

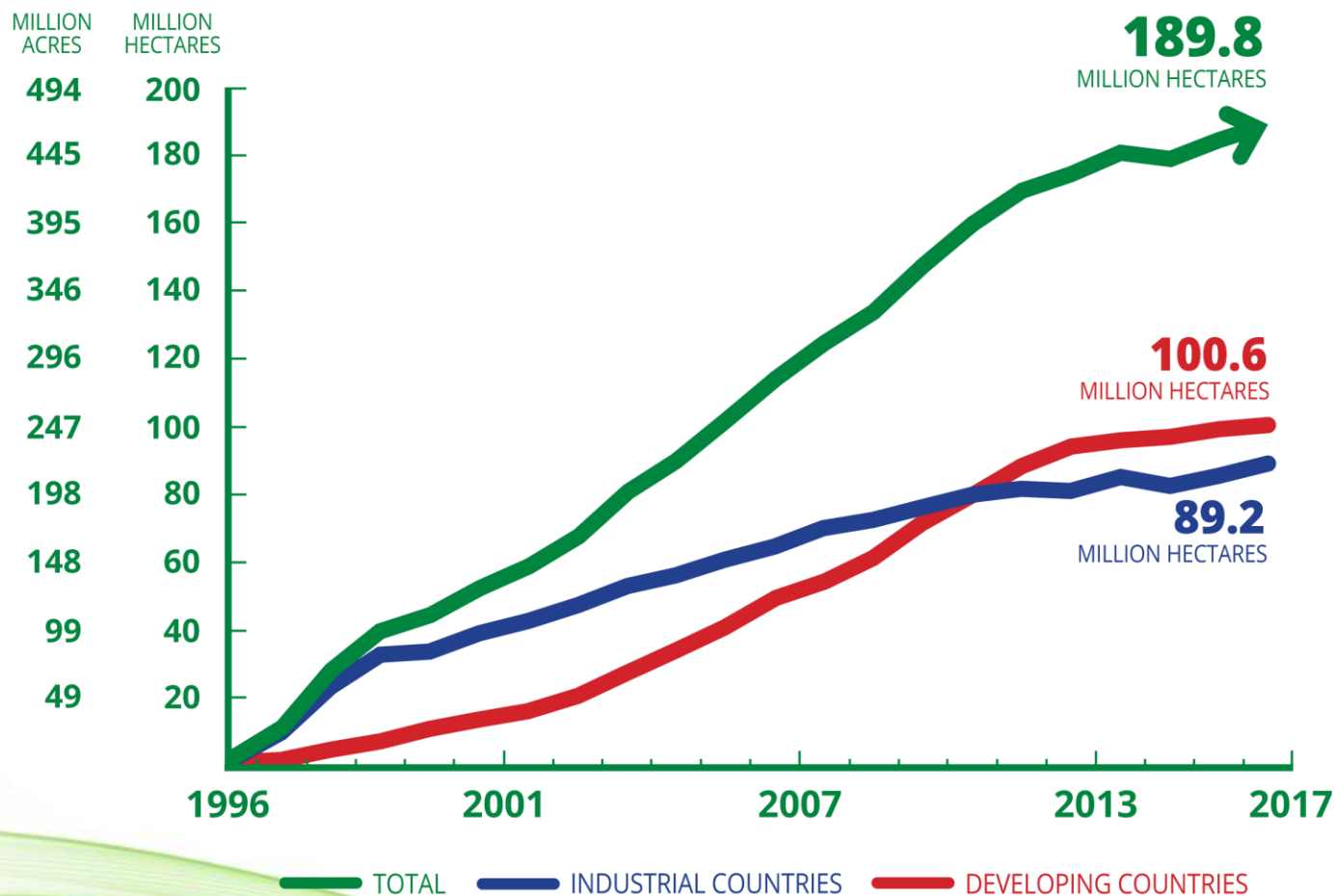


Global Status of Commercialized Biotech/GM Crops in 2017:

Biotech Crop Adoption Surges as Economic Benefits Accumulate in 22 Years

**International Service for the Acquisition
of Agri-biotech Applications (ISAAA)**

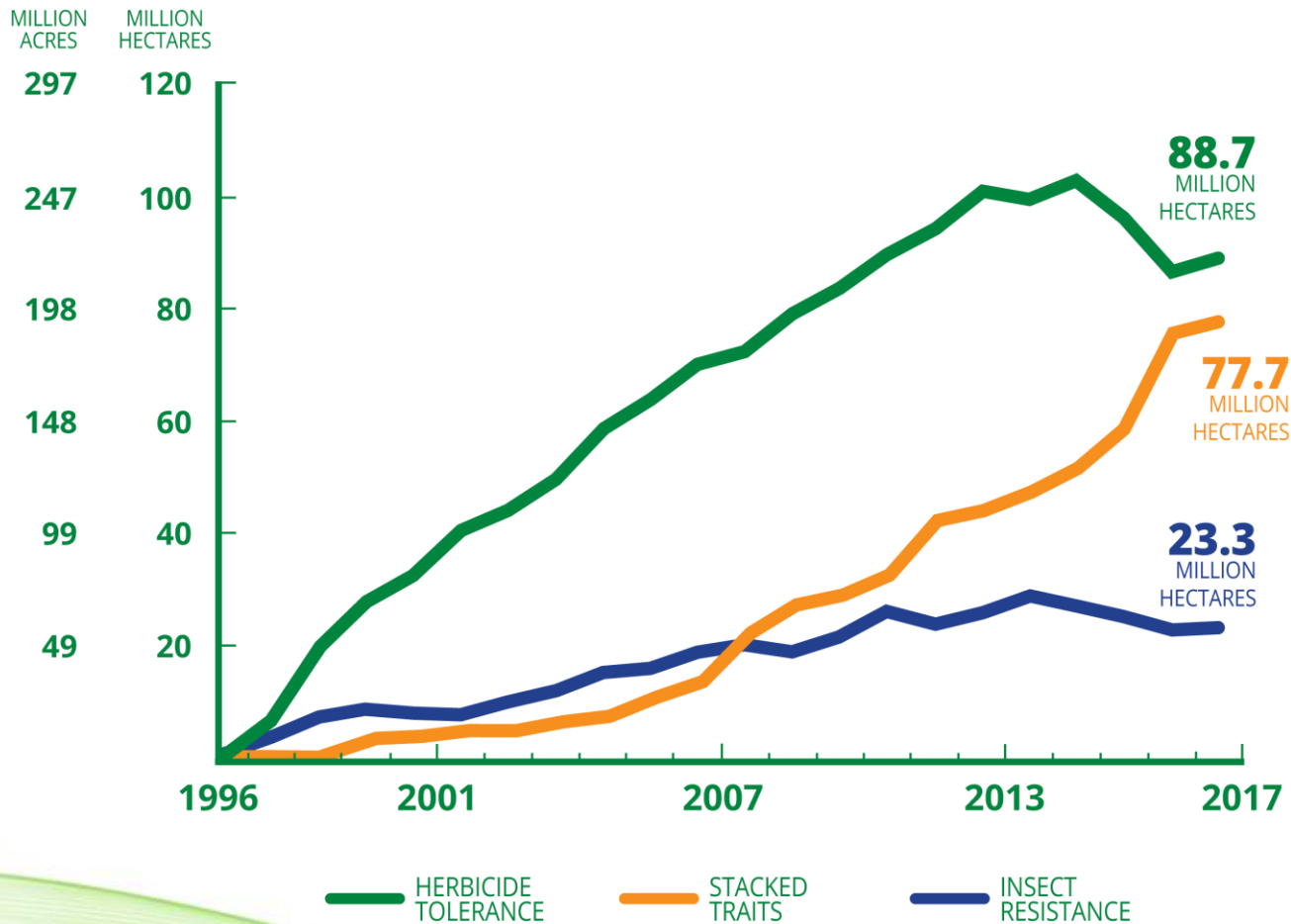
Global Area of Biotech Crops, 1996 to 2017: Industrial and Developing Countries (Million Hectares, Million Acres)



