The Supply of High Value Crops to Supermarkets in Malang District—Trends and Implications for Small Farmers
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The initial phase of the RICA project has four components: the Rural Investment Climate Survey, National Conference on the Rural Investment Climate, and five case studies that complement the quantitative survey with qualitative research. The case studies were designed to increase understanding of the policy and institutional setting and how it influences the failure or success in implementation and outcomes. The RICA Case Studies were chosen around five themes where knowledge gaps exist or where good examples of innovation have been found. The knowledge gained from these case studies will be incorporated into the RICA Report.

For more information on the RICA project, please refer to www.worldbank.org/id/rica.
ABSTRACT

Supermarkets in Malang, thus far, have acted as a positive force for small farmers improving their technical skills, enhancing their marketing opportunities and profits by enabling them to sell more and higher value goods. Going against expectations, small, non-specialized local farms are meeting the demand for High Value Crops (HVC) in Malang via a four-actor supply chain consisting of farmers, collectors, supermarket suppliers, and supermarkets.

Low volume of demand is one of the key factors making it more efficient for small-scale farmers to provide HVC. Most farmers therefore do not specialize in HVC but rather grow HVC to supplement their income. Farmer motivations for growing HVC include higher profit margins and steady income from continual harvest of ripe produce. The diversified crop strategy characterizing Malang’s small farms mitigates risk. HVC are not significantly more challenging to grow than conventional crops, though they do require a higher degree of quality control.

Vegetable collectors play a pivotal role the supply chain providing low-cost, reliable deliveries of high quality HVC to supermarket suppliers, controlling supply/oversupply issues, while also providing ready cash to farmers.

The size of the market, the need for fresh produce, relatively simple technical standards, as well as rigid land markets have so far combined to ensure that small-farmers are still able to participate in HVC supply. But for certain high volume HVC, this is beginning to change with the emergence of direct relationships between suppliers and farmers.

Small farmers growing HVC have rarely formed formal farmers’ groups, which may be due to existing informal coordination among neighboring farmers and efficiencies of the collector system where increasing market entry has forced competitive prices and more convenient locations for the collectors’ services. There was only a perceived advantage to farmers’ groups in cases of high-volume demand for a particular HVC, when suppliers were able to set up a three-actor supply chain by approaching farmers and directly specifying the planting/harvesting plans (cutting out the local collector function). In these situations farmers groups provided supermarket suppliers critical access to larger plots of land but were seen as more difficult to work with than individual small farmers.

This case was written by Kyle Lemargie, consultant (U.S.A.). Research was based on field research in Malang district in September 2005; team members included Nunik Yunarti and Agni Paramita, consultants (Indonesia). Technical advice and review was provided by Pantjar Simatupang (thematic author). Analytical and managerial support by Neil McCulloch, World Bank (Indonesia), and Stefan Nachuk, World Bank (Indonesia). Editorial and analytical support was provided by Juliana Wilson, consultant (U.S.A). See Bibliography for works referenced. This case is copyrighted by the World Bank and may not be reproduced or reused without its permission.
INTRODUCTION

In the past ten years, the emergence of supermarkets has led to a revolution in the agri-food business across Asia. During the 1990’s, supermarkets held 5-10% of Indonesia’s retail food market, by 2003 that share had risen to 30%.

From the supply side, the introduction of foreign direct investment in the retail trade sector spurred swift development in supermarkets, both international and domestic chains. In Indonesia, these changes began after the liberalization of retail trade in 1998. Supermarkets are gaining a larger share of food retailing due to demand-driven changes such as the increasing popularity of processed and packaged foodstuffs including noodles, milk products, and grains among the emerging middle class and opportunity cost of women’s time as increasing numbers of women join the formal workforce.

Supermarkets can work with food manufacturers to provide these types of goods at cheaper prices than traditional outlets due to economies of scale.

In Indonesia, the fresh food market is not yet dominated by supermarkets, but in other countries changes in the downstream agri-food business has altered procurement systems which, in turn, affects upstream producers. In Indonesia and most of Asia, upstream producers are predominately small farmers. Those watching the development of the supermarket industry in Asia have concluded only larger farms would be efficient enough to successfully supply supermarket chains in the long run and that supermarket growth would negatively affect small, relatively inefficient farmers, leading many to leave the land.

Indonesia’s economy remains agriculturally based despite rapid industrialization during the past thirty years, with over 25 million Indonesian households getting at least part of their income from farming and nearly 40 million people working in agricultural sector as of 2003. It is believed that the large-scale demise of small-scale farmers could be staunched if new models organization to supply supermarkets could be developed.

