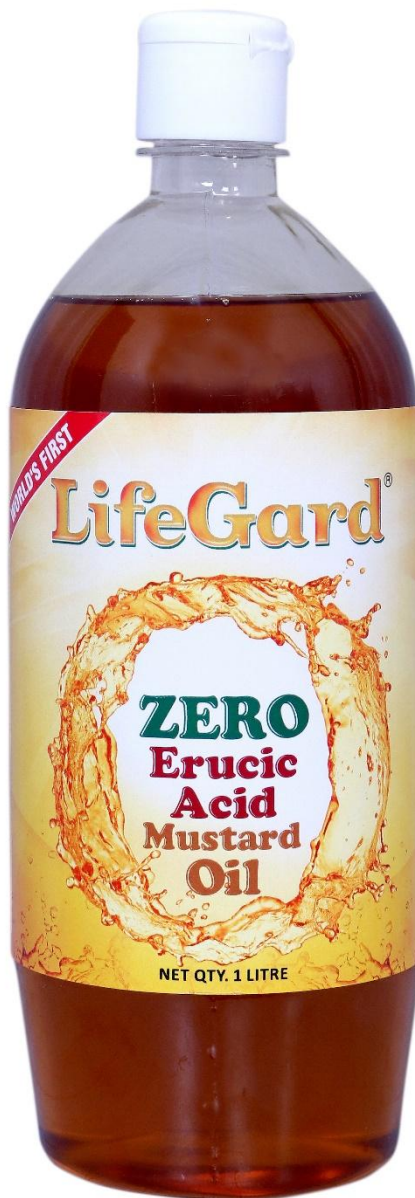


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South Asia Biotechnology Centre
Bhagirath@sabc.asia
25 March 2017, Jaipur



LifeGard is World's first Zero Erucic Acid Mustard Cooking Oil. LifeGard contains less than 2% Erucic acid of the total fatty acid as compared to >45% in the conventional mustard oil. Erucic acid is a monounsaturated omega-9 fatty acid that causes coronary heart diseases. USFDA and EFSA banned the consumption of mustard oil with Erucic acid >2%.

LifeGard's desirable fatty acid composition –significantly higher amount of Oleic, Linoleic and Linolenic acid and Zero Erucic acid makes it the best for cooking among edibles oils. LifeGard offers most desirable Omega-6 to Omega-3 ratio of 2:1.

LifeGard is the healthiest, food-grade and premium quality mustard oil. Food cooked in LifeGard flavors your cuisines, punches mouth-watering kick, checks your cholesterol, safeguards your heart and keeps you healthy.



WORLD'S FIRST ZERO ERUCIC ACID MUSTARD OIL EXTRACTED FROM NATURALLY BRED MUSTARD VARIETY DEVELOPED BY DIVISION OF GENETICS, INDIAN AGRICULTURAL RESEARCH INSTITUTE (IARI).



PRODUCED & MARKETING BY:
ARPAN SEEDS PRIVATE LIMITED
 ZTM-BPD, IARI, Pusa, New Delhi -110012
 Email: arpan.seeds@yahoo.com
 Website: www.lifegard.in

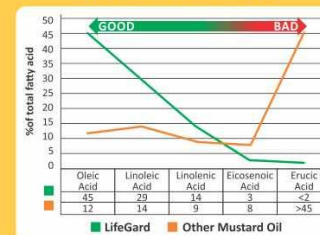
SUPPORTED BY:
SOUTH ASIA BIOTECHNOLOGY CENTRE



INCUBATED AT:
ICAR-INDIAN AGRICULTURAL RESEARCH INSTITUTE (IARI)



Fatty Acid Composition of "LifeGard Mustard Oil" vis-à-vis "Conventional Mustard Oil"



NUTRITIONAL FACTS


Nutrient	Amount Per 100ml
Energy	884Kcal
Protein	0g
Carbohydrate	0g
- Sugar	0g
Total Fat	100g
- Saturated Fat	7g
- Trans Fat	0g
- Monounsaturated Fat	50g
- Polyunsaturated Fat	43g
Cholesterol	0 mg

INGREDIENT: Zero Erucic Acid Mustard Oil

NET QTY. 1 LITRE



Best before 12 months from manufacture

Mfd. :
 B.No. :
 MRP :

Online edition of India's National Newspaper
Wednesday, Dec 04, 2002 

Opinion

News: Front Page | National | Southern States | Other States |
International | Opinion | Business | Sport | Miscellaneous |
Advts: Classifieds | Employment | Obituary |

Opinion - Leader Page Articles  

GM mustard

By N. Gopal Raj

Thorny issues surround the use of the marker gene providing herbicide tolerance. Is that gene there only as a marker or is herbicide tolerance the driving motivation for developing this GM crop?

GENETICALLY MODIFIED (GM) crops are one of those topics which arouses great passion, with the protagonists unwilling to see any merit in the others' arguments. Those favouring the growing ability to directly modify genes see it as a logical extension, provided by new scientific knowledge, of

Although Proagro's GM mustard is the one nearing commercial release, a group at the University of Delhi South Campus too is developing a similar sort of GM mustard. When the GEAC met in early November, it decided to defer a decision on Proagro's GM mustard by a few weeks.

