

Sustainable Intensification of Rabi Cropping through Cotton + Lentil Intercropping in Southern Bangladesh

Dr. Md. Farid Uddin
Executive Director
Cotton Development Board
Bangladesh

Bangladesh at a Glance

- 4th position in Rice production of world
- 3rd position in vegetable production of world
- 4th position in fish production of world
- 8th Mango producing country of the world
- **4th Rice Producing country and self sufficient in Rice production**
- **Digital Bangladesh**
- Bangladesh became **lower middle income** country and target to be **middle income** country in vision 2020-2021

Bangladesh at Glance

- BRRI released **85 HYV** rice varieties
- BRRI Bio fortified released **Zinc enriched** variety
- Research and Development on **Golden rice**
- BARI is the biggest multi crop Institute and conducting research of **208** crops and released thousand of crop varieties on maize, wheat Vegetables, fruits, spices etc.
- Bangladesh released First GMO crop-**Bt Brinjal**
- **Bt cotton** is under process to release

BANGLADESH COTTON: CURRENT SCENARIO

- **2nd** largest apparel producer in the world
- **2nd** largest cotton fibre consumer in the world
- **Highest Raw cotton** importer in the world
- **Fibre Imports** from- India, Uzbekistan, USA, other CIS and some African countries
- **31.50 billion** US dollar business in 2016
- **50 billion dollar** in Vision 2020-2021

