Study on farming systems and selecting suitable production pattern for tea growing areas of Iran

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ABSTRACT

Agriculture has various roles on the development of Iran in different aspects. The most obvious roles are: food preparation, rural's migration prevention to urban areas, preservation of economical and political independence and material preparation for many industries. Tea is one of the crops among agricultural productions which it is still confronted with a series of poor natural and managerial barriers and lack of modern technology as well because of its key role including the most popular drink among Iranians, job creation, currency loss prevention and so on. In tea cultivation areas, small and distribution of lands, less technical knowledge, high cost of production, low yield and income tea farmers reflects effect of productivity system in the country. In this research, to achieve proper productivity pattern, hypothesis structured and practical investigation of productivity system in tea region were conducted. This research was conducted with the goal of this study was to study on farming systems and selecting suitable production pattern for tea growing areas of Iran in 2006 years. The numbers of whom in Guilan province are 610 persons and they act in 10 towns of Guilan province. variables measured in this research included: sex, age, literacy, planting level, topography and participation of three identified systems in tea plantations (rural, common cooperative and commercial). In this project two methods of library and field research were used. According to our investigation systems, commercial system was the best productivity system in tea plantations in Iran.

**Key words:** Tea, system, tea-planters, Iran.
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INTRODUCTION

Tea is one of the most common drinks in all over the world, which is produced from the leaves of a shrub Camellia sinensis [3]. About 98% of people drink tea as the first among all beverages available to use [1]. The 75% of the estimated 2.5 million metric tons of desiccated tea that are produced annually is processed as black tea which is used by many countries [6]. About 18–20 billion cups of tea are consumed daily in the world [2]. The under cultivation level of tea in Iran has been 35627 ha from which 88% is in Guilan province and the other 12% exists in Mazandaran province. Now, 76052 tea-planters are working on these gardens. 80% of domestic tea consumed in Iran is imported, and increase in quantity and quality of Iranian tea and creation of a suitable market for selling it domestically and exporting it is impossible just by development of under-cultivation level and factories, using new

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technology in the stages of planting, keeping and harvesting tea, correct processing of this crop, educational activities and governmental supporting can have an important and crucial role in production increase and elevating of competitive power of domestic crop in regard to foreign types. To achieve the ideal goals, at first a comprehensive needs analysis is required [4]. Needs analysis is a remarkable outcome of new sciences and is used as an effective instrument to increase the participation of people and beneficiaries. Every society has its own special values, tendencies, opinions, desires and individual and group behaviors, and determining and interpretation of their needs is impossible without overlooking such factors [10]. The most important feature of needs analysis is that it prevents misuse of existing needs and through summoning the society to individual call to awareness, identification and determining common needs and agreement with such needs; it attracts people's support to supply their needs. This kind of responsible participation of individuals and beneficiaries is the main basis of establishment of a dynamic system for supplying real needs and increased development of current presentation of services to achieve welfare and improvement [9]. For different reasons Guilanian tea-plant farmers use their own experiences to remove existing problems. Negligence of correct principles in gardening causes soil erosion, resistance of pests and diseases, reduction of quality of tea production and application of plans like structural reforming of tea has increased the inefficiency of such activity. Non-motivated tea-planters have influenced on the garden-holders who have a relative profit to give up planting and just small farmers who are dependent on the income of tea gardens continue working as previously. Remembering this point that the per capita of tea consumed in our country is about 1.5 kg, considerable amount of tea is still imported every year, meanwhile our county has not only the potential of supplying domestic use, but it also has potentiality of exporting such product [5].

