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## Market potential of paddy crop in Dhamtari district of Chhattisgarh

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### Abstract

Syngenta India Ltd. is a leading company in Fungicide marketing in Chhattisgarh. The present study had been assigned by the organization for the period of two months in-plant training programme in the Dhamtari district of Chhattisgarh with a view to analyse the Market share of different fungicide company. Fungicides prevent and cure diseases which can have adverse effects on crop yields and quality. The market in rice Plant diseases are caused by a great variety of pathogens.

**Keywords:** Market potential, paddy crop, Fungicide marketing, fungicide company

### Introduction

Agriculture continues to be the mainstay to India's large and growing population for its sustained food security. More than 70 percent people are engaged in agriculture sector. The sector provides employment to over half of country's work force and is the single largest private sector occupation. Due to the prominence of agriculture in the national food security and the employment, its performance is of great focus in the India's policy and planning. The contributory share of agriculture in GDP was 55.4 percent in 1950-51, 52 percent in 1960-61 and is reduced to 13.7 percent only in 2012-13. Moreover, the Indian agriculture is characterized by dominance of the small and marginal farmers having very small land holdings. Majority of the people belong to farming communities. It provides food and raw materials to the small scale and cottage industries who's are directly dependent on agriculture.

### Fungicide

Fungicides prevent and cure diseases which can have adverse effects on crop yields and quality. The main markets are fruit and vegetables, cereals and rice. Plant diseases are caused by a great variety of pathogens. This requires many products used in combination or series to control the full range of problems in ways that minimize the chance of resistance building up. During recent years, among few new active ingredients, an innovative generation of fungicides - strobilurins - has been developed and introduced in order to improve the control in the key plant diseases like downy mildew, powdery mildew, late blight, rynchosporium, net blotch and eyespot.

### Profile of the Study Area

The knowledge of general characteristics of the study area is essential for understanding the features of the area. This will facilitate the discussion with respect to similarities and variation in land use pattern, rainfall, cropping pattern etc. This also enlightens the socio-economic conditions of the area selected for the study.

### 1 Geography of Dhamtari

Mahanadi River is the principal river of this district and till this area it is named as Kankannadi, Chitrotpala, Neelotpala, Mandvahini, Jairath etc. The fertility of lands of Dhamtari district can be attributed to the presence of these rivers. The chief crop of this region is paddy.

### 2 Economics of Dhamtari District

Dhamtari has over 136 rice mills. Ravishankar Sagar dam (Gangrel Dam) that irrigates almost 570 square kilometers of land and also acts as a main supply unit of safe drinking water resource for state capital Raipur as well as supply to Bhilai Steel Plant lies almost 21 km from the district capital. Two hydro-power plants of 10 MW and 1.2 MW are installed there. Asia's first ever Syphen dam was built in 1914 at Madamsilli. Besides Madamsilli, Sondhur dam, Dudhawa dam are the major projects. Approximately 52% of the geographic area is covered by forests. The district has a tropical climate.

**Table 1:** Land use Pattern of Dhamtari District 2014-15 (Area in ha)

Land use Pattern	Area (ha)	Percent
Total geographical area	408190	100
Net Cultivated Area	135000	33.07
Forest Area	8760	2.15
Fallow land	3826	0.93
Waste Land	3826	0.93
Gross cropped area	234751	

Source: Krishi Vigyan Kendra Dhamtari 2014-15.

Above data shows that the total geographical area of Dhamtari district is 408190 hectare. Net cultivated area of Dhamtari district is 135000 hectare (33.07), and gross cropped area is 234751 hectare Dhamtari district the total kharif crops area is 143140ha and Rabi crop area is 91610ha. In kharif paddy (97.21%) area was found highest in Dhamtari District i.e. 139160ha while in Rabi the paddy (45.21%) again occupied highest area i.e. 41420ha. The Cropping intensity of the district was 173.89%.

### Methods and Material

As per the stated objective of the study, suitable methods of the study were designed. This chapter was formulated as:

#### 1. Study area

The Dhamtari district is potential for fungicide marketing. Because Dhamtari district has largest paddy crop area and two crops of paddy were taken by farmers.

