ProPoor Horticulture

in Uganda and Vietnam

Qualitative assessment of the impact of the rose sector on poverty in North Vietnam: The case of Sapa District

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Project Report PR-V04

The ProPoor Horticulture Project

This research project aims to present policy makers insight in how horticulture can be an important vehicle for pro-poor growth and development. The focus of governments and development assistance to agriculture in East Africa and in South East Asia should include fruit, vegetables and flowers. This focus should include development of the domestic market, away from the often dominant attention for export orientation only.

Governments and donor countries have the opportunity to support horticulture in the rural and peri-urban areas in developing countries, by means of trade policy and development policy instruments. Effective assistance measures should be embedded in the trends and trade-offs ranging from the local to the international level. The project aims to provide this insight and use it as a basis for recommendations on pro-poor development assistance.

Specific objectives are:

- To assess the conditions for fruit, flower and vegetable production, distribution and marketing to serve as a pro-poor activity.
- To assess current outlet opportunities for fruit, flower and vegetable products from the study, both on the domestic and international market, and to formulate expectations for the next decade.
- To predict the impact of the upcoming of supermarkets in the distribution of food, and the increased scope of quality and safety demands on the scale and organisation of horticulture supply in the study regions.
- To determine whether horticultural growth results in environmental degradation or high risk consumption due to pollution in the production environment.
- To suggest interventions for pro-poor growth of fruit, flower and vegetable production, distribution and marketing
- To suggest how EU trade policy and development assistance with regard to horticulture in developing countries can be made to work for the poor.

More information about the project and all realised outputs can be found on the website: www.growoutofpoverty.nl .

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Executive Summary

In August/September 2004, a team of ProPoor researchers travelled to Sapa town, Sapa District, Lao Cai Province to better understand rose production and marketing channels and their impact on poverty reduction. The team conducted a Rapid Diagnostic Appraisal (RDA), including key informant interviews, and structured interviews to collect qualitative and quantitative data. This report outlines the qualitative information resulting from the RDA.

Sapa District was chosen as the research site because of its role in supplying flowers to Hanoi. Sapa town was the particular research site chosen because it was ranked the richest commune of the district.

In 2004, Sapa District had 48.7 ha of roses (according to District officials) and Sapa town had 55 hectares of roses (according to Commune officials). Sapa's cooler climate provides good conditions for growing roses in the summer months. Sapa roses are harvested from May to November when the weather is too hot for production in Me Linh, the other major rose producing region in northern Vietnam. Roses have been grown in Sapa town since 1991. From 2000 to 2004, flower production grew as a share of income for Sapa town from 6% to 16%. Tourism grew concurrently from 40% to 70% share of income.

In 2004, 80% of the roses grown in Sapa town were shipped to Hanoi by truck every other day at a rate of 100 VND per rose. At that time, roses from Sapa had not yet been exported. The prices of roses have dropped from 2000 VND in 2002 to 1000 VND in 2004.

There are three types of rose production units in Sapa town: companies (3), cooperatives (4), and households (25). The Viet My Company (ATI), the Hoa Hong Cooperative, and nine of the 25 households involved in rose production were interviewed.

American Technology Incorporated (ATI), also known as Viet My Company, is a 100 percent foreign investment company set-up by a Vietnamese who is living in America. The company employs around 3500 people and consists of about 20 business units of which ATI Sapa is one. ATI Sapa was set up in 1997 with the focus on fruits and tourism with a staff of 100 persons in total. The company planted about 50 hectares with tropical fruit trees. In 2001 the company started with roses. In 2004, they had 14 hectares of flowers of which, 13.5 were roses. ATI hopes to increase cultivated area to 30 hectares of which 20 would be for roses by 2007. With this expansion 1000 workers could be employed. ATI estimated that they made a profit of 40% per rose. ATI Sapa follows a strategy of aiming for the highest quality and destroys 50% of the roses on average.

Four cooperatives (Thien Thanh, Binh Minh, Thanh Xuan, and Hoa Hong) were established in 2002 to meet the demands of households involved in rose production and business. Normally, three or four households collaborate to set up a cooperative. Cooperatives often rent a large area from local people for rose production and hire labour to tend them. They have few difficulties with marketing because they are regular suppliers to rose collectors. Many of the households involved in rose production came from Me Linh Commune, Vinh Phuc District; others were from Sapa town.

The People's Committee hopes to expand rose production to 110 ha by 2010. They also hope to collaborate with researchers and create a marketing strategy for Hanoi.

The director of ATI estimated that the lower-bound demand for roses in Hanoi was 300,000 to 400,000 roses per day and that the market would be saturated when the area of roses in Sapa reached 250 hectares.

1 General Introduction

1.1 Research Objectives

The main objectives of this fieldtrip to Sapa under the Pro-poor Horticulture Project are to:

- Understand the importance of rose production in local people's lives in Sapa,
- Study the situation of rose production, both in the past and present, as well as potential for development in the future,
- Study the conditions necessary for local people to be able to participate in rose production, and
- Study risks faced by the commercial rose producers.

1.2 Methods

Rapid Diagnostic Appraisal (RDA) and questionnaires were used to collect qualitative and quantitative data, respectively. The fieldtrip was divided into two periods: in the initial days, researchers focused on interviewing district officers, town officers, company directors, leaders of cooperatives, and hired labourers for companies and cooperatives; in the remaining days, researchers interviewed households using questionnaires (see annex for details).

1.2.1 Pair-wise Ranking for Wealth of Communes

Pair-wise ranking was used to define wealth levels of communes (see Table 1). Interviewees defined wealth levels by the following criteria:

- Based on wealth levels of households:
    - According to the general index stated by the Ministry of Labour, Invalids and Social Affairs, households with the average income per capita per month of less than 80000 VND are considered poor households.
    - Household expenditures and income
    - Classification of household economy into four types based on assets. Each village has its own classification.
    - Area of main crops or trees (cardamom, upland and wet paddy are divided per capita).
- Based on characteristics of each commune:
    - In Khoang hamlet the area of cardamom was larger than it was in other hamlets and there were fewer households (i.e. a commune planted with a larger area of cardamom is a better-off commune).
    - Sapa has a dense population and has mainly wet paddy and no cardamom areas.
    - Tà Phìn has areas of wet paddy and cardamom and also income from making brocade.
    - Tả phìn, Khoang hamlet, Xuối Khẩu and Thanh Kim have a high population of Dao people. Dao people are effective in their businesses.
    - Sử pán, Lao Chải, Hàu Thào and Sảpán are densely populated, with 95% of the population being H'mong. They have a small area of paddy and cardamom.
    - In Thanh Phú, Bản Hồ and Nậm Sán wet paddy is cultivated in the large area in two seasons. Local people of these communes are mainly from the Tay ethnic group and know how to invest their money well.
    - Nậm Ca commune has few households, large areas of wet paddy and cardamom and the local people belong to H'mong and Dao ethnic groups.

Table 1: Pair-wise Ranking of Wealth Levels of Communes in Sapa District

Tên	TGP	BK	SAP	TT	TP	SSH	LC	TV	HT	SUP	BH	TK	BP	TPh	NS	NC	ST	TTH	Result
TGP																			1
BK	BK																		7
SAP	SAP	BK																	2
TT	TT	BK	TT																3
TP	TP	TP	TP	TP															10
SSH	SSH	BK	SSH	SSH	TP														5
LC	LC	BK	LC	LC	TP	SSH													4
TV	TV	TV	TV	TV	TP	TV	TV												9
HT	TGP	BK	SAP	TT	TP	SSH	LC	TV											0
SUP	SUP	BK	SUP	SUP	TP	SUP	SUP	TV	SUP										6
BH	BH	BH	BH	BH	BH	BH	BH	BH	BH	BH									13
TK	TK	TK	TK	TK	TK	TK	TK	TK	TK	TK	BH								11
BP	BP	BP	BP	BP	TP	BP	BP	TV	BP	BP	BH	TK							8
TPh	TPh	TPh	TPh	TPh	TPh	TPh	TPh	TPh	TPh	TPh	TPh	TPh	TPh						14
NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS					16
NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NS				15
ST	ST	ST	ST	ST	ST	ST	ST	ST	ST	ST	BH	ST	ST	TPh	NS	NC			12
TTH	TTH	TTH	TTH	TTH	TTH	TTH	TTH	TTH	TTH	TTH	TTH	TTH	TTH	TTH	TTH	TTH	TTH		17

Source: RDA survey 2005

In order to identify the wealth level of each commune key informants were asked to do a pair ranking of communes. They compared the commune listed in the column with the commune listed in the row. After choosing the better-commune, the name was written in the table. Then a count of the number of times a commune appeared in the table was made and listed in the result column. The commune with the highest number of appearances in the table is ranked the wealthiest.

Table 2: Results of Pair-wise Ranking

Wealth Ranking	Commune	Acronym	Result
1	Sapa Town	TTH	17
2	Nậm Sài	NS	16
3	Nậm Cang	NC	15
4	Thanh Phú	TPh	14
5	Bản Hồ	BH	13
6	Suối Thầu	ST	12
7	Thanh Kim	TK	11
8	Tả Phìn	TP	10
9	Tả Van	TV	9
10	Bản Phùng	BP	8
11	Bản Khoang	BK	7
12	Sử Pán	SUP	6
13	San Sả Hồ	SSH	5
14	Lao Chải	LC	4
15	Trung Trải	TT	3
16	Sa pả	SAP	2
17	Tả Giàng Phìn	TGP	1
18	Hầu Thào	HT	0

According to the results of the pair-wise ranking, seen in Table 2, Sapa Town was the richest commune in Sapa district; the poorest one was Hau Thao.

