Draft Final Report

On

Marketing of Chestnuts in Cao Bang Province, Northern Vietnam
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By

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Summary

This Report on Chestnut Marketing presents data on formal and informal marketing systems for the main chestnut-producing Districts of Cao Bang Province. The data were collected through surveys and interviews of farmers, market traders, and officials.

Chestnuts grow mainly in the four north-east districts of Cao Bang Province: Trung Khanh, Ha Lang, Quang Uyen, and Phuc Hoa. All locally produced chestnuts are sold under the label “Trung Khanh nuts” even though some are sourced in Ha Lang, Quang Uyen and Phuc Hoa Districts. Except in Cao Bang town, where there is a daily market, markets at District and Commune level operate on a five-day cycle.

Many chestnuts sold in Cao Bang Town market are not produced in the province, but are imported from China and are commonly marketed as if produced locally. The harvest season for Trung Khanh chestnuts is of two months duration from mid-September to mid-November. The harvest season in China, however, is 3 to 4 months long, from mid August to late December. Storage facilities in China further extend the marketing season for chestnuts sourced there, for another two months.

Trung Khanh nuts are sold by quantity, priced per 100 nuts, not by weight (kg). Obviously, therefore, the price varies by size, or Grade, of nuts. For comparison, 1 kg of Class I nuts contains about 100 nuts; 1 kg of Class II nuts contains 120-130 nuts; and of Class III, 160-170 nuts. Chestnuts imported from China are sold by weight - unless masquerading as Trung Khanh nuts.

The most common form of marketing in Trung Khanh District is for farmers to sell at the farm gate to Trung Khanh traders. These Trung Khanh traders sell retail in Trung Khanh market, and wholesale to Cao Bang and other outside traders, and to agents who are buying for semi-official procurement of chestnuts for symbolic gift purposes, a market sector variously estimated at from 20 to 50% of present total production.

Data on production volumes are weak. The annual total is probably in the range of 75 tons, of which probably about 70 tons is produced in Trung Khanh District. The volume reaching the retail market is estimated at 40 to 50 tons per season from Trung Khanh, and probably another 2 to 3 tons from the other three Districts combined. Prices vary according to size, quality and season. Farm gate prices suffer from market uncertainties, unsystematic harvesting and collections, unreliable quantities, and lack of collective bargaining.

In summary, then, chestnuts from Trung Khanh enjoy a large unsatisfied demand that will absorb production increases for several years. Farmer returns can be improved through attention to quality improvements, better post-harvest management, and collective arrangements to influence farm gate prices. Larger-scale processing or storage is unlikely to be economic until total volume increases several fold.

Recommendations are made, the most important one being that farmers organise themselves into Chestnut Growers’ Associations, with the support of the CBBCRDP in analysing the factors and options for doing this. Other recommendations relate to improvements in nut size, quality and handling; and to targeted credit availability.
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List of Abbreviations

ARDO(s)  Agricultural & Rural Development Office(s)
CB       Cao Bang (town or Province)
CBBCRDP  Cao Bang Bac Kan Rural Development Project
E.U.     European Union
FDS-D    Forests Development Sub-Department (of Cao Bang)
GoV      Government of Vietnam
HL       Ha Lang District
MARD     Ministry of Agriculture and Rural Development, Hanoi
PH       Phuc Hoa District
QU       Quang Uyen District
TK       Trung Khanh District
VIBARD   Vietnam Bank for Agriculture and Rural Development

Acknowledgements

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- Mr Tran Hoang Hai, my Interpreter and Assistant.
- Mr Nguyen Hgoc Hung, for his short-term help with interviews.
- Officials of the Cao Bang Provincial administration and of the MARD who helped with time and patience to provide information,
- The Heads of the District ARDOs, especially Mrs Rien of Trung Khanh District, and other District officers,
- All ARDO and Commune staff who helped with the Survey in many ways,
- The chestnut traders who overcame initial doubts to participate enthusiastically in providing details of pricing, qualities, and marketing networks,
- The farmers who are chestnut growers, looking to the future for their products.
- Dr Drake Hocking, Head of Forestry Component, for guidance and support through this study.
Marketing of Chestnuts in Cao Bang

By Anna Hocking

1. INTRODUCTION

Cao Bang is a mountainous Province of northern Vietnam. Formerly thickly forested, it now has extensive areas where native forest has been degraded or removed, which opens the opportunity for planting chestnuts. Previous experience has demonstrated that, especially in Trung Khanh District and also in two or three adjacent Districts, Chinese-type chestnuts (Castanea mollisima) grow well and produce nuts of exceptional quality: sweet and easy to peel (David Klinac, consultancy Report of October 2000). This is recognized by the Provincial authorities, who support expansion of chestnut production through a Project under implementation by the Forest Development Sub-Department (FDS-D) in the Districts of Trung Khanh, Ha Lang, and Quang Uyen.

The Cao Bang-Bac Kan Rural Development Project (CBBCRDP), supported by the European Union (E.U.) and the Government of Vietnam (GoV), has the objective to increase the sustainable livelihoods of rural people of the area. One component of its activities is to provide further support to chestnut development through technical advice and through financial support to the respective District Agriculture and Rural Development Offices (ARDOs). The technical advice comprises chestnut horticulture, propagation, post-harvest technology, marketing and growers’ organization.

The present Report describes the findings and recommendations concerning marketing of chestnuts. For the full Terms of Reference of the present study, please see the Annex. The reader is further referred to related Reports of experts in chestnut horticulture and production.

2. METHODOLOGY

This study was conducted during December 2002 to March 2003, outside the harvest season for Trung Khanh chestnuts, so it was not possible to make any direct market or harvest observations. All the information is based entirely on interviews and surveys. Interview subjects included government officials at Provincial and District levels, key farmers and traders, and other key informants.

The written surveys were used primarily to collect data on tree numbers and chestnut production. A simple form was designed (see Annex) to collect farmers’ information over a wide sample of growers. Subjects were identified through information about chestnut growers obtained from District ARDO’s. The forms were administered by District Extension staff, leader farmers, or by the Study Assistant/Interpreter, Mr Hai.

Data from survey forms were manually compiled and tabulated for analysis. There were many inconsistencies in farmers’ reports of the quantities of nuts harvested and sold. Some of these may be have been due to misunderstandings and inaccuracies in the asking of questions and in translations. But it clear that most farmers are simply not aware of chestnut yields and do not keep records. The harvest is spread over a period of weeks, and is commonly fragmented among different family members (and
sometimes others) so is difficult to track properly. Chestnuts are not yet perceived to be of high financial returns, so do not rank high enough to merit careful scrutiny.

To improve the reliability of findings, the survey forms included questions that could be used for cross-checking of farmer estimates.

3. RESULTS

3.1. HISTORICAL BACKGROUND TO FARMER ATTITUDES AND PRICING

The growing of chestnuts in Trung Khanh District dates back probably about 100 years to an initial introduction of a few trees during the French period. The performance of these trees led to expansion of planting and cultivation, at first through farmer-to-farmer contacts during the 1940-50s and later through official support programmes.

The first official promotion was during the “Cooperative period”, in the late 1960s (Dr Nam, former ARDO Head, Trung Khanh). This had early initial success but the prevailing pattern of incentives led later to neglect and failure of the cooperative plantations, leaving only scattered small plots of trees near individual households where they received more care and attention. Another wave of promotion occurred during the late 1970s and early ‘80s. The third period of planting was during the mid-1990s, financed largely through afforestation work supported by the “PAM” (World Food Programme) or “327” programme. These trees, too, were poorly tended owing to low motivation for care (they were planted mainly because of subsidies for the planting itself), and owing to later price fluctuations because of poor market linkages. Moreover, the chestnut seedlings provided to farmers under this programme were of unproven and variable quality. A recurrent complaint of farmers was that many of the seedlings were unproductive, and were uprooted or cut down within a few years of establishment.