Stories in this Section

- Resorting to jingoism
- Attitudinal change required
- Social equality: Lessons from the U.S.
- GM mustard
- Give realism a chance
- War rhetoric bodes ill for peace
- Dubious charge
- Nobility of thought
- Romancing Russia
- Rewriting history
- Late Prof. Swaminathan

Archives

Yesterday's Issue

Datewise

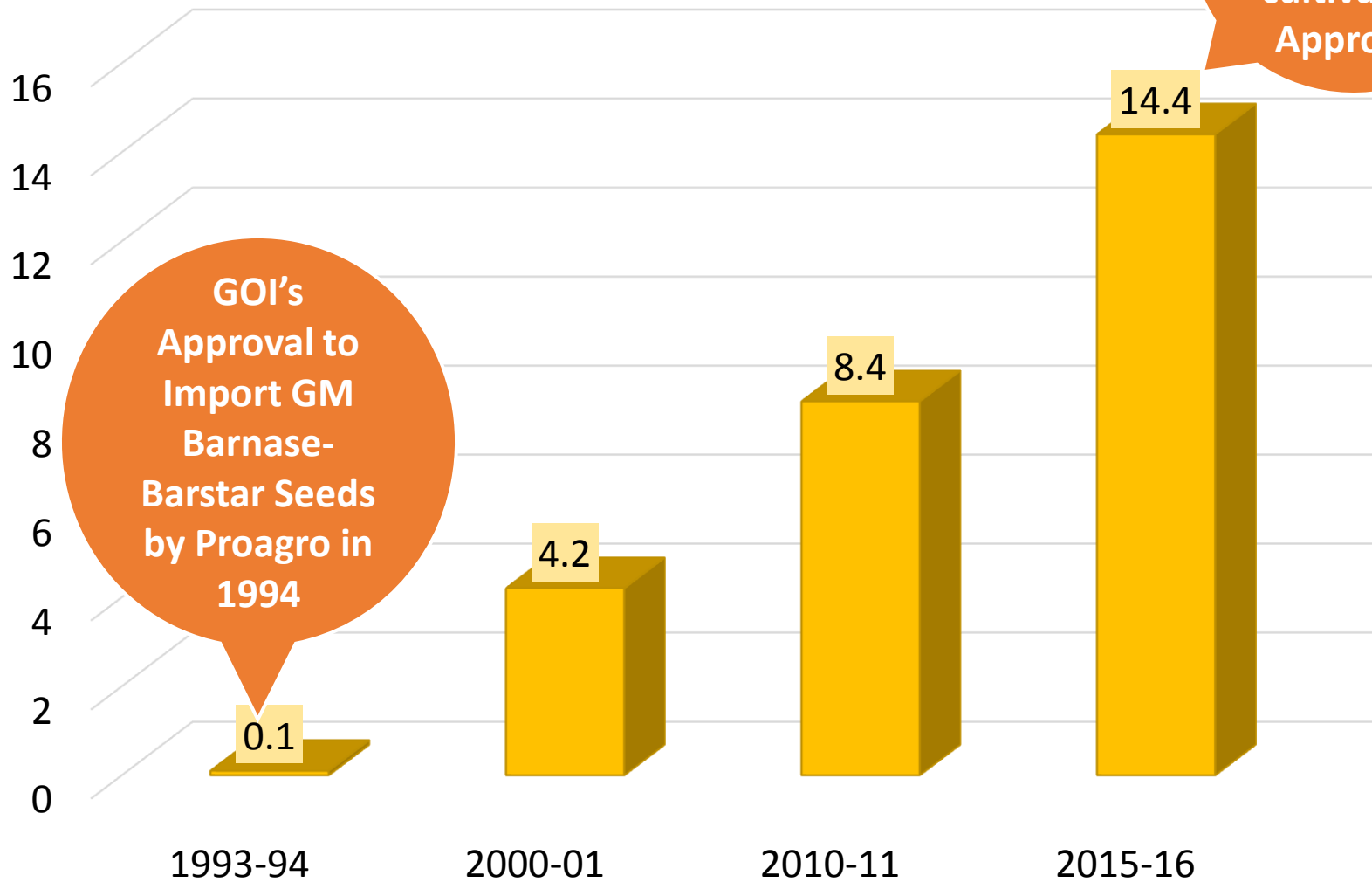
Features:

Life

Magazine

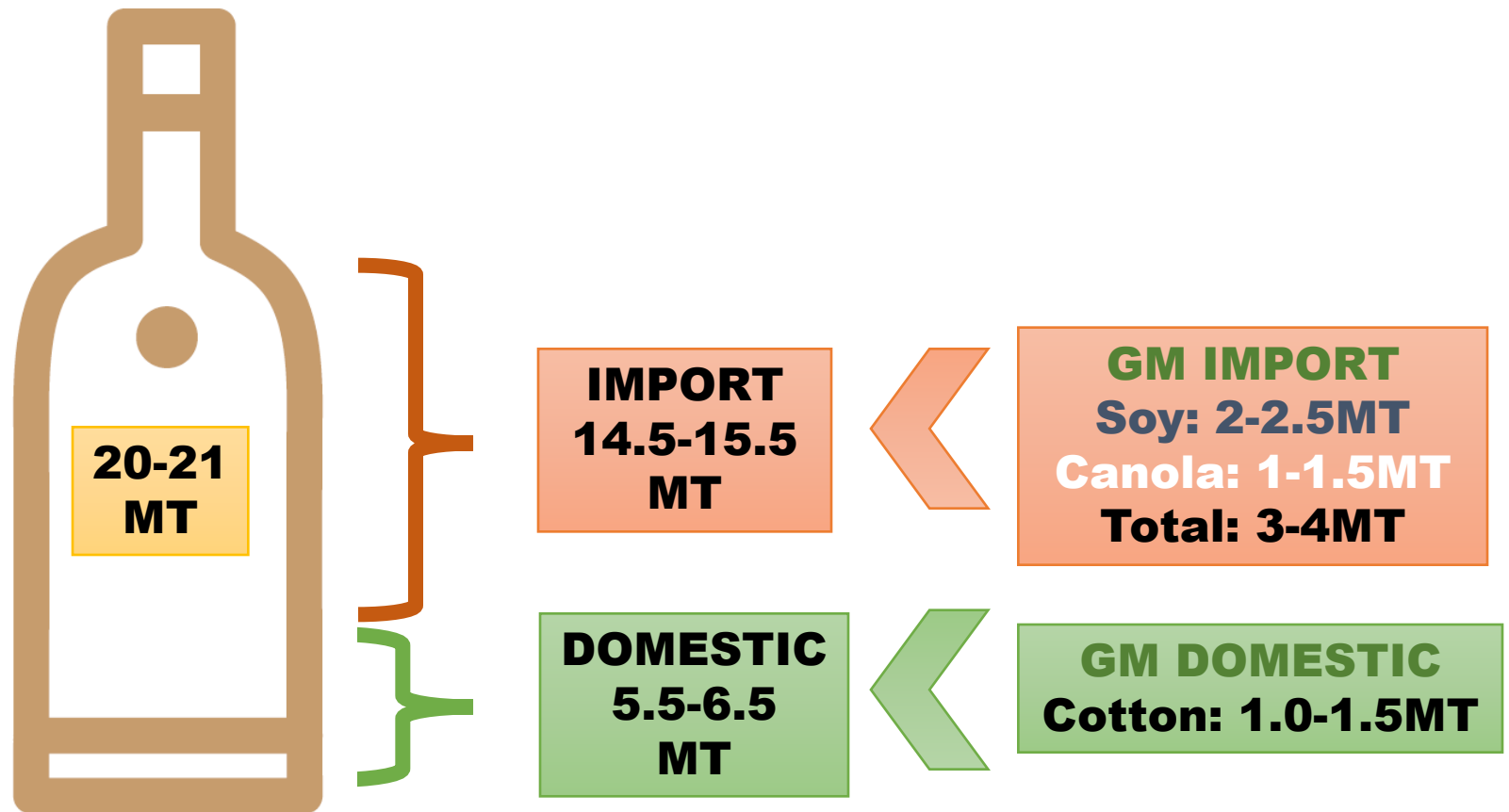
Literary Reviews

Edible Oil Import in India (MT)



