



## CONSTRAINTS FACED BY FARMERS IN BUYING WATER SOLUBLE FERTILIZERS

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**ABSTRACT**

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The study was undertaken in one district *i.e.* Chittoor district of Andhra Pradesh. Andhra Pradesh state was chosen as the locale of the study, as the state ranks second in consumption of water-soluble fertilizers in India. Chittoor district extends over an area of 15,152 square kilometer. It was predominantly an agricultural district, and Andhra Pradesh contributes over 13.9% of Tomatoes production in India and the major producing areas are Kurnool, Chittoor, Visakhapatnam, and Prakasam districts.

**KEYWORDS:** WSF (Water Soluble Fertilizers), Constraints, Farmers, Buying.

### INTRODUCTION

Inadequate availability of urea and high prices of non-urea fertilizers posed significant challenges for farmers. However, the government's new fertilizer sale and price policies in 2009 removed these constraints. Despite this, farmers are still not using the required amount of non-urea fertilizers due to a lack of motivation and knowledge. This low usage creates an imbalance in soil-plant systems, impacting crop yield. Non-urea fertilizers' quality is often below standard, with high levels of adulteration. Urea production is declining, and imports are increasing to meet demand. The use of USG can significantly reduce prilled urea use during a fertilizer crisis. Therefore, any fertilizer crisis should be promptly investigated to suggest policy changes that solve the problem.

Looking to the constraints faced by the farmers, it can be concluded that farmers faced the constraints of high price and timely non-availability of the fertilizers. A large majority (86.67%) of the dealers faced the constraint of less bonus on more sales. Further, 80.00 per cent and 60.00 per cent dealers faced constraints of less commission and timely non-availability while selling fertilizers.

In terms of specialty fertilizers, Andhra Pradesh is the biggest market in the country. Several companies have entered this market for fertilizers after recognizing the state's future potential for these fertilizers.

In Chittoor district farmers typically prefer to cultivate vegetables on small plots of one to two acres due to the extremely volatile nature of the vegetable market and the labour and capital requirements. The primary crops grown by small and marginal farmers

are vegetables and sugarcane. Farmers frequently suffer significant losses when market excess causes prices to drop for vegetables, especially tomatoes, as there aren't adequate cold storage facilities. With investments ranging from 25 to 40,000 per acre and potential returns of up to one or two lakhs per acre (assuming tomatoes sell for Rs.10 or Rs.12 per kg in the wholesale market), the stakes are high for the tomato industry.

### MATERIAL AND METHODS

The study was undertaken in one district *i.e.* Chittoor district of Andhra Pradesh state. The Andhra Pradesh state was chosen as the locale of the study, as the state ranks second in consumption of water-soluble fertilizers in India. It was predominantly an agricultural district, and Andhra Pradesh contributes over 13.9% of Tomatoes production in India and the major producing areas are Kurnool, Chittoor, Visakhapatnam, and Prakasam districts. The sample size of farmers is 100. Both primary and secondary data has been collected for the study. A well-structured Interview schedule was developed based on the objective and the data was collected through personal interview.

#### Frequencies and Percentages

When it was required to know the distribution pattern of respondents according to parameters some of the data were also interpreted in terms of their frequencies and percentages.

#### Garrett's Ranking Technique:

Garrett's ranking technique was adopted for analysing the constraints in purchasing of products. In this method the respondents were asked to rank the factors identified for the purpose of study according to

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Constraints faced by ..... water soluble fertilizers

**Table 1. Water soluble fertilizers were quickly absorbed and highly responsive**

	Frequency	Percent	Valid Percent	Cumulative Per cent
Valid	Agree	37	37.0	37.0
	Strongly agree	63	63.0	100.0
	<b>Total</b>	100	100.0	100.0

**Table 2. Use of water soluble fertilizers results in better yields compared to normal fertilizers**

	Frequency	Percent	Valid Percent	Cumulative Per cent
Valid	Agree	38	38.0	38.0
	Strongly agree	62	62.0	100.0
	<b>Total</b>	100	100.0	100.0

**Table 3. Using crop specific water soluble fertilizers was more efficient**

	Frequency	Percent	Valid Percent	Cumulative Per cent
Valid	Neutral	41	41.0	41.0
	Agree	38	38.0	79.0
	Strongly agree	21	21.0	100.0
	<b>Total</b>	100	100.0	100.0

**Table 4. Use of water soluble fertilizers was good for maintaining soil health**

	Frequency	Percent	Valid Percent	Cumulative Per cent
Valid	Agree	43	43.0	43.0
	Strongly agree	57	57.0	100.0
	<b>Total</b>	100	100.0	100.0

**Table 5. Use of water soluble fertilizers results in wastage of fertilizer due to leaching**

	Frequency	Percent	Valid Percent	Cumulative Per cent
Valid	Strongly Disagree	18	18.0	18.0
	Disagree	27	27.0	45.0
	Agree	32	32.0	77.0
	Strongly agree	23	23.0	100.0
	<b>Total</b>	100	100.0	100.0

**Table 6. Water soluble fertilizers were costlier than regular fertilizers**

	Frequency	Percent	Valid Percent	Cumulative Per cent
Valid	Strongly Disagree	11	11.0	11.0
	Disagree	13	13.0	24.0
	Agree	40	40.0	64.0
	Strongly agree	36	36.0	100.0
	<b>Total</b>	100	100.0	100.0

