**Original Research Article**

**Constraint and Suggestion of the Trained and Untrained Soybean Growers in Madhya Pradesh State of India**

**ABSTRACT**

India needs to increase soybean production which can be possible by narrowing down the gap between the existing technology and their adoption. The research was based on a survey done in 2017-18 in order to constraints faced by the trained and untrained soybean growers and their suggestions. The process of area and respondents selection were as; At the first stage one district of Madhya Pradesh state have been selected through purposive which Sehore for the present study. The total number of blocks in Sehore district is five. Out of these, two blocks namely, Sehore and Ichhawar were selected randomly. A cumulative list of villages was prepared on the basis of soybean growers who received training under KVK. The villages having maximum number of trained soybean growers were selected from prepared list and five-five villages were selected from each selected block, thus a total of ten villages were selected from both blocks, similarly five villages were also selected from the each block that is uncovered under KVK. Therefore, a total number of 20 villages were selected to select soybean growers. The soybean growers are main source of information. In view of the objectives of study two types of soybean growers, trained and untrained were selected. A total 200 soybean growers in which 100 growers trained and 100 growers untrained were selected through Probability proportion to size method (PPS) from the selected villages. Data were collected by researcher through an interview schedule method by open ended response of respondents. An appropriate statistics measures has been used to draw inferences.

**Keywords:** Constraint, Suggestion, Soybean Growers, Trained, Untrained.

**INTRODUCTION:**

Soybean is a species of legume botanically known as *Glycine max* native to eastern Asia. It is classified as an oilseed rather than a pulse due to its high oil content. It is more popularly used as a source of vegetable oil and industrial applications such as biodiesel. It has been grown in China for over 5,000 years.

Soybean is one of the most versatile crops grown around the world. It has a raft of applications including a source of vegetable oil for human food and industrial uses, as a valued protein source in livestock production, for use in preparing a range of human foods such as traditional foods like tofu and soy milk as well as novel uses as a protein isolate and for textured protein. Soybean also has almost endless applications in industrial products such lubricants, plastics, waxes and a range of intermediate chemicals including fatty acids. In more recent times, soybean has been recognized for its health and well-being properties and is now used in a range of nutrition bars, cereals, pasta and baked goods.

Soybean makes up about 60% of the overall world oilseed production. Soybean is grown and traded across the globe and considered one of the most important of global commodities. Average 260 million tones used worldwide each year and about 10% is used directly for human foods, about 20% is extracted for oil and the remaining use as livestock feeds.

The crop has an important place in world's oilseed cultivation scenario, due to its high productivity, profitability and vital contribution towards maintaining soil fertility. The crop also has a prominent place as the world's most important seed legume, which contributes 25% to the global vegetable oil production, about two thirds of the world's protein concentrate for livestock feeding and is a valuable ingredient in formulated feeds for poultry and fish. About 85% of the world's soybeans are processed annually into soybean meal and oil. Approximately 98% of the soybean meal is crushed and further processed into animal feed with the balance used to make soy flour and proteins. of the oil fraction, 95% is consumed as edible oil; the rest is used for industrial products such as fatty acids, soaps and biodiesel. The major soybean producing nations are the United States, Brazil and Argentina. The three countries dominate global production, accounting for 80% of the world's soybean supply. Global production of soybean has grown at a compound annual growth rate of 2.78% from 215.69 million metric tons in 2004-05 to 283.79 million metric tons in 2013-14.

The importance of soybean in Indian economy as it contributes significantly to the Indian edible oil pool. Presently soybean contributes 43% to the total oilseeds and 25% to the total oil production in the country. Currently, India ranks fourth in respect to production of soybean in the world. The crop helps earn valuable foreign exchange (Rs. 62000 millions in 2012-13) by way of soya meal exports. Soybean has largely been responsible in uplifting soybean grower’s economic status in many pockets of the country. It usually fetches higher income to the soybean growers owing to the huge export market for soybean de-oiled cake. While on one hand production of soybean in India has increased at a compound annual growth rate of 9.60 per cent from 6.87 million tons in 2004-05 to 15.68 million tons in 2012-13. On the other hand soybean meal consumption has also increased at a compound annual growth rateof 10.82 per cent over the last eleven years from 1365 thousand million tons in 2004-05 to 4225 thousand million tons in 2014-15. Therefore, to keep pace with the increasing demand it is imperative to increase the productivity level of soybean in the country.