#### 2. Selection of village

After selection of study areas following 25 villages were considered for detail investigation.

**Table 2:** Name of selected villages

S. No.	Village	S. No.	Village
1	Fagundaah	14	Limtara
2	Bhothipar	15	Demar
3	Parewadih	16	Perpar
4	Khapari	17	Junwani
5	Kalartarai	18	Bagtarai
6	Bharari	19	Sorid
7	Aamdi	20	Sarangpuri
8	Kharenga	21	Banjari
9	Darri	22	Bharari
10	Nawagaon	23	Bohara
11	Gagra	24	Bhendra
12	Ranwa	25	Piperchedi
13	Kurra		

#### 3. Selection of the farmer

After that selection of villages, a list of paddy growers was prepared and further categories in the three size groups on the basis of size of land holding. From each village 1-5 farmers were selected for demonstration of Taspa product of Syngenta. Thus total 52 farmers from 25 villages of different categories were considered for the study purpose.

**Table 3:** Number of Selected Farmers from each category.

Small Farmers (< 2 ha)	16(30.77)
Medium Farmers (2-5ha)	28(53.85)
Large farmers (>5 ha)	08(15.38)
Total	52 (100)

(Figure in parentheses shows percentage of total)

#### 4. Selection of the dealer

Syngenta 10 dealers were selected in Dhamtari District. The names of selected dealers are given in Table 4.

**Table 4:** Selected dealer in Dhamtari District

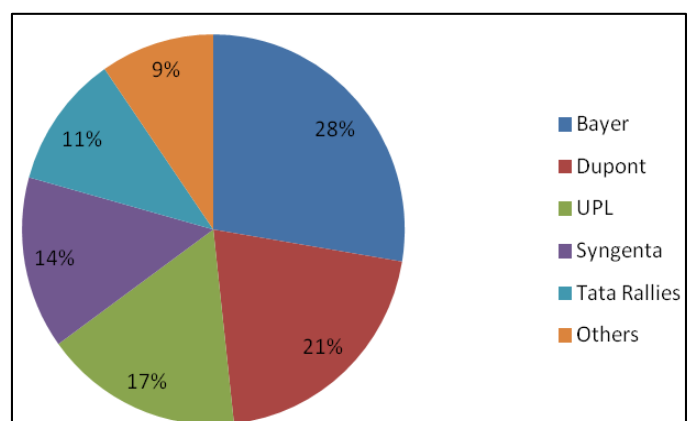
S No	Blocks	Name of dealers
1	Dhamtari	Madhu Traders
		Navdeep Traders
		Dhamtari Krishi Kendra Mohan Traders
2	Kurud	Kisan Beej Bhandar Aadil Krishi Kendra
		Parameshwari traders Ankit Traders
4	Magarloud	Kailash Beej Bhandar Bharat Krishi Kendra

#### 5. Market Potential

Market potential is the entire size of the market for a product at a specific time. It represents the upper limits of the market for a product. Market potential is usually measured by recommended quantity and area coverage under area.

In this section, effort has been made to explore the market potential of fungicide in the study area. As mentioned in market potential has been estimated by multiplying cropped area under crop with per hectare recommended doses of fungicide.

In Dhamtari district detail information of market potential of fungicide for paddy in the study area have been provided in the table 5.

**Fig 1:** Market potential is usually measured by recommended quantity and area coverage under area.**Table 5:** The market potential of different fungicide companies

Company Name	Paddy Area (ha)	Recommended dose of Fungicide (lit/ha)	Total Requirement (lit)	Quantity Sold (lit)	Additional Market Potential
Bayer	180580	0.40	72232	1800	70432
Dupont		0.35	63203	1460	61743
UPL		0.65	117377	1190	116187
Syngenta		0.50	90290	930	89360
Tata Rallies		0.60	108348	860	107488

Table-5 shows the market potential of different fungicide companies. It is observed from the data the Bayer Company has additional market potential of 70432 followed by DuPont

61743, UPL 116187, Syngenta 89360 and Tata Rallies 107488 liter.