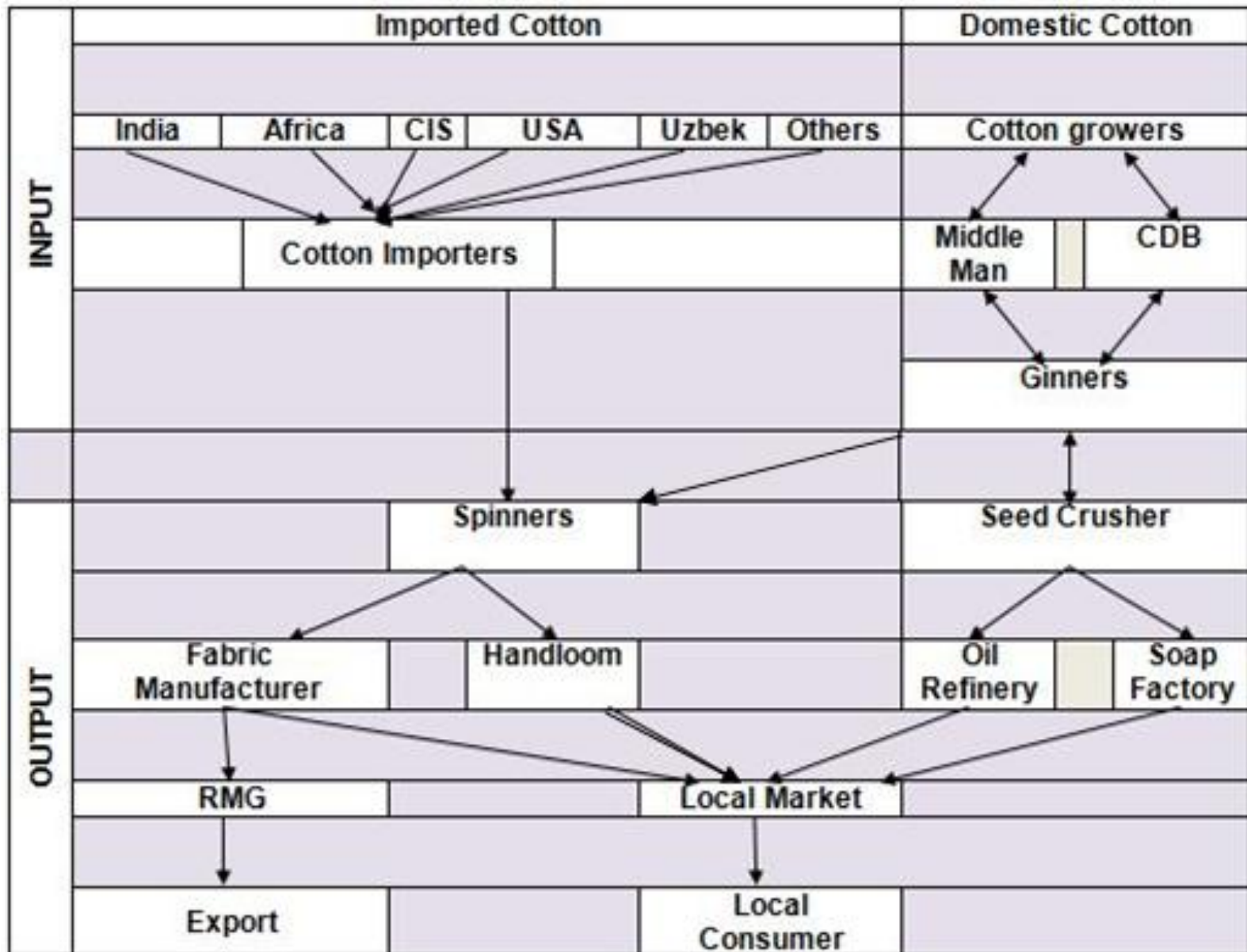


COTTON SECTOR IN BANGLADESH

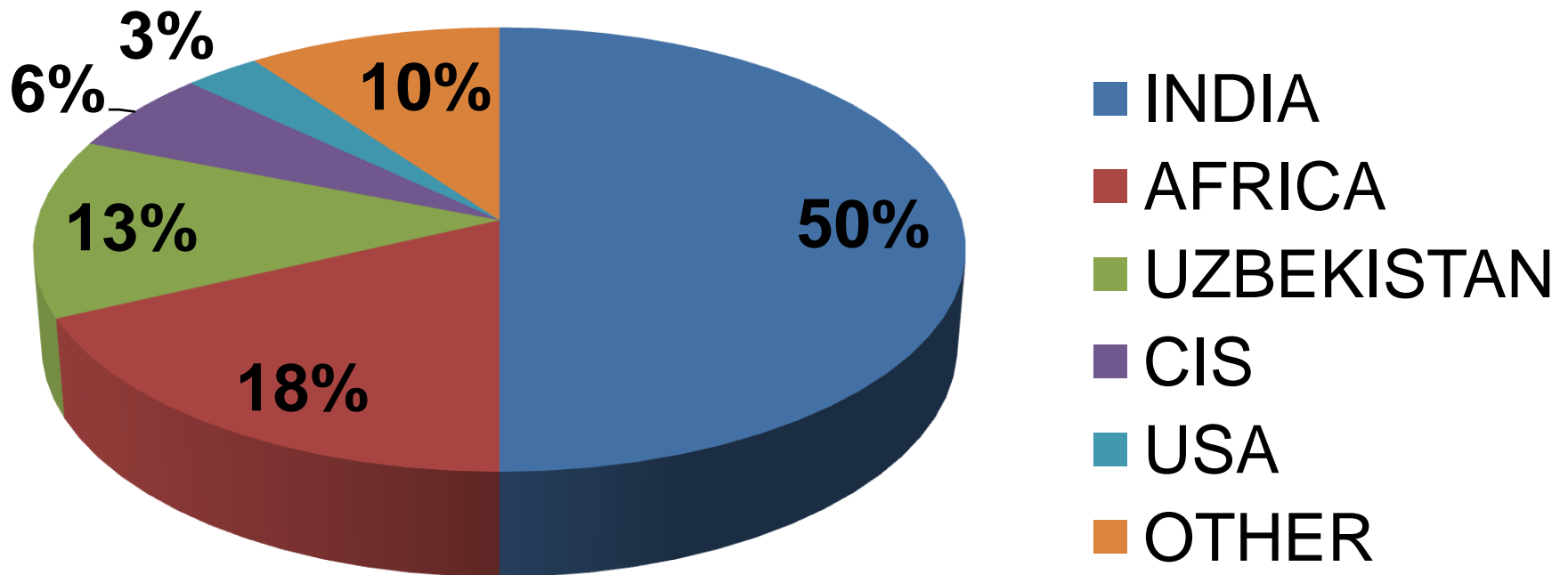
A. READYMADE GARMENTS	Garments unit	5000
	Total Work Force	5 million
B. TEXTILE	Knit wear industries	1700
	Weaving mills	1343
	Hand loom	300000
C. SPINNING	Spinning mill	450
D. GINNING	Ginning Centres	Private-15, CDB-12
	Saw ginning	104
	Roller ginning	25
E. OIL EXTRACTION	Crude oil expeller	15
	Oil refinery	01