Understanding the market for High Value Crops

For the purposes of this study, High Value Crops are defined non-traditional vegetables and fruit that, prior to the advent of supermarkets, were not found in traditional markets. In general HVC requires a significantly more temperate climate than is seen across most of Java, hence why cultivation takes place in higher elevations like Malang in East Java and Bandung in West Java. Bali is also a center of HVC production including radicchio, arugula, and other gourmet vegetables with demand driven by up-scale restaurants in tourist areas. Examples of HVC grown in Malang include broccoli, lettuce, melons, Japanese spinach, radishes, different eggplant varietals, asparagus, snow peas, and strawberries. Vegetables typically found in traditional markets include garlic, shallots, potatoes, carrots, cabbage, local greenleaf vegetables like kangkung and sawi, as well as tomatoes. These traditional vegetables and fruits are found both in supermarkets and village marketplaces.

A number of consumer demands are driving increased HVC consumption. Demands for non-traditional vegetables in Malang originally came from Chinese restaurants, which used a wider range of vegetables in their recipes. Now Indonesia’s middle class is developing an increased consciousness about nutrition and a more cosmopolitan palette thus an interest in non-traditional vegetables and fruits.

1 Reardon et al. 2003.
2 Reardon, citing Rangkuti, 2003.
3 Ibid
5 Ibid
6 While chilis are highly profitable, they are outside the definition of HVC for several reasons: they are high-volume, commonly grown commodities found in traditional markets that require specialized knowledge to grow.
Marketing and information campaigns in supermarkets are also driving demand. Supermarkets often provide information on how to cook HVC and display signs describing their health benefits. Supermarkets also carry a wide variety of inexpensive paperback cookbooks in Indonesian providing recipes. Supermarkets or supermarket suppliers may also station employees in produce sections on weekends to explain how to cook the vegetables and to distribute recipes.

MALANG DISTRICT

Located in East Java, the majority of Malang District is on higher elevations than much of the rest of Java, between 500-3600 m. It has a total area of 3,347.8 km², 43.4% of which is used for farming. In 2003, the District had a population of 2,250,109.

A 2003 poverty assessment by the Indonesian Central Body of Statistics found a poverty rate of 18% compared with the national average of 17.42%. In 2002, Regional Gross Domestic Product was IDR 6,764.09 billion ($US 676.41 million), or IDR 3.01 million ($US 301) per capita. In 2003, 57.2% of the district’s labor force worked in agriculture, contributing 42% of the District’s RGDP.

Farming in Malang is concentrated in three Sub-districts with farmland above 700 m: Pujon, Ngantang, and Poncokusumo. Of these three areas, Pujon is the most productive and established agriculture area as reflected in the large number of households engaged in farming, see Table 1.

<table>
<thead>
<tr>
<th>Sub-district</th>
<th>Total households</th>
<th>Farming households</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pujon</td>
<td>12,345</td>
<td>10,332</td>
<td>83.69</td>
</tr>
<tr>
<td>Ngantang</td>
<td>13,509</td>
<td>9,019</td>
<td>66.76</td>
</tr>
<tr>
<td>Poncokusumo</td>
<td>25,111</td>
<td>17,998</td>
<td>71.67</td>
</tr>
<tr>
<td>Karangploso</td>
<td>15,034</td>
<td>2,707</td>
<td>18.00</td>
</tr>
<tr>
<td>Malang District</td>
<td>583,172</td>
<td>253,128</td>
<td>43.40</td>
</tr>
</tbody>
</table>

New developments in seeds and commodity varieties have recently allowed for the development of agriculture in the lower-elevation area of Karangploso. Karangploso is a rapidly developing area for HVC production; but, given the recent introduction of farming in the Sub-district, only a small percentage of households earn their income solely from agriculture.

The Development of Supermarkets in Malang

In 1989, Mitra Department Store opened the first supermarket in Malang. The next came the opening of the first of three supermarkets by the Hero chain in 1991. The number of supermarkets in Malang continued to grow with nine supermarkets opening between 1991-1998. Two of these markets have only processed goods, Alfa and Cutprice, while the other seven markets have fresh vegetable sections. Increased demand for higher quality HVC began in 1998 when Carrefour in nearby Surabaya tightened quality restrictions, with other supermarkets throughout the region following suit. After 2000, the market for HVC expanded rapidly involving more farmers and increasing competition between the rising numbers of collectors working the market.

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7 Interview with Roni, Staff of the Agricultural Extention office, Malang District, September 30, 2005. Interview with Ruspin, PTP of Sub-district Karangploso, in Sub-district Karangploso, October 1, 2005.
THE HVC SUPPLY CHAIN – A BRIEF OVERVIEW
Most of Malang’s HVC producers bring their crop to market via a four actor supply chain of small-scale farmers, produce collectors, supermarket suppliers, and supermarkets.

