

BIOTECH SOYBEANS IN AQUACULTURE FEEDS



USSEC
U.S. SOYBEAN EXPORT COUNCIL

ASA
International
Marketing

USB
UNITED STATES
SOYBEAN BOARD



U.S. soybeans provide a nutritious, safe and plentiful supply of protein for aquaculture feed.

Soybeans can help global aquaculture scale up to meet increasing demand for healthful seafood, without depleting limited sources of wild-caught fishmeal and fish oil used in aquaculture feed.

Highly Nutritious for Fish

- Protein-rich soybean meal meets the nutritional needs of most farmed fish species.
- Soybean meal can easily replace up to 100% of the fishmeal and fish oil in feed for herbivorous fish.
- For carnivorous fish, soybean meal can replace fishmeal and fish oil for most of the fish grow-out cycle, reserving this limited resource for feeding just before harvesting to increase healthy Omega-3 content.
- New strains of soybeans are being developed to even better meet the nutritional needs of different fish species.

Safe for Fish and Aquatic Ecosystems

- Soybean meal in aquaculture feeds have been formulated and extensively tested for no adverse effects on the fish.
- In some field trials, fish actually have better growth rates and better results on soy-based feeds than on traditional fishmeal-based feeds.
- Soy in aquaculture feeds is proven to be easily digested by fish and does not cause excessive waste.

Safe for the Environment

Since the beginning of cultivation agriculture, farmers have selected plants based on genes and yields. Modern biotechnology simply allows scientists to:

- Make genetic modifications faster and more precisely than with conventional breeding
- Select and insert specific genes into plants with known beneficial traits, such as better protection against specific insects and diseases, better drought tolerance, and higher protein levels

Herbicide-tolerant soybeans allow farmers to almost completely eliminate plowing on their fields, which results in:

- Better soil health
- Better soil conservation
- Improved water retention
- Decreased soil erosion
- Decreased herbicide runoff
- Global reduction of carbon dioxide (equivalent of removing 6.56 million cars from the roads for one year)
- Increase in amount of carbon held in the soil due to a reduction in plowing

In 2011, 94% of soybeans planted in the U.S. were biotech beans, genetically modified to be herbicide tolerant.

These crops are the most tested in history, and have been repeatedly studied and declared safe by expert panels the world over.

Studies show that biotechnology significantly reduces agriculture's impact to the environment, especially by decreasing global pesticide applications by millions of pounds each year.

Biotech crops have been declared safe from experts across the globe, including:

- Institute of Food Technology
- National Academy of Sciences
- National Institutes of Health
- UK's House of Lords
- United Nations/World Health Organization (studies in 1991, 1996, 2000)
- American Medical Association
- American Dietetic Association
- European Commission's Joint Research Centre
- National Research Council



www.soyaqua.org