SAFFRON PRODUCTION IN AFGHANISTAN

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ABSTRACT

The study was carried out in Pashtoon Zarghon district of Herat province to study the saffron production in Afghanistan. Data were collected from 50 respondents in 5 selected villages. Data were tabulated and presented in frequencies and percentages. The findings of data show that majority of the saffron growers in the research area were young people (16-25 age group) which makes 60% of the whole growers, 24% were from 26-35 age group while 16% were above 35 year age. Furthermore, 50% of the respondents were illiterate, 24% were up to matric level and 6% were above the matric level. Moreover, the source of income of 50% respondents was Agriculture, of 30% was business and 20% of the respondents were govt/private employees. Majority of the respondents were having land size less than 5 Jarib, 30% of the respondents get agricultural extension and DACAAR services through training programs, 46% from field days while 24% through workshops. Majority of the respondents were satisfied of the agricultural extension and DACAAR services while 24% were not satisfied of the agricultural extension and DACAAR services. The data show that 60% of the respondents visited personally after every two weeks while 40% of the respondents said that they were contacted through telephone calls. The data show that 48% used certified seeds. The results show that 28% of the respondents having financial problems and twenty percent of them have the problem of lack of local storage. It was concluded that maximum of the respondents believed that field days and trainings were at satisfactory levels according to their needs. It is recommended that farmers' capacity may be built through trainings and field days. Moreover, exposure visits and credit facilities may be provided to facilitate small farmers.

Keywords: Saffron, DACAAR, Pashtoon Zarghon.

1. INTRODUCTION

Historically the word saffron goes as back as 10000 years back. Saffron is said to be derived from the word "zarparan" in Dari language which means that a flower its stigma is valued the same as gold like precious and expensive metal and this word had been turned in to saffron later on. It is said differently in many languages in Pashto and Arabic it is pronounced as "Zaferan", in Farsi and Turkish it is pronounce as "Zefrun", in English Saffron, in Spanish "Azafran" and French "Safrane". Experts says that saffron has long been grown in Greece, Turkey, Afghanistan and Iran, and it has spread from far north up to far east of India, China, and from West up to Spain (Katawazy, 2013).

Saffron (Crocus sativus L.) is a sterile triploid plant belonging to the Iridaceae (Liliales, Monocots). Saffron is a spice derived from the flower and has for decades been the world's most expensive spice. Saffron is propagated by corms as the flowers are sterile and fail to produce viable seeds. A corm survives for only one season, producing up to ten "cormlets" that eventually give rise to new plants. Therefore, reproduction is human dependent; the corms must be manually dug up, broken apart and replanted. The natural propagation rate of saffron is relatively low. Biotechnological approaches have increasingly become a valuable tool assisting breeders to release new species and cultivars into the market more rapidly. Biotechnological approaches offer the capability to produce large quantities of propagating material in short time as well as the production of commercially important chemical constituents like, crocin, picrocrocin, crocetin and safranal under in vitro conditions. However, the protocols available so far need further refinement for their commercial utilization. Here we review the progress made in genus Crocus, and highlight the potential for future expansion in this field through biotechnological interventions (Ahmad, 2014).

The documented history of saffron cultivation spans more than three millennia. The wild precursor of domesticated saffron crocus is probably Crocus cartwrightianus. If C. sativus is a mutant form of C. cartwrightianus, then it may have emerged by human cultivators selectively breeding specimens for unusually long stigmas in late Bronze Age Crete.

It slowly propagated throughout much of Eurasia and was later brought to parts of North-Africa, North-America, and Oceania (Wikipedia, 2017).

The word "saffron" appears 2 times in 2 verses in Quran: (1) and the folk of Moses, after (he left them), chose a calf (for worship), (made) out of their ornaments, of saffron hue, which gave a lowing sound. Saw they not that it spake not unto them nor guided them to anyway? They chose it, and became wrong-doers (سورة الأعراف, Al-A'raaf, Chapter # 7, Verse # 148).

