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The Effect of Cooperatives On Innovation

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Market Report	Yr Ago	4 Wks Ago	7/15/05
Livestock and Products, Weekly Average			
Nebraska Slaughter Steers, 35-65% Choice, Live Weight	$83.05	$83.18	$80.00
Nebraska Feeder Steers, Med. & Large Frame, 550-600 lb	133.92	154.75	142.21
Nebraska Feeder Steers, Med. & Large Frame 750-800 lb	115.60	116.86	118.89
Choice Boxed Beef, 600-750 lb. Carcass	140.81	139.63	133.87
Western Corn Belt Base Hog Price Carcass, Negotiated	77.56	69.64	66.21
Feeder Pigs, National Direct 45 lbs, FOB	43.27	49.93	49.09
Pork Carcass Cutout, 185 lb. Carcass, 51-52% Lean	82.19	68.52	69.47
Slaughter Lambs, Ch. & Pr., 90-160 lbs., Shorn, Midwest	*	116.00	105.00
National Carcass Lamb Cutout, FOB	229.58	256.56	250.87
Crops, Daily Spot Prices			
Wheat, No. 1, H.W. Omaha, bu	3.60	3.02	3.16
Corn, No. 2, Yellow Omaha, bu	2.33	1.98	2.14
Soybeans, No. 1, Yellow Omaha, bu	6.87	7.11	6.98
Grain Sorghum, No. 2, Yellow Columbus, cwt	3.46	3.11	3.66
Oats, No. 2, Heavy Minneapolis, MN , bu	1.60	1.79	1.94
Hay			
Alfalfa, Large Square Bales, Good to Premium, RFV 160-185 Northeast Nebraska, ton	115.00	115.00	117.50
Alfalfa, Large Rounds, Good Platte Valley, ton	55.00	62.50	37.50
Grass Hay, Large Rounds, Good Northeast Nebraska, ton	62.50	57.50	52.50

* No market.

Innovation activity is a critical element of business conduct affecting the competitiveness of firms, the arrival rate of innovations in the economy, productivity growth and social welfare. The strategic interactions among firms and their effect on innovation have received considerable attention in the economic literature with the main focus being on innovation competition in a pure oligopoly – i.e., a market in which a small number of profit-maximizing, investor-owned firms (IOFs) operate.

In agriculture, pure oligopolies are typically not observed, particularly at levels close to the primary production sector; instead, cooperatives (co-ops) are often involved in these sectors accounting for between 25 percent and 30 percent of total farm marketing and supply expenditures. Despite their prevalence, the effect of co-ops on innovation activity has not been considered. While previous research has focused on the strategic interaction between co-ops and IOFs in oligopolistic industries and the role that co-ops play in promoting competition, this research has not considered the impact that co-ops have on innovation activity in these mixed markets and the resulting impact of this activity on the firms' cost structure and pricing decisions.

In an article that was published in the latest issue of the *American Journal of Agricultural Economics*, we address this issue and examine the impact of cooperative involvement in process innovation on the amount of innovation in an industry, the pricing behavior of the competitors before and after the innovation is undertaken and the social welfare resulting from this competition. Specifically, the article examines a mixed

duopoly where an open membership, welfare-maximizing co-op and an IOF compete in supplying an input to agricultural producers.

It is important to note that a co-op is an organization in which the owners are also the users of the products/services supplied by the organization. This dual role of the member creates both advantages and disadvantages for the co-op. With members as both owners and users, the co-op is typically assumed to have a different objective function than its IOF counterparts. By focusing on member welfare rather than profits, the co-op is able to generate more competitive pricing.

The cooperative structure also has some drawbacks. These drawbacks revolve around the so-called property rights problems that have been identified in co-ops. These property rights problems typically emerge because of the non-discriminatory nature of most traditional open membership co-ops. Since all members have access to the benefits of the co-op regardless of their investment in the organization, free-rider problems emerge. As well, the lack of tradability in ownership shares that is typically found in open membership co-ops has been linked to portfolio and horizon problems. Co-ops have addressed some of these property rights issues by relying on cash flow or retained patronage to finance growth.

The need to rely on retained earnings, when combined with the fact that the co-op must compete with the IOF, means that the co-op faces a trade-off. While it is able to raise additional capital by raising its price, doing so diminishes its competitiveness and reduces the number of producers who find it optimal to patronize the co-op and finance its investment activities. Although the co-op is constrained in its ability to raise investment capital, our analysis shows that its focus on member welfare maximization enables it to compete effectively with its IOF counterparts. Our research thus sheds important light on open membership co-ops' ability to survive in the agricultural sector despite the constraints imposed by their property right structure.

In particular, our analysis reveals that the member welfare maximizing co-op charges lower prices and has incentives to undertake higher innovation effort than its profit-maximizing rival. The incentives to innovate are greater for the co-op because it internalizes the effect of reduced costs and prices (due to process innovation) on the welfare of its members. This internalization occurs because the co-op maximizes member welfare rather than profits.

It is important to note that, while cooperative involvement *can* increase the amount of innovation undertaken by the input suppliers, total innovation does not necessarily have to increase in order for farmers to benefit from the presence of the co-op – even if the total innovation effort falls in the mixed oligopoly, producer welfare still increases in the presence of the co-op. The reason is that the presence of the welfare maximizing co-op results in reduced agricultural input prices that benefit both members and non-members of the co-op. Note that, due to the pricing strategy of the co-op and the reduced price-cost margin of the IOF in the mixed oligopoly, the increase in producer welfare exceeds the reduction in suppliers' profits, indicating that the presence of the co-op increases total economic welfare in this market.

Overall, our research shows that co-ops do possess some potential organizational advantages, not just with respect to pricing as has been previously shown in the literature, but also with respect to investment in innovation activity. Since this investment in innovation affects the prices charged by both the co-op and the IOF, and consequently the profits of the IOF and the welfare of all agricultural producers, the factors affecting co-op innovation activity are of interest to all players in the agricultural industry.

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Note: This article is based on Giannakas, K. and M. Fulton. "Process Innovation Activity in a Mixed Oligopoly: The Role of Cooperatives." *American Journal of Agricultural Economics* 87(May 2005): 406-422.