

SWOT analysis of soybean crop against the major crops existing in the northern Telangana zone

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ABSTRACT

The study was undertaken with the objective to find out the strengths, weaknesses, opportunities and threats of soybean crop against the major crops existing in the northern Telangana zone. Study revealed that the major strengths of soybean crop against the major crops (cotton, sugarcane and maize) of the zone were requirement of less number of irrigations followed by low cost of cultivation and less drudgery in crop cultivation. Low seed viability and germination followed by difficult picking (harvesting) of soybean pods and low marketing intelligence were three major weaknesses. The major opportunities were subsidy on seed cost followed by low spreading of pests and diseases in line sowing, being drought tolerant (rainfed) crop and no role of middlemen in marketing. The major threats were availability of soya seed in time followed by price fluctuations and seed losing viability with minimum impact.

Keywords: Soybean; SWOT; strengths; weaknesses; opportunities; threats; major crops

INTRODUCTION

Soybean 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 per cent to the global vegetable oil production. About 85 per cent of the world's soybeans are processed annually into soybean meal and oil. Soybean contributes significantly to the Indian edible oil pool. Presently it contributes 43 per cent to the total oilseeds and 25 per cent to the total oil production in the country. Currently India ranks fourth in respect of production of soybean in the world. Soybean has largely been responsible in uplifting farmers' economic status in many pockets of the country. Therefore to keep pace with the increasing demand it is imperative to increase the productivity level of soybean in the country (ficci.in/spdocument/20539/SOYBEAN-Report.pdf).

Lakpathi (2011) indicated that the strengths perceived by the maize seed producers in maize

seed production were red soils and sandy soils (90.20%), awareness about detasseling (78.70%), organic manure improving soil fertility and water holding capacity (71.70%), no drainage problem (58.70%), effective plant weed management practices (49.00%), increased hybrid vigour (48.00%), beneficial recommended harvest indices (41.00%), availability of plant protection measures (29.00%), near marketing facilities (18.80%) and enough sunshine (18.40%).

Kondareddy (2000) found that the weaknesses of cotton cultivation were expensive plant protection, low price for produce, high cost of hybrid seed, high cost of fertilizers, non-availability of labour at proper time, insufficient supply of water, non-availability of fertilizers at proper time, lack of disease diagnosis, shortage of female labour for picking and lack of money in time.

Singh et al (2013) expressed high seed cost of Bt cotton to be an important problem followed by lack of package of practices of Haryana Agricultural

University (70.83%), lack of pure and quality seeds (68.33%) and lack of agricultural labour during peak season (67.50%).

METHODOLOGY

Descriptive research design was adopted in the present investigation. Adilabad, Nizamabad and Karimnagar districts of northern Telangana zone of Telangana state were purposively selected for the study as they had highest area under soybean cultivation. The study was conducted in 24 villages selected from 12 Mandals of 3 districts of northern Telangana zone and 5 respondents from each village were selected thus making a sample of 120 respondents.

RESULTS and DISCUSSION

The SWOT analysis of soyabean has been described in Table 1.

Rank-based quotient- Strengths

The strengths expressed by the respondents about the soybean crop against the major crops (cotton, sugarcane and maize) were seed procured mainly from the government agencies (61.67%) followed by low cost of cultivation (76.67%), less drudgery in cultivation operations (72.50%), requiring less number of irrigations (80.00%), low pest and disease attack (63.34%), low fertilizer consumption (63.34%), low labour requirement (69.16%), early maturity (43.34%) and higher profits than other crops (43.34%).

Soybean is considered as a rainfed crop which usually demands less water. Under less rainfall conditions 2-3 irrigations are needed at critical stages of the crop growth. Unlike other major crops of the zone (maize, cotton and sugarcane) it attracts less number of pests and diseases thereby needs low pesticidal sprays and has low labour requirement for intercultural operations, harvesting, threshing and winnowing. All these factors lead to low cost of cultivation. Various agronomic operations involved in soya production don't require much skilled human labour.

Rank-based quotient- Weaknesses

The weaknesses perceived by the respondents about the soybean crop against the major crops (cotton, sugarcane and maize) were low seed viability and germination (74.17%) followed by lack of obtaining

seed from various sources like private and fellow farmers (52.50%), susceptibility to water logging conditions (45.00%), failure to germinate if seeds were flooded due to continuous rains for 3-4 days (41.67%), labour shortage due to prevalence of single variety under cultivation and uniform maturity at the same time (43.34%), low marketing intelligence (67.50%), difficulty in picking (harvesting) of soybean pods (71.67%), non-adoption of recommended practices (59.17%), poor infrastructure to process the soya produce (44.17%), less support from input agencies (39.17%), low information support on the crop compared to other major crops (54.17%), dwarf and low yielding varieties (45.00%), not being a commercial crop like other major crops (61.67%) and totally grown under rainfed conditions in many areas (36.67%).

Soya seed is highly susceptible to any kind of impact inflicted on the outer layer of the seeds thereby leading to reduction in seed viability and germination. The variety JS335 grown predominantly in the zone was semi-dwarf and the pods were seen closely packed under the leaves of the plant which made the farmers to bend continuously. The locating and picking the pods made them uncomfortable and tired. Marketing is an important phase of soybean production. Poor database maintained by the government on prices at national and international markets and supply demand status might have resulted in low marketing intelligence of the soya growers.

