

Manure Management Initiatives

National Dairy Development Board



Indian Dairying- A Small Holder phenomenon



302 million Bovines



80 million Households practicing dairying

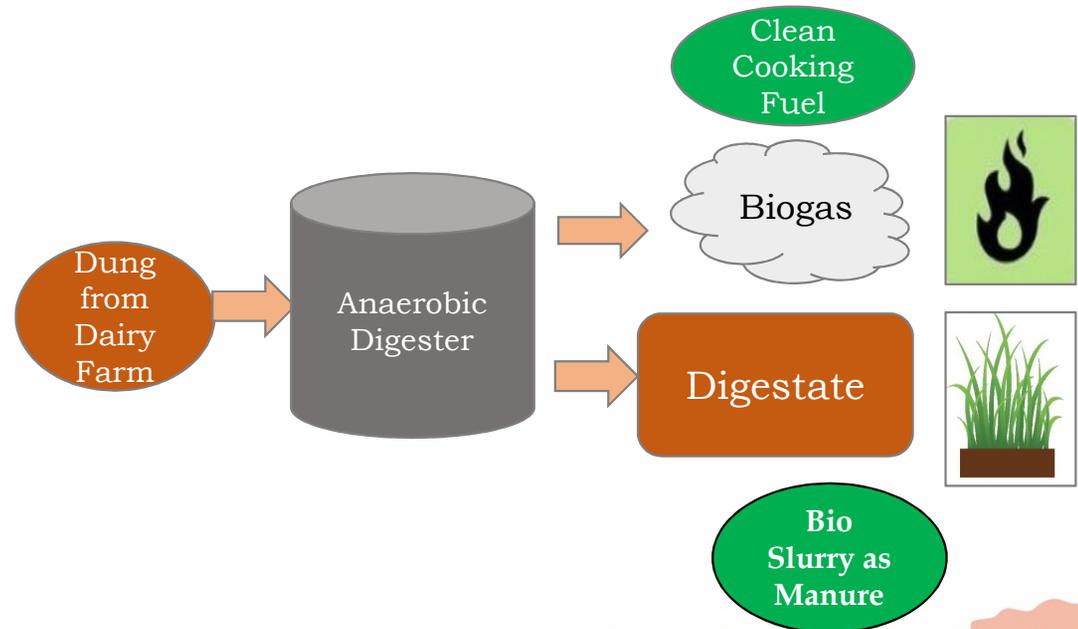


Milk production at 248 million MT



Estimated Dung generation of 1653 MMT
(Recoverable dung of around 992 MMT)

- Predominantly practiced by small and marginal farmers
- 95% of the dairy farmers rear 1 to 5 animals
- Bovine ownership, more equitable than the land holdings



Innovative Models for Manure Management



Household level Biogas Model

Household level biogas based Manure Value Chain model sufficing cooking energy and organic fertilizer needs of farmers



Compressed Biogas (CBG) Model

Dung based large capacity biogas plant to produce Bio-CBG and Organic Fertilizer

Thermal/ Electricity Biogas Model

Dung based large capacity biogas plant to suffice Steam and Power needs of Dairy Plant and produce Organic Fertilizer





HH biogas based Manure Management Model evolved

- ❑ Biogas- Owned by Women
- ❑ Their own manure cooperative
 - ❑ For collective voice and transactions
- ❑ Surplus slurry aggregated by coop and processed
- ❑ Slurry based organic fertilizers produced and sold directly farmers
- ❑ 'SuDhan'- NDDDB's trademark for common identity

Existing dairy coops are taking up the role of Manure Coop and serving their farmers who are now Prosumers



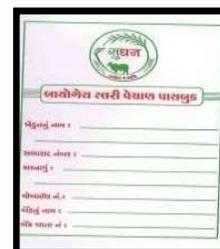
Unique Procurement Mechanism



Geotagged Route



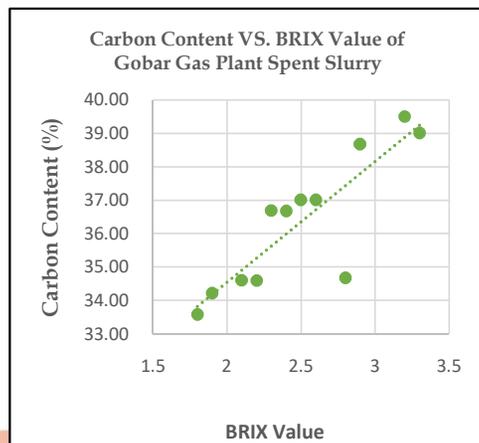
**Slurry Testing
(at farmer's doorstep)**



Passbook



Slurry Tanker cum Applicator



Slurry Testing Parameters		BRIX(Dissolved Solids)			
		1.7-2	2.1-3	3.1-4	4.1-5
EC (Electrical Conductivity)	4-8	0.75	1	2	0.75
	8.1-12	0.8	1.2	2	0.8
	12.1-15	0.25	0.25	1.5	0.25

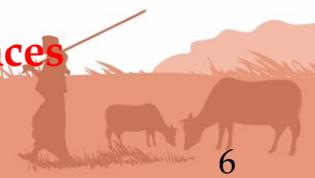
Slurry Rate Chart

- Positive relationship between BRIX value and Organic Carbon Content
- significant at 95% confidence level.

