

rBGH: Anything but Green

The dairy industry has followed the same path as much of agriculture: Produce as much as possible and do it cheaply, all in the name of increasing profitability. Like those who are, for example, growing grain or raising chickens, dairy farmers are responding to the increasing power of agribusiness and farmer-unfriendly federal policies by getting bigger or getting out.

One of the many factors contributing to factory-scale dairy operations is recombinant Bovine Growth Hormone (rBGH or also sometimes called rBST), an artificial growth hormone developed by Monsanto to increase dairy cows' milk output.

Industrial agriculture proponents proclaim that farming on a large scale, and using technology such as rBGH, brings many benefits to farmers. Lately, a healthier environment has been their prime example of these supposed benefits. One outspoken advocate of industrial dairy production recently wrote that the genetically engineered hormone is good for the environment because dairy cows injected with it “eat less feed for each gallon of milk they produce” and this means that less land is used for cows given the artificial hormone. “Less land plowed, less fertilizer, less of all of the inputs that go into producing the dairy products consumers enjoy.”¹ Going even further, he says, those cows on rBGH help cut down on greenhouse gases.

Are rBGH Cows More Efficient?

Is it true? Do cows injected with rBGH really eat less feed while producing more milk? The Food & Drug Administration says no.

Years ago, when rBGH was being approved for use, Monsanto wanted to make a label claim that it increased both feed efficiency and milk production. This is exactly what proponents of rBGH are saying now, that cows treated with the artificial hormone eat the same amount of feed while producing more milk. But when agency approval came in 1993, the label claim for increased feed efficiency was not allowed because Monsanto could not produce enough data to convince FDA of their claims.²



So FDA approved the use of rBGH for increasing the amount of milk per cow, but didn't buy the claim that those cows are necessarily more efficient users of feed. But there's still another question to ask: Is the amount of milk per cow all that matters? To answer that one, we need to look at which cows are getting treated with rBGH.

An Environmental Reality Check

So who's using these artificial hormones? While rBGH is used in only about 17 percent of all U.S. dairy cows, factory farm operators inject it into 42 percent of large herds (500 animals or more).³ Indeed, big dairy farms are the primary users of the artificial hormone. Nationally, fewer than 10 percent of small dairy farms (those with fewer than 100 cows) used rBGH in 2007.⁴

To understand what this distribution of rBGH use means, perhaps we should step back and look at the overall bleak



picture of modern dairy production. Instead of wandering around eating grass in pastures, as cows are built to do, the majority of them are now concentrated in factory farms where they eat grain that takes lots of land and energy to grow and transport. The process of planting and harvesting and transporting all that corn pollutes our soil and water with agro-chemical waste – about 10 billion pounds a year of nitrogen fertilizer alone is dumped onto fields⁵ – and releases carbon dioxide emissions into our atmosphere, where it assists with climate change.

So does it really decrease land use and help address climate change to cram together all those cows – many of them on rBGH – and feed them shipped in grains?

How – and where – cows are raised matters. While the United States lost 94,000 dairy cows over the last decade, their number increased dramatically – by half a million – in the biggest dairy states.⁶ Meanwhile, smaller, sustainable family dairy farms are going away, their numbers having fallen by 39 percent over the last decade.⁷ Larger, unsustainable factory dairies have replaced them. Between 1987 and 2002, the average size dairy herd more than tripled, going from 80 to 275 cows.⁸

In California from 1997 to 2007, the number of dairy cows increased by 30 percent, from 1.39 million to 1.81 million.⁹ Those 422,000 additional cows consumed 44 million more bushels of corn in 2007 than the state's dairy herd ate a decade earlier. An additional 293,000 acres of corn were required to feed those new dairy cows in 2007.¹⁰

And in Idaho, which is considered new to the production of milk on a large scale, the number of dairy cows in the state skyrocketed from 272,000 in 1997 to 513,000 in 2007, an increase of 88.6 percent. Those 241,000 additional cows ate about 25 million more bushels of corn. Growing that corn required 167,000 acres of land.¹¹

California and Idaho don't produce enough corn to supply the rising demand from factory farms, so much of that extra corn has to be shipped from thousands of miles

away, using energy and contributing to climate change.

More cows eat more feed that is grown on more land. That strikes us as neither efficient, nor environmentally friendly. And what about all the manure?

Storing millions of gallons of factory farm generated manure and other waste in one place emits dust particles and hundreds of different volatile gases, including ammonia, carbon dioxide and methane. In fact, one 2,500-cow dairy produces as much waste as a city with 400,000 residents.¹² So perhaps it was no surprise to hear California's San Joaquin Valley Air Pollution District's 2005 announcement that the region's more than two million dairy cows bore more responsibility for air emission of volatile organic compounds than cars, trucks or pesticides.¹³

And for one more opinion on whether rBGH is better for the environment, we can turn once again to the FDA. In a 1993 environmental impact statement, the agency noted that analysis of the impact of rBGH use on greenhouse gas emissions found that emissions would either increase slightly or decrease slightly, but that "the magnitude of the changes will be extremely small and insignificant compared to total worldwide emissions of carbon dioxide and methane."¹⁴

Bad for Business

Ironically, given the aims of industrial agriculture, the profitability of using the drug is questionable. It has produced a very mixed bag – some farmers seem to make money with rBGH, but others don't. Plus, the variability is high, depending on the price of milk, feed and other factors. While farmers who put their cows on rBGH may see a 10 percent increase in milk production, they also have increased expenses, including corn feed that has become more expensive, the \$6.50 per injection cost of the hormone (not including the labor charge to administer it) and the possibility of more bills from the veterinarian to deal with bovine health ills stemming from rBGH. Additionally, some dairy farmers report that cows treated with rBGH burn out faster and have to be sent to slaughter and replaced.

