of corn were commonly P 0.25/sack but varied by location and/or size of the trader. For instance, small aggressive traders in Koronadal would pay extra amounts per sack and thereby lure the full-time laborers away from the bigger traders, thus leaving them short of labor during the peak period. An implication of repeated sacking and re-sacking of grain as well as multiple loading and unloading with each change in location/ownership was the spillage and losses of grain in transit.

Whenever hunter/strikers were sent to find corn, they paid P 0.05-0.10/kg. higher than prevailing price and earned a P 0.10-0.15/kg. commission on the volume collected.

Other less evident but real costs involved commissions paid to agents and/or drivers. For instance, it was reported that commissions paid to drivers/agents from Surallah to General Santos could cost P 0.07/kg and from General Santos to Cebu P 0.20/kg. Considering those explicit costs as well as margins for each transaction and the commonly recognized pilferage at each port as well as accounting for shrinkage, weight discounts, and quality deterioration due to "mixing" along the way, the total costs for the grain procured in interior barangays and delivered to the buyers warehouse or facility in Cebu could reach P 0.80 - 0.90/kg and in Manila P 0.95 - P 1.10/kg. For grain originating near General Santos, that cost would be reduced by P 0.10 - P 0.15/kg.

An important cost consideration for traders in the demand areas was that basic transportation and handling costs did not decrease substantially for shipments of low quality corn grain which meant a net loss from arrivals of poor quality grain unless the purchase price was sufficiently depressed to compensate both for the quality factor and the additional costs for drying and/or cleaning the poor corn before using it. Thus, South Cotabato's reputation for supplying poor quality would naturally put downward pressures on General Santos prices during any negotiation.

VII. INFRASTRUCTURE

The main dimensions of infrastructure for the corn system include; sea routes, roadways, post harvest facilities, and communication facilities. In this case, transportation has required special attention due to the distance of South Cotabato from major demand areas for corn and the repeated references to problems with sea shipments. Road networks were fairly well developed in this province, especially in terms of all-weather highways radiating out from General Santos City and linking it with large towns and cities in the region, such as Koronadal and Davao. Storage facilities and post-harvest facilities, such as drying floors, were available but in need of expansion and improvement.

South Cotabato is located at the southern tip of the Philippines and has a major port in General Santos through which consumer and capital goods come into the province and from which agricultural commodities are shipped. Since sea-going vessels provided the primary form of access to the major markets for agricultural commodities, this section begins with an overview of the local shipping industry, then examines the road network, storage and drying facilities, and communications facilities.

A. Shipping

General Santos has three ports: one national (Makar Wharf) and two private ports, i.e., one owned by DOLEFIL and the other by General Milling Corporation. The Makar Wharf can accommodate four vessels at a time but still used bag loading for corn. The port of the General Milling Corporation can accommodate only one vessel but was equipped with a bulk-loading spout, large front end loaders to handle the grain, drying floors, and trucks which reduced its loading and unloading costs far below those at the national port. General Milling's ownership and operation of bulk-handling vessels further increased its efficiency and reduced its costs. Perhaps that helps explain why it handled the largest share of corn shipped from General Santos.

The large, Manila-based Integrators began using a form of bulk loading, i.e., manually unloading bags of grain from trucks, stacking them onto pallets for fork lifts to position over the cargo hold and then emptying each bag into the storage holds.

Two types of vessels handled cargo at the national port, the container/container-passenger vessels which had regular shipping routes and the trampers, including bulk, break bulk and barge types. Although the containerized cargo vessels charged less to carry corn grain, data from the NFA indicates that they hauled only about 5% of corn shipments whereas the tramping vessels handled 95%. Not only did relatively few container vessels regularly call at General Santos but they also practiced "shut outs" for corn grain because of its relatively low value compared to other possible cargo. In other words, corn was hauled on a "last resort" basis when no other cargo was available.

During the peak harvest period beginning in July, the lack of vessels within the 1,500 - 2,000 m.t. capacity range for hauling corn, was a well recognized problem with several implications for farmers and traders alike. The minimal

seasonality of cargo movements from the port (Figure 7.1) contrasted sharply with the extreme seasonality of corn harvests and demands for large shipments early in the harvest period. Thus, a large trader/shipper held thousands of sacks full of corn for extended periods while waiting for available vessels. During that time the trader reduced his buying price and became a less active buyer because his working capital was tied up in the inventory and there was little storage space remaining. With fewer active buyers in the market, prevailing prices tended to decline and farmers owing him credit tended to earn lower prices at that time. This set of interrelationships should be carefully documented in order to estimate their impact on prevailing prices and farmer income. A summary of key points regarding the shipping industry relative to corn shipment from South Cotabato is given in Attachment 2.

B. Road Network

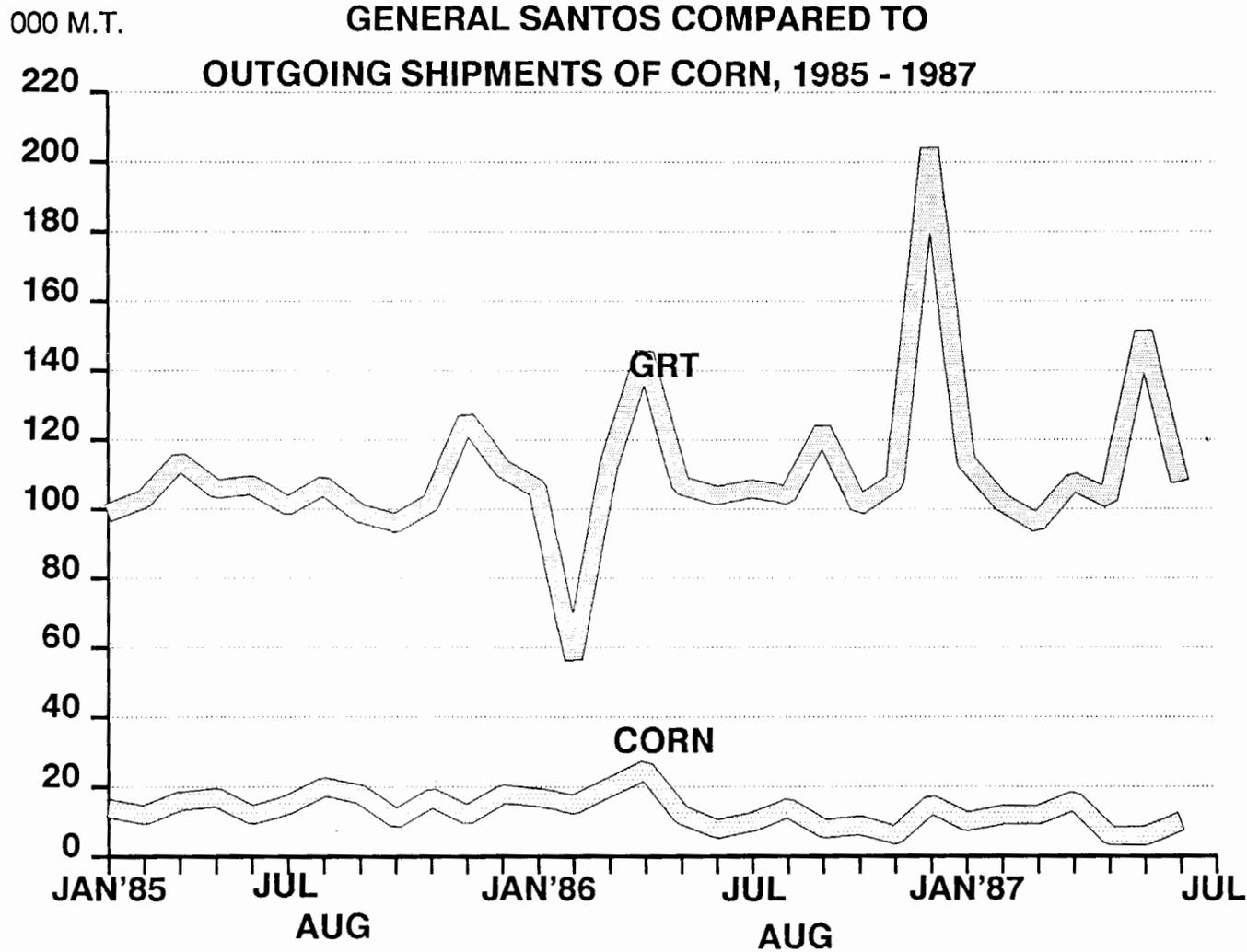
The access to markets and the prices paid were highly dependent on the local road network. The main all-weather roads were the backbone of South Cotabato's network (Figure 7.2). Farm-to-market roads were generally made of dirt or gravel and covered all of the major corn producing areas, but remained in varied degrees of repair. Roads extending into the interior hills of Upper Mainit became almost impassable during the rainy season, thus horses were used to transport the sacks of corn from the farm to the roadside or poblacion.

The modes of transportation varied by location, distance traveled, volume hauled, terrain, and proximity to the poblacion (Figure 7.3). For short distances within the barangays and/or towns, small volumes were commonly hauled over fairly level terrain by carabao sled or motorized tricycles, i.e., motorcycles with an attached carrier. This was particularly prevalent for sitios near their poblacion in Banga. For a similar set of conditions but over mountainous terrain for interior barangays horses carried 2 sacks of corn per trip from the farm to an assembly area.

For hauling moderate volumes longer distances beyond the barangay but within the municipality, the Ford Fieras, jeepneys, jeeps and trucks were used on fairly level terrain. However, for hilly terrain and over paths or narrow roadways, a "weapons carrier" was hired. And for long distance, large volumes of 5 or more metric tons, the six-wheeler and ten-wheeler trucks were commonly used by the larger traders. It was interesting to note that large volume but short distant transportation from the General Santos warehouses to the ports as well as some inter-municipality trips were made by fleets of trucks of WWII vintage. This aging fleet of trucks may soon need replacement, especially if increased efficiency is expected.

During the team's travels throughout the province, two observations were peculiar, i.e., the poor condition of the road linking the productive fields of Tampakan to the main highway and the impassable bridge linking General Santos to the Makar Wharf. Both conditions seemed unusual in that repair time and costs should have been minimal compared to the benefit from reduced transportation costs and prompt movement of corn, yet these conditions have persisted for sometime.

**MONTHLY GRT OF VESSELS DOCKING AT
GENERAL SANTOS COMPARED TO
OUTGOING SHIPMENTS OF CORN, 1985 - 1987**



Note : GRT - Gross Registered Tonnage
Sources : Philippine Ports Authority and
 National Food Authority, General Santos

