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RESEARCH PAPER

# Agro processing opportunities from production catchments in villages near Bhopal

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**S**UMMARY : Based on discussions with the State Govt. officials and field survey around Bhopal city, it was found that presently no state-sponsored scheme exists for setting of agro processing centre at village level. Only Ministry of Food Processing Industry, GOI is providing financial support to the entrepreneur. Nine villages near Bhopal city were surveyed and the total processing capacity from the defined catchments was assessed. It was revealed that around 90 per cent and 80 per cent of the total area was engaged in soybean and wheat cultivation in *Kharif* and *Rabi* seasons, respectively, besides some other crops such as chickpea and lentil in *Rabi* and groundnut, maize and pigeonpea in *Kharif*. Not a single farmer was running any agro-processing activities except milling of cereals on custom hire basis. The wheat available for processing in the surveyed villages ranged from 233 to 367.9 tonnes, indicating that if a flourmill of more than 100 kg/h capacity were to be established, the raw material would be available for processing round the year. Likewise, soybean available for processing ranged from 264.9 to 419.1 tonnes. Hence, soy-based flour, paneer, milk, biscuit and nut manufacturing units could also be established. For processing chickpea, pigeonpea and lentil, dal mill and burr mill could be established.

**K**EY **W**ORDS : Agro-processing, Production catchments, Economical analysis

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India's economy is primarily based on agriculture. Over 65 per cent of the presently unemployed or under-employed youth in the rural areas may have to find jobs in activities other than direct cultivation (Shukla, 1998). Therefore, rural development is associated with the development of agricultural based enterprises. Rural people can be involved in the development by setting up agro-processing units at village level, benefiting them immensely by eliminating avoidable losses, improving the quality of the agro produce (Alam, and Singh, 2003), besides generating gainful employment with income distribution among the poorer strata of the society (Kulkarni, 2001). Keeping these in view, a survey of 9 villages namely Mugalia-Hat, Parvalia sadak, Jharkheda, Lambakheda, Eet-Khedi, Dham Kheda, Sewania Onkara, Semaria Bajapt and Khamkheda near Bhopal city was undertaken to ascertain the current status and to assess the processing capacity of the defined catchments.

Some promising agro-industries, which can be established in rural areas, are: primary processing industries involve operations like cleaning, grading, shorting, drying, packaging, storing, etc., pulse milling, flour milling, spice processing, oil seed milling and soy based products making.

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## EXPERIMENTAL METHODS

**Meeting with state government officials :**

It included meeting with M.P. State Government officials of Extension Department, Dept. of Agriculture, Directorate of Agricultural Engineering, State Agro Industries Development Corporation Limited, etc., for collecting information on potential area for setting of agro processing unit at villages near Bhopal city, the processing schemes prevailing and related issues.

**Selection of the village :**

The area within the periphery of 25 km of Bhopal city was

considered suitable for survey and setting of agro processing unit due to local production of soybean, wheat, pulses etc.

**Survey questionnaire :**

A survey questionnaire was prepared to collect information through meeting with the farmers and the youth in the villages on the socio-economic details, agricultural practices, agro processing aspects and villagers' perceived constraints. The questionnaire consisted of the questions *viz.*, name of village, population, name of farmer/processor, educational background, total land holding, type of crops cultivated with area during *Rabi* and *Kharif* seasons, handling and storage system; quantities consumed, preserved for seed and sold in the local market; agro processing machineries set up available, marketing net work etc.

## EXPERIMENTAL FINDINGS AND ANALYSIS

Meetings with the officials of state Government Departments revealed that no scheme of the M.P. State Government was prevailing for setting of agro processing centres at the village level. Only Ministry of Food Processing Industry, GOI was providing financial support as per their norm to the upcoming entrepreneurs after submission of the project report and its clearance by the competent authority. The survey results of the villages Mugalia-Hat, Parvalia sadak, Jharkheda, Lambakheda, Eet-Khedi, Dham Kheda, Sewania Onkara, Semaria Bajapt and Khamkheda are given in Table 1 and 2.

