

STANDARDS REQUIRED ON AGRO TEXTILES FOR INCREASED AGRICULTURAL PRODUCTIVITY

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TECHNICAL TEXTILES WORLD WIDE & STATUS IN INDIA

- * Asia is a power house of both production and consumption of technical textiles.
- * China is the market leader currently followed by Japan, Korea, India and Taiwan
- * In China Technical Textile Industry accounts for around 20% of the textile sector
- * The technical textile industry currently contributes to just around 0.75% of the total GDP of India at current prices.
- * The technical textile industry contributes to roughly 12% of Indian textile Industry at present and has tremendous scope to improve

WHAT IS AGROTEXTILE

- Special textiles that are manufactured for agricultural applications
- These textile structures are used as controlling environment for plants/animals in applications like
 - Agriculture
 - Horticulture
 - Animal husbandry

Benefits of usage of agrotextile – facts and figures

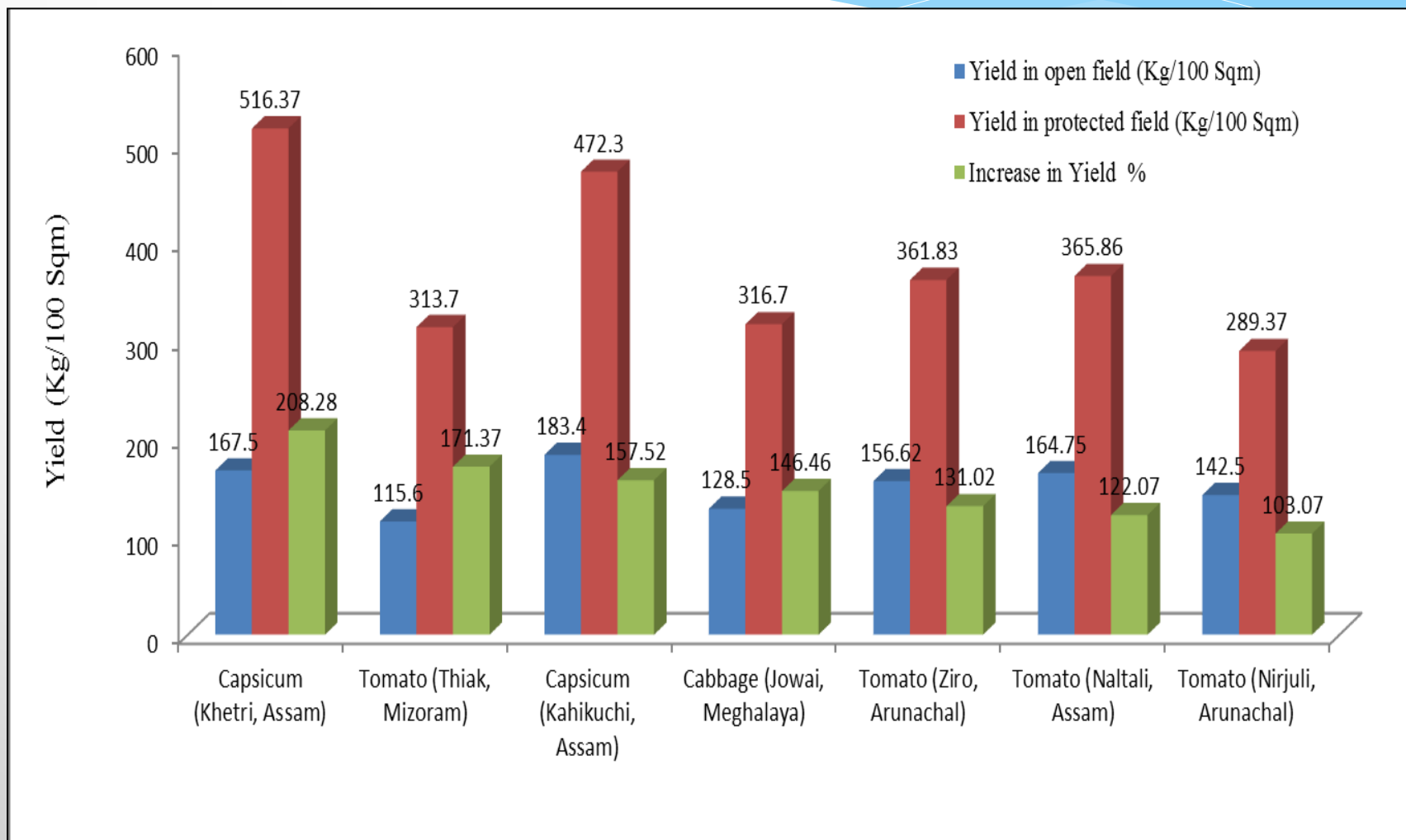
Advantages of Agrotextiles

- * Increased productivity
- * Will help us resolve space and water constraints
- * Traditional methods such as use of pesticides and herbicides can be replaced drastically
- * Growing diseases due to various chemicals and pollution can be effectively controlled
- * Production of organic foods and vegetables in cost effective ways can be achieved successfully.