Recently the Provincial government has promoted a new Chestnut Development project with a target-oriented approach delivered through the District ARDOs since 2001. This programme has been supported by the CBBC-RDP financially and with expert advisors.

Thus, there now exist clusters and individual trees in four main age groups, dating from 1940-50s, 1960-80s, 1990s, and since 2001. None of them can be said to have achieved economic significance, although the technical suitability is now well proven.

3.2. FARMERS’ ATTITUDES TO CHESTNUT PRODUCTION AND MARKETING

The raw data of the farmer survey contain inconsistencies in farmers’ reports of quantities of nuts harvested and sold, probably arising mainly from lack of record-keeping because chestnuts are not yet perceived as an economic crop with high potential. Most farmers treat their chestnut harvest as a bonus, an accident of history, a legacy left by grandfathers or fathers who had planted the trees. Nearly all farmers allow their children and other relatives to collect the nuts in the early morning to sell at the markets for pocket money. Some have used the word ‘thieves’, perhaps indicating that the children’s collecting is not something that they can control because it is a community-wide sanctioned practice. The general fact is that most farmers tend to neglect the full potential of the chestnut harvest.
There are very few farmers who have done any kind of tree maintenance or rehabilitation of their old chestnut trees. Many argue that the old trees planted in the 1970s or earlier, are in such poor condition that the best course is to harvest from them what they can and to start afresh with new seedlings of improved stock.

### 3.3. SYSTEMS OF MARKETING

#### 3.3.1. The traders

Chestnuts are a profitable and highly seasonal crop, the season in Trung Khanh District being about mid-September to mid-November. The regular retail fruit traders of the markets therefore add chestnuts to their array of seasonal fruits.

Chestnut production in Cao Bang is highly individualised and there are no large producers dominating the market. Therefore chestnuts can be and are sold by both producers and part-time traders who take advantage of the lack of any systematic market structure or organisation. (See also following section on Privileged marketing system for official gifts.)

During the chestnut harvesting season there is a small army of informal traders who tour the farms and local markets. Some are regular local market traders, and others are one-off entrepreneurs who see a potential profit. A few of the traders at the farm gate are from outside the Province. Most traders from Hanoi, or further, will not buy at farm gate, but buy instead from Trung Khanh market, pressing for wholesale prices from the normally retail sellers on the argument of buying larger quantities.

#### 3.3.2. Conventional market systems

The most direct and simple system of marketing is when the farmers or family members sell directly to customers at their local commune market. Some of the buyers may be retail traders from other commune or district markets. This is the most common form of marketing in Quang Uyen, Ha Lang and Phuc Hoa Districts where the quantities of nuts are too small to interest the traders to go to the farms.

The most common form of marketing in Trung Khanh is for farmers to sell at the farmgate to Trung Khanh and Cao Bang traders who tour the villages. Most of these traders are regular traders from Trung Khanh who sell retail in Trung Khanh District market. These local traders also sell larger quantities wholesale to Cao Bang traders, to ‘tourists’¹ and to agents who are buying for the “Privileged marketing system for Official Gifts” (see next section).

#### 3.3.3. Privileged marketing system for Official Gifts

We use this term to describe a kind of semi-official procurement of chestnuts for gift-giving purposes. Cao Bang Province is home to three products that are unique to the region – Bitter Tea, a variety of Mandarin (“Cam sanh”), and Trung Khanh chestnuts. All three are renowned locally for qualities that make them ideal gifts.

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¹ I think that ‘tourists’ here means anyone from outside Cao Bang Province and may include Hanoi traders.
During the two months of the Chestnut harvest season there is heavy demand by Provincial and District Government officers for this purpose. In 2002, the PPC, the Treasury, DARD and other institutions like Banks, TV and Radio stations ordered large quantities of Class 1 nuts to present as gifts to their counterpart agencies in other parts of the country during official visits. There are also, of course, private orders for their families.

So large is this demand that two traders in Trung Khanh town specialize exclusively in fulfilling large orders for government agencies. These traders source chestnuts mainly from the communes adjacent to Trung Khanh market and from Chi Vien. For a particularly large order they will buy from other local traders. These two leading traders estimate that the “privileged system” demand reaches 50% of the total harvest. The Provincial People’s Committee’s (PPC) puts its own estimate of the “privileged system” market sector at 20 to 30% of production, lower but still a very significant proportion of the total production.

Some or many of these orders from senior Provincial officials may be filled directly by local district and commune officials, who by the very nature of their positions, can make demands of the farmers that the regular traders cannot, thereby sidelining the regular traders. The demands take the form of buying up all the available top-quality Class 1 nuts, sometimes at slightly higher prices.

This privileged marketing system is a source of much resentment to other traders who are cut out of this market. The problem arises because there are too few good quality nuts. The anger of the regular traders is expressed in terms of the government officials “cashing in” on business that legitimately belongs to the traders: “The traders have only trading for a source of income, while government officers are already receiving a good salary.” Some traders claim that the prices paid by the “privileged gift” agencies are higher, to reflect the high quality demanded. Others say that the institutions pay the same price as in the retail markets. Whatever the profit margin, the main quarrel centres on the access to a scarce commodity.

3.4. QUANTITIES OF MARKETED CHESTNUTS

(Please see several of the Annexes for much more detail about quantities of nuts marketed by Districts and Communes, results of the farmer survey.)

There are several lines towards estimating the quantities of the marketable harvest. First is the number of trucks of chestnuts per market day. Secondly, given the number of productive trees in Trung Khanh, we can roughly estimate quantity from the farmers’ estimates of yield, taking a rough average.

One trader in Trung Khanh estimated that 1 or 2 tons of chestnuts leave the district by truck each market day (every five days) during the season. If there are 12 markets during the two-month season this gives a figure of maximum 24 tons. In addition a considerable quantity leaves daily in smaller quantities by local buses. A rough estimate of this was made by two Cao Bang traders of about 8 tons transported by bus each season. Adding this to the 24 tons leaving by truck gives a total of 32 tons. A third trader estimated separately that a total of about 30–40 tons pass through Trung Khanh market each season.

The Trung Khanh DARDO carried out an inventory of productive chestnut trees in the District, which yielded a total of 10,611 trees. The present survey of farmers found an
average of about 700 nuts per tree per season of saleable quality, Class I or Class II nuts.

By extrapolating to the whole district, total nut production of Class I and II would be approximately 74 tons. Of these we could then estimate that perhaps half, or 35 - 40 tons, comes onto the market annually because only those farmers who are near to the road, and therefore accessible to the local markets and the traders, are likely to sell their nuts consistently throughout the season.

The other three districts contribute little to the more distant markets. Quang Uyen and Phuc Hoa harvests are mostly consumed locally. Ha Lang probably supplies 1.5 – 2 tons per season to Cao Bang market.

Therefore it is possible to infer that the volume of chestnuts reaching the retail market is probably between 40 and 50 tons per season, being about 50 – 60 % of total current production. It should be remarked that in the overall production there are also significant quantities of small Class III nuts. At present these are unsaleable and are either consumed by the family or used for livestock fodder. There is future potential for post-harvest processing which could convert such small nuts into marketable chestnut flour or other products.

### 3.5. CHESTNUT PRICES AND MARGINS

#### 3.5.1. Prices

The table shows the range of prices (in VN dong) reported by farmers for the unit of 100 nuts, for each category of nut quality. These prices reflect the bargaining power of individual farmers and traders. Bargaining power is influenced by the quality and quantity of the nuts, the season, and the distance from a significant market.