Farming systems depend largely on the conditions under which farmers are operating. For centuries agriculture including farming, horticulture and livestock production has been the source of economy and livelihood of upland farmers of Iran. The main determining factors in farming systems include landholding rules, and management of land and water resources. Upland farming systems are constrained by complex factors of biophysical, socioeconomic and political nature. Production alternatives and investment on inputs are restricted by recurrent drought and flood risks. Small fragmented landholdings, water shortage, seasonal inadequacy of labor and manpower, unfavorable market pressure, lack of sufficient credit and other support services including price policies have suppressive effect in the farming systems' productivity. Lack of appropriate agricultural technologies has further weakened farmers' capacity to improve farming systems. Taking into account the low productivity of agriculture in the uplands, the systems approach in agricultural research is an imperative. The agricultural research is being pursued through a network of centers involving the agricultural research and extension organizations [9].
The main aim of this study was to study on farming systems and selecting suitable production pattern for tea growing areas of Iran.

MATERIALS AND METHODS

The main aim of this study was to study on farming systems and selecting suitable production pattern for tea growing areas of Iran. In this project two methods of library and field research were used. Style of sampling was cluster randomly using the formula' kokran' to find out volume and number in society. In this research, to achieve proper productivity pattern, hypothesis structured and practical investigation of productivity system in tea region were conducted. This research was conducted with the goal of this study was to study on farming systems and selecting suitable production pattern for tea growing areas of Iran in 2006 years. The numbers of whom in Guilan province are 610 persons and they act in 10 towns of Guilan province. variables measured in this research included: sex, age, literacy, planting level, topography and participation of three identified systems in tea plantations (rural, common cooperative and commercial). In this project two methods of library and field research were used. According to our investigation systems, commercial system was the best productivity system in tea plantations in Iran. In order to determine the reliability of the study, opinions of authorities and professors were considered, and to determine the final validity of the questionnaire, a pilot study was conducted through the completion of 30 questionnaires in one village located in the area and its Cronbach was estimated as 90%. The location of studied region in north of Iran was presented in fig 1.
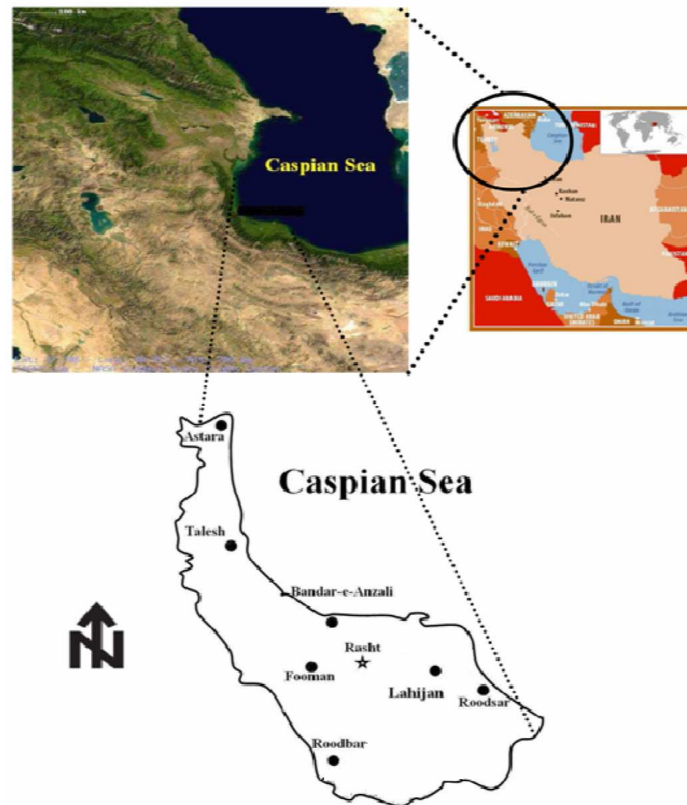
Fig. 1: Location of the study area

RESULTS AND DISCUSSION

The results of the study of rural system (Table 1) revealed that 94.4% of tea-planters were men and 5.1% women. The results of the study of common cooperative system (Table 1) revealed that 96.7% of tea-planters were men and 3.3% women. The results of the study of commercial system (Table 1) revealed that 98% of tea-planters were men and 2% women. Finally results of the study of total systems system (Table 1) revealed that 95.4% of tea-planters were men and 4.6% women.