Rank-based quotient- Opportunities

The opportunities elicited by the respondents were subsidy on seed cost (80.00%) followed by rainfed crop (drought tolerance) (74.17%), low spread of pests and diseases (78.34%), soybean being leguminous crop that fixes atmospheric nitrogen in the soil (47.50%), high demand for soybean processed products in the market (64.17%), no role of middlemen in marketing (69.16%), availability of machines for threshing and winnowing (57.50%) and chances of getting more income through value-added products (43.34%).

Seed distribution to the farmers is the responsibility of the government and it distributes the seed to the farmers on subsidized price. The line sowing facilitates the crop to get exposed to abundant sunshine and the crop has the advantage of escaping the overcrowding due to dense foliage. The soya crop is considered as rainfed crop hence requires low amount

Table 1. SWOT on soybean crop against the major crops existing in northern Telangana zone

Characteristics	Strengths	Weaknesses	Opportunities	Threats
Seed availability	-Seed procured mainly from the government agencies (agriculture department, APSSDC, APSSCA), -Public seed supply (74/61.67%)	-Lack of provision of seed from various sources like private and fellow farmers (63/52.50%)	-Subsidy on seed (96/80.00%)	-Non-availability of seed in time (94/78.34%)
Seed viability and germination	-	-Low seed viability and germination (89/74.17%)	-	-Seed loosing viability with minimum impact (58/48.34%)
Water management	-Less number of irrigations required (96/80%) -No drainage problem (53/44.17%)	-Susceptible to water logging conditions (54/45.00%) -Fail to germinate if seeds flooded due to continuous rains for 3-4 days (50/41.67%) - On sloppy areas soil erosion and runoff minimised due to its bushy character (44/36.67%)	-Rainfed crop (drought tolerant) (89/74.17%) -Chances to establish drip irrigation (44/36.67%) -Village tanks (41/34.17%)	-
Pest and disease attack	-Low pest and disease attack (76/63.34%) -Low pesticide consumption (76/63.34%)	-New high yielding varieties from private companies susceptible to rust and leaf spot (46/38.34%)	-Low spread of pests and diseases (94/78.34%)	-
Fertilizer requirement	-Low fertilizer consumption (76/63.34%)	-Crop requiring additional S fertilizer compared to maize, cotton and sugarcane, etc (63/52.50%)	-Being leguminous crop fixes atmospheric nitrogen in the soil (57/47.50%)	-Less availability of direct S fertilizers (50/41.67%)
Labour requirement	-Low requirement of labour (83/69.16%)	-Labour shortage due to single variety under cultivation and maturity coming at same time (52/43.34%)	-	-
Marketing intelligence and market facilities		-Low marketing intelligence (81/67.5%) -No established regulated market (77/64.17%)	-High demand for soybean production in market (77/64.17%) - No role of middlemen in marketing (83/69.16%) - Machines available for harvesting and threshing (69/57.50%)	-Price fluctuation (70/58.34%)
Overall management	-Less drudgery in cultivation operations (87/72.50%) -Early maturity (56/46.67%) -High net profit (58/48.34%) -Increased soil fertility (50/41.67%) -Low cost of cultivation (92/76.67%)	-Difficult pod picking/harvesting (86/71.67%) -Non-adoption of recommended practices (71/59.17%) -Poor infrastructure to process soya produce (53/44.17%) -Less support from input agencies (47/39.17%)		-Intensive competition from other crops (52/43.34%) -Less availability of factory outlets (50/41.67%) -Reduction in seed viability due to use of

Characteristics	Strengths	Weaknesses	Opportunities	Threats
Technical guidance	-	-Not a traditional crop in the region (exotic crop) (87/72.50%) -Not a commercial crop like other major crops (74/61.67%) -Low information support compared to other major crops (65/54.17%)	-Chances of getting more income through value-added products having high demand in the market (52/43.34%)	machines/threshing (44/36.67%)
Crop yield and economics	-Higher profits than other crops (52/43.34%)	-Dwarf and low yielding varieties (54/45.00%) -Totally grown under rainfed conditions in many areas (44/36.67%)		-Low yields in Rabi season and lack of suitable varieties (53/44.17%)

Figures in parentheses indicate frequency/percentage

of water and can withstand moderate period of dry spells.

Rank-based quotient- Threats

The threats perceived by the respondents were non-availability of seed in time (78.34%) followed by seed losing viability with minimum impact (48.34%), less availability of direct sulphur fertilizers (41.67%), price fluctuations (58.34%), intensive competition from other crops (43.34%), less availability of factory outlets (41.67%), reduced seed viability due to use of machines (threshing) (36.67%) and low yields in Rabi season and lack of suitable varieties (44.17%).

Since the seed distribution of soya is the sole responsibility of the government at times the government may not be able to meet the demand of the farmers hence the seed may be generated and distributed through other agencies to take up timely sowing. The market price of soya produce is highly volatile in nature which depends on the price prevailing in national and international markets. Hence the government should safeguard the interests of the farmers by announcing remunerative price for the soya produce to give maximum net returns to the farmers. Soya seed is likely to lose its viability if any minimum damage or impact is inflicted on outer layer of the seed. Therefore enough precaution should be taken while storing, marketing and threshing the seed.

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