



BIOTECH TRAITS ANNUAL UPDATES

Biotech Traits

HERBICIDE TOLERANCE

During the 20-year period 1996-2015, herbicide tolerance (HT) has been the dominant trait, deployed in soybean, maize, canola, cotton, sugar beet, and alfalfa. HT crops are planted in 95.9 million hectares or 53% of the 179.7 million hectares of biotech crops planted globally.

STACKED TRAITS

The stacked traits IR and HT are deployed in cotton and soybean (Bt/HT), and maize (Bt/Bt/IR, Bt/HT, and Bt/Bt/HT).

The Bt/Bt/IR stack refers to different Bt or other IR genes that code for different traits, for example above ground pests and below ground pests in maize.

Stacked traits increased from 51.4 million hectares in 2014 to 58.5 million hectares in 2015, an increase of 7.1 million hectares equivalent to 14%.

Stacking is a very important feature of the technology with SmartStax™ comprising 8 genes coding for three traits, launched in the USA and Canada in 2010, as well as in Innate™ potato generation 2 which was approved for cultivation in 2015 in the USA.

The deployment of stacked traits is most prevalent in the USA which had approximately 52% of the 58.5 million hectares “stacked traits” in 2015 at 30.4 million hectares, followed by Brazil at 36%.

The other eight principal countries which deployed stacked traits in 2015 are: Argentina (21 million hectares), Canada (1.2), South Africa (1.0), Philippines (0.65), Paraguay (0.35), Uruguay (0.3), Australia (0.2 million hectares), and Mexico (0.1 million hectares). Colombia, Vietnam, Chile, and Honduras planted less than 0.1 million hectares each.

INSECT RESISTANCE

Insect resistance (IR) is deployed in maize, cotton, and eggplant. Hectarage featuring IR decreased from 27.4 million hectares in 2014 to 25.2 million hectares in 2014.

BENEFITS FROM BIOTECH TRAITS

Distribution of economic benefits at the farm level by trait, for the first 19 years of commercialization of biotech crops 1996 to 2014 was as follows: all herbicide tolerant crops at US\$63.1 billion and all insect resistant crops at US\$86.9 billion, with the balance of US\$0.4

billion for other minor biotech crops.

For 2014 alone, the benefits were: all herbicide tolerant crops at US\$8 billion, and all insect resistant crops at US\$9.8 billion plus a balance of US\$0.07 billion for the minor biotech crops for a total of ~US\$17.84 billion.

SOURCES

James, Clive. 2015. 20th Anniversary (1996 to 2015) of the Global Commercialization of Biotech Crops and Biotech Crop Highlights in 2015. ISAAA Brief No. 51. ISAAA: Ithaca, New York. Food and Agriculture Organization of the United Nations. <http://www.fao.org/countryprofiles/>
The World Bank. <http://www.worldbank.org/>

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