NOVEL IDEAS TO ENHANCE COTTON PRODUCTION AND VALUE OF BYPRODUCTS IN AFRICA

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Challenges to Cotton Production in Africa

- Smaller scale of production
- Limited access to good quality seeds
- Heavy reliance on insecticides
- Decreasing soil fertility
- Increasing production costs
- Volatile markets

Our experience in Bangladesh might be useful for the cotton research and development in Africa

Development of cotton sector in Africa

- **Increasing the scale of production:**

-Larger scale projects and a better support by national services and policies will definitively contribute to bring down production costs, increase productivity

- **Improving access to good quality seeds:**

Public research institutes capacity need to be strengthened to produce sufficient quantity of good quality seed

- **Promoting IPM practices**:

-A country-specific practical training programme for smallholders and export-oriented farmers needs to be developed.

-smallholders should be first on GAP and some the basic principles of IPM, whereas the focus for export-oriented farmers can be fully on IPM.

Development of cotton sector in Africa

- **Adaptation of Integrated soil fertility management practices:**

-Integrated Soil Fertility Management practices need to be promoted combining agronomic practices relating to crops, mineral fertilizer

- organic inputs and other amendments that are tailored for different

-cotton based cropping systems, soil fertility status and socioeconomic profiles.

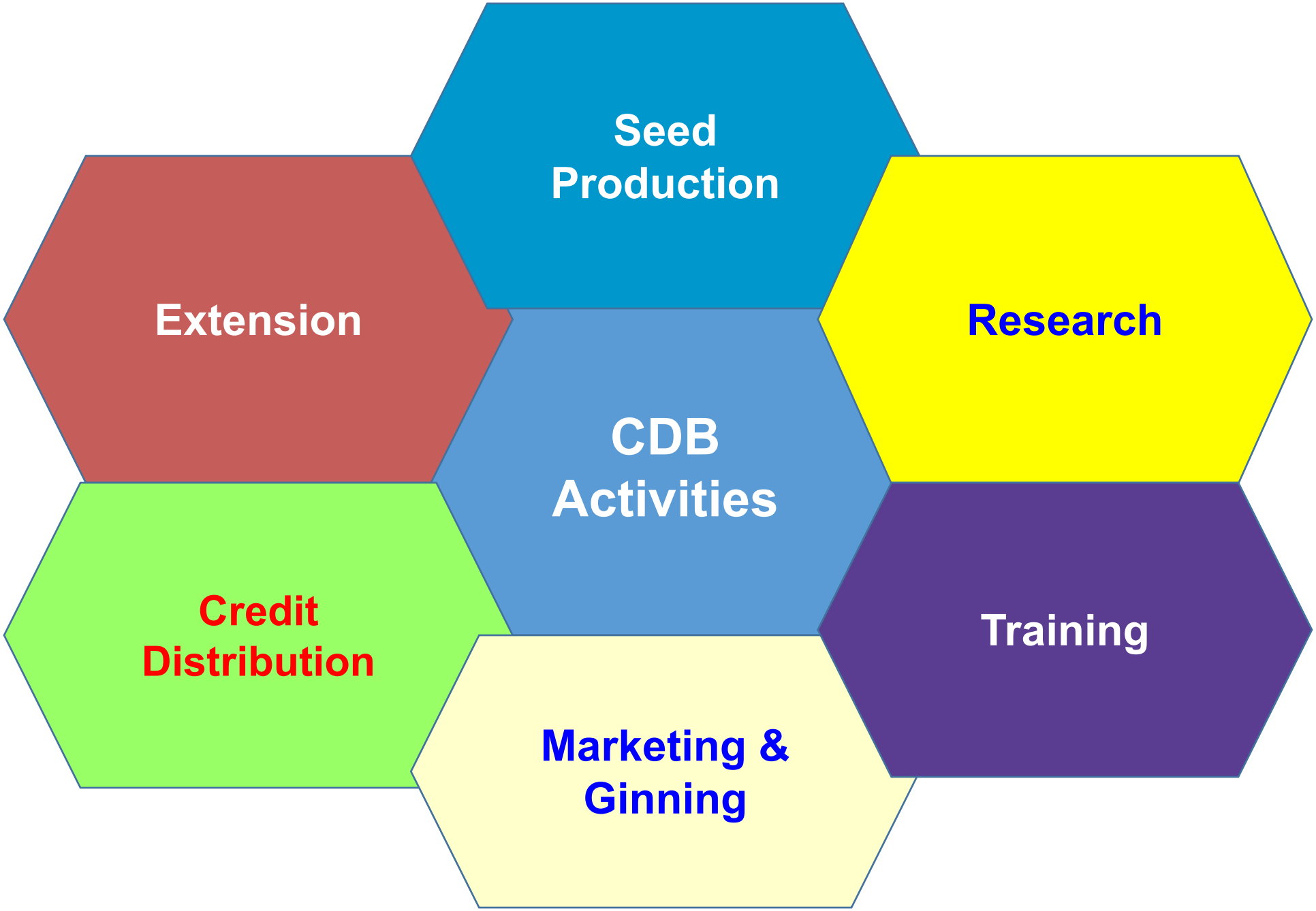
- **Improving income from cotton:**

-Cotton production cost should be rationalized by increasing per hectare production as well as diversification of cotton product and byproduct.

-**Subsidy to the farmers:**

Subsidy in inputs and cotton price will help farmers to cope with volatile markets.

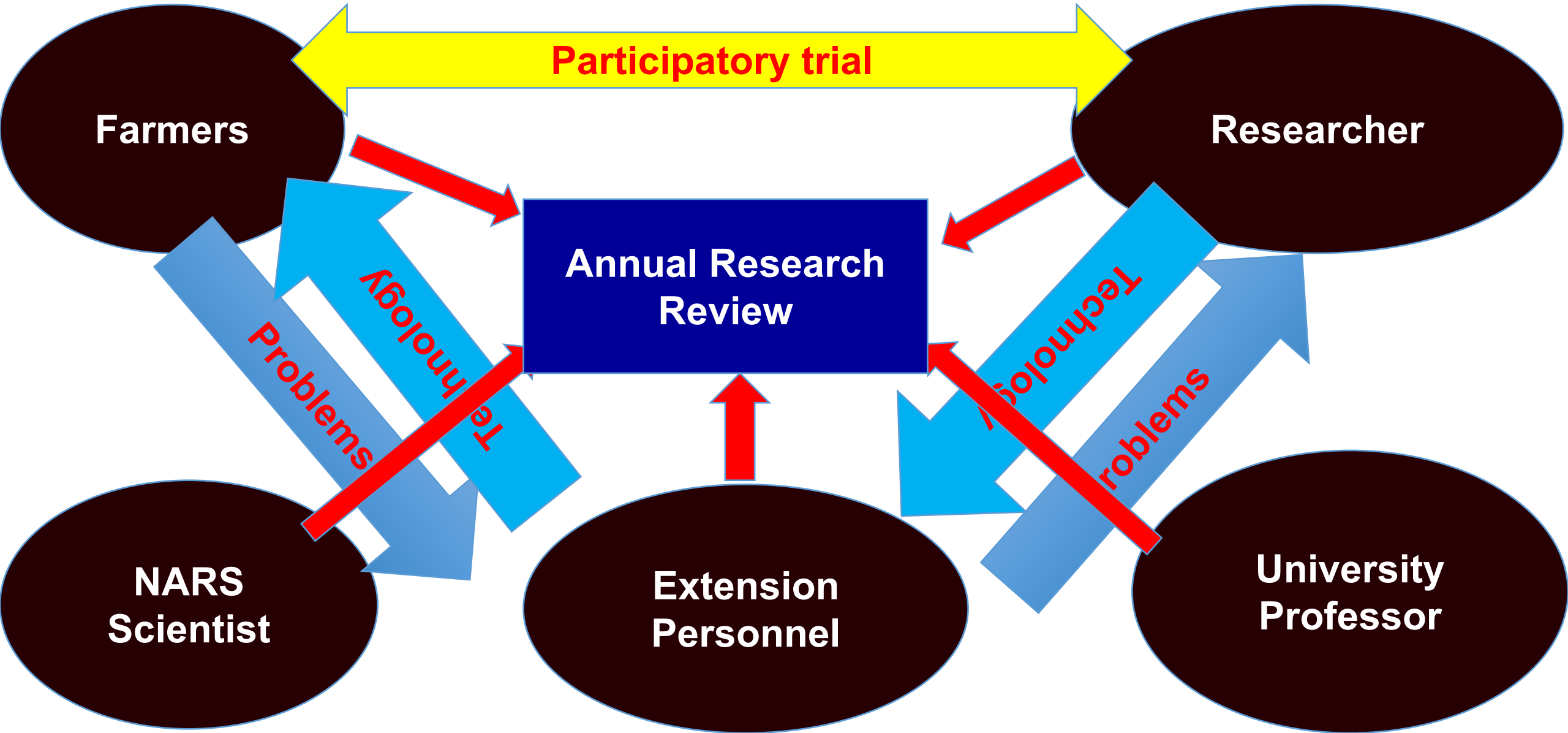
Cotton Research and Development in Bangladesh


