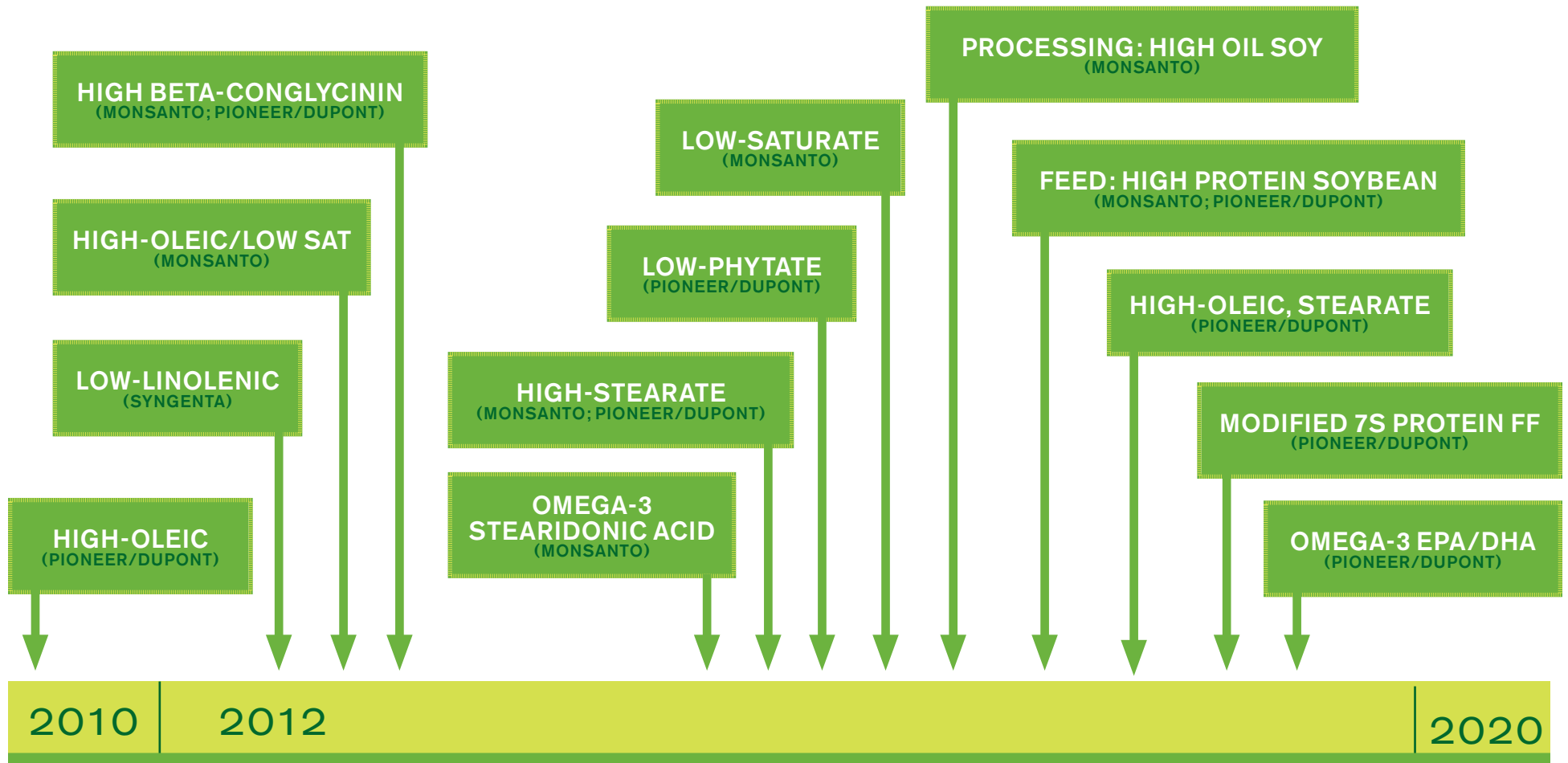


UNITED SOYBEAN BOARD

SOYBEAN INDUSTRY PORTFOLIO

PIPELINE OF BIOTECH EVENTS AND