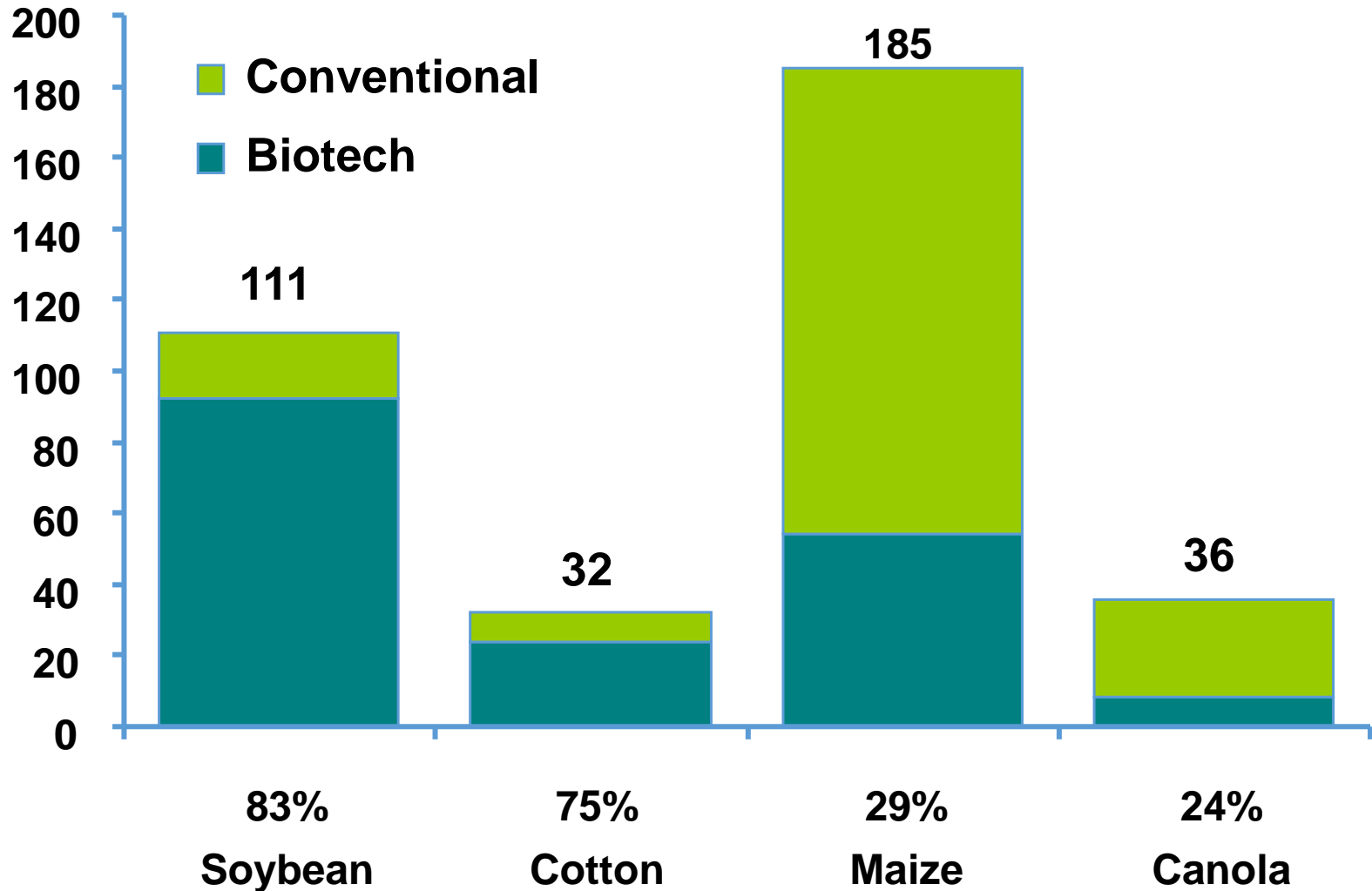
Source: Analysed by SABC, 2016

Edible Oil Consumption in India



4-5.5 MT OF EDIBLE OIL DERIVED FROM GM SOY, CANOLA & COTTON CONSUMED ANNUALLY OR ALMOST 20% OF TOTAL CONSUMPTION OF EDIBLE OIL IN INDIA

Global Adoption of GM Soybean and GM Canola (Mha), 2015



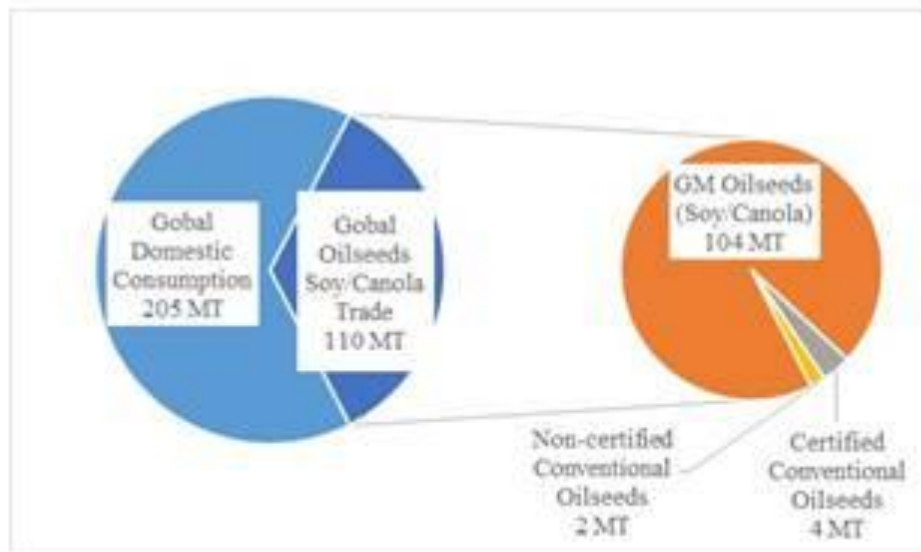
Source: Clive James, 2016 (Hectarage based on FAO data on 2013)

Status of Commercial Approval of GE Canola (*Brassica napus*), 1996 to 2016

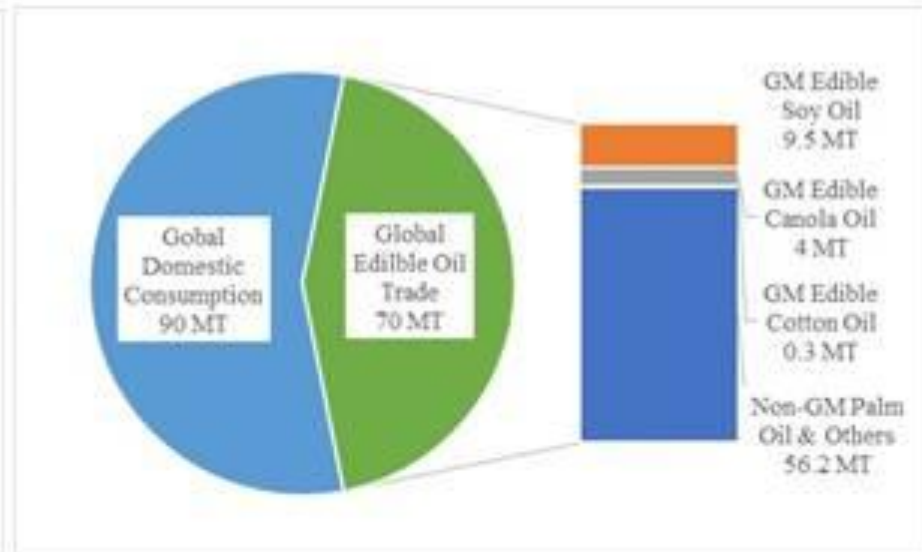
Trait/Stacked Trait(s)	Gene(s)/ Herbicide	Nos of Approved Events	Developers/ Trade Name	Commercial Approval	Approval for food and Feed Consumption
-Multiple Mode Herbicide Tolerance -Pollination Control System -Stacked Herbicide Tolerance & Pollination Control System	Bar, Barnase & Barstar; Glyphosate; Glufosinate	26	-Bayer CropScience -Monsanto -Pioneer/ Dupont (InVigor; LibertyLink; Navigator; TruFlex; Roundup Ready)	Canada; USA; Australia	Australia; Canada; Chile; China; European Union; Japan; Mexico; New Zealand; Philippines; South Africa; South Korea; Taiwan & USA