SCHEME FOR PROMOTING USAGE OF AGROTEXTILES IN NORTH EAST REGION

Demonstration outcome

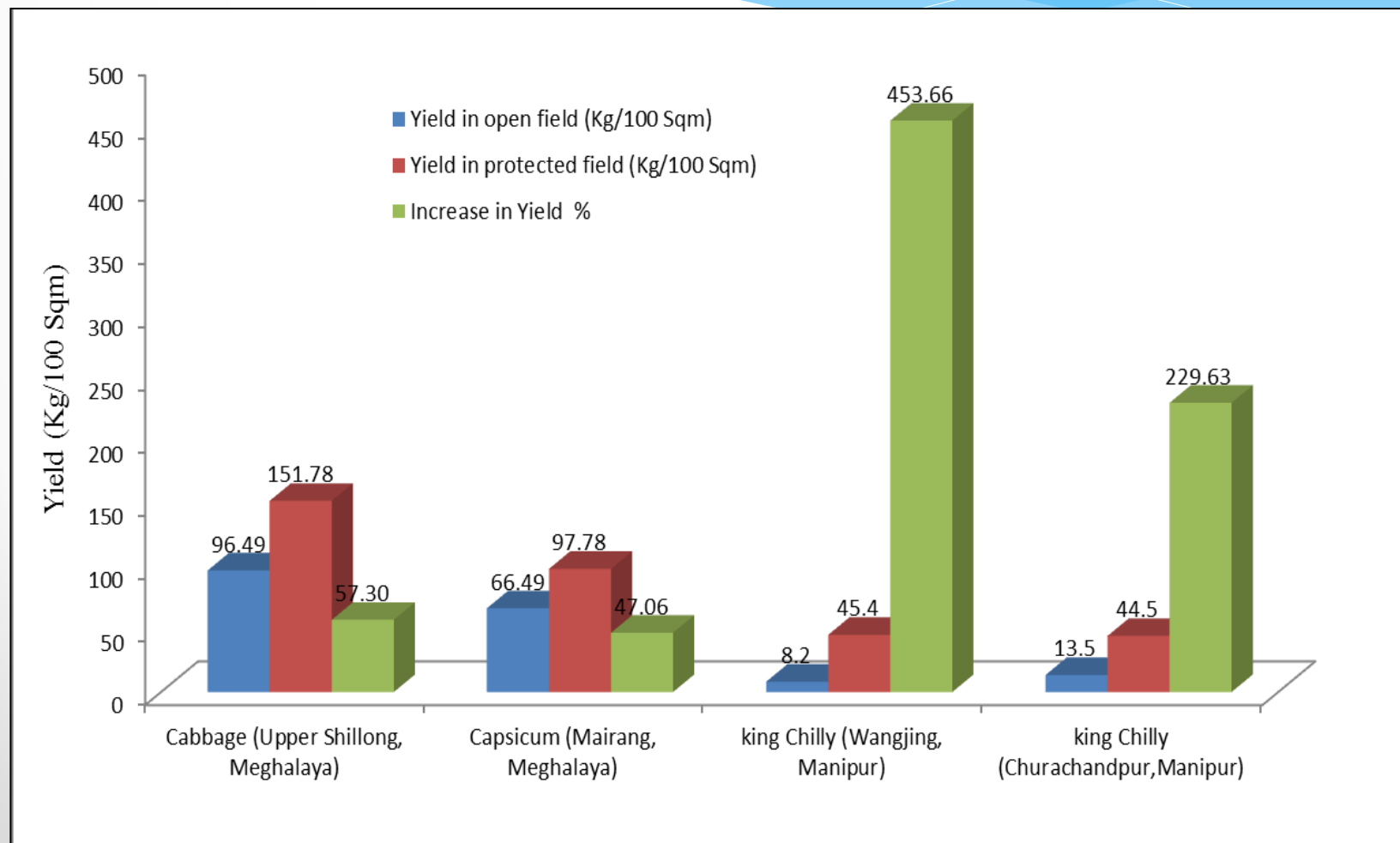
Product: Shade Net House



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Demonstration outcome

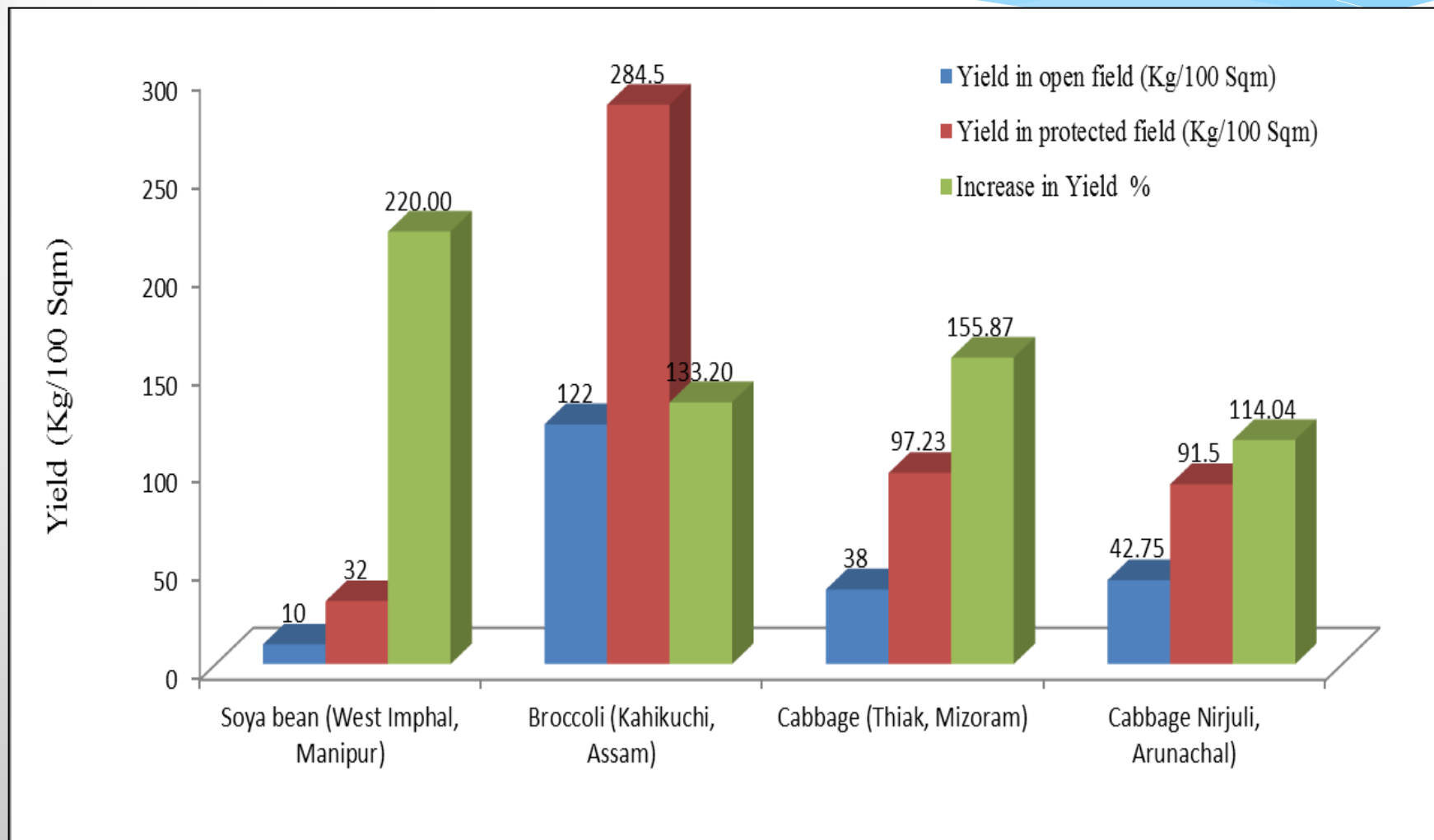
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Demonstration outcome