NOVEL TRAIT RELEASES FOR QUALITY/FOOD TRAITS



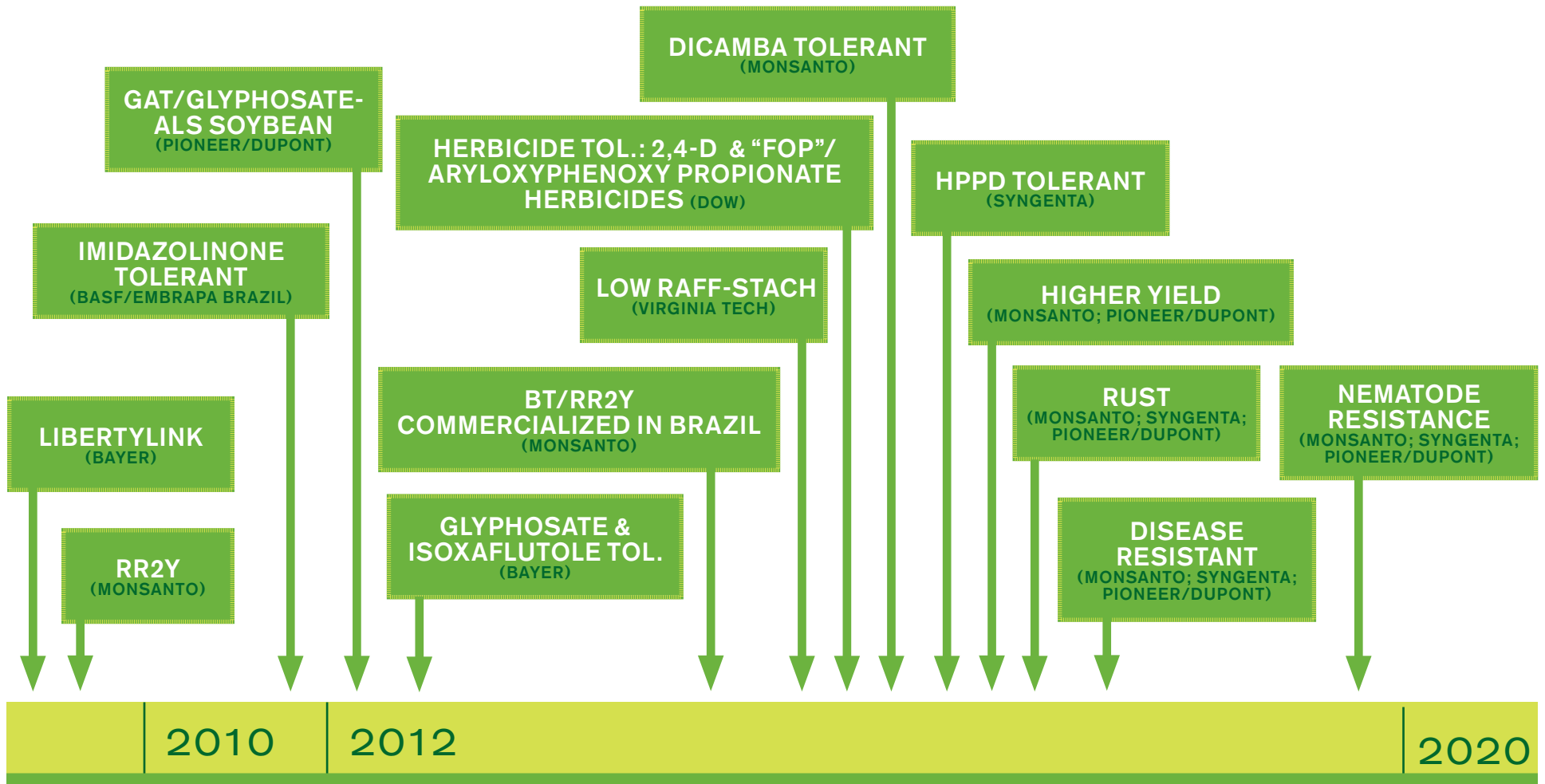
Turn over for benefits details.

