

Abstract

First Year of the study of the Arabica Coffee Cultivation under the Natural Conservation System on the Highland or Agro-Forestry. At first the study was started from the cultivation system that exist on the highland of the Highland Research and Development. Training Khun Chang Khain of Faculty of Agriculture Chiang Mai University and Royal Project included 4 Development center: namely Teen Tok, Pa Miang, Mae La Noi, and Aung kang. The study survey was included the ability of growth and production of the Arabica coffee in different varieties for the screening and selection for the best and specialty coffee of Royal Project from cherry harvesting wet processing for the parchment coffee for seed sowing and cultivation in the selected farmers plot of Intanon Development Area under the Natural Conservation System and other portion for roasting and Quality Cup Test.

Research result shown from the selected farmers plot in Royal Project Development center 1) Teen Tok, Mae-On District Chiang Mai most farmers grown Arabica coffee under natural conservation system by well management of integrated with the forest tree which is the original grown such as. Miang (Local tea), Ta Loe, Koh (Chestnut), Hien and Yom 2) Pa Miang location, there were farmers grown Arabica coffee in the unshed (monocrop) and shedding system which considered not well managed of the grow system by grow coffee mostly mixed with fruit and forestry tree was specific spacing with macadamia, persimmon mango pomelo, Jack fruit, Cha-om, Ma kham pom and Miang (Local tea) 3) Mae La Noi, Mae La Noi District, where farmers grown Arabica coffee under natural conservation system integrate with original forest trees such as Lok Niang 4) Aungkang research station, farmers grow Arabica coffee with the integration of original forest tree and also with the fruit tree included peach , Apricot and Avocado, coffee tree growing very well. But all of these 4 centers Arabica coffee varieties were not specific for the selected varieties. And 5) Khun Chang Khain Research and Training Center, where farmers and station grown coffee unshed and shedding system with the Natural Conservation system with Nang Pa Ya Sua Klong (wild Peach Tree) and Ta Loe Trees and some coffee plot grow with fruit trees such as Persimmon and Avocado where the well managed of the coffee growing and the stolen have identified the coffee varieties.

From the five selected coffee cultivation areas where the coffee varieties selection were made by the criteria of the well growing, Balance structure, Production, Coffee Cherry Quality (Size and Color) and less attacked by Rust Disease and Insect, 9 varieties were selected from those : Center at 1 variety from Aungkang, Pa Miang, Teen Tok and Mae La Noi used 2 varieties without record of original source 4 varieties of Progeny 88, 90, LC-1662 and C-1669-31 were selected from Khun Chang Khain station. All of the cherry coffee screening and selection were done by wet processing for parchment coffee, then will took the first portion for the seeding and second to process by hulling for green coffee for Quality Cup Test.

Parchment coffee which will be the selected to sow for seedling to grow at the 6 – 8 trees leaf for field cultivation at farmers plot of Ban Mon Ya and Ban Pa Kluay, Intanon Area. The Natural Research Conservation Systems Temporary and Permanent shed trees were also cultivated which included Silver Oak (Silk oak, silky oak, silver oak.) and Ma Kham – Pom (wild Round Tamarind) and Pigion Pea. And also for the soil conservation native grass were planted. All of this are the Natural Resources: Conservation System.

Result of the first year 2558 – 2559 cultivation of the Arabica coffee and shed trees at Mon-Ya were record in August the coffee trees had a different growth rate in with the known varieties and unknown varieties selection from the Royal Project Development centers. Only one farmer record varieties were P- 88 and P-90, LC-1662 and C-1669-31 from Chang Khian station. September year 2559 coffee trees height is 20.88-24.70 cm , size of bush is 24-25.17 cm and the size of tree trunk is 5.38 - 6.05 cm.

On the part of shade trees such as the Silver Oak, Ma Kam Pom and Pigeon Pea found that silver oak trees are growing fast. The height of the tallest trees about 160.40 centimeters, while Pigeon Pea and Ma Kam Pom have the height of the tallest trees around 125.33 and 49.5 cm, respectively.

Coffee seedling with were selected from 5 locations and 9 varieties had been prepared to grow on the year of 2560 found that the seedling for September, 2559 had height 17.16 cm, bush 23.24 cm and 6 pair of leaf respectively. For the Quality Cup Test of the green bean from 5 locations found the size is 8.15 mm, length

is 10.70 mm by average with the size of sieving S18 - S16. (With of sieve pore about 6.3 - 7.1 mm). The color of coffee bean is green, clean and 12 percent of humidity the total selection 80 percent of sample.

In summary of the Quality cup test of the 5 samples with the Specialty Coffee Association Method shown the scores of evaluation respectively 1) C-1669-31 with 79.55 point. 2) LC-1662 with 79.05 point both from Khun Chang Khian station. 3) Teen Tok with 78.93 point. 4) Pa Miang 78.50 point. 5) Khun Chang Khian; Progeny 90 with 78.35 point. 6) Progeny 88 with 77.6 point. 7) Mae La Noi with 76.95 point and 8) Aung Kang with 63.75 point. And with the testing panel conclude that most of the sample were Aroma and Flavour in Black tea, Chocolate, Vanilla and Nut.

Result of the measurement of Micro Climate and soil condition in the cultivation plot at Ban Pa Kluay and Mon Ya. Found that the temperature is 32.40 - 36.33 C degree at 14.00 - 15.30 pm of the day, sun shine or sun light was 5,000 - 6,170 Lux, relative humidity was 39.33 - 55.00 percent and soil moisture was 1.33 - 1.67 which can describe that during that time soil and water absorption was dry and average humidity and also found that soil had pH 5.07 - 6.07. In the total shown that is the sample area of research had the temperature and high sun light which will affected to the relative humidity that caused the coffee growth. Then for this founding, they should grow shed tree before start to grow coffee in the field for 1 - 2 year.

In term of the soil erosion in the area of the entire area, there has been a measurable erosion preserved 2.78 tons per rai per year, but by participating in planting vetiver found that the soil erosion that occurs rarely because vetiver plantations are protected which can help prevent the leaching of the soil related with the rate of soil moisture is measured during the dry soil until moist moderate shown that the soil remains cohesive.