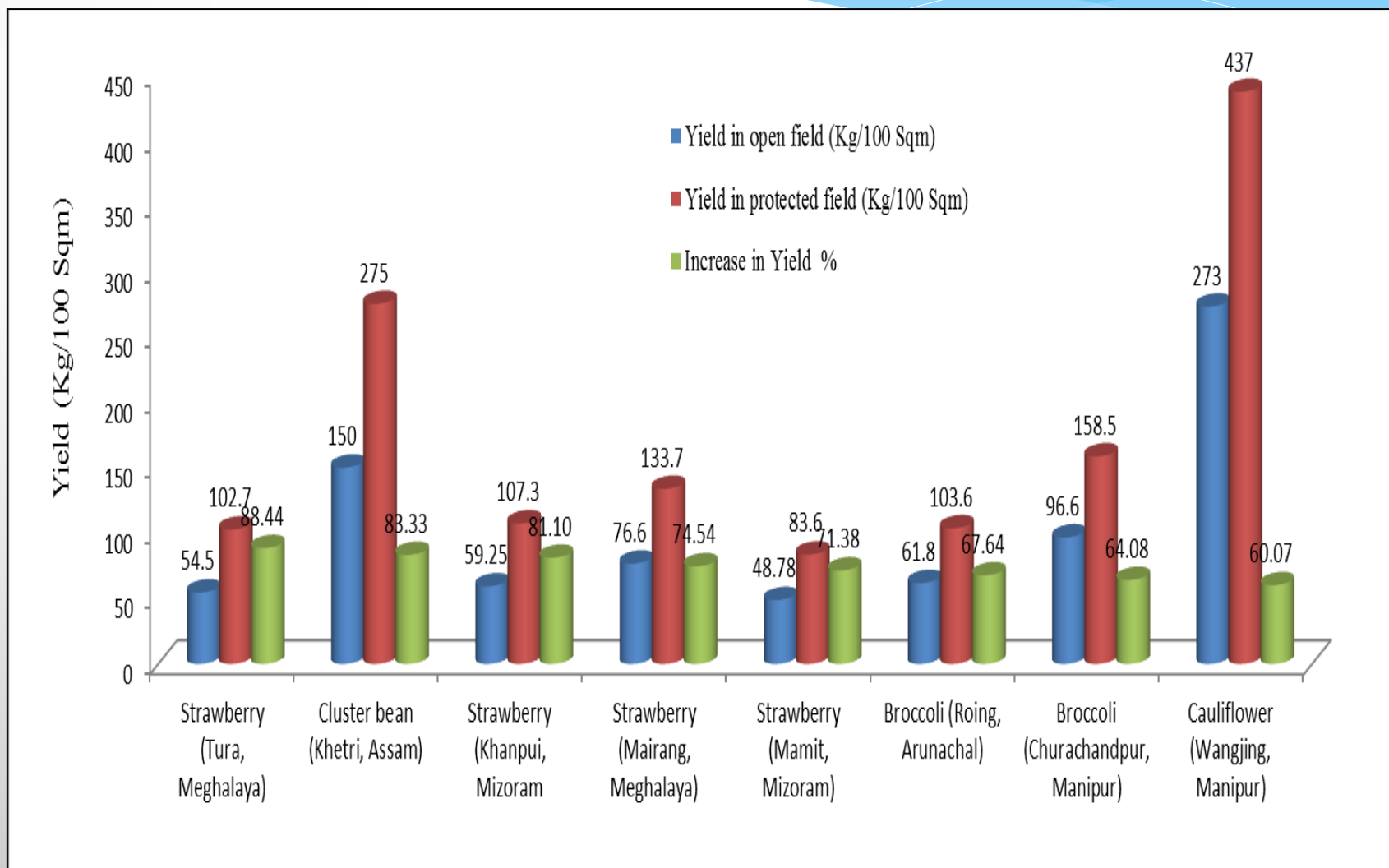
Product: Crop Cover



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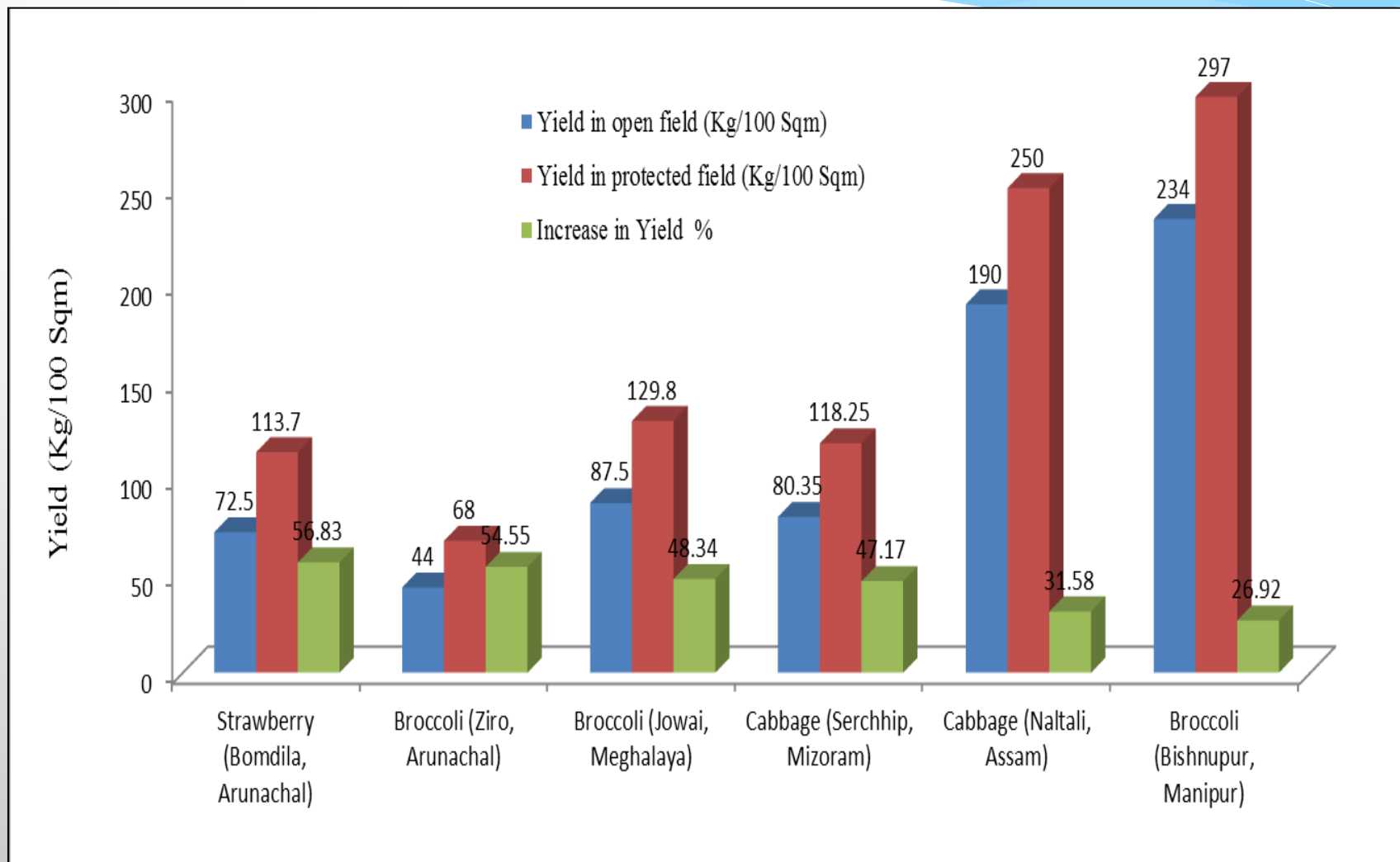
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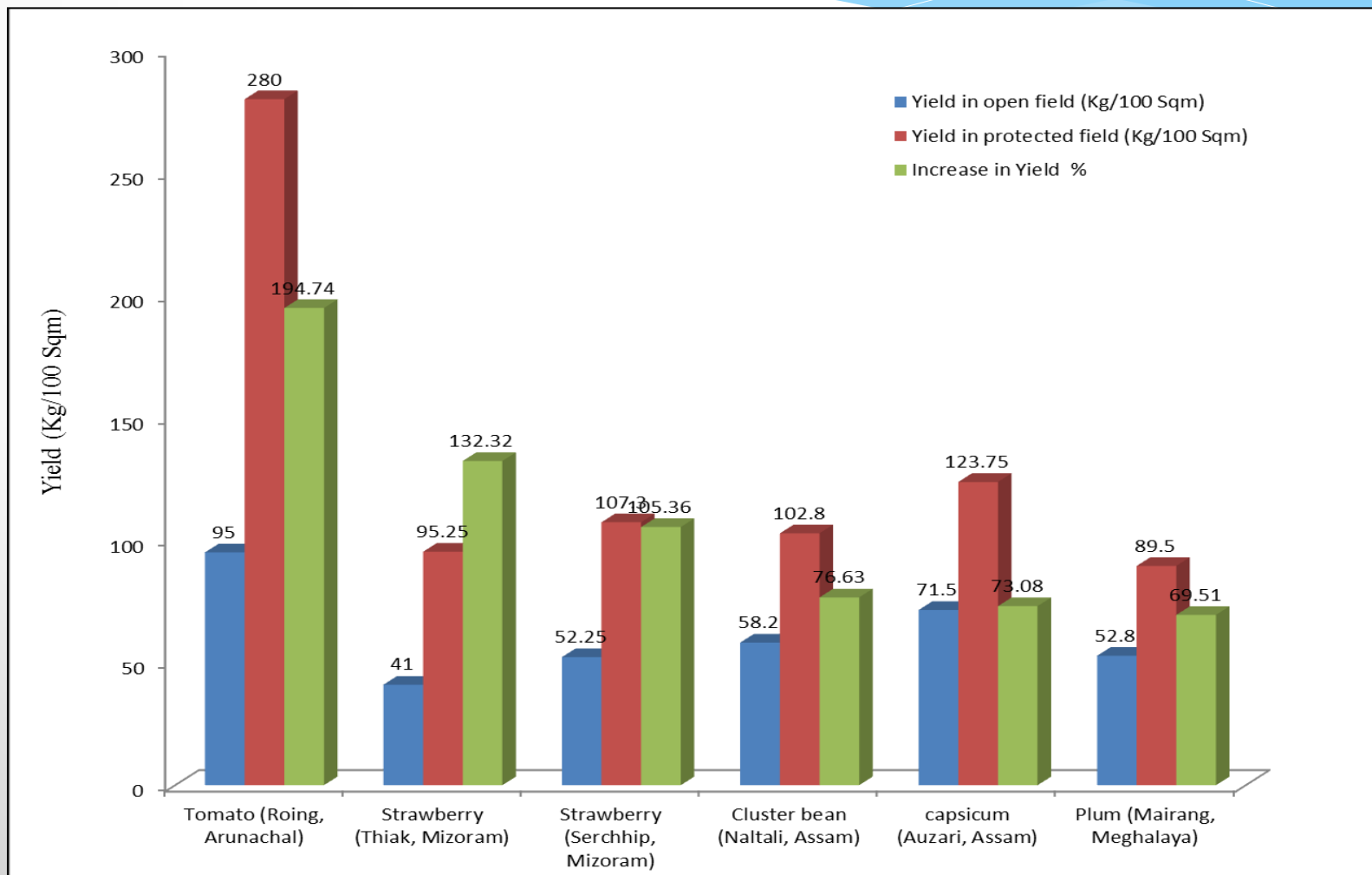
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Demonstration outcome

