



# Mapping the production system and the supply chain and study the crop losses of Black Gram

**A Joint Initiative by  
University of Illinois and MART**

Approach Note by  
MART Knowledge Centre



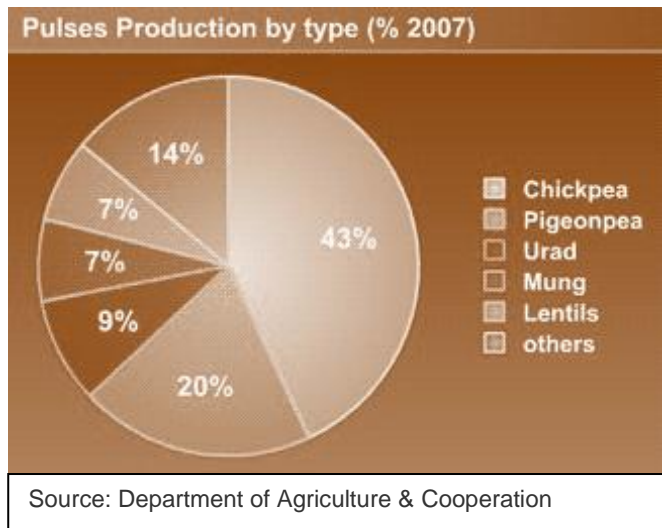
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# Background

India produces a quarter of the world's pulses, accounting for one third of the total acreage under pulses. Indians consume 30 per cent of the world's pulses, but domestic production of pulses has not kept pace with population growth. Pulses production has grown at only a 1 per cent CAGR from 1951–2008, compared to a population growth of about 2 per cent during the same period.

Out of all pulses, the production of black gram (urad) is mostly confined to the Asian countries as their tropical climates and soil type suit the pulse's cultivation. The largest producer of this pulse is India followed by Myanmar and Thailand. India produces 70% of worlds' black gram production. Black gram is 10% of the total pulses production in India. In absolute terms 1.5 ml ton is produced from 2.5 ml hectare area with a per hectare production of 400 kg.



But being the largest producer of blackgram does not take India to a comfortable situation, as it is also the largest consumer of the black gram in the world and its total production is not able to fulfill its domestic consumption demand. The incapability of Indian production to satisfy its domestic demand makes it the largest importer of this pulse as well.

The major states that produce black gram (or *urad*) in India are; Andhra Pradesh, Madhya Pradesh, Maharashtra, Uttar Pradesh, Punjab, West Bengal, Orissa, Tamil Nadu, Karnataka. While Andhra Pradesh contributes 24% of the total production, Maharashtra and Madhya Pradesh contributes 20% and 13% respectively.

**In this context, the proposed study would like to understand the harvesting and post harvesting issues related to black gram leading to crop loss and thus reducing crop production.**

# Objectives

The overall objectives of the study is to understand the harvesting and post harvesting issues. The study would focus on following specific ones;

- To understand the causes of crop losses
- To map technologies currently available in India to prevent these losses
- Reasons why these technologies not being broadly adopted
- Identify potential for new technologies for reducing postharvest losses for India
- Opportunities for innovations in black gram supply chain

## Key information areas

The study would primarily focus to gather information on harvesting and post harvesting issues. A range of information will be gathered as suggested below.

Key Information Areas	Purpose
Farmers Demography and details of all crops	<ul style="list-style-type: none"> <li>• Profile the farmers involved in black gram production</li> <li>• Profile the different varieties of black gram grown in India</li> <li>• Assess the kind of social networks available amongst these farmers for support services</li> </ul>
Crop management process – gaps and challenges	<ul style="list-style-type: none"> <li>• Map and understand the production system and the supply chain of the product</li> <li>• Analyse the harvesting and post harvesting processes of the product</li> <li>• Analyse the gaps and challenges faced</li> </ul>
Technology – traditional and modern	<ul style="list-style-type: none"> <li>• Map and assess the technologies applied</li> <li>• Comparative analysis of traditional and modern technologies applied (SWOC)</li> </ul>
Affordability and adoptability	<ul style="list-style-type: none"> <li>• Understand and assess the affordability and adaptability of techniques used for enhancing production of the crop</li> <li>• Understand the up scalability of the techniques mapped</li> </ul>
Gender, technology, dissemination	<ul style="list-style-type: none"> <li>• Develop understanding about the existing gender issues related to the value chain of black gram</li> <li>• Existing division of labour in the production and harvesting of the crop</li> <li>• Gender sensitive initiatives taken to enhance women’s participation</li> </ul>
Innovation opportunities	<ul style="list-style-type: none"> <li>• Capture innovative practices adopted in the value chain to generate learning</li> </ul>

