

Chapter 1

Introduction

1.1 Background

The development history of the world coffee industry resulted from the horticultural skills of the Dutch, who moved the plants from Yemen to Batavia, and then to Amsterdam, where they were successful in producing an abundance of seeds to distribute to their colonial countries. The Catholic missions later played an important role in distributing the seeds and plants both to Africa and Latin America continents (Wrigley, 1988). Then commercial coffee production has been distributed to many places on the penetration of the railway systems from the coastal ports into other places around the world (Clifford and Willson, 1985). As a result, coffee is now one of the primary economic sources and the most important single export product value for approximately 50 coffee producing countries in Latin - America, Africa and Asia (Ridler, 1983).

Coffee has been grown in Vietnam since 1857, but only during the last 15 years has it gained pace in term of areas and market exported with currently has over 400,000 ha. Compared with the 1975s, where the present coffee area has increased thirty times and output seventy times (Sung, 1999). Vietnamese coffee has been exported to 40 countries in large quantities including big markets in the United State, Germany and Europe countries. Its coffee production was ranked at third in the world only after Brazil, and Columbia. The production in 1997 was approximately 400,000 tons and the export turnover was more than \$600 million, which ranked it as the second in term of total benefit from agricultural production, only behind rice in export value earning from agricultural production (Nhan *et al.*, 1999).

Table 1 Evolving of Vietnam coffee area and productivity through years

Year	Area (ha)	Growth rate percentage	Productivity (ton)	Growth rate percentage	Export (ton)
1975	13,400	-	6,100	-	N/A
1980	22,500	68.0	18,388	201	N/A
1985	44,685	98.6	12,340	32.8	N/A
1990	119,314	167.0	64,101	41.9	N/A
1995	175,000	46.9	240,000	274	233,000
1996	230,000	31.4	350,000	45.8	346,000
1997	250,000	9.00	360,000	2.85	350,000
1998	300,000	20.0	405,000	12.5	387,217
1999 est.	370,000	23.3	450,000	11.1	420,000

Source: Sung, 1999. N/A, not available, est.: estimation

In 2000, Vietnam became the first country to export robusta coffee with the total export of 686,000 ton. It was also ranked as one of the first highest countries on robusta coffee yield per hectare in the world, with an average yield was at 1,500 kg of dry bean ha⁻¹ (Bau, 2001). Stabile *et al.* (1984) found in Columbia in 1982, yield harvested from the new technological practices of 1,353 kg ha⁻¹ as compared with 568 kg ha⁻¹ for the traditional production practices whilst according to Wrigley (1988), Zimbabwe had the highest yield in the world in the year of 1982 at 1,289 kg ha⁻¹ of coffee bean. This means the better growers on the good land will harvest twice and others only half as much in a drought year. Where in Brazil, Berbert *et al.* (2001) stated that the average yield at 1,140 kg ha⁻¹ in 1998 but in areas with high level of technologies applied, the yield reached up 3,300 kg ha⁻¹.

The coffee growing area in Vietnam is stated out by two regions for two main coffee species in differences of biological and environmental requirements. They are robusta "*Coffea canephora Pierre ex Fröhner*" and arabica "*Coffea arabica*". From the Haivan pass southward of the country is for robusta coffee except for some areas on the higher elevation of more than 800 meters above the sea level are suitable for

arabica (Nhan, 1999). Most robusta coffee was grown on basaltic soil, which has good texture, deep profile, rich in organic matters and nutrient contents. The climatic condition in this region is relatively moderate with high temperature, abundant sunlight and characterized by two distinct seasons, rainy and dry specify for the highlands areas in DakLak, GiaLai and Lamdong provinces. In the North, from Haivan pass northward is marked for arabica growing regions.

Sung (1999) said that the successful achievements of Vietnam's coffee sector could be attributed to the fact that the farm business technologies included improved production, economic reform, and social aspects have been properly applied by coffee growers. Their sound knowledge and skills in applying proper agricultural technologies have resulted in a better management of their farms, which leads to higher productivity. Nhan (1999) stated that the radically innovative in facilitating trading and policies included multi-sector economic orientation in allowing households and small farm-owners to have their own coffee plantations, handling land usage right to farmers, and many new investment, loan policies along with national socio-economic programs has been granted in large scale, such as accommodation and cultivation settlement, hunger elimination programs for poverty reduction. Especially, the establishment of the extension system has contributed their effortlessness for the agricultural and rural development in large scale within the sustainable manner through the whole country in recent years.

1.2 Rationale

Coffee, a major commercial crop, plays the most important role in the economic development and has remained as a cornerstone of household income in DakLak province. Coffee production accounts for over 85 percent of the total value of agro-forestry production, contributing to about 60 percent of GDP, and it also provides employment to about two third of 1.8 million people of the province's population (Sung, 1999). Coffee is cultivated in 264,000 ha scattered throughout the whole 19 districts, accounting for more than 60 percent of the total coffee areas in the

whole country, and exported 342,712 tons of coffee beans with the total value of \$267 million in 2000 (Bau, 2002).