97

108

Figure 7.2
TERRAIN & ROAD NETWORK
RELATIVE TO GENERAL SANTOS, SOUTH COTABATO

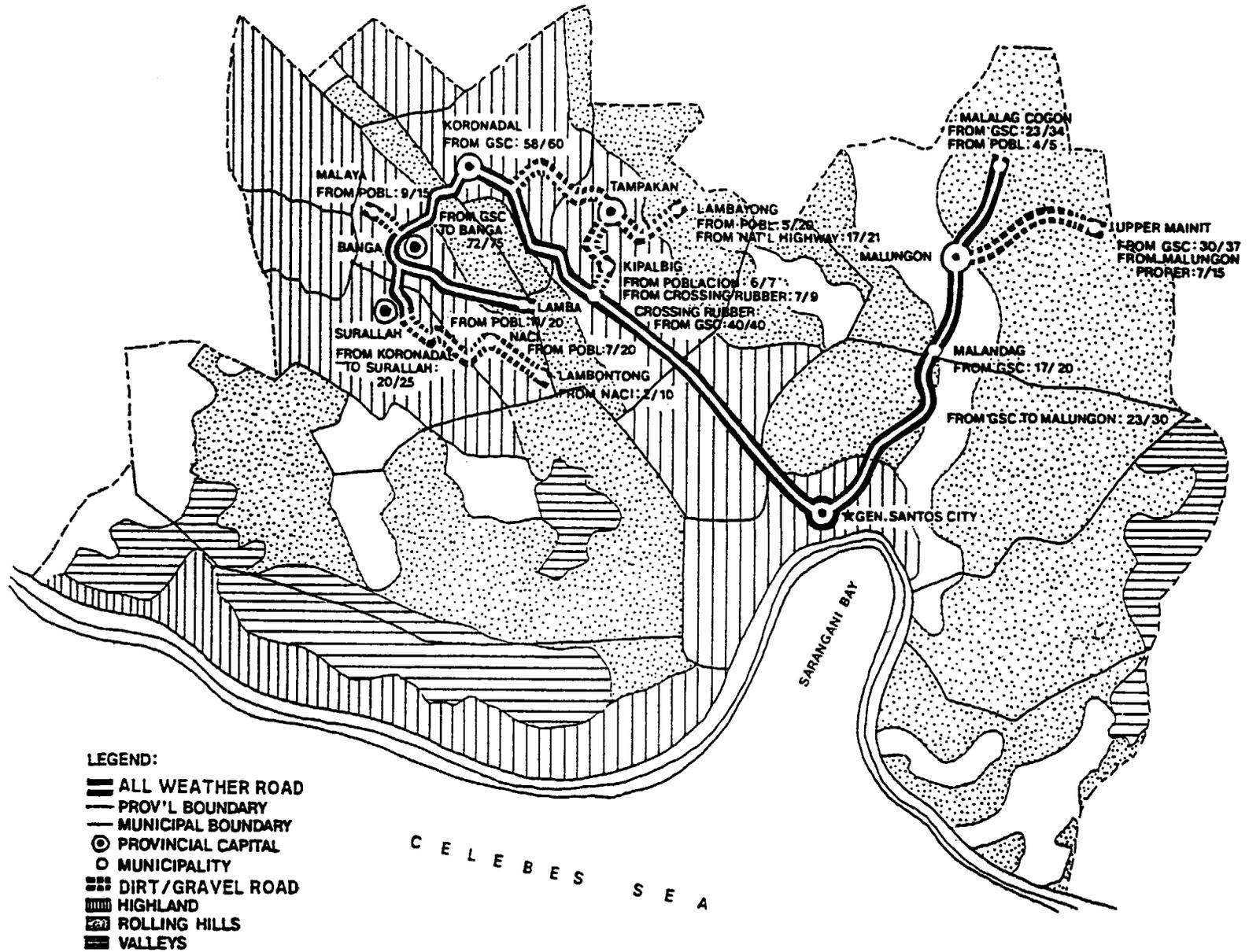
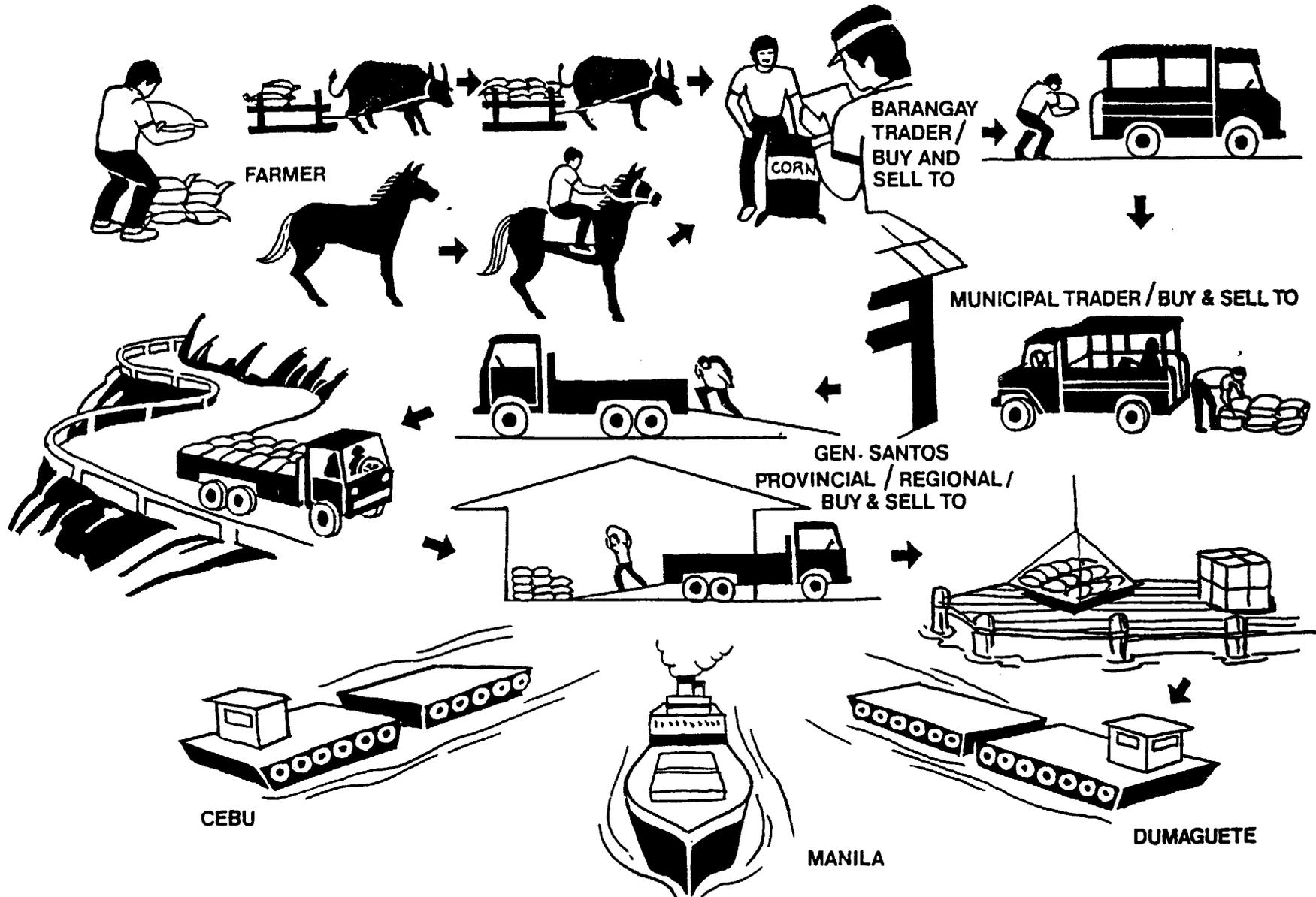


Figure 7.3

MODE OF TRANSPORTATION WITHIN AND FROM SOUTH COTABATO



C. Post-harvest Facilities

Storage facilities varied in their availability and use according to one's position within the marketing system. At the farm level, less than 10% of our sample farmers stored any corn at all, primarily because of their immediate need for cash and limited storage space. In the distribution system, the small volume, rapid turnover, scarce working capital, and limited storage space of barangay traders meant minimal, if any, storage unless the traders was integrated into other enterprises, such as sari-sari store operation and animal raising. Municipal, provincial, and/or regional traders had different sizes of storage capacity and funds to maintain the inventory, but in general, those integrated into hog raising, poultry growing, and/or corn milling stored larger amounts for their use as well as sale. Those who were trader/shippers held large volumes for extended periods because of their financial capabilities, warehouse facilities and market contacts. Their basic pattern was to rapidly turnover the early procurement before storing purchases made in the later part of the season, thereby continually replenishing working capital until less was needed for procurement. Unfortunately, the inadequacy of ships sometimes disrupted that trading/storage pattern, thus forcing extended, unintended storage with consequent shortages of working capital, limited storage space, and sometimes the temporary withdrawal from the market.

Among post-harvest facilities, shellers merit attention, especially since the number, capacity and efficiency can directly affect the degree of foreign material in the sacks of shell and corn. The NFA data for 1986 gives the number of units (capacity) within the following municipalities: Banga-36 (1,248 sacks); Koronadal - 29 (1,091 sacks), Surallah - 22 (610 sacks) and Tampakan - 12 (312 sacks). Average capacity per unit was 35, 38, 28, and 26 sacks, respectively.

Solar driers, i.e., flat or rippled concrete drying floors, were owned by most traders in Koronadal and General Santos. For example, in Koronadal a total 56 solar driers had a capacity of 21,070 sacks of 60 kilograms each, in Tampakan there were 17 with a total capacity of 7,320 sacks, in Banga 58 solar driers with a capacity of 11,850 sacks and in Surallah 29 had a combined capacity of 9,750 sacks, according to the NFA statistics. Yet, during the peak harvest period, the demand for those driers far exceeded their capacity, especially if the weather was cloudy. Even the additional capacity of the eight mechanical driers owned by General Santos and Koronadal traders was insufficient during certain rainy periods.

D. Communications

The telephone, telegraph and telegram facilities were accessible and fairly reliable for the General Santos traders who regularly contacted and were contacted by their buyers. None of the traders mentioned this as a serious problem, even though there was limited access at the poblacion levels.

VIII. INSTITUTIONS AND POWER

In the Philippines, both public and the private sectors have institutions with substantial influence on the performance of the corn system. The Department of Agriculture and the National Food Authority are the public sector agencies with substantial influence on the corn system whereas a wide range of associations vocally expressed the views and perspective of the private sector interests.

A. Public Sector

Unlike prior periods, the Department of Agriculture (DA) had no large scale programs to promote, finance, or support corn production in South Cotabato during the rainy season harvest of 1987. The Expanded Yellow Corn Production Program (ECP) was no longer implemented in this area. However, the Bureau of Agricultural Statistics continued to collect relevant production and price information to be sent back to the Central Office in Manila for use in policy formulation. A few DA staff were widely recognized and knowledgeable about the corn system from the farmers perspective.

The National Food Authority (NFA) was involved in a wide range of activities which affected the corn system in several ways. Its major mandate was to support a farm price of P 2.90/kg, especially during the peak harvest period. However, it could not maintain that price due to such factors as the limited amount of funds available to actually buy corn and the several hurdles/procedures that farmers encountered before selling to the NFA, such as the distance from the farm to the warehouse, a passbook as proof of being a "farmer", and delays in payments by check. Among the other roles were data collection and compilation at key junctures in the system, such as quantities of grain and grits shipped out of the ports in General Santos each month; number and capacity of post-harvest facilities (including millers) in the province/region; and estimates of production. NFA also commissioned and participated in various studies, unfortunately these were difficult to find.

As the previous importer of feed corn and the current importer of important feed ingredients, such as soy meal, the NFA has continued to have good access to information on the operations and structural changes taking place in this feed milling industry. Prior to the 1986 ban on imported feed corn, the NFA was responsible for and benefited from the large scale imports of feed corn for distribution to feed millers.

The role and impact of the NFA on the corn milling/grits industry was not investigated as thoroughly as warranted although various problems arose from that role. Previous regulations on retail price control of grits in Cebu reportedly caused serious problems for corn millers who could no longer out-bid feed millers for white corn during the lean months because of the retail price ceiling on grits as enforced by the NFA at that time. This was an excellent example of the adverse impacts on one part of the system (grain procurement) because of regulations imposed on another part (retail prices). Regulations at the consumption level, in terms of a retail price ceiling, adversely affected the processors ability to meet the

consumers demand requirements (quantity and quality) and yet remain in business. This and related activities of NFA raised unanswered questions about its most effective role.

Unfortunately given the complex program and staffing transition that the NFA was undergoing and the limited time available to the RMA team, the detailed analysis of the objectives, program, and impacts of the NFA could not be undertaken, though warranted.

At the farm level several questions were raised about an institution which was a subsidiary of the NFA, i.e., the Philippines Crop Insurance Corporation. That Corporation insured crop production according to carefully specified time periods which corresponded to the least risky periods. Unfortunately, the vagaries of micro-climate per location did not always allow farmers to plant exactly on schedule due to insufficient or irregular rains. However, when the rains finally came and the farmer planted, the insurance would not cover any losses for that late planting period. From the farmers perspective, why pay to insure during periods with no risk while from the corporation's perspective, how to survive as a company if thousands of farmers collect on losses incurred during high-risk periods? This program deserves a careful reevaluation if it is designed to really help farmers.

B. Private Sector

A vocal set of institutions whose activities and policies were directly affecting the entire corn system, included the Manila-based associations, such as the Philippine Association of Feed Millers (PAFMI), the Philippine Poultry Industry Association (PPIA), the Confederation of Rice and Corn Millers Association of the Philippines (CONFED), the Philippines Livestock and Poultry Development Foundation, Philippines Association of Hog-Raisers, Inc. (PAHRI), the Philippines Swine Producers Association (PSPA), the United Swine Producers Association, (USPA) and the Philippine Chamber of Commerce and Industry (PCCI). Likewise, at the regional level Chambers of Commerce and associations, such as the Millers Association of Cebu, were engaged in various industry-related activities. There did not seem to be any lack of organizations representing the various interest groups within or related to the corn system. These institutions not only represented their members in the national debates on imports, the shipping industry, and the agricultural policy but also were valuable sources of information on the conditions within their respective industries. Although the affect these institutions on the national debates would offset on the corn situation and growers in South Cotabato, these institutions were not within the scope of this study.

C. Forces within the System

The "rules of the game" governing markets are political as well as economic in nature and often reflect important social/ cultural relationships. The RMA is meant to include pertinent aspects of this "power" dimension as time and resources permit and the situation warrants. In this case, a few factors merit recognition

because as the underlying conditions change, policy makers and business leaders are better able to predict what decisions to make and understand the consequences of that change.

Assertions by key informants indicated that localized confrontations with the New Peoples Army and related unrest have caused local residents in previously prosperous, hybrid corn growing areas to flee without harvesting their crops. Now the new arrivals have to revert to the low cost, open-pollinated varieties in case that situation should occur again, due to the high risks of extortion, traders in several barangays of one municipality left the area while others had to move into the poblacion to continue trading. Consequently, farmers lost income when forced to find alternative ways to dispose of their crops.

The team could not find key informants to explain why over the past decades only one large corn trading company owned a local dock with a bulk loading capability. Some referred to the "black box" of the local power structure. Unfortunately, few seemed to attach much importance to the potential benefits for local traders and farmers if such facilities were more widely available.

The research environment was quite active in South Cotabato as can be seen from the list of public and private sector research stations (Appendix 16).

IX. PROBLEMS AND CONSTRAINTS

The identification and diagnosis of problems will be approached from three perspectives in order to assess their seriousness, probable impacts, and need for prioritization. First, the descriptive analysis will list problems cited by respondents within each horizontal level of the system, i.e., production, distribution, processing, and consumption levels. Then, problems that inhibit or adversely affect the vertical flows of commodities, information, and money through the marketing system will be identified. And finally, problems that prevent the effectiveness and progressiveness of the system will be specified.

A "problem" can be defined as "an existing situation, event or behavior which differs from one's expectations in an unacceptable way". Thus one's occupation/experience may influence his/her decision regarding important problems. Not infrequently, what an agronomist considers as the "problem" in a farmer's field (say low yield) the farmer may consider less important than something else (say low price)! Similarly, a problem can be interpreted differently depending where one stands; a farmer complains of low prices for his harvest while the buyer justifies low price while pointing out the poor quality harvested and sold. Consequently, one must be clear who considers something a problem, why it is so, and what are some of its probable consequences. For instance, low prices during the peak harvest period may be a signal by the "market" to reduce this season's harvest rather than perpetuate this level of harvest. Thus, low prices may not be a problem from the "market's perspective".

Similarly, one should recognize that a "constraint", i.e., limitation, may not present a serious problem today but may later become very crucial. For example, a port's constraint or limitation to handle only 50 m.t. of agricultural commodities a day is no problem until two to three times that amount suddenly arrives and must be loaded during the peak harvest period.

In this section problems will be examined as; a) expressed by the relevant types of participants at each level in the system, b) related to the commodity, information, and money flows through the system, and c) associated with the effectiveness and progressiveness of the system. Causal and associated factors will be explained as far as possible.

A. Production Level

The main problems noted at this level related to the type of corn planted by the farmer as well as site specific problems. The four major problems stressed by corn growers as a group are ranked as follows:

- * low price during the peak harvest period,
- * lack of post-harvest facilities,
- * limited financing available for production, and
- * recent drought of 1986/87.

