



# REAL Eggs are **GMO Free**

## American Egg Board Explores the Science

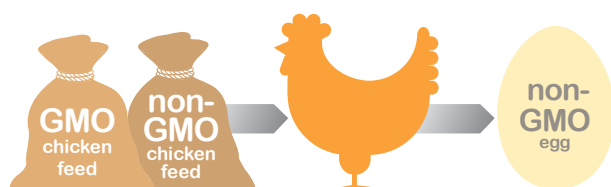
Eggs in their natural state — in their shells — are not a genetically modified (GM), or bioengineered food. In fact, neither chickens nor eggs are genetically modified. While the large majority of corn and soybeans grown in the United States are genetically modified, and these are primary constituents of most animal feeds, none of the genetic materials pass through the hen to the egg.



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According to USDA, eggs are not a genetically modified (GM), or bioengineered food. This includes shell eggs and eggs used for processed egg products. Only traditional breeding techniques are used to raise laying hens in the United States; neither chickens nor eggs are modified by genetic engineering. Even when a laying hen eats genetically engineered feed, any products unique to genetic engineering are destroyed by the hen's digestive process.

Scientific research has confirmed that none of the genetically engineered materials are passed into the egg.



Regardless of the type of feed the hen consumes, her digestive process breaks down the proteins and nucleic acids present. This remains true whether the feed is from traditional or genetically modified (transgenic) sources. There is no transfer of any transgenic protein or rDNA from commercialized genetically engineered (GE) crops detected in milk, meat or eggs.<sup>1</sup>

Stephen Taylor, Ph.D., is the cofounder and codirector of the Food Allergy Research and Resource Program and a professor in the Department of Food Science and Technology at the University of Nebraska-Lincoln. Dr. Taylor says that multiple studies have compared GM and conventional crops for nutritional performance in various animals, including cows, pigs, sheep and broiler chickens. These studies find the GM DNA does not survive the intestinal tract in broilers<sup>2</sup>, while other studies<sup>3</sup>, including the most recent study conducted in 2013<sup>4</sup>, do not detect any GM DNA in eggs.

The egg industry offers other options, such as organic eggs. The USDA National Organic Program strictly prohibits GMO grains from being fed to livestock sold, represented or labeled as organic, including food products stemming from this livestock, such as eggs.

REAL eggs are a valuable addition to the ingredient portfolio of any food manufacturing operation due in part to the 20+ functional benefits they provide ... such as aeration, binding and emulsification to name a few.

### Egg products without added ingredients are GMO free.

Any manufacturer or formulator purchasing egg products should check with the individual egg supplier to ask about the GM status of other ingredients sometimes added to egg products to enhance functionality.

1. Espanier R., 2013. The fate of transgenic DNA and newly expressed proteins. In G. Flachowsky (ed.) Animal Nutrition with transgenic plants No. 1, p. 112-127. CABI Biotechnology Series, Oxfordshire, UK.
2. Rossi F., Morlacchini M., Fusconi G., Pietri A., Mazza R. and Piva G.: Effect of *Bt* corn on broiler growth performance and fate of feed-derived DNA in the digestive tract. (2005) Poultry Science 84:1022-1030.
3. Aeschbacher K., Messikommer R., Meile L., Wenk C.: *Bt176* corn in poultry nutrition: physiological characteristics and fate of recombinant plant DNA in chickens. (2005) Poultry Science 84:385-394.
4. Sieradzki et al: Assessing the possibility of genetically modified DNA transfer from GM feed to broiler, laying hen, pig and calf tissues. (2013) Pol. J. of Vet. Sci. 16(3):435-441.

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