Study of sustainable soil management in citrus garden Dezful

Adib Neisy *, Elham Tayari, Amin Reza Jamshidi, Peyman Attaie

Department of Agricultural Mechanization, Collage of Agriculture, Shoushtar Branch, Islamic Azad University, Shoushtar, Iran

Abstract: The main aim of this study, the analysis of sustainable soil management and explain the most important social, economic, extension, farm and individual in the Dezful Township. The research instrument was a structural questionnaire with close-ended questions, which validity and reliability confirmed. A survey was conducted using multi- stage cluster sampling technique to collect data from citrus growers. The results of descriptive findings showed that sustainable management level between 0.3 % studied citrus growers in highly unstable, 16.7 % in the unstable level, 69.5 % of the average level, 16.2 % in the sustainable level and 0.4 % level are very stable.

Key words: *Tillage, Energy, Soil*

1. Introduction

A major role in the development of the soils is stable**,** proper utilization, protection and control of soil strength, prosperity, security and stability of communities took up. One of the problems in the agricultural sector currently, Poor soil management practices by farmers and deficiency can be exploited for economic units. Taking advantage of low technical knowledge to correct more than anything, attitude and skills of farmers, especially small farmers are concerned about is that a large part of the country farmers have (Mousavi, 2000). Lut Desert with vast deserts and dry weather conditions and the great desert of, the weather also affected the marginal areas have. The dry weather led to the emergence of land Nmkzdh (sodium salt) is added. The two major areas of land in agricultural production and development of poor quality have been taken advantage of them will be very difficult and expensive. The cultivation of any plant in such circumstances, the low water and poor water quality and soil, the salt has more resources, is not practical or cost effective and must choose plants that grow in their economic situation. Citrus is one of the plants most suitable is the most product areas, particularly in Dezful province. Located in the province due to the orbit of 30 degree the climate is extremely dry, the drought has severely affected agricultural. Fahim Dezful farmers to experience the product economic region can be nuts (keshavarz, 2009).

Cultivation of citrus in Iran, about 380 thousand hectares and total production is about 304 thousand tons. Dezful province, about 83 percent and 82 percent of cultivated area under production is allocated to the (Center for Agricultural Research and Education, 2009). This is due to the rapid expansion of Citrus Acreage Citrus plants that are resistant to salinity and Horticultural crops can be found under that can tolerate the salinity and alkalinity of soil and water (Farmer and Sadegh Zadeh, 2000). Citrus production in Dezful province, important sources of income is agriculture and the national economy. In many households, particularly in Dezful province, Dezful Citrus directly and indirectly through the production make money and are engaged in productive business. The proceeds of the various aspects of the product is important for the Iranian economy. Citrus cultivation and development in areas of comparative advantage is high brine. Because of the long-term investment in plant products And to obtain economic production in the future should be to adopt the necessary decisions on time, Thus, soil and water studies and provide information to farmers is essential (Zinedine, 2009).

But now the kind of unbalanced use of fertilizers, Irrigation and other tillage methods, using appropriate the most important factors of soil and climate variability is low yield in citrus orchards. Garden performance figures compare with a maximum production of citrus Iranian citrus progressive farmers (10 ha) to be Optimize the management of the total consumption of fertilizers in the soil and water Interrupt unchanged, Optimize the management of the total consumption of fertilizers in the soil and water Interrupt unchanged, As you optimize the management of soil and water (to remove carbonate   B) and optimal use of fertilizers, Other horticultural operations such as pruning, pest and disease management, grass and weed and harvest, in accordance with the amended soil and water management, The average yield will rise to more than triple. Each year nearly 2,000 tons of toxins in the work of Iranian citrus be used for pest control products this amounts to nearly 60

---

* Corresponding Author.

percent of the city of Dezful is (Department of Statistics and Information Technology, 2004)

