International Journal of Applied Operational Research
Vol. 4, No. 2, pp. 27-31, Spring 2014

Journal homepage: www.ijorlu.ir

# Impact of Continuous Training of Occupied Manpower in Tea Cultivation and Industry on Quality of Produced Tea

H. Motazarre*

**Received:** 17 November 2013 ; **Accepted:** 4 March 2014

**Abstract** Due to lack of using pesticides in production of green leaf, Iran's produced tea is considered as of the purest and healthiest teas in the world [1]. Although, by passing one century from commencement of tea cultivation and production in Iran, tea cultivation surfaces has been developed and numbers of tea making factories has been increased, no progress has been made in improvement of quality of produced dried tea and this product is not accountable for qualitative and quantitative needs of consumers [2]. Special place of tea in Iranian consumers' basket and direct occupation of more than 70,000 households in tea cultivation and production and its role and place in economy of Guilan & Mazandaran Province have doubled the necessity of performing researches to find solutions of tea problems and its qualitative and quantitative improvement. In this article, impact of continuous training of occupied manpower in tea industry and cultivation as of the parameters of utilization management system on quality of produced tea is studied. The method of this research is field study and survey has been applied for collection of information to respond to the research questions. Thus, in addition to perform library studies and interview with tea specialists, a questionnaire, having inserted traits in questions and research hypothesis, was prepared and distributed among the experts. In this research, mean index, standard deviation and column chart were applied as descriptive statistics to define and describe the variables and one-sided t-test was used as inferential statistics to answer the research question. After analyzing obtained data from questionnaire, research hypothesis was confirmed in confidence level of 95%. Therefore, it can be stated that in confidence level of 95%, continuous training of occupied manpower in tea industry and cultivation effects on quality of produced dried tea.

**Keywords** *Training, Tea, Tea Quality.*

Training:
Training is defined as any activity or pre-determined thought which its purpose is to facilitate learning in learners [3].

Tea:
A product that is obtained after performing various operations such as Withering, Sieving, Fermentation and Drying on leaf, bud and thin stems of a plant of camellia and is called tea [4].

*** Corresponding Author. (✉)**
**E-mail:** hadi.mphd@gmail.com (H. Motazarre)

**H. Motazarre**
Ph.D. Student, Department of Business Administration, National Academy of Science of Armenia
Instructor of Islamic Azad University, Lahijan Branch-Iran

Different consumed teas in the world are divided into 4 categories of Black Tea, Green Tea, Brick Tea & Oolong Tea in terms of preparing methods and stages that tea green leaf should pass to be turned into tea [5].

Tea Quality:
Quality of produced dried tea depends on special features such as aroma, flavor and its color and varies given the taste of consumers of different countries.

## 1 Introduction

Although Iran has a special place in production of agricultural products such as pistachio, saffron and date, etc. in the world, unfortunately, it has not played a worthy role in tea global market and even in domestic market so far and considering the increase of cultivation surface and number of tea making factories, has not succeeded to improve the quality of produced tea.

Iran is among the countries that has a higher mean of tea consumption than the world, so that by having 1% of world population consumes about 5% of total tea of the world, [6] and in terms of consumptions is the 9$^{th}$ tea consumption country in the world [7]. Having passed more than one century from commencement of tea cultivation in Iran, this country still provides its main consumed tea from other countries. Average consumption of dried tea in Iran is annually about 120,000 ton which almost 50% of which is provided inside and the rest via official and non-official (contraband) imports [8].

Basically, tea quality depends on quality of raw material (Tea Green Leaf) and quality of raw material depends on various factors which can be effective through two stages prior and after production of green leaf. Prior to production of tea green leaf, factors such as cultivation place, soil minerals, irrigation, condition and type of bushes, type and component of consumed fertilizer, temperature and prune can be mentioned. After production of green leaf, factors such as season and time of harvesting, type of harvesting, method of transferring green leaf from tea garden to factory, term of transferring leaf from tea garden to factory and type of packaging tea green leaf are effective on quality of produced tea. If raw material was desirable but tea making operations performed in non-standard way, produced tea would not have appropriate quality. Consequently, to produce high quality tea, in addition to prepare desirable raw material, tea making operations should be performed in full observance of determined standards and after passing the entire tea making stages fully and exactly.