From Table 1 and 2, it is found that the farmers mostly grow wheat, chickpea and lentil in the *Rabi* season and soybean, groundnut, maize and pigeonpea in the *Kharif* season. Around 90 per cent and 80 per cent of the total area is engaged in soybean and wheat cultivation in *Kharif* and *Rabi* seasons, respectively. It was found that, the productivity (Fig.1) was highest in maize (1.45 t/ha) followed by groundnut (1.07 t/ha), soybean (1.01t/ha), chickpea (0.97 t/ha), wheat (0.95 t/ha), pigeonpea (0.92 t/ha) and lentil ( 0.27 t/ha) in the production catchment.

**Table 1: Status of crop cultivation and food grain availability in *Rabi* season**

| Village name | Net cultivable land (ha) | Crop | Total yield (tonnes) | Seed requirement (tonnes) | Domestic consumption (tonnes) | Available for processing (tonnes) |
|---|---|---|---|---|---|---|
| Lambakheda | 344 | Wheat | 271 | 28 | 52 | 191 |
| | | Gram | 51 | 3 | 11 | 37 |
| | | Lentil | 11 | 0.8 | 2.2 | 8 |
| Etkhedi | 405 | Wheat | 350 | 37 | 35 | 278 |
| | | Gram | 12 | 0.8 | 1.2 | 10 |
| | | Lentil | 13 | 0.9 | 1.3 | 10.8 |
| Damkheda | 324 | Wheat | 267 | 25 | 51 | 191 |
| | | Gram | 50 | 2.8 | 10 | 37 |
| | | Lentil | 11 | 0.7 | 2 | 8.3 |
| Sewania Onkara | 344 | Wheat | 260 | 27 | 52 | 181 |
| | | Gram | 50 | 2.5 | 10 | 37.5 |
| | | Lentil | 9 | 0.7 | 1.8 | 6.5 |
| Semaria Bajapt | 486 | Wheat | 351 | 37 | 53 | 261 |
| | | Gram | 65 | 3.3 | 9.8 | 51.9 |
| | | Lentil | 13 | 0.9 | 2 | 10.1 |
| Khamkheda | 365 | Wheat | 271 | 28 | 41 | 202 |
| | | Gram | 51 | 2.7 | 7.7 | 40.6 |
| | | Lentil | 9 | 0.8 | 1.4 | 6.8 |
| Mugali-Hat | 486 | Wheat | 329 | 33 | 49 | 247 |
| | | Gram | 68 | 3 | 10 | 55 |
| | | Lentil | 13 | 0.9 | 1.9 | 10.2 |
| Parwalia Sadak | 608 | Wheat | 411 | 43 | 71 | 297 |
| | | Gram | 79 | 4 | 16 | 59 |
| | | Lentil | 15 | 1.1 | 2.8 | 11.1 |
| Jharkheda | 446 | Wheat | 309 | 31 | 46 | 232 |
| | | Gram | 64 | 6.6 | 10 | 47.4 |
| | | Lentil | 12 | 0.9 | 1.8 | 9.3 |

Note: 1 ton=1000 kg.

In the villages, not a single farmer was running any agro-processing activities except milling of cereals to flour on custom hire basis. Leaving the desired quantity of the produce for seed and domestic consumption, the rest are sold in the local market. The wheat available for processing in the surveyed villages ranged from minimum of 181 tonnes in Sewania Onkara to maximum of 297 tonnes in Parbalia Sadak which indicated that if a flour mill of 100 kg/h were to be established, the raw material requirement of 180 tonnes per year is available and sufficient for processing through out the year. Likewise, the soybean available for processing ranged from minimum of 208 tonnes in Sewania Onkara to maximum of 329 tonnes in Parbalia