1.2.2 Pair-wise Ranking of Cooperatives

Pair-wise ranking was also used to select cooperatives to be interviewed. Cooperatives were ranked by key informants according to their effectiveness in business.

Table 3: Results of Pair-wise Ranking for Cooperatives

	A	B	C	D	Result
A					**0**
B	B				**3**
C	C	B			**1**
D	D	B			**1**

A: Thanh Xuan Cooperative
B: Hoa Hong Cooperative
C: Thien Thanh Cooperative
D: Binh Minh Cooperative

Of the four cooperatives, Hoa Hong cooperative was ranked as the most effective cooperative. It is the largest both in terms of area of roses and yield. Mrs. Hoa is the leader of the cooperative.

1.2.3 Wealth Level Classification of Households Involved in Rose Production

Mrs. Thuy, the head of Women's Union, classified the wealth of households by the following criteria:

Better-off Households:

- Have enough capital to invest in production;
- Have better opportunities to get access to production technologies;

- Are able to build relationships with partners to do good business;
- Have good production equipment; and
- Have sufficient production materials (land, seedlings, and other materials).

Moderate Households:

- Have insufficient or poor quality production materials;
- Have few opportunities to obtain access to production technologies;
- Have enough capital for rose production, but due to lack knowledge of marketing and production, these households' economies have not caught up with better-off households.
- Have fewer opportunities to access the rose market than better-off households. As a result, they often sell their roses through better-off households.

Poor Households:

- Have poor and crude production materials, having to do everything by themselves without hired labour;
- Have no capital;
- Have no relationships with customers; and
- leaders are the elderly, widowed, and individuals.

Mr. Lien classified wealth levels of households involved in rose production. He divided households involved in rose production into 3 groups (rich, better-off and medium) according to the following criteria:

- Rich households own a large amount of capital, have a large area of over 2.5 hectares, and use many hired labourers.
- Better-off households own a proper amount of capital, have a farming area of 0.5 to 2.5 hectares, and can hire a few labourers.
- Medium households have an area of less than 0.5 hectare, and do not hire labour.

Table 4: Results of Wealth Level Classification of Households Involved in Rose Production

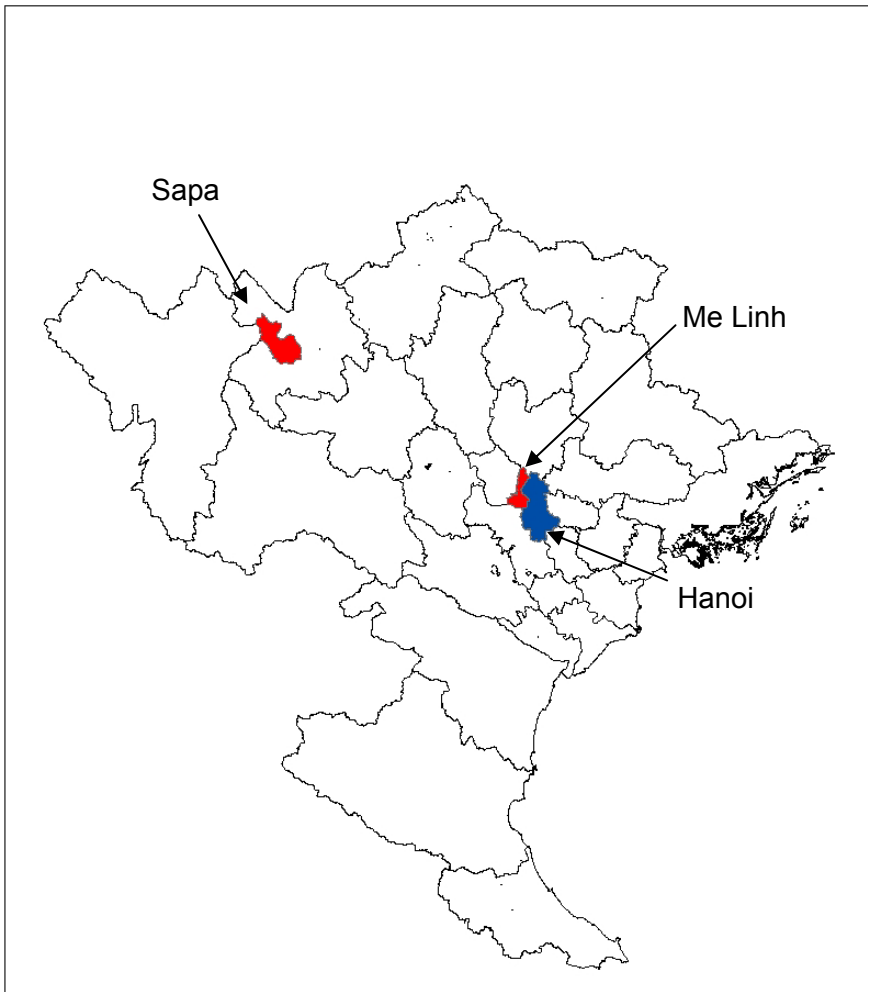
Household	Key Informant 1	Key Informant 2	Key Informant 3	Total
1	1.00	1.00	1.00	**3.00**
2	1.00	1.00	1.00	**3.00**
3	1.00	1.00	1.00	**3.00**
4	1.00	0.67	1.00	**2.67**
5	1.00	0.67	1.00	**2.67**
6	1.00	1.00	0.67	**2.67**
7	1.00	1.00	0.67	**2.67**
8	1.00	0.67	1.00	**2.67**
9	0.67	1.00	1.00	**2.67**
10	1.00	0.33	1.00	**2.33**
11	1.00	0.33	1.00	**2.33**
12	0.67	0.67	1.00	**2.33**
13	1.00	0.33	0.67	**2.00**
14	0.67	0.67	0.67	**2.00**
15	1.00	0.67	0.33	**2.00**
16	0.33	0.67	0.67	**1.67**
17	0.33	0.67	0.67	**1.67**
18	0.67	0.33	0.67	**1.67**
19	0.67	0.33	0.67	**1.67**
20	0.67	0.33	0.67	**1.67**
21	0.67	0.33	0.67	**1.67**
22	0.67	0.67	0.33	**1.67**
23	0.67	0.67	0.33	**1.67**
24	0.67	0.33	0.33	**1.33**
25	0.33	0.33	0.33	**1.00**

Researchers interviewed three key informants who categorized households involved in rose production as rich, average, and poor (with scores of 1, .67, and .33 respectively). In Table 4, scores for each household were totalled and then ranked by sum, with the household with the highest sum being the richest household and that with the lowest sum, the poorest. The bottom third of the scores (1.00 – 1.67) were classified as poor; the middle third (1.70 – 2.33) were classified as moderate; and the upper third (2.34 – 3.00) were classified as rich.

Nine households were randomly chosen for structured interviews through a questionnaire. Two of the households are considered by key informants to be rich, three moderate, and four poor.

1.3 Research Location

Figure 1: Research location



1.3.1 Overview of Sapa District

The total land area of Sapa District is approximately 67,000 hectares, of which forest land occupies 32,000 hectares; agricultural land, 4,500 hectares; residential land, 210 hectares; and fallowed land, 30,000 hectares.

Sapa District includes 17 communes and one town, in which six main ethnic groups including H'mong, Dao, Kinh, Ray, Xapo and Tay reside. The H'mong accounts for 53% of the population.

Currently, district officials have a strategy to develop rose production. At this point, the rose area of Sapa District is 48.7 hectares.

Table 5: The list of communes in Sapa district

No	Commune
1	Tả Giàng Phìn
2	Bản Khoang
3	Sapả
4	Trung Trải
5	Tà Phìn
6	San Sả Hồ
7	Lao Chải
8	Tả Van
9	Hầu Thào
10	Sử Pán
11	Bản Hồ
12	Thanh kim
13	Bản Phùng
14	Thanh Phú
15	Nậm Sài
16	Nậm Cang
17	Suối Thuầu
18	Sapa town.

Rose production is primarily developed in Sapa town; some communes have no rose area and some others like Sapả only have an area of 1.5 hectares.

In general, the economic condition of all communes in Sapa district is still poor. Roses have developed in Sapa town since 1997 – 1998 with the first area of five hectares. French roses were transferred from Me Linh commune, Vinh Phuc province. Roses were experimentally planted in Sapa town in 1991-1992.

The area of flowers in Sapa district has increased from 30 hectares in 2001-2002, to 45 hectares in 2003, to 58 hectares in 2004-of which 48.7 hectares is roses. In addition to roses, lilies, safflower, and gerbera are planted. In 2004, 10 more hectares of other flowers were added by district officials and they also encouraged households to develop rose production through cooperative models.

According to District People's Committee, roses produced here are only sold domestically; the furthest markets are Hanoi and Hai Phong.

1.3.2 Plan of Rose Production of the District

Before 2002, the area of roses was not calculated. Then district officials realized that roses could bring profits to households. Therefore, in 2002, the district had a plan for developing rose production but this plan was too cautious and unspecific. In 2003, the District People's Committee elaborated the production target and specified the plan for rose production from now to 2010. In addition, district officials also encouraged households to engage in rose production and simultaneously joined with banks to support loans for households who lack capital.

Flower Fair

On the 30th of April, 2003, Sapa organized a flower fair with participation of many flower producers in the district. In the coming years, the district is going to organize flower fairs with participation of many flower producers both in Sapa district and in other places.