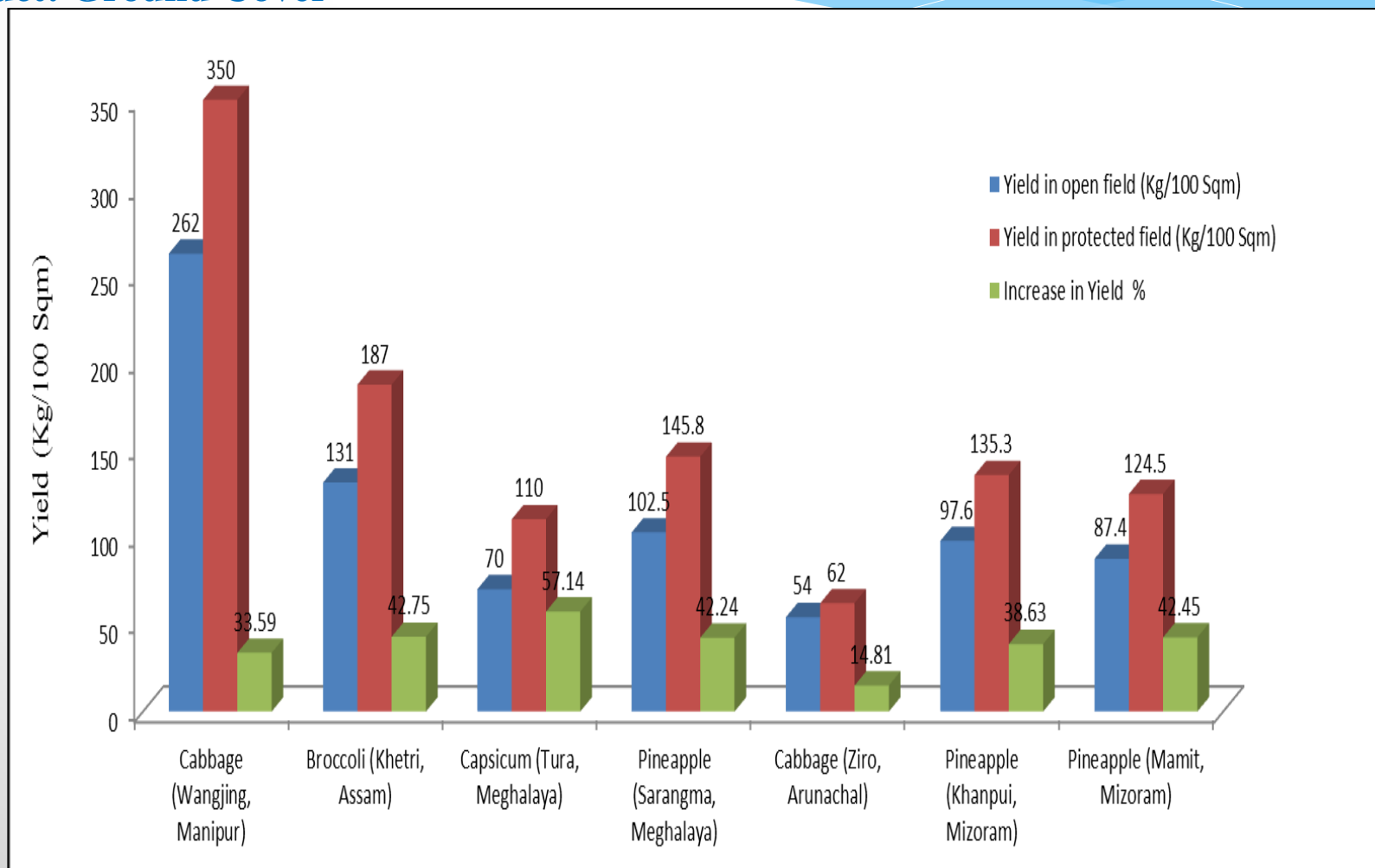
Product: Ground Cover



SCHEME FOR PROMOTING USAGE OF AGROTEXTILES IN NORTH EAST REGION

Demonstration outcome

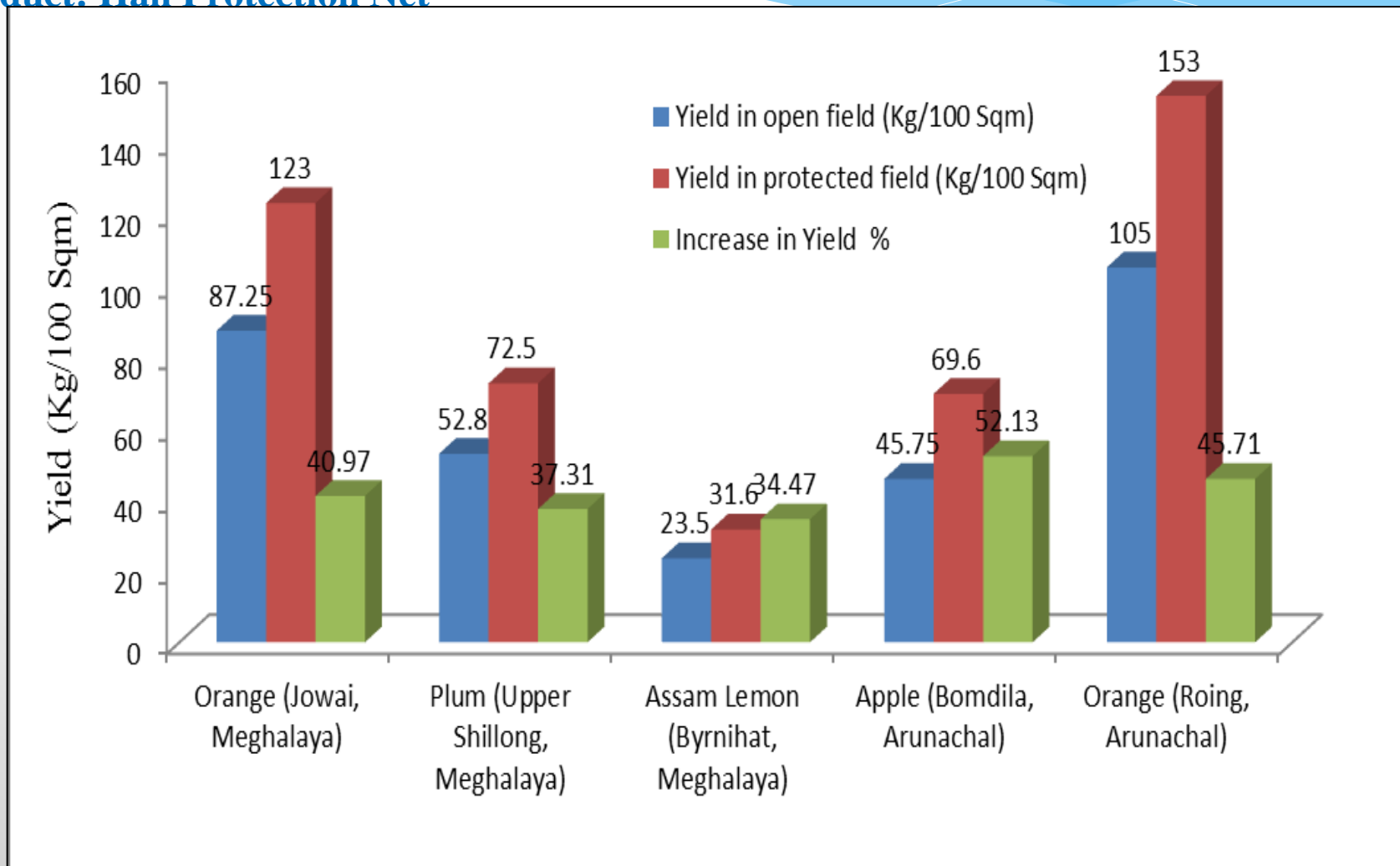
Product: Ground Cover

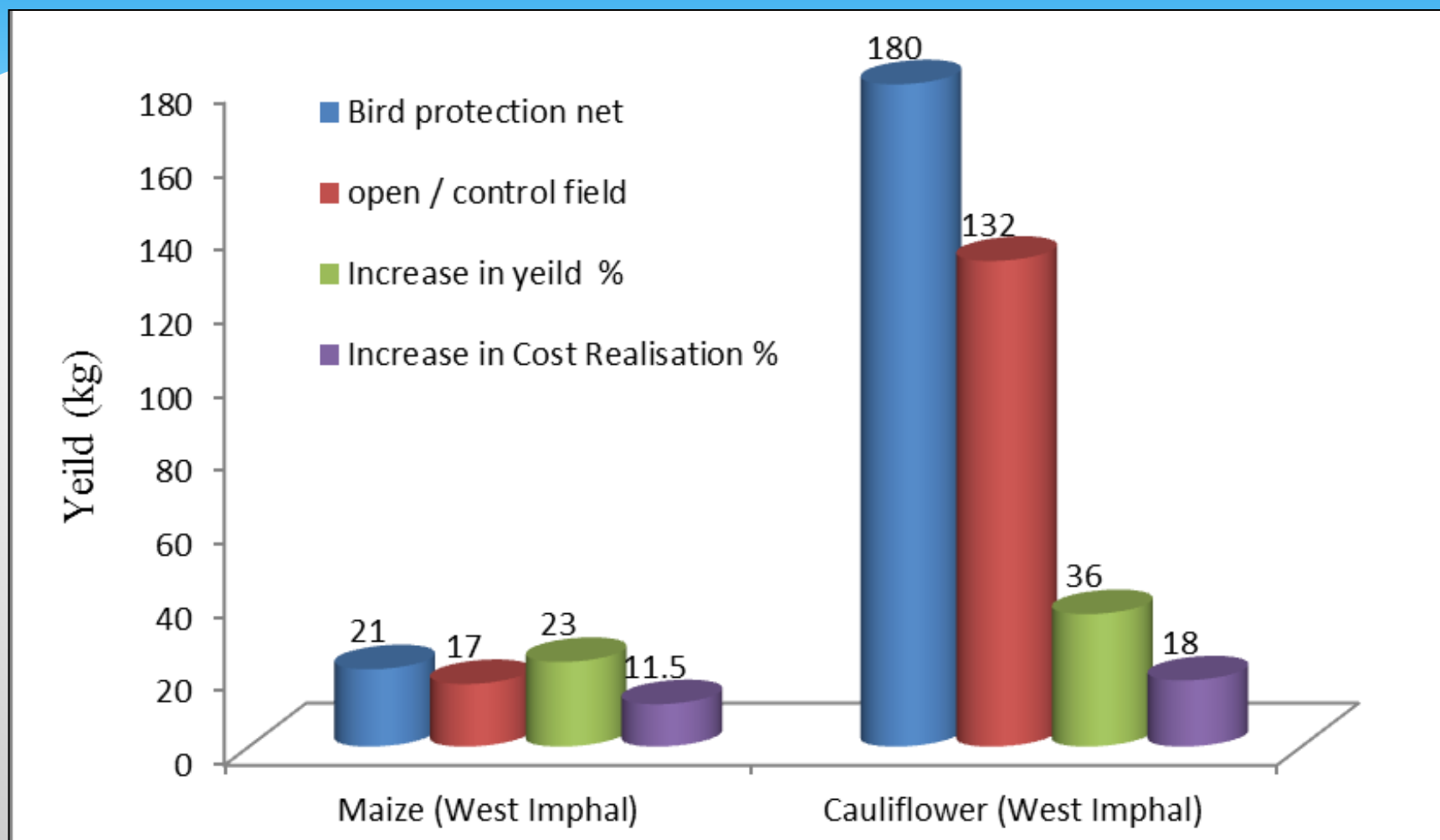


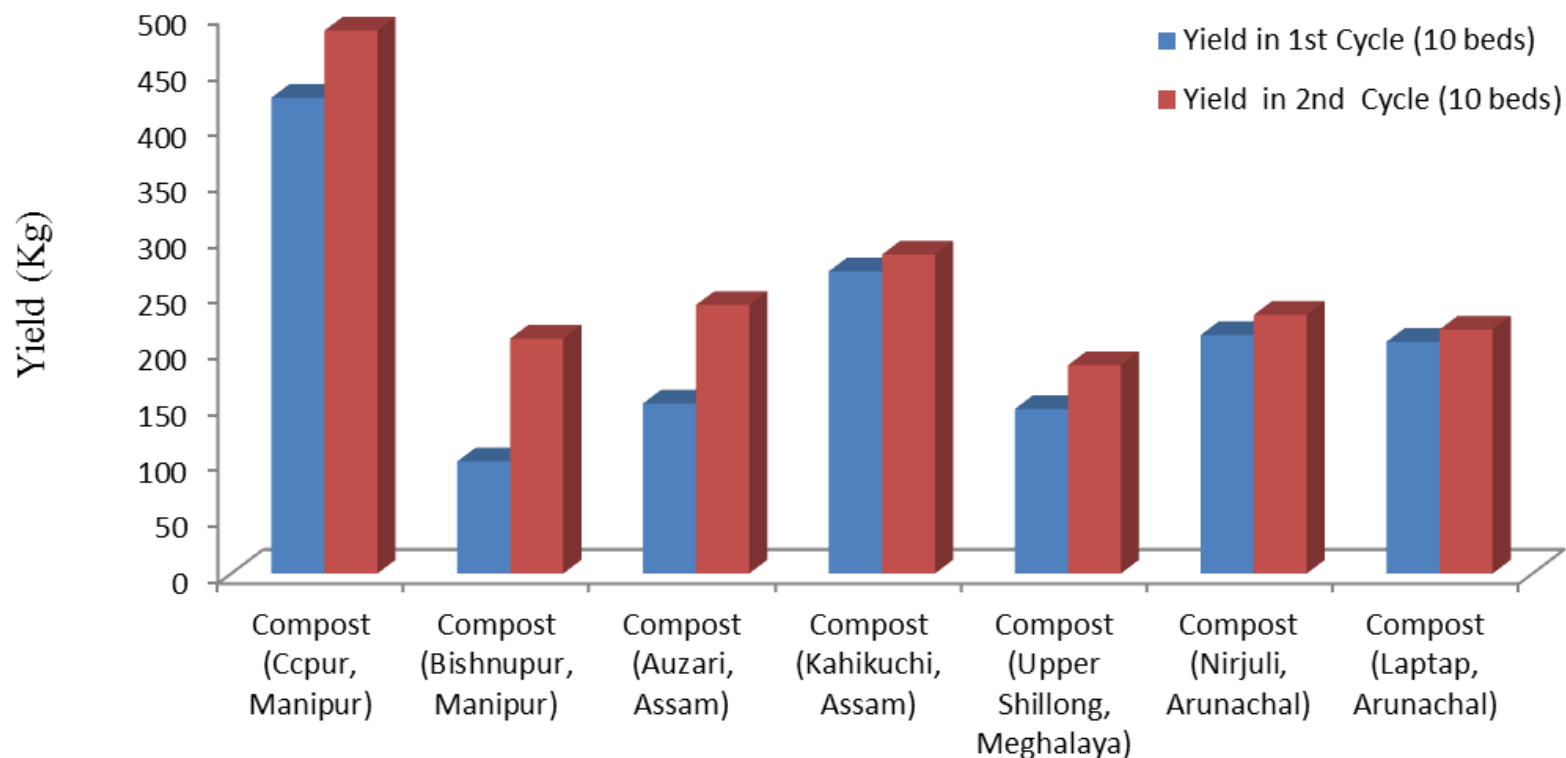
SCHEME FOR PROMOTING USAGE OF AGROTEXTILES IN NORTH EAST REGION

Demonstration outcome