The production of soybean in India is dominated by Maharashtra and Madhya Pradesh which contributes to 89 per cent of the total soybean production in country India has the fifth largest vegetable oil economy in the world. After cereals, oilseeds are the second largest agricultural commodity, accounting for the 14% of the gross cropped area in the country. However, country meets its edible oil demand through imports, which accounts for almost 50% of requirement. The per capita consumption of the vegetable oil is increasing very rapidly due to increase in population and improved economic status of the population. The demand has increased to about 12.6 kg/year compared to 4 kg/year in 1961 and the projected demand for the year 2020 and 2050 is 16.443 and 19.16 kg/year respectively. To meet this demand, the country will require nearly 25.26 and 35.90 million tons of edible oil. In this scenario, soybean has played and will play a pivotal role in the future. Production of soybean in India is dominated by Maharashtra and Madhya Pradesh which contribute 89 per cent of the total production. Rajasthan, Andhra Pradesh, Karnataka, Chhattisgarh and Gujarat contribute the remaining 11 per cent production.

The green revolution increased production and productivity of food crops, improved food security and raised rural incomes, however, India still has a large poor and malnourished population. Expansion of farm incomes is still the most potent weapon for reducing poverty. Though food grain production has touched a new peak of 260 million tons in 2011-2012, growth in agriculture in the eleventh plan (2007-12) has remained below 4.0 per cent per year (Planning Commission, 2011). The draft approach paper to the 12th Five Year Plan argues the need for ensuring a minimum of 4% growth in agriculture during the XIIth plan (2012-17).

**METHODOLOGY**:

Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically. The research was based on a survey done in 2017-18 in order to constraints faced by the trained and untrained soybean growers and their suggestions. The process of area and respondents selection were as; at the first stage one district of Madhya Pradesh have been selected through purposive which Sehore for the present study. The total number of blocks in Sehore district is five. Out of these, two blocks namely, Sehore and Ichhawar were selected randomly. A cumulative list of villages was prepared on the basis of soybean growers who received training under KVK. The villages having maximum number of trained soybean growers were selected from prepared list and five-five villages were selected from each selected block, thus a total of ten villages were selected from both blocks, similarly five villages were also selected from the each block that is uncovered under KVK. Therefore, a total number of 20 villages were selected to select soybean growers. The soybean growers are main source of information. In view of the objectives of study two types of soybean growers, trained and untrained were selected. A total 200 soybean growers in which 100 growers trained and 100 growers untrained were selected through Probability proportion to size method (PPS) from the selected villages. Data were collected by researcher through an interview schedule method by open ended response of respondents.An appropriate statistics measures has been used to draw inferences.

**RESULT AND DISCUSSION:**

**Constraints:**

**1: The constraints faced by soybean growers**

The constraints was presented and discussed in Table 1.

**Table 1: Distribution of constraints faced by soybean growers**

|  |  |  |  |
| --- | --- | --- | --- |
| **S.N.** | **Constraints** | **Trained Growers** | **Untrained Growers** |
| **%** | **Rank** |  **%** | **Rank** |
| **A** | **Economic constraints** |
| i | Lack of money to purchase useful inputs | 33 | I | 29 | II |
| ii | Lack of money for land preparation | 26 | II | 17 | III |
| iii | High cost of seeds | 23 | III | 41 | I |
| iv | High labour charges | 18 | IV | 13 | IV |
| **B** | **Technical constraints** |
| i | Lack of current agricultural literature | 30 | I | 11 | V |
| ii | Lack of knowledge about insects and diseases | 25 | II | 19 | III |
| iii | Lack of soybean crop related training | 22 | III | 24 | II |
| iv | Lack of knowledge about soil testing | 13 | IV | 14 | IV |
| v | Technological skills are not developed through special training programme | 10 | V | 32 | I |
| **C** | **Extension constraints** |
| i | Lack of technical guidance by the KVK | 28 | II | 41 | I |
| ii | Demonstrations not conducted adequately and timely | 37 | I | 13 | III |
| iii | Lack of trainings provided by KVKs | 16 | III | 29 | II |
| **D** | **Institutional constraints** |
| i | Co-operative societies are not providing seeds timely | 73 | I | 66 | I |
| ii | Lack of technical information from KVKs | 27 | II | 34 | II |
| **E** | **Situational constraints** |
| i | Low market price | 34 | I | 40 | I |
| ii | Lack of storage facilities | 31 | II | 18 | II |

The above Table 1 showed that the major constraints faced by the trained soybean growers were lack of money to purchase useful inputs, lack of current agricultural literature, demonstrations not conducted adequately and timely, co-operative societies are not providing seeds timely and low market price.

Whereas, in case of untrained soybean growers the major constraints faced by the untrained soybean growers were lack of money to purchase useful inputs, technological skills are not developed through special training programme, lack of technical guidance by the KVK, co-operative societies are not providing seeds timely and low market price. The major constraints reported by the trained soybean growers were lack of money to purchase useful inputs, lack of current agricultural literature, demonstrations not conducted adequately and timely, co-operative societies are not providing seeds timely and low market price. Likewise, the major constraints reported by the untrained soybean growers were lack of money to purchase useful inputs, technological skills are not developed through special training programme, lack of technical guidance by the KVK, co-operative societies are not providing seeds timely and low market price. The results of this study are in same line of findings repeated by Singh *et al.* (2010), Singh and Varshaney (2010), Beda (2011), Ajieh (2014) and Mulewa (2016).