Seed Production
Extension
Research
CDB Activities
Credit Distribution
Training
Marketing & Ginning

THRUST AREAS FOR COTTON CULTIVATION IN BANGLADESH

- Drought area
- Hill area
- Char area
- Coastal area

Cotton Research Management



Utilization of Cotton Genetic Resources

Sl. No.	Name of the crop (English)	Scientific Name	Collected Germplasm (Number)	Cultivated/ Wild
1.	Cotton	*Gossypium hirsutum* *Gossypium arboreum*	520 10	Cultivated

Sl. No.	No. of germplasm morphologically characterized	No. of germplasm molecular characterized	No. of germplasm regenerated	No. of variety developed
1.	530	0	530	19

New varieties and hybrids

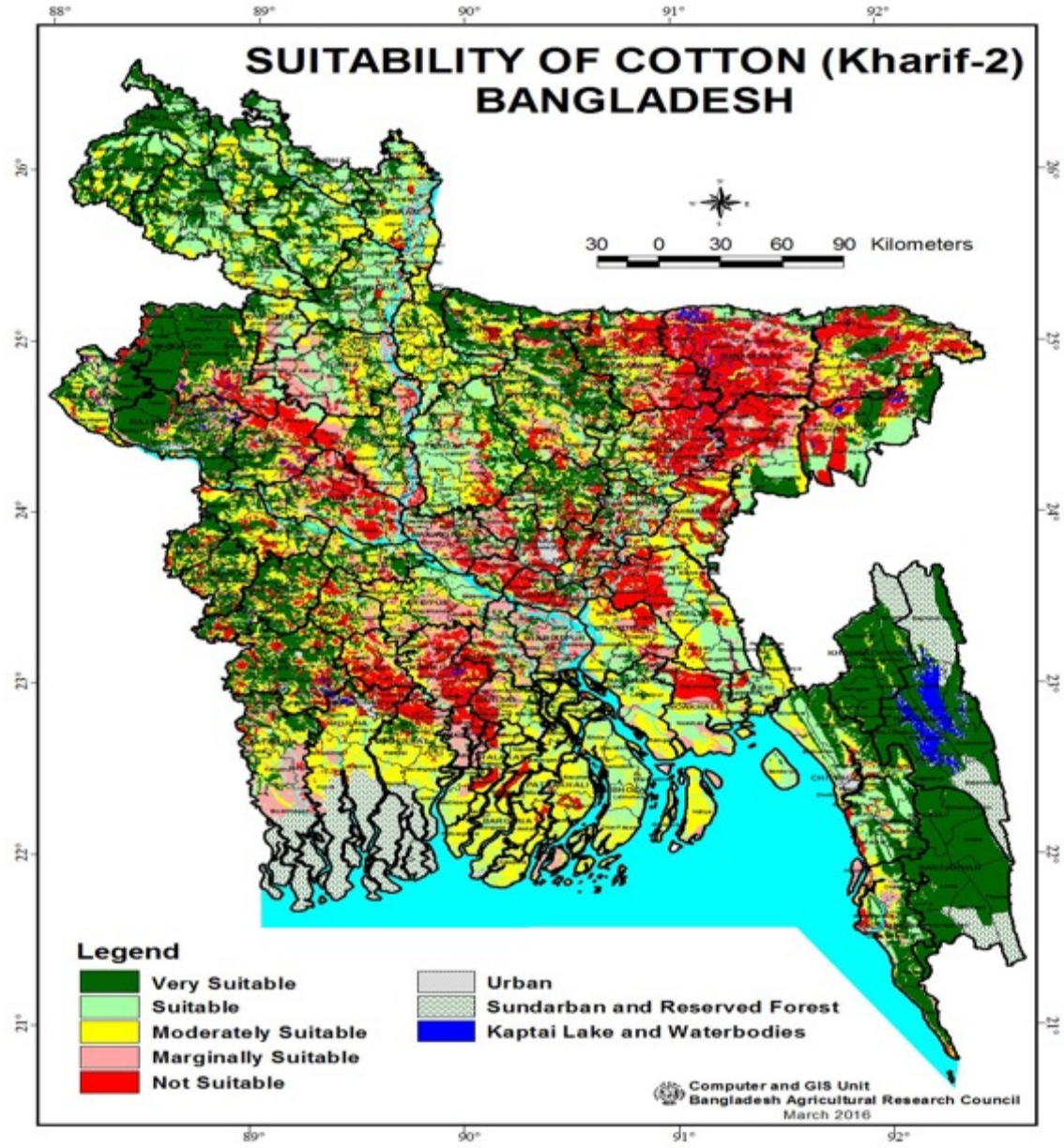
Cotton fiber quality

Sl. No	Fibre Characters	Indian Cotton	Bangladeshi Cotton			CIS Cotton
			CB-12	CB-14	Rupali-1	
1.	Fibre length (mm)	27.5-29.50	31.05	31.44	31.80	27.64-28.68
2.	Micronaire (µg/inch)	3.20-4.83	4.43	5.05	5.20	4.81-5.15
3.	Fibre Strength (g/tex)	28-34	33.16	33.64	32.56	27.1-30.60

Growing Season of Upland Cotton (Kharif II)



	July	Aug.	Sept.	Oct.	Nov.	Dec.
Land Preparation & Sowing						
Crop Management						
Harvesting						