Some problems that State Tea Industry is involved with and leads to decrease of produced tea quality and backwardness from successful tea producers countries such as India, Seri Lanka, Kenya & China are expressed as below:

1- Despite of long experiences, level of knowledge of tea farmers in applying modern methods of cultivation, nursing and harvesting tea and also maintaining soil fertility and using proper combination of required fertilizers, performing timely and proper pruning and observing standards of harvesting methods and transferring green leaf to tea making factory are low and need continuous qualitative and scientific trainings.
2- Most State tea gardens are created traditionally and without considering agricultural scientific principles so that most of them do not have desirable condition in terms of row and cultivation distance, slope of land and other required criteria of tea gardens and consequently lead to increase of their maintenance and utilization costs. Therefore, it is necessary to perform required planning for holding continuous training

courses for farmers to observe scientific principle in creating of new tea gardens and amendment of existing gardens in long term.

3- Most of tea making factories lacks tea making specialist and uses seasonal workers that have no information about scientific principles and tea making standards in process of dried tea production. Therefore, produced tea of these factories are not produced based on tea making standards and lacks required quality and desirability.
4- Most factories lacks standard warehouses and proper packaging system and managers of these factories have no required information about condition and standards of location of maintenance of dried tea and quality of appropriate packaging material for tea. If dried tea was not packaged in proper containers impervious to air, moisture and light and was not maintained in dark and dry warehouses, it would lose its aroma and flavor shortly after production [9].

The researcher, among various factors affective on quality of produced tea, has studied the impact of continuous training of occupied manpower in tea cultivation and industry on quality of produced dried tea and hoped that by using the results of this research could proceed to remove the problems of state produced tea and increase the quality.

## 2 Method of Research

Descriptive-Analytical method has been applied in this research. Thus, description of status of tea cultivation and industry and identification of method of impact of continuous training of occupied manpower on quality of produced tea have been studied and analyzed.

The researcher has selected the method of research based on field study and survey and performed library studies and interview with tea specialists and experts of tea cultivation and industry to collect information. To study and analyze key variables of research, he has designed a questionnaire and distributed among the samples. To define and describe variables, he has used mean index, standard deviation and column chart and one-sided t-test was used to test the hypotheses in inferential statistics.

## 3 Statistical Sample & Population

Statistical population of this research are defined as the entire managers and experts of tea making factories of Guilan Province, all tea experts and specialists of occupied in Tea Organization, State Tea Researches Center and other related organizations with tea.

Furthermore, the entire managers of tea making factories and experts and specialists of tea making of Lahijan City, the 2nd tea producer city in terms of tea cultivation surface and amount of production, are selected as statistical sample of this research.

**Table 1** Frequency Distribution related to Research Hypothesis (Manpower's Continuous *Training)*

| Description | Frequency | Frequency Percentage |
|---|---|---|
| Very Low | 0 | 0 |
| Low | 0 | 0 |
| Average | 0 | 0 |
| High | 11 | 10.5 |
| Very High | 94 | 89.5 |
| Total | 105 | 100.0 |