Beyond those problems, the hybrid corn growers ranked the high costs of hybrid seed, fertilizer, and pesticides and low yields under the recent drought conditions as important (Table 9.1). Whereas the growers of non-hybrids only added the problem of strong winds causing lodging during windy periods.

A summary of the problems, under what conditions they occur, and implications helps clarify the farm level situation.

<u>Problem</u>	<u>Under what condition</u>	<u>Implications</u>
Low farm price of corn	Mainly in peak harvest months of July-August	Difficult to cover cash costs and earn adequate income if cultivating only corn
Inadequate drying facilities	Primarily for 1-2 months of peak harvest during the rainy season (Aug. - Nov.)	"Wet" corn has lower recovery rate during mechanical shelling, spoils when stored, has high level of aflatoxin, and leads to mixing with good quality to avoid loss.
Unexpected dry spells	During planting period	Delays planting and extends harvest into low price period and/or unfavorable weather period which means reduced yields
	During growth period	Severely reduces yields of non-drought resistant hybrids. Costs of land preparation and inputs cannot be recovered
High costs of seed	Only for hybrids (P 650 - P 840/sack)	Limits number of growers and increases exposure to cash losses. Encourages dependence on traders for financial support
Limited financing for production	Poorer farmer trying to grow hybrid varieties and/or farmer alienated local traders	Means lower yield than expected from hybrid varieties. Increases exposure of farmers to serious debt problems (cannot share risks if crop failure)
Heavy incidence of diseases and insects	Mainly for hybrids	Increases cash costs for disease and insect protection. Reinforces need to cultivate in most appropriate season and least risky locations.

TABLE 9.1
 PROBLEMS ENCOUNTERED BY HYBRID CORN FARMERS IN SELECTED BARANGAYS, AUGUST 1987

Problems	Malungon			Tampakan		Banga		Surallah		Total
	Malandag (N=4)	Malalag Cogon (N=7)	Upper Mainit (N=4)	Kipalbig (N=7)	Lambayong (N=9)	Malaya (N=10)	Lamba (N=5)	Lambun- tong (N=5)	Naci (N=5)	
Low Price at Harvest	3	7	4	1	4	6	4	4	4	37
Lack of Post-harvest Facilities	1	3	1	3	2	4	3		2	19
Drought		2		5	3	2	1			13
High Input Costs	2	1	1		2	2			4	12
Lack of Input Finance		3	1		1		3	2	2	12
Pests/Diseases	1	1		2		1	1	1		7
High Hybrid Seed Costs	2	1			1	1		1		6
Unfavorable Climate		2				1	1			4
Weeds		2		1					1	4
Transportation Costs			1			2				3

Source: Farmer Interviews

Another major group of respondents at this level are the hybrid seed companies who emphasized:

- * the small size of the hybrid seed market compared to the output capability of these companies,
- * the increasingly high costs of research, seed multiplication, and distribution in such a small seed market, and
- * inconsistent government policies affecting the corn sector, such irregular imports of corn grain.

This industry's reaction to these problems has included aggressive changes in their seed distribution strategy, i.e., now direct sales to traders and large farmers rather than the former restriction to authorized dealers. Since some traders were actively providing financial support to farmers during the past few seasons, there was indications of an upturn in hybrid seed sales for the first season of 1987, following two consecutive years of declining sales.

B. Distribution Level

The most frequently cited problems for traders as a group were in this order:

- * intense competition, both among themselves and from outsiders, such as, the hunter/strikers,
- * low rate of credit recovery,
- * lack of working capital, and
- * lack of driers during the rainy season, (Table 9.2).

However, it is important to recognize that the much larger number of barangay and municipal traders skewed that ranking toward their problems. The problems that traders encountered varied by location as well as type and size of business. Thus, it is important to disaggregate the problems. For instance, from a locational perspective, the frequency of problems cited by barangay and municipal traders outside of General Santos varied markedly;

- * the insurgency problem was only noted by the traders in Malungon Proper (80%),
- * lack of capital was especially important to traders in Malalag Cogon (100%) and in Tampakan (67%),
- * competition from the NFA was cited only by Tampakan traders (67%), and

Table 9.2 Problems Cited by Location of Corn Traders in South Cotabato

PROBLEMS	MALUNGOW N=15	TAMPAKAN N=6	BANGA N=12	SURALLAH N=6	KORONADAL N=6	TUPI N=2	GENERAL SANTOS		TOTAL FREQ. N=64	PERCENTAGE %
							Mun. Buy & Sell N=9	Prov'l/ Reg'l. Buy & Sell N=8		
Intense Competition	5	4	1		3	2	7	1	23	36
Low recovery of debts	5	2	3	1	3	1	2		17	27
Lack of Capital	4	4	1	1	1		2	1	14	22
Lack of dryer	6	2	3				1		12	19
Poor quality (wet corn, dirty)	1		1	1	2		4	1	10	16
Price fluctuation	4		2				1		7	11
Big traders dictating price of corn		2	1					3	6	9
Lack of sheller	4	1							5	8
Vessel/Lack of botton					1		1	3	5	8
Insurgency	4								4	6
Unfavorable climate condition	3		1						4	6
Lack of labor								3	3	5
Poor road condition	2								2	3
Lack of storage	1	1							2	3

Source : Interviews

- * municipal traders in General Santos (45%) cited "poor quality" the second most frequently after intense competition. In other words, several problems have features that were distinctly locational in nature.

Field observations and interviews verified that there was a common trader practice of "mixing corn", i.e., adding wet to dry and/or dirty to clean corn before selling to larger traders. Yet, as long as several large traders condoned and/or had this practice, it was expected to persist.

At the provincial and regional levels of trade, the General Santos provincial/regional traders more frequently stressed problems with the "buyer side" of their business;

- * lack of vessels/bottoms (37 1/2%) and
- * big traders dictating the price of corn (37 1/2%).

They also had problems with their "internal operations" during the peak trading months due to the seasonal shortage of laborers. In other words, problems varied by the size, location and nature of the trading business.

Consequently corrective action should be designed with those factors in mind. For instance, if it were decided to provide traders with funds to construct more driers and/or overdraft accounts for traders' working capital needs during the harvest period, it is clear that barangay and municipal level traders should be targeted rather than the very large traders. On the other hand, if methods to improve access to vessels were being considered, it is the trader/shippers who should be consulted and given priority attention.

Intense competition among traders at the barangay level can have a detrimental and beneficial side while affecting the progressiveness and effectiveness of a commodity system. On the one hand, farmers appreciated and benefited from the higher sales price and cash payments, in the short run. Yet, on the other hand, farmers became confused by and resentful of their suki's lower price bid during the time that the outsider came and offered a higher price. Farmers may not have understood the suki's costs associated with providing inputs nor the pricing agreement made with a larger trader who lent him capital in exchange for promised corn during the harvest period. Consequently, the arrival of the outside trader with a higher price may have seemed to be an opportunity to solve income problems, yet may have become an even larger problem in the next season when the farmer searches for a financier for his cash inputs. Traders who experienced farmer defaults or received no corn as promised may no longer provide inputs on credit and reduced rates for various support services to which the farmers have become accustomed.

Likewise, excess competition may contribute to the problem of "dirty corn" In an environment where prices fluctuated on a daily basis, a smaller trader did not always know that the General Santos prices had dropped, and thus paid farmers too high a price in an effort to bid corn away from others. Then reverted to mixing poor quality (cheap) corn with his high cost corn in order to avoid losing money! This scenario was suggested more than once by larger traders.

The "lack of capital" problem requires clearer specification in terms of whether it was primarily working capital for increasing corn purchases and/or investment capital for improved post-harvest facilities. Likewise, further investigation and careful analysis were required because limited capital was common to small traders almost by definition. If they had "sufficient" capital it was unlikely that they would remain small traders. And if all small traders received large amounts of additional capital at the same time, there would not be enough commodities for all of them to purchase. Thus, there would be short run price increases, very narrow margins, and some business failures for whomever misjudged the quality procured or losses occurred as a result of the increased effort to buy more.

C. Processing Level

In the General Santos area, the small feed mills were concerned about competition from outside feeds and the limited local demand for feeds, especially since commercial hog raisers processed their own feeds. Local corn millers rarely cited any problems.

In Cebu, the lack of vessel on the routes between General Santos and Cebu, the poor quality of corn (dirty) from General Santos, intense competition between Cebu corn millers and millers in the corn supply areas, and the participation of NFA in the market were the major problems cited by the respondents. This latter problem regarding the NFA had several dimensions, for example during the lean supply months of January to March, NFA milled corn through authorized millers and sold grits in the market. It also distributed inferior quality rice and grits at prices lower than commercial grits. NFA sold grains to feed millers but not to corn millers because the former reportedly offered better prices. From the millers' perspective, this active participation of NFA was distorting the market and causing serious problems.

Feed mills outside of General Santos complained of the inferior quality (too much foreign material) and the lack of vessels which caused delays in shipments from General Santos. These firms seemed to display an apprehension of paying "too much" for corn grain, especially relative to large competitors who could then lower their selling price for meats and capture more of that market. Rumors regarding supply conditions during the harvest season and the actual buying prices of competitors often made it difficult for such companies to make informed decisions on pricing and procurement policies.

D. Consumption Level

Hog raisers in South Cotabato cited problems crucial for the livelihood and expansion capacity of the industry in this province. Although most problems occurred in transit or at the demand areas, their implications for the health and value of South Cotabato's hogs clearly affected raisers in this supply area. The stronger this industry in South Cotabato, the greater will be the value added to local corn production. The major problems were:

- * excess shrinkage in live hog weight due to the delayed arrivals of the vessels in the Manila port, and
- * broker system in Manila inhibited direct price negotiations with prospective buyers.

The problems voiced by the Integrators included:

- * unpredictable supplies of raw materials caused irregular operations of milling and meat processing operations,
- * insufficient supplies of corn during the lean months induced unscheduled slaughtering of thousands of animals,
- * receiving shipments of moldy corn or accepting dirty corn, in order to fill a load before leaving the port in General Santos,
- * paying storage fees in General Santos while searching for charter vessels at a "reasonable rate",
- * searching for new sources of imported feed substitutes for corn, only to have them banned, and
- * contending with labor unions.

E. Vertically Interlinked

As can be noted from problems experienced at each level, there were important vertical interrelationships. In other words, problems within the shipping industry adversely impacted on the traders to move his commodities and the end-user's ability to plan and efficiently operate his business which often meant losses which were passed back to the farm level in terms of lower prices. Poor quality of corn coming from the farm level and mixed by the traders in the supply areas caused spoilage in transit which again created losses for the shipper or end-user who in turn must pay less for future deliveries. Inadequate or untimely information on supply and demand conditions prevented policy makers from making informed judgments regarding the timely need for imports while rumors about those conditions forced prospective end-users from actively bidding up prices early in the season when farmers could most benefit. These and several other examples can be cited to illustrate that what happened at one level of the commodity system was caused by or impacted on an entirely different set of marketing participants. Consequently, the agenda for action and research provided multi-faceted responses to the priority problems.

AGRICULTURAL MARKETING ASSESSMENTS: AN OVERVIEW

BY Merle Menegay

I. What is a Marketing Assessment?

An agricultural marketing assessment is an inter-disciplinary approach to analyzing the organization, operation, and performance of agricultural commodity systems. It is designed to describe a commodity system; to diagnose its technical, economic, and institutional problems; to prescribe alternative strategies, projects, and policies to improve system performance; and to predict likely consequences of implementing these alternative prescriptions. The assessment is organized as a phased research process (Table 1) and is typically implemented on a regional level.

II. Why is it needed?

The complexity of market organization and operations, the large numbers and spatial distribution of participants in production-distribution-processing-consumption systems, and the unanticipated, yet substantial, impacts of such outside forces as: a) weather, b) government policies, and c) projects, are among the reasons why agricultural marketing research is difficult. Likewise, problems in such marketing systems tend to be inter-related and change form in response to dynamic demand and supply conditions. Problems also vary by location and may differ according to whose perspective one considers, thus making it difficult to anticipate implications or consequences of market interventions. The commodity systems orientation of the assessment is an attempt to operationalize market research techniques in a systematic fashion when dealing with the aforementioned difficulties.

III. Who is involved in a marketing assessment?

Three main groups are involved in an assessment; those commissioning it, those implementing it, and the participants in each commodity system.

Ministries of Agriculture and/or Commerce, frequently in conjunction with a donor project, initiate an assessment for a wide variety of reasons. Such assessments are needed in designing a marketing component of a project, in determining promising activities or market interventions, or in providing information to assist policy makers.

University research units, divisions of the appropriate Ministries at the regional/national levels, and market research specialists generally form an inter-disciplinary team to implement the assessment. The inclusion in the team of action-and research-oriented professionals at the regional level is a key feature of this approach.

Private entrepreneurs (i.e. wholesalers, retailers, processors, transporters, assemblers, farmers, etc.) and public sector personnel from various agencies, organizations, and institutions who participate in the commodity system are involved in an assessment. They are not only sources of information but also contribute insights, suggest courses of action, and comment on the practical feasibility/desirability of alternative interventions which the assessment suggests are potentially useful.

IV. What is considered in an assessment?

The marketing assessment draws on the structure-conduct-performance paradigm as used in subsector studies. The concept of a subsector is defined as a "meaningful grouping of economic activities related vertically and horizontally by market relationships". This commodity systems orientation is adapted to and operationalized for the data scarce, research environment of developing countries. Chart 1 illustrates the systems approach with its vertical array of participants who are influenced by an institutional and policy environment and depicts the spatial dimensions of agricultural production-distribution-processing-consumption systems as well as indicates potential entry points for marketing improvements. Marketing improvements can result from technological, infrastructural, institutional, and organizational changes within the system.