Table 2 Coffee areas and productivity in DakLak province throughout the years

Year	Area (ha)	Growth rate (%)	Productivity (ton)	Growth rate (%)
1990	69,641	-	28,580	-
1991	73,327	5.00	34,061	19.0
1992	79,005	8.00	53,484	57.0
1993	87,251	10.0	72,710	36.0
1994	101,977	17.0	109,328	50.3
1995	131,119	28.5	154,596	41.4
1996	153,058	16.7	159,633	3.3
1997	164,988	7.80	212,114	33.0
1998	169,626	2.80	246,956	164
1999	250,830	47.8	295,650	19.7
2000 est.	259,030	3.00	370,551	25.3

Source: *DakLak Statistical yearbook, 1999.*

The Western Highland DakLak province falls in mountainous tropical zone with two completely different seasons, rainy and dry. The rainy season starts from early of May to early of November. The rest of the months are a drought period with strong monsoon blowing from the northeast that cause extreme drought for crops and coffee as well. Most coffee plantations set on the altitude of 500 to 700 meters above the sea level. The difference between temperatures of day and night ranges from 10 to 12 degree centigrade, this is the favorable condition for the accumulation of taste for coffee, resulting in high quality and good aromatic flavor to coffee bean. The Western Highland DakLak robusta coffee has been known to be attractive and favorable product in the world market. The coffee label is normally called Buon Ma Thuot coffee with Buon Ma Thuot as the name of the center city of DakLak province. This label is similar to the famous Mocca coffee with its name taken from Mocca Port on the Pink Sea [Nhan: URL.1].

DakLak is the largest province in Vietnam with total area cover of 19,830 square kilometers with different soil types, of which basaltic soil (*Rhodic Ferrasol*) covers about 700,000 hectares. It is considered as the best arable suitable land for planting perennial crops, such as coffee, rubber, cashew, black pepper, and fruit trees, especially highly suitable for coffee production. Due to the economic reforms in Vietnam during the past few years, the government has supported for coffee production in DakLak province in priority aspects related to coffee strategically development, it has resulted from increasing rapidly in term of area and productivity. These have contributed to the significant achievements for the economic and social development within the whole province during the past few years. On the other hand, Hong *et al.* (1997); Tu (1998); DARD (1999); WASI (2000); SWRM (2000) and Phong (2001) found that the economic success has caused unsustainable agricultural development, resulting in deforestation to expand coffee areas, water scarcity from over-exploitation of ground water resources, and unsuitable farmers' practices in term of imbalance and over fertilizer application, over pesticide used on pest and disease control, highly intensive cultivation practices and quasi-monocropping over vast areas of coffee whilst the economic efficiency for coffee producers was still low compared with their product potential capability. Coffee producers are currently being faced with risks of drought, yield reduction, pest and disease outbreak and soil degradation. Couple with the fluctuation and instability of the coffee price in the world market, it has caused great income losses to the coffee growers in recent years.

Due to the expansion of forest areas for coffee production is beyond its scope of DakLak province. On the contrary, the increase in coffee production is possible only through increased productivity per unit area. Therefore, it is recognized that in order to curb the afore mentioned constraints, DakLak extension services in the past few years have concentrated on disseminating technological packages on coffee production related to fertilization, pruning techniques, propagation, pest and disease management, and irrigation. These regarded technological packages obtained from coffee research institute aimed as the potential strategies for improving farmers' practices, yield, bean quality, and production cost reduction for improving the farmers' income and protect social and environmental problems. Of which, the

extension agent was one of the key players in dissemination process, and this transferring process was being implemented through five main extension approaches that included demonstrations, lecture in class room, mass media, T & V system (Training and Visit) and farmer-led approach.

The extension programs in DakLak province has recorded significantly achievements in contributing to the agricultural and rural development in general and coffee sector in particular during the past few years in term of increasing coffee areas, coffee yield, and positive farming practice changes of coffee growers throughout DakLak province (PEC, 1998). There was, however, little known about the attitudes, the adoption of recommended practices at the farm level, and about farmers' reactions to the extension approaches as well as farmers' perception of the relative advantages and disadvantages of recommended practices, and the efforts made by the extension services in dissemination process. This study aims to analyze how farmers' practices and the potential impacts of the extension services on coffee production. Aside from that, the study also concerns on how farmers' views on the extension approaches for improving the future performances of extension then feedback for research priority settings on coffee production in DakLak province for the coming years.

1.3 Objectives

The study is designed to attain the following objectives

1. To describe and analyze the farmers' practices on coffee production.
2. To identify the farmers' preferences for extension approaches on disseminating the new technologies on coffee production.
3. To analyze the impact of agricultural extension on coffee production.