Small-scale farmers
No data for landholding size is collected in the District level, however the head of the Agricultural Extension estimates the average size of farmer landholdings in Malang District is 0.3 to 0.4 hectares. Most farmers interviewed held approximately 0.2 hectares. Almost all farmers in Malang District are small-scale farmers. Landholdings are small largely due to division for inheritance. Farmers interviewed were dedicated to agricultural production, though some also worked as collectors. Small-scale farmers provide steady income and reduce risk by diversifying crops and accessing multiple buyers for their produce.

Local collectors
Local collectors receive produce daily, either with farmers bringing in their crop or, as with larger operations, the collector picking the harvest up from farmers. The collector pays a price above that of the traditional market, usually in cash. Local collectors are often also farmers who expand into small-scale trading. They provide the mechanism that allows small farms to grow several small plots of HVC on their land. For low-volume HVC, the mark-up rarely hampers competitiveness—competition among collectors and farmers’ access to market information through traditional markets prevents high mark-up. In cases of high-volume HVC such as melons or sweet corn, the three-actor supply chain is proving more competitive. They skip the collectors’ markup and present cost savings through increased efficiency.
Supermarket suppliers

Supermarket suppliers are large, family-owned operations that purchase High Value Crops from several collectors. The supplier cleans and packages the produce according to supermarket specifications. The delivery schedule of a supermarket supplier demands a 24-hour workday and involves more elaborate packing, processing, and transport abilities, as well as a higher degree of management skill and operating capital in order to meet supermarket registration requirements and special fees.

Supermarkets

The first large supermarket opened in Malang in 1989 and since 1998 the industry has seen rapid expansion and increasingly heavy competition. Supermarkets began offering vegetables and fruits not found in traditional markets following demand from an expanding middle class with more cosmopolitan tastes and disposable income. They have opened a demand for new HVC and so far have turned to local supply chains to procure most of their orders.

METHODOLOGY

The team conducted research over a two-week period in Malang District with visits to Pujon, Karangploso and Lawang. Researchers visited Ngroto village in Pujon and Tawang Argo village in Karangploso. Many of the supermarket supply chains the team followed included important links outside of the District, so additional fieldwork was conducted in Kota Batu (Sub-district Batu), Kota Surabaya, and District Pasuruan (Sub-districts Nongkojajar and Tosari). Additional interviewing took place via telephone in November and December 2005.

The team also observed the price and quality of commodities in nine supermarkets, two fresh fruit and vegetable stores, and three traditional markets.

Semi-structured interviews were held with a sampling of respondents selected to give an overview of the HVC procurement system for modern supermarkets in Malang including: a provider of agricultural inputs, farmers, produce collectors, supermarket suppliers, supermarket representatives, local academics, and local government officials at the District and Sub-district levels.

The study was designed to answer the following questions:

1. Do farmers growing HVC achieve greater profits but incur higher risk?
2. Has the increasing number of supermarkets in Malang resulted in larger farmers capturing the HVC market?
3. Are farmers with greater assets—land, labor, capital—more likely to be successful growers of HVC?

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8 Methods of packing are determined by the buyer, and are taught to the suppliers. Packaging is different for supermarkets catering to different market segment. Interview with Bambang, September 27, 2005.
9 Interview with Ibu Bari, Karangploso collector, September 24, 2005.
10 Local government offices have yet to include many varieties of High Value Crops in their itemized time series data on agricultural production in the District, while farmers, local collectors and suppliers rarely keep detailed records of their sales to each other or to supermarket buyers. Supermarket buyers were reluctant to release data on purchasing, which was seen as sensitive due to heavy competition between local supermarkets. Analysis of trends in the farming and marketing of High Value Crops was thus primarily based on the experience and perceptions of key actors in the supermarket supply system.
11 See Appendix
DO FARMERS GROWING HVC ACHIEVE GREATER PROFITS BUT INCUR HIGHER RISK?

Each of the supply chain actors face different issues and incentives dependent on their role in the chain. This section explores the key issues and incentives faced by each actor in turn.

Issues and Incentives for Small Farmers: Higher Profits, Less Risk

Farmers can make more money growing HVC than traditional crops on the same land area. Despite higher costs of production, the higher selling price for HVC typically means that they earn much higher profit than with most traditional crops. For example, the potential profit from growing lettuce is more than four times higher than it is for rice. Moreover, their shorter planting cycle results in even higher profit per day as indicated in the table below.