The District has also planned to establish the Flower Association to orient growers with flower marketing and production.

1.3.3 Overview of Sapa Town

- Before 1995, the share of production from the agricultural sector of the whole district was 70%. However, in recent years, because of the rapid development of tourism, the share of this sector declined to about 30%. The share of tourism and service accounted for 65% and the share of small scale industry was 5%.
- Local people's sources of income have become more and more diverse. Therefore, the incidence of poor households in town has gradually decreased.
- Currently, there are 1524 permanent households residing within Sapa town, consisting of 6650 people belonging to 7 ethnic groups. Twenty-two households are poor households and 2000 reside provisionally. The Town People's Committee defines poor households based on average income per capita per month. Households with average income per capita per month of less than 100.000 VND are considered poor households. Poor households often lack labour due to the fact that the potential labourers are elderly or youth who are not diligent or suffer drug addiction. According to town officials, there were 35 poor households and two households that lacked food in 2000. In 2004 there were over 22 poor households and no households lacking food. The better-off and medium households are dominant in town. These households often have main sources of income from tourism services and secondary jobs.
- In agricultural production activities, households primarily plant fruit trees, flowers, and vegetables. Members of the town own 100 hectares of fruit trees, 58 hectares of flowers of which 55 hectares is used for rose production, and 30 hectares of vegetables including cabbages, squash, kohlrabi, and chayote (the area of roses of ATI is not included). The yield of vegetables produced only meets 40% of the local demand. This quantity of vegetables does not meet local needs in terms of variety either. Medicinal plants, especially cardamom, are going to be developed under the guidelines of the town.

1.3.3.1 Agricultural Production Models

On about 190 hectares of land, there are four agricultural production models:

- Medicinal plant models are mainly created by ethnic minority households (five hectares).
- The dominant vegetable models include cabbage, chayote, squash and watercress (30 hectares).
- Fruit tree models include perennial trees such as peach, apple, pear, and plum (100 hectares).
- Flower models include safflower, lily, gerbera, orchids; and roses (58 hectares, of which French roses occupy 55 hectares).

1.3.3.2 Secondary jobs

- Handicrafts and arts
- Brocade embroidery
- Manufacturing construction materials

1.3.3.3 Services

- Restaurants
- Hotel and resort services
- Other services like trading in the markets

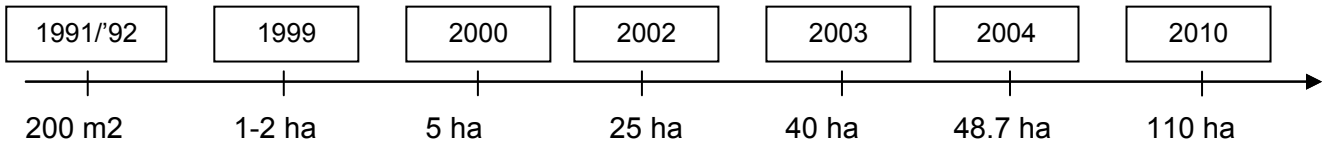
Before 1990, agricultural land was utilized by households. Because of the quick development of tourism and services, households had opportunities to improve their living standard.

Although the area of roses in Sapa is larger than that of cash crops, the density of roses per unit is still low. In addition, roses can be only harvested from May to November. Roses, thus, have not been widely cultivated by households. Therefore, Sapa roses only meet part of the domestic market's need.

2 Rose Production in Sapa

2.1 Overview of Roses

Figure 2: Time Line Related to Flower Production in Sapa



The area of roses

- Roses were first planted in front of the guest house of the District People's Committee in 1991-1992. The area was around 200 m2. A group of French experts planted them as an experiment, and they realized that the weather in Sapa was propitious to the development of off-season roses.
- In 1997-1998, roses of Me Linh were first cultivated in Sapa town by Mr. Binh, a rose producer in Me Linh. He rented one to two hectares of land for rose production. The rose seedlings were foreign.
- In 2000, the area of roses increased to five hectares.
- In 2001, ATI, a company with 100% of foreign capital that invested in many fields, began to plant roses in Sapa. Their area of roses in 2002 was 25 hectares, five times larger than in 2001. In 2002, Dutch roses were initially cultivated in Sapa. In previous years, mainly French and Da Lat roses were grown.
- In 2002, some local people began to grow roses and hired rose producers from Me Linh to teach techniques at a salary of 1.5 million VND per month.
- In 2003, in addition to ATI, Linh Duong and Viet Thai1 companies began to plant flowers which increased the area of flowers in the town to 40 hectares. Local people no longer hired Me Linh rose producers as technical experts. Four rose production cooperatives were established in October 2003. The establishment of these cooperatives brought benefits for households involved in rose production by disseminating knowledge for households, preventing price setting by the assemblers, facilitating households in obtaining loans, counselling on effective investment projects, widening the range of clients, and developing the agricultural production activities of the town. Households learned how to plant flowers effectively. The area of roses increased considerably.
- In 2004, the area of flowers of the district was 54.7 hectares, of which 48.7 hectares was roses. There were 24 households, 4 cooperatives and 3 companies involved in rose production. Households that owned large areas of roses were from Me Linh. They had invested in rose production in Sapa because they realized that the weather there is very suitable for growing roses.
- The area of flowers is expected to increase to 110 hectares by 2010. Due to the market saturation (surplus of supply), the area of roses is going to be extended solely in a small areas while the area of other foreign flowers will be more aggressively developed.

[1] According to statistical data of Sapa District, the area of Thai Viet Company is 2 ha, Linh Duong has no area of roses, but area of lily and "rum" flowers.

Currently, roses are only cultivated in Sapa town because in other communes, where mostly H'mong live, wet paddy farming habits and persist. A few H'mong people want to learn how to grow flowers from the Kinh; but due to their low education level, the weak adoption of techniques and the lack of capital, there have not been any H'mong households involved in rose production so far. Some Kinh households and the Linh Duong Company wanted to rent H'mong households' farming land for rose production but H'mong households disagreed. Some Kinh rose producers rent land of Kinh households.

Flowers in town are cultivated on terrace fields. If land is flat, roses are cultivated at a density of 2000 roses per "sao" while in the case of sloped land, they are grown at a density of 1500 roses per "sao".

2.1.1 Classification of Roses Harvested

Sapa roses are classified into three types:

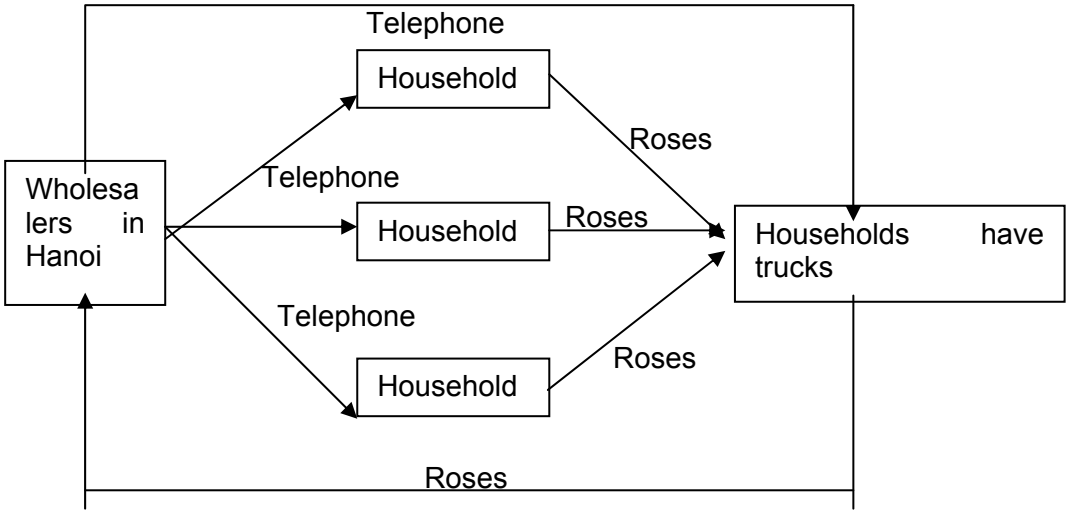
- Type 1: large roses, the length of the branch is about 1.2 m
- Type 2, 3: smaller roses, the length of the branch is 80 cm
- Type 1 accounted for 80% of roses annually produced are sold in the Hanoi market; Type 2 and 3 are sold locally.

2.1.2 The prices

Flowers were sold at 1000 VND per rose, of which 100 VND per rose was the cost of transport.

2.1.3 Form of rose trade

Figure 3: Rose trading and transportation in Sapa



Wholesalers in Hanoi normally order roses via telephone. Households send their roses to the household owning a truck and then they are transferred every three days to the market with the price of transport of 100 VND per rose. This truck was bought by one household in town. Before 2002 households often sent their roses to wholesalers by trucks of ATI with the price of 100 VND per rose. In 2004, roses are not sent by trucks of ATI any more.

2.2 Households Involved in Rose Production

2.2.1 Number of Households Involved in Rose Production

In 2004, Sapa town had 1524 households but only 25 of these households were involved in rose production. These rose producing households are all Kinh. Other households do not produce roses because they do not want to shift from vegetable cultivation although they are aware that roses bring higher profits. Three additional households are in the process of forming cooperatives.

2.2.2 Classification of Households Involved in Rose Production

- Households specializing in rose production: 10 households (they are not native people).
- Households involved in husbandry, vegetable cultivation and rose production: 17 households (they are all native people).
- Households involved in rose production and hotel business: one household (native person).