The rapid increase in area under citrus cultivation in the city of Dezful in khozestan province in northern And increasing the number of wells And remove excessive water from the aquifer The sharp drop in ground water sources under And thus reduce the flow as the only source of water supply wells in citrus orchards and They are poor quality roam, so salt water in this area has reached 19,692 and mouse micro and According to research conducted at the Institute of Soil and Water and Citrus Research Institute approved If salt water reach to 25 micro Mouse (25 ds Siemens ¬ m) function is nearly zero. Due to low water reserves and, most importantly, the poor water quality, the resources and capital investments in the construction of several hundred thousand acres of citrus orchards destroyed and Plagued the region and the country's economy and it will follow ¬ income was horrible. Knowledge of the adverse effects of irrigation on soil quality And the growth of citrus seedlings and mature trees can be better management practices performance The conditions are the main factors affecting the production of salted water to help And prevents drying and destruction of gardens (Naqavi, 1996).

Sustainable agriculture is an important principle in sustaining soil health and sustainable agricultural production is related to. All methods include crop rotation effects on soil stability and productivity, Cultivation of legumes in crop rotation, The use of animal manure and green manure, Using crop residue and straw, Crop water, Optimal use of fertilizers and chemical pesticides, Use of micronutrients, Test soil to determine fertilizer recommendations and soil quality assessment, Management conservation tillage and Using modern methods of irrigation are under pressure. Selection of soil management practices can have a significant effect on the environment and farm productivity. So adopt the best practices for the exploitation of the soil is an important part of soil management (Kasvl, 2001). Indiscriminate exploitation of a citrus farmer, who often has low literacy what makes a wide range of products in a wide range of processes of land degradation, is declining.

2. Materials and methods

Method used in this study is in practical purpose, because the results for policy planners and those involved in agricultural development can be used. The data collection and description of the types of research. Therefore, this study is a descriptive - is correlated And research and survey has been conducted using questionnaires. It examines the distribution of a systematic, objective and accurate facts and features of a society deals with statistical and the independent variables associated with variables related to the research tries to measure and to determine the relationship between them. Dezful city of the country's citrus production is the main poles, the research area has been selected and

citrus farmers work with the city as 60,000 people were selected. In this study, the study population included a sample selection of the statistical limitations of the study, Geographical extent and in the unavailability of accurate statistics citrus farmers work of cluster sampling is used and samples of Dezful, pomegranate, and the sources were selected. Given the number and size of the study population, the number of samples n = 391 study subjects, according to the study (boat and Morgan, 1970) was estimated.

In each city, a multi-stage approach was selected as the first stage. In the second stage of each section, select a county And the third sample to the specified number of rural villages were selected randomly. In the final stage, the numbers of farmers was selected randomly and were given a questionnaire study. The main tool for collecting data and information requirements of citrus growers in the area of research questionnaires and this study is a series of field studies.

For ,Face and content validity of questionnaire in order to achieve, Several versions of the questionnaire prepared by the management faculty of agriculture, Soil, and promote agriculture and agricultural education And Agriculture Organization of the experts were in the city of Dezful And that the questionnaire was asked to express their views and After several stages of revision and editing the final version of the questionnaire, And the reforms needed Revised questionnaire was ready for validation. . In this study, Cronbach's alpha for the validation of the method used for measuring. Cronbach's alpha coefficient varies between zero and one. Questionnaire to determine the validity of the questionnaire of 30 questions that determine their validity and the necessary reforms were made, in the same study population and the preliminary tests were completed on the outside. After completing the questionnaire, Replies were eventually collected and evaluated through Cronbach's alpha coefficients were calculated SPSS software. After the reforms required by the alpha Research for the different variables between the 0.71 until 0.89, respectively, which indicates acceptable reliability for the collection in question was large.

3. Results and discussion

Table 1 describes the characteristics of citrus growers. Research findings showed that the average age of 41.11 years of citrus growers SD 9.14 were in the age range between 25 to 73 years. 5.7% of citrus growers in the study of 18 with patients, In terms of educational level, illiterate, 17.3% with a frequency of 66 percent, the level of reading and writing, 19.6 with a frequency of 58 percent at the elementary level, 24.6 with a frequency of 90 percent in tips, 20.7 with a frequency of 79 percent in the high school level and With 15 percent of the diploma and 57 were higher.

