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Constraints faced by soybean growers of Mandsaur district in Malwa plateau of Madhya Pradesh

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ABSTRACT

Soybean is one of the most important oilseed crops of Madhya Pradesh where it is grown on an area of 4.25 million ha with annual production of 4.50 million tonnes. Its cultivation is predominantly done in Mandsaur district. The production constraints which are being faced by farmers in this area have been analyzed though personal survey. The major constraints taken in to account were technological, socio-economic and agro-ecological which limit the adoption of modern package of practices of its cultivation ultimately leading to low productivity of the crop. The main constraints faced by most of the farmers were incidence of insect pests and diseases on plants (98.28%), non-availability of quality seed material (96.30%), non-availability of sulphur based phosphate fertilizers for balanced nutrition (95.17%) and non-availability of appropriate plant protection chemicals (90.74%) which ultimately lead to low production. There is an urgent need to address the problems of insect pests and diseases through extension and development work network in the state so that the barriers in adoption of improved package of practices by the farmers could be checked.

Keywords: Soybean; constraints; adoption; production

INTRODUCTION

Soybean (*Glycine max* (L) Merrill) is a wonder crop because of its nutritional value and versatile applications. It is used directly as food (Dal, Soypops), oil production, paustic Atta/Besan, soymilk, soy Paneer and soy protein powder. It is useful in lowering cholesterol level, fighting cancer, controlling diabetes, improving immune system, protecting against Parkinson's disease etc. In India soybean contributes about 10 per cent to the domestic edible oil pool and country earns substantial foreign exchange through export of soy- meal (Joshi 2003). It is an excellent source of protein (36-38%), unsaturated fat (18-20%) and fibre content. Soy protein is a complete protein and provides all eight essential amino acids in amounts needed for human health. Soy fat is highly unsaturated (24% mono- and 61% poly- unsaturated) and is cholesterol free (Sharma et al 2008).

Soybean cultivation in India has gained momentum in oil front with the steady increase in the area and production. In recent years it has become an important oilseed crop of our country occupying the third place next to groundnut, rapeseed and mustard in area and production (Kumar 2009). This crop has a greater potentiality to substitute different oilseeds and pulses to overcome the shortage of edible oil and protein rich food. Soybean is one of the oldest cultivated crops of the world. The first record of this crop is available in Chinese literature where it is mentioned to be one of the five sacred grains of China. The ancient Yogis of Indus valley civilization supplemented their meatless diet with this bean because of having good quality proteins. The father of the nation Mahatma Gandhi in the year 1932 initiated soybean movement as a food reformist. Soybean is known as 'Golden bean', 'Miracle crop' etc because of its several uses. Soybean besides having high yield potential (30-35q/ha) provides cholesterol free oil (20%) and high quality protein (40%). It is a versatile crop with innumerable possibilities of improving agriculture and supporting industry.

The soybean protein is rich in lycine (4-6%) and the oil extracted is edible one. India is in short supply of proteins and large portion of the population is of vegetarians. Under this situation crop like soybean with high protein content and high yield potential becomes an important crop here. Soybean protein is receiving more attention than any other source of protein today. Besides it contains several vitamins, calcium, phosphorous and iron. They are ideally suited for human beings. Food uses of soybean include beverages, fermented products like soya souce and yoghurt, cheese analogous like fried and roasted nuts, sarouts etc. Small quantities of soybean flour are already being used in baked goods primarily biscuits and and snacks. Soya flour is also used in substantial quantity in place of Besan in sweets, Papads and similar products. Industrial uses of soya in the pharmaceutical, farming, plywood glues, asphalt cements, detergent products, paper boards and laminations, fibre boards, shoe polish, textiles, printing inks, etc are well accepted. It is also used for industrial production of antibiotics, streptomycin and oxy-tetracycline etc. Japanese experts have recommended the use of soybean oil as a source of carbon for commercial production of penicillin. Soybean is one of the important grain legume crops grown in most parts of the world for its several uses as food, feed and beverages. The crop is presently grown on an area of about 91.29 million hectares mainly in United States (31%), Brazil (26%) and Argentina (20%). The rest 33 per cent is contributed by China (10%), India (10%) and Paraguay (3%) with the production of 220 million tonnes and a productivity of 2,033 kg per hectare. Even though soybean was introduced to India in 1880 AD hardly it occupied an area of 8.88 million hectares with production of

9.99 million tonnes and a productivity of 1,124 kg per hectare (Anon 2008). Due to its characteristics such as short duration, high yielding potential protein and oil content good fodder and building soil fertility by fixing atmospheric nitrogen in the soil it is becoming popular with the farming community. In Mandsaur district of Malwa plateau of MP the crop is grown by large number of farmers on an area of 2,70,000 ha.