Table 2: Comparative Income from supermarket and conventional crops

<table>
<thead>
<tr>
<th></th>
<th>Supermarket</th>
<th>Conventional</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lettuce</td>
<td>Broccoli</td>
</tr>
<tr>
<td>Total production cost (IDR)</td>
<td>3,300,000</td>
<td>3,700,000</td>
</tr>
<tr>
<td>Yield (Kg/2500m²)</td>
<td>2,500</td>
<td>1,700</td>
</tr>
<tr>
<td>Selling price/Kg</td>
<td>3,000</td>
<td>4,500</td>
</tr>
<tr>
<td>Sales (IDR)</td>
<td>7,500,000</td>
<td>7,650,000</td>
</tr>
<tr>
<td>Profit per cycle (IDR)</td>
<td>4,200,000</td>
<td>3,950,000</td>
</tr>
<tr>
<td>Length of planting cycle (days)</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>Profit per day</td>
<td>56,000</td>
<td>52,667</td>
</tr>
</tbody>
</table>

Note: all figures are per 2500m².

Growing HVC decreases risk exposure for farmers. Prices are reasonably stable and, due to the perishable nature of most HVC, farmers do not experience inter-regional competition. Furthermore, farmers do not require significant assistance from agricultural extension programs to begin growing HVC. These findings stand in sharp contrast with HVC studies in other countries, which typically find that HVC production is both more profitable and riskier than conventional crop production. (See Reardon and Timmer, The Supermarket Revolution with Asian Characteristics) Another advantage to growing only small amounts of each HVC vegetable is to avoid oversupplying collectors, which would risk lowering the buying price for not only the farmer but also for other farmers in these small, rural communities.Still, low volume of demand deters many farmers from growing HVC. While exact figures are not available, it is clear that the HVC market, although rapidly growing, remains very small.

12 Interview with Pak Haji Jono, Pujon collector, September 25, 2005.
What Factors Determine Farmers’ Choice Between HVC and Conventional Crops?

Growing HVC is inherently less risky than growing traditional vegetables. While the potential payoff to a farmer growing conventional vegetables is high because of the larger volumes demanded by traditional market buyers, prices fluctuations for conventional crops can be extreme, and farmers can lose money if prices drop.13

Thus farmers often choose to plant both conventional and High Value Crops to reduce their risk and maximize their income. Daily harvests of ripe HVC provide a steady stream of income between harvests of conventional produce. Reliance on a single traditional crop strains farmers' cash flow and increases risk should the harvest fail. When asked whether or not they would consider specializing in growing and harvesting a single High Value Crop, local farmers explained that even if planting a full field of one crop were more profitable or more efficient, they would still forgo that option in favor of a daily income between harvests.

Local farmers saw the decision to shift from planting only rice to HVC as rather straightforward: if the land and season permitted, farmers were better off planting HVC. The decision to switch from conventional vegetables to High Value Crops is more complicated, and Table 3 illustrates some of the key factors influencing this decision.

Table 3: Factors for choosing conventional & HVC vegetables

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Conventional vegetables</th>
<th>High Value Crops</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>▪ Fluctuates, especially cabbage, carrots, chilies and tomatoes</td>
<td>▪ Relatively stable prices.</td>
</tr>
<tr>
<td></td>
<td>▪ Can produce financial losses14</td>
<td>▪ If prices do go down, it is never to the point of suffering financial loss.</td>
</tr>
<tr>
<td>Profit</td>
<td>▪ For certain varieties of conventional vegetables, when there are profits, they can be huge profits, and more clearly felt at one time through higher volumes.15</td>
<td>▪ Profit margin per kilo is higher than that of traditional vegetables</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Profit is distributed over time providing a steady flow.</td>
</tr>
<tr>
<td>Transport/Delivery</td>
<td>▪ Buyers will come on their own and transport the produce using their own vehicles</td>
<td>▪ Must deliver the produce to collectors</td>
</tr>
<tr>
<td>Planting/</td>
<td>▪ Longer plant cycles (e.g. carrots=120 days, water spinach=75 days and cabbage= 90 days)</td>
<td>▪ Seeds are more expensive</td>
</tr>
<tr>
<td>Harvesting</td>
<td></td>
<td>▪ Less pesticide needed (10-15% less)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Shorter plant cycles usually around 50 days</td>
</tr>
</tbody>
</table>

13 Interview with Pak Sukardi, Tosari farmer, September 27, 2005
14 If Cabbage is sold under IDR 200/kg, carrot under IDR 300/kg and Tomatoes for less than IDR 500/kg
15 For example, 1 hectare of shallots needs IDR 10 million of capital, and can sell for IDR 25 million. Interview with Pak Zaenuddin, SSI Pak Zaenuddin, Koperasi Unit Desa BAIK
Technical knowledge was not a limiting factor for farmers wishing to shift to HVC. Farmers received information about growing and marketing HVC from many sources including direct interaction with seed and fertilizer sellers or by reading their publications, and attending crop demonstrations. Farmers also learned about HVC through interaction with other farmers, small buyers, and experimentation with small quantities of seed. Many farmers also learned of new HVC through their activities in traditional markets. One farmer from Karangploso recounted learning about HVC when he sold conventional vegetables in Surabaya’s main traditional market, Pasar Keputran. There he saw many kinds of new crops, learned their names and noted the ones selling well and the ones making the most profit.

