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## Sesame Harvest Revolution: Balancing Tradition and Innovation at MIT College of Agriculture and Technology

(\*Er. Ravan Shree M<sup>1</sup>, Dr. M. Karthik Raja<sup>1</sup>, Mr. Nathish Saran S<sup>2</sup>, Mr. Priyadharshan S<sup>2</sup> and Mr. Karthikeyan V<sup>2</sup>)

<sup>1</sup>Assistant Professor, MIT College of Agriculture and Technology, Musiri, Trichy, Tamil Nadu, India

<sup>2</sup>B.Sc. (3<sup>rd</sup> year) in Agriculture, MIT College of Agriculture and Technology, Musiri, Trichy, Tamil Nadu, India

\*Corresponding Author's email: [ravanashree.m@mitcat.ac.in](mailto:ravanashree.m@mitcat.ac.in)

Harvesting sesame, a labour-intensive process, poses unique challenges for farmers. A recent initiative at MIT College of Agriculture involved training 132 students in manual sesame harvesting over 3.3 acres within 5 hours. While this exercise was valuable for hands-on learning, it also highlighted the potential benefits of farm mechanization.

### Manual Harvesting: The Current Scenario

Manual harvesting of sesame involves cutting the plants, bundling them, and drying them before threshing. During the training program, 132 students worked for 5 hours to complete the harvest. Let us analyze this effort:

Parameter	Manual Harvesting
Area Harvested	3.3 acres
Labor Force	132 students
Time Taken	5 hours
Labor-Hours Required	660 labor-hours
Efficiency	0.005 acres/hour per person
Challenges	Fatigue, inconsistent output, risk of injury

While effective as a training tool, manual harvesting for large-scale production can be inefficient and uneconomical, especially when labor shortages arise.

### Farm Mechanization: A Technological Leap

Mechanized harvesting employs specialized machinery like sesame harvesters or combine harvesters. These machines drastically reduce the time and labor required while maintaining consistency. Let us compare the performance of mechanized harvesting:

Parameter	Mechanized Harvesting
Area Harvested	3.3 acres
Labor Force	2 operators
Time Taken	1.5 hours
Labor-Hours Required	3 labor-hours
Efficiency	2.2 acres/hour per machine
Challenges	Initial cost, maintenance, training requirements

### Comparison of Outcomes

Metric	Manual Harvesting	Mechanized Harvesting
Labor	132 students, 660 labor-	2 operators, 3 labor-hours

Requirement	hours	
Time Efficiency	5 hours	1.5 hours
Cost Efficiency	High due to labor dependency	Moderate (high initial cost, low operational cost)
Quality of Harvest	Variable	Consistent
Scalability	Low	High



### Advantages of Mechanization



## Challenges and Recommendations

While mechanization offers significant advantages, initial costs and training requirements are barriers to adoption. Government subsidies, cooperative ownership models, and on-campus training programs can ease the transition. MIT College of Agriculture could introduce workshops focusing on operating and maintaining farm machinery, ensuring students are well-versed in modern agricultural techniques.

## Conclusion

The comparison between manual and mechanized sesame harvesting underscores the transformative potential of farm mechanization. For institutions like MIT College of Agriculture, integrating mechanization into the curriculum not only improves productivity but also prepares students to address real-world agricultural challenges effectively.

By embracing technology, the future of sesame harvesting can be both efficient and sustainable, benefiting farmers and the broader agricultural community.

## Comparative Analysis

Parameter	Manual Harvesting	Mechanized Harvesting
Time Required	5 hours	2 hours
Workforce Needed	132 people	2-3 people
Labor Hours	660 hours	4-6 hours
Efficiency (acres/hour)	0.66	1.65
Post-harvest Losses	5-8%	2-3%
Quality Consistency	Variable	Uniform
Weather Dependency	High	Moderate