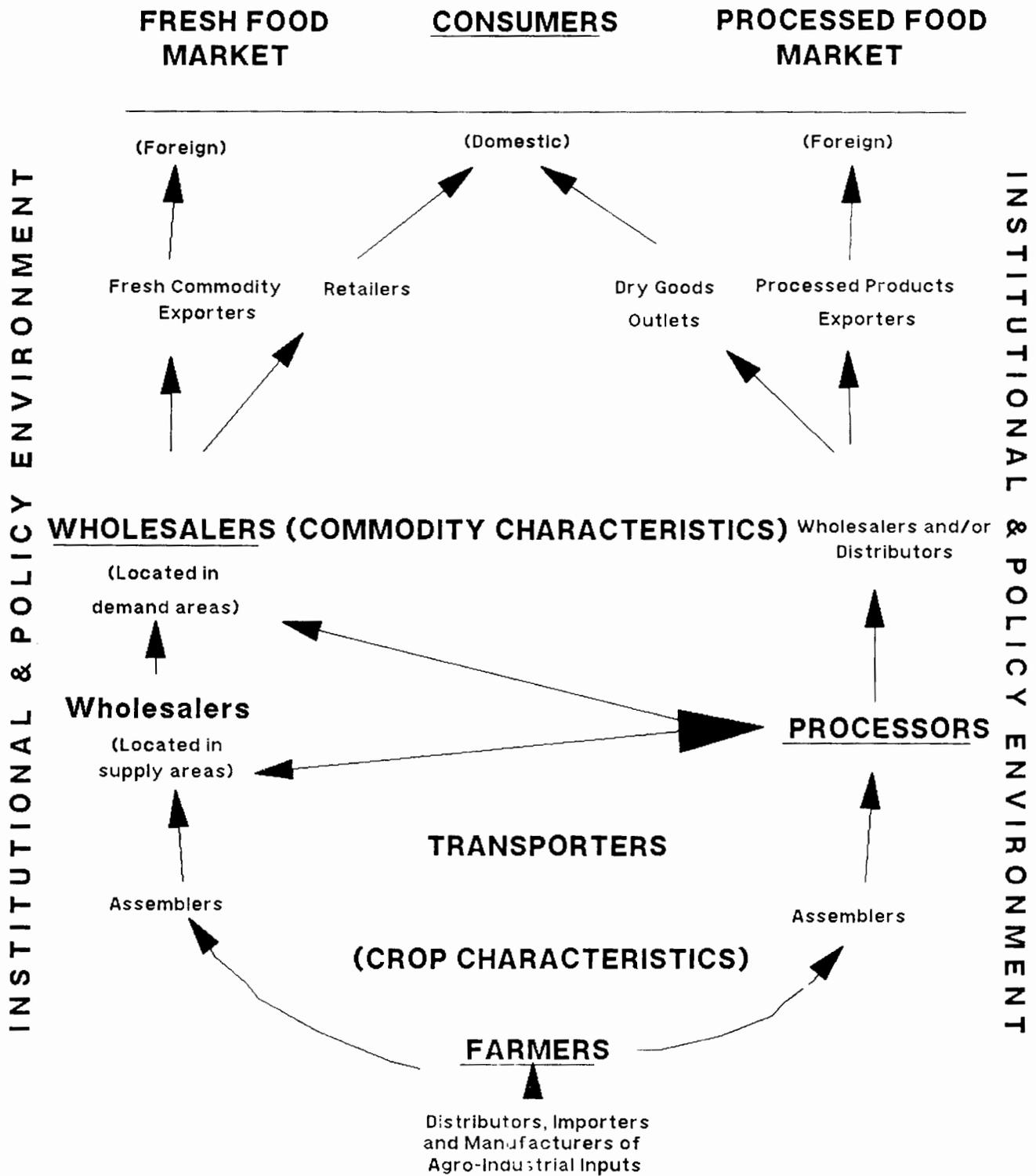
The assessment wheel (Chart 2) highlights the major components of the analysis. During Phase II the research team considers the technical characteristics, demand patterns, market organization/operation, spatial network and economic aspects in a sequential order as it develops an overview of the commodity system and identifies its problems. The infrastructure, institutions, and socio-political power aspects affect system performance and are described as encountered. In Phase III the research team focuses on the components most directly relevant to the priority problems determined from Phase II but also reviews the implications of the less relevant components in light of the alternative solutions emerging from this research.

The framework for Marketing Assessments (Chart 3) identifies the sequence and nature of the reports during each step of the assessment. The written outputs are complemented by the expanded expertise of the research team which internalizes considerable knowledge, understanding and skill as well as serves as a valuable resource for future research. Other features of the Marketing Assessment are noted in Chart 4.

Table 1.
Phased Research Design and Implementation

<u>Phase</u>	<u>Objective</u>	<u>Sources of Information</u>	<u>Outputs</u>
I	Develop, a) country profile as <u>context</u> within which the market operates and b) target crop/commodity profile as the <u>content</u> of the market	Existing secondary data and previous studies	Report based on data tabulation for which analysis of trends patterns, and inferences are summarized.
II	Develop; a) an overview of the commodity system, b) identification of major problems & constraints, and c) design for Phase III	Interviews with key informants, market participants, and government agencies combined with field observations	Report providing; a) overview of the marketing system, b) statement of market performance expectations, c) identification of problems, and d) initial orientation to Phase III analysis.
III	Focus on longitudinal examination of the most problematic components of the system so as to design prescriptions for market participants	Combination of primary and secondary data collection and analysis (including case studies, surveys, and delphi technique, as needed)	Report explaining; a) insights into major problem areas and recommendations of alternative strategies, project ideas and/or policy guidelines, and b) review of results and recommendations selected and programmed.
IV	Incorporate monitoring and evaluation person within the programmed activities from Phase III	Collection of primary data during the process of implementing prescriptive measures	Feedback to implementors regarding corrective actions, impacts, and unforeseen implications of prescriptions.

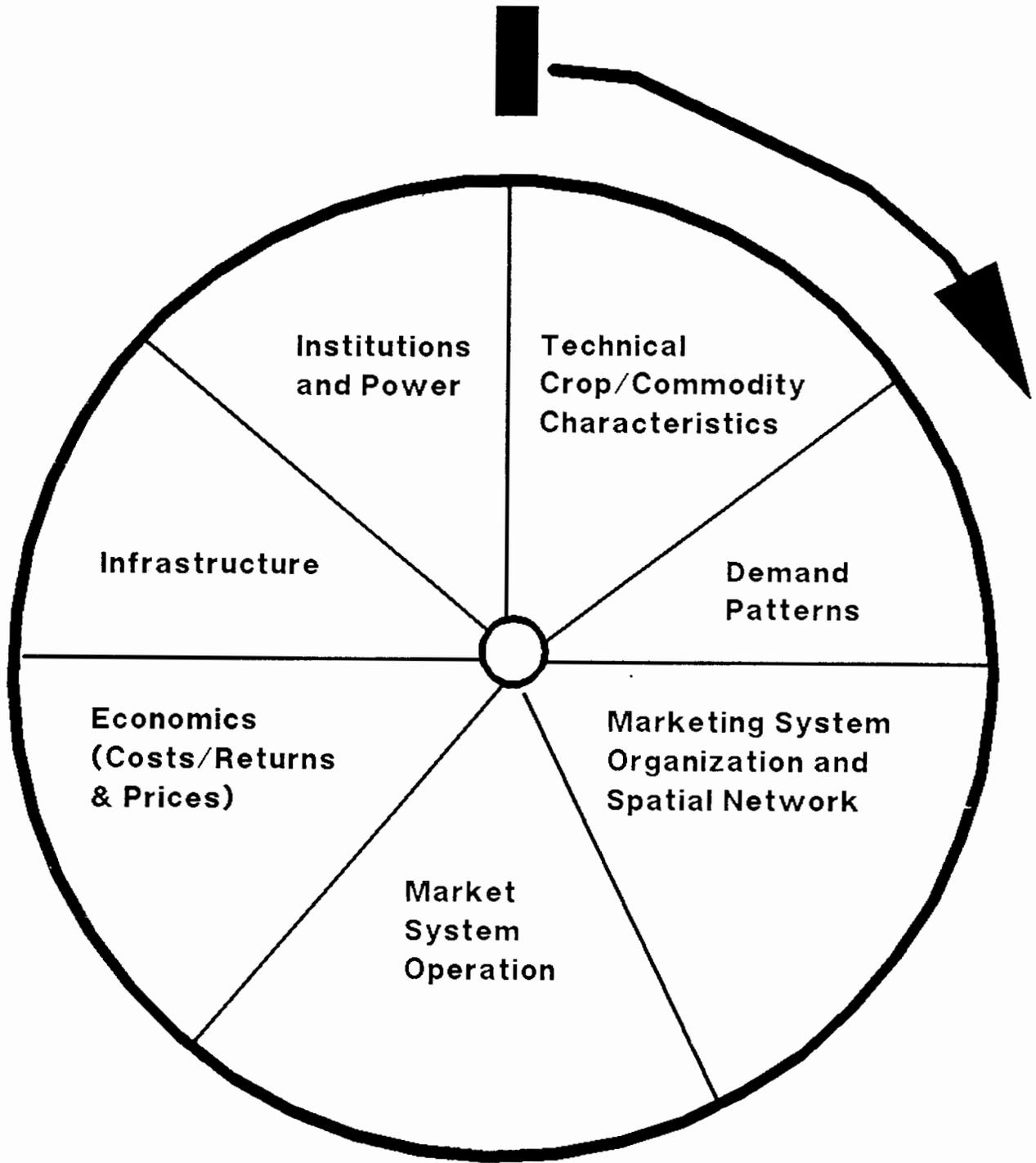
CHART 1. ILLUSTRATION OF SYSTEM PARTICIPANTS IN AN AGRICULTURAL PRODUCTION-DISTRIBUTION-PROCESSING-CONSUMPTION SYSTEM



1/16

CHART 2

ASSESSMENT WHEEL



**CHART 3
FRAMEWORK FOR MARKETING ASSESSMENT**

	<u>Phase I</u>	<u>Phase II</u>	<u>Phase III</u>	<u>Phase IV</u>
<u>Time Frame</u>	1-2 mo.	2-3 m.	12 mo. +	Indefinite
<u>Objective</u>	Background information	System overview Problem ID + Diagnosis Design In-Depth Analysis	In-depth research on priority problems	Monitoring+ evaluation of corrective action and policies
<u>Approach</u>	Synthesize information from existing studies according to the guide- line tables	Use a "commodity team" in a rapid appraisal of the commodity system from farm to end-user	Conduct surveys, write case studies, and/or use the delphi-technique	Review the planning, implementation and impact of corrective action and policies as implemented
<u>Data Source</u>	Secondary data	Primary data	Primary and secondary data	Primary data
<u>Output</u>				
Report size	15-30 pages	15-20 pages/com	20-40 pages/Working Papers	2-3 pages/Monitoring
Content	Tables, graphs, maps Interpretation of patterns and trends	Tables, charts, maps & text according to Assessment Wheel	5-10 pages/Progress Reports Tables, charts, maps, & text of analysis Review of Assessment Wheel components appro- priate to problem	Briefs
<u>Involvement</u>	Local university or institution	Ministry of Agriculture and other agencies Local university Marketing consultant (Review committee)	Same groups as Phase II plus "specialists" appro- priate to problem area	Principal investigators of the commodity team

Since the assessment is undertaken as part of an ongoing donor project, the resources and mandate to implement proposed changes are available for immediate action. Thus, rather than being an isolated activity producing reports that are only put on the shelf, the assessment leads to specific actions or changes.

V. What outputs can be expected?

The complete assessment should provide:

- 1) A framework and analytical techniques useful for diagnosing marketing systems problems,
- 2) Analysis of commodity systems as the basis for project ideas, corrective actions, and policy initiatives which are designed to address priority problems within the relevant systems, and
- 3) Improved knowledge and understanding of the behavior, role and interrelationships of the system's participants based on empirical findings.

**Chart 4
Features of Marketing Assessments**

<u>Feature</u>	<u>R e s e a r c h P h a s e</u>			<u>Implementation P h a s e</u>
	I	II	III	IV
A) Effort Exerted;				
- Intensity	Low	High	Medium	Low-High
- Personnel	Few	Several	Few - Many	Few
- Relative Cost	Minimal	Moderate	Limited - Substantial	Minimal
B) Time Periods;	1-2 mo.	2-3 mo.	12-15 mo.	Indefinite
C) Written Output;	1 Report	1 Report	Progress Reports	Monitoring Briefs
			Working Papers	
D) Expertise Involved;				
- Senior	1	1-2	1-3	1
- Junior	1	Few	Several	1

APPENDIX 2

INSTITUTIONAL DIMENSIONS OF THE RMA IN SOUTH COTABATO

		REGIONAL LEVEL			:	NATIONAL LEVEL				
		DA	USM	PS	:	PCCI	AAP-PMO	NAFC	USAID	SARSA
I.	TECHNICAL DIMENSIONS (CONSULTANTS)				:					X
II.	TRAINING				:					
	A. CONDUCTED BY				:	X				X
	B. ATTENDED BY	X	X	X	:	X		X	X	X
III.	FUNDING				:					
	A. SOURCE				:	X	X		X	X
	B. DISBURSEMENT				:	X				
IV.	PROFESSIONAL PARTICIPATION	X	X	X	:	X		X	X	X
V.	FIELD LOGISTICAL SUPPORT				:					
	A. VEHICLES	X		X	:	X				
	B. DRIVERS	X		X	:	X				
VI.	OPERATIONAL SUPPORT				:					
	A. CLERICAL			X	:	X				
	B. REPRODUCTION OF MATERIALS			X	:	X				
	C. TICKETING				:	X				
VII.	REVIEW OF RESULTS	X			:	X			X	X
VIII.	WRITING REPORT		X	X	:	X				X
IX.	OVERALL DESIGN AND COORDINATION				:	X				

DA Department of Agriculture
 USM University of Southern Mindanao
 PS Private Sector
 PCCI Philippine Chamber of Commerce and Industry
 AAP-PMO Accelerated Agricultural Production Project/ Project Management Office
 NAFC National Fisheries and Agricultural Council
 USAID United States Agency for International Development
 SARSA Settlement and Resources Systems Analysis Project

APPENDIX 3

RMA SAMPLING FRAME OF MARKETING PARTICIPANTS

LOCATION	FARMERS		TRADERS		POULTRY/				FERT./			SUPPORT SERVICES		TOTAL
CITY/MUNICIPALITY			BGY.	MUN.	PROV'L./	FEED	CORN	HOG	SEEDS/	SEED	SHIPPING	MFTR./		
BARANGAY	H	NH			REG'L.	MILLERS	MILLERS	RAISERS	DEALERS	CO.	CO.	DSTR.		
S U P P L Y A R E A S														
Gen. Santos City			10 (40+)	8 (20+)	2 (2)	3 (16)	2/5 (22)	4	2 (3)	3				39
Malungon			5 (13)											5
Malalag Cogon	7	3	3 (7)											13
Upper Mainit	4	5	4 (9)											13
Malandag	4	1	3 (10)											8
Tampakan			4 (8)											4
Lembayong	9	0	2 (8)											11
Kipalbig	7	3	3 (3)											13
Banga			7 (30+)											7
Lamba	5	5	4 (8)											14
Malaya	10	0	0 (2)											10
Surallah			5 (20)											5
Naci	5	3	0 (0)											8
Lembuntong	5	5	0 (0)											10
Tupi			2				0/1							3
Koronadal			6				1/3	2	1 (1)			4 (10+)		17
D E M A N D A R E A S														
Manila & Luzon				1	3		0/1							5
1_/														
Cebu				2	2	6 (20+)	0/2							12
Dumaguete				3										3
Padada				1										1
Davao City (Toril)					1					1				2
Digos					1	2								3
TOTAL	56	25	19	40	14	9	11	3/12	6	3	4	4		206

1_/ Cebu also has two large starch factories.