Table 1: Frequency of subjects according to sex

Sex	Frequency	Percent	Rural system		Common cooperative system		Commercial system	
			Frequency	Percent	Frequency	Percent	Frequency	Percent
Male	582	95.4	314	94.4	208	96.7	48	98
Female	28	4.6	17	5.1	7	3.3	1	2
Total	100	49	100	215	100	331	100	610

The results of the study of rural system (Table 2) revealed that 50.8% of tea-planters were higher than 60 years old (that is, they have the maximum age). The results of the study of common cooperative system (Table 2) revealed that 41.2% of tea-planters were higher than 60 years old (that is, they have the maximum age). The results of the study of commercial system (Table 2) revealed that 52.3% of tea-planters were higher than 60 years old (that is, they have the maximum age). Finally results of the study of total systems system (Table 2) revealed that 47.7% of tea-planters were higher than 60 years old (that is, they have the maximum age). The results of the study of rural system (Table 2) revealed that 17.9% of tea-planters were 20 to 39 years of age (that is, they have the minimum age). The results of the study of common cooperative system (Table 2) revealed that 25.3% of tea-planters were 20 to 39 years of age (that is, they have the minimum age). The results of the study of commercial system (Table 2) revealed that 18.2% of tea-planters were 20 to 39 years of age (that is, they have the minimum age). Finally results of the study of

total systems system (Table 2) revealed that 20.8% of tea-planters were 20 to 39 years of age (that is, they have the minimum age).

Table 2: Frequency of subjects according to to the age of bushes

Age of bushes	Frequency	Percent	Rural system		Common cooperative system		Commercial system	
			Frequency	Percent	Frequency	Percent	Frequency	Percent
20 - 39 years old	116	20.8	57	17.9	49	25.3	8	18.2
40 - 59 years old	175	31.5	100	31.3	65	33.5	13	29.5
Higher than 60 years old	266	47.7	162	50.8	80	41.2	23	52.3
Total	557	100	319	100	194	100	44	100

The results of the study of rural system (Table 3) revealed that 25.5% of tea-planters were elementary. The results of the study of common cooperative system (Table 3) revealed that 35% of tea-planters were elementary. The results of the study of commercial system (Table 3) revealed that 29.2% of tea-planters were elementary. Finally results of the study of total systems system (Table 3) revealed that 35.3% of tea-planters were elementary. The results of the study of rural system (Table 3) revealed that 10.5% of tea-planters were Bachelor of Science and higher. The results of the study of common cooperative system (Table 3) revealed that 12.2% of tea-planters were Bachelor of Science and higher. The results of the study of commercial system (Table 3) revealed that 4.1% of tea-planters were Bachelor of Science and higher. Finally results of the study of total system (Table 3) revealed that 10.6% of tea-planters were Bachelor of Science and higher.

Table 3: Frequency of subjects according to the literacy

Literacy	Frequency	Percent	Rural system		Common cooperative system		Commercial system	
			Frequency	Percent	Frequency	Percent	Frequency	Percent
Illiterate	107	18	62	18.8	29	13.6	15	31.3
Elementary	209	35.3	117	25.5	75	35	14	29.2
Diploma	83	14.1	51	15.5	26	12.1	7	14.6
Associates Degree	130	22	65	19.7	58	27.1	10	20.8
Bachelor of science and Higher	63	10.6	35	10.5	26	12.2	2	4.1
Total	592	100	330	100	214	100	48	100

The results of the study of rural system (Table 4) revealed that 58.5% of plating level tea-planters was under 1 hectar. The results of the study of common cooperative system (Table 4) revealed that 54% of plating level tea-planters was under 1 hectar. Finally results of the study of total systems system (Table 4) revealed that 53.3% of plating level tea-planters was under 1 hectar. The results of the study of rural system (Table 4) revealed that 0.3% of plating level tea-planters were over 2 hectar. The results of the study of common cooperative system (Table 4) revealed that 0.9% of plating level tea-planters were over 2 hectar. Finally results of the study of total systems system (Table 4) revealed that 7.6% of plating level tea-planters over 2 hectar.