ISAAA, 2017

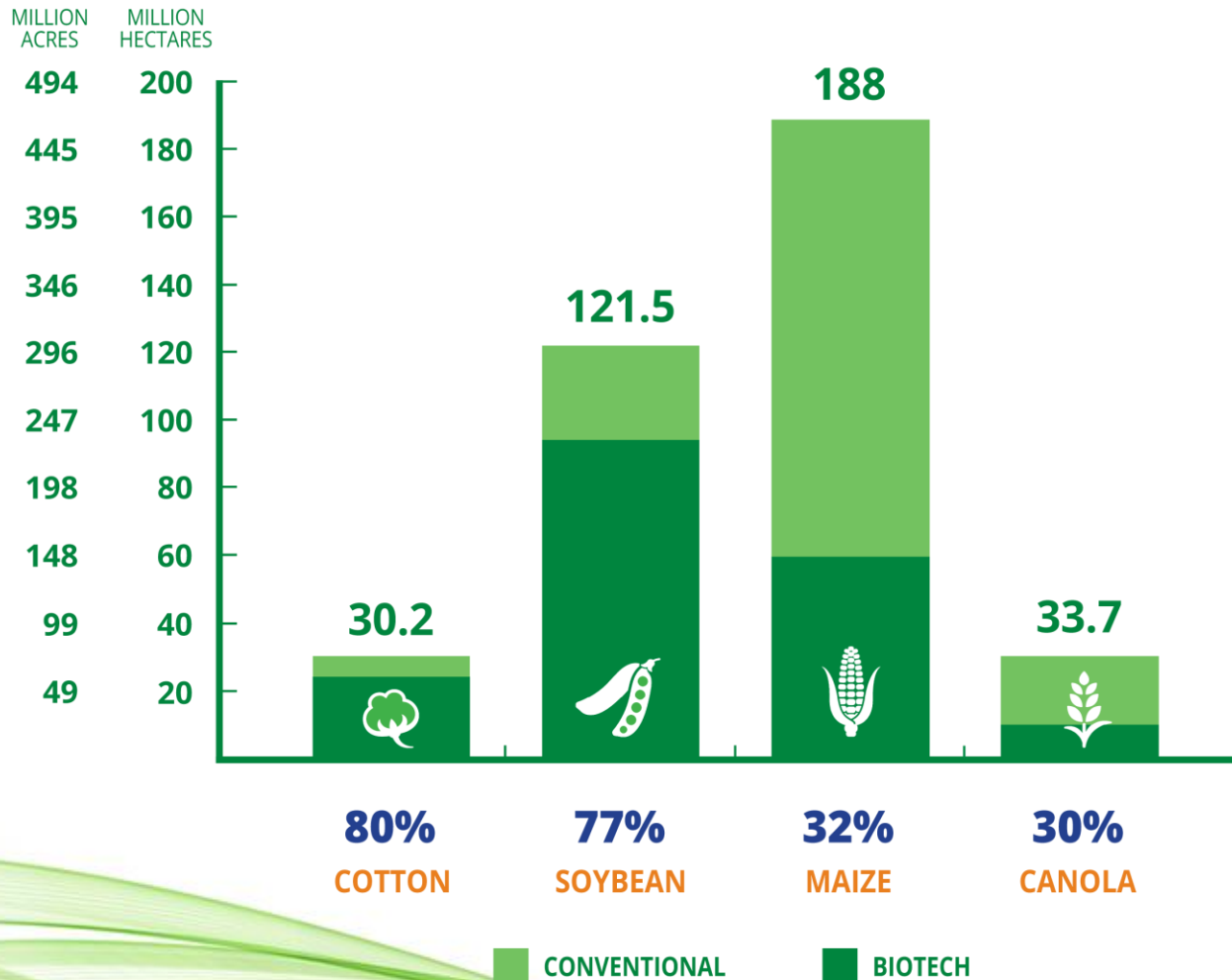
Global Area of Biotech Crops, 1996 to 2017: By Trait

(Million Hectares, Million Acres)