Table 1. Prices of 100 chestnuts at various markets and levels

<table>
<thead>
<tr>
<th></th>
<th>Farm Gate Prices per 100 nuts in the Districts (mainly Trung Khanh)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Early Season</td>
<td>Mid Season</td>
<td>Late Season</td>
</tr>
<tr>
<td>Big, Class I nuts</td>
<td>10, 12, 15, 20 25,000</td>
<td>10, 15, 18, 20,000</td>
<td>15, 23, 25, 30,000</td>
</tr>
<tr>
<td>Medium, Class II</td>
<td>5, 8, 10, 15,000</td>
<td>8, 10, 12, 13, 14,000</td>
<td>13, 15, 16, 18, 20,000</td>
</tr>
<tr>
<td>Small, Class III</td>
<td>2, 3, 6, 7, 8, 10,000</td>
<td>6, 8, 10,000</td>
<td>8, 10, 12,000</td>
</tr>
</tbody>
</table>
### Wholesale Prices of 100 Nuts in Trung Khanh

<table>
<thead>
<tr>
<th></th>
<th>Early Season</th>
<th>Mid Season</th>
<th>Late Season</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big, Class I</td>
<td>15,000</td>
<td>12,000</td>
<td>25-30,000</td>
</tr>
<tr>
<td>Medium, Class II</td>
<td>10,000</td>
<td>8,000</td>
<td>20-25,000</td>
</tr>
<tr>
<td>Small, Class III</td>
<td>6-7,000</td>
<td>4-5,000</td>
<td>10-15,000</td>
</tr>
</tbody>
</table>

### Retail Price of 100 Nut in Trung Khanh

<table>
<thead>
<tr>
<th></th>
<th>Early Season</th>
<th>Mid Season</th>
<th>Late Season</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big, Class I nuts</td>
<td>20-25,000</td>
<td>20,000</td>
<td>40,000</td>
</tr>
<tr>
<td>Medium, Class II</td>
<td>15-20,000</td>
<td>15,000</td>
<td>30-35,000</td>
</tr>
<tr>
<td>Small, Class III</td>
<td>10-12,000</td>
<td>10,000</td>
<td>25,000</td>
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</table>

### Wholesale Prices of 100 Nuts in Cao Bang

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<th></th>
<th>Early Season</th>
<th>Mid Season</th>
<th>Late Season</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big, Class I nuts</td>
<td>20-22,000</td>
<td>16-17,000</td>
<td>25-30,000</td>
</tr>
<tr>
<td>Medium, Class II</td>
<td>17,000</td>
<td>15,000</td>
<td>22,000</td>
</tr>
<tr>
<td>Small, Class III</td>
<td>12-14,000</td>
<td>6-12,000</td>
<td>14-20,000</td>
</tr>
</tbody>
</table>

### Retail Price of 100 Nuts in Cao Bang

<table>
<thead>
<tr>
<th></th>
<th>Early Season</th>
<th>Mid Season</th>
<th>Late Season</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big, Class I nuts</td>
<td>20-25,000</td>
<td>20,000</td>
<td>27-35,000</td>
</tr>
<tr>
<td>Medium, Class II</td>
<td>20,000</td>
<td>18,000</td>
<td>24-25,000</td>
</tr>
<tr>
<td>Small, Class III</td>
<td>15-17,000</td>
<td>10-16,000</td>
<td>22-25,000</td>
</tr>
</tbody>
</table>

**Note:** Also please see later section of this Report for detail about marketing of Chinese-sourced chestnuts.

### 3.5.2. Margins

In Cao Bang Market there is usually (per 100 nuts), a margin of 3000 dong, between the wholesale and retail prices, at all seasons. In Trung Khanh market the margin is higher, in the order of 5,000 to 10,000 dong. For the highest quality nut and therefore the scarcest in Late Season, there is a margin of as much as 15,000 dong. This difference may also be due to a lack of distinction between farm gate prices, wholesale prices and retail prices.

Early season prices in the wholesale and retail markets reflect the expected trend of a scarce commodity, with prices higher in the early season than during the main season.
Farmers do not always get this benefit, however, as the traders are able to convince them that prices are lower because of the small quantities available.

3.5.3. Key factors influencing price
The factors that affect farm gate prices are:

a. distance from the market centres and from the road
b. size of the nuts
c. quality, absence of mould and spoiled nuts
d. quantity of nuts being sold
e. season: whether early, mid-, or late-season
f. social status of the seller - children get a lower price
g. lack of standardised classification of size is a limiting factor
h. lack of market information among the farmers, and so:
i. lack of collective bargaining

3.6. CHESTNUTS FROM CHINA PENETRATING CAO BANG MARKETS

3.6.1. Market advantages of China – sourced nuts
The reason why Chinese chestnuts can penetrate Cao Bang market is that their external appearance is very similar to Trung Khanh chestnuts. Chinese nuts are larger, so more attractive, but the outer coat is a duller brown. Upon peeling, Chinese-sourced nuts can be found to have a whitish meat (in contrast to Trung Khanh nuts which are yellow) and less of the desirable ‘nutty’ flavour. The price is significantly cheaper: Chinese nuts are sold by the kg and are generally 2,000 or 3,000 dong/kg, or about 10%, cheaper than Trung Khanh nuts.

More importantly, chestnuts have been planted on a large scale in Agricultural Enterprises in China so the available marketable quantity is sufficient to meet any size of purchasing order. Moreover, they have a seasonal advantage, the harvest season starting one month earlier than in Trung Khanh, in mid August, and running until mid December, one month later than Trung Khanh.

3.6.2. General structure of the trade
Chinese nuts are imported through three border crossings – Ban Gioc in Dam Thuy Commune, Hung Quoc in Tra Linh District and Ta Lung in Phuc Hoa District. Wholesale traders from Cao Bang go to the Chinese border market to place orders with Chinese traders. Chestnut orders are delivered 1-2 days later, and are transported by the wholesale traders to sell to retail traders in Cao Bang market and traders from Hanoi. Chinese-sourced chestnuts are then on-traded and transported to other provinces from Hanoi.

Retail market traders in Cao Bang place orders to wholesale traders every 2-3 days with the quantity of about 1 quintal (100 kg) of chestnuts per time. This amount can be sold within 2-3 days. On average, one retail trader in Cao Bang market can sell
about 30-40 kg of chestnuts per day. There are different types of sacks for containing chestnut, which are 50, 60, 70 kg.

Traders from Hanoi come to Cao Bang to buy chestnuts from wholesale and retail traders at Cao Bang market.

### 3.6.3. The flow of Chinese chestnuts

The Cao Bang Traders estimate that 5 –6 tons of Chinese-sourced nuts are delivered to Cao Bang monthly during the season of about four months, or about 20 tons annually. Although the delivery trucks pass through either Trung Khanh market or Phuc Hoa market, neither of these markets can sell Chinese chestnuts partly because they are too easily distinguishable for local buyers, and partly because the potential for sales is too small to make it economically viable for the trucks to stop and off-load. In other words, the mixing with, or masquerading as, Trung Khanh nuts is said to take place only in Cao Bang market or the larger market of Hanoi (but this was not confirmed in the present study).

The market prices of Chinese-sourced nuts openly trading as such are significantly lower than Trung Khanh-sourced nuts (see following Table).

Some of the retail traders of Cao Bang market openly admit to mixing Chinese chestnuts with Trung Khanh chestnuts and passing them off as the latter. There are two reasons why traders mix Chinese nuts with Trung Khanh nuts. First, it is difficult to get a sufficient supply of Trung Khanh nuts, and second because Trung Khanh nuts command a better price.

The Cao Bang group of traders insist that the trade of Chestnuts in Hanoi is virtually all Chinese-sourced. Very few genuine Trung Khanh nuts go to Hanoi through the normal market system, owing mainly to shortages of supply. There are said to be a few Hanoi traders who go direct to the Trung Khanh market but so far we have not traced them. Some Trung Khanh nuts reach Hanoi through the Privileged Gift Market.

