



**FiBL**

# Center of Excellence A Vision

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## **VISION**

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**To provide one stop solution for cultivation of Organic Cotton**

### **FOCUS:**

- **Genetic resources**
- **Genetic improvement of organic cotton**
- **Development of seed systems**
- **Genetic purity assurance**
- **Production Technology**
- **Plant Protection Technology**
- **Certification and Traceability**
- **Soil Health Management**
- **Capacity Building**

## **ORGANIC INPUT INFRASTRUCTURE : Already in place....**

- **Twenty Five acres under conversion**
- **Under organic cultivation for more than six years**
- **Formal certification- Under process (C-2 Certified)**
  
- **Cattle shed with 90 cattle established**
- **300 tonnes of FYM/year**
- **20 tonnes of Vermicompost/year**
- **600 litres of fresh cow urine is collected/year.**



# FYM UNIT



## VERMICOMPOST UNITS



# RECYCLING FARM WASTE



# SEED QUALITY

- **Address the problem of contamination**
- **Bt Gene Identification Laboratory has been established**
- **PCR based identification facility**
- **ELISA Technique**
- **Dipstick method developed by CICR Nagpur for quick identification in the field.**

## Expected to address

- **Elimination of contamination in research material**
- **Post harvest contamination problem**
- **Identify contamination in farmer's fields**



## **IN HOUSE FIBRE TESTING FACILITY**

- **In house fibre quality testing facility is being established**
- **To facilitate faster selection in breeding material with desired fibre quality**
- **To provide fibre quality testing facility to other stakeholders on cost basis.**

# ESTABLISHMENT OF FACILITY FOR MASS PRODUCTION OF BIOFERTILIZERS

Proposed to establish facilities for mass production of Consortium of microbes

- **Michoriza**
- **Plant growth promoting *Rizobacteria***
- **Phosporous soluablizing bacteria**
- **Azatobacter**
- **Phosphate Solubalizing Bacteria ( *Pseudomonas spp* )**

**This facility is expected to cater the in house needs and meet the requirement of organic cotton growers.**

# ESTABLISHMENT OF FACILITY FOR MASS PRODUCTION OF BIOAGENTS

Proposed to establish facilities for mass production of :

- *Beauveria spp.*,
- *Trichoderma spp*

This facility is expected to cater the in house needs and meet the requirement of organic cotton growers.



COST EFFECTIVE TECHNIQUE  
FOR MULTIPLICATION OF  
BIOFERTILIZERS AND  
BIOAGENTS IN FARMERS FIELDS

## **ESTABLISHMENT OF FACILITY FOR FAST TRACK BREEDING**

*The entire breeding program is being undertaken in Organic environment*

### **PROPOSED TO ESTABLISH FACILITIES FOR FAST TRACK BREEDING**

- **Net house facility in two acres**
- **Poly house facility**

*Poly house facility is proposed to be used for maintaining elite material.*

*Net House facility will help in advancement of generation in the off-season.*

## **DEVELOPMENT OF ORGANIC COTTON SEED PRODUCTION CHAIN**

**The center is expected to develop varieties with excellent yield and fibre qualities suitable for organic cultivation (responsive to organic inputs)**

- Recommendation and Registration of organic cotton varieties for cultivation
- Maintenance of breeding of improved varieties
- Production of breeder/ foundation seed
- Organic cotton seed production will be undertaken in farmers fields
- A seed production and supply system will be established involving organic cotton growers

## **CAPACITY BUILDING**

- **Training programme for organic cotton growers will be conducted covering cultivation practices and certification procedures.**
- **Proposed to start a short term certificate programmes for organic cotton growers and other stake holders.**
- **Proposed to start a one year post graduate Diploma programme in organic agriculture with advanced courses for students.**

## *Work in Progress*

- Organic Cotton Breeding
- Search for new genes
- Diploid cotton is known for its resistance to sucking pests; thrives well in marginal soils with low water requirement.
- Focus is on developing *Gossypium arboreum* (Diploid cotton) genotypes with high yield and superior long fiber quality ( Length of 30+ mm, 4.0 micronaire and strength of 25+ g/tex.)
- Breeding program for *G.hirsutum* is also under progress.



## GERMPLASM COLLECTION

S. No	Target characters	No of germplasm identified	
		Arboreum	Hirsutum
1.	Fiber length		
	Up to 25mm	28	77
	25 to 28 mm	19	61
	28 to 30 mm	15	33
	Above 30 mm	9	13
2.	Number of bolls/ plant		
	Up to 30	31	97
	30 to 40	21	74
	40 to 50	16	6
	Above 50	9	-
3.	Boll size		
	Up to 4g	29	88
	4g to 7g	18	43
	Above 7g	8	10

## STATUS OF BREEDING PROGRAM

### 1. Crossing Programme

Year	No of Crosses Kharif 2017		Off Season advancement of Generation during Summer 2018 - 19	
	A X A	H X H	A X A	H X H
2017-18	86	132	86	-

### 2. Evaluation of Hybrids

A X A : Number of hybrids evaluated : 86

5 Hybrids were found suitable for advance testing

### 3. Handling of segregating material

F2 : A X A

Number of families grown :77 (200 plant from each cross)

S No	Selection for Target Character during Kharif 2018 from F2 population									
	Fiber length above 30 mm		Number of bolls/ plant above 40		Boll size above 4g		Short statured Plant type		Early maturity 120 days	
	No of Families	SPS	No of Families	SPS	No of Families	SPS	No of Families	SPS	No of Families	SPS
1	36	1800	56	1400	23	178	14	45	11	13

## **PRODUCTION TECHNOLOGY**

**TRIALS HAVE BEEN INITIATED ON**

**PROM : PHOSPHATE RICH ORGANIC MANURE BY FORTIFYING  
FYM WITH ROCK PHOSPHATE**

**JEEVAMRUT : Usage & Nutrient Values Cow dung and Gomutra are well  
know fertilizers used by our ancestors for ages. Validation and composition  
is being investigated.**



## **LOW COST JEEVAMRUT FILTER**

- **A low cost jeevamrut filter known as 'Khandwa Model' has been developed.**
- **Jeevamrut is ready in 48 hrs.**
- **Costs only Rs.2500/- only as compared to commercial models available in Rs.30,000/-.**
- **Filtered jeevamrut can be directly used in drip irrigation system.**

## **Jeevamrut:**

<b>Cow dung</b>	<b>:</b>	<b>5kg</b>
<b>Cow Urine</b>	<b>:</b>	<b>5L</b>
<b>Besan(Flour of Gram)</b>	<b>:</b>	<b>1.5kg</b>
<b>Jaggary</b>	<b>:</b>	<b>0.250kg</b>

- **Mix all above in 200 l capacity drum and make up 200 l volume by adding water .**
- **Stir up it twice a day**
- **Filter the mixture and use liquid in spray/drenching/drip irrigation**

# JEEVAMRUT FILTER : KHANDWA MODEL





# CONCLUSION

The centre of excellence to be established will thus become a one stop solution for all the stakeholders involved in growing organic cotton

THANKS