β-adrenergic agonist removal: What’s the cost?

Myriah D. Johnson, James W. Richardson, Tryon A. Wickersham, Jason E. Sawyer, and David P. Anderson

ABSTRACT: Price and quantity effects of β-adrenergic agonists (β-AA) removal from beef cattle production were estimated using a stochastic equilibrium displacement model (EDM). In this analysis, zilpaterol hydrochloride (ZH) and ractopamine hydrochloride (RH) were removed from beef production. Profitability changes from the removal of the β-AA technology for a feedlot and packer/processor were used as exogenous shocks to the EDM. An enterprise budget was used to estimate the change in profitability. Enterprise budget variables influenced by the use of β-AA were estimated with a production growth model. Cattle not consuming β-AA had an average DMI of 9.46 kg/d (6.99-13.16 kg/d range) and an average ADG of 1.62 kg/d (1.22-2.03), while in the β-AA scenario, DMI averaged 9.50 kg/d (6.93-12.29) and ADG averaged 1.78 kg/d (1.36-2.75). For the feedlot, change in profitability ranged from -$23.11 to $100.28/animal with β-AA. Initially, percentage change in quantity produced decreases in the retail (-2.68%), packer/processor (-2.68%), and feedlot (-4.26%) market levels, relative to a base of no β-AA removal. After market signals (price) are realized, quantity of feeder cattle changes. Because of the initial decrease in quantity, price of beef increases in the retail (3.77%), packer/processor (5.18%), and feedlot (11.94%) markets. Quantity and price changes in pork and poultry markets are minimal in the beginning, but increase as the market adjusts. Over six years, as the market moves towards equilibrium, beef quantities at all market levels, except feedlot, increase (0.56% retail, 1.17% packer/processor, -0.12% feedlot cattle, and 0.48% feeder cattle). Beef price decreases by 6.68% in retail, 6.32% in packer/processor, and 7.06% at feedlot. Feeder cattle price increases by 15.46%. Quantities increase in all pork market levels (4.12% retail, 11.11% wholesale, and 2.48% slaughter). Pork price decreases at the retail and wholesale levels, but increases at the feeder level (-18.61% retail, -19.00% packer/processor, and 25.69% feeder). For poultry, quantity decreases at retail (-2.94%) and price increases slightly (0.46%). Generally beef consumers, packers, and feedlots face reduced prices and increased quantities. Price and quantity of feeder calves increases. Pork consumers, packer/processors, and growers face increased quantities, with decreased
prices for consumers and packers and increased prices for growers. Poultry consumers see decreased quantities and increased prices.