#### Table 2. Retail Price (VND) per Kg. of Chinese-sourced Chestnuts in Cao Bang (Sizes mixed, or else more or less uniform)

<table>
<thead>
<tr>
<th>Season</th>
<th>Early Season</th>
<th>Mid Season</th>
<th>Late Season</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>16-17,000/kg</td>
<td>13-14,000/kg</td>
<td>16-17,000/kg</td>
</tr>
</tbody>
</table>

### 3.6.4. Views of a Chinese Trader

The following information was gathered from the main Chinese chestnut trader in Cao Bang market.

**Informant: Mrs. Ma Thi Nui – Fruit trader in Cao Bang market (March 2003).**

Mrs Nui sells chestnuts from August to November, as that is the Chinese chestnut season. She specializes in trading Chinese chestnuts, openly traded as such. She mainly sells chestnuts at her own stall in the town market. She sells chestnuts every day during the season. The main customers are local peoples, tourists, traders from other provinces (including Hanoi), and other retail traders. Traders from Hanoi sometimes come directly to border market to buy Chinese chestnuts.
Traders classify chestnuts into three classes, right upon the buying at the border market. Chinese chestnuts are generally bigger than nuts from Trung Khanh, and they are sold by weight not by number. Class I (big) Chinese-sourced nuts are about 70 per kg, at Class II (medium size) is 100 nuts/kg and Class III (small size) is 150 nuts/kg.

Sometimes she mixes Chinese-sourced chestnut with Trung Khanh chestnuts (at the rate 60% Trung Khanh to 40% Chinese) and sells to non-resident customers in the name of Trung Khanh chestnuts.

Mrs Nui buys at the Chinese border market every three days throughout the season. In the mid-season, sometimes she has to go every two days. Each time she goes to the border market, she places an order with the Chinese traders to deliver a certain quantity of chestnuts for the next trip. On average, she buys five sacks (50 kg per sack) of Chinese chestnuts at any one time. She is so well-known to the Chinese traders so that she can pay the following time for chestnuts she receives on the current transaction. She pays in cash.

There are two routes to the Chinese border for buying chestnuts and other fruits sourced in China. The route Mrs Nui uses is through Tra Linh district, 36 km from Cao Bang market to the border market. The other route goes through Ha Quang district.

As a wholesale trader, usually she rents a small minibus to carry chestnuts and other kinds of fruit. She thinks that there are five traders who come to the Tra Linh border market and another five traders who come to the Ha Quang border market to buy chestnuts.

She estimates that one ton of Chinese-sourced chestnut is sold every market day at the Chinese border market. There are about 6 market days per month at that market, and she estimates a quantity of 6 tons of Chinese chestnuts in sold every month during the season.

Mrs Nui’s wholesale buying and retail selling prices are as follows. Supplied quantity is the main factor that influences prices. If the available quantity of chestnuts is decreased, the prices are increased and vise-versa.
Table 3. Wholesale and Retail Prices of Chinese-sourced chestnuts in Cao Bang market, 2002-3 (Source: Mrs Nui).

<table>
<thead>
<tr>
<th>Selling price (VND/kg)</th>
<th>Early season</th>
<th>Mid - season</th>
<th>End season</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wholesale price</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Big size nuts</td>
<td>18,000</td>
<td>20,000</td>
<td>20,000</td>
</tr>
<tr>
<td>- Medium size nuts</td>
<td>15,000</td>
<td>17,000</td>
<td>16,000</td>
</tr>
<tr>
<td>- Small size nuts</td>
<td>8,000</td>
<td>12,000</td>
<td>8,000</td>
</tr>
<tr>
<td>Retail price</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Big size nuts</td>
<td>24,000</td>
<td>25,000</td>
<td>30,000</td>
</tr>
<tr>
<td>- Medium size nuts</td>
<td>20,000</td>
<td>20,000</td>
<td>24,000</td>
</tr>
<tr>
<td>- Small size nuts</td>
<td>13,000</td>
<td>14,000</td>
<td>15,000</td>
</tr>
</tbody>
</table>

Note: These prices are per kilogram, not directly comparable with prices for Trung Khanh chestnuts which are normally quoted per 100 nuts.

3.7. POTENTIAL FOR COLLECTIVE ACTION BY FARMERS

Many things that can be done to improve yield and price of chestnuts are beyond the capacity of individual farmers. Some examples follow:

3.7.1. Targeting of Extension Programmes

Farmers in groups can cooperate and be more influential in requesting the District ARDO to deliver specific, targeted extension information. They may also cooperate to generate new information themselves, such as how to improve pollination for increased bearing of filled nuts (2-3 nuts per burr instead of the common one nut per burr).

3.7.2. Protection of market advantages

The “Trung Khanh” label of origin is a huge asset for the growers. It should be protected through education of the buying public in how to differentiate true Trung Khanh chestnuts from Chinese-origin counterfeits. This could be done through prominent notice boards put up by traders, and also through illustrated leaflets, TV spots and radio campaigns.

There may also be formal legal structures for protecting the designation, for example as a “Brand” name.

3.7.3. Post – Harvest Processing

At present there is a very high demand for fresh Trung Khanh chestnuts. In the markets the supply cannot meet the demand and according to the traders themselves, many Chinese chestnuts are used to bulk out ‘Trung Khanh nuts’ in Cao Bang market.

The only indigenous way of preserving chestnuts is either by drying good quality chestnuts slowly in the smoke and heat above the household fire, or by laying down
high-grade nuts in damp sand. This latter method will preserve them fresh for a further two months, so long as the original selection was done scrupulously.

Chestnuts are very prone to rot by a number of moulds.

The Provincial Government’s Department of Science and Technology is addressing the problem of long-term storage of chestnuts by assembling a small plant to dry chestnuts (and potentially other fruits). The drying plant, situated at Km 3 on the outskirts of Cao Bang, is to be ready for its first trials in May or June, 2003. The Provincial Government has had the expertise of The Institute of Vegetable and Fruit Processing and The Institute of Electrical and Mechanical Engineering to assist with the design. Once the plant is fully on stream, the running of the business will be passed to The Bitter Tea Company, an earlier commercial spin-off from the Department.

The Department has previously done some research into the origins of the Trung Khanh chestnut but had not yet reached any conclusions. They had also looked at methods of preserving and value-adding. A jar of pickled chestnuts was displayed and we discussed ways of making a version of “Nutella” (chocolate and nut spread).

3.7.4. Development of Export Trade

Trung Khanh chestnuts are an ideal commodity for a niche export market. The best of Trung Khanh chestnuts are of world class quality (David Klinac, consultancy Report of October 2000) and there is a potential to develop an export trade if certain conditions can be met.

The essential requirements for a successful entry to export markets include:

- Protect the quality ‘brand-name’ of Trung Khanh nuts from being degraded by mixing with lower quality Chinese nuts (see paragraph 3.8.2 above).
- Increase production quantity/volume and quality of Class I nuts
- Standardise nut-size classes
- Disseminate use of flotation system to eliminate imperfect, rot-affected nuts
- The marketing of fresh nuts requires rapid sale because the nuts are prone to rot after 5 or 6 days. Cold Storage has been developed for other fruits by the Post-Harvest Technology Institute. This is worth further investigation.
- Organize producers into Associations to market consistently large volumes to export traders
- Set up Farmers’ Associations or Trader Companies to fulfil legal requirements for exporting a commodity. The legal framework is relatively simple. Any Chestnut Trading Co. must register with Dept. Planning and Investment.
- The Ministry of Trade has 500 million dong for Market Promotion Skills, available for project proposals to market native products. This should be further investigated to support the chestnut marketing.
- Use a model of other Vietnamese specialty export products like frozen shrimps, Lao Cai Wine or lean pork (Farming Systems Research, VASI).
3.7.5. Attitudes of growers

A Workshop was organised in Chi Vien Commune for leading growers from all communes in Trung Khanh District, to discuss what initiatives they thought could improve their returns from sales of chestnuts. All farmers saw that there are big advantages to forming Farmers Associations, particularly at Commune level, with an umbrella group at District level, for increasing their benefit from the selling of the chestnuts. However, they had little idea of how to go about this. Their previous experience having been exclusively with government-organised, top-down cooperatives, the concept or a bottom-up, grower-initiated organisation was new to them.