- Notes: a) H = hybrid and NH = non-hybrids
 b) Figures in parenthesis "()" are the universe of that type of marketing participant in that area.
 c) Respondents and key informants from local institutions included the mayors, barangay captains, provincial agricultural officers, extension worker, and NFA personnel.

Source: Interviews and lists of registered firms (NFA).

APPENDIX 4

CONTRIBUTION OF CORN TO THE ECONOMY (IN MILLION PESOS AT CURRENT PRICES)

<u>YEAR</u>	<u>GROSS DOMESTIC PRODUCT</u>	<u>VALUE FOR AGRI. CROPS</u>	<u>FOR CORN</u>	<u>G.D.P.</u>	<u>CORN AS % OF AGRI CROPS</u>
1980	266,008	37,910	3,024	1.14	7.98
1981	304,274	42,312	3,501	1.15	8.27
1982	340,585	41,277	3,986	1.17	9.66
1983	284,095	38,081	3,949	1.03	10.37
1984	540,466	63,439	5,167	0.96	8.14
1985	609,459	81,316	9,543	1.57	11.74
1986	626,717	77,694	9,842	1.57	12.67

Source : Department of Agriculture

APPENDIX 5

PRODUCTION OF SELECTED CROPS IN THE PHILIPPINES (1980-86)

Crops	1980	1981	1982	1983	1984	1985	1986
Palay	7,835,795	7,722,750	8,122,725	7,730,525	7,840,935	8,200,090	9,096,980
Corn	3,122,843	3,109,685	3,290,175	3,125,885	3,346,235	3,438,755	3,922,020
Coconut	4,570,165	4,312,114	3,785,479	3,381,630	2,921,870	2,964,846	3,162,389
Sugar	3,120,803	3,193,044	3,402,698	3,435,616	3,260,178	2,747,650	2,135,316
Fruits & Nuts	6,362,101	6,432,299	6,537,283	6,471,596	6,432,644	6,029,540	6,236,558
Vegetables	790,159	798,567	826,531	676,884	725,179	718,726	740,942
Beans & Peas	47,306	48,528	50,262	36,920	37,994	41,229	37,719
Rootscrops	3,506,594	3,443,744	3,214,204	2,142,977	2,323,119	2,495,652	2,716,996
Fiber Crops	16,339	140,670	134,538	101,040	101,793	94,794	99,664
Beverage Crops	129,426	150,883	176,753	152,400	121,589	138,587	142,750
Other Crops	113,639	113,427	127,875	168,879	190,392	193,895	210,998
Total	29,766,170	29,465,711	29,668,523	27,424,352	27,301,928	27,063,764	28,502,332

APPENDIX 6

AREA HARVESTED OF SELECTED CROPS IN THE PHILIPPINES (1980-86)

Crops	1980	1981	1982	1983	1984	1985	1986
Palay	3,636,810	3,459,130	3,442,830	3,239,630	3,140,670	3,221,770	3,402,610
Corn	3,210,070	3,238,690	3,360,700	3,157,480	3,270,210	3,314,580	3,544,730
Coconut	3,125,920	3,105,320	3,162,300	3,187,400	3,216,080	3,274,940	3,261,473
Sugar	424,640	421,080	470,830	423,285	479,384	407,142	355,945
Fruits & Nuts	576,800	563,630	595,510	575,100	564,300	573,175	589,630
Vegetables	138,130	138,550	141,910	128,430	126,550	130,500	133,250
Beans & Peas	66,520	68,590	69,360	47,280	48,650	51,290	49,630
Rootcrops	490,470	480,450	483,620	427,290	423,170	425,820	426,960
Fiber Crops	244,380	243,830	221,710	180,870	180,780	179,270	173,110
Beverage Crops	106,510	126,090	146,560	148,645	151,830	158,160	163,170
Others Crops	115,930	109,880	114,820	118,310	131,490	123,570	132,490
Total	12,127,180	11,955,240	12,210,150	11,633,920	11,733,114	11,860,217	12,232,998

Source: Bureau of Agricultural Statistics

APPENDIX 7

CORN: FOOD USE VS. FEED USE CROP YEAR 1980/81 - 1985/86 (IN THOUSAND METRIC TONS)

<u>CROP YEAR</u>	<u>TOTAL USAGE</u>	<u>FOOD USE</u>	<u>% OF SUPPLY</u>	<u>FEED USE</u>	<u>% OF SUPPLY</u>
1980/81	3434	1533	45	1674	49
1981/82	3568	1539	43	1786	50
1982/83	3600	1479	41	1893	53
1983/84	3590	1477	41	1877	52
1984/85	3714	1555	42	1917	52
1985/86	4286	1519	35	2480	58

Source: Bureau of Agricultural Statistics

APPENDIX 8

CORN: LEVEL OF SUFFICIENCY (1979/80 - 1985/86) (IN THOUSAND M.T.)

<u>CROP YEAR</u>	<u>PRODUCTION</u>	<u>TOTAL REQUIREMENT</u>	<u>% LEVEL OF SUFFICIENCY</u>
1979/80	3123	3332	94
1980/81	3110	3434	91
1981/82	3290	3568	92
1982/83	3126	3600	87
1983/84	3346	3590	93
1984/85	3439	3714	93
1985/86	4091	4286	95

Source: Bureau of Agricultural Statistics

NFA Monthly White and Yellow Corn Importation, Philippines, 1975-1986
(Volume in metric tons, Value in thousand U.S. dollars)

Month	1975		1976		1977		1978		1979		1980		1981		1982		1983		1984		1985		1986		1986				
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value			
January	-	-	-	-	-	-	-	-	-	-	-	-	48,285	9,959	-	-	27,496	3,588	-	-	24,816	3,218	-	-	-	-	-	-	
February	-	-	-	-	26,148	3,230	-	-	24,645	3,189	-	-	26,875	5,447	42,462	6,339	26,219	3,386	-	-	16,150	2,024	-	-	-	-	6,000	smuggled	
March	17,205	2,930	-	-	35,305	4,433	46,784	5,722	9,929	1,221	13,864	2,215	52,644	10,786	47,684	7,001	50,713	6,622	5,000	824	56,640	7,106	-	-	-	-	-	-	
April	22,793	3,680	30,155	3,977	-	-	21,128	2,665	-	-	29,318	4,652	24,690	4,587	87,744	12,664	104,629	14,780	-	-	33,497	4,426	-	-	-	-	-	-	
May	9,238	1,325	9,709	1,301	34,568	4,424	4,672	587	-	-	25,210	4,037	54,496	10,340	55,214	8,293	72,478	11,034	30,603	5,226	57,140	7,495	-	-	-	-	-	-	
June	53,464	6,946	-	-	2,284	298	11,820	1,548	-	-	25,003	4,033	18,460	3,295	10,626	1,682	25,808	4,134	72,050	12,621	47,612	6,730	-	-	-	-	-	-	
July	-	-	10,318	1,413	24,995	3,073	11,157	1,462	-	-	25,259	4,227	8,847	1,579	27,038	4,035	107,800	17,643	50,025	8,815	15,000	2,085	-	-	-	-	49,692	-	
August	10,733	1,470	10,010	1,361	-	-	10,278	1,346	-	-	26,250	4,346	-	-	-	-	35,500	5,432	23,976	3,825	-	-	-	-	-	-	-	-	
September	3,001	411	11,303	1,526	-	-	-	-	-	-	24,748	4,578	-	-	-	-	34,700	5,304	-	-	-	-	-	-	-	-	-	-	
October	4,787	656	15,251	1,918	24,999	2,935	-	-	-	-	26,707	5,047	-	-	21,737	2996	35,300	5,425	-	-	-	-	-	-	-	-	-	-	
November	-	-	4,959	630	-	-	-	-	-	-	22,150	4,042	22,047	3,417	24,927	3,141	-	-	-	-	-	-	-	-	-	-	-	-	
December	-	-	4,676	608	-	-	-	-	-	-	-	-	-	-	24,601	2,946	-	-	-	-	-	-	-	-	-	-	-	5,610	donation
Total	121,221	17,418	96,381	12,734	148,299	18,393	105,839	13,330	34,574	4,410	218,509	37,177	256,344	49,410	342,033	49,097	520,643	77,348	181,654	31,311	250,855	33,084	5,610	0	55,692				

Source: National Food Authority

APPENDIX 10

ESTIMATED AREA PLANTED IN HYBRID OR OPEN-POLLINATED CORN PER MUNICIPALITY (SOUTH COTABATO, 1986)

<u>MUNICIPALITY</u>	<u>HYBRID (HA.)</u>	<u>OPEN POLLINATED (HA.)</u>	<u>TOTAL (HA.)</u>
1. Alabel	100	3,900	4,000
2. Banga	5,000	7,350	12,350
3. Glan	100	900	1,000
4. Kiamba	50	450	500
5. Koronadal	700	3,200	3,900
6. Lake Sebu	100	900	1,000
7. Maasim	100	700	800
8. Maitum	50	450	500
9. Malapatan	50	550	600
10. Malungon	1,000	10,900	11,900
11. Norala	500	3,600	4,100
12. Polomolok	800	2,700	3,500
13. Sto. Nino	300	900	1,200
14. Surallah	500	8,800	9,300
15. Tampakan	1,000	4,000	5,000
16. Tantaran	100	1,140	1,240
17. T'boli	1,000	8,450	9,450
18. Tupi	1,000	4,000	5,000
19. Gen. Santos City	<u>500</u>	<u>6,100</u>	<u>6,600</u>
TOTAL	<u>12,950</u>	<u>68,990</u>	<u>81,940</u>

Source : Department of Agriculture, Koronadal, South Cotabato

APPENDIX 11

Organizational Affiliation of Sample Farmers, August 1987

Organization	Malungon			Tampakan		Banga		Surallah		Total
	Malandag (N=5)	Malalag Cogon (N=10)	Upper Mainit (N=9)	Kipalbig (N=10)	Lambayong (N=9)	Malaya (N=10)	Lamba (N=10)	Lambun- tong (N=10)	Naci (N=8)	
	No.									
Samahang Nayon Farmers' Association	2		1	4	3	7	7	1	3	28
Corn-Cotton Farmers Association		5	5	1		1				7
Federation of Free Farmers							1		3	4
Agrarian Bene- ficiaries Asso.					1			1	1	3
FSDC (ISA)	1									1
Non-Members	2	5	3	5	5	2	2	8	1	33

Source : Farmer Interviews

APPENDIX 12

SUPPORT SERVICES RENDERED BY FINANCIERS TO CORN FARMERS IN SELECTED BARANGAYS, AUGUST 1987

Support Services	Malungon			Tampakan		Banga		Surallah		Total
	Malandag (N=5)	Malalag Cogon (N=10)	Upper Mainit (N=9)	Kipalbig (N=10)	Lambayong (N=9)	Malaya (N=10)	Lamba (N=10)	Lambun- tong (N=10)	Naci (N=8)	
					%					
Finance Production Inputs	80	10	89	10	67	60	80	20	75	52
Hauling	40		56	10	67	50	50	10	25	33
Cash Advances for Personal & Family Needs	40	10	44		11	30	60	20	62	30
Rental or Free Use of Sacks	60		56	10	22	40	40	20		26
Land Preparation (disc harrowing)						10	60		12	10
Shelling	20		22		33					7
Technical Services	20				56					7
Drying	20				22	10	10	10		6

Source: Farmer Interviews

APPENDIX 13

SOURCES OF MARKET PRICE INFORMATION FOR SAMPLE FARMERS IN SELECTED BARANGAYS, AUGUST 1987

Source of Information	Malungon			Tampakan		Banga		Surallah		Total
	Malandag	Malalag Cogon	Upper Mainit	Kipalbig	Lambayong	Malaya	Lamba	Lambun- tong	Naci	
	(N=5)	(N=10)	(N=9)	(N=10)	(N=9)	(N=10)	(N=10)	(N=10)	(N=8)	
	%									
Trader	100	50	67	90	78	40	100	70	62	72
Farmers		50				30				10
Organization										
Farmers					11	10			38	6
Trader Agents						20		20		5
Landlord			33					10		5
NFA				10	11					2