Source: Analysed by SABC, 2016

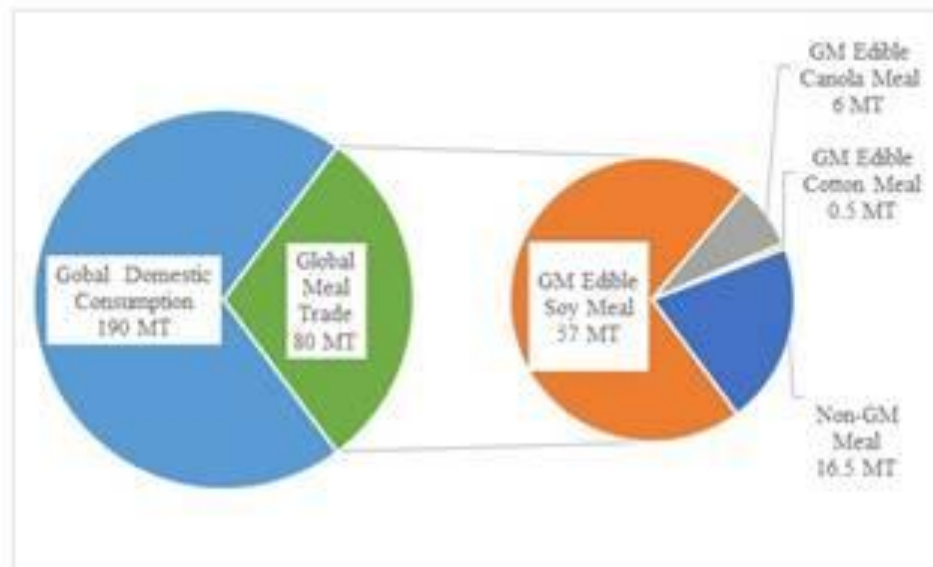
GM Crops & Global Oilseed Grain Trade



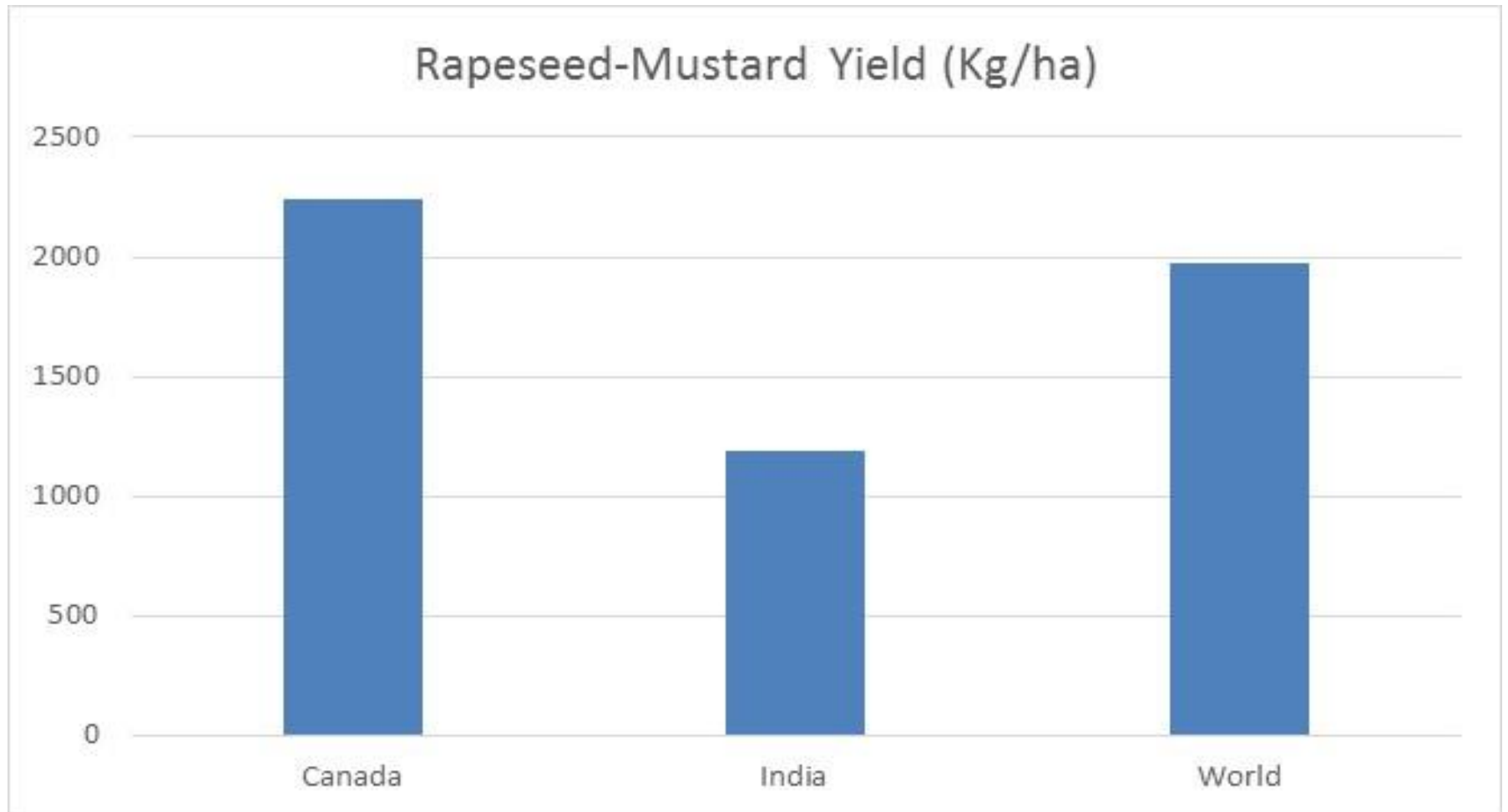