(2) Then he produced for them a calf, of saffron hue, which gave forth a lowing sound. And they cried: This is your god and the god of Moses, but he hath forgotten (سورة طه, Taa-Haa, Chapter # 20, Verse # 88).

Some historians believe that saffron came to China with Mongol invaders from Persia. Yet saffron is mentioned in ancient Chinese medical texts, including the forty-volume pharmacopoeia titled Shennong Bencaojing (神農本草經: "Shennong's Great Herbal", also known as Pen Ts'ao or Pun Tsao), a tome dating from 300–200 BC. Traditionally credited to the fabled Yan ("Fire") Emperor (炎帝) Shennong, it discusses 252 phytochemical-based medical treatments for various disorders. Nevertheless, around the 3rd century AD, the Chinese were referring to saffron as having a Kashmiri provenance. According to Chinese herbalist Wan Zhen, " he habitat of saffron is in Kashmir, where people grow it principally to offer it to the Buddha." Wan also reflected on how it was used in his time: "The flower withers after a few days, and then the saffron is obtained. It is valued for its uniform yellow colour. It can be used to aromatise wine."(Wikipedia, 2017).

However the World Bank estimates more than 6,000 farmers in Herat already produce saffron and the latest U.N. figures indicate that opium cultivation decreased in both Herat and neighboring Farah province last year (World Bank, 2015).

Saffron the magical herb which is famous as Red Gold is well-known in international markets. Many years ago in Afghanistan most of the farmers even weren't familiar with its name. But in the past decade this herb was added to agricultural products of Afghanistan and today most of the farmers in provinces of Herat, Kandahar, Ghor, Baghlan and Kunduz grow

Saffron on hundred acres of their agricultural lands. Cultivation of this herb began from a small field in Herat province of Afghanistan a decade ago (KhawajaSenan, 2016).

1.1 Importance and Usages of Saffron

Saffron is the most expensive and the only agriculture product that is sold by the weight of per gram, it has its own importance among agriculture products, its importance is due to its limited need to water, once harvested it can be cultivated from five to seven years, can be harvested infertile land, can easily be transported. The three stigmas of the saffron flower are the most important economic part of the plant. The saffron stigma is rich in aroma and color. In dried or powdered forms, stigmas are commonly used as: spice or coloring in food preparation materials in pharmaceutical, cosmetic and perfume industries, dye material in textile production. Saffron anti-cancer effects have been studied extensively during recent years. Saffron leaves are also used as animal feed. Five (5) Jerib of saffron produces about 1.5 tons of leaf dry matter per year (Katawazy, 2013).