Source: Farmer Interviews

APPENDIX 14

SOURCES OF CREDIT FOR SAMPLE FARMERS GROWING HYBRID CORN IN SELECTED BARANGAYS, AUGUST 1987

Source of Credit	Malungon			Tampakan		Banga		Surallah		Total
	Malandag (N=4)	Malalag Cogon (N=7)	Upper Mainit (N=4)	Kipalbig (N=7)	Lambayong (N=9)	Malaya (N=10)	Lamba (N=5)	Lambun- tong (N=5)	Naci (N=5)	
	%									
Trader-Financier	25	0	50	14	67	60	60	20	80	43
Associations:										
- Corn & Cotton Farmers Association		71								9
- Samahang Nayon						20				4
relatives & Friends				57						7
Landlord								20		2
No Financing/ No Response	75	29	50	29	33	20	40	60	20	35

Source: Farmer Interviews

APPENDIX 15

SOURCE OF CREDIT FOR SAMPLE FARMERS GROWING NON-HYBRID CORN IN SELECTED BARANGAYS, AUGUST 1989

Source of Credit	Malungon			Tampakan		Banga		Surallah		Total
	Malandag	Malalag Cogon	Upper Mainit	Kipalbig	Lambayong	Malaya	Lamba	Lambun- tong	Naci	
	(N=1)	(N=3)	(N=5)	(N=3)	(N=0)	(N=0)	(N=5)	(N=5)	(N=3)	
	----- % -----									
Trader-Financier		67	80				100	20	67	56
Landlord			20					40		12
Relatives & Friends				33						4
No Financing/ No Response	100	33	0	67	0	0	0	40	33	28

Source: Farmer Interviews

APPENDIX 16

RESEARCH INSTITUTIONS/STATIONS IN SOUTH COTABATO

I. Public Sector Research Stations

- *1. Tupi Seed Farm (Bureau of Plant Industry)

II. Private Sector Research Stations

- *1. Tropical Seed Research Center
(Pioneer Overseas - Katangawan, General Santos City)
- *2. Cargill Seed Research Division
(Cargill Seeds, Inc. - Koronadal, South Cotabato)
- *3. San Miguel Hybrid Seed Research Station
(SMC - Koronadal (Satellite Station))
(SMC - General Santos City (Main Station))
- 4. Nestle Philippine (FILIPRO)
(Nestle Philippine, Inc. - Crossing Rubber,
Tupi, So. Cotabato)
- 5. Dole Philippines
(Dole Philippine, Inc. - Polomolok, South Cotabato)
- *6. IRRI Research Station
(IRRI * Koronadal, South Cotabato)
- *7. Allah Valley Seeds
(General Santos City)

III. Joint Venture - Public and Private Sector

- 1. Cotton Research & Development Institute (CRDI)
(Polomolok, South Cotabato)

* Has corn research activities

Note: Most of these stations should have rainfall gauges and records.

ATTACHMENT 1

BRIEF REVIEW OF THE HYBRID CORN INDUSTRY IN SOUTH COTABATO

By Edgar Soguilon

I. Brief History of the Seed Industry in South Cotabato

- o Corn research station in General Santos was established in 1975 by Pioneer Seeds.
- o Test marketing of hybrid corn seeds in 1978 by Philippine Hybrid Incorporated for Pioneer brand seeds showed high susceptibility to Downy Mildew disease and thus did not fare well with farmers.
- o Trials of various hybrid lines adapted to local conditions was undertaken in Banga, South Cotabato by Pacific Seeds in 1979.
- o A similar undertaking was done by Cargill Seeds in 1980. In the same year, Pioneer Seeds tested P-076 hybrid seed variety which became widely accepted by farmers.
- o In 1981, Cargill Seeds established its own seed processing plant and research station at Koronadal, South Cotabato. Ayala Agricultural Development Corporation became the distributor of Pioneer brand seeds.
- o By 1982, San Miguel Corporation set-up its own hybrid seed conditioning plant in Polomolok, South Cotabato.

II. Findings

A. Situation

- o Area planted to hybrid varieties decreased from 30,117 hectares in 1983 to 14,675 in 1986 due to the following:
 - The cultivation of yellow hybrid varieties was a lot more costly than producing white open-pollinated corn. In previous years government and private financing supported hybrid corn production but now financing was not readily available to farmers.
 - Prices of inputs (seeds and fertilizers) increased by about 100% in 1986.
 - Unstable market prices for corn with especially low prices during the peak harvest period.

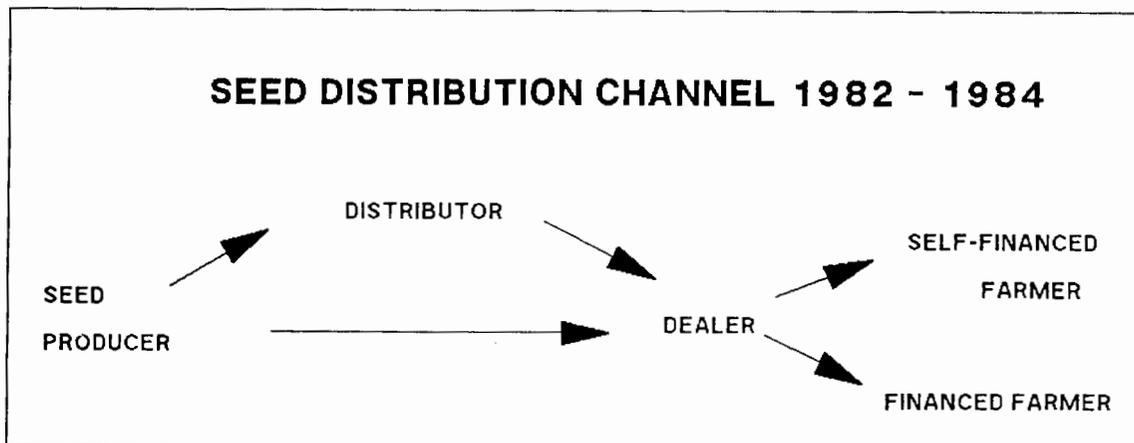
- Unpredictable weather conditions which sometimes resulted in big crop losses for farmers.
- o The increased usage of IPB varieties from 264 hectares in 1982 to 4,182 hectares in 1986 was attributed to its lower price.

B. Patterns and Trends

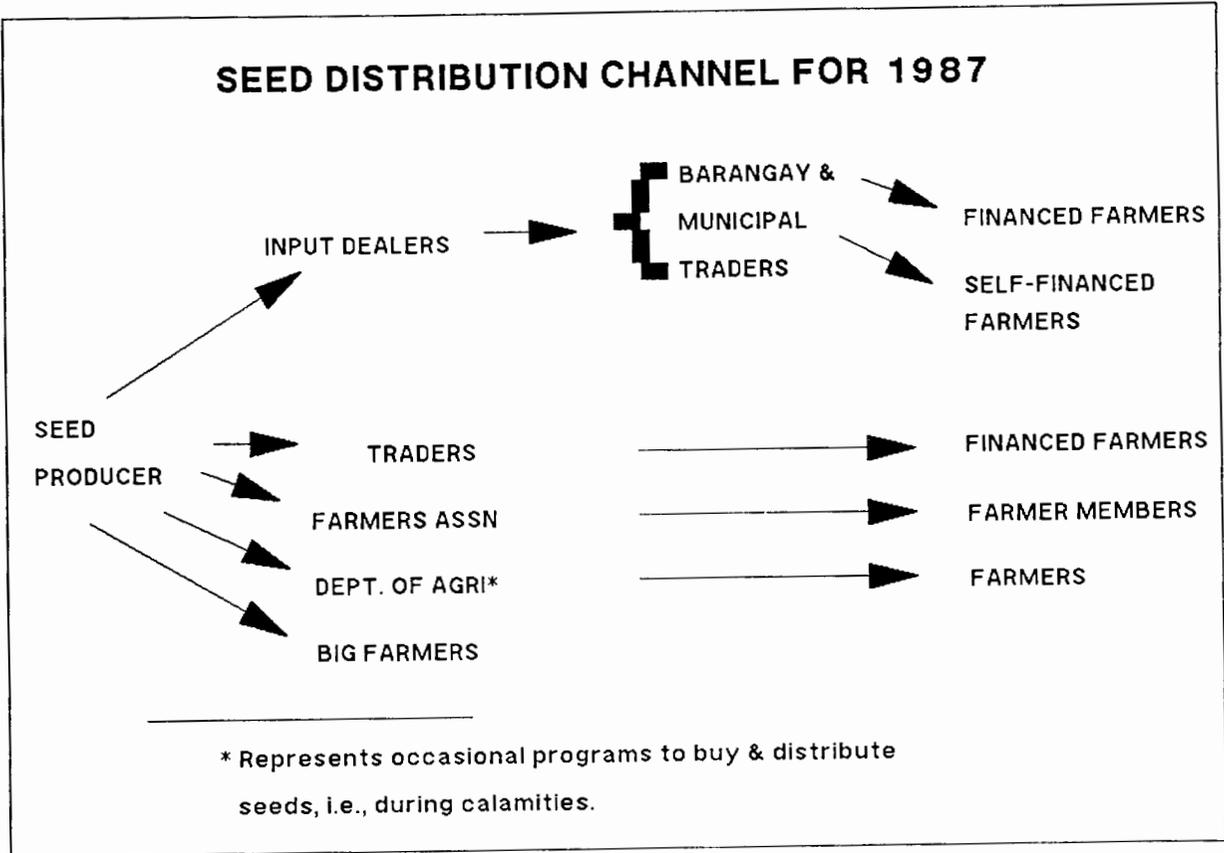
- o Hybrid seeds show a recent upward trend though the size of the hybrid seed market had been shrinking.
 - Seed dealers claimed sales increased over the previous year.
 - Farmgate prices remained about the same during the peak harvest.
 - Fertilizer costs decreased to P165/bag for urea and P215/bag for complete fertilizer.
 - Some farmers resorted to financing their own hybrid corn production.
- o IPB
 - This high-yielding, open-pollinated variety was developed by the Institute of Plant Breeding.
 - Yield is slightly lower than hybrid.
 - Demand for less expensive IPB has not increased significantly despite high cost of hybrid seeds.
 - Information drive about IPB still seen as insufficient.
 - Unstable supply of seed stocks to the dealers is a problem.
- o Pricing of Hybrids and IPB
 - Comparatively, prices for hybrids range from P680-P830/bag depending on brands as against P270/bag price for IPB.
 - Weight per bag of hybrids reduced from 20 kgs. to 18 kgs.
 - Seed companies recommend retail prices to dealers. Based on suggested retail prices, dealers are given certain discounts.

III. Distribution

- A. Input Dealers have traditionally been the main distributor of seed.
- o All dealers have fertilizers and chemicals as their main line of business with seeds as a complimentary product.
 - o Dealers maintain a maximum inventory of hybrid seed for one month, considering the perishability of seed.
 - o They do not actively promote hybrid seed, but rely on walk-in customers and good rapport with farmer clients.
 - o Two types of dealers:
 - >> with network/branches throughout the corn/rice growing municipalities.
 - >> single station/store operating only within a municipality.
 - o Those with network get bigger volumes from the suppliers and better terms than small dealers. They in turn offer lower prices and better terms to the farmers.
- B. The two main types of channels for distributing hybrid corn seed have changed over time and are shown in according to period.



- o This follows the marketing channel used by fertilizer and chemical companies
- o It evolved over the years into different channels making seed distribution more accessible to the farmers.



- o Seeds are delivered free of charge by respective seed companies through the different channels of distribution during planting season.

IV. Competition

- o There are three major seed companies active in the area. These are San Miguel, Pioneer/Ayala, and Cargill. San Miguel and Ayala have their seed multiplication and research stations in South Cotabato. Cargill Seeds has moved its seed multiplication site to Negros Occidental but maintained its research station in South Cotabato.
- o A local seed company also operates in the area but maintains a low profile. It lags behind in terms of logistics, manpower and promotion compared to the other three seed companies.
- o Competition among the three major seed companies in South Cotabato is very intense due to the relatively limited market.

V. Strategies

- o Different strategies are being applied by each company focusing on the following areas:
 - a. product superiority
 - b. distribution network
 - c. manpower

VI. Problems and Opportunities

a. Resolved

Improved storage and grain classifiers (i.e. gravity separator) facilities reduced problems with seed germination and presence of cracked seed.

b. Unresolved

- o High costs of seeds
- o Seed producers are not willing to reduce prices because they have to realize a certain profit margin in order to survive.
- o Underutilized plant capacity in South Cotabato.
- o South Cotabato market for hybrid seeds has been reportedly reduced to approximately 10,000 has. which is too small for three seed companies to maximize the use of their plant capacities.

VII. Insights Gained and Issues Raised

- o Some farmers have shifted back to planting white corn since they are not willing and able to take the risk of crop failure considering the high cost of production and unpredictable weather conditions.
- o IPB, a high-yielding open-pollinated variety has not gained significant acceptance by the farmers as a cheaper alternative source of yellow corn seeds.
- o Seed industry development is largely dependent on a number of factors:
 - * financing
 - * stabilizing prices
 - * clear-cut government policy on importation

**SHIPPING INDUSTRY IMPACT
ON THE CORN MARKETING SYSTEM IN SOUTH COTABATO**

By: Samson Mate Y Revilla

A. INTRODUCTION

Interisland shipping is one of the most important components in the Philippine transport industry because of the archipelago's many islands. It serves as the primary link in the transport of Philippine goods from island to island from major areas of production to consumption centers.

Most of the corn produced in South Cotabato is being shipped from the ports of Davao City and General Santos City, especially the latter. Because the large seasonal volume of corn arriving at the port creates problems for its timely shipment, this sub-study was commissioned as a part of the marketing assessment study.

B. OVERVIEW OF THE SHIPPING SECTOR

General Santos has three ports: one national, the Makar Wharf, and two private ports owned by DOLEFIL and GMC. The national port can accommodate four ships at a time. An average of seventy-eight (78) domestic and thirteen (13) foreign vessels call or dock at the port per month (based on the General Santos City Annual Report).