They looked for the following advantages of collective action:

**Technical Development:**
- pre-processing handling: sorting, cleaning, removal of empties and spoiled nuts, shelling and grading
- drying
- storage in bulk
- products processing

**Marketing Development**
- market leverage
- larger volumes
- price stability
- link to bigger markets with bigger volumes
- advertising and packaging
- access to export markets
- access to processing factories.

**Processing**
- most farmers see post-harvest processing as within the purview of the Provincial Government. “All we know is how to grow and sell.” They depend on the Government to provide these facilities as well as to give them guidance on the running of their own Associations.
- A few farmers saw a future for a farmer-operated processing plant.

4. RECOMMENDATIONS

There follow below, one recommendation for the CBBCRDP, and two for the Province of Cao Bang through its Districts ARDOs:

### 4.1. FORM CHESTNUT GROWERS’ ASSOCIATIONS

The most important initiative for improving returns to farmers from the marketing of chestnuts, will be for chestnut growers to organise themselves into “Growers’ Associations”. The logic for this is the increased bargaining power and capacity for all aspects of production and sales.

The CBBCRDP has agreed to support this process.
4.2. INCREASE HARVEST EFFICIENCY

4.2.1. Publicity
Either the Growers’ Association or the ARDO extension service should develop ways to increase the profile and financial significance of chestnuts as a commodity. This would encourage individual farmers to be systematic about collecting their harvest.

4.2.2. Extension messages
Farmer information should be extended for improving harvest methods: more systematic, daily collection of ripe dropping burrs, quick attention to de-burring and drying. This would enable them to maximise quality production.

4.3. INCREASE FARM GATE PRICE

4.3.1. Improve nut size and quality
Size and quality of nuts are the biggest factors determining market price. Attention to improving size and quality would be the most direct route to increasing unit price. Size improvements can be pursued through improved orchard management in the short term, and through improved genetic base (grafting) in the long term. Superiority is already inherently present in Trung Khanh nuts, and needs to be maintained through more careful harvesting and post-harvest management.

4.3.2. Collective bargaining
Grower Associations will be in a position to negotiate issues with traders in ways that individual farmers can never do. To minimise the potential for conflict, leading traders could also be members of the Associations so the negotiations can be carried out on a range of issues bearing on price. Such issues include, for example, uniform standards or Grades of nut size, degree of post-harvest preparation (de-burring, drying), and scrupulous freedom from moulds or insects. There are benefits to be gained for the traders, too, through reducing their exposure to risk factors such as uneven drying, or hidden presence of de-grade factors like mould.

4.4. PROVIDE TARGETED CREDIT TO GROWERS
A major constraint on growers’ bargaining power is the small total volume currently available to market. Increased volume production would improve bargaining power, and would also help to compete with the penetration of Chinese-sourced nuts. Improved orchard and post-harvest management will help, as recommended above.

Some growers have realised the market potential and would like to expand their orchards. But available credit sources are not appropriate for a long-gestation crop like chestnuts. The VIBARD should investigate the economic potential with a view to providing chestnut growers access to credit with a grace period, longer repayment period, and lower interest than what is now available for short-season, annual crops.
4.5. DEFER ACTION ON POST-HARVEST PROCESSING AND EXPORT

Present total volume production is too small to justify investment in industrial scale post-harvest processing or development of export markets.

With current planned expansion of planting and improved management of the trees, this might take a further 4 to 5 years.
5. ANNEXES

5.1. TERMS OF REFERENCE OF THIS STUDY

The following are the Terms of Reference provided by the CBBCRDP for this study:

1. Through field visits, interviews with farmers and officials, and follow-up tracing of chestnut /traders in the District and Province, analyse existing formal and informal systems and networks of chestnut marketing from Trung Khanh District.

2. Make brief enquiries in Ha Lang and Quang Uyen Districts to spot-check whether similar systems prevail there.

3. Include a preliminary enquiry into chestnuts sourced from China and traded into Cao Bang, whether directly to Cao Bang town or indirectly through Trung Khanh District.

4. Where possible, attempt an estimate of the volume of production in Trung Khanh District, and its distribution over the harvest period.

5. Where possible, describe the pricing structure and margins over various levels of marketing, and the determining factors.

6. Identify areas (such as defined quality standards) in which there is a fundamental logic for collective action by producer group(s), and include these in the analyses.

7. Make recommendations for ways to improve efficiency, price, and terms of trade for producers.

8. Through discussions at District, Provincial and National levels, look into the appropriate channels for developing an export trade in Cao Bang chestnuts, and propose ways to link a potential Producers Organisation to potential export trade.
5.2. LIST OF KEY INFORMANTS

1. Central Officials
Dr Dao The Anh, Head of Farming Systems Research, VASI
Mrs Bui Thi Thai, VASI
Dr Son, ICARDA, MARD

2. Provincial Officials
Mr. Ha, PA to PPC Chairman Mr. Tuan
Mr. Nong Ding Hai, Head of Department, Department of Science and Technology
Mr. Dam Vinh Kieu, Manager of Science and Technology Management Division
Mr. Eng, Vice-Director of DARD (former in-charge of Chestnut Project)
Mr Hong, Head of FD S-D (current head of Chestnut Project)

3. District Officials
Trung Khanh District
Mrs. Rien, ARDO Head
Mr. Tu Vice-Head of ARDO
Mrs. Lan, Extension officer

Ha Lang District
Mr Tang, ARDO Head (HL), Mrs Nong Thi Hgoan, Extension officer (HL)

Quang Uyen District
Mr. Nong Van Son, ARDO Head
Miss Phuong Extension Officer

Phuc Hoa District
Mrs So, ARDO Head

4. Commune Officials
Mr. Chuong, Vice Ch. Of Chi Vien
Mr. Cau, V. Ch of Cai Bo Commune,
Mr. Tho, Land Admin. Chi Vien, Officer in charge of Chestnut Project.

Thanh Nhat Commune, Ha Lang
Mr Nong Thi Ngoan, Forestry Extension ARDO,
Mr. Hoang Manh Tieu, FA,
Mr. Nong Van Vou, V Chairman of PC,
Mr. Cao Xuan Hung Commune Extension.