2. MATERIALS AND METHODS

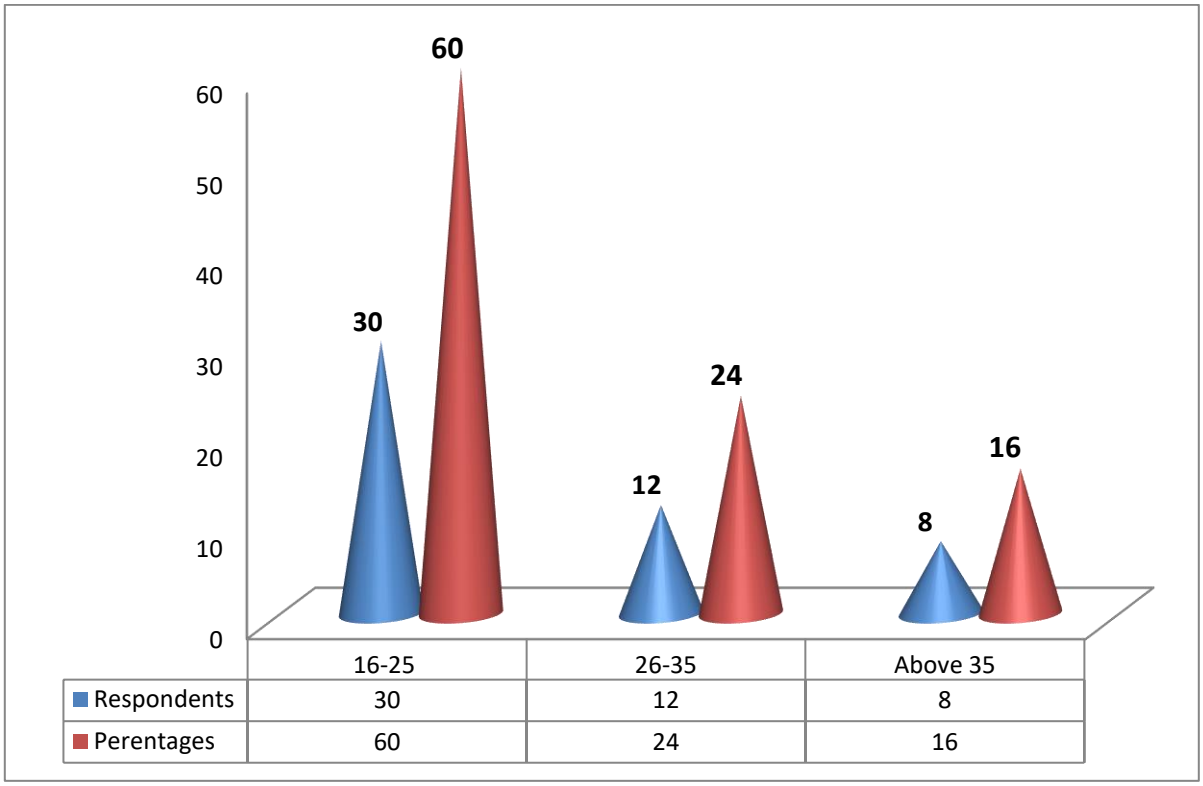
This chapter includes discussion regarding research methodology and tools used for the analysis of the current study. Herat province of Afghanistan was chosen for the universe of the study because of huge amount (90% of whole country) of saffron production. For present study, five villages were selected randomly from district Pashtoon Zarghoon. The interview schedule was constructed based on the objectives of the study. The data collection and interview schedule were analyzed accordingly on the basis of simple count and percentages.

3. RESULTS AND DISCUSSION

This field survey was conducted at Agriculture Extension Department of Pashtoon Zarghon district internship period of 2017. This chapter deals with the interpretation of data regarding saffron production in Afghanistan.

3.1 Age of respondents

Age is an important demographic characteristic that has a greater impact on the behavior of the individuals. Usually it is observed that as the age of the individual advances, the ability of making wise decision is also improved due to mental maturity. According to Iqbal and Nawab (2013), younger person can adopt an innovation faster than the older one. Figure 3.1 shows the distribution of respondents according to ages.