2.2.3 Flower Locations in Sapa

Figure 4: Locations of Flower Production in Sapa

The above map shows locations and areas of rose fields and the years when roses were first cultivated there. At first, roses were primarily grown around town, and then in the Violet, ATI and O Quy Ho areas. Currently, large areas of roses belong to O Quy Ho area, Violet area, ATI (Lao Chai commune) and Sapa town. Rose fields are located near the main road where they can be easily transported.

Table 6: The Areas and Locations of Rose Fields and the Beginning Year

Location	Area of rose field	Beginning years
Central Area (near District People's Committee)	200 m2	1991-1992
O Quy Ho area	48.7 ha	2000
Violet area	7 ha	1997
Lao Chai commune	5 ha	1997-1998

Sa Pả commune	5 ha	2003

2.3 Reasons Why Some Households are Not Involved in Rose Production

Some areas were not used for rose production due to the mountainous terrain, the low soil fertility, and distance from the water sources. Parts of land near the area of roses of ATI are covered by fog during three fourths of the year; therefore, the quality, as well as the price, of roses produced there was lower than in other places. In 2004, there still remained many areas that were suitable for the development of flowers, but these areas belonged to ethnic minority households who refused to rent their land to the Kinh and did not want to shift from vegetable or cash crop cultivation to rose production although rose production brought higher profits for others.

2.4 Types of Production

Roses are grown in Sapa under three types of production: companies, cooperatives and households.

2.4.1 Companies

There are several companies involved in rose production such as Viet My, Linh Duong and Thai Viet Companies. These companies exist under the interdisciplinary and multi-job forms. They have many advantages in capital, labour, and production equipments as well as selling roses to the market. These companies often have many different types of trade and services, in addition to rose production, such as agricultural production, restaurant and hotel services.

These companies can easily invest in capital and techniques for rose production. They invest in large areas of land in order to establish their companies. They often have long-term leases on land from local people or the People's Committee to produce roses.

2.4.2 Cooperatives

Rose production and business cooperatives were established in 2002 and there are now four cooperatives (Thien Thanh, Binh Minh, Thanh Xuan, and Hoa Hong). They were established to meet the demands of households involved in rose production and business. Normally, three or four households collaborate to set up a cooperative. Cooperatives often rent a large farming area from local people for rose production and hire labour to tend them. They have no difficulties in the market because they are regular customers of collectors.

2.4.3 Households

Better-off households who specialize in rose production are willing to apply technologies as well as practical experiences in rose production.

Most households involved in rose production came from Me Linh Commune, Vinh Phuc, while some rose production households were the native people in Sapa town. Households from Me Linh were always successful in rose production and trade in the district. These households only rented land and hired labour residing in Sapa town and did not hire technicians. Some local households need to hire more labour or technicians from Me Linh to support techniques.

The People's Committee encouraged and supported households to get loans from the District Extension Fund. In addition, production households were supported with techniques and experience through training courses held by the Association of Extension at the district level. However, rose producing households were not provided seedlings or other preferential things.

2.5 Production Costs

- Pesticides and fertilizers are the main production costs.
- Irrigation water is taken from the stream. Because of the high moisture, little water is required.
- Production costs for the first year were around 250 million VND per hectare of roses. The cost of following years is one third of the first year.
- Costs and the price of roses in Hanoi (mainly for trade): The selling price of roses in Hanoi fluctuated from 800 to 1.600 VND per rose.

2.6 Yield

According to the interview with hired labourers, the output of roses for 0.5 hectares of Hung and Hoa's rose field varied over the months as follows:

Lunar Calendar: + April: 40000 roses
+ May: 30000 roses
+ June 6: 35000 roses
+ July: 30000 roses (estimate)
+ August: 30000 roses (estimate)
+ September: 40000 - 50000 roses (estimate)
+ October: 30000 roses (estimate)

The yield per year was 245000 roses.

2.7 Seedlings for Rose Production in Sapa

In 2004, mainly red roses are cultivated in Sapa; other roses including white, light pink, and yellow have been grown since 2003. Because of the small area of roses in 2003, it was not calculated by the district. It is estimated that the area of roses, excluding red roses is now about one to two hectares.

2.8 Propagation Techniques

Roses are propagated by grafting onto wild roses, because wild roses have resistance to poor weather and their roots develop well. Thus, they produce more roses. If roses are propagated by cuttings, their roots develop weakly.

2.9 Rose Market and Prices

2.9.1 The Rose Market in Sapa

In the past, roses were used to meet the demands of people within the Lao Cai province. In 2004, the rose market expanded to other provinces/cities such as Hanoi, and Ho Chi Minh. From these markets, roses were transferred to other provinces throughout the country, especially the Northern provinces including Quang Ninh, Hai Phong, and Thai Nguyen. Roses in Sapa were informally exported to China (Con Minh). However, roses were not directly transferred to China by local people, but were transferred to Hanoi and then were carried to China (Con Minh) by companies in Hanoi. Thus, although Sapa is very favourable to the transportation and has an advantageous location (Sapa is located in Lao Cai, a province which shares a border with China), the district has not yet developed a strategy for the export market.

Eighty percent of roses were transferred to Hanoi. According to informants, Sapa roses have been sold in the Hanoi market as long as they have been commercially produced. Roses sold in Lao Cai were mainly grown in Lao Cai township; few Sapa roses were sold there. Roses sold in Sapa town were often low-quality roses (type 2 or 3); high-quality roses (type 1) were sold in other markets.

In some coming years, the area of roses is going to be expanded and the main market for Sapa roses is still Hanoi and the Northern provinces. To export roses to China and some other markets that have a high demand for roses, techniques and market development strategy should be improved.

2.9.2 The Price

Type 1: The average price

- 2002: 2000 VND per rose
- 2003: 1200-1400 VND per rose
- 2004: 1000 VND per rose

The price of roses decreased over years because of the increase in rose area and therefore supply. Compared to other rose production locations in the country, Sapa has advantages in off-season rose cultivation and high quality roses. Therefore, the price of Sapa roses has been relatively high and stable.

2.10 Trade, Storage and Transportation

Roses were ordered via telephone by wholesalers in Hanoi. The owners of rose fields harvested roses accordingly and carried them to a certain point. Then roses were transferred to Hanoi by one truck. Currently, there are four collection points for roses: one in Lao Chai, one on the way to Lai Chau province and two within the district. There were no wholesale markets in Sapa. Most rose producers sold their products directly to wholesalers in Hanoi. Only small quantities of roses were sold retail in Sapa, as producers could receive a higher price by selling to wholesalers.

2.11 Effect on Poverty Reduction

Many households involved in rose production were formerly poor households:

- Household of Mr. Hải: Their family was very poor; but thanks to rose production, now their family's income has been improved. They now have the ability to support other households.
- Household of Mr. Thiện. Their family was poor two years ago. Thanks to rose production, their family is better-off and they will try to become a rich household.
- Household of Mr. Phượng: This is a poor household with many children; thanks to rose production, their family is better-off.

3 Income

For the whole Sapa district, the source of income from tourism and services accounted for 56%, from agriculture and forestry, 38.6%; and from industry and handicraft industry, 5.4%.

Recently, tourism and services of Sapa town has rapidly developed; thus, the sources of income of local people have become very diverse. In addition to tourism and services, households could diversify their incomes by producing roses and cultivating cash crops including chayote, pumpkin buds, and watercress.

In some recent years, in parallel with the development of tourism services, the area of roses has considerably increased. The main reason is Me Linh is unable to meet neither the rose demand in the summer or the preference of clients. Meanwhile, the weather in summer in Sapa is propitious to the development and growth of roses that offer high yield and good quality.

Currently, the area of roses in the district accounts for 48.7 hectares. Since rose production requires a large amount of capital, good techniques, and the market for roses is still new to local people, many are still not willing to invest into large-scale rose production.

