

Nutrien's Genetically Modified Organism Position

To meet growing global food requirements the world will need to sustainably intensify agricultural production. This is an enormous challenge requiring science-based solutions that increase production on the existing land base while protecting the environment. Protecting our water, soil, air and biodiversity are paramount to this task. Innovation and responsible application of technologies will play a critical role in meeting this global challenge.

Nutrien supports traditional plant breeding, as well as genetically modified organism (GMO) and gene editing techniques, as all methods can offer significant value to growers. Most GMO seed technology provides significant benefits for growers, consumers and the environment including higher yields, improved disease tolerance, insect resistance, better tolerance in drought conditions, and have been proven safe.

In the Americas, over 90 percent of all corn and soybeans grown are produced from seed developed using GMO plant breeding techniques. These seed varieties typically produce higher yields, largely because of the reduction in losses from weeds, diseases and insects. Producing more food per acre reduces the need to expand land areas under crop production while allowing less productive areas to remain available for native habitat and biodiversity. GMO crops also tend to require less crop protection products. Since 1996, studies have shown that biotechnology has significantly reduced the amount of pesticides used¹ in agriculture. Additionally, GMO crops have helped growers shift to less intensive soil tillage practices, while reducing the amount of mechanical cultivation required to produce crops. These new practices have helped lower the overall carbon footprint in food production.

As with all our products and services, safety is paramount. The global regulatory framework for GMO development and approval is very stringent and represents over 30 years of research and safety reviews by independent regulatory agencies. This framework has proven to be successful and remains important to global crop development efforts.

Nutrien supports the exhaustive research conducted by national and international scientific authorities. Leading global scientific authorities and multilateral agencies like the US National Academy of Sciences, the United Nations Food and Agriculture Organization, and the World Health Organization have concluded that GMO food crops do not pose any more risk to people, animals or the environment than any other food crop². This is further supported by extensive research and regulations concerning the safety of GMO crops by agencies such as US Department of Agriculture, US Environmental Protection Agency and the US Food and Drug Administration and in Canada by the efforts of the Canadian Food Inspection Agency, Health Canada, and Environment Canada which oversee product development.

Nutrien's total revenue is approximately \$20 billion annually, with seed accounting for approximately \$1.7 billion of sales. Over 90 percent of all seed sold to growers is sourced from major seed technology partners and we retail this seed products as part of our total crop input product and services offering. Our portfolio consists of a mix of both GMO and traditionally bred seed varieties. We are also directly

¹ Brookes, G., and Barfoot, P. (2015) GM Crops: global, socio-economic and environmental impacts 1996 – 2013, UK:PG Economic Ltd

² Learned Societies and National Academies Endorsing Safety of Genetically Modified Crops. (2013)

involved in breeding better varieties of canola, cotton, grain sorghum and rice seed. At present some of our canola and cotton seed offerings use scientifically recognized GMO seed breeding techniques well accepted in the industry.

Nutrien Ag Solutions provides regionally-specific solutions supporting grower efforts to intensify production on their farms in a sustainable manner. Technologically advanced seed products play a critical role in this effort. We strive to ensure growers have access to a broad selection of highly specialized seed products that optimize yields and produce safe, high quality crops.

Nutrien also works with stakeholders throughout the world to apply best management systems like 4R Nutrient Stewardship, integrated pest management, and soil and water conservation. Within these systems, regionally-specific best management practices are applied in combination with other practices to meet local economic, social and environmental goals. Advancements in precision agriculture and data management like our Echelon[™] precision agriculture digital product offering to growers are accelerating adoption and measurement of impacts to support continuous improvement.

We believe measurable improvement can only be achieved by working together and engaging stakeholders in shared value partnerships to achieve the United Nation's Sustainable Development Goals required for the future of global food production. We remain committed to all aspects of agriculture and continue improving practices that contribute to this effort.