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A study on input contribution, constraints & suggestions involved in the production and marketing of maize in Nabarangapur district of Odisha

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Abstract
Maize is an oat grain initially grown by native people groups in southern Mexico around 10,000 years ago and now has turned into a staple food in many pieces of the world, with the major adoption of maize outperforming that of wheat or rice. It is additionally utilized in making ethanol and other biofuels. In this study, Umerkote and Raighar block were purposively selected out of 12 blocks of Nabarangapur district of Odisha. The sample size covered 120 maize growers was taken into consideration for the study. The study revealed that at land preparation stage major contribution (90%) was by the farmers themselves where as more than 50% of the contribution of the dealers /distributors are observed at Procurement of seeds, fertilizers and plant protection chemicals and soil treatment stages. The majority of the respondents stated that Lack of irrigation facilities (96.7%) and erratic climatic conditions (91.7%) as primary constraint in production where as fluctuation in market price (95.8%) and distress sale of the produce (90.8%) as a prominent marketing constraint faced by them in the production and marketing of maize. The majority of the respondents stated various suggestions to face the problems including proper irrigation facilities (94.29%) and lower price of the inputs (90.8%) should be taken into consideration with immediate effect to improve the production and marketing efficiency of maize cultivation.

Keywords: input contribution, constraints, suggestions, production and marketing of maize

Introduction
Agriculture is a significant section of Indian economy as it contributes about 17% to the complete GDP and gives work to more than 60% of the populace. Indian farming has enlisted amazing development over most recent couple of many years. In India, maize is the third most significant food crops after rice and wheat. Maize in India, contributes almost 9% in the public food container. Sulaiman *et al.* (2005) [6] stated that a private initiative of Mahindra Shubh Labh Services Ltd. in 2001 aimed to establish franchises of Mahindra Krishi Vihar (MKV) to provide support in terms of inputs such as machinery, credit, and advisory and field supervision services. Among the MKVs established, the franchise of Bhuvi Care Limited is seen as successful model. Rao (2006) [5] observed that the various extension programmes undertaken by the Nagarjuna Fertilizers and Chemicals Limited (NFCL) involves transfer of technology and value-added services for the farmers, *viz*., demonstrations, adaptation of villages, customer education, farmer training and advisory services. Wen yu (2011) [7] in his study found that Control Power of Distribution Channel of Seed (CPDCS) which is controlled by seed companies is good for the healthy development of seed industry. Seed companies have to improve their research and development, offer seed varieties with differentiation predominance. Chauhan (2013) [2] investigated maize marketing in Himachal Pradesh, multistage random sampling technique was adopted to select a sample the study emphasizes on enhancement of storage facilities particularly through cooperatives and supply of market information to the farmers/cooperative societies on price movements within and outside the state. Mukherjee *et al.* (2015) [4] studied production and marketing of hybrid maize in Sarguja district of Chhattisgarh and reported that large farmers received highest net income of Rs.354.9 per quintal followed by marginal farmers Rs.342.80 per quintal and small farmers Rs.315 per quintal. Brehmer *et al*. (2008) [1] worked on the development of the corn-ethanol industry: studying protein separation techniques to achieve higher value-added product options for distillers' grains and told that ethanol is primarily being produced to obtain the starch contained in the corn grains and subsequently administered to fermentation. Hellin and Erenstein (2009) [3] worked on maize-poultry value chains in India: implications for research

and development and reported on a qualitative study of maize poultry value chains.

Objective of the study

1. To study the nature of input contribution involved in the production process of maize cultivation.
2. To know the constraints involved in the production-market linkage in maize cultivation.
3. To know the suggestions of maize growers for improvement in the process of maize production and marketing.

Research Methodology

The study was done in Umerkote and Raighar block of Nabarangpur region of Odisha. The ex-post facto research configuration was followed utilizing structured interview schedule and sample size of 120 respondents was taken into consideration for the study. Ten villages from the two blocks were selected purposively for the study and 120 respondents were selected randomly from the villages. The essential information were gathered through close to home meeting strategy with the assistance of pre-tried, talk with plan, which was ready based on destinations of examination and factors. The measurable tests and techniques were utilized for dissecting the information with the assistance of factual instruments like-recurrence, mean, S.D., and rate were utilized for examination of information. Along these lines the meeting plan was entirely talked about with the individual from their ideas were consolidated and final schedule was created.