Growing HVC means farmers may have access to financial services provided by larger collectors. It is common for farmers to turn to well-established local collectors when they need low-interest or no interest loans. Some local collectors will offer to buy crops before harvest (a system called tebasan) which allows farmers to get a price close to the market price for their expected harvest in advance while the local collector takes on the future price risk. The collector stands to make large profits if their price predictions are correct. After the crop is bought out, the local collector (or his representatives) completely takes over all farming activities. The original farmer has little involvement with his land until after the harvest when the field is handed back to him. Local collectors will usually wait to make these advance purchases until crops are already at the maturing phase, so there is little risk of crop failure. Farmers had mixed opinions about this practice, some pointing to the benefit of having the guaranteed payment and others uncomfortable about giving up the potential of their harvest, but even those with reservations admitted: “if push comes to shove and I have a financial emergency, then I use it.” Collectors also prefer to diversify their purchases among several farmers to encourage price competition and reduce the risk of crop failure among HVC farmers.

Issues and Incentives faced by Collectors

Approximately 75% of supermarket suppliers in Malang purchase their goods from collectors; this is particularly the case for procurement of more perishable HVC with a continuous but low volume of demand. For supermarket suppliers, collectors are often the first line of quality control. They learn supermarket quality standards then separate high-quality HVC, selling it up the supply chain to supermarket suppliers while selling below-grade produce to suppliers in the traditional markets. Supermarket Suppliers will then package the produce to the specifications of the supermarket.

The four-actor supply chain has grown more efficient with an increasing number of collectors serving vegetable growers. The resulting competition, paired with increases in farmers’ access to market information, has dramatically decreased margins in the local collector business. One well-established collector explained that his business only made a profit of 200-250 IDR/kg unless there

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16 Suppliers in some three-actor chains are starting to supply potential partner farms with these services.
17 Many respondents consulted seed sellers to find out what seed varieties other farmers were buying so that they could avoid “following the current” and potential situations of oversupply.
18 Interview with Pak Rasyim, September 26, 2005
19 One local collector from Karangploso, Pak Bari, was able to make a IDR 15 million profit once because he read the market well and bought the lettuce standing crop 20 days before harvest. Interview with Pak Bari, Karangploso collector, September 29, 2005.
20 Interview with Pak Haji Jono, Pujon collector, September 25, 2005.
21 Usually these Supermarket Suppliers will call and complain if mistakes are made, respondents mentioned that only one supermarket supplier in Sub-district Lawang would send below-grade vegetables back.
22 In Desa Tawang Argo, Sub-district Karangploso, there are between ten–twelve collections, up from three prior to 2000. Interview with Ruspin, PTP of Sub-district Karangploso. In Desa Ngroto, Sub-district Pujon, the number of collectors is now eight, up from three prior to 2000, interview with Suari, head of the farmers association, Desa Ngroto; confirmed with Mico, collector, in follow up interview.
was unusually high demand for a particular commodity, in which case profit could go up to 500–1000 IDR/kg.23

Collectors rely on farmers to choose their crops and on the traditional market and the tebasan system to deal with problems of oversupply. The collector system rarely provides small-scale farmers with a comprehensive planting/ harvesting plan. Local collectors often hesitated to give planting advice to their farmers since—if advice was given—it usually carried with it the social obligation to buy those vegetables once harvested.24 In cases of oversupply, local collectors may refuse to buy from farmers and both parties will start selling excess to the traditional market. One collector in Karangploso explained that when there is plentiful harvest of a certain commodity, he sells to Supermarket Suppliers and to the traditional market. Even if he has to sell at a lower price at the traditional market, it would still be better than getting nothing at all. His buyers at the traditional market will sometimes ask for a lower selling price because they assume the goods he is selling them are second-rate, rejected goods, even if it is not the case. He sees his supermarket-supplier buyers as regular customers and traditional markets as “incidental buyers.”25

Collectors with sufficient resources will take advantage of cases of undersupply by purchasing harvests in advance. If it appears there are few farmers growing a particular commodity and demand for that commodity is increasing, local collectors will try to buy the harvest from farmers sometimes up to twenty days in advance. Although this requires the collector to take on greater risk, if he has read the market correctly he stands to make large profits and avoid intense competition from other potential buyers at harvest time.26

