

## Appendix A – Captive Supply: Precedents and Parallels in Agriculture

For most of this country's history, farmers and ranchers produced unbranded, generic foodstuffs that consumers prepared at home. Over the last several decades, U.S. food consumption habits have changed markedly to include a wider variety of food products, more processed items, and more food eaten away from home. To meet these changes, food processors have developed a complex processing and distribution system that transforms agricultural commodities into specific food products to meet consumer demand and delivers those products through an ever-growing number of marketing channels. Over the last decade, these changes in the food processing and distribution system have accelerated and been associated with contracting and vertical integration. Two studies from USDA's Economic Research Service report on these changes.<sup>13</sup>

Production contracting is one form of close vertical coordination between a producer and purchaser of agricultural commodity. Under production contracting, the purchaser has considerable influence over the seller's production process. Processors report entering into production contracts with producers to ensure the timeliness and quality of commodity purchases, to exercise control over how the commodity is produced, to increase efficiency, and ensure steady supplies of foodstuffs with specific attributes. Farmers report using production contracts to lower costs and enhance the operational productivity of their farms. Farmers and further processors also use production contracts to manage risk by ensuring a certain buyer and, respectively, supplier of product.

Production contracts are common when production technologies are complex and use specialized inputs or when the end product must have uniform characteristics, such as poultry production. Production contracts are also used for commodities that are traditionally characterized by cycles of oversupply and undersupply, or where the risk-return tradeoffs are advantageous to both the producer and the contractor. Production contracts are also used when commodities are highly perishable and have specific production technologies and where uniform, knowledge-based, centralized management is feasible.<sup>14</sup>

Based on its 1998 Agricultural Resource Management Survey, the Economic Research Service (ERS) reports that the value of production using contracting accounted for 35 percent of the value of all agricultural production in 1998 (column 3, Table A-1).<sup>15</sup> ERS further reported that in 1998 43.5 percent of the value of production under contracting

---

<sup>13</sup> USDA, ERS. "Contracting Changes How Farms Do Business," *Rural Conditions and Trends*, Vol. 10, No.2, 2000. USDA, ERS. "Managing Risk in Farming: Concepts, Research, and Analysis." *Agricultural Economic Report* No. 774, March 1999.

<sup>14</sup> USDA, ERS. "Managing Risk in Farming: Concepts, Research, and Analysis." *Agricultural Economic Report* No. 774, March 1999.

<sup>15</sup> The value of production for products whose ownership changes between seller and buyer is the proceeds of the sale. For products whose ownership remains with the seller, such as in broiler production where payment is for a grower's services, the value of production is the value of the product when it is physically transferred from seller to buyer.

was accounted for by the production of hogs, cattle, and poultry under contracting (column 2, Table A-1).

**Table A-1. Share of Contract Value of Production for Selected Commodities, 1998**

Commodity	Commodity Share Of all Contract Production	Share of Commodity Produced Under Contract
	Percent	
Corn	3.7	13.1
Soybeans	3.2	12.2
Cotton	3.0	50.6
Vegetables	7.5	45.4
Fruit	8.7	56.7
Cattle	11.7	25.3
Hogs	5.5	42.9
Poultry	24.3	94.9
Dairy	22.7	54.8
All other commodities	9.7	14.4
All commodities	100.0	35.0

Source: USDA, ERS, 1998 Agricultural Resource Management Study.

ERS reported on two contract types, production and marketing. Marketing contracts focus on products for sale by the producer and pricing terms, and they give the producer more control over the production process than do production contracts. In terms of both value of production and number of farms using contracting, marketing contracts were more common than production contracts in 1998 (Table A-2).

ERS also reported that although only 11.5 percent of farms used contracting in 1998 the value of production occurring under contracting accounted for 35 percent of all farms' value of production.

ERS identified three categories of farms in its survey, small family farms, large family farms and nonfamily farms. Small family farms were the most prevalent in 1998 accounting for 90.5 percent of all farms and 61 percent of all farms producing under contracts. Large family farms were second most prevalent; 7.4 percent of farms were large family farms, while 34.1 percent of all farms producing under contracts were large family farms.

In terms of value of production, large family farms accounted for most agricultural production of farms; their production was valued at \$102,650 million compared with the total \$191,851 million produced among all farms. Large family farms were even more important contributors to production under contracts. Despite accounting for only 34.1 percent of all farms producing under contract, large family farms accounted for 65.6 of the value of production under contracts. Similarly, nonfamily farms accounted for only 4.9 percent of farms producing under contract, but the value of their production accounted for 15.1 percent of the value of all production under contract.