In all this talk about increasing milk production, perhaps we should pay heed to a very basic financial reality:





Increasing the supply of milk reduces the price that dairy farmers receive for it. That financial reality drives many out of business and forces the remaining producers to adopt the bigger-is-better model, fraught with the questionable technology that comes along for the ride.

All that said, recombinant Bovine Growth Hormone affects more than the environment and dairy economics.

Lingering Health Questions

This artificial hormone's history is just a bit shady. While the U.S. Food and Drug Administration approved rBGH in 1993, based solely on an unpublished study submitted by Monsanto,¹⁵ the governments of Canada, Australia, New Zealand, Japan and the European Union have never allowed it to be used.

The possible health implications of rBGH for humans and cows are significant. The milk from cows injected with rBGH has higher levels of another hormone called insulin growth factor-1 (IGF-1). Elevated levels of IGF-1 in humans have been linked to colon and breast cancer.¹⁶ Some researchers believe there may be an association between the increase in twin births over the past 30 years and elevated levels of IGF-1 in humans.¹⁷

And rBGH use has increased bacterial udder infections in cows by 25 percent, adding to the need for antibiotics to treat the infections,¹⁸ a worrisome trend in light of the growing problem of antibiotic resistance.

The Bottom Line

Pumping rBGH into cows to increase milk production has not led to fewer cows producing more milk. Instead, it has become a tool for keeping more cows in fewer places where they gobble up more grain grown unsustainably on more acreage. In short, rBGH has contributed to the growth of mega-dairy operations that cram together thousands of cows generating mountains of waste that are toxic to us and to our environment. In addition, rBGH causes numerous human and bovine health issues,

including bacterial resistance to antibiotics and more frequent bovine udder infections.

What You Can Do About It:

- Consumers should purchase dairy products that are labeled “rBGH-free,” “rBST-free,” or “organic.” Problem is, some states are trying to prevent dairies from labeling their products with this information. Check out our website for more information on how to take action to make sure consumers know how their milk was produced. www.foodandwaterwatch.org/food/dairy
- Tell your supermarket, favorite dairy brand, and school district that you want rBGH-free dairy products.

Endnotes

¹ Etherton, Terry. “Milk: Let the Buyer (the Environment and the Cow) Beware.” Dairy and Animal Science Blogs. Pennsylvania State University, March 24, 2008. Available at: <http://blogs.das.psu.edu/tetherton/2008/03/24/milk-let-the-buyer-the-environment-and-the-cow-beware/#more-257>

² “Freedom of Information Summary: POSILAC® (sterile somatotrope zinc suspension)” www.fda.gov/cvm/4386.htm#ind

³ “Dairy 2007 Part I: Reference of Dairy Cattle Health and Management Practices in the United States, 2007,” Veterinary Services, Animal and Plant Health Inspection Service, U.S. Department of Agriculture, October 2007, Pg. 79.

⁴ Ibid.

⁵ Philpott, Tom. “Attack of the killer corn: Why the heavily subsidized corn harvest amounts to an annual environmental calamity.” Grist.org, Feb. 22, 2006. Available at: <http://gristmill.grist.org/story/2006/2/22/105622/830>

⁶ National Agricultural Statistics Service of the U.S. Department of Agriculture. Accessed on April 1, 2008 at www.nass.usda.gov/QuickStats/PullData_US.jsp

⁷ “Milk Cows: Number of Operations by Year, US.” National Agricultural Statistics Service, U.S. Department of Agriculture, Accessed on April 1, 2008. Available at www.nass.usda.gov/Charts_and_Maps

⁸ “Structure and Finances of U.S. Farms: Family Farm Report, 2007 Edition.” Economic Research Service, U.S. Department of Agriculture, June 2007, Pg. 33.

⁹ Calculations based on state data (California) from the National Agricultural Statistics Service of the U.S. Department of Agriculture. Accessed on March 28, 2008 at www.nass.usda.gov/QuickStats/PullData_US.jsp

¹⁰ Calculations based on dairy cow population from previous citation using worksheet (Pg. 21, Grade A Dairy – One Cow Unit.) from “Livestock Enterprise Budgets for Iowa – 2007.” Iowa State University, University Extension. Publication revised in March 2007. Each cow eats 104 bushels of corn feed.

¹¹ Calculations based on state data (Idaho) from the National Agricultural Statistics Service of the U.S. Department of Agriculture. Accessed on March 28, 2008 at www.nass.usda.gov/QuickStats/PullData_US.jsp

¹² U.S. Environmental Protection Agency. “EPA Region 9: Animal Waste.” October 29, 2002

¹³ Bustillo, Miguel. “In San Joaquin Valley, cows pass cars as polluters.” *The Los Angeles Times*, August 2, 2005.

¹⁴ "FINDING OF NO SIGNIFICANT IMPACT for Sterile Somatotribove Zinc Suspension (Methionyl -. Bovine Somatotropin, POSILAC.)" FOR PUBLIC DISPLAY www.fda.gov/cvm/Documents/BSTEAFONSI.pdf

¹⁵ Cruzan, Susan M. FDA Press Release on rBST approval. Food and Drug Administration. November 5, 1993.

¹⁶ Epstein, S. "Unlabeled milk from cows treated with biosynthetic growth hormones: a case of regulatory abdication." *International Journal of Health Services*, 26(1):173-85, 1996.

¹⁷ Steinman, G. Can the chance of having twins be modified by diet? *Lancet*, 367(9521):1461-2, May 6, 2006.

¹⁸ Dohoo, I. et al. "Report of the Canadian Veterinary Medical Association Expert Panel on rBST," (Executive Summary) Health Canada, November, 1998.

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