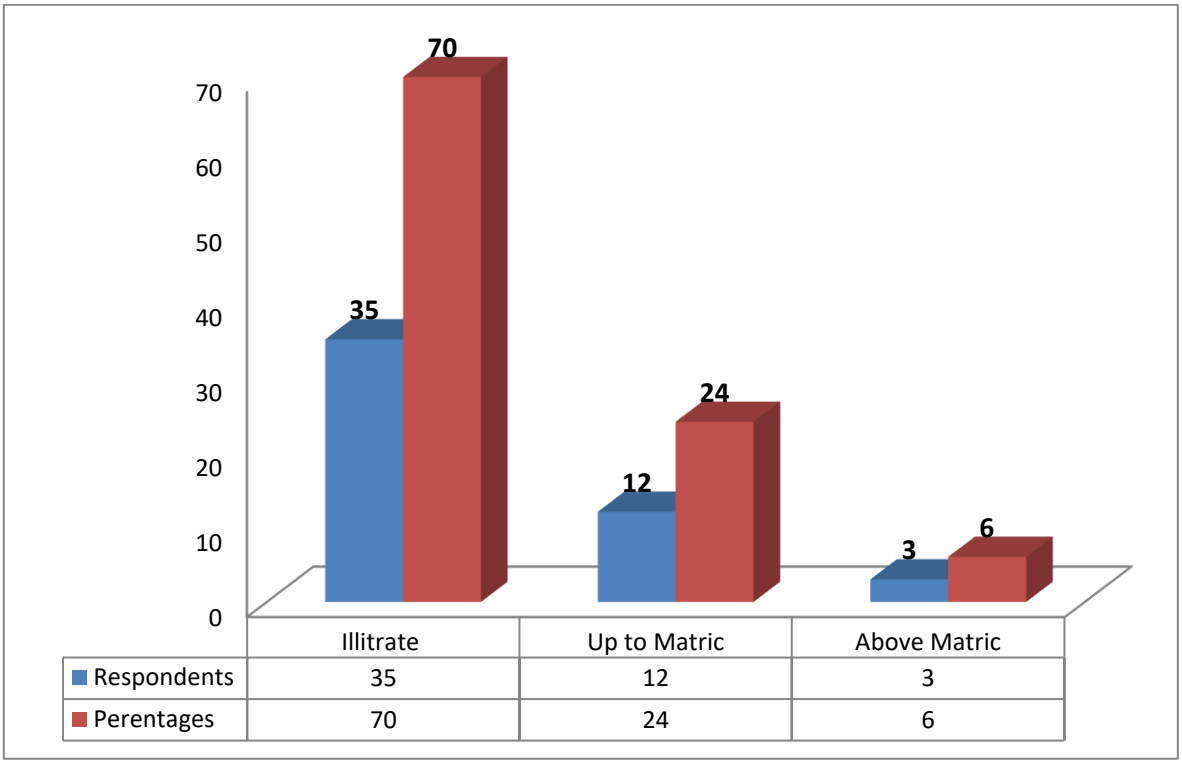


Data regarding age are indicated in Figure 3.1. Majority 60% respondents were in the age group of 16-25 years followed by age group of 26-35 years which comprises 24% of the respondents. The data further indicated that about 16% were in age group of above 35 years.

Literacy Status of Respondents

Education is the aggregate of processes which brings desired modification in the behavior of an individual. Generally educated farmers have more positive attitude towards the

adoption of new technology (Iqbal and Nawab, 2013). In this regard a question was asked from the respondents about their literacy status and their responses are presented in figure 3.2.



Data concerning literacy rate of the respondents is indicated in figure 3.2. Data revealed that 12% of the respondents were educated up to matric followed by 6% who were above matric. The data further indicated that 70% were illiterate among the surveyed farming community.

Monthly income of respondents

Non-farm income also has a positive effect in addition to farm income because it helps them to improve their overall income and improve their standard of living. According to Thiagu Ranganathan (2013), a farm household earns its income from various sources. In this regard during the survey, respondents were further probed about the major sources of income and their responses are shown in Figure 3.3.