<table>
<thead>
<tr>
<th>Traditional Markets &amp; the Four-Actor Supply Chain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suppliers and collectors have come up with innovative information gathering strategies, employing some farmers to survey what others are planting, or offering a 2.5% share of the buying price to those who notify them of crops available for pre-harvest purchase or tebasan. Some small farmer respondents first learned of new supermarket vegetable varieties and received price information critical to their decision to plant these crops through their interaction with traditional markets. All actors in the supply chain watch prices in the traditional markets carefully in making decisions on planting and selling. Even supermarket buying representatives follow traditional market prices and know the acceptable spread between these prices and what they need to offer to obtain quality produce.</td>
</tr>
</tbody>
</table>

**Issues and Incentives faced by Supermarkets Suppliers**

The perishable nature of the product drives supermarket suppliers to work with local farmers. Suppliers’ unanimously stated that produce freshness and quality were their primary concerns as supermarkets will not purchase inferior products. According to supermarket supplier’s interviewed, purchasing locally grown HVC ensures high quality at a competitive price. Several suppliers noted that purchasing from another region with industrial farms (all cited Bandung, West Java) would add significant costs in terms of money, time, and energy.

Non-local HVC carries with it prohibitively high transportation costs with one interviewee stating that transport across Java would cost hundreds of thousands of rupiah.27 Produce is normally transported in open, non-refrigerated trucks, thus non-local HVC will require additional sorting to separate produce damaged or rotten from the heat. Suppliers also stated that non-local HVC was less fresh

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23 Interview with Ibu Bari, Karangploso collector, September 24, 2005. Also with Pak Bari, Karangploso collector, September 29, 2005
24 Interview with Pak Bari, Karangploso collector, September 29, 2005,
25 Interview with Pak Rasyim September 26, 2005
26 Interview with Ibu Bari, Karangploso collector, September 24, 2005
27 Interview with Budi Santoso, owner of the supply company Bromo Hort, December 8, 2005.
since it was harvested a day or more prior to shipping. Given these additional factors, non-local HVC is less competitive. Local HVC, by contrast, is harvested and immediately goes to market, ensuring a fresher, less-damaged product by the time it reaches Supermarkets. The additional cost of the collector’s work does not add significantly when compared with these costs.

Supermarket suppliers also cited timely delivery and ease of communication as reasons to procure HVC locally. Physical proximity ensures that suppliers fulfill supermarket orders on time—deliveries to supermarkets are made in the early morning. Thus, HVC can be harvested and in supermarkets in less than 24 hours. Easy communication up and down the supply chain is essential for supermarket suppliers, allowing them to fill increased demand from supermarkets quickly or to anticipate shortages or other issues. One supermarket supplier said working locally was financially less stressful; with the local collector he could delay payment up to one month while traders in Bandung required payment upon transaction.28

A secure supply chain has led one supplier from Sub-district Karangploso to start supplying HVC to nearby Surabaya, then to Bali, Lombok, Kalimantan, and Makassar; he now supplies to thirty outlets.29

**HAS THE INCREASING NUMBER OF SUPERMARKETS IN MALANG RESULTED IN LARGER FARMERS CAPTURING THE HVC MARKET?**

In many places outside Indonesia the supply chain is changing as small farmers are squeezed out and supermarket suppliers increasingly source their fresh produce directly from a smaller group of large farmers. Large farmers have inherent advantages—they can use their earning to invest in infrastructure, additional land, skills, and technology to grow a greater variety of uniformly higher-quality HVC at lower per-unit costs than smaller farmers.

However, this shift to larger farmers does not appear to have happened in Malang. Supermarkets have made attempts to work directly with small farmers, but have found it too difficult and time consuming to compensate for the additional profits that they could earn by cutting out supermarket suppliers and collectors. For example, five years ago, a fresh produce representative from Giant supermarket tried to work directly with farmers but was unsuccessful because of late deliveries and poor quality control. He attempted to get farmers to establish bank accounts and sign terms of agreement, but the effort was finally abandoned.30 Some supermarket suppliers have been able to go directly to farmers, bypassing the collectors. In these cases they often must provide many of the same financial and support services as collectors. One supplier goes so far as to provide his farmers with mobile phones.31

In addition, suppliers face increasing competition due to rapid growth in the number of large supermarkets in Malang and the resulting pressure to lower prices. A supermarket buyer from Surabaya explained that competition with other supermarkets is natural; he always checks out the price of vegetables over at the competition and tries to get his suppliers to give him the same price or lower.32

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28 Interview with Pak Alimuddin, supplier for Hero Supermarket for 7 years, December 8, 2005.
29 Interview with Pak Iloed and Ibu Wiwiek, owners Rodeo supermarket supplier, September 23, 2005.
30 Interview with Pak Bambang, purchaser Giant/Hero group, September 27, 2005.
31 Interview with Budi Santoso, owner of the supply company Bromo Hort, September 26, 2005.
32 Interview with Pak Bambang, purchaser Giant/Hero group, September 27, 2005, also Budi Santoso, owner of the supply company Bromo Hort, September 26, 2005.
Supplier contracts now include additional fees for the supplier to help large supermarkets offset the cost of special discounts, additional packaging, parking, and other costs. These annual fees total about 3-5% of supplier turnover. Since Carrefour introduced the practice in 1998, suppliers have to pay an initiation fee of IDR 5–15 million to start supplying many supermarkets and additional initiation fees to access newly opening outlets. Suppliers indicated that they absorb much of this price competition and try to shield their network of farmers to keep them from switching to other buyers. Most, though not all, supermarkets will negotiate fees. Despite this, fees represent enough of a barrier to prevent small farmers from supplying supermarkets.