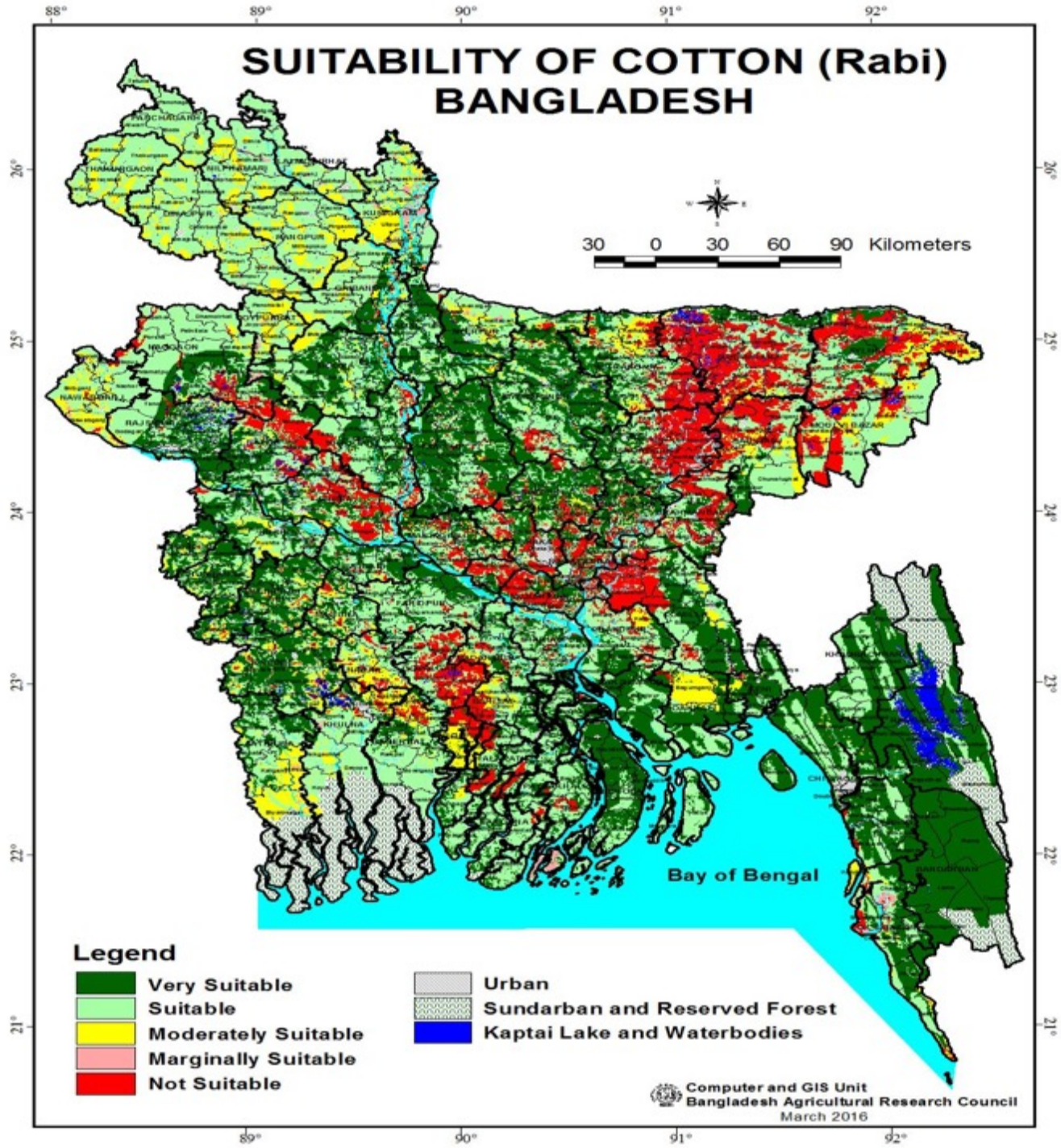

SUITABILITY OF COTTON (Kharif-2)
BANGLADESH
30 0 30 60 90 Kilometers
Legend
Very Suitable
Suitable
Moderately Suitable
Marginally Suitable
Not Suitable
Urban
Sundarban and Reserved Forest
Kaptai Lake and Waterbodies
Computer and GIS Unit
Bangladesh Agricultural Research Council
March 2016

Impact of Climate Change

Growing Season of Upland Rabi Cotton



	Nov	Dec	Dec-March		Aprl	May
Land Preparation & Sowing						
Crop Management						
Harvesting						


SUITABILITY OF COTTON (Rabi)
BANGLADESH
30 0 30 60 90 Kilometers
Bay of Bengal
Legend
Very Suitable
Suitable
Moderately Suitable
Marginally Suitable
Not Suitable
Urban
Sundarban and Reserved Forest
Kaptai Lake and Waterbodies
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March 2016

Transplanting Technology







Earthing up and canopy management

Table 1: Effect of vegetative branch removal on different parameters of Cotton

Treatment	Plant height (cm)	Number of sympodial/plant	Number of bolls/plant	Single boll wt	Seed cotton yield (t/ha)
T_1	154.67ab	19.50bc	25.03a	5.27b	2.29bc
T_2	150.17b	18.66c	22.13a	5.61a	2.23c
T_3	**173.47a**	**21.63a**	25.26a	**5.73a**	**2.52a**
T_4	157.67ab	20.60ab	24.33a	5.58a	2.42abc
T_5	155.47ab	19.93bc	25.60a	5.55ab	**2.57a**
T_6	168.83ab	20.10b	**26.76a**	5.54ab	2.48ab
Level of significance	*	**	ns	*	**
LSD	20.605	1.3	6.3	0.29	0.23

T_1 : No removal of vegetative branches,T_2: Removal of vegetative branches at 35 DAS,**T_3 : Removal of vegetative branches at 45 DAS**, T_4: Removal of vegetative branches at 55 DAS,T_5: Removal of vegetative branches at 65 DAS,
T_6: Removal of vegetative branches at 75 DAS.

