

Economic efficiency of soybean varieties on irrigation procedures

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Abstract: In order to determine the revenue from the sale of soybeans in 2017 the purchase price of soybeans (an average 2,500 soums / kg per variety) was used. According to the above –mentioned calculations the highest net profit was noted in Uzbekistan-2 and Altintoj varieties of soybeans when the soil moisture content was 70-75-75% before the irrigation compared to LMC and were irrigated 6 times during the season per 600-980 m³ / ha.

Keywords: soybean, plant, irrigation procedure, norm, consumption, LMC (limited moisture content), water, meter cube, hectare, soil, root.

1. INTRODUCTION:

Each person should consume protein, carbohydrates, vitamins, minerals and other useful things in a daily life. The more various and healthier food consumes the person, the more active his life activity is, and the healthier the organism too. It should be noted that for the normal functioning of the human body, the protein requirement should not be less than 0.7 g per kg of body weight per day [2].

In recent years, the acceleration of production of food and livestock feed requires to increase soybean production. Soybeans contain valuable protein, which is not inferior to animal protein in terms of nutritional value. It contains unique biologically active substances, lecithin, choline, vitamins A, B and E, macro and microelements and other valuable substances. Soybean does not contain lactose and cholesterol [3].

It is obvious that protein deficiency is a vital issue and can cause to various diseases. Increasing the soybean amount among foodstuffs can not only solve this problem, but also significantly reduce the consumption of medical products [4]. It is known that protein deficiency is an important problem, and lack of it can lead to many diseases. Enriching the daily diet with soybean products made by American “Express” technology can help make our diet more efficient, tasty and healthy.

The main soya confectionery products are used in the production of fillers, meat, milk and cheese substitutes. Its butter is used in the production mayonnaise and margarine in food manufacture. Many scientists and manufacturers say that "soybean-food - 5 food, fodder and the future". The problem of obtaining full plant protein can be solved with the help of soybean. In recent years, the cultivation of soybeans on irrigated lands of the Republic of Uzbekistan has been widely implemented [1]. However, the varieties of this plant, agro-technology of cultivation, irrigation procedures and cost-effectiveness of soybean cultivation haven't been sufficiently investigated. Therefore, the study of the problems mentioned above remains relevant in Uzbekistan [1].

2. MATERIALS AND METHODS:

Considering aforementioned issues the field experiments were conducted during 2015-2018 on the study of irrigation procedures of soybean varieties Orzu, Uzbekistan-2, Oltintoj and Selekt-201 which were planted in virgin soil conditions of Kashkadarya region as a main crop. The soil of the experimental area is typical virgin with heavy mechanical content and deep ground water (> 3). The experiment was carried out in 12 variants, 3 repetitions, and irrigation of soybean varieties was studied in the order of 70-70-70%, 70-75-75% and 70-80-80% (compared to the limited soil moisture content) before irrigation.

3. RESULTS AND DISCUSSION:

The biological characteristics of cultivated varieties and the agro-technology of their cultivation, including irrigation procedures are of great importance in obtaining a high yield of soybeans and higher economic benefit. An abundant economic income can be obtained from high-yielding varieties that are resistant to drought and salinity, but

low-yield varieties which are poorly adapted to climatic and soil condition and also unresistant to pests and diseases may give low yield and low economic benefits accordingly.

Soybean varieties under the study in the experimental plots have been successfully tested by scientific research institutes and seed-breeding farms for many years and have been found to be highly productive, resistant to external environmental conditions, diseases and pests.

The results of economic efficiency of soybean varieties under the study in the experimental area as per their irrigation procedure have been shown in Table 1 where the costs of cultivation of soybeans (seed price, costs of land plowing, preparing the land before sowing, sowing, inter-row cultivation, purchasing fertilizer and its application into the soil, costs of irrigation, harvesting and transportation costs) were summarized.

All expenditures on soybean varieties and irrigation procedures constituted 3117000-3400000 soums per hectare. In order to determine the revenue from the sale of soybeans in 2017 the purchase price of soybeans (an average 2,500 soums / kg per variety) was used.

The highest net profit obtained from the above-mentioned calculations was noted when the soil moisture content before the irrigation of Uzbekistan-2 and Oltintoj varieties of soybeans under the study was 70-75-75% compared to LMC and was irrigated 6-9 times during the season at 600-980m³ / ha.

Hereby, the net profit of Uzbekistan-2 soybean variety was 4115000 soums / kg, profitability rate was 121%, and the cost of product was 1128 soums / kg. Net profit from Oltintoj soybean variety constituted 3605,000 soums/kg, profitability rate was 107%, production cost was 1208 soums/kg.

Table: Economic efficiency of soybean varieties according to irrigation procedures

Var. №	Soybean varieties	Productivity, c/ha	Cultivation expenses, soums/ha	Income of soybean sale, soums /ha	Net profit, soums/ha	Cost price, soums/ha	Profitability, %
1	<i>Orzu</i>	24,1	3317000	6025000	2708000	1376	82
2		25,6	3360000	6525000	3165000	1312	94
3		25,3	3394000	6325000	2931000	1341	86
1	<i>Uzbekistan-2</i>	27,2	3340000	6800000	3460000	1228	103
2		30,0	3385000	7500000	4115000	1128	121
3		29,0	3400000	7250000	3850000	1172	113
1	<i>Oltintoj</i>	24,4	3317000	6100000	2783000	1359	84
2		27,1	3370000	6975000	3605000	1208	107
3		26,4	3394000	6600000	3206000	1286	94
1	<i>Selekta-2</i>	24,1	3317000	6075000	2758000	1376	83
2		26,9	3370000	6725000	3355000	1253	100
3		26,2	3394000	6550000	3156000	1295	93

4. CONCLUSION:

Based on the results of the study, we can conclude that the most grain yield and higher economic efficiency can be obtained in typical virgin soil conditions with deep ground water (> 3 m) in Kashkadarya region when the soil moisture is 70-75-75% compared to LMC before irrigation and is irrigated 6 times in the cultivation of Uzbekistan-2 and Oltintoj varieties.

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