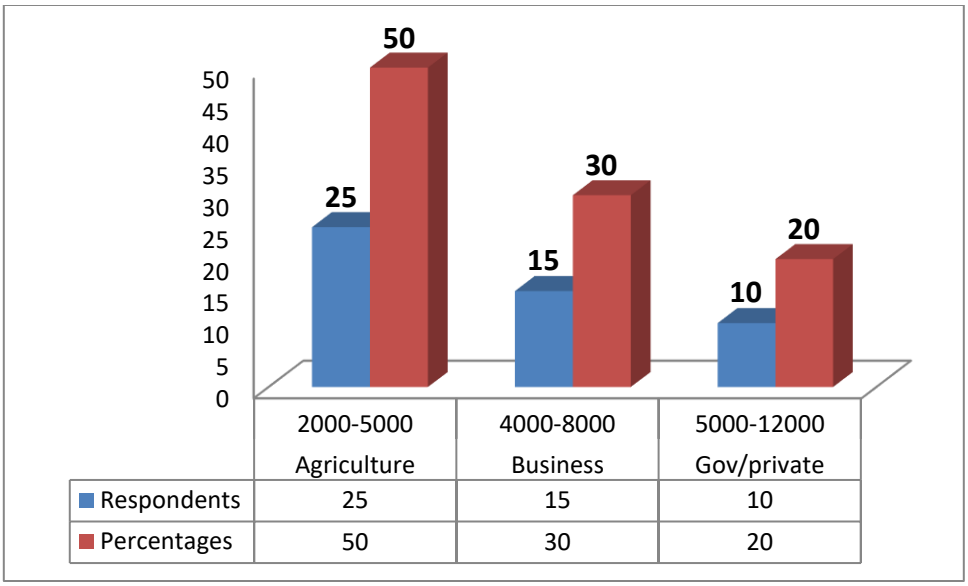
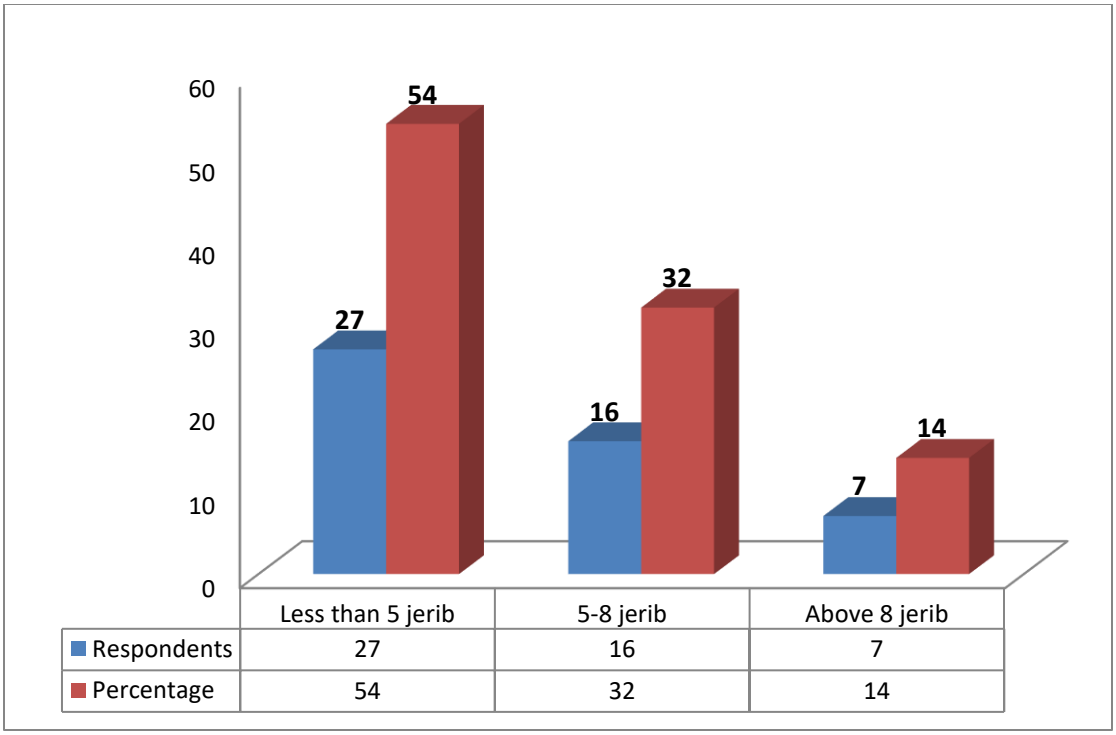


Figure 3.3 shows data regarding monthly income of the respondents. Data revealed that 20% of the respondents were government employee with monthly income of Rs, 5000-12000 AFA followed by 30% engaged in business, earning Rs, 4000-8000 AFA monthly, similarly the data also showed that about 50% of the respondents earned their livelihood from Agriculture by earning Rs. 2000-5000 AFA per month.