Product: Hail Protection Net



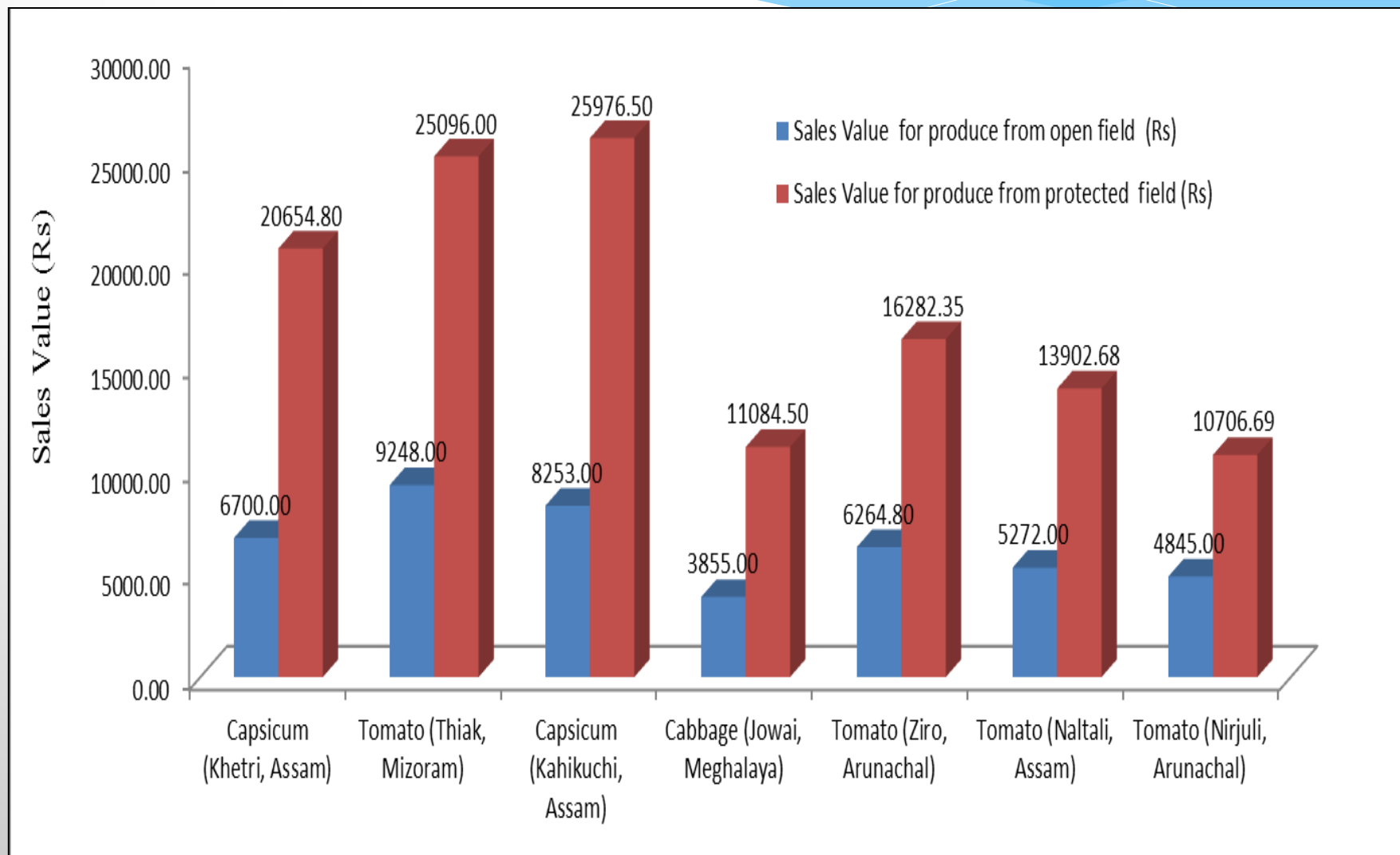
SCHEME FOR PROMOTING USAGE OF AGROTEXTILES IN NORTH EAST REGION**Demonstration outcome****Product: Bird Protection Net**

SCHEME FOR PROMOTING USAGE OF AGROTEXTILES IN NORTH EAST REGION**Demonstration outcome****Product: Vermi Composting Bed****Effect of Vermi Bed on Productivity of Compost**