My Hung Commune, Phuc Hoa
Chairman Dam Van Thuong
Vice-Chairman Dam Minh Doan
Officer Luong Van Viet
Extension worker Hoang Thi Thuy
### 5.3. LIST OF FARMERS INTERVIEWED

<table>
<thead>
<tr>
<th>Name</th>
<th>Village</th>
<th>Commune</th>
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<tr>
<td><strong>Trung Khanh District</strong></td>
<td></td>
<td></td>
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<tr>
<td>Mr. Chu</td>
<td>Ban Cai</td>
<td>Chi Vien</td>
</tr>
<tr>
<td>Mr. Hoang Van Sai</td>
<td>Khua Khao</td>
<td>Chi Vien, Head of Gardening Association</td>
</tr>
<tr>
<td>Ngon Van Huynh</td>
<td>Chan Tre</td>
<td>Kham Thanh</td>
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<td>Hguom Khang</td>
<td>Thanh Nhat</td>
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<td><strong>Ha Lang District</strong></td>
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<td>Mr. Be Trung Le</td>
<td>Dong Hu</td>
<td>Thanh Nhat, HL</td>
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<tr>
<td>Mr. Be Ich Lau</td>
<td>Ngom Khang</td>
<td>Thanh Nhat (Ret’d Hd. ARDO)</td>
</tr>
<tr>
<td>Dam Quang Giang</td>
<td>Na Sao</td>
<td>Cai Bo</td>
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<td>Nong Van Hoay</td>
<td>Na Sao</td>
<td>Doc Lap</td>
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<td>Nguyen Dinh Anh</td>
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<td>Quang Hung</td>
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<td>My Hung</td>
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<td>Nong Van Hoang</td>
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<td>Doc Lap</td>
</tr>
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<td>Dam Quang Giang</td>
<td>Ban Bang</td>
<td>Cai Bo</td>
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<td>Nong Van Vay</td>
<td>Na Pheo</td>
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<td>Be It Vung</td>
<td>Bang Thuong</td>
<td>Cai Bo</td>
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</table>
5.4. LIST OF TRADERS INTERVIEWED

Cao Bang
Mrs. Hoang Thi Ngoi
Mrs Nong Thi Khuyen
Mrs On Thi Dong
Mrs La Thi Huynh
Mrs Ky
Mrs Huyen
Mrs Ma Thi Nui

Ha Lang
Mrs Tiu, Dong Hu Village
Mrs Tuia, Na En Village
Mrs Ty, Na En

Quang Uyen
Mrs Ly Thi Mom
Mrs Huong

Trung Khanh
Mrs Huong
Mrs Hieu
Mrs Dang Thi Hang

Quang Uyen
Mrs Ly Thi Mom
Mrs Huyen (from Cao Bang)
Mrs Huong

Phuc Hoa
So far we have no information form Phuc Hoa
5.5. INFORMATION ABOUT CHESTNUTS IN TRUNG KHANH DISTRICT

Trung Khanh District has an ethnic distribution of 69% Tay, 29% Nung, and 2% Kinh. There are 18 communes in total, all of which have some chestnut growers in them. The four communes with the highest numbers of productive trees are Phong Chau with 3352 productive trees, Chi Vien with 2232, Kham Thanh with 1258 and Dinh Phong with 795. The District total is 10,611 productive trees. Some of the larger and better-known chestnut farmers live in Chi Vien, Dinh Minh and Dinh Phong communes. It should be noted that these are all close to a good road.

There are two functioning Farmers’ Associations in Trung Khanh, the Chestnut Interest Group of Chi Vien Commune and the Garden Association of Khua Khao Village in Dinh Minh Commune.

Concerning marketing of chestnuts, nobody knows how many farm gate traders there are, but it is said that there are ‘many’ in the season. In the District Market, there are 10 to 20 retail traders who live in Trung Khanh town. Another 2 or 3 well-known traders specialize in orders for Government Officials in the “privilege gift market”, which is also partly served by many of the local District Government officials.

**Brief Profile of a Chestnut Commune in Trung Khanh: Dinh Phong Commune**

Dinh Phong Commune has 17 villages with a total population of 2861 in 591 Households (HH), of which 134 HH are registered “Poor” (able to produce less than 6-month own food-supply or equivalent income). The population is very largely Tay-Nung ethnicity.

There are 795 mature, productive chestnut trees in the commune. There have been three chestnut planting programmes in the last decade and there are more than 2800 new chestnut trees. The Commune leaders reported that many of the new trees planted in the latter 1990s are a disappointment because the seed was not selected carefully and quality is highly variable. A second problem is damage by grazing animals. The chestnut planting target for the Commune in the 2002 Provincial Chestnut Project was to plant 50 ha.

One of the largest chestnut farmers in the whole district is Mr. Ngon Van Huynh of Cham Tre village in Dinh Phong Commune. He has 1400 chestnut trees of which 210 are mature and productive, 180 planted in 1972/3 and 30 in 1997. The remaining 1190 have been planted on 5 ha of land, financed under the 327 Programme, for which he received government support for 4 ha. Although his reported harvest quantities are not consistent with the earnings and the price quoted, the farmer himself is obviously convinced that chestnuts are a profitable crop and worth the labour to plant the newer 5 ha.

During the 2001 season he sold enough to give him an income of dong 1.5 million and in 2002 of 1.7 million. This calculates at average prices to a total production of about 141 kgs. which is very low for the number of trees that he has.

Other large farmers are – Mr. Nhat and Mr. Ky of Pa Con village.
5.6. INFORMATION ABOUT CHESTNUTS IN HA LANG DISTRICT

Chestnuts in Ha Lang have a similar history as in Trung Khanh, but on a much smaller scale. The marketing of chestnuts from Ha Lang is also much less developed than in Trung Khanh, probably mainly because market links from Ha Lang to Cao Bang town have only recently been established through opening just last year (2002) of a new, more direct, road. Without easy road access, neither traders nor producers had the incentive to organise systematic collection of marketable quantities of nuts.

Ha Lang District includes a total of 14 communes of which 5 communes have a significant number of mature, productive chestnut trees. In addition, there are numerous individual mature trees scattered throughout the District.

Mr. Tang, ARDO Head, thinks that the improved market for chestnuts has encouraged farmers to expand planting in the last few years but he has no data. He is aware that traders are asking the farmers for ‘ripe’ nuts. Previously farmers were picking too early and the nut quality was poor. The competition among traders for the harvest is high. Cao Bang and Trung Khanh traders come to Ha Lang market to buy nuts.

The traders source their chestnuts from close to Ha Lang District Centre. We speculate that there are unlikely to be large chestnut farmers far from the district centre as the traders have not heard about them.

Chestnut Farmers of Ha Lang

Many of the more productive farms have trees dating from the period when Cooperatives planted communal orchards. The orchards are now getting old and are full of gaps where trees have died, but some of the remaining trees are still producing.

The farmers of Ha Lang were much less confident than Trung Khanh farmers about the value of chestnuts as a marketable commodity. The prices that Ha Lang farmers are currently getting are lower than elsewhere. They questioned how easy it would be to sell their harvest and are not convinced that they should plant more trees. Many had only recently chopped down the trees of variable quality planted in the 1990s, quite possibly because of impatience with lack of easy market access.

A major advantage to chestnut farmers is the District decision to ban free-grazing. Farmers of all other districts complain that animal damage is the hardest thing to contend with in raising an orchard of young trees.

Cao Bang Traders Who Source in Ha Lang

There is a group of 6 or 7 wholesale traders in Cao Bang market, all of them originally from Ha Lang, who buy nuts from their home district. They go by bus every 5 days to the District town and then by foot around adjacent villages to buy chestnuts in Thanh Nhat Commune (Dong Hu, Na En, Nguom Khang, Soc Quan, Doong Hoang villages).

Each trader will visit 5 to 6 households in a day, buying on average 300 – 400 nuts per farm. Sometimes they can buy up to 1000 nuts if the farmer has been storing them for a few days. They may also buy from the growers who sell in the District market. The seasonal total of Ha Lang nuts reaching Cao Bang market is approximately 1.5 to 2 tons.
Ha Lang wholesale traders on-sell to retail traders in Cao Bang market. All Ha Lang nuts are sold under the label of ‘Trung Khanh nuts’, though they acknowledge that in the early and late season the Cao Bang retailers mix in Chinese nuts.

**Local Ha Lang Traders**

Most of those who sell retail in Ha Lang market are the producers themselves. Two local traders are Ms. Tiu of Dong Hu village, and Ms. Tuia of Na En village in Thanh Nhat commune.
5.7. INFORMATION ABOUT CHESTNUTS IN QUANG UYEN DISTRICT

Chestnut marketing in Quang Uyen is also less developed than in Trung Khanh, in this case probably because the volume of production has up to now been too low to make systematic collection financially interesting to either the growers or to traders.