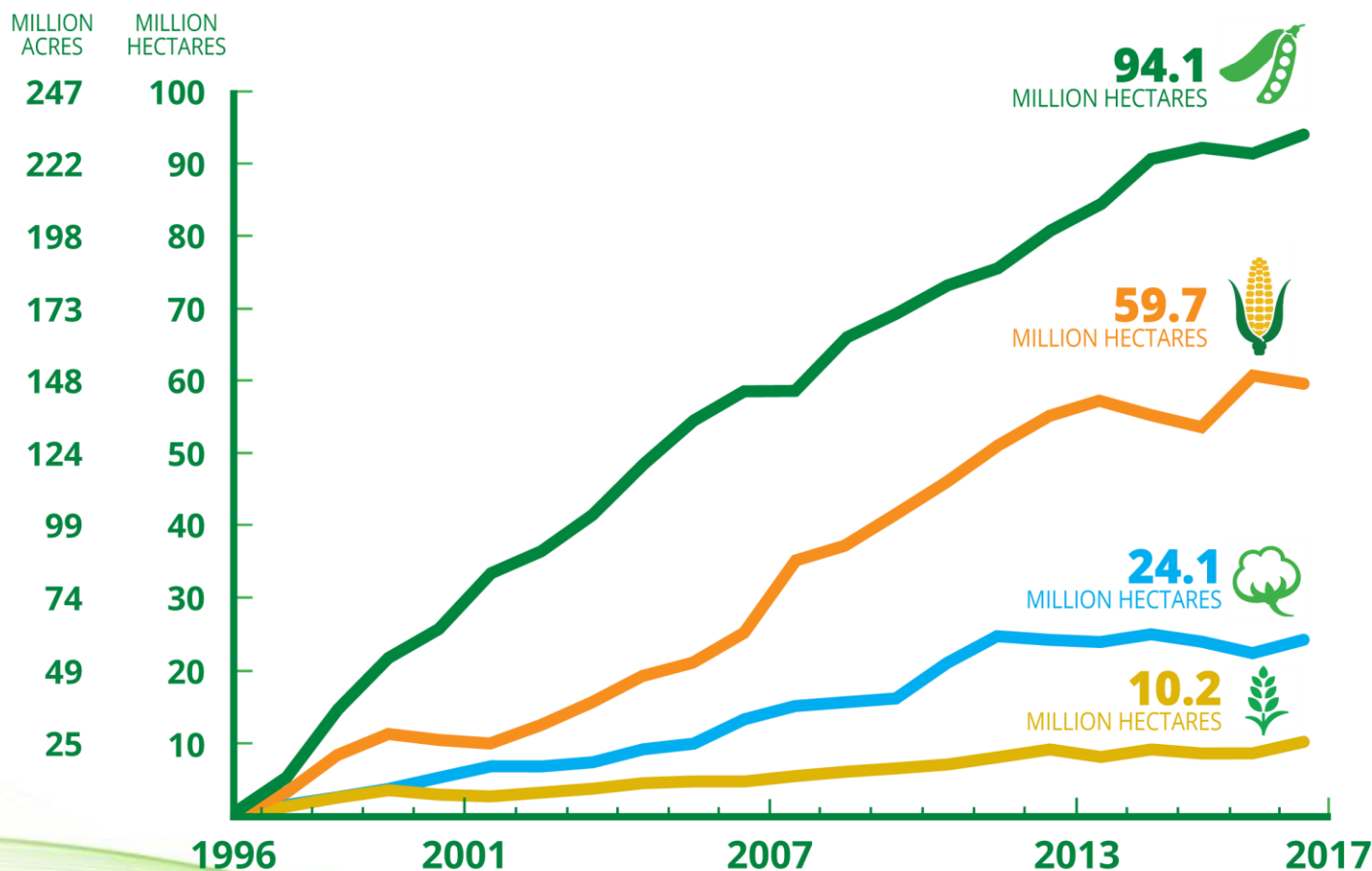
ISAAA, 2017

Global Adoption Rates (%) for Principal Biotech Crops (Million Hectares, Million Acres), 2017