COTTON SUPPLY CHAIN



COTTON IMPORT



Sustainability of Textile Sector

❑ TEXTILE SECTOR

- 80% of the country's export earnings
- 7,000 factories
- Contributes 23% of GDP
- Employ 5.1 million workers
- 6 million bales of cotton requires annually
- Sustainability depends on supply of cotton
(Social System Study, 2016,33: 109-139)



❑ Local supply of Cotton

- 156000 bale of lint
- 42000 ha in 2015-2016
- Cotton Development Board targeted to meet 10% of local demand
- Suitable land in plain areas is used for food production
- Expansion of cotton area is Govt. Policy





Textile sector-Vision 20-21

- 50 Billion RMG business
- Bangladesh became the highest cotton raw cotton importer of the world.



Bangladesh is producing & may expand the export of **High Value Added Products** through product diversification.

Continued....

BANGLADESH AGRICULTURE

1.	Cultivable Area	:	8.5 m. ha
2.	Area Suitable for Cotton Cultivation	:	250,000 ha
3.	Net Cropped Area	:	8030,000 ha
4.	Total Cropped Area	:	14200,000 ha
5.	Cropping Intensity	:	190
6.	Growth Rate	:	3.5-4.12%
7.	GDP contribution	:	18.70%
8.	Total Farm Family	:	15.18 million
9.	Major Crop	:	Rice, Jute, Maize, Sugercane, Pulses, Tea etc.
10.	Climatic variability	:	Tidal surge, Cyclone, Flood, Salinity, Drought



FIBRE QUALITY

Sl. No	Fibre Characters	Indian Cotton	Bangladeshi Cotton	CIS Cotton
1.	Fibre length (mm)	27.5-29.50	28.79-30.40	27.64-28.68
2.	Micronair	3.20-4.90	3.87-4.20	4.81-5.15
3.	Fibre Strength (GPT)	28-34	29-30.53	27.1-30.60
4.	SCI (Spinning consistency Index)	128-136	129-140	122-139

MAJOR CHALLENGES

- Long duration-
- Competitive Land

New Challenges:

- Erratic and continuous rainfall in July and August

Cotton in Coastal Area during Winter Season

Challenges in Coastal area

- Saline and Non-saline
- Late harvesting of T. Aman
- Early Rainfall
- Need Short duration variety of Cotton

Opportunities for Coastal area

- Available land-Vast land remain Fallow around 1.8 m.ha
- Available Source of surface irrigation
- Cotton is tolerant to salinity
- Using seedling for transplanting
- High temperature loving crop