There are 16 communes in Quang Uyen District, of which only three -- Cai Bo, Quang Hung, and Doc Lap -- have productive chestnut trees. (See details below).

We were able to trace three known local traders – Mrs. Ly Thi Mom of Quang Uyen town; Mrs. Huyen of Cao Bang; and Mrs. Huong (residence unknown).

Quang Uyen Retail Market Trade

The leading trader is Mrs. Ly Thi Mom, from Quang Uyen town, is 63 years old. She buys chestnuts from her daughter in Trung Khanh. She finds this easier than collecting from Quang Uyen farms because the linkages in Quang Uyen District are so poor. Nearly all the other traders in Quang Uyen market are the growers themselves, selling their own production. There are 7 to 8 farmers selling nuts at each market day. Retail prices in Quang Uyen are shown in the following Table, and are significantly less than in the bigger markets in Trung Khanh and Cao Bang.

Table 4. Retail Prices Charged by Mrs. Mom Per 100 Chestnuts, Quang Uyen market

<table>
<thead>
<tr>
<th>Class</th>
<th>Early Season</th>
<th>Mid Season</th>
<th>Late Season</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>15-18,000</td>
<td>18-22,000</td>
<td>20-25,000</td>
</tr>
<tr>
<td>II</td>
<td>12,000</td>
<td>10,000</td>
<td>15,000</td>
</tr>
</tbody>
</table>

Chestnut Farmers of Quang Uyen

1. Mr. Nong Van Hoay, of Doc Lap Commune, Na Sao Village.

Mr. Hoay has 18 productive trees planted in 1979-1980. In the Season 2002 he sold chestnuts in Quang Uyen market to the value of dong 2.5 million, at 10-12,000 dong/100nuts of unsorted quality. An unknown proportion was collected by the children or consumed by the family.

2. Mr. Dam Quang Giang of Cai Bo Commune, Ban Bang Village

Mr Giang is said by the DARDO to be the largest producer in the district. He has 50 productive trees, planted in 1980s. In Ban Bang Village the next biggest farmer has only 15 trees.

In the 2002 season, Mr Giang’s wife sold chestnuts in Quang Uyen market, from 1000 to 3000 nuts per market day (see Table below for prices), for a seasonal total income of two million dong. She is the only one who sells in the market from her village. She also takes special orders from District Government Officers. They are charged market prices.

Mr. Giang also sold at the farm gate to a Cao Bang trader, Mrs Huyen, to the value of three million dong. Together with his wife’s direct sales, this gives a total household income from chestnuts of five million dong/year from 50 trees. Their own home consumption is only a small amount.
Table 5. Retail Prices charged by Mrs Giang Per 100 Chestnuts, Quang Uyen market

<table>
<thead>
<tr>
<th></th>
<th>Early Season</th>
<th>Mid Season</th>
<th>Late Season</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class I</td>
<td>16-18,000</td>
<td>14-15,000</td>
<td>16-18,000</td>
</tr>
<tr>
<td>Class II</td>
<td>8-10,000</td>
<td>7-8,000</td>
<td>9-10,000</td>
</tr>
<tr>
<td>Class III</td>
<td>3-4,000</td>
<td>2,000</td>
<td>5-6,000</td>
</tr>
</tbody>
</table>

1. Doc Lap commune
   - The area of plantation of chestnut is 18.5 ha.
   - Estimated number of chestnut trees is 3900 trees (on average, planted density is 200 – 220 trees per ha).
2. Cai Bo commune
   - The area of plantation of chestnut is 81 ha.
   - Estimated number of chestnut trees is 17,000 trees (on average, planted density is 200 – 220 trees per ha).
3. Quang Hung commune
   - The area of plantation of chestnut is 57.5 ha.
   - Estimated number of chestnut trees is 12,000 trees (on average, planted density is 200 – 220 trees per ha).

At the present, fund coming from 661 programme is spent for plantation of chestnut in this district. In the future, it is expected to have specific chestnut program and the fund will be available.

1. Doc Lap Commune of Quang Uyen district.
   - The Cai Bo commune has 14 villages, out of which there are 3 villages where local farmers plant chestnut. They are Na Pheo, Na Phuong, Doong Pan villages.
   - Na Pheo is the village where chestnut is plant the most. The village has total 52 households, out of which 33 households that plant chestnuts. The area for plantation of chestnut is 15 ha, and total number of trees is 3000.

   1.1 Interview local chestnut grower.
   - Local farmer: Mr. Nong Van Kin.
   - He has total 65 trees, out of which 5 are productive and planted 1980, the other 60 trees are planted in 1999. These 60 trees were provided freely by the government under certain program.
   - He brings most of chestnuts to sell in Quang Uyen district market every 5 days.
- He harvested total about 4000 nuts last season.
- He kept 20% of harvest for eating and gift to their relatives, and brought other 80% to sells at Quang Uyen district market.
- Traders come often to his house to buy chestnuts.
- There’s no fixed trading relationship with any traders. He sells chestnut to anybody who offers the higher price.
- He sells chestnuts at following prices:

<table>
<thead>
<tr>
<th></th>
<th>Early season</th>
<th>Middle season</th>
<th>End season</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selling price (VND/100 nuts)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Big size nuts</td>
<td>12,000</td>
<td>10,000</td>
<td>12,000</td>
</tr>
<tr>
<td>- Medium size nuts</td>
<td>10,000</td>
<td>8,000</td>
<td>10,000</td>
</tr>
<tr>
<td>- Small size nuts</td>
<td>8,000</td>
<td>6,000</td>
<td>10,000</td>
</tr>
</tbody>
</table>

1.2 Interview local chestnut grower.
- Local farmer: Mr. Nong Van Vay.
- He has 15 productive trees that planted 1980 by himself.
- He brings most of chestnuts to sell in Quang Uyen district market every 5 days and sells at home to local people but traders.
- He harvested total about 30,000 nuts last season. He kept 40% of harvest for eating and gift to their relatives, and brought other 60% to sells at Quang Uyen district market and at home.
- He sells chestnuts at following prices:

<table>
<thead>
<tr>
<th></th>
<th>Early season</th>
<th>Middle season</th>
<th>End season</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selling price (VND/100 nuts)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Big size nuts</td>
<td>10,000</td>
<td>8,000</td>
<td>11,000</td>
</tr>
<tr>
<td>- Medium size nuts</td>
<td>8,000</td>
<td>6,000</td>
<td>10,000</td>
</tr>
<tr>
<td>- Small size nuts</td>
<td>6,000</td>
<td>6,000</td>
<td>7,000</td>
</tr>
</tbody>
</table>

2. Quang Hung Commune of Quang Uyen district.
- The Quang Hung commune has 16 villages, out of which there are 5 villages where local farmers plant chestnut. They are Coc Nhang, Thac Det, Pac My, Na Trao, Ban Lang.
- Total number of population is 360 households, out of which there are 180 households planting chestnut. 50 households have harvested chestnut, and of them 10 households have sold chestnuts.
- The total area for plantation is 77 ha, out of which 20 ha is the area planted long time ago, and 57 ha is the area where chestnut planted in 2002.

1. Coc Nhan village
- Coc Nhan village has total 40 households, out of which 20 are chestnut growers.
The total area for plantation of chestnut is 10 ha, of which 9 ha for plantation of about 2000 immature trees planted in 2002, and 1 ha for plantation of about 200 productive trees planted in 1999.
- Chestnut seedlings under 661 program at the rate of 220 seedling per ha.
- The gardening association of the village has established in 1997, however, this association has no detailed and effective activities.
- There’s no nursery gardens in the village.
- It is expected that in the near future local farmers in this village will harvest large number of chestnuts.

