

## Original Research Article

# SWOC Analysis and Strategies for Promotion of Tomato Cultivation in Chittoor District of Andhra Pradesh

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## ABSTRACT

SWOC as an acronym which represents strengths, weaknesses, opportunities and challenges of an organization, programme and project. SWOC analysis was applied to unearth the strengths, weaknesses, opportunities and challenges of tomato cultivation as perceived by the 120 respondents selected from Chittoor district of Andhra Pradesh. Higher net income, requires less number of irrigations and better price in the market were the major strengths of tomato cultivation. Weaknesses include price instability, whole salers' and retailers' role in price fixation and non-availability of labour. Opportunities in tomato cultivation were facilitates for strengthening public and private partnership in agriculture, provision of storage facilities and opportunities to set up processing industries. Non availability of seed in time, weak management information system and labour migration to nearby towns/cities were the challenges as perceived by the respondents. Based on the results of SWOT, several strategies were suggested for the development of the tea sector such as research and extension, infrastructure development, market regulation, etc.

## Keywords

Tomato,  
SWOC, RBQ

## Introduction

Tomato is a fruit that is almost universally treated as a vegetable and a perennial plant that is almost universally as an annual. Tomato is well known and very popular vegetable grown successfully throughout India. Tomato ranks third in priority after potato and onion in India but ranks second after potato in the world. India ranks second in the area as well as in production of tomato. Andhra Pradesh is producing about 36% of tomatoes in the country and is the leading producer of tomato involving a production of 1473.5 thousand million tones from an area of 54.2 thousand hectares with productivity of 27.2 mt/ha. In view of the magnitude of the area under tomato cultivation, the large number of farmers who

are cultivating tomato impending problems, it is most appropriate to undertake a SWOC analysis for sustainability of tomato cultivation by analyzing what are the strengths, weaknesses, opportunities and challenges in tomato cultivation.

This analysis is expected to highlight the points for an in depth understanding of the situation in its totality, which in turn helps the top administrators, planners of state government, scientists to take strategic decision to overcome the weaknesses and challenges in tomato cultivation. With this backdrop documented from secondary sources of information, an in depth SWOT (Strengths, Weaknesses, Opportunities and

Threats) analysis was done in the present study to unearth SWOT in tea cultivation from farmers perspective to provide suitable strategies for its development.

### Materials and Methods

Exploratory design was followed. Chittoor district of Andhra Pradesh, three mandals namely Kurabalakota, Molakalacheruvu and Gurramkonda of Chittoor district, four villages from each mandal were selected for the study. From each village 10 farmers were selected thus a total number of 120 respondents were selected from 12 villages. A schedule was prepared to unearth the SWOC of tomato cultivation. The perceived responses of the farmers under each parameter were listed.

Ten important strengths, weaknesses, opportunities and challenges were identified by applying Rank Based Quotient (RBQ) developed by Sabaratnam (1998). The data obtained from the farmers regarding strengths, weaknesses, opportunities and challenge parameters in tomato cultivation was quantified i.e. the number of farmers who gave the particular rank were used for calculation of RBQ

The formula for RBQ calculation is as follows

$$RBQ = \frac{(f_i) (n+1-1) \times 100}{Nn}$$

Where,

F1 = frequency of farmers for ith rank of SWOC parameters

N = number of farmers

n = number of ranks

### Results and Discussion

In order to understand the nature of the strengths, weaknesses, opportunities and challenges of tomato cultivation as perceived by the tomato farmers rank based quotients were computed and the values had been presented in table 1 to 4.

The strategy was designed with following interventions based on SWOC analysis for efficient production of tomato crop in chittoor district of Andhra Pradesh state.

#### Research interventions

Need to evolve high yielding varieties, which give more yield in order to generate maximum net returns.

Research need to be conducted to breed the varieties suitable for *Rabi* season.

Research need to be conducted to increase the shelf life of tomatoes.

Human labour being the major cost item in tomato cultivation so, efforts should be made to mechanize field operations of tomato cultivation. Development of appropriate machinery and implements for different operations including harvesting, fertilizers and pesticides application was urgently needed.

#### Extension interventions

More awareness programmes have to be conducted to empower the people on benefits of tomato products there by increasing the cultivable area and net returns to the farmers. The knowledge management system on tomato crop has to be strengthened by incorporating the information on production, processing and marketing.

The power of Information Communication Technology (ICT) has to be harnessed for the benefit of tomato farmers by establishing tomato kiosks at mandal level to quench the thirst of the information needs of the tomato farmers.

There is every need to channelize the passage of information to the farmers both by the formal (officials of State Department of Horticulture, University, NGOs and Private agencies) and informal (Fellow farmers, Progressive and Neighbours... etc.) agencies in a co-ordinated and collaborative manner.

Initially officials of State Department of Horticulture should be oriented on production technologies of tomato crop by organizing seminars, workshops, brain storming sessions and conferences to these officials by the university scientists.

The Expert Systems on tomato crop comprising modules on production, marketing and process have to be designed and made available to all the stakeholders (farmers, researchers, extensionists, marketing officials, processors...etc.).

More training programmes, demonstrations, field days, exhibitions may be organised to infuse scientific knowledge and impart better skills on production technologies among the tomato growers.

Farmers should be trained on production of quality tomatoes as this is one of the most neglected aspect of tomato production.

Utilization of television and cell phones for transfer of cultivation practices and other important messages to the farmers on tomato. Capacity building of farmers on post-harvest techniques i.e., grading, sorting, cleaning, packaging etc.

### **Production interventions**

The cultivation practices of tomato crop have to be standardised for Chittoor district as the farmers are practicing not exactly the standardized recommended practices.