Average farming experience in the statistical population, 16.74years, SD 8.68 respectively. 391 of

the citrus business, farm, 31.8percent of its 121 lots with less than 5 km And farm 68.2 percent of 260 people with more than 5 km away from the centers of agricultural extension services. The average number of household labor, 6.32 persons. Average total land owned in the statistical population, 25.05 acres with a standard deviation of 3.12 respectively. Citrus Growers annual gross income of between 3.5 to 760 million USD (average 16.3, SD 2.11) was variable. The findings in Table 1 to 5 show that Knowledge, attitude, degree of extension classes, The use of communication channels, Social participation, social status, and application of sustainable soil management in citrus growers in what has been studied.

Table 1: Distribution of business products group in terms of technical knowledge on sustainable management of soil:

Technical knowledge	Frequency	Percent	Cumulative percent
low	2	0.5	0.5
medium	93	12	22.6
high	294	87.4	100
sum	391	100	

Table 2: Distribution of business products group in terms of attitude in the field of sustainable management of soil:

Attitude	Frequency	Percent	Cumulative percent
Quite agree	30	6.5	100
Agree	342	85.9	95.5
Apathetic	20	8.6	7.6
Sum	391	100	

Table 3: Distribution of business products group in terms of usefulness and extension classes

The impact of class	Frequency	Percent	Cumulative percent
Very low	28	6.3	18.9
low	96	24.9	93.7
Average	9	1.8	99.2
High	3	0.3	100
sum	137	100	

Table 4: Distribution of business products group in terms of access and use of communication channels

Access levels	Frequency	Percent	Cumulative percent
Very low	1	0.3	0.3
low	135	35.4	35.7
Average	245	64.3	100
sum	381	100	

Table 5: Distribution of business products group in terms of level of social participation

Level of social participation	Frequency	Percent	Cumulative percent
Very low	168	44.1	44.1
low	183	48	92.1
Average	29	7.6	99.7
High	1	0.3	100
sum	381	100	

References

Agricultural Research and Education, (2009). Journal of Pathology, Dezful. (in persian)

Caswell et al. p. w. (2009). Simulation of salt water movement in the Florida aquifer system. Hilton Head Island. south Carolina: U.S. Geological survey water- supply paper: 2319- 2331.

Department of Statistics and Information Technology, (2004), Marnamh agricultural crop year 2003 - 2004, Head Office of Statistics Ministry of Agriculture, Tehran

Keshavarz, AS. Sadegh Zadeh, K. (2000). Water management in agriculture, Estimates of future demand, The drought crisis, Situation, Future Prospects And strategies to optimize water use. Agricultural Engineering Research Institute, Karaj.

Mousavi, SA. (2000). Sustainable management of water resources, water and sewer Journal, No. 33.

Najafi Nejad, AS. (1993). Factors of success and failure of soil conservation projects. Of forest and pasture. 27.

Naqvi, AH. (1996) Evaluation of physical and chemical properties and Formation and evolution of soils and how do Dezful Citrus Master's thesis,. Faculty of Agriculture, Sharif University of Technology, Isfahan, page 130.

Caswell et al. p. w. (1988). Simulation of salt water movement in the Florida aquifer system. Hilton Head Island. south Carolina: U.S. Geological survey water- supply paper: 2319- 2331.

Sreedevi. G. J. W. Hopmans. C. young and W. W. Wallender. (2003). Soil salinization in irregeted agriculture: a regional- scale analysis in the San Joaguin vally. California. European Geophysical Society. Vol: 5.

Zain al-Din al. (2009). Analysis of water advance on the quality of irrigation water and Soil physicochemical properties the area under citrus cultivation Sirjan. Agriculture Research and Education Center, Dezful.