- **High-Oleic.** Oil made from these beans is an alternative to partially hydrogenated oils for edible applications where increased stability, no hydrogenation and a lower trans fat content is desired.
- **Low-Linolenic.** Oil made from these beans reduces the need for hydrogenation. Foods cooked in this oil have low to no trans fat, increased oxidative stability, good end product flavor and excellent shelf life characteristics.
- **High-Oleic/Low-Saturates.** The high-oleic content provides an alternative to partially hydrogenated oils. The lower saturated fat component is designed to further reduce cardiovascular health risk.
- **High Beta-Conglycinin.** Increased levels of this protein provide greater emulsion stability, useful for protein containing drinks. They may also provide physiological benefits of lowering cholesterol and triglycerides.
- **Low Phytate.** Soybean meal from these beans will contain a more digestible form of phosphorus, reducing phosphate pollution from animal agriculture. Increased bioavailability of several minerals (i.e. zinc, iron) and may be used to alleviate human nutritional deficiencies in some developing countries.
- **Omega-3, Stearidonic Acid.** This omega-3 fatty acid can help protect people from heart disease. It is readily converted to EPA and to a lesser extent DHA. These oils are typically found in fish, but with decreasing fish supplies and increasing cost, an alternative plant derived source of this important fatty acid is desirable.
- **High-Stearate.** This viscous oil is a healthier solution for food products requiring solid fat such as margarines and shortenings. Stearate is a saturated fatty acid, but has a lower impact on blood cholesterol levels than other saturated fatty acids, such as palmitic acid.
- **Processing: High Oil Soy.** These beans may be economically advantageous due to their higher oil content.
- **Low-Saturate.** Decreased level of saturated fat aimed at reducing cardiovascular health risk.
- **Feed: High Protein Soybean.** Increased meal quality with a reduced need to add synthetic amino acids to feed rations or increase possibility of using full-fat soybean rather than meal. Soybean with better digestibility can increase food energy and decrease pollutants.
- **High-Oleic, Stearate.** The high-oleic/high-stearic oils will be stable oils with added functionality for the preparation of many foods where a certain amount of solids are needed.
- **Modified 7S Protein FF.** Reduction of this protein is predicted to reduce human allergenicity to soy protein. In addition it may be a preferred meal ingredient for aquaculture feed particularly for salmonids.
- **Omega-3 EPA/DHA.** EPA and DHA are omega-3 fatty acids that can help protect people from heart disease. These oils are typically found in fish. With decreasing fish supplies and increasing cost, an alternative plant derived source of this important fatty acid is desirable.

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PIPELINE OF BIOTECH EVENTS AND NOVEL TRAIT RELEASES FOR AGRONOMIC TRAITS



Turn over for benefits details.

- **Liberty Link.** Tolerant to Ignite and Liberty (glufosinate) herbicide.
- **RR2Y.** New version of Round Up (glyphosate) resistant plants with predicted higher yields, compared to the original Round Up Ready soybeans.
- **Imidazolinone Tolerant.** Imidazolinone is a broad-spectrum herbicide.
- **GAT (Glyphosate ALS Tolerance).** The GAT trait is aimed at achieving both glyphosate and ALS crop safety.
- **Glyphosate and isoxaflutole tolerance.** Both herbicides are broad spectrum. Technology developed by Bayer and MS Technologies.
- **Bt/RR2Y.** Bt technology stacked with glyphosate tolerance. This is being commercialized only in Brazil.
- **Low Raff-Stach.** Raffinose and stachyose are anti-nutritional oligosaccharides for non-ruminant animals. Decreasing levels of these two compounds may result in a more digestible feed component.
- **Herbicide tol: 2,4-D and “fop”(aryloxyphenoxypropionate) herbicides.** Offers broadleaf tolerance 2,4-D and tolerance to grasses via fop; herbicides.
- **Dicamba Tolerant.** Wide broadleaf weed spectrum including glyphosate-tolerant weeds.
- **HPPD Tolerant.** Inhibition of this enzyme results in wide spectrum weed control.
- **Higher Yield.** Heritable yield continues to be a valued trait for soybean producers.
- **Rust.** Transgenic resistance and/or tolerance to Asian Soybean Rust.
- **Disease Resistant.** Breeding and transgenics may be used to increase resistance to diseases such as aphids, Asian Soybean Rust and other soybean diseases.
- **Nematode Resistance.** Monsanto intends to stack SCN resistance with RR2Y.