Small farmers who want to sell directly to supermarkets are unable to do so because of financial constraints. A fresh produce buyer for Hypermart identified the following constraints to small-scale farmers directly supplying supermarkets:

- **Supply of Multiple Products:** To maximize freshness, goods must be received in the early morning. For efficiency, the supermarket may order more than ten products from each supplier.
- **Registration:** The supplier must obtain a supplier number from the supermarket and register each product for supply. The registration process takes two weeks with an additional two days for each new product. Suppliers must also have a bank account, as supermarkets pay by direct transfer.
- **Delayed Payment:** Payment for produce takes on average two weeks as it is centralized in Jakarta.

**ARE FARMERS WITH GREATER ASSETS—LAND, LABOR, AND CAPITAL—ARE MOST LIKELY TO SUCCEED GROWING HVC?**

High volume of demand for certain HVC allow for the development of direct relationships between supermarket suppliers and farmers. Even in these three-actor supply chain partnerships, size and organizational ability of partner farms was not a factor determining the success of these partnerships. Small farmers who have proven themselves to be highly motivated and possessing sufficient technical skills are able to successfully supply high-volumes of HVC.

The relatively high volume of demand for some High Value Crops, such as sweet corn, melons, and watermelons, has been a key factor enabling suppliers to set up direct supply relationships with small-scale farmers. As indicated in the two examples below, the good reputation of farmers among suppliers and key technical knowledge are key factors to establishing direct supplier-farmer relationships. Suppliers such as Tanindo seek out farmers experienced in growing High Value Crops for partnerships and plans to turn first to these farmers in the future before establishing partnerships with new farmers.

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33 Relationships between Supermarket Suppliers and supermarkets are formalized and contractual. Terms of agreement are drafted yearly and include information on the order, selling price, payment terms and invoicing schedule, and trading terms. Contracts can be somewhat negotiable, depending on the person in charge. Interview with Pak Iloed and Ibu Wiwik, owners Rodeo supermarket supplier, September 23, 2005.

34 Interview Pak Susanto, Head of Asosiasi Pengusaha Pemasok Pasar Modern Indonesia, October 18, 2005. An “initiation fee” includes a variety of fees: a listing fee, common assortment costs, etc. This “initiation fee” could not be confirmed with Carrefour as the company declined to be interviewed.

35 Suppliers try not to pass down the costs of supermarket competition to the farmer because it would not be helpful to building mutual trust relationships. Interview with Budi Santoso, owner of the supply company Bromo Hort, September 27, 2005. Also, interview with Ibu Emmy and Pak Ichwanto, owners UD. Sayur Makmur supermarket supply company, September 29, 2005.
Tanindo: Partner Farm System

Tanindo, one of Malang District’s biggest and most established seed sellers, entered the supermarket suppliers’ market in 2001, using a mitra tani, or a partner farm system, which was leveraged by their expertise in seeds and experience providing extension programs to farmers. Partnerships were established with 70 farmers in Kediri (50 to grow corn and 20 to grow melons) and 5–10 farmers in Pujon to grow leafy High Value Crops. In choosing its partners, Tanindo consulted local farmers groups to get information about hardworking, experienced farmers who were cooperative, innovative, creative, communicative, and honest. Land ownership was not important, and in cases where farmers did own land there was no preference for farmers with larger land holdings—in fact, smaller farmers were considered to be more diligent.

The farmers are responsible for doing an initial quality sort of harvested crops and Tanindo re-sorts them again, only buying grade A sweet corn and melons. Currently Tanindo sells to supermarkets in Surabaya only and has not established partnerships with farms in Malang district because there already are many competitors there. Many of Tanindo’s partner farms have grown in size as their earnings enable them to rent more land.

Buah Indah: Directly Sourcing HVC from Farmers

Buah Indah, a large supermarket vegetable and fruit supplier in Batu district, began sourcing melons directly from farmers in 1997. The owners rented land suitable for growing melons in Lumajang, Kediri, and Nganjuk districts to set up model farms of 3-4 hectares each. They consulted local leaders and model farm managers to identify potential partner farmers nearby, who had grown rice, corn and soy, who owned land, were hardworking and trustworthy, and who had good farming skills.

