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Extent of knowledge towards recommended tuber crops production technology among the tribal farmers of Bastar District

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Abstract
Present study was conducted during the year 2015-16 in Bastar district of the Chhattisgarh state. Chhattisgarh state has 27 districts out of which Bastar district was selected for the study. Bastar district have 7 blocks out of which two blocks namely Bastar and Bakawand block was selected for the study. Tuber crops are growing in the limited area and wider gap between the current production and potential productivity. To find out the Extent of adoption of recommended tuber crops production technology the study entitled "Extent of knowledge towards recommended tuber crops production technology among the tribal famers of bastar district" was undertaken. The data were collected through pre-tested structured interview schedule and appropriate statistical tools were employed for analysis of data. Investigation was made relating to adoption of tuber crops production technology. Present study results indicated that the maximum number of the yam respondents had a high level of knowledge regarding selection of land (50.00 per cent) followed by field preparation (57.15 per cent). In case of Cassava maximum number of respondents (61.11 per cent) had a high level of knowledge about the selection of land the storage related, etc. Correlation analysis result indicated that landholding, source of communication, innovativeness, and attitude were positive and significantly correlated with the knowledge level of recommended tuber crop production technology at 0.01 and 0.05 level of probability.

Keywords: production technology, tribal famers

Introduction
Tuber crops are one of the most important staple crops in the world. It is consumed as raw or cooked all over the world. It is the major staple foods in many parts of the tropics, being the source of most of the daily carbohydrate intake for large populations. On a global basis, approximately 55 percent of roots and tuber production is consumed as food the remainder is used as planting material, as animal feed or in the production of starch, distilled spirits, alcohol and a range of other minor products. The patterns of utilization vary considerably among countries. In the developing countries, except China, Vietnam, Brazil, and Paraguay, only small quantities (less than 20 percent) are feed to livestock, and production is largely for on-farm food consumption. Bastar district is full of surprises and has huge cultural differences in this area. Rural people partake in several strategies, including agricultural intensification, migration, and livelihood diversification, which enable them to attain a sustainable livelihood. Sustainable livelihood approaches provide a framework for addressing poverty and vulnerability in both development and humanitarian contexts. Maintaining the sustainability of natural resources for present and future generations. Tuber crops are cultivated by most of the farmers and they are facing various troubles whereas they are also economically poor and their production and productivity were also low. The present investigation helps the government to make better policies towards the tuber crops production technology for enhancing the area production and productivity of tuber crops in this area.

Materials and Methods
The study was undertaken in the Bastar District of Chhattisgarh state. Out of seven blocks of Bastar division, there are two blocks namely Bastar and Bakawand was selected purposively for the present study because the maximum area covers under the tuber crops in this area. From each selected blocks there are 4 villages are selected randomly. In this way total, 120 respondents are considered as respondents. The data are collected through a pre-tested structured interview schedule the data were analyzed by the appropriate statistical tools.

Results and Discussion

1. Extent of knowledge towards recommended tuber crops production technology

1.1. Practice wise knowledge towards recommended tuber crops production technology

Data presented in table 1 shows that 14 selected practices of recommended tuber crops production technology, and among all the respondents the number of respondents under different level of knowledge categories were as follows:-

It is concluded from the table 1 that maximum number of the yam respondents had high level of knowledge regarding selection of land (50.00 per cent) followed by field preparation (57.15 per cent) and intercultural operation (57.14 per cent). While under medium level of knowledge category, it was found that majority of the respondents (50.00 per cent) had extent of knowledge toward selection of varieties followed by 71.42 per cent about seed treatment, sowing time (64.28 per cent), irrigation schedule(64.28 per cent), harvesting (71.43 per cent).Maximum number of respondents (78.57) had low level of knowledge regarding planting distance(50.00 per cent), manure and fertilizer application (78.58 per cent), insect pest control (64.29 per cent), disease management (57.14 per cent) and Marketing and storage (57.14 per cent) respectively.

In case of Cassava maximum number of respondents (61.11 per cent) had high level of knowledge about selection of land followed by 69.44 per cent, 77.78 per cent, and 30.56 per cent field preparation, irrigation scheduling and harvesting respectively. While under medium level of it was found that majority of the respondents had extent of knowledge towards sowing time (75.00 per cent), planting distance (61.12 per cent), intercultural operation (69.45 per cent) and yield (61.11 per cent).Results also reveals that under the low level of knowledge majority of the respondents had extent of knowledge towards selection of varieties (66.66 per cent), seed treatment (63.89 per cent), manure and fertilizer application (61.12), insect pest management (66.67 per cent), disease control(69.45 per cent), and marketing and storage(52.78 per cent).