**Table 7. Water soluble fertilizers were affordable**

	Frequency	Percent	Valid Percent	Cumulative Per cent
Valid	Strongly Disagree	27	27.0	27.0
	Disagree	28	28.0	55.0
	Agree	19	19.0	74.0
	Strongly agree	26	26.0	100.0
	<b>Total</b>	100	100.0	

**Table 8. Use of water soluble fertilizers results in better b:c ratio ((value for money)**

	Frequency	Percent	Valid Percent	Cumulative Per cent
Valid	Strongly Disagree	14	14.0	14.0
	Disagree	14	14.0	28.0
	Agree	33	33.0	61.0
	Strongly agree	39	39.0	100.0
	<b>Total</b>	100	100.0	

**Table 9. Overall cost of application was less for water soluble fertilizers**

	Frequency	Percent	Valid Percent	Cumulative Per cent
Valid	Strongly Disagree	26	26.0	26.0
	Neutral	8	8.0	34.0
	Agree	35	35.0	69.0
	Strongly agree	31	31.0	100.0
	<b>Total</b>	100	100.0	

**Table 10. Water soluble fertilizers were suitable to use with all irrigation systems**

	Frequency	Percent	Valid Percent	Cumulative Per cent
Valid	Neutral	25	25.0	25.0
	Agree	29	29.0	54.0
	Strongly agree	46	46.0	100.0
	<b>Total</b>	100	100.0	

**Table 11. Use of water soluble fertilizers need less labour**

	Frequency	Percent	Valid Percent	Cumulative Per cent
Valid	Strongly Disagree	13	13.0	13.0
	Neutral	10	10.0	23.0
	Agree	41	41.0	64.0
	Strongly agree	36	36.0	100.0
	<b>Total</b>	100	100.0	

their preferences. Thus, the assigned ranks are calculated by using the following formula.

$$\text{Percent position} = \frac{100 (R_{ij} - 0.5)}{N_j}$$

where,

$R_{ij}$  = Rank given for  $i^{\text{th}}$  variable by the  $j^{\text{th}}$  individual.

$N_j$  = Number of variables ranked by the  $j^{\text{th}}$  individual.

For each calculated per cent position, scores were obtained from corresponding Garrett's tables.

## RESULTS AND DISCUSSIONS

The farmers' Constraints towards WSF (Water Soluble Fertilizers) was evaluated using a five-point rating scale. The rating scale included scores of 5, 4, 3, 2, and 1, corresponding to "strongly agree," "agree," "neutral," "disagree," and "strongly disagree," respectively. Mean scores were calculated for each aspect, and ranks were assigned based on the obtained mean scores and standard deviations.

The table 1 shows the results regarding Water soluble fertilizers were quickly absorbed and highly responsive. 63% of respondents opined as strongly agree and 37% of them said as agree.

The table 2 shows the results regarding use of water soluble fertilizers results in better yields compared to normal fertilizers. 62% of respondents opined as strongly agree and 38% of them said as agree.

The table 3 shows the results regarding using crop specific water soluble fertilizers was more efficient. 41% of respondents opined as neutral, 21% of respondents opined as strongly agree and 38% of them said as agree.

The table 4 shows the results regarding use of water soluble fertilizers was good for maintaining soil health. 57% of respondents opined as strongly agree and 43% of them said as agree.

The table 5 shows the results regarding use of water soluble fertilizers results in wastage of fertilizer due to leaching. 23percent of respondents opined as strongly agree, 32percent of respondents opined as agree 27percent of respondents opined as disagree and 18percent of them said as strongly disagree.

The table 6 shows the results regarding water soluble fertilizers were costlier than regular fertilizers. 36% of respondents opined as strongly agree, 40% of respondents opined as agree, 13% of respondents opined as disagree and 11% of them said as strongly disagree.

The table 7 shows the results regarding water soluble fertilizers were affordable. 26% of respondents opined as strongly agree, 19% of respondents opined as agree, 28% of respondents opined as disagree and 27% of them said as strongly disagree.

The table 8 shows the results regarding Use of water soluble fertilizers results in better b: c ratio ((value for money). 39% of respondents opined as strongly agree, 33% of respondents opined as agree, 14% of respondents opined as disagree and 14% of them said as strongly disagree.

The table 9 shows the results regarding Overall cost of application was less for water soluble fertilizers. 31% of respondents opined as strongly agree, 35% of respondents opined as agree, 8% of respondents opined as Neutral and 26% of them said as strongly disagree.

The table 10 shows the results regarding Water soluble fertilizers were suitable to use with all irrigation systems. 46% of respondents opined as strongly agree, 29% of respondents opined as agree and 25% of them said as Neutral.

The table 11 shows the results regarding Use of water soluble fertilizers need less labour. 36% of respondents opined as strongly agree, 41% of respondents opined as agree and 10% of them said as Neutral. 13% of respondents opined as strongly disagree.

The majority of farmers receive information about water-soluble fertilizers (WSF) from company sales representatives, and most farmers are knowledgeable about the efficient absorption and high responsiveness of WSF in crops. Farmers' perceptions of WSF vary based on the type of crops they cultivate and the acreage for which they use WSF. In conclusion, it can be inferred that a significant number of farmers choose to purchase water-soluble fertilizers.

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