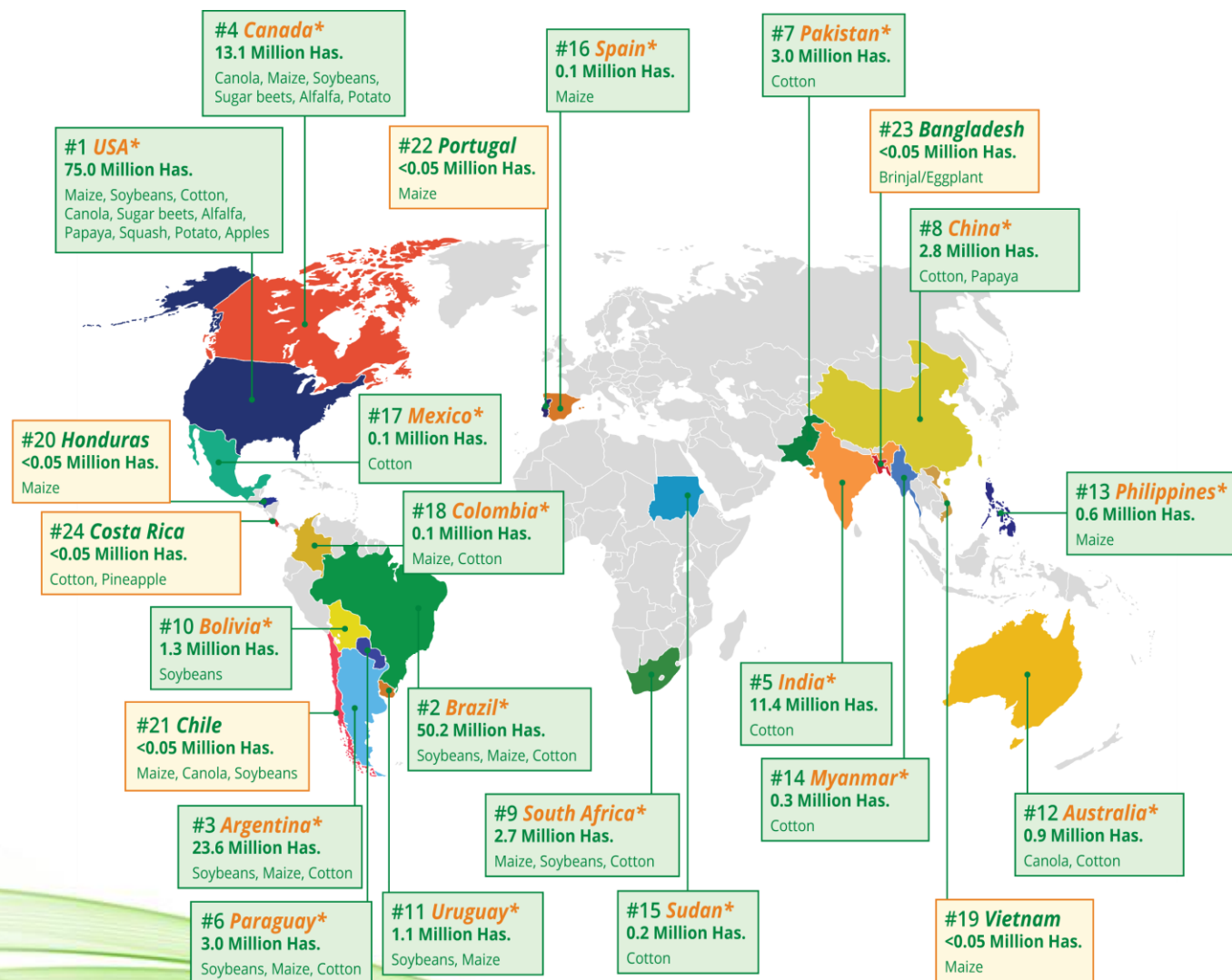
Global Area of Biotech Crops, 1996 to 2017: By Crop

(Million Hectares, Million Acres)



ISAAA, 2017

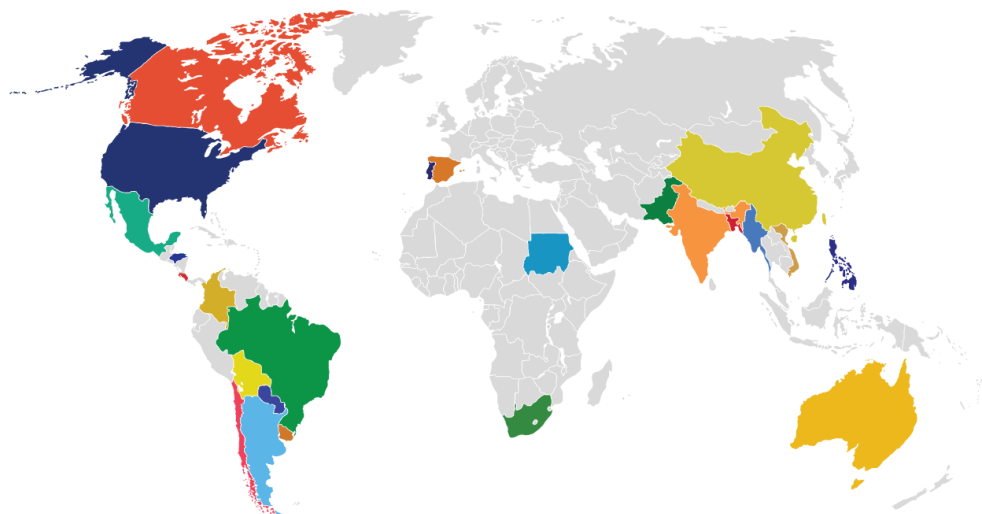
Biotech Crop Countries and Mega-Countries*, 2017