3.1 The Source and the Structure of Income of Sapa District

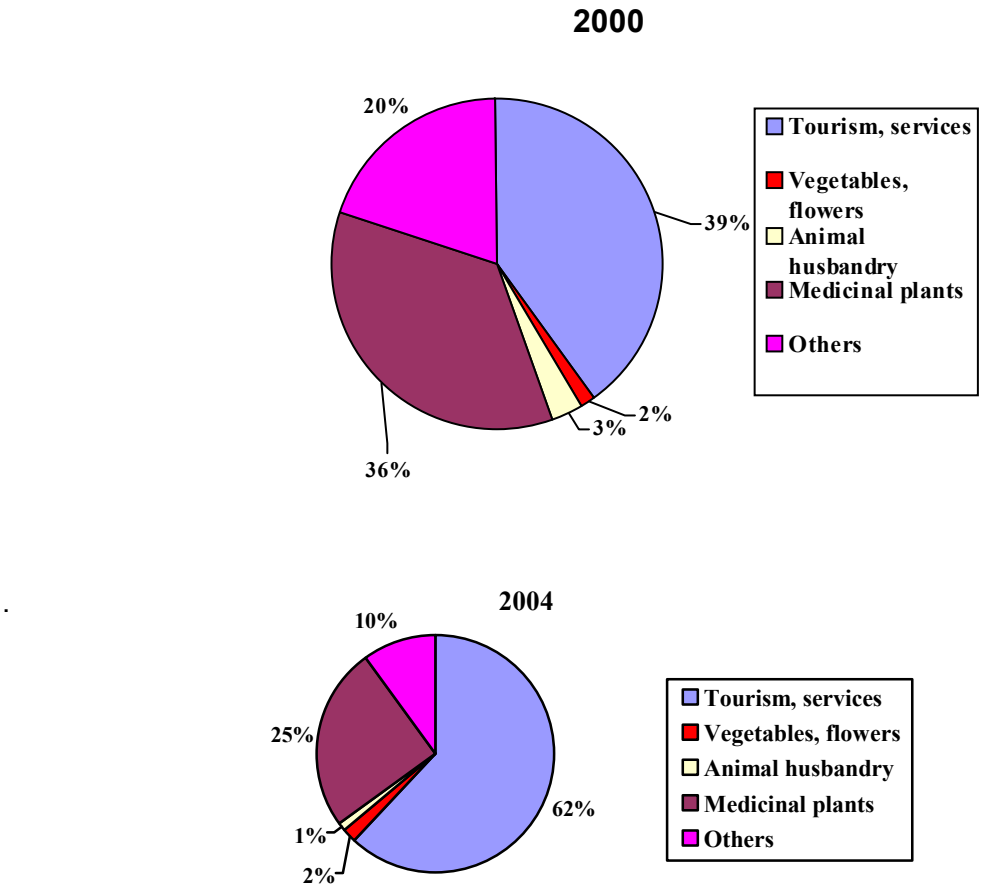


Figure 5: Income of Sapa District in 2000 and 2004

The income structure of Sapa district has also changed a lot over the period from 2000 to 2004. Tourism and services play an important role in the economic development strategy of the district. The income sources of Sapa district included tourism, vegetables and flowers, animal husbandry, medicinal plants (cardamom) and others. Other income came from food crops, fruit trees, industrial crops, and cash crops. From 2000 to 2004, a part of food crop areas had been transformed into cardamom (a tree with high-economic value) area. Although areas of cardamom increased, income from cardamom products decreased, because of the decline in cardamom prices (150,000 VND/kg in 2000; 50,000 VND/kg in 2004).

3.2 The Source and the Structure of Income of Sapa Town

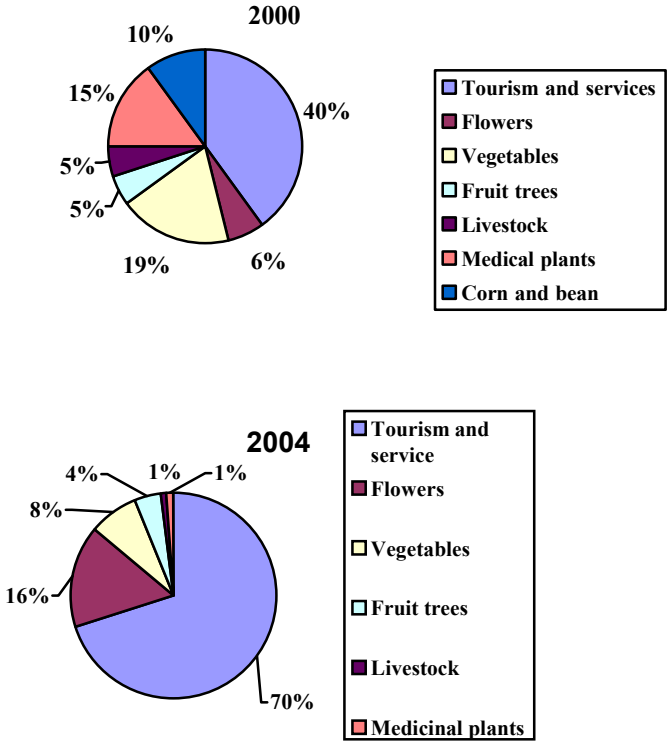


Figure 6: The Structure of Income of Sapa Town in 2000 and 2004

The above two charts show that there was a large change in the structure of income of Sapa town from 2000 to 2004. Sapa town focused on developing services and tourism, over the four year period. In recent years, People's Committee of Sapa district has provided support to transform cash crop areas (corn and bean) in town into flower areas. As result, the total income from flowers increased from 2000 to 2004. In 2000, although areas used for vegetables were large, income from vegetables was low; therefore, these areas decreased. A part of artichoke growing areas decreased because artichoke products had no consumer markets.

3.3 The Main Sources of Income of Households in Sapa Town

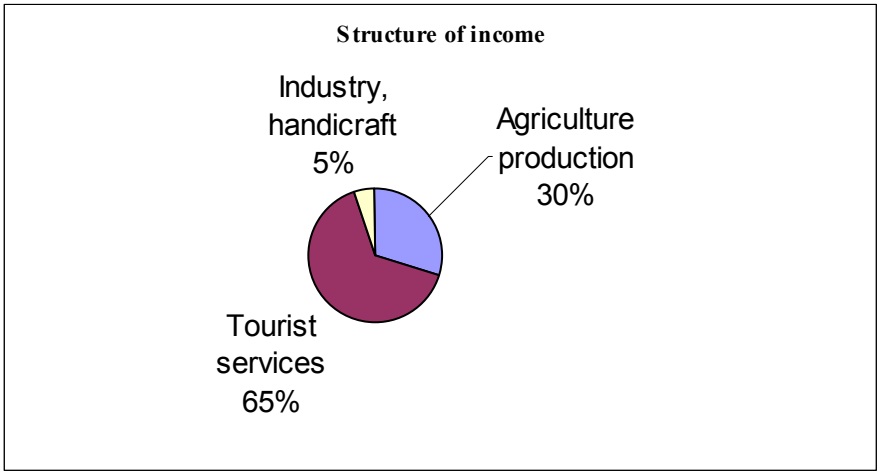
In recent years (1998-2003), the income of households in Sapa district was mainly based on the following three sources:

- Agriculture production

- Off-farm activities
- Tourism and services

However, income in tourism and services was still one of the main sources of Sapa town. Additionally, the farmers in Sapa still paid attention to and invested in agricultural production.

Figure 7: Structure of household income in Sapa



4 Labour

4.1 Labour in Different Occupations in Sapa

In Sapa, people have many options for employment. They can produce vegetables, work in rose fields, work as building workers, or for restaurants. In addition, they can sell something in the market or make brocade and fine arts to sell to tourists. Each kind of labour has a different level of income.

Table 7: Comparison of Income Levels among Main Occupations of Sapa Town

	A	B	C	D1	D2	D3	E	Results
A								***1***
B	***B***							***2***
C	***A***	***B***						***0***
D1	***D1***	***D1***	***D1***					***3***
D2	***D2***	***D2***	***D2***	**=**				***3***
D3	***D3***	***D3***	***D3***	**=**	**=**			***3***
E	***E***	***E***	***E***					***3***

Notes:

A: Rose production
B: Vegetable and crop cultivation
C: Construction
D1: Restaurants
D2: Market selling
D3: Brocade making
E: Fine arts making

As seen in Table 7, tourism services are still one of the major industries of Sapa town. Three sources of income working for restaurants, selling at the market and making brocade (D1, D2 and D3), are equivalent. Employees working in these industries usually receive stable and income with less risk. Moreover, these industries have fast capital turnover and minimum income of about 40.000-50.000 VND per day. Employees who made fine arts (E) also got high and stable income. However, these occupations require experienced labour with highly skilled techniques; therefore, the percentage of households involved in these occupations is low (5%).

Furthermore, labourers involved in agricultural production, in general, and rose production, in particular, also receive relatively high income, but these two occupations require many working-days and exposure to risks such as those caused by the bad weather. Therefore, not many people work in the rose gardens.

4.2 Labourers Working in Rose Fields of the Hoa Hong Cooperative

Mr. Tinh, 26 years old (born in 1979), comes from Lieu Tri village, Me Linh district, Vinh Phuc province. Now, he is working as a hired labourer in Mr. Hung's rose fields. In Me Linh, Mr. Tinh also has one "sao" of roses and one "sao" of vegetables and crops, but he left them to his parents. He annually goes to Sapa to work from January to November 20th. He is paid 600,000 VND per month, three meals per day, and travelling expenses when he goes home. From his own experience, he takes responsibility for techniques applied to the rose area of one "mau", six "sao" (about 5760 m2) of Mr. Hung's family.

According to Mr. Tinh, income from working in rose fields is higher than that from vegetable cultivation in his village. In his village, he has one “sao” to grow vegetables and crops. According to his estimation, in winter 2003, he grew tomatoes and obtained 2 million VND, profiting 1.5 million VND. Tomato season lasted from October to March; therefore, on average he only received 300,000 VND from tomato cultivation each month. Additionally, he sold vegetables in the market to earn extra money but this was not a steady income. He sold vegetables about 10 days and got 350,000 VND every month. Therefore, his wife and he have gone to Sapa to work as hired labourers in rose fields, because the work and income are more stable than their other options.

Each day, Mr. Tinh works in rose fields from 7 to 12 am, and from 1.30 to 6 pm.

Mr. Tinh said that he sprayed insecticides over the rose area of one “mau” and six “sao” (about 0.5 ha) every three days. He sprayed 26 sprayers of insecticides every time, each sprayer cost 15,000 VND on average. Nevertheless, he still faces the difficulty of not identifying some varieties of insects on flowers. He used insecticides according to his experience and the instructions printed on the label of bottles.

Mr. Tinh said that he faced no risk at present. Working in the rose field, he has had no headache or illness. However, he might be susceptible to diseases caused by insecticides in the future.

Working in the rose fields with Mr. Tinh are three professional employees and two hired labourers who get 20,000 VND per day.

He estimates that roses are cut every three days, with a minimum of 1000 and a maximum of 6000 flowers are cut per day. Annually, he starts cutting roses from the end of March to November 20th. On average, he cuts about 20,000 to 30,000 flowers per month from April to November.