SCHEME FOR PROMOTING USAGE OF AGROTEXTILES IN NORTH EAST REGION

Demonstration outcome

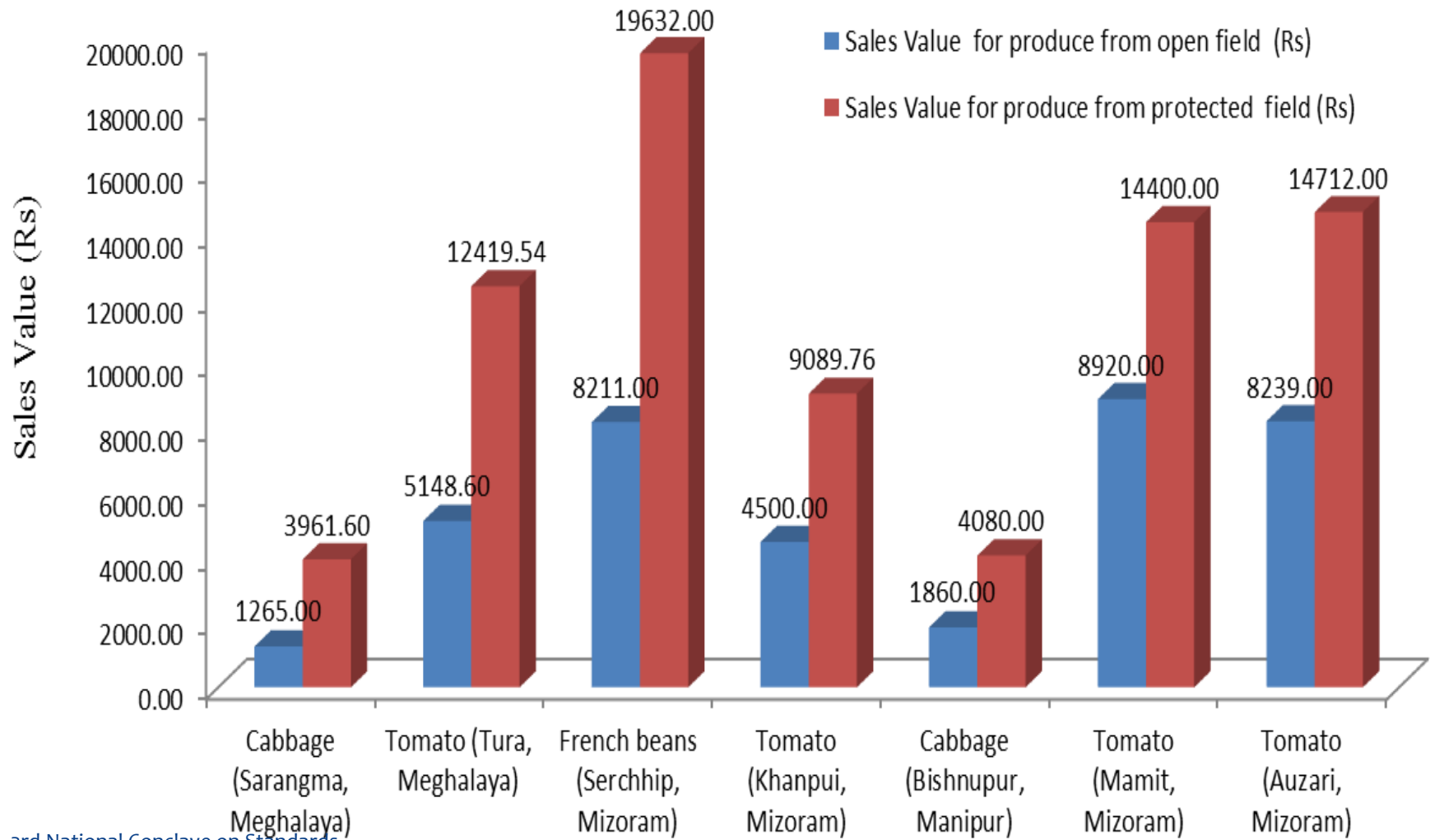
Product: Shade Net House



SCHEME FOR PROMOTING USAGE OF AGROTEXTILES IN NORTH EAST REGION

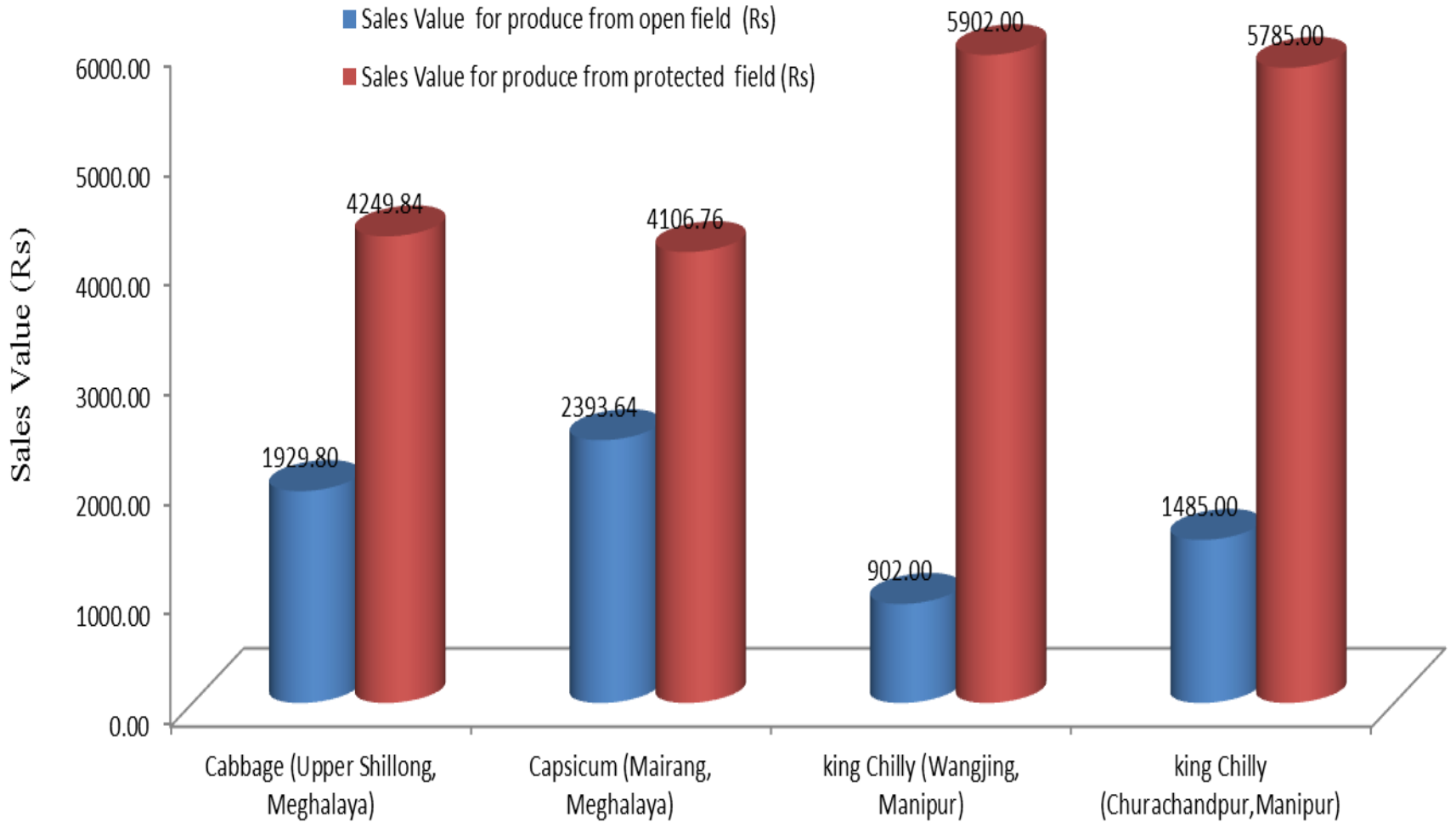
Demonstration outcome

Product: Shade Net House



Demonstration outcome

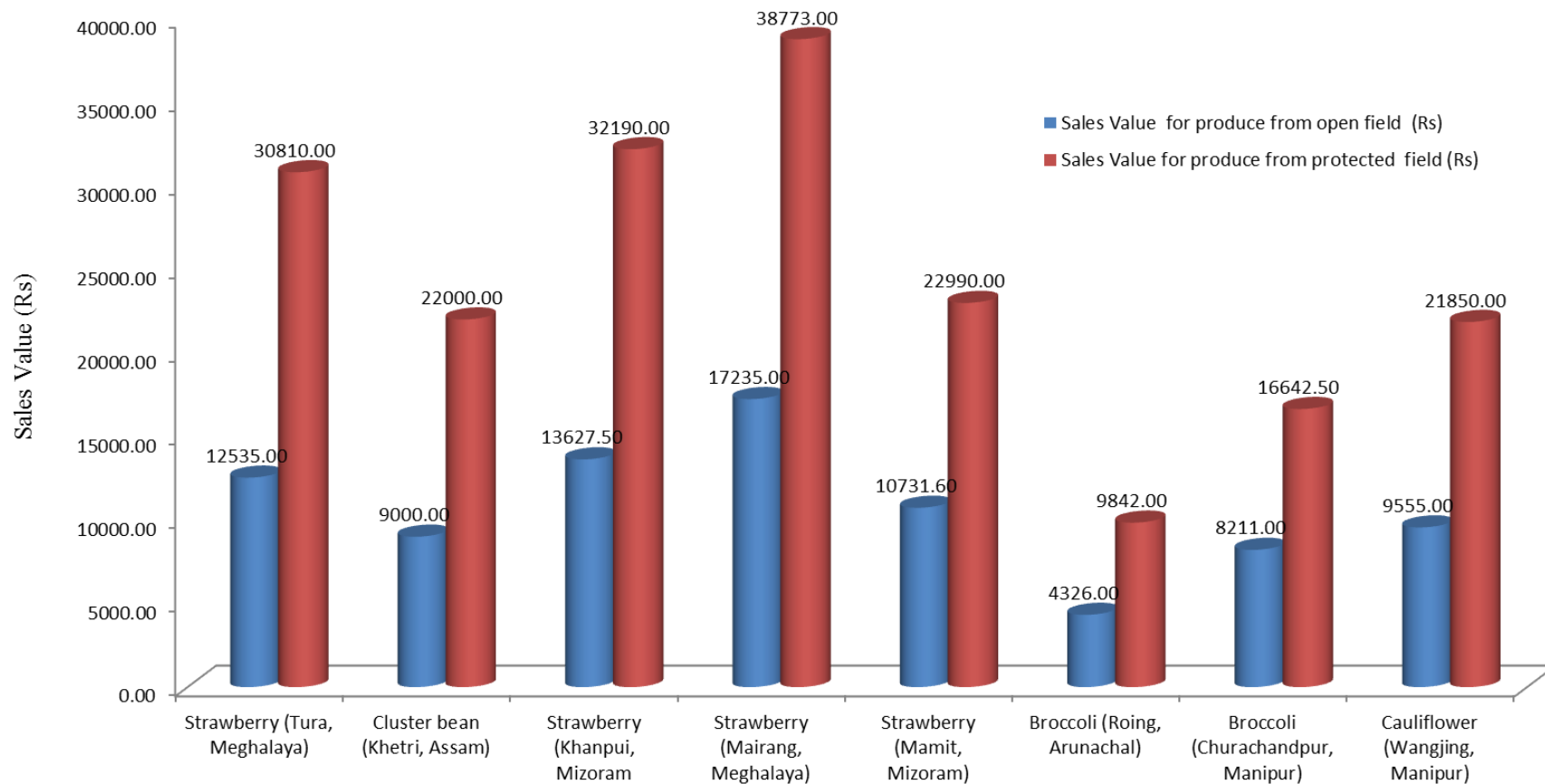
Product: Shade Net House



SCHEME FOR PROMOTING USAGE OF AGROTEXTILES IN NORTH EAST REGION

Demonstration outcome

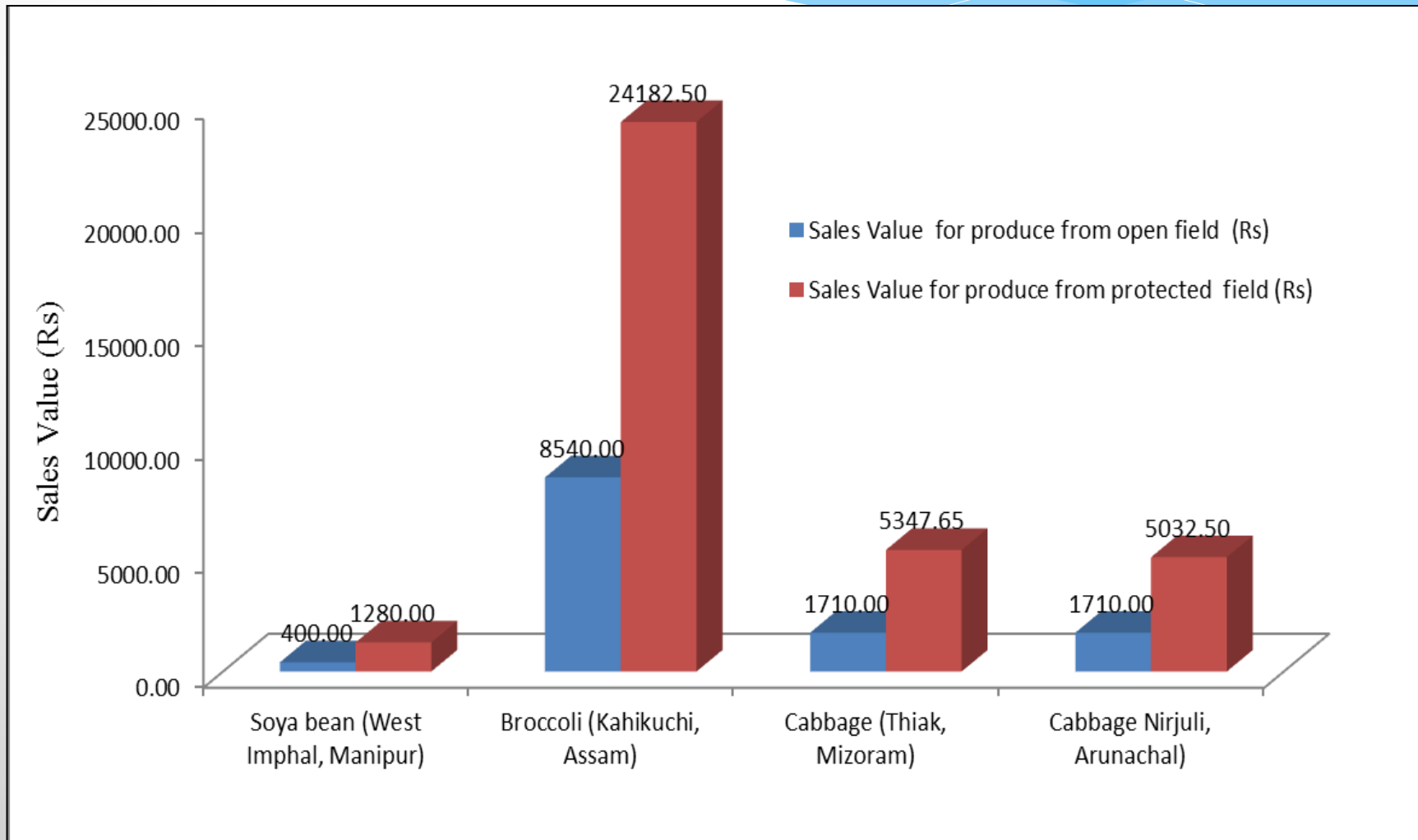
Product: Crop Cover



SCHEME FOR PROMOTING USAGE OF AGROTEXTILES IN NORTH EAST REGION

Demonstration outcome

Product: Crop Cover



SUCCESS STORIES

sasmira

Sl. No.	Name and Address	Cropping Cycle	Types of Crops	Income Earned
2 CTM	M. Lukhoi Singh of Charangpat Maning Leikai	1 st Crop	Cucumber, King Chilly & Tomato	Rs. 35,000
		2 nd Crop	Same Continued	Rs. 39,000
		Present	Tomato, Coriander, Broccoli	Rs. 27,000 Harvest start
27	Konjengbam Shyamchandra Singh of Lourembam	1 st Crop	Capsicum only	Rs. 70,000
		2 nd Crop	Coriander, Tomato, Broccoli	Rs. 45,000 till date
51	Maibam Bijen Singh of Ukhongsang	1 st Crop	King Chilly only	Rs. 75,000
		2 nd Crop	King Chilly only	Rs. 59,000 till date
52	Hijam Deepak Singh of Ukhongsang	1 st Crop	Tomato only	Rs. 48,000
		2 nd Crop	Tomato only	Rs. 35,000 till date
54	Tongbram Somorjit Singh Wangjing	1 st Crop	King Chilly	Rs. 35,000
		2 nd Crop	Nursery plants	Rs. 40,000