Testing relating to product composition, Transparency, Efficient Aggregation and Support for collective use resources (Applicator) is KEY



Simplified Slurry Processing



Ensuring efficacy of Slurry based Organic Fertilizers

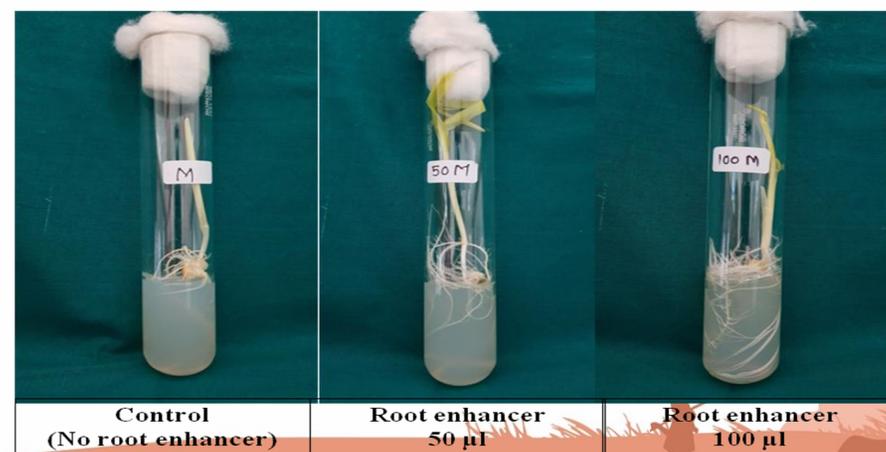


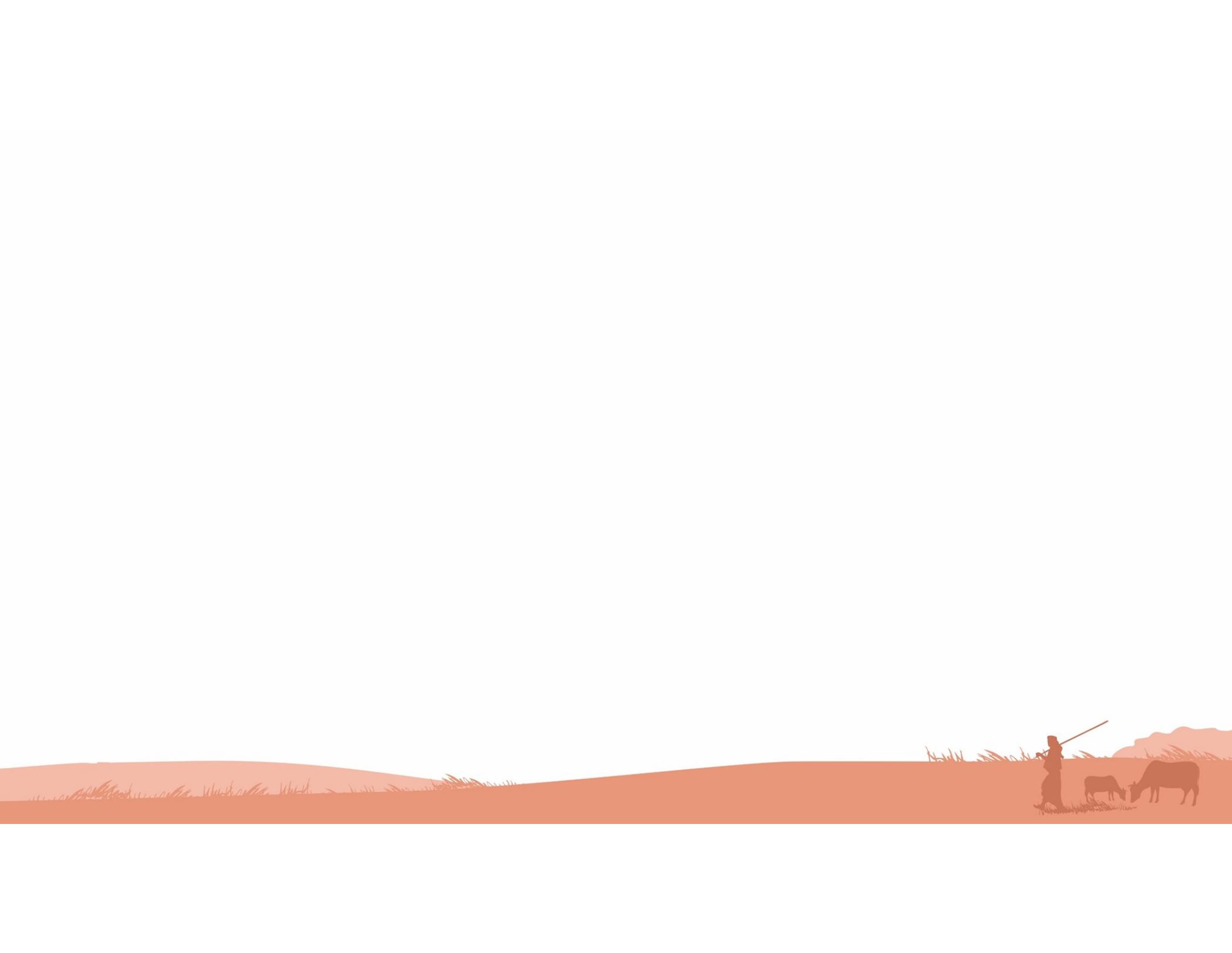
Product testing Study by Anand Agricultural University, Gujarat