There are two main classifications of vessels that service the General Santos port, namely: 1) Containerships which include the container-passenger ships, and 2) tramping vessels which include the bulk, break-bulk and barge type (Appendix 1). Containerships follow more regular routes than the tramps. The most number of ports at which a full containership calls before it can make a complete roundtrip to and from General Santos are three, while a container-passenger ship usually docks at five ports before making a complete roundtrip. On the other hand, tramping vessels of the larger bulk type follow the General Santos - Manila route while the smaller break-bulk and barge types mostly follow the General Santos - Dumaguete - Cebu or the General Santos - Cebu route (Table 1).

Table 1. Routing pattern by the type of vessel that service the Gen. Santos port.

<u>Type of Vessel</u>		<u>Routing Pattern</u>
1.0	Containerships	GSC-Manila-Cebu-GSC
1.1	Cargo Containerships	GSC-Manila-Davao-GSC GSC-Manila-Polloc-GSC GSC-Manila-Zamboanga-Davao-GSC
1.2	Container-passenger ship	GSC-Zamboanga-Odiongan- Manila-Odiongan-Zamboanga-GSC GSC-Iloilo-Manila-Zamboanga-GSC
2.0	Tramping Vessels ^{1/}	
2.1	Bulk	Mostly GSC-Manila
2.2	Break-bulk	Mostly GSC-Cebu-Dumaguete
2.3	Barge	GSC-Cebu

1/ No regular routing pattern except for a few.

Most of the vessels that ply the General Santos route are sustaining vessels, meaning they have their own booms or cranes (Table 2). The sustaining class of vessel includes all container bulk tramp vessels. On the other hand, the break-bulk type are of either sustaining or non-sustaining class.

Gross Registered Tonnage (GRT) varies by type of vessel with the bulk type showing the largest range (342-6,500). This was followed by containerships and break-bulk vessels, particularly the sustaining class with a GRT range of 843-4,773 and 322-960, respectively. Non-sustaining break-bulk vessels have the smallest GRT range (244-548).

Table 2. Type, Class and Size (GRT) of Vessels that Ply the General Santos Route.

<u>Type of Vessel</u>	<u>Sustaining</u>	<u>GRT Range</u>	<u>Non-Sustaining</u>	<u>GRT Range</u>
Containerized ^{1/}	12	843-4773	nil	n/a
Tramps				
Bulk	12	342-6,500	nil	n/a
Break-bulk	14	322-960	9	244-548
Barge	nil	n/a	2	935
TOTAL	38		11	

1/ This includes the container-passenger vessels

Note: Sustaining and non-sustaining vessels are vessels with and without booms, respectively.

Ninety-five percent of all corn shipped out of General Santos was loaded in the tramping vessels while the remaining five percent was loaded in containerships (Table 3). Note that all the corn that was shipped out of General Santos to the major destinations of Dumaguete and Cebu were loaded in tramping vessels.

1/ No regular routing pattern except for a few.

Table 3. Percentage of corn shipped out of General Santos Port by Type of Vessels and Destination, 1986

<u>Type of Vessel</u>	<u>Cebu/Dumaguete</u>	<u>Manila</u>	<u>Total</u>
Containerships ^{1/}	nil	9.40	4.70
Tramps ^{2/}	<u>100.00</u>	<u>90.60</u>	<u>95.30</u>
TOTAL	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>

1/ Includes the container-passenger vessels

2/ Includes bulk, break-bulk and barge types of tramp vessels

Source : NFA - General Santos Report, 1986.

During the 1985 period, a total of 1.272 million Gross Registered Tonnage was registered to have docked at the three ports in General Santos. A modest increase in GRT was observed the following year (1986). On a per month basis, November and December of 1985 had the highest registered GRT, while August of the same year had the lowest registered GRT. In 1986, the month of December has the highest registered GRT (.204 M) followed by the month of September (1.23 M). Lowest registered GRT occurred during the month of February (Figure 1).

Shipment of corn out of General Santos is a year-round activity. Figure 1 shows the volume of corn shipments on a monthly basis from January 1985 to August 1987. In 1985, the month of July registered the highest volume of corn shipment followed by December. The September shipment of the same year was the lowest. In 1986, it was in the month of April that the highest outgoing corn shipment was recorded, while November registered the lowest. For 1987, the outgoing shipment of corn was highest during the month of August. On a yearly basis, a 13% decrease in the shipment was noted in 1986. This was due to the 13% decrease in the production of corn during that year. In other words, the pattern of shipping months for the largest volume of corn varied from year to year, though it usually centered on the peak harvest months of July and August.

Over fifty-five percent of the corn shipped out of General Santos during the two-year period of 1985-1986 was in the form of white corn grain. White corn grits and yellow corn grain filled the balance of the total corn shipments, with 24.8% and 19.4%, respectively. On a monthly basis, white corn grain shipments had the highest percentage during the month of April (71%) compared to white corn grits and yellow corn grain. Its lowest percentage of 30.8% was registered during the month of January (Table 4).

Table 4. Monthly Outgoing Shipment of Corn by Type, General Santos Port, 1985-1986.

Month	K I N D O F C O R N			Total
	White Corn Grain	White Corn Grit	Yellow Corn Grain	
	-----%-----			
January	30.80	17.20	52.00	100.00
February	54.00	26.00	20.00	100.00
March	62.20	14.90	22.90	100.00
April	71.00	19.50	9.50	100.00
May	48.00	43.20	8.80	100.00
June	54.20	33.00	12.80	100.00
July	65.00	27.50	7.50	100.00
August	69.70	17.90	12.40	100.00
September	38.80	38.50	22.70	100.00
October	46.70	24.40	28.90	100.00
November	62.90	24.10	13.00	100.00
December	<u>51.90</u>	<u>25.70</u>	<u>22.40</u>	<u>100.00</u>
TOTAL	<u>55.80</u>	<u>24.80</u>	<u>19.40</u>	<u>100.00</u>

Source : NFA - General Santos

Table 5 shows the volume of corn shipment by type and its major destination. The largest percentage of the white corn grain (54%) was being shipped to Cebu with Manila receiving 43%. For yellow corn grain, Manila received the bulk, i.e. 92%. On the other hand, the pattern for white corn grits shipment was quite different. Dumaguete, instead of Cebu, was getting more shipment/supply of the corn grits (73%). As to the total volume of corn shipped from General Santos to these three major destinations, 56.68% was in term of white corn grain, while white corn grits and yellow corn grains represented 22.6% and 20.7% of the total corn shipment, respectively.

Table 5. Volume of Corn Shipment by Type and Major Destination, 1985 - 1986 (in bags of 50 kg.)

Destination	White Corn Grain		Yellow Corn Grain	
	Grain	%	Grain	%
Cebu.Lapu-lapu	1,948,649	54.00	102,050	8.00
Dumaguete	89,480	3.00	nil	0.00
Manila	<u>1,570,524</u>	<u>43.00</u>	<u>1,216,733</u>	<u>92.00</u>
Total	3,608,653	100.00	1,318,785	100.00
	56.68		20.71	
Destination	White Corn Grits	%	All Types	%
Cebu/Lapu-lapu	369,682	26.00	2,420,381	38.00
Dumaguete	1,048,014	73.00	1,137,494	18.00
Manila	<u>21,768</u>	<u>1.00</u>	<u>2,809,025</u>	<u>44.00</u>
TOTAL	1,439,464	100.00	6,366,900	100.00
	22.61		100.00	

Source : 1985-1986 NFA - General Santos report on corn outgoing shipment from the port of Gen. Santos.

C. USERS AND PROVIDERS OF SHIPPING SERVICES

1. Corn Traders and Millers Using Vessels

There are different types of traders or entities that are involved in the shipment of corn from General Santos City. These types include five big traders, seven trader-millers, four agents or those involved in buying only for use in their companies, corn mills or feed mills and an unspecified number of small shippers (Table 6). These traders/entities were able to ship out a total of 253,939.7 metric tons of corn during the July 1985 - June 1986 period. Of this total shipment, 30.5% was contributed by traders, 47% by trader-millers, 10.8% for those who are involved in buying only, and 11.7% for the others.

Table 6. Volume of Corn Shipped by Type of Traders/Entities, South Cotabato, July 1985 - June 1986.

Type of trader/ <u>entity</u>	<u>Number</u>	Volume Shipped	
		<u>(MT)</u>	<u>%</u>
Traders	5	77,516.80	30.50
Trader-millers	7	119,445.00	47.00
Agents ^{1/}	4	27,441.40	10.80
Others	<u>not specified</u>	<u>29,536.50</u>	<u>11.70</u>
TOTAL		253,939.70	100.00

1/ All are newcomers in the area
Source : SCIPSI

2. Shipping Lines/Companies Servicing General Santos

There were an uncertain number of individuals listed as local agents for the chartering of tramping vessels. At the General Santos Port there were four prominent shipping lines/companies including William Lines, Sulpicio Lines, Aboitiz, and Lorenzo Shipping Lines with a total of eleven vessels docking on a regular basis. Of these eleven, nine were full container vessels while the remaining two were container-passenger vessels (Table 7).

Table 7. Shipping Lines/Companies Servicing General Santos by Type and Number of Vessel.

Name of shipping <u>line/company</u>	<u>Containerships</u>	Container- <u>passenger Ships</u>	<u>Total</u>
William Lines	2	1	3
Sulpicio Lines	2	1	3
Aboitiz Shipping	3	nil	3
Lorenzo Shipping	2	nil	2
TOTAL	9	2	11

Source : NFA - General Santos and SCIPSI

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3. Port Services

Arrastre and stevedoring services at General Santos were provided by the South Cotabato Integrated Port Services, Inc. (SCIPSI) with a manpower of around 200 persons both in the management and operations departments. Operations at the port were on an eight-hour basis per day unless some overtime work was scheduled. On overtime work, the shipper could request it only when all his corn for loading was already within the port compound. Port services at Dumaguete were done only eight hours per day and no overtime work was allowed because of the lack of lighting facilities inside the port. In Cebu, some shipping lines/owners of vessels had their own manpower to work at the port even on a 24-hour basis.

4. Cost Associated with Corn Shipment

Corn shipment costs entailed expenses for freight, wharfage, arrastre and others for the corn shippers. On the other hand, costs of stevedoring were directly paid by the shipping line but included indirectly in corn shipper expenses. Table 8 shows comparative costs of shipping corn from General Santos to Cebu and Manila by containership versus tramping vessels. The shipment costs of corn from General Santos to Manila were reported as P0.239/kg. and P0.281/kg. for a containership versus tramping vessel, respectively. However, other sources quoted P0.50-0.60/kg. for tramping vessels. This latter figure is more reasonable given the shipping industry's situation. The cost difference between containerships versus tramping vessels can be attributed to the price regulation resulting from the Conference of Inter-island Shipping Organization (CISO) for containership.

Table 8. Costs per Kilogram to Ship Corn from General Santos to Manila Ports of Destination by Type of Vessels

Items	GENERAL SANTOS TO:		
	CEBU ^{1/}	MANILA	
	Tramps	Container	Tramps
	----- P -----		
A. Shipper's Costs			
Freight	0.220	0.221	0.242
Wharfage	0.004	0.002	0.004
Arrastre	0.035	0.026	0.035
Sub-total	0.259	0.239	0.281
B. Shipping Lines Cost			
Stevedoring	0.012	0.012	0.012
TOTAL	0.271	0.251	0.293

1/ Shipping cost from GSC - Dumaguete is the same with that of GSC - Cebu.

Note : There is no container vessel that directly ply the GSC-Cebu route.

Source : Interviews with shipping companies and shippers.

5. Factors Affecting the Performance of Corn Shipment

The two major factors are the availability of vessels and their turnaround time.

- a. **Availability of Vessels.** An important factor affecting the performance of corn shipment was the limited availability of vessels that dock at General Santos. Often times, corn shippers experienced delays in shipments due to the lack or insufficient number of vessels during the harvest season. A reason for this may be that corn is a low-paying cargo and given a "later" treatment especially whenever there were other more valuable cargoes available in other ports. Although shippers were willing to load their corn to a container vessel, they could not so because vans were already allocated to regular customers/shippers.

- b. **Turn Around Time of a Vessel.** The slow turn-around trip of a vessel affected the performance of corn shipments. It resulted in a slow "turn-over" of corn from the supply areas to the demand areas. This was particularly true in the case of the tramping vessels that shipped corn from General Santos to major destinations. It usually took 13-15 days for a round trip for a break-bulk vessel that plied the General Santos-Dumaguete-Cebu-Zamboanga-General Santos route with a load capacity of 1,300 tons. This meant that this vessel made only two round trips per month for a distance of 949.1 nautical miles/trip. Another example, a bulk cargo vessel with a load capacity of 2,500 tons that plied the General Santos-Manila route (725.8 nautical miles) took from 13-15 days (from loading time, travel and unloading time in Manila). With extended periods of waiting, the number of round trips for this type of vessel was around three (3) for every two months.

Part of the reason for slow turn around period for a tramp vessel was the long waiting periods to dock because container ships were given priority to berth.

6. **Problems Identified in the Shipping Sector.**

The problems are summarized according to the types of vessel.

Type of Vessel/
Problems

Remarks

A. **CONTAINER VESSELS**

1. Insufficient container vans during peak season for corn

There was an imbalance between the incoming and outgoing shipments of cargoes. The outgoing volume of commodities was much larger than the incoming volume. Besides, it was the practice of shipping lines not to follow allocations of vans per port with General Santos getting low priority, i.e., residual if no higher value vans can be picked up in prior ports.

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This was particularly true for corn whereby only about 5% of corn was shipped by container vessels.

2. Shut-outs of already booked/scheduled corn cargoes

Cargoes of higher values were given priority allocation of van space in the vessel. Likewise, regular customers/shippers were given preferential treatment. This problem which caused delays which resulted in such problems as: a) non-fulfillment of contract/s with consignee/s on time; b) reduced money and space for buying more corn from farmers; and c) likely reduction in the traders/shipper's buying price for farmers corn.