		3 rd Crop	Nursery plants	Rs. 25,000
36	Asangbam Adonish Singh Of Wangjing Tekcham Leikai	1 st crop	King Chilly	Rs. 45,000
		2 nd Crop	Tomato, Broccoli	Rs. 30,000
41	Sapam Budha Singh	1 st crop	King Chilly	Rs. 40,000
		2 nd Crop	Capsicum	Rs. 47,000
25 Aero tech	Waikhom Shyamkeshor Singh Chingdompok, Heirok	1 st crop	Tomato, Cabbage	Rs. 30,000
		2 nd Crop	Flower Nursery	Rs. 46,000
		3 rd Crop	Flower, Vegetable Nursery	Rs. 40,000 till date

EXPERIENCE / FEEDBACK OF THE AGRICULTURAL USERS OF AGROTEXTILES **sasmira**

Sr. No	Agrotextile Product	Product Awareness Before (% per 1000 persons)	Product Awareness after (% per 1000 persons)	Increase in Yield (%)	Increase in Selling Price (%)	Impact on Quality
1	Shade Net	5	40	80	45	Improved
2	Ground Cover	Nil	25	50	37	Improved
3	Crop Cover	Nil	20	65	32	Improved & No frost damage
4	Bird Protection Net	2.5	20	20	17	No bird damage
5	Vermi Bed	3	30	15	23	Improved
6	Hail Protection Net	Nil	20	30	27	Reduced hail storm damage
7	Pond Liner	3	15	10	NA	Reduced water slippage

Current Scenario

Opportunities

Impediments

Did you know that...?

By **2050**, global population will rise by about a third to
9 billion people

Out of which **1.7 billion** will be in India alone

Calorie demand will increase by **50%**

52% of India's population is involved in Agriculture

yet it contributes just **13.7%** to India's GDP



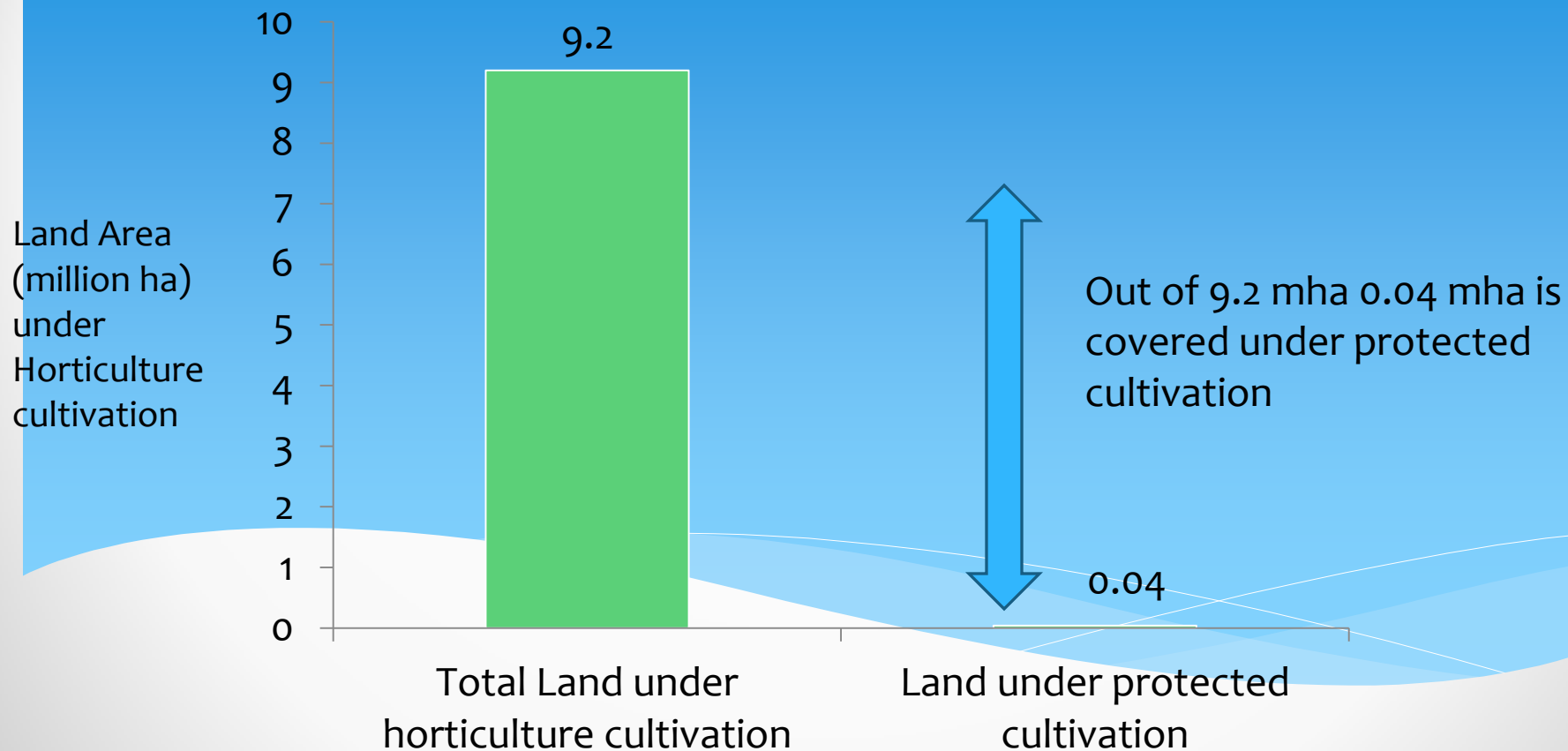
Source: FAO, World Bank statistics, Syngenta