Development of Rabi Cotton season

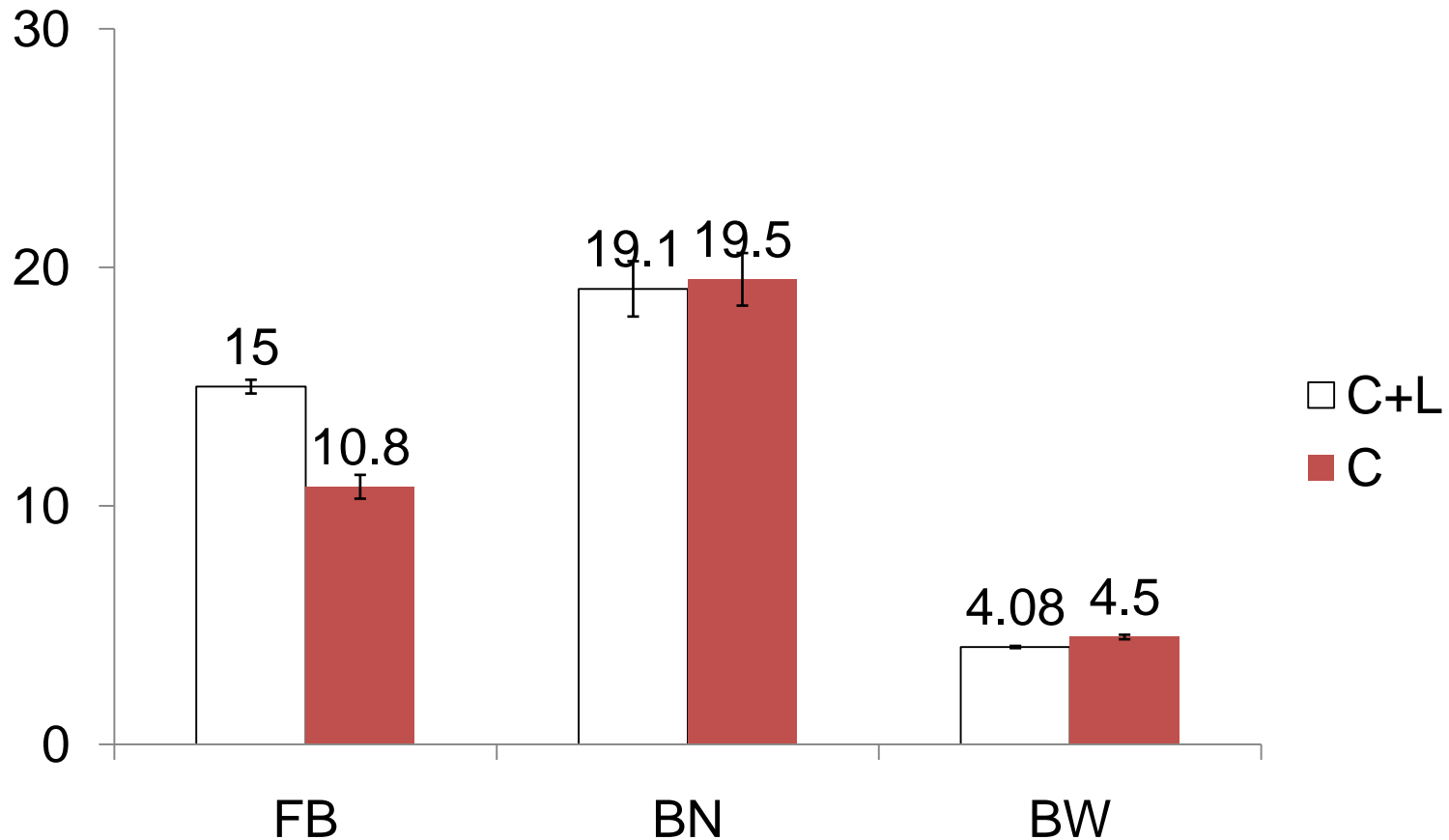
- Research and Development of Rabi cotton
- Development of a new pattern-
T.Aman-Cotton

Materials and methods

- On-farm trials at 43 farmers plot
- Plot size: 1 Bigha (14375 sq feet)
- Treatments:
 - T1: Cotton (C) + Lentil (L) intercropping
 - T2: Sole Cotton (C)
- Sowing time: Mid November
- Spacing:
 - Cotton : 90 × 45 cm
 - Lentil: Broadcast