In case of Sweet potato Majority of the respondents having high level of knowledge towards followed by planting distance (35.00), irrigation schedule (50.00 per cent) and intercultural operation (60.00 per cent).While selection of land (50. 00 per cent), field preparation (45.00 per cent), selection of varieties (50.00 per cent), sowing time (50.00 per cent) planting distance (45.00 per cent) and yield (65.00 per cent) had medium level of knowledge. Results showed that seed treatment (50.00 per cent), manure and fertilizer and (50.00 per cent, insect- pest control and disease control (60.00 Per cent) had low level of knowledge towards recommended tuber crops production technology.

Table 1 reveals that in case of colocasia the majority of respondents had high level of knowledge towards selection of land (75.68 per cent) and harvesting (67.57 per cent) followed by field preparation(47.29 per cent), selection of varieties (62.16 per cent), sowing time (71.62 per cent), planting distance (64.86 per cent) irrigation schedule (67.57 per cent), and yield had medium level of knowledge while seed treatment(78.37 per cent), manure and fertilizer(74.32 per cent), insect-pest control(71.62 per cent), disease control (64.87 per cent), and marketing and storage (70.27 per cent) had low level of knowledge towards recommended production technology.

In case of Discorea majority of the respondents having high level of knowledge towards field preparation (43.48 per cent) sowing time (65.22 per cent) and harvesting (52.17 per cent) while selection of land (65.22. per cent), planting distance (56.52.per cent), irrigation schedule (65.21 per cent) intercultural operation (60.86 per cent) and yield (65.21 per cent) had medium level of knowledge. And selection of varieties 65.21 per cent), seed treatment (60.87 per cent), manure and fertilizer and (52.18 per cent, insect- pest control (69.56 per cent), disease control (60.87 Per cent) and marketing and storage (69.56 per cent) had low level of knowledge towards recommended tuber crops production technology.

Table 1: Distribution of respondents according to their practice wise level of Knowledge regarding recommended tuber crops production technology. (n=120)

Tuber crops	Recommended Practices	Low	Medium	High
Yam *(Amporphophallus companulatus)* (n=14)	Selection of land	03 (21.43)	04 (28.57)	07 (50.00)
	Field preparation	02 (14.29)	03 (21.43)	09 (64.28)
	Selection of varieties	05 (35.72)	07 (50.00)	02 (14.28)
	Seed treatment	03 (21.43)	10 (71.43)	01 (07.14)
	Sowing time	03 (21.43)	09 (64.28)	02 (14.29)
	Planting distance	07 (50.00)	05 (35.72)	02 (14.28)
	Irrigation Schedule	05 (35.71)	06 (42.85)	03 (21.43)
	Intercultural Operations	02 (14.28)	04 (28.58)	08 (57.14)
	Manure & Fertilizer Application	11 (78.58)	02 (14.28)	01 (07.14)
	Insect- pest control	09 (64.29)	03 (21.43)	02 (14.28)
	Disease control	08 (57.14)	04 (28.58)	02 (14.28)
	Harvesting	01 (7.14)	10 (71.43)	03 (21.43)