Results & Discussion

Objective-1: Nature of input contribution involved in the production process of maize cultivation

In the agriculture business, the term *input* is defined as any sort of substance used by a producer the various inputs may include consumable inputs (seeds, fertilizers, agrochemicals etc and capital inputs (agricultural machineries, agricultural tools & implements etc).

Agricultural inputs are the heart of production process Successful production depends on the correct application of production inputs that will sustain the environment as well as agricultural production process.

Table 1: Input contribution at different stages of maize cultivation (n=120)

SL. No.	Stages	Contribution by	
		Farmers	Dealers/Distributor
1	Land preparation	108(90.0%)	12(10.0%)
2	Soil treatment	24(20.0%)	96(80.0%)
3	Procurement of seeds, fertilizers and plant protection chemicals	6(5.0%)	114(95.0%)
4	Procurement of farm implements for intercultural operations	68(56.6%)	52(43.3%)
5	Harvesting and post-harvest drying, bagging, packaging.	87(72.5%)	33(27.5%)

It is revealed from the above table that at land preparation stage major contribution (90%) was by the farmers themselves followed by harvesting and post-harvest drying, bagging, packaging (72.5%), procurement of farm implements for intercultural operations (56.6%), soil treatment (20.0%) and the least contribution was procurement of seeds, fertilizers and plant protection chemicals (5.0%). Thus, it may be concluded that more than 50% of the contribution of the dealers /distributors are observed at Procurement of seeds, fertilizers and plant protection chemicals and soil treatment stages while least in Land preparation stage. Maximum dealers/suppliers are involved at procurement of seeds, fertilizers and plant protection chemicals while least are involved at Harvesting and post-harvest drying, bagging, packaging. Similar thing are mentioned by Sulaiman *et al*. (2005) [6], Rao (2006) [5] & Wen yu (2011) [7].

Objective-2: To know the constraints involved in the production-market linkage in maize cultivation

Table 2: Distribution of respondents according to their production problems

Sl. No.	Production problems	F	%	Rank
1	Inadequate advanced training on commercial maize cultivation	55	45.8	IX
2	Inadequate mass media coverage on maize cultivation &related issues	68	56.7	VII
3	Non availability of quality inputs in time	37	30.8	XI
4	Lack of irrigation facility for maize cultivation	116	96.7	I
5	Issues related to erratic climate & weather conditions	110	91.7	II
6	Lack of proper information on climate resilient maize cultivation	77	64.2	VI
7	Cattle menace	41	34.2	X
8	Insect & pest infestation	103	85.8	III
9	Formal credit facilities	62	51.2	VIII
10	High cost of inputs	94	78.3	IV
11	Power failure/erratic power supply	83	69.2	V

The above table indicates the rank order of production problems faced by the farmers cultivating maize, majority of the farmers reported the problem of "lack of irrigation facility for maize cultivation" as their major problem and ranked 1st (96.7%), followed by "Issues related to erratic climate & weather conditions" ranked 2nd (91.7%),"Insect & pest infestation" ranked 3rd (85.8%), "High cost of inputs" ranked 4th (78.3%), "Power failure/erratic power supply" ranked 5th (69.2%), "Lack of proper information on climate resilient maize cultivation" ranked 6th (69.2%), "Inadequate mass media coverage on maize cultivation &related issues" ranked 7th (56.7%), "Formal credit facilities" ranked 8th (51.2%), "Inadequate advanced training on commercial maize cultivation" ranked 9th (45.8%), "Cattle menace" ranked 10th

(34.2%) and "Non availability of quality inputs in time" ranked 11th (30.8%) respectively.

Table 3: Distribution of respondents according to their marketing problems

Sl. No.	Marketing problems	F	%	Rank
1	Storage facilities	90	75.0	VI
2	Distress sale of maize	109	90.8	II
3	Distance of RMC markets	87	72.5	VII
4	Lack of organized marketing facilities	95	79.2	IV
5	Fluctuation in market price	115	95.8	I
6	Non-availability of market information	77	64.2	IX
7	Inadequate physical facilities in the market	92	76.2	V
8	Exploitation by intermediaries	84	70.0	VIII
9	Lack of knowledge about grading and standardization	59	49.2	XIII
10	Absence of cooperation	73	60.8	X
11	Lack of reasonable support prices	104	86.7	III
12	Inadequate transport facility	68	56.6	XI
13	Spoilage during Transportation	56	46.7	XIV
14	High cost of transportation	63	52.5	XII
15	Lack of processing and value addition centers	46	38.3	XVI
16	Timely procurement of produce	51	42.5	XV