**Table 6:** General information of sample responded

Particulars	Size of farms			Total/Average	
	Small	Medium	Large		
Number(%) of respondent	16 (30.77)	28 (53.84)	8 (04.16)	52 (100)	
Average size of family	5	8	6	6	
Education Status	Middle class	8	5	3	16
	HSS	5	14	2	21
	Graduation	3	9	3	15
Source of Income	Agriculture	16 (100)	28 (100)	8 (100)	52 (100)
	Wages	8 (19.19)	1 (12.50)	0	9 (15.00)
	Shop	9 (20.45)	1 (12.50)	4 (50.00)	14 (23.34)
	Others	1 (2.27)	0	7 (87.50)	8 (13.34)
Average Distance from Dhamtari(KM)	18	16	15	16	
Size of Land(Ha)	1.40	3.15	6.25	3.60	

Table-6 shows general information of sample respondents. In the table total number of respondent were 52(100%), Average number of family members 6 were Average education status middle class16, higher secondary school 21 and graduation

15, agriculture is major source of income. followed by shop 14(23.34%), wages 9(15%) and other 8(13.34%).The average size of farmer in different size group were 1.40, 3.15 and 6.25 ha in small, medium and large size group respectively.

**Table 7:** Fungicide used by the Respondents.

Products	Size of Farms			Total Number of Farmers
	Small	Medium	Large	
Netivo, Bayer	3	4	3	10 (19.23%)
Nustar40%EC, DuPont	2	4	2	8 (15.38%)
Saaf, BASF	4	3	1	8 (15.38%)
Taspa, Syngenta	5	10	1	16 (30.76%)
Hexadhan, Dhanuka	0	4	1	5 (9.61%)
Others	3	3	0	5 (9.61%)
Total	16	28	8	52 (100%)

Figures in brackets show percentage to total

Table-7 shows data on fungicide used by the respondent's. It is observed from the data that Netivo product of Bayer company was preferred by 10(19.23%) farmer has been maximum used in fungicides followed by Nustar40% EC product of DoPont 8(15.38%), Saaf product of BASF8

(15.38%), Taspa product of Syngenta 16(30.76%), Hexadhan product of Dhanuka 5(9.61%) and others company products 5(9.61%). The majority of selected farmer use Taspa product of syngenta.

**Table 8:** Impact use of Taspa in Paddy at different size of Farms

Particulars	Size of Farms			Overall Average
	Small	Medium	Large	
Yield in control plot (q/ha)	82.1	87.61	89.05	86.25
Cost of Treatment	1200	1200	1200	1200
Yield in treated plot (q/ha)	87.45	93.17	94.67	91.76
Additional Yield over control (q/ha)	5.35	5.56	5.62	5.51
Additional Income (Rs/ha)	5885	6116	6182	6061
Additional Net Income over control (Rs/ha)	4685	4916	4982	4861
Additional Cost Benefit Ratio	4.90	5.09	5.15	5.05

Table-8 shows the impact of use of Taspa in paddy at different size of farms (small, medium and large). Overall average of yield in control plot (q/ha) was 86.25, cost of Treatment was Rs 1200, yield in treated plot (q/ha) was 91.76, additional yield over control (q/ha) was 5.51, additional income was Rs 6061, Additional net income over control was

Rs 4861, Additional cost and additional cast benefit ratio was 5.05. The yield under untreated and treated plot show increasing trend with the increase in the size of holder. And additional benefit ratio also follows the same trend.