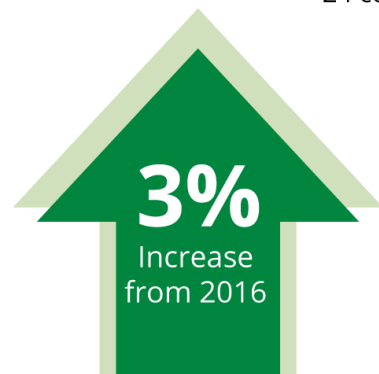
*18 biotech mega-countries growing 50,000 hectares, or more, of biotech crops.

ISAAA, 2017

Global Area of Biotech Crops, 2017: By Country (Million Hectares)



24 countries which have adopted biotech crops



In 2017, global area of biotech crops was 189.8 million hectares, representing an increase of 3% from 2016, equivalent to 4.7 million hectares.

Source: ISAAA, 2017.

50,000 hectares, or more

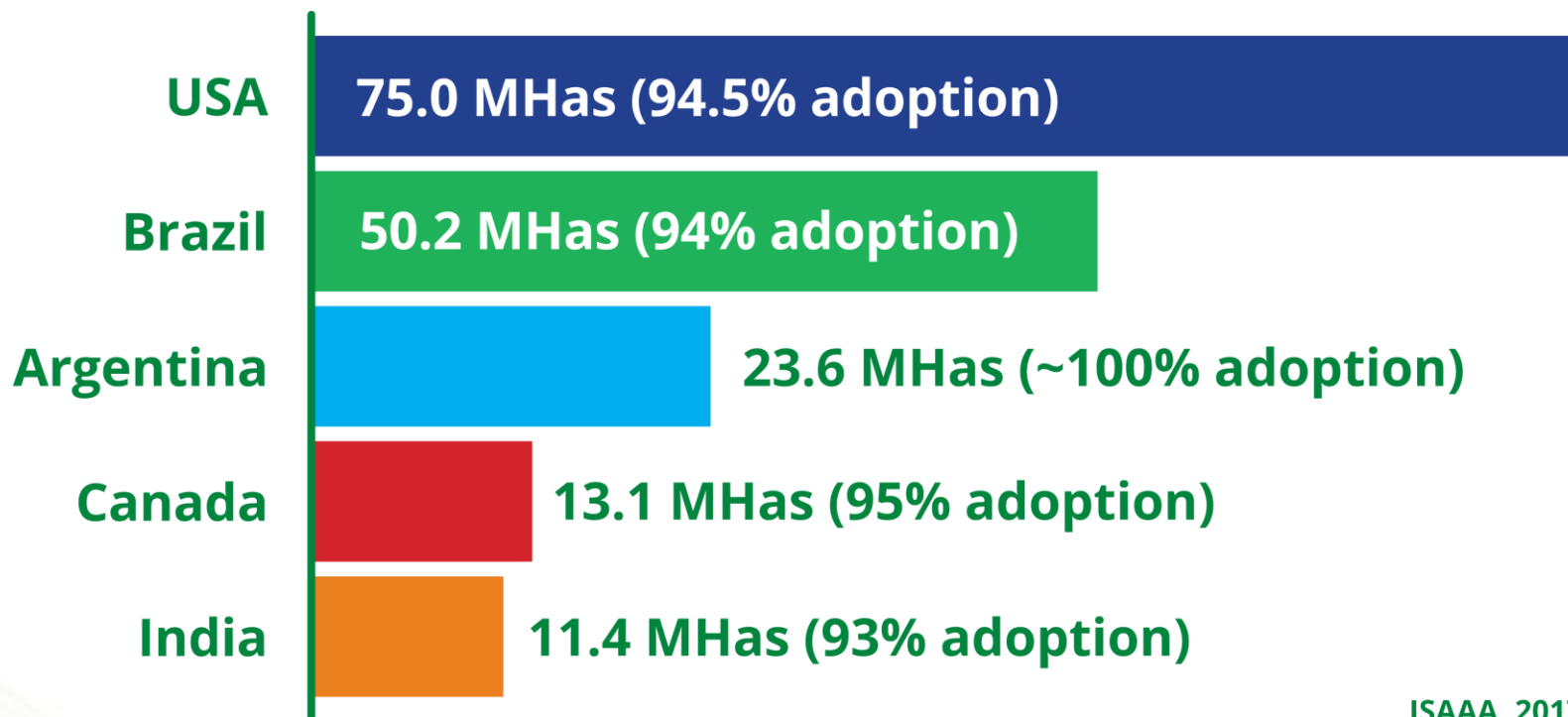
| | |
|-------------------------|--------------|
| 1. USA | 75.0 million |
| 2. <i>Brazil*</i> | 50.2 million |
| 3. <i>Argentina*</i> | 23.6 million |
| 4. Canada | 13.1 million |
| 5. <i>India*</i> | 11.4 million |
| 6. <i>Paraguay*</i> | 3.0 million |
| 7. <i>Pakistan*</i> | 3.0 million |
| 8. <i>China*</i> | 2.8 million |
| 9. <i>South Africa*</i> | 2.7 million |
| 10. <i>Bolivia*</i> | 1.3 million |
| 11. <i>Uruguay*</i> | 1.1 million |
| 12. <i>Australia*</i> | 0.9 million |
| 13. <i>Philippines*</i> | 0.6 million |
| 14. <i>Myanmar*</i> | 0.3 million |
| 15. <i>Sudan*</i> | 0.2 million |
| 16. <i>Spain*</i> | 0.1 million |
| 17. <i>Mexico*</i> | 0.1 million |
| 18. <i>Colombia*</i> | 0.1 million |