Results

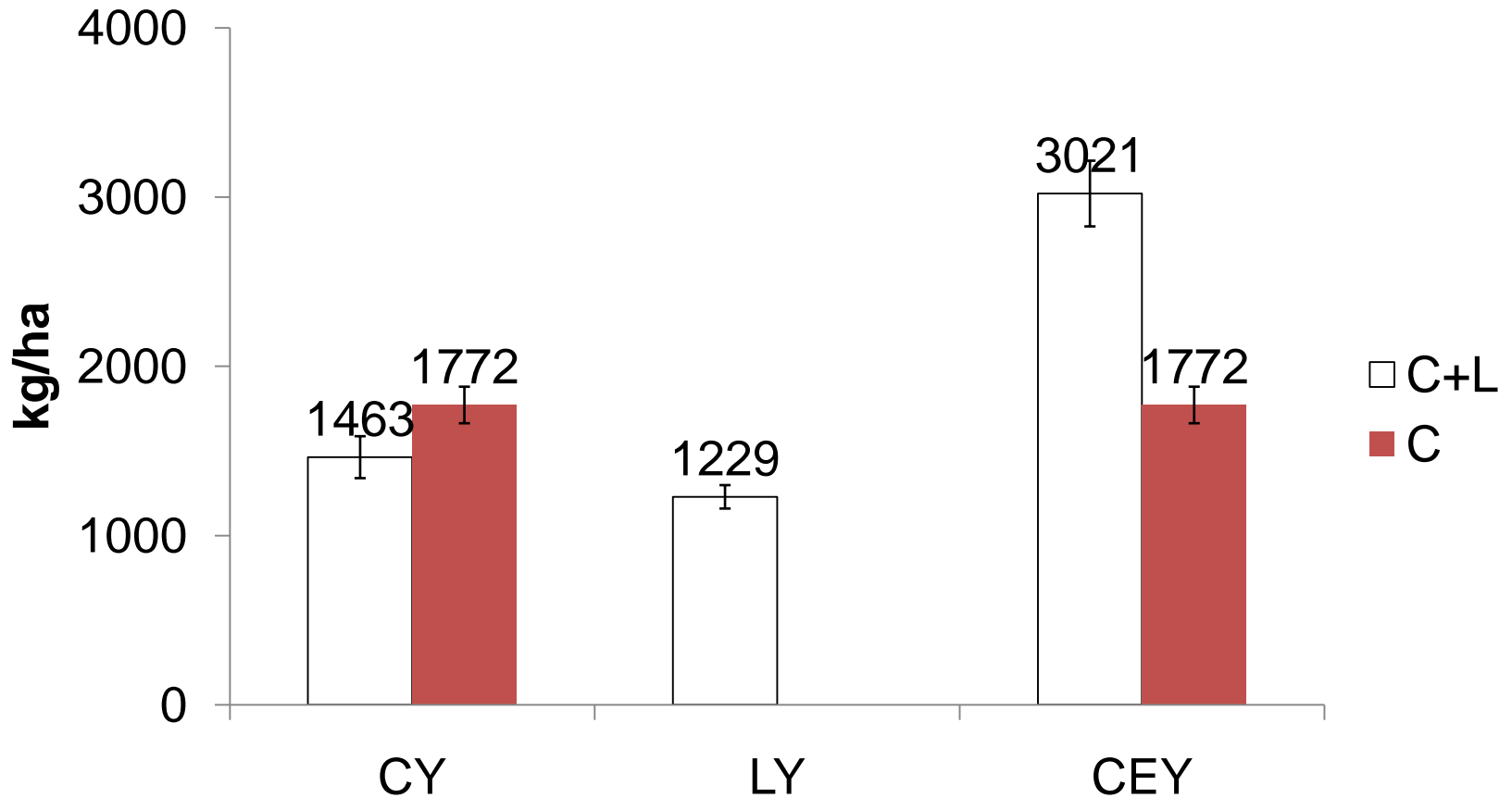
Effect of Cropping System on Cotton Yield Contributing Characters



FB- Fruiting Branch/plant,
BN- Boll number/plant,
BW- Single Boll Weight (g)

C+L- Cotton + Lentil Intercropping
C- Sole Cotton

Effect of Cropping System on Crops Yield



CY- Seed Cotton Yield (kg/ha)