Table-3 indicates the rank order of marketing problems faced by the farmers cultivating maize, majority of the farmers reported the problem of "Fluctuation in market price" as their major problem and ranked 1st (95.8%), followed by "Distress sale of maize" ranked 2nd (90.8%), "Lack of reasonable support prices" ranked 3rd (86.7%), "Lack of organized marketing facilities" ranked 4th (79.2%), "Inadequate physical facilities in the market" ranked 5th (76.2%), "Storage facilities" ranked 6th (75.0%), "Distance of RMC markets" ranked 7th (72.5%), "Exploitation by intermediaries" ranked 8th (70.0%), "Non-availability of market information" ranked 9th (64.2%), "Absence of cooperation" ranked 10th (60.8%), "Inadequate transport facility" ranked 11th (56.6%), "High cost of transportation" ranked 12th (52.5%), "Lack of knowledge about grading and standardization" ranked 13th (49.2%), "Spoilage during Transportation" ranked 14th (46.7%), "Timely procurement of produce" ranked 15th (42.5%) and "Lack of processing and value addition centres" ranked 16th (38.3%) respectively. Similar things are stated by Chauhan (2013) [2] & Mukherjee *et al*. (2015) [4].

Objective-3: To know the suggestions of maize growers for improvement in the process of maize production and marketing

Table 4: Distribution of respondents according to their suggestions

Sl. No.	category	F	%	Rank
1	Easy acess to marketing facilities	81	67.5	V
2	Adequate/proper irrigation facilities	113	94.29	I
3	Price of inputs need to be reasonably lower	109	90.8	II
4	Ensuring uninterrupted power supply for irrigation	73	60.8	VII
5	Market price of maize to be regulated	103	85.8	III
6	Local storage facility to be created to avoid distress sale/low price during harvest season	77	64.2	VI
7	Organized marketing facilities to avoid middle man involvement	92	76.1	IV
8	Creating regulated marketing outlet at village level	66	55.0	VIII
9	Timely availability of meteorological and market Information on maize	59	49.2	IX
10	Value addition & processing facilities for maize to fetch more price	46	38.3	XI
11	Adequate transport facilities for carrying produce to market yard	54	45.0	X
12	Community protection policy to save the crop from cattle/wild life menace	42	35.0	XII

It is clear from the above table that among the suggestions majority (94.29%) of the farmers suggested that Adequate/proper irrigation facilities should be available to the respondents had rank 1st, followed by Price of inputs need to be reasonably lower (90.8%) ranked 2nd, Market price of maize to be regulated (85.8%) ranked 3rd, Organised marketing facilities to avoid middle man involvement (76.1%) ranked 4th, Easy acess to marketing facilities (67.5%) ranked 5th, Local storage facility to be created to avoid distress sale/low price during harvest season (64.2%) ranked 6th, Ensuring uninterrupted power supply for irrigation (60.8%) ranked 7th, Creating regulated marketing outlet at village level (55.0%) ranked 8th, Timely availability of meteorological and market Information on maize (49.2%) ranked 9th, Adequate transport facilities for carrying produce to market yard ranked 10th, Value addition & processing facilities for maize to fetch more price (38.3%) ranked 11th and Community protection policy to save the crop from cattle/wild life menace (35.0%) ranked 12th respectively. Brehmer *et al*. (2008) [1] & Hellin and Erenstein (2009) [3] also stated similar things.

Conclusion

The study revealed that majority of the respondents are involved in the various stages of maize cultivation where at land preparation stage major contribution (90%) was by the farmers themselves where as more than 50% of the contribution of the dealers/distributors are observed at Procurement of seeds, fertilizers and plant protection chemicals and soil treatment stages while least in Land preparation stage accompanied by the supply of inputs from the local dealers and distributors.

The findings of the study revealed that majority of the

respondents stated Lack of irrigation facilities (96.7%), erratic climatic conditions (91.7%) serve as the prominent production constraints which should be taken into consideration where as fluctuation in market price (95.8%), distress sale of the produce (90.8%) act as a prime marketing constraint faced by them in the production and marketing of maize.

The study concluded that the majority of the respondents stated various suggestions to face the problems including proper irrigation facilities (94.29%), lower price of the inputs (90.8%) and many other ways to tackle the various constraints and to improve the production and marketing efficiency of maize in that region

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