Land holding size of the respondents

Greater land holding means greater involvement in land cultivation and being its capable management. Those who consider agriculture toward taking more interest of new idea and practices, also, have relationship the size of land holding and income. Hence large land holding means more potential to taking risk. The size of agriculture land has a positive association with the adoption of new innovations (Chaudri 1968; Gurmani 1976). Results regarding the landholding of the respondents are given in Figure 3.4.



Data regarding landholding is shown in Table 4.4. Data revealed that 14% of the respondents had more than 8 Jerib of land followed by respondents 32% holding 5-8 Jerib. The data also indicated that 54% of the farmers were holding less than 5 Jerib land among the surveyed respondents.

Utilization of Extension Department and DACAAR services regarding saffron

Aslami (2007) suggested that with more utilization of services regarding saffron the production of saffron can be increased and finally the income of the farmers will be increased. The following Table shows the percentage % of the farmers that have utilized and the percentage of the farmers that have not utilized different programs of Extension department and DACAAR.

Table 3.1 Utilization of Extension and DACAAR services regarding saffron by respondents

Villages	**Utilization**	
	Yes	No
Shah Abad	8	2
Gulmir	6	4
Salemi	8	2
Manzal	6	4
Said Abad	8	2
Total	36	14
Percentage%	72%	28%

Source: Field Survey

Data regarding the utilization of Extension Department and DACAAR services by respondents are indicated in Table 4.6. Data indicated that 72% of the respondents were benefited from different programs of the Extension Department and DACAAR in Pashtoon Zarghon district followed by 28% of the total respondents who did not get any benefit from the Agriculture Extension department and DACAAR services.

3.2 Main problems of saffron growers in research area

While the farmers practicing or growing saffron they face with different obstacles. According to (NUSG) 2016, a great deal of progress has been achieved since the inception of the saffron project in early 2005, there are still challenges ahead related to saffron cultivation in terms of improving corm quality, saffron processing and quality control and expanding the volume of production in order to market the product as the "Afghan saffron" in the international markets. In the following Table 3.2 some of the obstacles faced by saffron growers are presented.

Table 3.2 Main problems of saffron growers in research area

Type of problem	No. of respondents	%age
Financial problem	14	28%
Marketing of Afghan product	6	12%
Lack of local storage or packaging capacity	10	20%
Lack of industry standards	12	24%
Lack of government support	8	16%

Source: Field Survey

Data regarding the main problems of saffron growers are presented in Table 3.2. Data indicated that 28% of the respondents in study area reported that finances were the major problem faced by them followed by 12% who revealed that Marketing of Afghan product is the big constraint for them. About 20% revealed that Lack of local storage or packaging capacity, 16% mentioned Lack of government support while 24% of the respondents were of the opinion that Lack of industry standards was the major obstacle in growing of saffron up to its process.

4. CONCLUSION AND RECOMMENDATION

Majority of the respondents were illiterate, most of them were young, income source of their majority was from agricultural activities. Half of the respondents in the research area were small farmers having less than 5 jerib land, most of them were obtaining information regarding saffron through field days. Saffron growers in Afghanistan have so many problems such as distribution of saffron corm, fertilizers, insecticides and pesticides, some of the respondents of the study area were unsatisfied of the services which were provided by DACAAR and Agricultural Extension Department. It is recommended that the Agriculture ministry should provide satisfactory programs regarding saffron to all saffron growers especially to small growers because they made about half of saffron growers. The Ministry of Agriculture should have Agricultural Extension Department in every province and should have Extension workers in every district of province to provide services such as Training programs, Field days, Demonstrations, workshops to improve the knowledge level of saffron growers.

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