	<ul style="list-style-type: none"> <li>Analyse the cause and effect of the innovation adopted for further up scale</li> </ul>
Role of stakeholders (farmer, Private, NGO, Govt,)	<ul style="list-style-type: none"> <li>Map the roles and responsibilities of various stakeholders in the value chain</li> <li>Analyse the gaps and challenges faced by each stakeholder</li> </ul>

## Scope of work

The details of each key information area as listed above have been detailed out in this section in order to define the proposed scope of work;

### Demographic

- Sex, age, education, family size, earning members, members in farm, farm linked activities, and farm laborers
- Type of occupation, place of work, income from farming, farm linked micro enterprises and farm laborer
- Assets ownership: vehicle and landholding
- Landholding and details of all major crops grown by farmers
- Membership of CBOs- SHG, Farmer club, societies and cooperative etc.

### Harvest and post harvest

- Agri practices followed – existing and new practices, need gap and challenges
- Adoption of traditional and modern agri practices –mechanisation, crop protection etc
- Crop yield per acre, crop profitability
- Primary processing done in terms of cleaning, drying, sorting, grading, and packaging etc.
- Storage: type of facility available, % of losses due to storage

### Crop Management

- Cropping pattern (details black gram and other crops farmers grow)
- Crop management systems
- Crop losses across the supply chain and reasons
- Crop losses at different stages and reasons
- Attitude towards adoption of technologies minimising crop losses

- Mapping technologies available to address crop losses

**Gender Role** -Women participation and role in farming

**Role of different stakeholders**

- Farmers
- NGO
- Private
- Govt

**Innovations**

- Opportunities across the supply chain
- That would affect women most
- Harvesting

# Research Methodology

MART proposes an exploratory research approach for conducting the study. The following captures the respondent segments, geography, research tools and sample plan.

## a. Respondent Segments

- Farmers (< 4 ha landholding)
- Key Opinion Leaders – Farmer network, lead farmers, Agriculture co-operatives
- Govt Players – Agri deptt (SMS, Extn workers), agri universities , Agriculture Technology Management Agency (ATMA)
- Private Players – Traders, processors, warehouses, transporters

## b. Geography

- Two states – of high and medium



- production (suggested states are Maharashtra and Madhya Pradesh)
- 2 districts (one from each state)
- 5 villages in each district
  - o 1 from < 1k pop
  - o 2 from 1 - 2k pop,
  - o 2 from 2k > pop villages

### c. Research Tools

Participatory Rural Appraisal (PRA)

- Agri process map – mapping of harvest and post harvest practices
- Crop loss Map- Mapping of losses across supply chain
- Focus group discussions & In depth Interviews on key issues

### d. Sample Plan

In order develop understanding on the various aspects as mentioned in the scope of work; various stakeholders have been identified for interaction and information generation. The table below provides a snapshot of the various stakeholders identified for the study and the kind of research tool that would be applied for discussion or information generation.

Research Tool	Respondent segments	Total Sample	Grand Total
IDIs	Farmers	50	68
	KOLs	6	
	Pvt Players	6	
	Govt Players	6	
FGD	Farmer group	4	6
	Female group	2	
PRA	Farmer Group	4	4

Thus, a total of 68 IDIs, 6 FGDs and 4 IDIs proposed

# Work plan and Timeline

This section provides the list of major activities that will be undertaken for the proposed study and alongside the timeline for each major activity has been estimated. The whole study with the end output in the form of report is estimated to take approximately two months.

Activity	W1	W2	W3	W4	W5	W6
Study design and research tool preparation						
Field work						
Data compilation						
Draft report prepared						
Final report						

## Team Structure

A three-member MART team, consisting of one Senior Consultant and two Associate Consultants is proposed to conduct the study. The Senior Consultant will be the Project/Team leader of the proposed assignment. The key responsibilities of the two categories of team members are as stated below;

- Project leader – Responsible for the assignment, analysis and report preparation
- Associate Consultants (# 2) – data generation and report preparation

## Contact Details

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