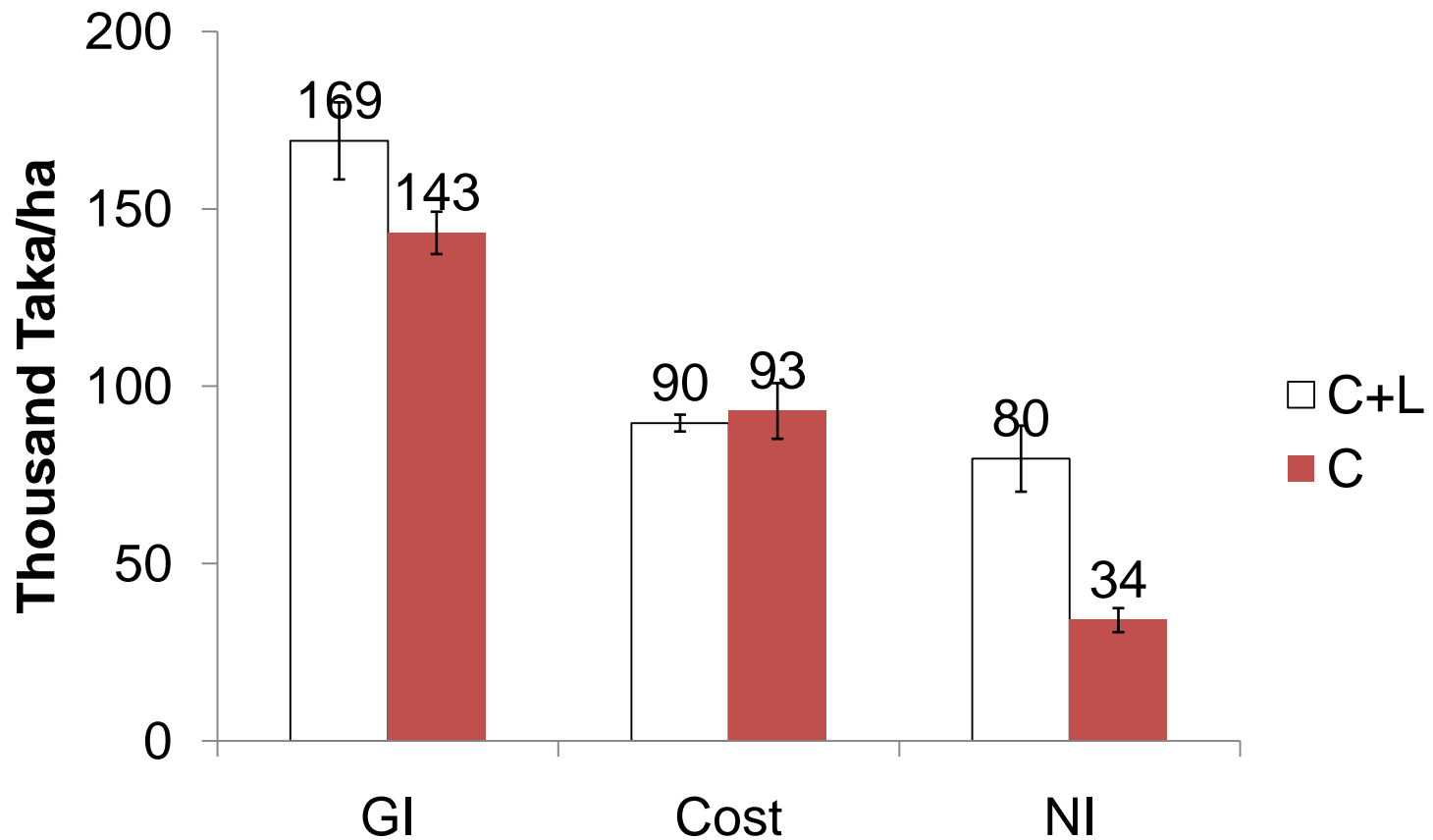
LY- Lentil Yield (kg/ha)

CEY- Cotton Equivalent Yield (kg/ha)

C+L- Cotton + Lentil Intercropping

C- Sole Cotton

Effect of Cropping System on Farmers Income



GI- Gross Income
NI- Net Income

C+L- Cotton + Lentil Intercropping
C- Sole Cotton

Conclusion

Our on-farm trials result indicates that sustainable intensification of Rabi cropping in southern Bangladesh can be achieved through expansion of cotton + lentil intercropping.

Cotton with lentil



Cotton with Lentil after Lentil harvest



রবি-২ তুলাচাষ প্রদর্শনী প্লট



জাতের নাম	ঃ রূপালী-১
বপন তারিখ	ঃ ১০-১১-২০১৬
চাষীর নাম ও ঠিকানা	ঃ মোঃ শের আলী
গ্রাম	ঃ কুলিয়া, ঝিকরগাছা, যশোর।
ইউনিটের নাম	ঃ ঝিকরগাছা

সম্প্রসারিত তুলা চাষ প্রকল্প (ফেজ-১)
তুলা উন্নয়ন বোর্ড, যশোর জোন, যশোর।







রবি তুলার সাধারণ প্রদর্শনী প্লট

তুলার জাতের নাম : রূপালী-১ (হাইব্রিড)

বপন দূরত্ব : ৯০x৪৫ সেঃ মিঃ

বপন তারিখ : ২১/১১/২০১৬

চাষীর নাম : মোঃ আলতাফ হাওলাদার

ঠিকানা : ঘটখালী।

ইউনিটের নাম : আমতলী।

সম্প্রসারিত তুলাচাষ প্রকল্প (ফেজ-১),

তুলা উন্নয়ন বোর্ড, কুষ্টিয়া জোন।







THANK YOU

15 01 2016