

# **MORE BEEF — LOWER COST**



The impact of pharmaceutical technology  
in modern beef production



*Safe, affordable beef through socially and  
environmentally responsible practices*

# Pharmaceutical Technology: MORE BEEF — LOWER COST



Pharmaceutical technologies — parasite control, growth-promotant implants, antimicrobial therapy, ionophores and beta agonists — have a profound impact on the U.S. beef industry. They significantly increase the volume of beef produced while reducing production costs by improving animal growth and efficiency across all industry segments — cow-calf, stocker and feedlot.

John Lawrence, Ph.D., professor of economics at Iowa State University and director of the Iowa Beef Center, and his associate, Maro Ibarburu, recently completed an economic analysis of the impact of these technologies on U.S. beef production using 2007 cattle prices and production input costs.

The studies show removing these technologies from all segments of the U.S. beef production chain would result in:



**smaller calf crop**



**less beef production**



**increase in net beef imports**



**lower per-capita consumption**



**increase in retail beef prices**



**per-head increase in breakeven cost**



**a shift to pork and poultry as alternative protein sources**

## Overall economic impact without use of pharmaceuticals

The elimination of pharmaceutical technologies from U.S. beef production would result in a smaller industry with higher beef and cattle prices.

While the number of beef cows is projected to remain the same, there would be 14 percent fewer calves weaned and a decline in carcass weights, reducing beef production 19 percent, or 5.1 billion pounds.

There would be fewer total cattle, fewer cattle on feed and fewer cattle harvested. Net imports of beef would increase 247 percent, or nearly 2.7 billion pounds. Consumers would eat less of a higher-priced product. Domestic per-capita beef consumption would drop 8.6 percent while retail prices would increase 10.9 percent. As with other agricultural

technologies, the benefit of pharmaceutical technologies to consumers is larger supplies at lower prices.

Research indicates some consumers are willing to pay a premium for natural or organically produced beef. If the use of pharmaceutical technologies were discontinued in the U.S., cost of production would rise, forcing some producers and resources out of the cattle industry.

The feedlot and beef-packing sectors would also be downsized because of fewer calves produced and increased imports. The smaller supply of beef would result in higher prices to all consumers, not just those willing to pay a premium for natural and organic products.

### Summary of FAPRI\* model of U.S. beef sector with and without pharmaceutical technologies for 2007, seven years after eliminating their use in 2000

Inventory (million head)	Values after 7 years		
	With technology	Without technology	Percent change
Beef cows, Jan 1	32.9	33.2	0.9%
Total calf crop	37.4	32.3	-13.6%
Steer and heifer slaughter	28.1	23.7	-15.5%
Cattle and calves, Jan 1	97.0	88.5	-8.8%
Cattle on feed, Jan 1	14.3	12.1	-15.2%

### Beef supply and use (million lbs)

Production	26,523	21,462	-19.0%
Net imports	1,618	4,292	247%
Retail consumption (lbs)	65.10	59.60	-8.6%
Nebraska 11-13 cwt steers	91.82	111.53	22%
OKC 6-6.5 cwt steers	115.48	145.62	26.7%
Utility cows, Sioux Falls	52.12	65.77	26.5%
Retail beef (\$/lb)	4.16	4.61	10.9%
Cow-calf receipts (\$)	523.09	625.44	19.6%
Cow-calf expenses (\$)	483.00	582.00	20.5%
Cow-calf net returns (\$)	40.09	43.44	-7.7%

\*Source: Food and Agricultural Policy Research Institute.



## Impact across all segments

The combined impact of pharmaceutical technologies on cost of production across all production segments are additive. They show, in fact, a complementary effect as healthy animals are better able to use other inputs more efficiently.

The estimated increase in breakeven selling price if pharmaceutical technologies were eliminated from the beef production chain is 37.83 percent, or a cost of \$524 per head produced. The removal of dewormers is estimated to impact breakeven prices by 22 percent, or just under \$260 per head produced. Taking away growth-promoting implants would impact breakeven prices by more than 11 percent, or a cost of \$126 per head produced.

### Estimated impact on breakeven selling price and cost of production from removing pharmaceutical technologies throughout the beef industry

Technology	Breakeven price	Cumulative cost per head
Growth-promoting implants	11.60%	\$126.00
Dewormers	22.10%	\$260.00
All technologies	37.83%	\$524.00

## Cow-calf

The combined impact of discontinuing the use of these technologies in cow-calf operations would increase the breakeven selling price by just less than 47.2 percent, or \$274 per head. Deworming, for example, is estimated to have nearly a 24 percent impact on weaning rate alone, which includes both pregnancy rate and survival rate of the calf.

In many cases, producers have a fixed land base which limits the number of beef cows they can maintain. As weaning rate and weight decrease, there are fewer calves sold to cover the cost of maintaining the herd.

Producers must also still retain replacement heifers, but do so from a smaller pool, dramatically increasing the cost-per-calf sold.

### Estimated impact on breakeven selling price and cost of production from removing pharmaceutical technologies from the beef cow herd

Technology	Breakeven price	Cumulative cost per head
Growth-promoting implants	5.80%	\$34.00
Dewormers	34.60%	\$201.00
Fly control	3.1%	\$18.00
All technologies	47.20%	\$274.00

## Stocker operations

The greater the effect of a technology on production efficiency, the larger its impact on cost of production. Dewormers and growth-promoting implants are the two technologies that most affect average daily gain and breakeven price in stocker operations.

The impact of ionophores, antimicrobial therapy and fly control are all similar, but less so than implants and dewormers.

### Estimated impact on breakeven selling price and cost of production from removing pharmaceutical technologies from stocker operations

Technology	Breakeven price	Cumulative cost per head
Growth-promoting implants	2.9%	\$21.00
Ionophores	1.8%	\$14.00
Antimicrobial therapy	1.5%	\$11.00
Dewormers	3.3%	\$24.00
Fly control	1.0%	\$7.00
All technologies	12.7%	\$95.00

## Feedlot

Growth-promoting implants have the greatest effect on beef-feeding operations, stimulating a 14 percent increase in average daily gain (ADG) and a 9 percent decrease in pounds of feed fed per pound of gain (F:G). This impact is measured at \$71 per head, a savings that would be lost if the technology were not available.

Beta agonists have an impact similar to growth-promoting implants on ADG (14 percent), but a larger impact than implants on F:G (13 percent).

Dewormers improve ADG 5.6 percent and reduce F:G by 3.9 percent, generating a savings of \$35 per head. The total cumulative effect of pharmaceutical technologies in the feedlot segment is \$155 per head.

### Estimated impact on breakeven selling price and cost of production from removing pharmaceutical technologies from beef feedlots

Technology	Breakeven price	Cumulative cost per head
Growth-promoting implants	6.1%	\$71.00
Ionophores	1.7%	\$20.00
Antimicrobial therapy	0.8%	\$9.00
Beta agonists	1.2%	\$15.00
Dewormers	2.9%	\$35.00
All technologies	13.2%	\$155.00



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For a copy of this brochure and/or the companion white paper, *Economic Analysis of Pharmaceutical Technologies in Modern Beef Production in a Biofuel Era*, go to: [www.SustainableBeef.org](http://www.SustainableBeef.org)