METHODOLOGY

District Mandsaur was selected purposively. Study was undertaken in the five new villages of the district. Twenty soybean growers from each village were selected randomly. Thus 100 such growers were taken in the study. The data were colleted through personal interview method using structural schedule. The entire data were transformed into normal score. Statistical measures such as percentage and ranking were used. The major constraints taken into account were technological, socio-economic and agro-ecological which were tabulated and analyzed to identify the major constraints for adoption of soybean production technology.

RESULTS AND DISCUSSION

The major constraints taken in to account were technological, socio-economic and agro- ecological which limit the adoption of modern package of practices for soybean cultivation and ultimately affecting productivity of the crop. The data presented in Table 1 indicate the nature of constraints faced by the respondents in adoption of the recommended soybean cultivation practices. Under technological factors the incidence of insect pests and diseases was the major constraint faced by 98.28 per cent respondents. Soybean crop is severely affected by bacterial leaf spot (Kunkuma roga). Many farmers expressed that once disease entered their fields the whole crop is affected next morning that reduced more than half of the yield. As high as 96.30 and cent of the respondents expressed non-availability of quality seed material as the major constraint in crop cultivation followed by non-availability of sulphur based phosphate fertilizers (95.17%) and non-availability of labour (90.74%) felt at the time of sowing and harvesting stages. Infestation by weeds, lack of knowledge about seed treatment were the constraints expressed by 64.58 and 57.20 per cent respondents respectively.

Under socio-economic factors increasing cost of inputs was expressed as the major constraint by 52.40 per cent of the respondents. The farmers expressed that there was lot of variation in the prices that prevailed at the beginning of the season and that prevailed at the time of harvesting. Since there was no firm assurance of price in the initial stages the farmers hesitated to adopt recommended practices which

Table 1. Factors affecting growers in soybean cultivation in Mandsaur

Factor	Score (%)	Rank
Technological Factors		
Non-availability of quality seed material	96.30	II
Non-availability of sulphur based phosphate fertilizer for balance nutrition	95.17	III
Incidence of insect pests & diseases	98.28	I
Non-availability of labor	90.74	IV
Infestation of weeds	64.58	V
Lack of proper knowledge about seed treatment	57.20	VI
Socio-economic factors		
Unavailability of input in time	51.40	VIII
Non adoption of proper crop rotation	49.56	IX
Lack of knowledge about scientific cultivation practices	41.87	XI
Difficulty in assessing credit facilities	45.70	X
Increasing cost of inputs	52.40	VII
Agro-ecological factors		
Occurrence of flood/ water logging	36.85	XII
Poor soil quality	34.29	XIII
Aberrant weather	32.08	XVI

involved additional investment. They desired that the government should announce the support price well in advance so that farmers do not face any risk later on. Unavailability of inputs in time (51.40%), non-adoption of proper crop rotation (49.56%), difficulty in assessing credit facilities (45.70%) and lack of knowledge about scientific cultivation practices (41.87%) were other constraints under socio-economic factors.

Under agro-ecological factors main constraint was occurrence of floods/water logging (36.85%), followed by poor soil quality (34.29%) and aberrant weather (32.08%).

CONCLUSION

The findings of the study clearly revealed that high incidence of insect pests and diseases, non availability of quality seed

material, non availability of sulphur based phosphate fertilizer for balance nutrition, infestation of weeds, non availability of appropriate plant protection chemicals, lack of proper knowledge about seed treatment, socio-economic factors, unavailability of input in time, non adoption of proper crop rotation, lack of knowledge about scientific cultivation practices, difficulty in assessing credit facilities, increasing cost of inputs, occurrence of flood/ water logging, poor soil quality, aberrant weather were major constraints as perceived by the respondents in adoption of soybean cultivation practices. The agencies working in this area should plan their future course of action regarding soybean cultivation technology for enhanced production

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