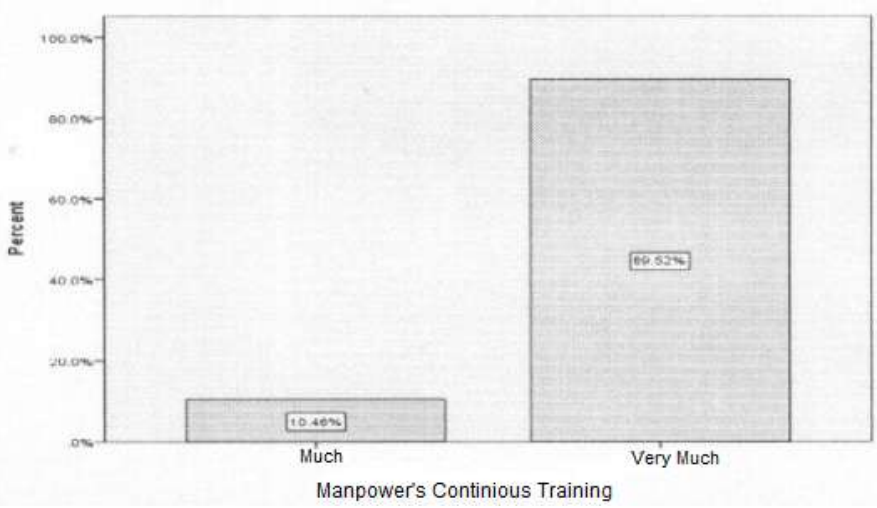


**Fig. 1** Diagram of Frequency Percentage Distribution related to Research Hypothesis (Manpower's Continuous Training)

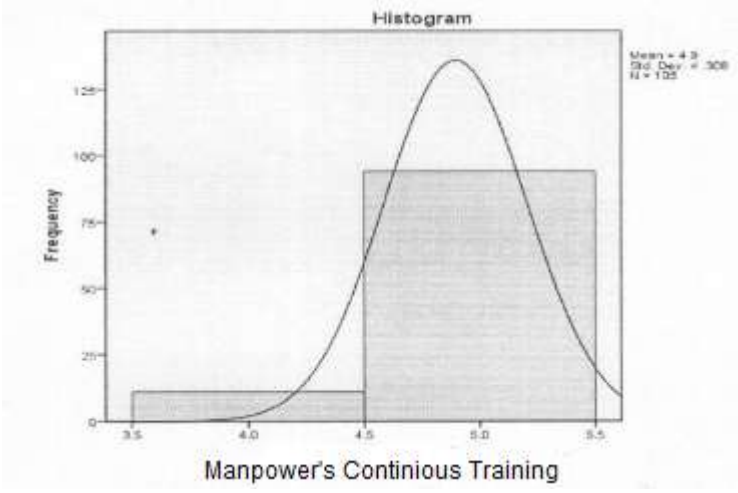


**Fig. 2** Diagram of Research Hypothesis Test (Manpower's Continuous Training)

## 4 Research Hypothesis

Continuous training of occupied manpower in tea cultivation and industry has no effect on quality of produced tea. $H_0$: $\mu$=3

Continuous training of occupied manpower in tea cultivation and industry effects on quality of produced tea. $H_1$: $\mu \neq 3$

**Table 2** Results of Research Hypothesis Test (Manpower's Continuous Training)

| Research Hypothesis | Sample Volume | Mean | Standard Deviation | Mean of Measurement Error |
|---|---|---|---|---|
| Manpower's Continuous Training | 105 | 4.90 | 0.308 | 0.030 |

**Table 3** Results of Research Hypothesis Test (Manpower's Continuous Training)

| Research Hypothesis | Calculated T | Freedom Degree | Significance level | T of Table | Deviation of Mean | Confidence Interval for the Mean difference from the Theoretical Mean | |
|---|---|---|---|---|---|---|---|
| | | | | | | Low level | High level |
| Manpower's Continuous Training | 63.112 | 104 | 0.000 | 1.9830 | 1.895 | 1.84 | 1.95 |

$$t = \frac{\bar{x} - \mu}{\frac{s}{\sqrt{n}}} = \frac{4.90 - 3}{\frac{0.308}{\sqrt{105}}} = 63.112$$

## 5 Decision Making

Considering the obtained results from the above table, since the amount of calculated t-test is larger than the t of the table, $H_0$ in error level of 5% and $H_1$ (impact of continuous training of occupied manpower in tea cultivation and industry on quality of produced dried tea) are accepted. Because statistics of t is in $H_1$ area, it can be stated that in confidence level of 95%, continuous training of occupied manpower in tea cultivation and industry effects on quality of produced dried tea.

Given the obtained result from research hypothesis and to solve the current problem of tea and increase quality of state produced dried tea, some suggestions are expressed as below:

1. Holding training courses of standards and new methods of tea cultivation, nursing and harvesting and method and time of different pruning for tea farmer.
2. Holding training courses of standards and new methods of tea making for tea experts.
3. Dispatching experts to successful tea producer countries to become familiar with modern methods of tea making
4. Establishing tea faculty in tea growing regions to provide required expert manpower of tea making factories

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