**Table 2: Status of crop cultivation and food grain availability in *Kharif* season**

| Name of the village | Net cultivable land (ha) | Name of crop | Total production (tonnes) | Seed requirement (tonnes) | Domestic consumption (tonnes) | Available for processing (tonnes) |
|---|---|---|---|---|---|---|
| Lamba-kheda | 344 | Soybean | 301 | 24 | 59 | 218 |
| | | Groundnut | 29 | 2.7 | 5.6 | 20.7 |
| | | Maize | - | - | - | - |
| | | Pigeonpea | 21 | 0.3 | 3.4 | 17.3 |
| Etkhedi | 405 | Soybean | 387 | 28 | 39 | 320 |
| | | Groundnut | - | - | - | - |
| | | Maize | 12 | 0.2 | 1.2 | 10.6 |
| | | Pigeonpea | 7.5 | 0.1 | 0.7 | 6.7 |
| Damkheda | 324 | Soybean | 298 | 23 | 53 | 222 |
| | | Groundnut | 26 | 2.5 | 5 | 18.5 |
| | | Maize | 10 | 0.1 | 1 | 8.9 |
| | | Pigeonpea | 21.0 | 0.5 | 3.5 | 17 |
| Sewania Onkara | 344 | Soybean | 286 | 21 | 57 | 208 |
| | | Groundnut | 28 | 2.2 | 5.5 | 20.3 |
| | | Maize | 62 | 0.8 | 12 | 49.2 |
| | | Pigeonpea | 16 | 0.2 | 3 | 12.8 |
| Semaria Bajapt | 486 | Soybean | 356 | 30 | 60 | 266 |
| | | Groundnut | 35 | 3 | 6 | 26 |
| | | Maize | 22 | 0.4 | 6 | 15.6 |
| | | Pigeonpea | 20 | 0.3 | 4 | 15.7 |
| Khamkheda | 365 | Soybean | 294 | 21 | 45 | 228 |
| | | Groundnut | 28 | 2.3 | 6 | 19.7 |
| | | Maize | 67 | 1 | 3 | 63 |
| | | Pigeonpea | 16 | 0.3 | 3.3 | 12.4 |
| Mugalia-Hat | 486 | Soybean | 412 | 31 | 88 | 293 |
| | | Groundnut | 42 | 3 | 7.3 | 31.7 |
| | | Maize | 91 | 1.4 | 9 | 80.6 |
| | | Pigeonpea | 23.6 | 0.4 | 3.4 | 19.8 |
| Parwalia Sadak | 608 | Soybean | 451 | 32 | 90 | 329 |
| | | Groundnut | 44 | 3.5 | 8.7 | 31.8 |
| | | Maize | 98 | 1.3 | 20 | 76.7 |
| | | Pigeonpea | 25 | 0.4 | 5 | 19.6 |
| Jharkheda | 446 | Soybean | 428 | 31 | 73 | 324 |
| | | Groundnut | 41 | 3 | 6 | 32 |
| | | Maize | 91.5 | 1.4 | 13.7 | 76.4 |
| | | Pigeonpea | 24 | 0.4 | 4 | 19.6 |

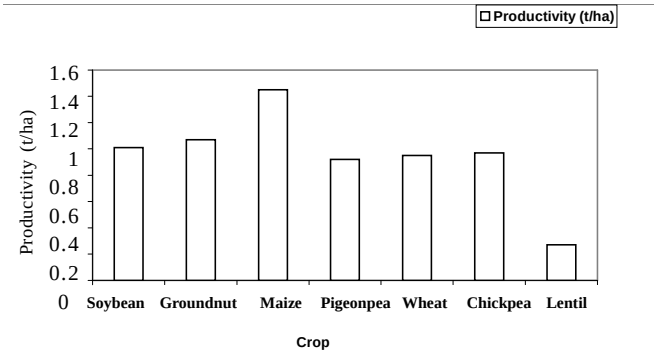


**Fig 1: Crop productivity (t/ha) in the production catchment**

Hence, manufacturing units for soy-based products such as flour, paneer, milk, biscuits and nuts could be established in the village sector. Besides, dal mill and burr mill could also be established for the processing of chickpea, pigeonpea and lentil. The marketing network for these processed products would comprise the local market as well as Bhopal market. Hence, there is a good scope of establishing complete agro processing facilities at the rural sector to provide employment and generate higher income besides ensuring nutritional security to the rural people. As a result of the interaction with the villagers, several persons in the surveyed villages expressed willingness to start Agro-processing Centers if they are financially and technically supported to initiate such activities.

**Conclusion :**

From the study it is emerged that sufficient quantity of raw material is available in the production catchment for processing round the year. The full fat soy flour, soy paneer (*tofu*), soymilk, soy biscuits and soy nuts manufacturing units be established for soybean processing in the village sector. The dal mill and burr mill would be established for the processing of pigeonpea, lentil and chickpea. Hence, it was felt to establish the complete agro processing units at the targeted villages. However, the rural entrepreneurs must come forward, learn the modern agro processing activity at the Institution and establish such activities of their own with our help. This in turns would generate income and employment in rural areas besides ensuring nutritional security.

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