4.3 Sapa American Technology Incorporated ATI

4.3.1 Overview of Sapa ATI

American Technology Incorporated (ATI), also known as Viet My Company, is a 100 percent foreign investment company set-up by a Vietnamese who is living in America. The company employs around 3500 people and consists of about 20 business units of which ATI Sapa is one. Most of its branches are in the north of Vietnam for example in Quang Ninh and Ha Tay provinces. The most important activities of ATI are oil and petroleum, aquaculture, ecological tourism, agriculture, and electronic business (in order of importance). The contribution of ATI Sapa to the overall ATI profit is 5%.

ATI Sapa was set up in 1997 with the focus at first on fruits and tourism with a staff of 100 persons in total. The company planted about 50 hectares with tropical fruit trees. In 2001 the company started with roses, which was an idea of the SAPA director himself. The director thinks that in Sapa 300 to 400 ha could be planted with roses, while the total rose demand of consumers in Hanoi requires an area of around 3,000 ha. Currently the rose production areas of Me Linh and Tay Tuu provide most of the roses, but the climate in these areas is only favourable for roses in the period from November to May. Sapa could develop itself as the main supplier of roses for Hanoi in the period from April until November, when the climate is much cooler than in the other areas. At this time, the quality of roses from Me Linh and Tay Tuu is poor and roses are small. Seeing the market for off-season roses, ATI invested in

planting roses in Sapa. Currently they have 14 hectares with flowers of which 13.5 are roses. The director expects that by 2007 the area cultivated by the company will have increased towards 30 hectares, of which 20 hectares are for roses and 10 ha for other flowers. By the year 2010, the expected rose area would be 200 hectares. If they can expand to that area, 1000 workers will be employed. The Sapa director even wants to increase the production area more but this requires a lot of investment capital. Currently ATI is using these investment funds for oil, gas, shrimps and resort establishment.

Mr Toan, the director of ATI, was invited to Sapa to lead the branch four years ago. His family is living in Hanoi. He estimates that in all Northern provinces the total area with flowers is currently around 15,000 hectares. According to Mr Toan, if they invest in rose production in Sapa, they can gain benefit of 40% of the working capital but they only gain 15-20% if they invest in Hanoi. Thus, benefit from rose production in Sapa is higher than that in Hanoi.

4.3.2 Administrative Structure of Sapa ATI

In Sapa, ATI has farms in the O Qui Ho area, Lao Chai, and Ta Phin but the main office is in Sapa town. In O Qui Ho, there are 70 hectares of which 10 hectares are for roses and in Lao Chai commune, 23 hectares of which three hectares are for roses and in Ta Phin commune 30 hectares. The manager is responsible for monitoring all activities in these farms. In each location, they have one farm leader.

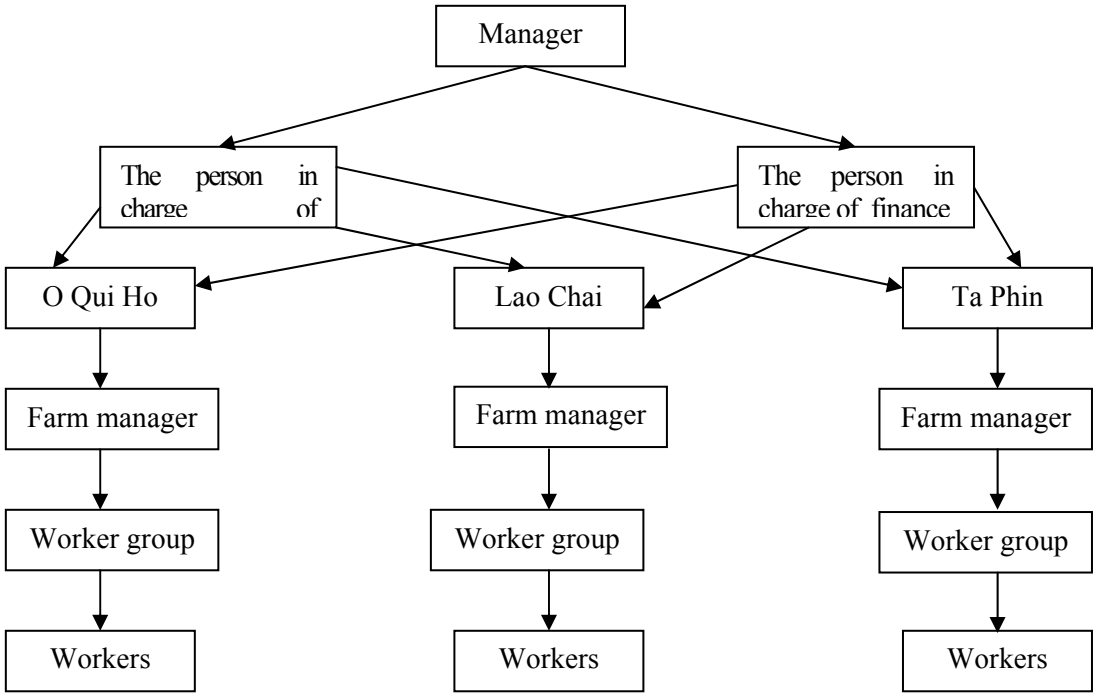


Figure 8: Administrative Structure of Sapa ATI

ATI Sapa employs around 100 fieldworkers in rose production. There is a Director, an accountant team, an overall farm manager and a manager on each of the three farms in Sapa district. There are also two persons assisting the manager. One is in charge of techniques and the other is in charge of finance.

For each hectare of roses, one team of six persons is responsible (one team leader, 5 labourers). Employees work under Mr. Trong's direction, the farm manager and also the rose technician in ATI. He has more than 10 years of experience with rose cultivation and has been working there as a technician for two years. He comes from Me Linh district where he has his own rose farm. In his own rose farm he has planted many varieties. The farm manager is responsible for the production practices used on all the 14 hectares of flowers. Of the 100 fieldworkers 87 are seasonally employed from April to December, while 13 are employed for the whole year. The 13 full time field workers are all male, while 80% of the 87 field workers are female. Seventy-five percent of the full time workers came from Me Linh district, Vinh Phuc province and were experienced in rose production. The remaining 25% came from Nam Dinh province. Seventy percent of the seasonal labourers came from Sapa and Lao Cai while the other 30% came from Nam Dinh and Me Linh. Of the 87 seasonal labourers, 12 of them (14%) are ethnic minorities. By the year 2010, ATI expects to employ 1000 seasonal workers.

4.3.3 Labourers of Sapa ATI

Now, the company is applying the contract system to each worker. One worker has to produce 4.2 flowers per plant per year. On average, there are about 1700 plants per "sao". If the weather is favourable, they are able to obtain 200,000 flowers per "sao" per year. In addition, if workers exceed the target, they will be given a bonus based on their over rate. Thus, workers here work almost every day of the week and have no days off, even Saturdays and Sundays.

The employees working here sign a contract every three months with the wage of one million VND per month.

The wage of the seasonal labourers depends on their labour productivity but on average they can earn 1,000,000 VND/month. This wage is 400,000 VND higher than the average income earned by a casual labourer in Sapa district. Criteria for workers who are engaged in rose production, according to Mr. Toan, are not high. They should be careful, skilful, and patient.
From December to May, roses cannot grow because of the very cold weather. During this time, no weeding is needed, only some maintenance to keep the roses alive.

4.3.4 Farm Types of Sapa ATI

Viet My Company currently has three farms in Sapa:

1. Farm of roses and fruit-trees (the largest)
2. Farm combining rose production and guest house services (the second largest)
3. Farm of fruit-trees (the smallest, about 2 ha)

4.3.5 Marketing channels of Sapa ATI

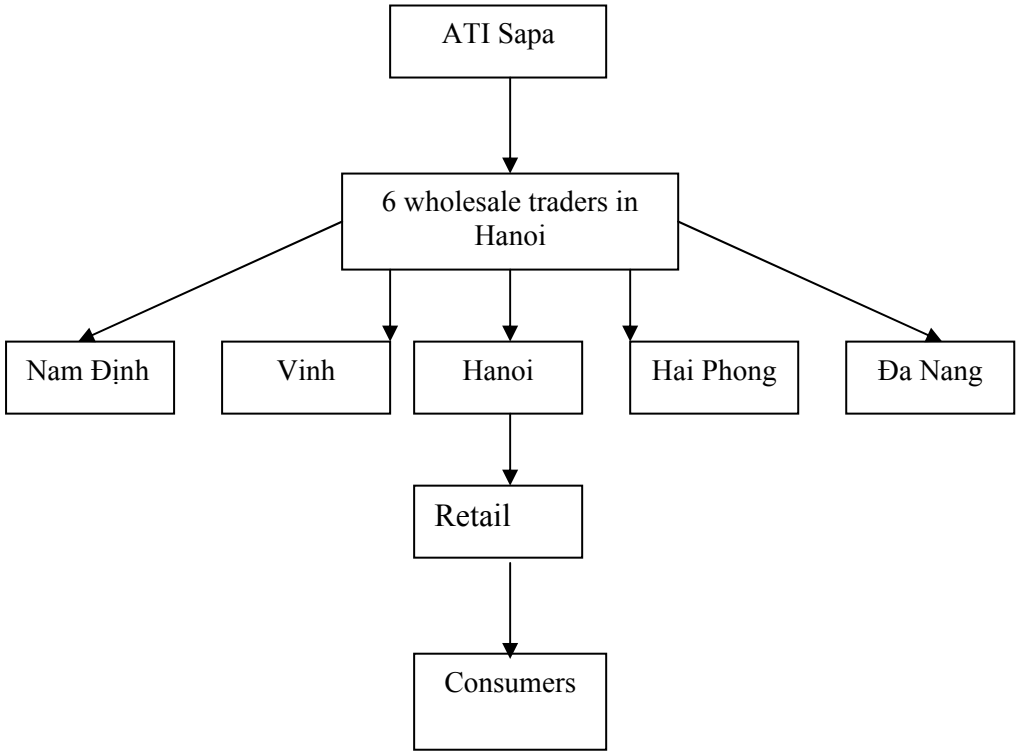


Figure 9: Marketing channels of ATI

The clients of Sapa ATI are six large traders with offices in Hanoi. These traders have a working capital of about 40,000 to 50,000 US$ per year. ATI Sapa has written contracts with these traders to supply roses during a certain season and with a certain quality. A quota was not suggested, the traders just agreed to buy the complete amount which is supplied to them. The price is not fixed and depends on daily market price. The relations with the trader were established three years ago with much trust.