GM Crops & Global Edible Oil Trade



GM Crops & Global Animal Feed/Meal Trade

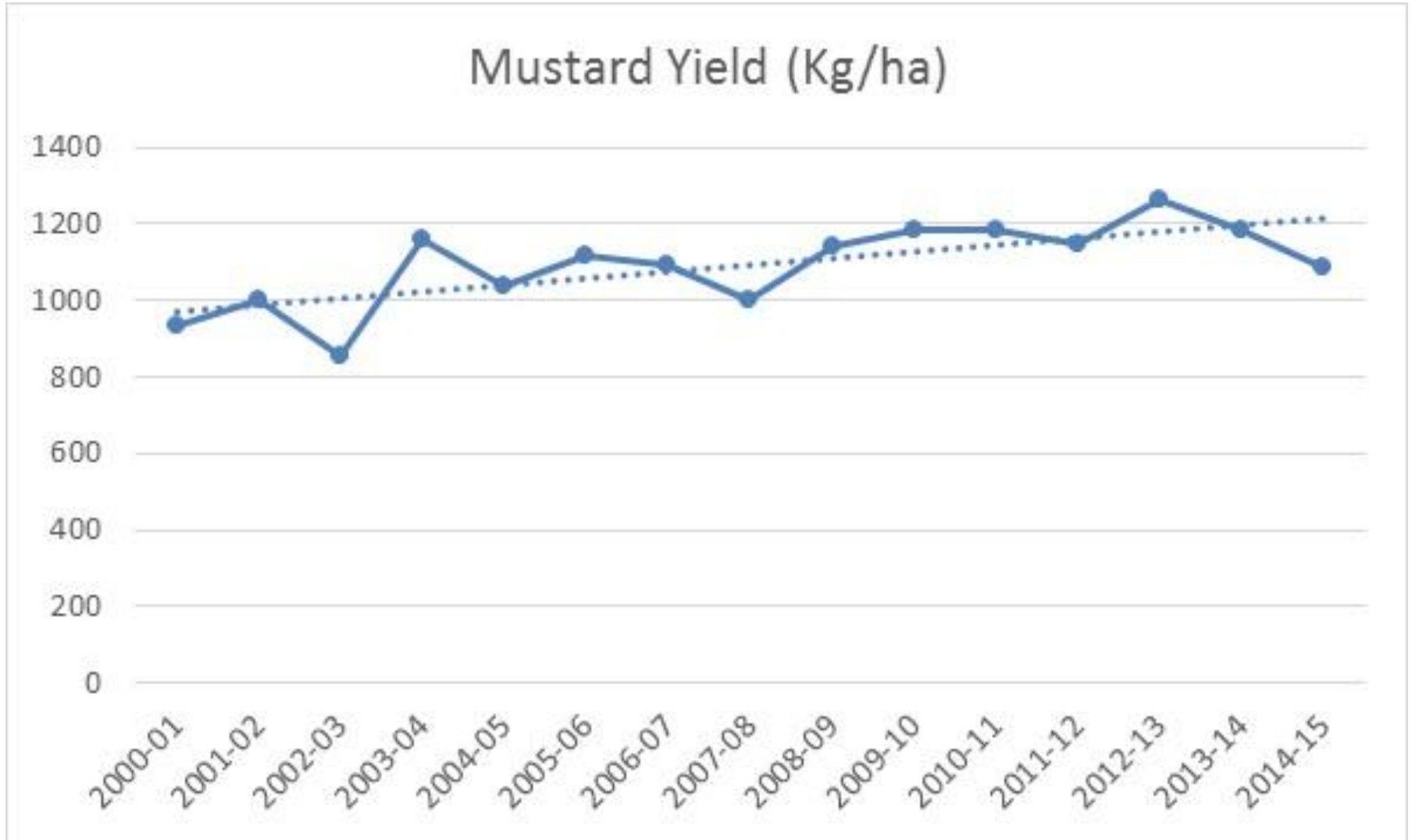


Yield Comparison of