1.1 Interview local chestnut grower.
- Local farmer: Mr. To Quang Liem
- He has total 100 trees in the area of 1 ha, out of which 60 are productive and planted 1999, the other 40 trees are planted in 2000. He said he received 25 trees from 327 program.
- He harvested total about 3000 nuts last season. The best tree produced 600 nuts, and on average, one mature tree produces 100 nuts. He did not sell chestnuts last season, and kept all for home consumption.
- He expected that from this season, there will be 100 productive trees in his area.
- Traders started coming to his house to ask for chestnuts.

1.2 Interview local chestnut grower.
- Local farmer: Mr. To Quang Chinh
- He has total 100 trees and all of them are productive, of which 10 planted 1970, the other 90 trees are planted in 1999.
- He harvested total about 4000 nuts last season. The best tree that planted in 1970 produced 2000 nuts. He does not remember the quantity he sold last season, but could earn 1 million from selling of chestnut. The nuts collected from trees planted in 1999 are few and at small size, mainly for home consumption.
- He expected that from this season, he can harvest more chestnuts and can earn more money.
- There’s no village gardening association, just commune gardening association but no activity.

2. Thac Det village
- The total area for plantation of chestnut is 11 ha, of which 10.3 ha for plantation of about 2000 immature trees planted in 2002, and 1 ha for plantation of about 200 productive trees planted in 1999.
- Chestnut seedlings under 661 program at the rate of 220 seedling per ha.
- The gardening association of the village has established in 1994, however, this association has no detailed and effective activities.
- There are two nursery gardens in the village, each has an area of 1000m².
- It is expected that in the near future local farmers in this village will harvest large number of chestnuts.

2.1 Interview local chestnut grower.
- Local farmer: Mr. Tran Van Quyet
- He has total 120 trees, of which 20 planted in 1986, the other 100 immature trees are planted in 2000.
- He harvested total about 30,000 nuts last season. The best tree that planted in 1986 produced 3000 nuts, and on average, one mature tree can produce 1000 nuts. He does not remember the quantity he sold last season, but could earn 3 million from selling of chestnut.
- He sells chestnuts at home only. Traders and local people come to his house to buy chestnuts. He kept 5% of harvest for eating and gift to their relatives, and bought other 95% at home.
- There’s no village gardening association, just commune gardening association but no activity.
- He sells chestnuts at following prices:

<table>
<thead>
<tr>
<th></th>
<th>Early season</th>
<th>Middle season</th>
<th>End season</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selling price (VND/100 nuts)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Big size nuts</td>
<td>15,000</td>
<td>10,000</td>
<td>8,000</td>
</tr>
<tr>
<td>- Medium size nuts</td>
<td>10,000</td>
<td>8,000</td>
<td>7,000</td>
</tr>
<tr>
<td>- Small size nuts</td>
<td>5,000</td>
<td>8,000</td>
<td>7,000</td>
</tr>
</tbody>
</table>

- He sells chestnuts every market day (every 5 days). On average, there are about 2-3 traders coming to buy chestnut in the season.
- There’s no fixed trading relationship with any traders. He sells chestnut to anybody who offers the higher price.
- No government office official coming to buy chestnuts.

A.3. Cai Bo Commune of Quang Uyen district.
- The Cai Bo commune has 4 villages containing 24 hamlets. There are 10 hamlets where local farmers plant chestnuts.

1. Bang Thuong hamlet
- Hamlet has total 36 households plant trees in the area of 15 ha. 36,000 immature trees planted in 13 ha in 2002, 200 mature trees planted in 1 ha in 1980, and other 100 mature trees planted in 1977.
- Hamlet gardening association has been established in 1999, but no concrete activity.

1.1 Interview local chestnut grower.
- Local farmer: Mr. Be It Vung
- He has total 324 trees, of which 24 mature trees planted in 1980, 60 immature trees planted in 2000, and 240 immature trees planted in 2002.
- He harvested total about 30,000 nuts last season. The best tree that planted in 1980 produced 2500 nuts, and on average, one mature tree can produce 1500 nuts.
- On average, he could earn about 2.5 – 3 million VND from selling nuts.
- He sells chestnuts mainly in the market. Few traders and local people come to his house to buy chestnuts. He kept 10% of harvest for eating and gift to their relatives, and bought other 90%.
- He sells on average twice per week.
- He sells chestnuts at following prices:

<table>
<thead>
<tr>
<th></th>
<th>Early season</th>
<th>Middle season</th>
<th>End season</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Big size nuts</td>
<td>12,000</td>
<td>10,000</td>
<td>12,000</td>
</tr>
<tr>
<td>- Medium size nuts</td>
<td>8,000</td>
<td>8,000</td>
<td>10,000</td>
</tr>
<tr>
<td>- Small size nuts</td>
<td>6,000</td>
<td>6,000</td>
<td>8,000</td>
</tr>
</tbody>
</table>

- There’s no fixed trading relationship with any traders. He sells chestnut to anybody who offers the higher price.
- No government office official coming to buy chestnuts.
- He sold chestnuts from middle August to middle September by lunar calendar.
5.8. INFORMATION ABOUT CHESTNUTS IN PHUC HOA DISTRICT

Phuc Hoa is a “new” District, recently separated from Quang Uyen, so there are no basic statistics separately collected so far. Chestnut production in Phuc Hoa is lower and marketing is less systematic than in any of the other three Districts.

There are nine communes in Phuc Hoa District, of which four have productive chestnut trees. Phuc Hoa is not included in the Cao Bang Provincial chestnut Development Project. It is instead planned for development of other fruit crops, notably Lychee and Longan.

As yet we have no returns form the farmer survey in Phuc Hoa.
5.9. THE FARMER SURVEY FORM

**Chestnut Producer Survey**

1. Full Name of Respondent
2. Full Name Head of Household
3. Village Name; Commune name, District name
4. Date

**Instructions to Field Survey Staff:** Please ask FIVE Chestnut Producers in EACH Village to fill in the Survey

**Survey Questions**

1. How many chestnut trees in total do you have?
2. How many trees do you have that produce nuts?
3. How old are the productive trees? Number of trees by year of planting: 19--............(Repeat for four entries)
4. This year 2002, how many nuts, approximately, did your best tree produce?
5. What is the average number of nuts you get from your productive trees?
6. Do you sell some of your nuts? Yes No
7. This year 2002, approximately how many nuts did you sell?
8. What price did you get for Class I nuts? Early season? In season? Class II Class III
9. In season, how often did you sell? Daily? Twice/week?, once/week?
10. In season, on average how many traders came daily, to your farm to buy?
11. Did you sell nuts in the market yourself? ............
12. How much of your harvest did your family eat or use as gifts? Approximate % or fraction?
### 5.10. RESULTS OF FARMER SURVEY:
CHESTNUT TREES & HARVESTS, SUMMARY & EXTRAPOLATION

<table>
<thead>
<tr>
<th>Commune</th>
<th>No. Producing. Trees</th>
<th>Total nuts sold</th>
<th>Average nuts/tree</th>
<th>Adjusted total nuts</th>
<th>Adjusted Average nuts/tree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kham Thanh</td>
<td>398</td>
<td>233,000</td>
<td>585</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dinh Minh</td>
<td>1,184</td>
<td>213,800</td>
<td>181</td>
<td>360,100</td>
<td>304</td>
</tr>
<tr>
<td>Chi Vien</td>
<td>766</td>
<td>1,183,500</td>
<td>1545</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>2,348</td>
<td>1,630,300</td>
<td>694</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Estimated Total Sales for TK District**

<table>
<thead>
<tr>
<th>TK District</th>
<th>Totals</th>
<th>7,367,595</th>
<th>694</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>tons</td>
<td>73.68</td>
<td></td>
</tr>
</tbody>
</table>

**Notes**
1. This table is based on actual total trees and average nuts/tree sold in 3 sampled communes.
2. Full details of all survey data are available in the Project files.