

## Chapter 4.26

# The Impact of Information Technologies on the US Beef Industry's Supply Chain

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### ABSTRACT

Historically, the growth of the beef industry has been hampered by the various entities (breeders, cow-calf producers, stockers, backgrounders) within the beef industry's supply chain. The primary obstacles to growth are the large number of participants in the upstream partners and the lack of coordination between them. Over the last decade significant advances have been made in information technologies. Many new companies have been founded to promote these technical advances. This research looks at the upstream participants, primarily the buyer agencies and principles between the cow-calf producers and the meat packing companies, to determine the degree to which information technologies are currently being utilized and the degree to which these new technologies have driven improvements within the beef industry's supply chain. We find

through our survey that, by and large, the beef industry does not use information technologies to their benefit and that the U.S. beef supply chain is not yet strategically poised to enable the use of these technologies.

### INTRODUCTION AND BACKGROUND

The beef industry is characterized by several distinct levels of participants; breeders, cow-calf producers, stockers, backgrounders, auction markets, finishers, meat packers, meat processors, distributors, and retailers. Lamb and Beshear (1998) asserted that the various groups that comprise the beef industry's supply chain pose a significant obstacle to the overall growth of the industry and that large numbers of participants in the upstream groups are hindering the coordination of better

supply chain practices. The structure of the beef industry's supply chain can be seen in Figure 1.

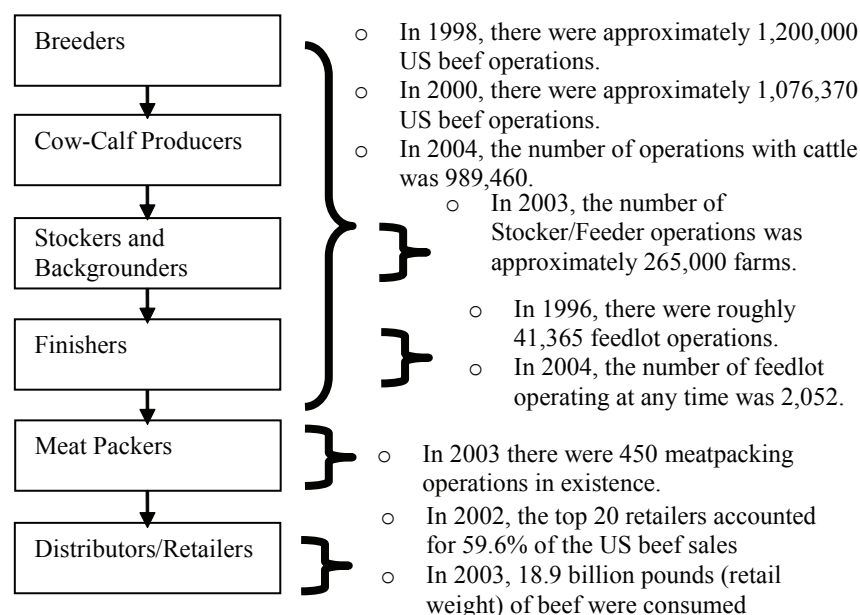
Cow-calf producers (or breeders) produce calves and feeder cattle that are grown and cared for and are then shipped to stocker operators and feedlots. Stocker operators (also called back-grounders) keep an inventory of mature cattle and will put weight on the cattle before they go into feedlots. The feedlots (finishing operations) buy cattle and finish growing them in feedlots for distribution to market. Packers purchase cattle, from feedlots, that have reached the required weight for slaughter and processing. They sell the further processed carcasses as boxed beef to retailers and food service operators who prepare them for human consumption. On occasion, the prepared beef is sold to a purveyor (or meat wholesaler), but the majority of the prepared beef is sold directly to supermarkets and independent grocery stores.

Even though the demand for meat products has been growing in the U.S., the beef industry has been losing market share over the past several

decades. The decline in beef has occurred while the U.S. has become the global leader in beef production, with 24.7 billion pounds of beef produced in 2005 (U.S.D.A. Economic Research Service, 2006). This loss of market share is a result of several factors: lack of consistency of the quality of beef products, availability of substitute products, lack of variety in beef products, and consumer concerns on health and safety (see Romage, 2005; Tomson, 2005 for recent improvements to beef trade on the basis of health and safety). Many of these issues are directly related to the inefficiencies of the beef industry's supply chain.

Akerlof (1984) theorized that asymmetric information between buyer and sellers could ultimately result in adverse product selection and eventual market failure. It was his belief that without an asymmetric flow of information between buyers and sellers, low quality goods would increasingly be erroneously promoted as high quality. Kularantna, Spriggs, and Story (2001) assert that the traditional beef marketing and supply chain systems are failing to transfer

*Figure 1. The beef industry supply chain structure (Geiman, 2003; Hanselka, Davis, Anderson, & Capps, 2004; USDA NASS, 2006; USDA's NAHMS Report, 1998)*



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