**Table 2: Percentage distribution of soybean growers according to their overall constraints**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S.N.** | **Categories** | **Trained Growers****(%)** | **Category** | **Untrained Growers****{%)** |
| 1. | Low (Scores up to 5 ) | 39 | Low (Scores up to 37 ) | 31 |
| 2. | Medium (Scores 6 to 10) | 48 | Medium (Scores 38 to 74 ) | 53 |
| 3. | High (Scores 11 to 16) | 13 | High (Scores 75 & above) | 16 |
| **Total** | **100** | **Total** | **100** |

The above Table 2 showed that the majority (48%) of trained soybean growers has belonged to medium category followed by low (39%) and high (13%).

Whereas, in case of untrained soybean growers majority (53%) of untrained soybean growers belonged to medium category followed by low (31%) and high (16%), respectively. Therefore, this difference in score is showing the degree of seriousness of the constraints in case of untrained soybean growers.

**Suggestions:**

**2. Table 3: Distribution of suggestions to overcome the constraints**

|  |  |  |  |
| --- | --- | --- | --- |
| **S.N** | **Suggestions** | **Trained Growers** | **Untrained Growers** |
| **(%)** | **Rank** | **(%)** | **Rank** |
| I. | Improved seed and inputs should be provided timely. | 85 | I | 90 | I |
| II | Formation of more co-operative societies | 77 | II | 84 | II |
| III | Soybean crop related training programme should be conducted | 68 | III | 79 | III |
| IV | More demonstrations should be conducted | 64 | IV | 73 | IV |
| V | Frequent visit to research farms | 61 | V | 67 | V |
| VI | Price of produce should be increased | 59 | VI | 61 | VI |
| VII | Availability of current agricultural literature | 52 | VII | 54 | VII |
| VIII | Cost of chemicals should be reduced | 49 | VIII | 51 | VIII |

The Table 3 shows that the many suggestions as perceived by trained and untrained soybean growers about improved technology of soybean crop. The majority of trained soybean growers were perceived the suggestions i.e., ‘Improved seed and inputs should be provided timely(85%) ranked I, ‘Formation of more co-operative societies’ (77%) ranked II, ‘Soybean crop related training programme should be conducted (68%) ranked III, ‘More demonstrations should be conducted’ (64%) ranked IV, ‘Frequent visit to research farms’ (61%) ranked V, ‘Price of produce should be increased’ (59%) ranked VI, ‘Availability of current agricultural literature’ (52%) ranked VII, and ‘Cost of chemicals should be reduced’ (49%) ranked VIII.

Whereas, in case of untrained soybean growers, the majority of untrained soybean growers were perceived the suggestions i.e., ‘Improved seed and inputs should be provided timely (90%) ranked I, ‘Formation of more co-operative societies’ (84%) ranked II, ‘Soybean crop related training programme should be conducted (79%) ranked III, ‘More demonstrations should be conducted’ (73%) ranked IV, ‘Frequent visit to research farms’ (67%) ranked V, ‘Price of produce should be increased’ (61%) ranked VI, ‘Availability of current agricultural literature’ (54%) ranked VII, and ‘Cost of chemicals should be reduced’ (51%) ranked VIII.

The majority of soybean growers were perceived the suggestions i.e., ‘improved seed and inputs should be provided in timely, ‘formation of more co-operative societies’, ‘soybean crop related training programme should be conducted, ‘more demonstrations should be conducted’, ‘frequent visit to research farms’, ‘price of produce should be increased’, ‘availability of current agricultural literature’, and ‘cost of chemicals should be reduced’. The results of this study are in same line of findings repeated by Sahu (2011), Raghuvanshi *et al.* (2012), Chaudhary *et al.* (2013) and Rajan *et al*. (2017).

The above discussed suggestions were made by soybean growers are important to consider in training programme by extension agencies, government department to minimize the constraints which hinders the adoption of improved practices of soybean cultivation technology.

**CONCLUSION:**

It was reported from the research that the constraints faced by the trained soybean growers arei.e., lack of money to purchase useful inputs, lack of current agricultural literature, demonstrations not conducted adequately and timely, co-operative societies are not providing seeds timely and low market price.

It was reported from the research that the constraints faced by the untrained soybean growers are i.e., lack of money to purchase useful inputs, technological skills are not developed through special training programme, lack of technical guidance by the KVK, co-operative societies are not providing seeds timely and low market price.

The measure suggestions reported by the trained and untrained soybean growers i.e., improved seeds and inputs should be provided in timely, ‘formation of more co-operative societies’, ‘soybean crop related training programme should be conducted, ‘more demonstrations should be conducted’, ‘frequent visit to research farms’, ‘price of produce should be increased’, ‘availability of current agricultural literature’, and ‘cost of chemicals should be reduced’.

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