Rapeseeds-Mustard, 2014-15



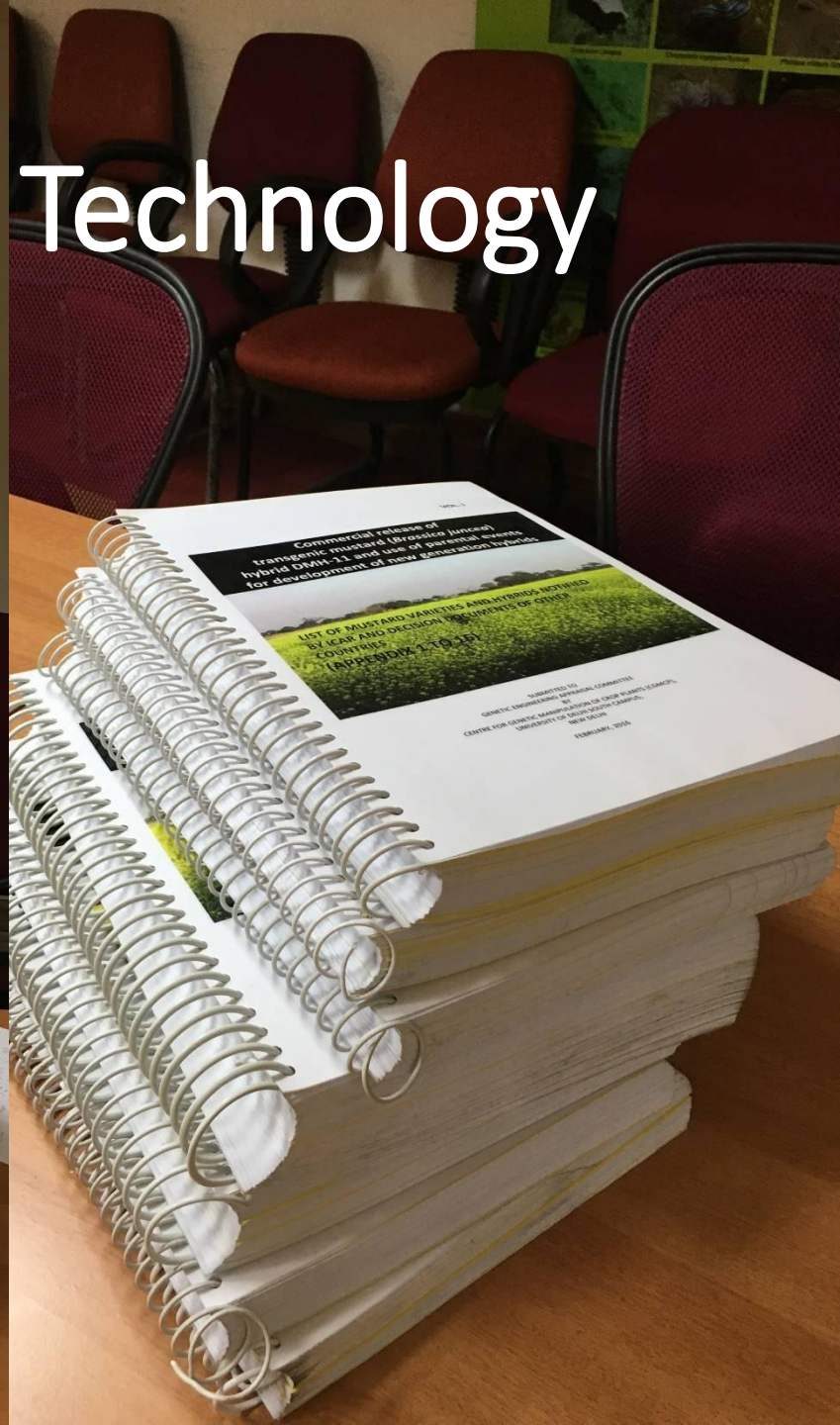
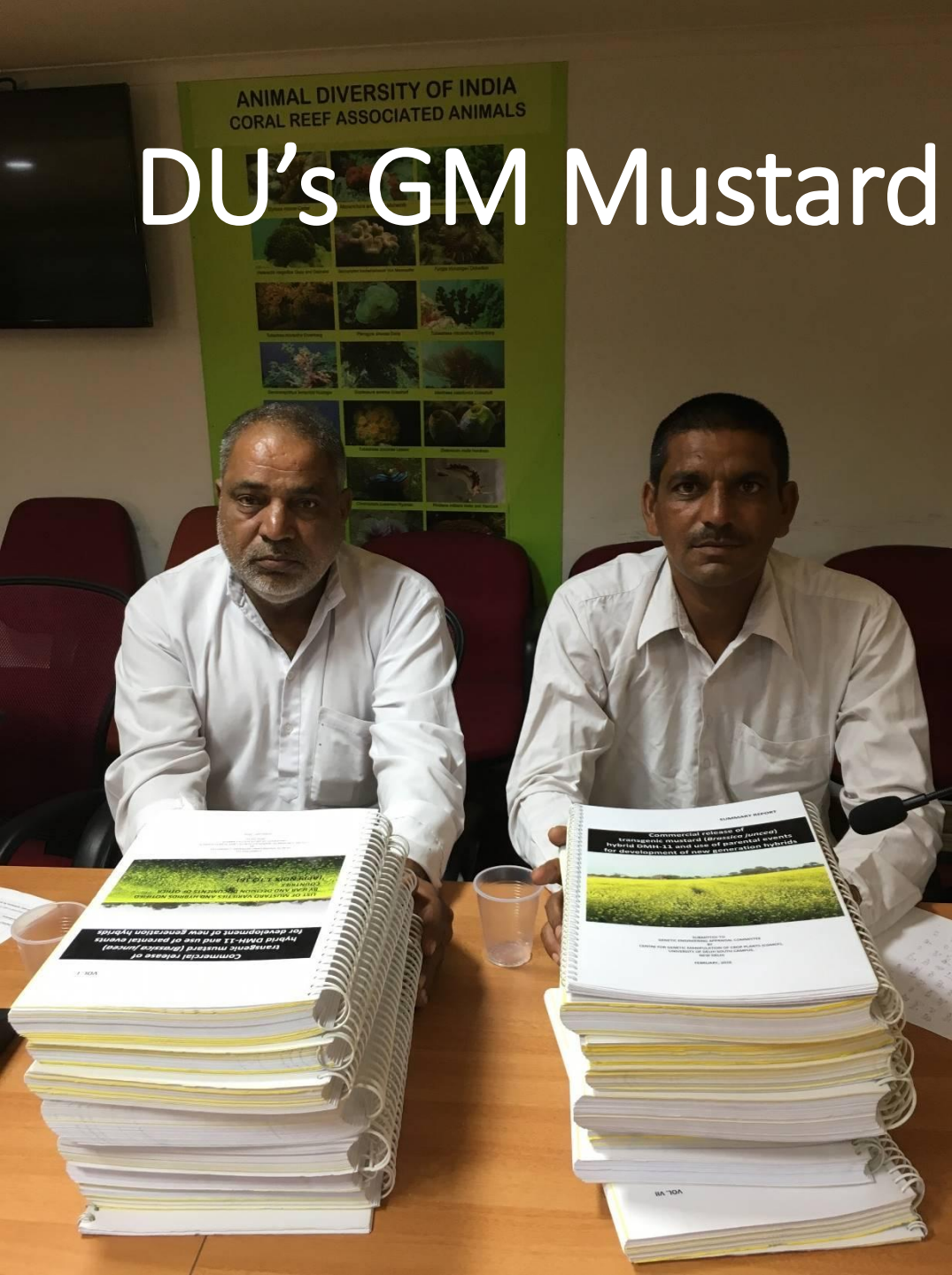
Source: MOA&FW, 2015; Analyzed by SABC, 2016