Most ATI roses are sold directly to these traders, who distribute them to other provinces such as Nam Dinh, Vinh, Hanoi, Hai Phong and Da Nang. Of those destinations, Hanoi is the largest market (60%), followed by Hai Phong (15%), Da Nang (13%), Nam Dinh (7%) and Vinh (5%)

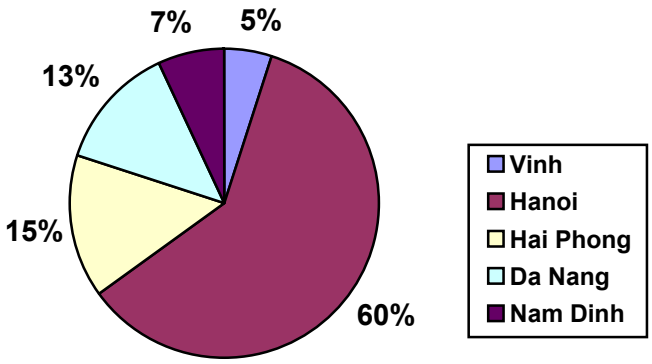


Figure 10: Market Shares for Rose

Every two days, there is a van transporting roses from Sapa to Hanoi. It departures at 6 pm in Sapa and arrives in Hanoi at 5 pm. This van does not belong to the company. The van collects roses from some other rose producers as well, but the largest space is for ATI roses. For each rose, ATI has to pay 100 VND for transportation cost.

The last three years the price received for roses decreased while the prices for the inputs increased. But because of the growth experienced by ATI, they managed to reduce input use and increase yield so the profit stayed the same. But the amount which they can sell in the market has doubled in three years time. The director did not want to reveal his cost price per rose but said that it was below 800 VND per rose. He estimated that they made a profit of 40% per rose. ATI Sapa follows a strategy of aiming for the highest quality. On average they destroyed 50% of the roses as they did not meet the highest quality criteria.

The director did not know what the total demand for roses was per day in Hanoi but he though that 300,000 to 400,000 roses per day was an estimate on the low side. He thought that the market would be saturated when the area of roses in Sapa reached 250 hectares. If the total area of roses in Sapa were around 70 hectares he thought that the price of roses would stay the same.

When asked if he worried about the investment plans of the province for increasing the rose acreage (like with coffee), he said that he did not because ATI would diversify into different flowers. They now have plans for lilies and orchids.

4.3.6 Farm Management in Sapa ATI

Mr. Trong, the farm manager and the rose technician in ATI, is also in charge of buying the inputs for ATI Sapa.

According to the farm manager all the team leaders of the field workers have had some training in crop protection either from college or vocational training. ATI SAPA also has employed one expert in orchid cultivation who graduated from one university in Thailand and is also a specialist in crop protection.

4.3.6.1.1.1 Rose production

One seedling can last for 6 to 7 years and gives 4-6 roses per year. One costs 800 VND and about 50.000 seedlings cover 1 ha.

Inputs:

- Ash
- Chicken compost
- Fermented soybeans and peanuts
- Organic fertilizer
- Chemical fertilizer

Five tons of organic fertilizer and 30 tons chemical fertilizer (12 million VND and 30 millions VND respectively) are applied to the whole area of roses.

They use about 5-7 million VND of chemical fertilizer (pesticides) of the total 50 million VND spent on inputs. They buy chicken compost from chicken farms in Dong Anh, Hanoi. At this time, the company has about 1000 tons in storage. Most inputs are bought by Hanoi based ATI. In other words, if Sapa ATI needs inputs for production, they will inform Hanoi ATI, and then Hanoi ATI will be responsible to buy them.

4.3.6.1.1.2 Rose production time

Table 8: Rose Production Timetable

Time	February to April	May to November	December to January
Activities	Cultivate - Prune - Apply manure (bon lot) - Apply hormones	- Harvest	- No activities
Labours/ha	6	6	1

Activities relating to rose production take place from February to November. During this time, they hire six labourers per hectare. From December to January, they hire only one labourer per ha because roses cannot grow during this period. Irrigation for roses is from rainfall.

4.3.7 Interviewed Employees in Sapa ATI

4.3.7.1 Interview Mr. Khiem, 31 years old

Before working in Viet My Company, Mr. Khiem was a carpenter and he earned 30,000 VND per day on average. When he has no hired work, he does farming at home.

He has worked in Viet My Company for one year. His daily work included cutting, fertilizing, weeding and spraying under the instruction of Mr. Trong. Mr. Khiem sprayed insecticides twice a week, each time spraying about 10 drums for one ha (each drum equals 120 litres). In Mr. Khiem's opinion, this work was very hard and harmful but he only received the contracted wage.

In the future, if he does not work in Viet My Company, he will work as a hired carpenter or continue working in another rose production company.

4.3.7.2 Interview Mrs. Thuy, 31 years old

Before working in the company, Mrs. Thuy farmed with her family. She has worked in the Viet My Company mainly to gain experience in rose growing. Afterwards, she will be able to grow roses on her own at home.

Before working for Viet My Company, her family mainly lived on farm activities. The major sources of income consisted of rice cultivation, livestock (sows and porkers) and off-farm activities (her husband was a hired carpenter). Rice production was only enough for her household consumption, income from pigs was only enough to cover household expenditure. Therefore, these activities resulted in no profit for her labour. Now, feed is expensive and diseases are increasing, so animal husbandry has become risky. Hence, Mrs. Thuy wants to look for other jobs which can bring higher income for her household.

In the Viet My Company, Mrs. Thuy cuts, prunes and rolls paper around flowers. Other jobs such as fertilizing and spraying are designated as male labour because these jobs are physically demanding.

According to Mrs. Thuy, the risk in rose production is relatively high because of the large amount of pesticides used in production. The daily work requires employees to touch sprayed roses which may affect their health later.

4.3.7.3 Interview Ms. Khoa, 20 years old

After failing the examination to enter university, Ms. Khoa began working in the Viet My Company. Her main purpose is to gain experience in growing and caring for roses.
Ms. Khoa said that if she did not work in Viet My Company, she would return home to help her family farm.

4.3.8 Reasons Why Interviewees Work at Sapa ATI

Mr. Khiem used to be a carpenter in Nam Dinh. He found ATI by himself and saw that the income of rose workers is higher than that of wood workers. He sought opportunities to learn about techniques used for producing roses. He hopes that he is able to apply this knowledge to some flower gardens in the low-lands.

In the past, Mrs. Thuy cultivated rice and raised pigs in her house in Lao Cai township. The main reason that prompted her to become a worker at ATI is to gain experience, which she will be able to use producing roses in Lao Cai township. If income of rose workers remains higher than income from rice cultivation and animal husbandry, she will continue working in the company.

Ms. Khoa's main purpose in working at ATI is accumulating experience.

In general, the risk level of the job is high for both male and female labours. But rose growing is a new branch and also is largely capacity-building; employees can learn techniques and accumulate experience so that they are able to develop rose fields of their own in the future.

4.3.9 Labour Contracts and Recruitment

Workers can sign a contract with the company in two forms: long-term contract for one year or seasonal contract from March to November with probation period of 15 to 20 days. Normally, workers who are selected to work in the company are laborious, careful, and highly

responsible. Furthermore, the company gives priority to female labourers because they are defter. From April to November, the period of rose care-taking and harvesting, the company pays workers according to the contract system, converting to approximately 1 million VND per month. The contract requires workers to harvest 4.2 flowers per plant, which averages approximately 160,000 to 170,000 flowers per ha annually. The yield harvested by each worker is noted monthly in the control book. At the end of the year, the company will calculate total yield of each worker over the year. If anybody obtains more than the level of the contract system, they will get a prize. The company provides residence for workers but the workers have to pay for eating and drinking themselves. The seasonal workers go home to do other jobs in the rest months. Workers who sign a one-year contract work other jobs in the company from December to February. They are paid a salary according to the contract.

The interviewees said that the company' s regulations about labour protection, such as preventing exposure to pesticides by wearing gauze mask, glasses, and boots were closely monitored and enforced. Thus, most workers feel assured when they work.

According to Mr. Tho of the personnel department of the company, the workforce of the company is not stable because some workers annually take leave from work for family reasons. Each year, about 2% of total workers leave. As the wage that is paid to the workers is based on their agreement, nobody complains about their present wage. The company has never dismissed a worker.