3. Low priority for loading

Corn was a low paying cargo compared to other cargoes, i.e. cotton and canned goods. Likewise, corn was so bulky that it readily filled the vessel's total carrying capacity.

4. Delays in loading

A result of the unavailability or lack of hauling trucks to haul vans from the container yard to the port.

B. TRAMPING VESSELS

1. Pilferage

This particular problem usually occurred during the loading and unloading operations of corn. Often, the very people involved in the loading/unloading operations were the ones contributing/aggravating this problem.

2. Damages to sacks

A result of improper handling operations of corn cargo outside and inside the vessel, i.e. improper stockpiling, etc.

3. Delays in sailing out of port

A result of the non-availability or late arrival of corn cargo; discontinuity in the loading and unloading of cargoes due to rough seas or low tides; and inefficiencies of port handling services.

4. Waiting to dock/berth in a port of call

Container and passenger vessels were given priority at most ports.

C. BOTH TYPES OF VESSELS

1. Damage/unpassable bridge going to the port of General Santos

Resulted in the delay of corn grains delivery to the port. Drivers of the hauling trucks refused to pass at the diversion route especially at night for fear of pilferage to his corn cargoes. Reason: there were individuals riding at the truck unnoticed when it slowed down and they slashed the corn sacks causing a spillage on the road which they picked up later.

2. Slow processing of clearance/permit for sailing out of port from an office concerned

Personnel involved in the signing of necessary clearances were sometimes nowhere to be found, thus delaying the time of sailing out.

3. Poor facilities in the receiving ports (Dumaguete)

Insufficient lighting facilities caused delays in the unloading of corn since services could not be continuously done.

D. INSIGHTS AND IMPLICATIONS

For tramping vessels, the bulk cargo type of vessels was the bigger size (GRT range is from 342-6,500) compared to break-bulks and barges and mostly plied the long distance General Santos-Manila route. The smaller break-bulk type of tramping vessels was plying the shorter General Santos-Dumaguete-Cebu route. In other words the distance and the volume of load affected which type of vessel was most commonly used.

The damaged bridge going to the Makar Wharf in General Santos was unpassable thus truckers had to pass through a river. Hauling could not be done during night time because of the risk of pilferage in this particular diversion route. This situation caused delays in shipments of corn.

The bulk of corn shipped out of General Santos Port was by means of tramping vessels and, mostly white corn grain (55.8%) was shipped.

The bulk of white corn grain (54%) was being shipped to Cebu/Lapu-Lapu, corn grits to Dumaguete (73%) and yellow corn grain to Manila (92%) in 1986. Most of the white corn grain shipped to Cebu were being processed into corn grits, corn starch, corn oil and snack foods. On the other hand, the big volume of corn grits shipped to Dumaguete met the demand of the corn-eating population. Yellow corn shipped to Manila was being processed into feeds and/or being consumed by big hogs and poultry farms.

Total shipment charges for container vessels from General Santos-Manila were cheaper by P0.042 per kilogram of corn compared to the charges for tramping vessels, yet only 5% of the corn shipments in 1986 were by container vessels.

**GOVERNMENT INSTITUTIONS INVOLVED IN THE SHIPPING INDUSTRY:
THEIR ROLES AND FUNCTIONS**

A. **Maritime Industry Authority (MARINA)**. This government agency was created in June 1, 1974 thru Presidential Decree 474 with the following objectives:

1. To increase the production and productivity of various islands and regions of the archipelago through the provision of effective linkages;
2. To provide for the economical, safe, adequate and efficient shipment of raw materials, products, commodities and people;
3. To enhance the competitive position of the Philippine flag vessels in the carriage of foreign trade;
4. To strengthen the balance of payment position by minimizing the outflow of foreign exchange and increasing dollar earnings; and
5. To generate new and more job opportunities.

Functions and Responsibilities:

1. Adoption and implementation of a practicable and coordinated Maritime Industry Development Program that shall include the following: Early replacement of obsolescent and uneconomic vessels; modernization and expansion of the Philippine merchant fleet; enhancement of the domestic capability for shipbuilding, repair and maintenance; and the development of a reservoir of trained maritime manpower.

2. Assistance in the provision of the following: Financial assistance to the industry through public and private financing institutions and instrumentalities; technical assistance; a favorable climate for the expansion of domestic and foreign investments in shipping enterprises; and effective supervision and rationalization, management, ownership and operations of all water transport utilities and maritime enterprises.

B. **Philippine Ports Authority (PPA)**. The Philippine Ports Authority (PPA) was created by Presidential Decree No. 505, as amended by Presidential Decree No. 857 primarily for the purpose of implementing an integration of Ports or Port Districts for the entire country in accordance with the following objectives:

1. To coordinate, streamline, improve and optimize the planning, development, financing construction, maintenance and operation of Ports, port facilities, port physical plants, and all equipment used in connection with the operation of a Port;
2. To ensure the smooth flow of waterborne commerce passing through the country's Ports whether public or private, in the conduct of international and domestic trade;
3. To promote regional development through the dispersal of industries and commercial activities throughout the different regions;
4. To foster inter-island sea-borne commerce and foreign trade;
5. To redirect and reorganize port administration beyond its specific and traditional functions of harbor development and cargo handling operations to the broader function of total port district development, including encouraging the full and efficient utilization of the Port's hinterland and tributary areas.

6. To insure that all income and revenues accruing out of dues, rates and charges for the use of facilities and services provided by the Authority are properly collected and accounted for by the Authority, that all such income and revenues will be adequate to defray the cost of providing the facilities and a service (inclusive of operating and maintenance cost, administration and overhead) of the Port Districts, and to ensure that a reasonable return on the assets employed shall be realized.

GLOSSARY OF TERMS

Containerships	Are vessels used for hauling cargoes placed in container vans.
Container-passenger ships	Vessels used for hauling cargoes placed in container vans and at the same time used as a passenger ship.
Break-bulk vessels	Are a type of tramping vessels which carries corn in bags/sacks.
Bulk vessels	Are a type of tramping vessel where corn is loaded in bulk.
Barges	Are a type of tramping vessel where corn is loaded in bulk or sacks.

ATTACHMENT 3

COMMON TERMS USED IN THE CORN COMMODITY SYSTEM

A glossary of commonly used terms in the corn commodity system and their appropriate local expressions are provided below. Definitions of local expressions are given whenever a single expression signifies more than one thing or idea.

Farm Level

- | | | |
|-------------------|---|---|
| Cart | - | " Karomata/Kariton " - a two-wheeled carabao drawn cart. |
| Corn (ear) | - | " Puso " - a) grain bearing spike of a cereal plant or b) fruting head of a cereal, including both the kernels of grain and protective as well as supportive structures. |
| Corn cob | - | " Pakaw " - the core or center part of an ear of corn, i.e., part remaining after recovering the corn grain. |
| Corn (dried) | - | " Uga nga mais " - moisture content of the corn grain is between 14% and 16%. |
| Corn field | - | " Maisan " - a parcel of land planted with corn. |
| Corn grain | - | " Uyas sang mais " - small hard seed of any of the cereal crop grasses used for food, botanically known as caryosis, a dry or seeded berry in which the fruit coat and seed coat are fused to form a single grain. |
| Corn (half dried) | - | " Basa-basa nga mais " - moisture content of corn grain is usually between 16% and 20%. |
| Corn (shelled) | - | " Padpad " - a) (noun) corn grains removed from the cob or b) (verb) to shell. |
| Corn (wet) | - | " Basa nga mais " - moisture content of corn grain is usually over 20%. |
| Credit | - | " Utang " - a definite amount of money owed. |
| Dry (to) | - | " Bulad " - corn is dried by spreading the shelled grains on whatever hard surface is available, i.e. roads, basketball courts, drying floors, etc., during sunny days soon after harvest. |
| Fertilizer | - | " Abono " - organic or inorganic material applied to enrich the soil. |
| Furrow | - | " Tudling/Idas " - a narrow groove made in the ground by a plow. |
| Grain | - | " Uyas " - a small hard seed of any cereal plant. |

Harrow	-	" Karas " - a heavy frame with spikes or disks used for breaking up and leveling plowed ground.
Harvest to	-	" Sanggi " - to gather a season's crop.
Harvest Time	-	" Panahon sa sanggi " - time of the year when grain, fruit, etc. are gathered.
Harvester	-	" Tig-sanggi " - refers to a person harvesting the corn/corn cobs.
Haul	-	" Hakot " - to move or transport from one point to another.
Husk	-	" Panit " - the outer covering of an ear of corn.
Off-season planting	-	" Dili tig-tanom " - corn planted outside the regular planting season.
Pesticides	-	" Pangbomba " - chemicals used to kill insects.
Picking	-	" Sanggi " - to pick the ear of corn from the stalk.
Plant (to)	-	" Tanom " - to put into the ground to grow.
Plow	-	" Arado " - a farm implement that is used to cut, lift, turn over and partly pulverize the soil to prepare it for planting.
Price	-	" Presyo " - the amount of money asked or paid for something.
Seed	-	" Binhi " - the part of the plant containing the embryo from which a new plant can grow.
Sell	-	" Baligya " - a) to exchange goods or services for money or b) to give up property to another for money or other valuables.
Side Dressing	-	" Abono " - placing fertilizer in the soil near the roots of a growing crop; usually beside each row by hand or by a fertilizer distributing attachment.
Load	-	" Karga " a quantity that can be customarily carried at one time by an often specified means of conveyance.
Market Day	-	" Tienda/Tabo " - a stated time and place for people to come together for the purpose of holding sales.

Measuring unit	-	"Pangtakal/Pangtakus" - common container for measuring volumes of grain. This can be approximately 13-14 kilograms of dried corn grain. Four cans fill one sack. (Cans formerly containing 25 liters of vegetable oil are frequently used for this purpose.)
Regular exchange partner	-	"Suki" - a person with whom a regular commercial relationship has evolved.
Sack (or bag)	-	"Sako" - a container made of plastic, jute or similar materials used to hold various kinds of commodities, such as corn, palay, etc. This container usually holds from 50 to 60 kilograms of corn or palay.
Sell (to)	-	"Baligya" - to give up or exchange a commodity for money.
Sheller (Manual)	-	"Lidgidan/Bangguran" - a hand tool made of wood and metal used in separating the kernel from the cob.
Sled	-	"Balsa" - a box-like attachment usually made of bamboo that moves on by sliding on a pair of wooden runners, hitched to a carabao and used for hauling purposes.
Store	-	"Sari-sari/Tindahan" - a small store with limited quantities of consumer goods for local consumers.
Town	-	"Poblacion" - a capital town in a municipality.
Trader (provincial level)	-	"Buy and Sell" - medium or large scale commodity buyer (rice/copra and/or corn) who usually procures from more than two municipalities within a province and sells in the cash market or on contract basis.
Trader (regional level)	-	"Buy and Sell" - large scale commodity buyer who procures corn and/or copra from more than one province and sells mostly on a contract basis.
Unload	-	"Diskarga" - to take the load out of a vehicle.
Warehouse	-	"Bodega" - a building or room for storing dried corn.
Weighing scale	-	"Kilohan/Bascula" - an instrument used to ascertain the heaviness of a certain materials, such as corn, palay, copra, etc. (usually kilogram unit)

Distribution Level

Advance (cash)	-	" Bale " - money or its equivalent paid for goods to be delivered at a later specified time.
Agent	-	" Ahente " - one who buys and sells on a commission basis on behalf of someone else.
Assembler (municipal level)	-	" Buy and Sell " - usually a small or medium-scale commodity buyer of rice, corn, etc., who mostly procures from one municipality and sells in the cash market or with prior agreements.
Buy (to)	-	" Magbakal " - to get possession or ownership of something by giving or agreeing to give money in exchange.
Collector (barangay level)	-	" Kolektor " - a small sari-sari store operator, laeger farmer or the like who becomes a corn buying agent of larger traders.
Commodity Store	-	" " a business establishment engaged in buying and selling agricultural commodities.
Corn (green)	-	" Anagon " - corn harvested before the full maturity suitable for boiling.
Deduction	-	" Discuento " a reduction either in volume or price charged by the buyer to the seller of corn when sold wet, half dried and/or with impurities.
Drying Floor	-	" Buladan " - cemented areas near warehouses or basketball courts, asphalt roads, various mats, etc. on which corn is spread and dried in the sun.
Fare	-	" Pasahe " the price charged to transport a person or thing.
Guarantor or credit	-	" Piyador " - one who gives a guarantee or b) a person entrusted with money that is to be extended to others (farmers)
Interest Rate	-	" Porsiyento " - the price paid for borrowing money generally expressed as a percentage of the amount borrowed, usually paid in one month or one year.
Jeepney	-	" Jeepney/Dyip " - small vehicle designed to carry over 10 persons or one ton of commodities; common means of transportation to barangays.

Processing Level

- Corn (cracked) - **"Giniling nga mais"** - large sized pieces of corn after milling.
- Corn grit - **"Giniling nga mais"** - moderately sized pieces of corn after milling.
- Corn (fine) - **"Tik-tik"** - very fine pieces of corn after milling.
- Feeds - **"Pambahog"** - grains and other materials as food for livestock.
- Feed supply store - " " - a business establishment that sells feeds and veterinary supplies for poultry, hogs and other livestock.
- Mill - **"Gilingan"** - a place with a machine for grinding corn or b) to break grain into fine pieces.

Consumption Level

- Hog raiser - **"Magbababoy"** - a farmer who grow hogs.
- Piggery - **"Babuyan"** a place where hogs are raised commercially.
- Poultry - **"Manukan"** - domestic fowls collectively.
- Poultry raiser - **"Magmamanok"** - a farmer who raises domestic fowls.
- Spray (to) - **"Bomba/Spray"** - apply pesticide to plants in order to control insects, disease or weeds.
- Village - **"Baryo/Barangay"** - smallest political unit.
- Water Buffalo - **"Karabaw"** - draft animal used for plowing, horrowing, pulling sleds and other farm work.
- Weeding - **"Hilamon"** removing unwanted plants by hand or plow.