Trend in Mustard Yield in India, 2001 to 2015



Source: MOA&FW, 2015; Analyzed by SABC, 2016

DU's GM Mustard Technology

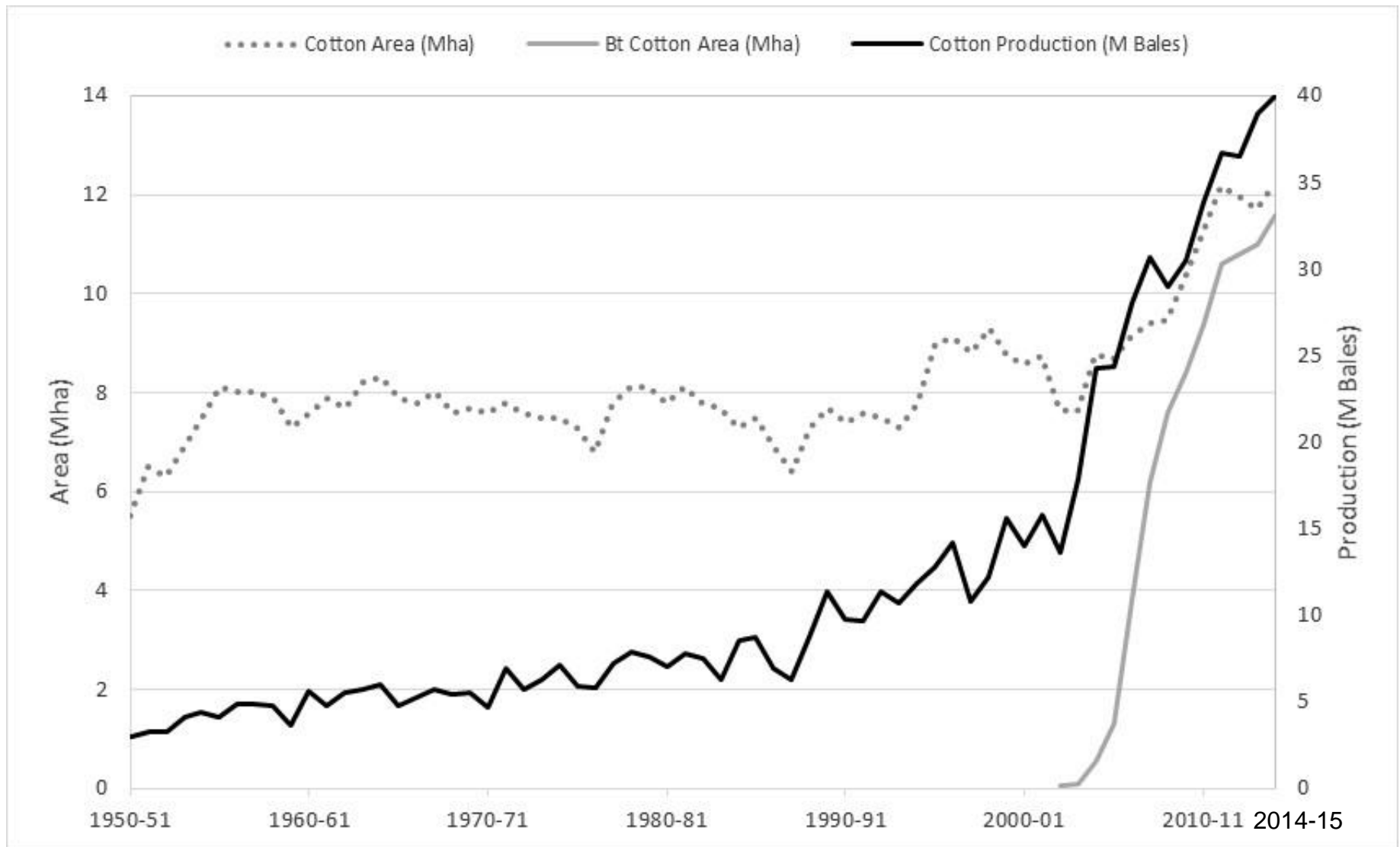


GM Mustard: How Long Farmers hv to wait?

- **INCREASING MUSTARD YIELD:** 20-25% Yield Advantage
- **BIOSAFETY:** “As safe as conventional mustard” and “does not raise any public health or safety concerns for human beings or animal or environment”
- **EFFICIENT HYBRIDIZATION OF MUSTARD:** Fully fertile hybrids with enhanced yield levels, reduce hybrid seed production cost and increased farmers’ income
- **NUTRITIONAL COMPOSITION:** Fatty oil profiling and nutritional composition similar to non-GM counterparts
- **HERBICIDE TOLERANCE IN MUSTARD:** Herbicide tolerance is not a prime target
- **NON-TERMINATOR TECHNOLOGY & MALE STERILITY TRAIT IN MUSTARD:** System of male sterility in one of the parents is a fundamental necessity – CMS or the barnase-barstar system
- **IPRs :** Owned jointly by NDDB & Delhi University

Let us pledge
Mustard 2022 India
Doubling Production, Doubling Farmers' Income

Tripling of Cotton Production, 2002-2015



Source: CAB, 2015; Analysed by SABC, 2015