4.3.10 Some Information Obtained from Workers

The technical process of rose care is designated by the technical department (Mr. Trong is the dean of this department).

- *Pesticides:* If the weather is stable, pesticides are sprayed twice a week (nine drums per ha, one drum equals to 120 litres). If the weather is unfavourable, workers must use much more pesticide (10 drums per ha). Roses of the company are affected by the diseases less than others, therefore the use of pesticides are limited and less other rose farms. When the weather is frosty, funguses develop fast and fungicides must be used.
- *Fertilizer:* Roses are fertilized with 25 tons of manure per ha early in the year; phosphate is used as additional fertilizer with 10 kg per "sao" every 10 days. From October to November, the quantity of fertilizer is reduced.
- *Growth stimulants*: Stump nutrients and growth stimulant named Bimic are used for roses. They are combined in the rate of 30 drums of nutrients to 60 bottles of growth stimulant (Bimic). One drum of nutrient supplement equals to 120 litres; 1 bottle of Bimic equals to one litre.

4.3.11 Problems and Possible Solutions for Sapa ATI in Rose Production

**** Problems***

- There is often heavy rain at harvest time. The heavy rain weakens rose roots, therefore resulting in low quality of rose.
- Currently, roses are sold only in the domestic markets. The company has great expectations in exporting roses to foreign markets.
- The company has seen unstable prices of roses.

**** Possible Solutions (according to Mr. Trong)***

Provide enough nutrients for roses so that roses can grow well in the heavy rain and bad weather. In addition, drainage system should be improved and well operated.

4.3.12 The Future of Sapa ATI

ATI does not yet export any roses because the area is too small and the quality not high enough. Da Lat exports because they produce roses in net houses and green houses. ATI Sapa is soon going to set up an experiment with protected cultivation of roses as well. The company is also planning to produce their own seedlings. They currently buy them from Me Linh.

In October 2004, ATI Sapa planned to assist the Lao Cai province authority in establishing 100 hectares of roses. This is a provincial poverty reduction program targeted towards ethnic minorities. In this unique public-private partnership ATI Sapa will introduce the technology and marketing of the roses. The ATI Sapa field workers will train the ethnic minorities; one ATI worker will train 4 persons. The roses which will be produced by the ethnic minorities will be bought and sold by ATI.

4.4 The H'Mong Labourer Working in Rose Gardens

According to H'mong interviewees, the sources of income of H'mong households are cultivation activities (maize, rice, and potato), animal husbandry (buffalo, pig, and chicken), fruit-trees (peach and cardamom), and off-farm income (from rose farm and other places). In the interviewees' opinions, income from off-farm income is more stable than that from cultivation and animal husbandry.

4.4.1 Mr. Phu

Mr. Phu, 41 years old, finished the third grade. He has worked for the flower and vegetable farm of Mr. Tu for four years.

His family of four has two cultivated ha, of which one ha is planted with 1000 peach trees and the other is used for rice. In 2004, he got a profit of 17 million VND from peaches but rice was only enough for household consumption.

He raised four pigs in 2004 with a profit of four million VND. The cost of feed for pigs was insignificant. Some of vegetables used to feed his pigs came from Mr. Tu's farm, where Mr. Phu worked as a labourer. In addition, he raised over 10 chickens to improve the nutrition of food for his family, and he owns a buffalo for ploughing.

Mr. Phu works as a hired labourer for about eight months of the year, of which three months he works on the rose farm of Mr. Tu. On average, the daily wage is 25,000 VND. Therefore, his annual income from hired-work is 6 million VND, of which 2.25 million VND is from working for the rose farm. Mr. Phu undertakes all work such as weeding, fertilizing, cutting, rolling and harvesting. Mr. Phu works not only for Mr. Tu's farm but also for some programs of the Government which have been implemented locally such as planting pine trees and multiplying fruit-trees. Moreover, he does other jobs such as reclaiming and harvesting.

4.4.2 Mr. Thao A So

Mr. So, 23 years old, finished the third grade. He has worked in Mr. Tu's farm for four years. There are seven people in his family and the main sources of income of his household are from planting, animal husbandry and off-farm labour.

Mr. So has three ha, of which one ha is 300 peach trees (due to having been planted not long ago, there is not yet income) and pines. The other two ha were planted with rice that produces only enough for household consumption.

He raised three pigs in 2004; the profit was from 3 to 3.5 millions VND. He raised chickens only for improving household consumption. He had no buffaloes or cows.

Like Mr. Phu, Mr. So and his wife work in a rose farm about 3 to 4 months a year. In addition to Mr. Tu's farm, Mr. So works for two other farms for 4 or 5 months. His average wage is 25,000 VND per day. He works all jobs from land preparation to harvest. The jobs in the other farms are only land preparation, reclaiming, and weeding.

Mr. So intends to invest in rose growing on one ha next year. He is going to coordinate with Mr. Tu who has a lot of experience in rose growing. He intends to invest in roses because he thinks roses only require investments in the first year with long term returns (5 years). Mr. So said that he was not afraid of risk involved in investing in the rose business because Mr. Tu can support him through techniques and marketing. Mr. So's current difficulty is the lack of capital. Getting credit from banks is very difficult because it is a complex procedure and only a little credit can be obtained (about 2 to 5 million VND).

4.4.3 The H'mong's opinion about the hired-work

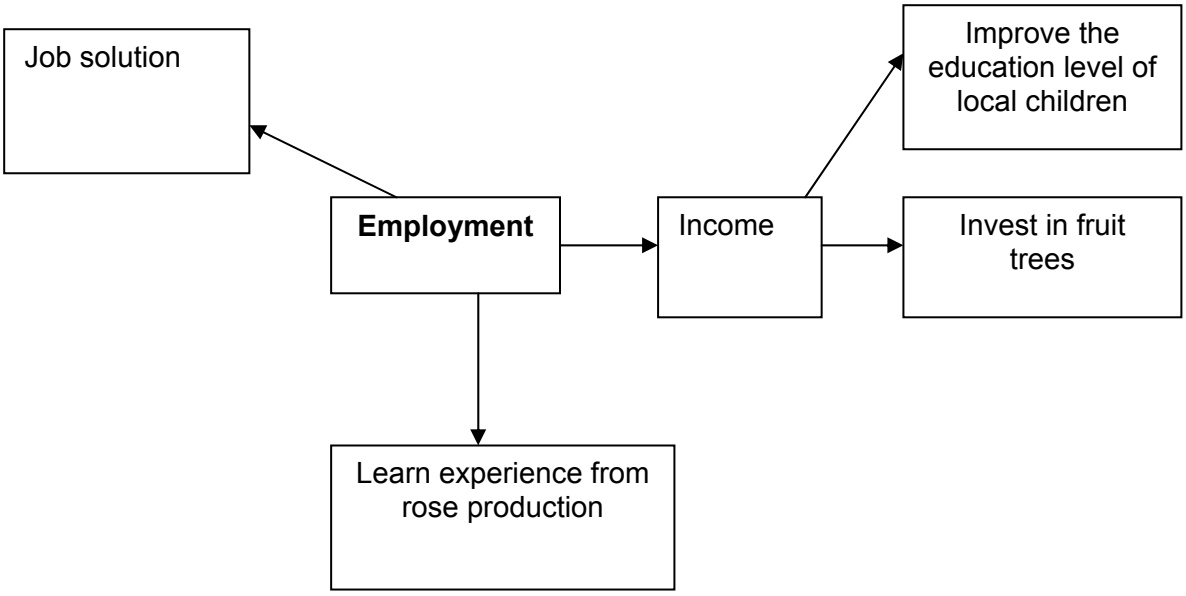
Regarding to the number of hired-out-labour days, the interviewees said that they usually worked on rose farms as employees in rose farms from April to November. Cultivation and animal husbandry require the same amount of working-days (the interviewees did not estimate exact working-days), but the hired-work has occupied most of their available labour.

Employees have faced no risk when working. Even when the leaders of farms face risks due to the weather or the market, hired workers still receive their wage.

They realized that working in rose farms brings stable income and is less difficult than cultivating rice or planting fruit-trees.

Before working in rose farms, in addition to income from cultivation and animal husbandry, they often went to the forest to cut timber for more income. Timber products were sold at high prices and income from timber was many times higher than that of a hired labourer. But exploiting timber was an illegal and risky job; they could fall down from cliffs or be arrested by forest protectors. Since beginning work in rose farms, they gave up exploiting timber and gathering non- timber forest products.

Figure 11: Effect of the Hired-work on Laborer's Livelihood



4.4.4 Jobs and Origin of Employees

The leaders of rose farms often hired labour residing next to their farms to facilitate the commute of employees. Employees mainly lived in Sapa and Lao Chai communes and O Quy Ho and Violet areas.

Jobs

Two employees who were interviewed undertook the following jobs:

- Cutting, pruning and fertilizing from April to June
- Weeding from April to October
- Harvesting from May to November

5 Expectations of the District People's Committee and Local People

- The District economic development strategies for the upcoming years mainly focus on developing vegetables, flowers and temperate plants.
- They hope to receive capital from the province in upcoming years.
- They expect to be provided with disease resistant seedlings of flowers.
- The local authorities want to closely cooperate with research institutes and research centers which belong to the province or the other provinces.
- They want to organize programs to survey flower markets in Hanoi in order to devise plans to increase the area of roses.

Currently, there is much unused land in the district that could be used for flower production. But the district can not afford to reclaim the land due to the difficulty in capital, traffic and the market. Therefore, the District People's Committee desires to receive support in order to completely utilize unused land.