- * India is the second largest producer of fruits in the world with 12.6 % of the total production

Opportunities for growth of Agrotextiles

- * A vast area still needs to be covered under protected cultivation
- * No. of Agrotextile Manufacturer including small & big players are hardly 35- 40
- * A bright future lays ahead for existing and new entrants to make a niche in the market
- * A product under Regulation & Standardization can change the projection all together for coming years

Scope for Usage of Agrotextiles in Protected Cultivation



AGROTEXTILES – MARKET POTENTIAL

- Agrotexiles is one of the important categories of technical textiles, with consumption accounting for around 8.2% by volume and 6.4% by value of the global technical textiles market in 2013.
- This sector is among those with the strongest growth predictions based on the projected increase in global population and the demand for higher quality food.
- In developing countries, such as India, China and Brazil, the market is estimated to be growing by 8-10 % a year. By value, Asia already accounts for around 60 % of the total agrotexiles market by volume and 55 % by value.

MARKET SIZE (PRODUCTION)

Figures in Rs. Crore

Sl. No.	Product	Current position (2017-18)	Current Capacity (2017-18)	Capacity should have been utilized by the end of 2017-18		Projection (11% Growth Rate)			
						2018-19		2019-20	
				25% of the current Capacity (A)	50% of the current Capacity (B)	(A)	(B)	(A)	(B)
1	Shade net	177.69	40868.70	10217.18	20434.35	11341.06	22682.13	12588.58	25177.16
2	Mulch mat	23.60	5428.00	1357.00	2714.00	1506.27	3012.54	1671.96	3343.92
3	Crop cover	3.40	782.00	195.50	391.00	217.01	434.01	240.88	481.75
4	Anti hail and anti bird netse	16.45	3783.50	945.88	1891.75	1049.92	2099.84	1165.41	2330.83
6	Total	221.14	50862.20	12715.55	25431.10	14114.26	28228.52	15666.83	31333.66

WEAKNESSES & SHORTFALLS

- * Mostly fragmented industry
- * Lower productivity
- * Unfavourable labour laws
- * Lack of skilled manpower for technical textile industry
- * Lack of technology development
 - * Lack of standard products due to lack of technical know-how and sub-standard product

THE LACK OF STANDARDISATION IS THE MAJOR SHORTCOMING OF THE DEVELOPING INDUSTRY SPECIFICALLY THE TECHNICAL TEXTILE INDUSTRY

Standards & Technical Textiles

A **standard** is a document that provides requirements, specifications, guidelines or characteristics that can be used consistently to ensure that materials, products, processes and services are fit for their purpose.

- Standards act as a driving factor in the technical textile business
 - Standards are the framework for any manufacturer of technical textile products
 - Without standards, a product can not be evaluated for its fitness for which it is being used.
 - Hence the standards becomes the necessity for ensuring the regulation of technical textile products
-
- ❖ Standards come in many forms:
 - ❖ Product specifications
 - ❖ Test methods
 - ❖ Manufacturing practices
 - ❖ Operational and purchasing guidelines
 - ❖ Classifications
 - ❖ Standardized terminology

STANDARDISATION OF AGROTEXTILE PRODUCTS

- * **COE Agrotexile is assisting BIS Committee for Agrotexile TX-35 in formulation of standards**
- * **A committee comprising of manufacturers, users and academician has been formed for the purpose**
- * **Activities undertaken by the COE**
 - * Formulation of a draft standard
 - * Circulation among the Committee members & amendment in standard thereof
 - * Wide circulation to a large number of manufacturers for their views.
 - * Finalised draft preparation for each standard
 - * Forwarding the final standard draft to BIS

Road Map for Standards

A comprehensive process is being followed to derive at the draft standards. The process followed is as under:

- * Collection of data for various Agrotextile products
- * Deliberation on the data collected with a draft of standard for the product specification at the meeting with Standards Committee for Agrotech
- * Revised draft as per the suggestions of the Committee
- * Wide Circulation of the draft to the manufacturers of the products across the country
- * Modification based on the feedback from the manufacturers.
- * Discussion of the modification with the Committee
- * Incorporation of the suggestions from the Committee and preparation of the final draft

Standards Published So far....

SN	Standard No	TITLE
1	IS 15351:2015	Agro Textiles - Laminated High Density Polyethylene (HDPE) Woven Geomembrane For Water Proof Lining (Second Revision)
2	IS 15907:2010 Reaff. 2015	Agro Textiles - High Density Polyethylene (HDPE) Woven Beds For Vermiculture
3	IS 16008 : Part 1:2016 (First Revision)	Agro Textiles - Shade Nets For Agriculture And Horticulture Purposes Part 1 Shade Nets Made From Tape Yarns
4	IS 16008 : Part 2:2016 (First Revision)	Agro Textiles - Shade Nets For Agriculture And Horticulture Purposes Part 2 Shade Nets Made From Mono Filament Yarns
5	IS 16089:2013 2017	Jute Agro-Textile - Sapling Bags For Growth Of Seedling/Sapling
6	IS 16190:2014	Agro Textiles - High Density Polyethylene (HDPE) Laminated Woven Lay Flay Tube For Irrigation Purpose
7	IS 16202:2014	Argo Textile - Woven Ground Covers For Horticulture Application
8	IS 16366 :2015	Glossary Of Terms Used In Agrotextile
9	IS 16390 :2015	Agro Textiles - Nylon Knitted Seamless Gloves For Tobacco Harvesters
10	IS 16513 :2016	Agro Textiles - Insect Nets For Agriculture And Horticulture Purposes

Existing Standards

AGROTECH	
BIS Standard	Description
IS 15351:2008	Textiles- Laminated high density polyethylene (HDPE) woven fabric (Geo-membrane) for water proof lining (First revision)
IS 15907:2010	Agro textiles - High Density Polyethylene (HDPE) Woven Beds for Vermiculture - Specification
IS 4401:2006	Textiles-Twisted nylon fishnet twines (fifth revision)
IS 4402:2005 ISO 1107:2003	Textiles - Fishing nets - Netting - Basic terms and definitions (second revision)
IS 4640:1993, ISO 858:1973	Fishing nets - Designation of netting yarns in the tex system (first revision)
IS 4641:2005, ISO 1530:2003	Textiles - Fishing nets - Description and designation of knotted netting (second revision)
IS 5815(Part 4):1993, ISO 1805:1973	Fishing nets: Determination of breaking load and knot breaking load of netting yarns (first revision)
IS 5815(Part 5):2005, ISO 1806:2002	Textiles - Fishing nets - Determination of mesh breaking force of netting (second revision)
IS 5815(Part 6):1993, ISO 3090:1974	Netting yarns - Determination of change in length after immersion in water (first revision)
IS 5815(Part 7):1993, ISO 3790:1976	Fishing nets - Determination of elongation of netting yarns (first revision)
IS 6348:1971	Basic terms for hanging of netting
IS 6920:1993, ISO 1532:1973	Fishing nets - Cutting knotted netting to shape ('Tapering')
IS 8746:1993, ISO 3660:1976	Fishing nets - Mounting and joining of netting - Terms and illustrations (first revision)
IS 9945:1999	Fishing nets - Method for determination of taper ratio and cutting rate (first revision)
IS 15788:2008	Fishing nets - Method of test for determination of mesh size - Opening of mesh
IS 15789:2008	Fishing nets - Method of test for determination of mesh size - Length of mesh
IS 5508 (Parts 1 to 24)	Guides for fishing gears
IS 7533:2003	Polyamide monofilament line for fishing
IS 14287:1995	PP Multifilament netting twine
IS 6347:2003	PE Monofilament twine for fishing
IS 16008:2012	Agro Textiles - Shade Nets for Agriculture and Horticulture Purposes – Specification <i>(Clubbed the specifications of 3 Shade net standards, i.e. Specifications for Shade net 50%, 75% and 90% for Agriculture Application. Thus, have 1 standard against 4 proposed standards)</i>

R & D DEVELOPMENT OF COE AGROTECH, SASMIRA

SHADE-O-METER



- **Light Source** : Tungsten filament with 400 - 700 nm wavelength
- **Measurement chamber**: With reflective coating and the arrangements to hold light source ,filter and lens. The dimensions are 960mm long.
- **Distance from light source to sample**: 15 cm and 30cm
- **Distance from sample to light measuring sensor** at bottom : 30cm
- **Sample size** : Square of (16X16cm) with sample clamping holder on both the sides
- **Filter** : Neutral density (ND) filter
- **Measurement of PAR /Shading %**:
Pyranometer

Operational Demonstration



Standards under publication

- * Crop cover (in print)
- * Bird net
- * Harvest Nets

* DISCUSSIONS.....