Table 4: Frequency of subjects according to under plating level

Under planting level	Frequency	Percent	Rural system		Common cooperative system		Commercial system	
			Frequency	Percent	Frequency	Percent	Frequency	Percent
Under 1 hectare	321	53.3	193	58.5	115	54	-	-
1 -2 hectare	236	39.1	136	41.2	96	45.1	-	-
Over 2 hectare	46	7.6	1	0.3	2	0.9	49	100
Total	603	100	330	100	213	100	49	100

The results of the study of rural system (Table 5) revealed that 75.4% of tea-planters topography was mountain. The results of the study of common cooperative system (Table 5) revealed that 54.9% of tea-planters topography was mountain. The results of the study of commercial system (Table 5) revealed that 37.5% of tea-planters topography were mountain. Finally results of the study of total systems system (Table 5) revealed that 64.5% of tea-planters topography was mountain. The results of the study of rural system (Table 5) revealed that 3.4% of tea-planters topography was plain. The results of the study of common cooperative system (Table 5) revealed that 8.9% of tea-planters topography was foothills. The results of the study of commercial system (Table 5) revealed that 12.5% of tea-planters topography was foothills. Finally results of the study of total systems system (Table 5) revealed that 7.9% of tea-planters topography was foothills.

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Table 5: Frequency of subjects according to the topography

Topography	Frequency	Percent	Rural system		Common cooperative system		Commercial system	
			Frequency	Percent	Frequency	Percent	Frequency	Percent
Plain	53	8.9	11	3.4	32	15	8	16.7
Mountain	385	64.5	245	75.4	117	54.9	18	37.5
Foothills	47	7.9	22	6.8	19	8.9	6	12.5
Plain & foothills	64	10.7	28	8.6	24	11.3	8	16.7
Mountain & foothills	48	8	19	5.8	21	9.9	8	16.7
Total	597	100	325	100	213	100	48	100

Results of table 6 showed that between 314 tea-planters who rural system, 181 tea-planters (57.6%) gave positive answers to questions of participation in classes and 133 tea-planters (42.4%) gave negative answers. Results of table 6 showed that between 198 tea-planters who common cooperative, 126 tea-planters (63.6%) gave positive answers to questions of participation in classes and 72 tea-planters (36.4%) gave negative answers. Results of table 6 showed that between 47 tea-planters who commercial, 27 tea-planters (57.4%) gave positive answers to questions of participation in classes and 20 tea-planters (42.6%) gave negative answers. Finally results of table 6 showed that between 565 tea-planters, 336 tea-planters (59.8%) gave positive answers to questions of participation in classes and 227 tea-planters (40.2%) gave negative answers.

Table 6: Frequency of subjects according to the number of people participated in educational-extensional classes

Participation in classes	Frequency	Percent	Rural system		Common cooperative system		Commercial system	
			Frequency	Percent	Frequency	Percent	Frequency	Percent
Yes	227	40.2	133	42.4	72	36.4	20	42.6
No	336	59.8	181	57.6	126	63.6	27	57.4
Total	565	100	314	100	198	100	47	100

According to our investigation systems, commercial system was the best productivity system in tea plantations in Iran.

Motamed et al. [7] obtained through the test of theories cleared that there was a meaningful and negative relationship among educational level, economical situation, under-cultivation level, connection of tea-planters with the extension agents of Agricultural Jihad with their educational need. There was also a meaningful and positive relationship between the contact of tea-planters studied and other tea-planters in the area and their educational needs. There was no meaningful relationship among age, use of communicative channels, use of educational and extensional classes, connection of tea-planters with local leaders and factory owners, tea-planter's use of radio and TV and studying of extensional periodicals with the range of educational need. Educational needs of the tea-planters who participated in educational-extensional activities or those who participated in cooperations and unions were less than that of tea-planters who didn't participate in such activities, cooperatives, and unions.

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