- ❖ 8 different treatments in both Wheat and Maize (with combination of RDF and SuDhan)
- ❖ Improvement in Yield and Enhanced microbial quantity by many folds in soil

Parallel study is being conducted with Banaras Hindu Uni. on Rice, Mustard, Wheat and Maize

Study Parameters	Grain Yield (kg/ ha)	Grain Yield Impr. (%)	Straw Yield (kg/ha)
Control: Wheat, 100 % RDF	5,533		7,331
SuDhan: Wheat	6,723	21.5	8,471
Control : Maize, 100 % RDF	2,731		4,050
SuDhan: Maize	3,420	25.2	5,145





Generating Wealth from Biogas/ Manure Value Chain



- Collaboration with GSFC for R&D and promotion of Slurry based fertilizer
- Banas Dairy, Gujarat: 100 MTPD (4 plants) (Implemented by SRDI & NDDB with technical and project management support from NDDB)
 - ❖ Inauguration of NDDB-Suzuki-Banas CBG Plant by Hon'ble Home Minister in Dec 2025
 - ❖ Three additional CBG plants worth capacity 100 MT per day each are being established in Banaskantha
- Additional 05 CBG plants are being setup under the partnership between SRDI & NDDB across the dairy cooperatives in Gujarat (Amul Dairy, Mehsana Dairy, Sabar Dairy, Banas Dairy and Sumul Dairy)
- NDDB incorporated a subsidiary company “NDDB MRIDA Ltd.” on 01 July 2022 to implement & upscale the manure management initiatives in a focussed manner.
- NDDB Mrida Ltd has also launched ‘Gobar Se Samriddhi’ programme through carbon financing (reducing the upfront contribution by the dairy farmers).
- In Dec 2024, Suzuki R&D Centre India (SRDI) invested 26% equity in NDDB Mrida Ltd, forming a Joint Venture company.



Scaling Up of Sustainable and Circular Models

- Conducted national workshop on ‘Sustainable Dairying and Circularity’ (March 3, 2025) at Bharat Mandapam, inaugurated by Union Home Minister Amit Shah
- Signed MoUs with 25 dairy cooperatives across 15 States for setting up biogas plants nationwide
- Launched partnership with Sustain Plus Energy Foundation for promotion of Decentralized Renewable Energy Solutions
- Registered Gomay Sahakari Samiti Limited (Multi-State Manure Cooperative) to aggregate, process, market organic fertilizers nationally and serve as nodal agency for manure related interventions in India
- Policy push for commoditizing the dung through various interventions across the ministries and states



Key Success Factors



Context-Specific Solutions

Three distinct models for different scales and applications

Complete Value Chain

Energy + fertilizer + carbon credits = multiple revenue streams

Cooperative Infrastructure

Leveraging existing member dairy cooperative networks

Farmer-Centric Design

Development of manure value chain focusing farmers in core

Institutional Capacity

Comprehensive training and ongoing technical support

Strategic Partnerships

Government, corporate, and research institution collaboration

Creating ecological balance and Securing Livelihoods and Nutrition



Additional Income

Job creation

Reduced Imports



Reduced GHG Emissions

Improved Human Health



Swachh Bharat

Improved Soil Health

Women Participation



Clean Fuel





Thank You