Potential partner farms were given imported melon seed and weekly technical extension assistance through the model farms, including help with fertilizers, pesticides, and information on planting cycles and growing techniques. Partner farms grew mostly watermelons and other melons, which need more land and are difficult to diversify with other crops, to meet the high demand from Buah Indah’s buyers. These farms usually received a guarantee that the supplier would buy their harvest. This system proved so successful that now many farmers come to them seeking partnerships.

Buah Indah works with 5–10 partner farms in Lumajang, of ¼ to ½ hectare each. In Kediri and Nganjuk they work with 10 other partner farmers and a farmers’ group consisting of 15 members. About 70% of their produce passes as grade A supermarket quality, 90% of this is sold directly to supermarkets, with the remainder purchased by other suppliers at a 2.5% discount.
CONCLUSIONS

There are at least three factors that enable small farmers to compete effectively in the supermarket supply chain in Malang:

- low volume of demand
- the key role played by middlemen
- perishable nature of the product combined with poor infrastructure and transportation

The relatively size small of the market for HVC means that there are not yet the economies of scale that would make it profitable for supermarket suppliers to develop proprietary partnerships with fewer large farmers. Currently, supermarkets demand regular supplies of small amounts of produce, making it viable and efficient for smaller farmers to compete in the market.

Most supermarkets only accept top quality produce; collectors and suppliers play a useful role in quality control by rejecting lower quality produce from farmers and selling it to traditional markets. The supply chain provides vital education to small farmers about quality standards as collectors transfer knowledge about supermarket and supermarket supplier demands. If the middlemen did not play this role, then it is likely that smaller farmers would be at a greater disadvantage.

Though poor infrastructure and non-refrigerated transport limits the ability of Malang farmers to supply more distant markets across Java, the same constraint prevents interregional competition with locally grown HVC. Difficult roads and mountainous, isolating geography also make it more efficient for a chain of actors to bring produce to market.

What remains unclear is if the regional agri-food supply chain will remain as it is or if the Malang supply chain is in the early stages of transitioning to large-scale production of HVC. Small farmers currently have good access to the supermarket supply chain, but this could change should volume of demand rise and supermarkets come under even greater pressure to reduce prices and streamline their supply chains. System altering innovations such as regional distribution centers and centralized procurement systems have yet to be implemented for fresh fruits and vegetables by any of the large supermarket chain stores in or around the District.

Should successful local farmers try to expand their farms and work toward large scale growing, they would face several systematic constraints including poor local roads and relatively rigid land markets. Poor roads limit the size of vehicles and the weight of their load thus impairing farmers ability to get large quantities of HVC to market. Further, rigid land markets may make it difficult for farmers to purchase and gain legal title to additional land and/or consolidate with adjacent small farms. Until the transaction costs associated with land purchases are systematically lowered, this will act as a brake upon the rapid development of a group of large farmers who dominate the local market for high quality produce.
## APPENDIX 1: INTERVIEWEES

Semi-structured interviews were held with a sampling of respondents selected to give an overview of the HVC procurement system for modern supermarkets in Malang.

The number of interviews and categories of respondents were as follows:

<table>
<thead>
<tr>
<th>Interviewee Category</th>
<th>Number of Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provider of agricultural inputs</td>
<td>1</td>
</tr>
<tr>
<td>Farmers</td>
<td>14</td>
</tr>
<tr>
<td>Collectors</td>
<td>4</td>
</tr>
<tr>
<td>Supermarket Suppliers</td>
<td>4</td>
</tr>
<tr>
<td>Supermarket Representatives</td>
<td>6</td>
</tr>
<tr>
<td>Local Academics</td>
<td>4</td>
</tr>
<tr>
<td>Local Government Officials</td>
<td></td>
</tr>
<tr>
<td><strong>District</strong></td>
<td></td>
</tr>
<tr>
<td>Agriculture Department (Dinas Pertanian dan Perkebunan)</td>
<td>4</td>
</tr>
<tr>
<td>Sub-Agency for Trade (Sub-Dinas Perdagangan)</td>
<td>1</td>
</tr>
<tr>
<td>STA Mantung (Sub Terminal Agrobisnis)</td>
<td>2</td>
</tr>
<tr>
<td><strong>Sub-district</strong></td>
<td></td>
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<tr>
<td>Pujon: PPL (Field Extension Officer)</td>
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<tr>
<td>PTP (Agricultural Technical Officer)</td>
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<tr>
<td>Poncokusumo: PPL (Field Extension Officer)</td>
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<td>PTP (Agricultural Technical Officer)</td>
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<td>Ngantang: PPL (Field Extension Officer)</td>
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BIBLIOGRAPHY