	Yield	01 (07.14)	09 (64.29)	04 (28.57)
	Marketing and Storage	08 (57.14)	04 (28.58)	02 (14.28)
Cassava *(Manihot esculenta)* (n=36)	Selection of Selection of land	04 (11.12)	10 (27.77)	22 (61.11)
	Field preparation	03 (08.33)	08 (22.23)	25 (69.44)
	varieties	24 (66.66)	07 (19.44)	05 (13.90)
	Seed treatment	23 (63.89)	09 (25.00)	04 (11.11)
	Sowing time	02 (05.55)	27 (75.00)	07 (19.45)
	Planting distance	08 (22.22)	22 (61.12)	06 (16.66)
	Irrigation Schedule	02 (05.55)	06 (16.67)	28 (77.78)
	Intercultural Operations	04 (11.11)	25 (69.45)	07 (19.44)
	Manure and Fertilizer Application	22 (61.12)	10 (27.77)	04 (11.11)
	Insect- pest control	24 (66.67)	07 (19.44)	05 (13.89)
	Disease control	25 (69.45)	09 (25.00)	02 (05.55)
	Harvesting	07 (19.44)	18 (50.00)	11 (30.56)
	Yield	08 (22.22)	22 (61.11)	06 (16.67)
	Marketing and Storage	19 (52.78)	10 (27.77)	07 (19.45)
Sweet potato *(Ipomea batatus)* (n=20)	Selection of land	04 (20)	10 (50)	06 (30)
	Field preparation	03 (15)	09 (45)	08 (40)
	Selection of varieties	08 (40)	10 (50)	02 (10)
	Seed treatment	10 (50.00)	8 (40.00)	02 (10.00)
	Sowing time	06 (30.00)	10 (50.00)	04 (20.00)
	Planting distance	04 (20.00)	09 (45)	07 (35)
	Irrigation Schedule	06 (30.00)	04 (20.00)	10 (50.00)
	Intercultural Operations	02 (10.00)	06 (30.00)	12 (60.00)
	Manure and Fertilizer Application	10 (50.00)	08 (40.00)	02 (10.00)
	Insect- pest control	10 (50.00)	8 (40.00)	02 (10.00)
	Disease control	12 (60.00)	06 (30.00)	02 (10.00)
	Harvesting	03 (15.00)	07 (35.00)	10 (50.00)
	Yield	04 (20.00)	13 (65.00)	03 (15.00)
	Marketing and Storage	03 (15)	11 (55)	06 (30)
Colocasia *(Colocasia esculenta)* (n= 74)	Selection of land	07 (09.45)	11 (14.87)	56 (75.68)
	Field preparation	07 (09.46)	35 (47.29)	32 (43.25)
	Selection of varieties	19 (25.67)	46 (62.16)	09 (12.17)
	Seed treatment	58 (78.37)	13 (17.56)	03 (04.07)
	Sowing time	13 (17.57)	53 (71.62)	08 (10.81)
	Planting distance	14	48	12

		(18.92)	(64.86)	(16.22)
	Irrigation Schedule	17 (22.97)	50 (67.57)	07 (09.46)
	Intercultural Operations	09 (12.16)	58 (78.38)	07 (09.46)
	Manure and Fertilizer Application	55 (74.32)	15 (20.27)	04 (05.41)
	Insect- pest control	53 (71.62)	16 (21.63)	05 (06.75)
	Disease control	48 (64.87)	19 (25.67)	07 (09.46)
	Harvesting	09 (12.16)	15 (20.27)	50 (67.57)
	Yield	10 (13.51)	44 (59.46)	20 (27.03)
	Marketing and Storage	52 (70.27)	10 (13.51)	12 (16.22)
Discorea *(Discorea spp)* (n = 23)	Selection of land	05 (21.74)	15 (65.22)	03 (13.04)
	Field preparation	05 (21.73)	08 (34.79)	10 (43.48)
	Selection of varieties	15 (65.21)	05 (21.73)	03 (13.04)
	Seed treatment	14 (60.87)	07 (30.44)	02 (08.69)
	Sowing time	04 (17.39)	06 (26.09)	13 (56.52)
	Planting distance	07 (30.43)	13 (56.52)	03 (13.05)
	Irrigation Schedule	05 (21.73)	15 (65.21)	03 (13.06)
	Intercultural Operations	06 (26.08)	14 (60.86)	03 (13.06)
	Manure and Fertilizer Application	12 (52.18)	06 (26.09)	05 (21.73)
	Insect- pest control	16 (69.56)	06 (26.08)	01 (04.36)
	Disease control	14 (60.87)	04 (17.40)	05 (21.73)
	Harvesting	03 (13.04)	08 (34.78)	12 (52.17)
	Yield	05 (21.73)	15 (65.21)	03 (13.04)
	Marketing and Storage	16 (69.56)	04 (17.40)	03 (13.04)

1.2 Correlation analysis of independent variables with the overall knowledge level of recommended tuber crop production technology.

Table 2: Correlation analysis of the independent variable with the overall level of knowledge of recommended tuber crop production technology. (n=120)

S.N.	Independent variables	Correlation coefficient "r"
1	Education	0.075NS
2	Landholding	0.196*
3	Occupation	0.051NS
4	Attitude	0.302**
5	Annual income	0.177NS
6	Irrigation facility	0.081NS
7	Source of communication	0.285*
8	Credit facilities	0.124 NS
9	Social participation	0.026NS
10	Innovativeness	0.361*

** Significant at 0.01 level of probability (0.232)
* Significant at 0.05 level of probability (0.178)
NS = Non significant

The data (Table 2) revealed that landholding, source of communication, innovativeness, and attitude were positive and significantly correlated with the knowledge level of recommended tuber crop production technology at 0.01 and 0.05 level of probability. While occupation, annual income, irrigation facilities, credit facilities, and social participation were non- significant with the extent of knowledge of recommended tuber crop production technology.

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