Less than 50,000 hectares

| | |
|------------------|--------------------|
| <i>Vietnam*</i> | Portugal |
| <i>Honduras*</i> | <i>Bangladesh*</i> |
| <i>Chile*</i> | <i>Costa Rica*</i> |

* Developing countries

Top 5 Countries that Planted Biotech Crops in 2017 (Area and Adoption Rate)



ISAAA, 2017

STATUS OF APPROVED EVENTS FOR BIOTECH CROPS USED IN FOOD, FEED, PROCESSING, AND CULTIVATION



67 COUNTRIES
ISSUED



4,133 REGULATORY
APPROVALS
FOR **26** GM CROPS SINCE 1992

1,995 FOOD USE

1,338 FEED USE

800 CULTIVATION

JAPAN HAS MOST NUMBER
OF APPROVALS
646 APPROVALS



MAIZE HAS LARGEST NUMBER
OF APPROVED EVENTS
232 APPROVED
EVENTS IN **30** COUNTRIES



HERBICIDE TOLERANT MAIZE EVENT
NK603 HAS MOST
APPROVALS
55 APPROVALS IN **26** COUNTRIES

Source: ISAAA, 2017

COSTS OF NOT USING BIOTECH CROPS

- **Africa – USD 2.5 billion 2008-2013**
- **Australia – USD 380 million 2004-2014 for canola**
- **India – USD 200 million per year for Golden Rice**

CONTRIBUTION OF BIOTECH CROPS TO FOOD SECURITY, SUSTAINABILITY, AND CLIMATE CHANGE



INCREASING CROP PRODUCTIVITY

US\$186.1 BILLION

FARM INCOME GAINS IN 1996-2016
GENERATED GLOBALLY BY
BIOTECH CROPS



CONSERVING BIODIVERSITY

IN 1996-2016, PRODUCTIVITY GAINED
THROUGH BIOTECHNOLOGY SAVED

183 MILLION HECTARES

OF LAND FROM PLOWING AND CULTIVATION



PROVIDING A BETTER ENVIRONMENT

LESS PESTICIDE APPLICATIONS

DECREASED ENVIRONMENTAL IMPACT
FROM HERBICIDE & INSECTICIDE USE
BY **18.4% IN 1996-2016**



REDUCING CO2 EMISSIONS

SAVED 27.1 BILLION KGS CO2
EQUIVALENT TO REMOVING

16.7 MILLION CARS

OFF THE ROAD FOR 1 YEAR



HELPING ALLEVIATE POVERTY & HUNGER

BIOTECH CROPS UPLIFTED THE LIVES OF

16-17 MILLION SMALL FARMERS

AND THEIR FAMILIES TOTALING

>65 MILLION PEOPLE

Source: Brookes and Barfoot, 2018