The tomato growers need to be educated to produce the seed for next season through seed village concept as the crop's reproduction is self-pollination, which makes easy for the farmers to produce and use their own seed.

The preparedness of the farmers should be enhanced to cope up with any eventuality arises due to climate change because the tomato is considered as rainfed crop, any significant change in the climate directly affect the production.

Farmers need to be educated on applying more bio fertilizers, bio pesticides, integrated nutrient pest and disease management to sustain the better yields for a long period of time in tomato crop.

Farmers should be encouraged to diversify their farming and farming activities to spread the risk they may incur instead of spending everything on one single risky crop. Encouraging for alternate crops and normal cotton hybrids in place of tomato to avoid mono culture

### **Processing interventions**

More processing industries should be established to generate value added products from the tomatoes.

The available tomato products (pickle, sauce... etc.) should reach to the people by including in the public distribution system especially to combat the malnutrition in the villages.

**Table.1** Strengths of tomato cultivation as perceived by the farmers

S.No.	Strengths	Ranks										RBQ	Rank
		I	II	III	IV	V	VI	VII	VIII	IX	X		
1.	Higher net income	34	29	26	24	7						84.91	I
2.	Requires less number of irrigations	31	26	21	19	23						81.9	II
3.	Significant yield increase	27	24	21	20	28						80.16	III
4.	Staking provides support to the growing plant	17	21	19	22	24	17					74.50	IV
5.	Better price in the market	11	20	21	19	20	29					71.32	V
6.	Availability of HYV and disease resistant varieties			12	16	18	21	29	24			50.74	VI
7.	Easy accessibility to market						27	25	23	27	18	31.33	VII
8.	Demand during off -season						14	23	25	28	30	26.9	VIII
9.	Cost of cultivation is low						12	22	24	28	30	25.5	IX
10.	High demand for the value added tomato products in the market							21	24	37	38	22.33	X

**Table.2** Weaknesses of tomato cultivation as perceived by the farmers

S.No.	Weaknesses	Ranks										RBQ	Rank
		I	II	III	IV	V	VI	VII	VIII	IX	X		
1.	Price instability	63	24	19	14							91.34	I
2.	Whole salers and retalers role in price fixation	51	32	23	14							90	II
3.	Higher hiring charges of the transport vehicles	32	37	24	27							86.17	III
4.	Non availability of labour		24	41	36	19						75.84	IV
5.	High cost of plant protection chemicals		22	43	34	21						75.50	V
6.	Less bargaining power of farmers			31	48	25	16					67.84	VI
7.	Lack of planning about tomato production			31	39	33	17					67	VII
8.	Lack of direct farmer access to retailers and super markets			31	37	29	23					66.34	VIII
9.	Lack of market information resources				42	35	28	15				58.67	IX
10.	Micro nutrient deficiencies						26	39	31	24		35.58	X

**Table.3** Opportunities of tomato cultivation as perceived by the farmers

S.No.	Opportunities	Ranks										RBQ	Rank
		I	II	III	IV	V	VI	VII	VIII	IX	X		
1.	Strengthening of public private partnership	36	31	29	24							86.58	I
2.	Provision of storage facilities	34	29	24	21	12						84.33	II
3.	Opportunities to set up processing industries	27	26	26	24	17						81.83	III
4.	Build the capacities of the farmers on post-harvest techniques i.e., grading, sorting, packaging etc.	23	21	19	17	15	12	13				74.31	IV
5.	Developed organized tomato marketing systems in the main production centres	-	13	10	16	21	27	33				58.74	V
6.	Provision of government support for market integration and agro-enterprise development	-	-	12	18	21	22	22	25			51.74	VI
7.	Raise in export prices to achieve higher margins in current and future export markets by enhancing quality					19	21	21	24	35		37.08	VII
8.	Favourable climate					15	19	24	29	33		36.16	VIII
9.	Requires no skilled labour						19	7	22	25	47	23.81	IX
10.	Contact farming initiatives which needs to be encouraged through supportive policies								20	27	73	15.58	X

**Table.4** Challenges of tomato cultivation as perceived by the farmers

S.No.	Challenges	Ranks										RBQ	Rank
		I	II	III	IV	V	VI	VII	VIII	IX	X		
1.	Non availability of seed in time	36	34	29	21							87.08	I
2.	Weak management information system	34	31	28	27							85.99	II
3.	Labour migration to nearby cities/towns	29	27	24	22	18						82.24	III
4.	Farmers do not have their own transport to deliver the product to the market	21	19	21	24	35						77.25	IV
5.	High cost of chemical fertilizers		9	18	26	27	19	21				62.32	V
6.	Frequent price slashes due to changes in export policies or unregulated domestic markets					21	23	25	27	24		39.16	VI
7.	Lack of co-ordination between ministry of agriculture and other departments						20	21	19	29	31	27.49	VII
8.	Lack of extension and advisory services						19	14	26	29	32	26.56	VIII
9.	Cash payments not received in time						18	17	24	24		26.24	IX
10.	Malpractices of merchants in the mandies							29	25	27	39	23.66	X

The national and private investors are encouraged to establish tomato processing plant within the major growing areas.

Encourage private investment in production, quality grading, packaging, storage, processing and market led infrastructure to accelerate integration of small holder farmers into value chain.

### **Marketing interventions**

Cold storage mechanism shall be introduced to store the tomatoes in order to sell at remunerative price and also to export for the international markets.

The marketing system has to be regulated and strengthened much to the benefit of the tomato growers directly (exclusive tomato markets-satellite markets).

The market intelligence of the farmers has to be enriched by disseminating timely information on price fluctuations, supply-demand status and marketing opportunities.

Government both at the national and state level should improve the road infrastructure

to promote the conveyance of tomato produce from production areas to market dimension.

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