**Table 9:** Consumer Preference regarding Taspa

Farmers Reviews about Taspa	Size of Farms			Total
	Small	Medium	Large	
A - Very Good Product	35 (79.55)	8 (100)	5 (62.50)	48 (80.00)
B - Next Year I will use it	35 (79.54)	6 (75.00)	8 (100)	49 (81.67)
C - it's gives better result	16 (36.37)	5 (62.50)	5 (62.50)	26 (43.33)
D - As a fungicide it works very well	11 (25.00)	2 (25.00)	1 (12.5)	14 (23.33)
E- During spray it has no side effect	39 (88.64)	7 (87.5)	5 (62.50)	51 (85.00)
F - It's rate is differ from place to place	13 (29.55)	2 (25.00)	0	15 (25.00)
G - it is not available at village shopkeeper so we can't procure it	24 (54.55)	4 (50.00)	0	28 (46.67)
H - It is Costly	28 (63.64)	4 (50.00)	1 (12.5)	33 (55.00)
I - We buy the product on credit so its rate is higher than normal rate by shopkeeper	30 (68.18)	5 (62.50)	1 (12.5)	36 (60.00)
J - I think it work very well in rainy season	10 (22.73)	5 (62.50)	7 (87.5)	22 (36.67)

(Figures in parentheses show percentage to total)

Table-9 shows consumer preference regarding Taspa. In the table different opinion shown about taspa by farmers are. Maximum farmers 51(85%) are agree with statement that during spray it has no side effect, followed by statement that next year I will use it 49(81.67%), statement that very good product 48(80%), statement that we buy the product on credit so. its rate is higher than normal rate by shopkeeper 36(60%), statement that it is costly 33(55%), statement that it is not available at village shopkeeper so we can't procure it 28(46.67%), statement that it gives better result 26(43.33%), statement that I think it will working very well in rainy season 22(36.67%), statement that it's rate is differ from place to place 15(25%) and statement that as a fungicide it is works very well 14(23.33%).

### Summary, Conclusions and Recommendation

Agriculture has an important role to play in economic development of an agrarian economy like that of India. There is a vital role of fungicide for improving the productivity of crops which shows that fungicide business having good potential. Every manufacturing unit / business man always interested to improve the market share and to assess the market potential for identifying the surplus looking to there important aspect the project work is under taken with the following specific objectives.

#### To estimate the market share of fungicide in Dhamtari district

- A. The study is confined to Dhamtari district of Chhattisgarh and all the four blocks of the district viz Dhamtari, Kurud, Nagri and Magarloud were considered for the study purpose. Top five major players were selected on the basis of higher turnover, five distributor and 25 farmers were considered for detail investigation to fill full the stated objectives. The period of study pertains to the agriculture year 2015-16. Simple average and percentage statistical tools were used to analyze the collected data.
- B. The important findings are summarized below:
- The total requirements of Fungicide based on per hectare recommended doses (0.5 liter/ha) and cultivated acreage. The market share of different fungicide companies. It is observed from the data that the Bayer Company (27.63%) has highest market share followed by DuPont (20.65%), UPL (16.74%), Syngenta (14.29%), Tata Rallies (11.07%) and others (9.62%).

### Conclusion

On the basis of this study the following conclusions are drawn.

- In the study area five major players (company) i.e. Syngenta, Bayer, UPL, Tata Rallies and Dupont. We're functioning to supply fungicide.
- The observed from the data that Netivo product of Bayer company was preferred by 10(19.23%) farmer has been maximum used in fungicides followed by Nustar 40% EC product of DoPont 8(15.38%), Saaf product of BASF 8(15.38%), Taspa product of Syngenta 16(30.76%), Hexadhan product of Dhanuka 5(9.61%) and others company products 5(9.61%). The majority of selected farmer use Taspa product of syngenta.
- Information shows that small size group farmer generally consider the prize factor when they purchase fungicide while majority of medium and large size group farmer, mostly given the preference to quality, company brand name and effectiveness of the product (fungicide).
- The Syngenta Company has adopted following promotional activities like magazines, boarding, tour and campaigning in the study area.
- The supply chain network of syngenta ltd. in Dhamtari district starts from production unit and ends to the farmers.
- There is no fixed price at which distributor and retailers sell the products of syngenta.
- This revealed that the profit margin of distributor and retails depend on nature of competition.
- Transportation plays a major role in the supply chain management. A good transportation ensures timely supply and availability of material
- The market response of Taspa fungicide launched by syngenta ltd. few season back was not good as per the requirement of the fungicide in dhamtari district.

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