

**Agricultural Biotechnology and its Regulation:  
(The Limited) Options of U.S. Crop Producers**

The logical arguments for and against genetically modified foods give way to ideologically driven positions for against a wide range of biotech practices in agriculture, but the moral of this case seems to be that companies are making an effort create demand-driven supply for GMO-free and ‘GMO-lite’ food and fiber products. Further, both “camps” seem to be identifying a pure play where none exists. (Thus does a reputable NAS NRC report indicate that pest-protected crops do affect nontarget species, but probably less so than “broad-spectrum synthetic insecticides”)

The “for” camp includes a diverse range of actors, from industry science-friendly U.S. to the sorely wanting smaller developing countries. The primary argument put forth—by such industry players as Synergia, DuPont, Monsanto, Novartis, Aventis, and others—include improved yields, lower costs, and lower pesticide input usage.

The “against” camp, on the other hand, eschews “Frankenfoods” on principle, arguing primarily from the precautionary principle, the danger of wild crop transference (‘genetic pollution’), the creation of superweeds, and the effects of binding small producers to the whims of big chemical and seed input providers. They point to the 1999 Cornell study in which Monsanto’s Bt corn plants were fed to monarch butterfly caterpillars, with lethal results, a study which prompted the EU to halt its regulatory approval of one GM corn variety and to rethink the approval of others.

The case then gives a too-brief background to the rationale for government intervention in agriculture, focusing on the commodity programs, price supports, and regulatory and oversight mechanisms. (*e.g.*, whether FDA—under H&HS—or USDA is the regulatory body); an example of regulatory failure, then—or, as the “against” camp would rightfully argue, a failure to abide by the precautionary principle—is the mad cow case: feeding cows to each other in the form of “meat and bone meal” when the price of oil (and, resultantly, the price of corn and soy grains) rises causes bovine spongiform encephalopathy.<sup>1</sup>

The regulatory divergence in Europe and the U.S. is encapsulated in two related rulings: the FDA objection to Ben and Jerry’s “BST-free” label and the recent Beef Hormones case decided by the GATT Appellate Body between the U.S. and the E.U. In the Ben and Jerry’s case, the FDA objected to Ben and Jerry’s label, both on the grounds that it implied BST-produced products were inferior and because cows produce some BST naturally. In the case of the GATT AB Beef Hormones case—and of a much more recent GM foods case that was decided last year—the WTO Appellate Body basically argued that claims protecting “animal and human health” had to present scientifically demonstrable risk, which, in the case in question, the beef hormones did not. In other words, the precautionary principle could not carry the day without scientific backing at least of the potential for specified risks.

As the above complications indicate, the international agreements on GM provisions, property rights (*in re* seeds and brown bagging), and related issues are woefully inconclusive. The Cartagena Protocol to the CBD has provisions that satisfy

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<sup>1</sup> The case states that, as of 2001, “no cases of BSE were known to have occurred in the United States.” (p. 8) This is no longer true.

parties X, Y, and Z, but in so doing it seems to be sanctioning a variety of mutually incompatible behaviors, and is itself of questionable enforceability.

But whatever the legal status of GM foods in various jurisdictions, agricultural companies need only look to the magnitude of the brouhaha to understand that a powerful market exists for GM-free foods, and that a viable supply chain can stand to profit from this market niche. Examples mentioned in the case include Nestlé, Gerber, and Frito-Lay, among others, who in turn prompted ADM and Cargill to establish a non-GE corn and soy processing and transport infrastructure.<sup>2</sup>

The case of Aventis' Starlink corn provides an example of the dangers of the diversification strategy being attempted by the U.S.-focused grain and protein producers and processors. Starlink corn, approved for animal but not human consumption, managed to find its way in to tacos and chips in U.S. groceries, and the resultant regulatory and legal damage cost Aventis 500 million dollars. When paired with the rapid proliferation of GE crops in South America, might the U.S. market benefit from a stronger focus on GE-free crops—buttressed from contamination by a strong enough market to provide a dependable and independent processing and transport infrastructure?

This strategy has a number of shortcomings, prime among them being the inchoate nature of GE-free markets for soybeans, where only 3% of elevators paid a premium, and even those paying only 5 to 30 cents above the \$5 per bushel average price.

(p. 13) Similarly, the rise of Transgenic crops in the U.S. from 8.1 million hectares in 1997 to 28.7 million hectares in 1999 (Exhibit 1, p. 16) indicate that the trend, if

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<sup>2</sup> For a case in point, my family owns a farm in Illinois (approximately 1,000 acres, with over 50% in corn); while my family's farm uses roundup-ready corn, my cousin's farm uses GM-free crops, both on principle and because it's now economically feasible because of the market demand from European purchasers. (n.b., we are not the farm operators as defined either by the USDA ERS or the Census; we hire out the farm to an operator, as my family lives in San Diego).

anything, is for *more* GM crops in the U.S., not less, especially if much of U.S. production is specifically *not* aiming to meet E.U. demand, but is rather focused domestically and on other markets. As Exhibit 11 (p. 30) demonstrates, the U.S. is deep in the agricultural export business, but the ROW (rest of world, I assume?) imports category outweighs European imports on all categories but beef (wheat, corn, and soybeans), the single category where feed inputs are hardest to trace—and, in some respects, possibly less of a priority—once they are eaten by the cow.

Nonetheless, the meteoric rise of Bunge and other such global crop processors and distributors, the competitive advantage of U.S. based crop companies is dwindling fast when faced with the comparative advantage of climatic and geographic scale economies with which the U.S. producers cannot compete in the long term. One solution would be to specialize the product in a way that Argentine producers would have difficulty doing; Monsanto's history of being unable to control illegal use of its Roundup-Ready crops in Brazil and Argentina is a case in point, for it would be easier—though not error-proof by any means—to regulate and maintain oversight controls on GE-free crops for European markets.

Another potential weakness of this strategy is that it is contingent upon the continuing strength of the GE-free demand-driven market, which is currently strongest among EU consumers. The GE-wary market is an excellent example of a difficult to predict market condition (not quite a “black swan”, but almost); will this specific variant on a green market remain a driving force in consumer decisions?

As the above indicates, the business decisions are harder for the grain farmers than for value-adders like Nestlé *et al* (although the Gerber case highlights the difficulty

of verifying authentic sources for products). As long as food companies acting in a variety of market situations have the infrastructure capable of diversifying product bases to meet regional customer needs without sacrificing the vertical integration models necessary to maintain efficiency of production and to avoid overextension, the value-added food processors can slough of some—though not all, as Gerber and Ben and Jerry's indicate—of the GE-free providing responsibility to input providers.