Effect of detopping at various dates on Cotton

Treatment	Days of de-topping	Un-burst bolls/Plant	Yield (t/ha)	Crop duration	Date of final Harvest
Detopping on 10 September	64	2.1	3.24	145	: 30 Nov 16
Detopping on 20 September	74	1.5	3.54	152	7 Dec 16
Detopping on 30 September	84	1.7	3.71	157	10 Dec16
Detopping on 10 October	94	2.3	3.51	163	18Dec16
No Detopping		1.7	3.64	222	15Feb17
LSD (5%)	-	0.67	0.01	1.03	
CV%	-	0.835	5.67	17.01	
Level of significance	-	NS	**	**	

Canopy Management and fertilizer use

Fertilizer Application on basis of Yield Goal and Soil Analysis

Yield Goal: 3.5-4.0 t/ha

Soil Analysis Interpretation	**Nutrient Recommendation (kg/ha)**						
	N	P	K	S	Zn	B	Mg
Optimum	0-100	0-20	0-100	0-15	0-5	0-6	0- 0.5
Medium	75-125	20-30	100-125	10-20	5-10	6-12	0.5- 0.9
Low	125-150	30-40	125-150	20-25	10-15	15-20	0.9-1.4
Very Low	150-175	40-50	150-200	25-35	15-22	20-23	1.4-2.0

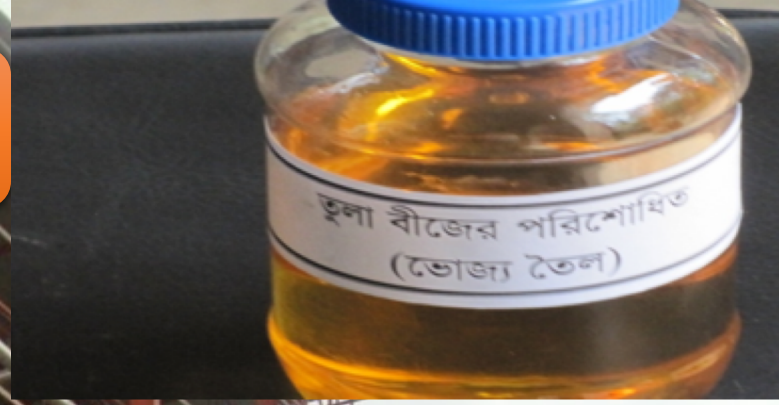
Cotton Based Cropping Pattern

Intercropping with Cotton

Cotton Pest Management

Cotton Harvesting

Cotton Seed oil refinery



- Land selection: Well drained high and medium high land is used for cotton cultivation
- Land Preparation: Land is ploughed deeply in 3-4 times followed by laddering
- Variety selection: CDB released HYV varieties are used by the farmers
- Sowing time: Depending on weather condition sowing time ranges from mid July to mid August
- Seed rate: 8-10 kg ha^{-1}
- Spacing: Line to line 90 cm and plat to plant 30 cm depending on soil type and sowing time
- Removal of Vegetative Branch

- Split Application of Fertilizer: Chemical fertilizers such as N, P, K, S, Zn, B and Mg are applied at 4 splits (basal, 20-25, 40-50, 60-70, 70-80 days after sowing).
- Foliar fertilization: Nutrient specially nitrogen, potassium, Boron & Zinc are applied as foliar spray during reproductive stage of cotton
- Use of Growth Regulator

- Weeding: The cotton field is kept free from weed specially the first 60 days after sowing.
- Pest management: IPM based pest management strategies are adopted by the farmers such as regular scouting of pest, using cultural practices like as hand picking of bollworm larvae, use of pheromone trap, use of bio-pesticide, etc.
- Harvesting: Harvesting is done manually
- Drying and storing: Harvested bolls are dried well and stored in a dry place before selling

Our Gratitude to….

International Cotton Advisory Committee (ICAC)
Washington, DC, USA

THE SOUTHERN AND EASTERN AFRICAN COTTON FORUM (SEACF)


Thank You
So Much