**Table A-2. Use of Contracting by Type of Farm, 1998**

	Unit	Small Family Farms	Large Family Farms	Nonfamily Farms	All Farms
<u>Farms</u>					
All Farms	No.	1,869,201	153,212	42,296	2,064,709
Share of Farm Type in All Farms	%	90.5	7.4	2.0	100.0
Share of Farm Type in Farms w/Contracts	%	61.0	34.1	4.9	100.0
<u>Production Value</u>					
Total	\$ Mil.	63,205	102,650	25,995	191,851
Contract	\$ Mil.	12,911	44,035	10,144	67,090
Production Contract	\$ Mil.	4,175	17,624	5,413	27,212
Marketing Contract	\$ Mil.	8,736	26,410	4,731	39,878
Share of Farm Type in Total Value of Contract Production	%	19.2	65.6	15.1	100.0
<u>Share of Farms with:</u>					
Contracts	%	7.8	53.0	27.5	11.5
Production Contracts	%	1.3	19.2	2.6	2.6
Marketing Contracts	%	6.7	37.1	26.3	9.4
Value of Production Under Contract	%	20.4	42.9	39.0	35.0

Source: USDA, ERS, 1998 Agricultural Resource Management Study.

Fifty three percent of large family farms and 27.5 percent of nonfamily farms reported producing under contract compared with only 7.8 percent of small family farms. That said, the 7.8 percent of small family farms that do produce under contract accounted for 20.4 percent of the value of production of all small family farms. Similarly, the 27.5 percent of nonfamily farms producing under contract accounted for 39 percent of the value of production of all nonfamily farms. In contrast, the 53 percent of large family farms producing under contract accounted for only 42.9 percent of the value of production of all large family farms. In total, the 11.5 percent of all farms producing under contract accounted for 35 percent of the total value of production.

### **Consolidation and Vertical Coordination in Beef Production**

Domestic production and distribution of beef have undergone major changes over the past 20 years. Production has changed from an industry dominated by small-scale firms toward one dominated by larger firms. The cattle feeding and beef packing sectors have consolidated and become more concentrated. Food retailing also has become more consolidated, and retailers have demanded more value-added products from meat packers in response to improvements in meat-processing technology and changing consumer pressures.

Concentration in beef packing increased sharply during this period of change and leveled off in the mid 1990s (Table A-3). The four largest packers accounted for 81.5 percent of steer and heifer slaughter in 2000, versus 71.6 percent in 1990 and 35.7 percent in 1980. The share of the largest 4, 8 and 20 firms has changed little since 1993.

**Table A-3. Steer and Heifer Slaughter Concentration: 4, 8 and 20 Largest Firms**

	Largest 4 Firms	Largest 8 Firms	Largest 20 Firms
	Largest firms' combined percentage share of federally inspected slaughter		
1991	74.5	83.9	92.1
1992	77.8	86.7	94.0
1993	80.7	88.6	94.9
1994	81.7	88.6	95.1
1995	80.8	87.7	94.7
1996	78.8	86.1	94.0
1997	79.5	87.8	95.0
1998	80.4	88.1	95.1
1999	81.2	89.7	95.8
2000	81.5	N.A.	N.A.

Source: USDA, GIPSA, *Packers and Stockyards Statistical Report, Various Reporting Years*, 1999 reporting year unpublished at time of this report's release.

A structural shift towards larger operations has been underway in cattle feeding. Small feedlots account for the majority of all feedlots, but their numbers and their share of total fed cattle marketings are declining. Larger feedlots account for an increasing share of fed cattle marketings. Feedlots with capacities exceeding 32,000 head accounted for 0.02 percent of all feedlots in the 13 major cattle feeding states from 1985 until 1995, but their share of all fed cattle marketings in the 13 major states grew from 29.0 percent to 37.6 percent over that period (Table A-4). Across the United States, the number of large feedlots with capacity over 32,000 head rose by over 27 percent from 1996 to 2000.

**Table A-4. Share of All Feedlots and Fed Cattle Marketings by Feedlot Size**

	Under 1,000 Head Capacity			Over 32,000 Head Capacity			Over 50,000 Head Capacity		
	Number & Percent of All Feedlots	Percent of All Fed Cattle Marketings	Percent of All Fed Cattle Marketings	Number & Percent of All Feedlots	Percent of All Fed Cattle Marketings	Percent of All Fed Cattle Marketings	Number & Percent of All Feedlots	Percent of All Fed Cattle Marketings	Percent of All Fed Cattle Marketings
	<u>Total United States</u>								
1996	113,000	98.2	15.4	91	0.08	34.5	45	0.04	21.5
1997	106,075	98.0	15.1	93	0.09	35.3	39	0.04	20.3
1998	104,000	98.0	14.6	105	0.10	38.4	45	0.04	22.6
1999	100,000	97.9	15.3	110	0.11	39.2	47	0.05	23.6
2000	95,000	97.8	14.2	116	0.12	39.8	52	0.05	24.5
	<u>13 Major Feeding States</u>								
1985	49,279	96.8	17.9	77	0.2	29.0	--	--	--
1990	42,507	96.3	15.4	78	0.2	30.6	--	--	--
1995	39,429	95.3	9.7	89	0.2	37.6	--	--	--

Source: USDA, NASS. *Cattle on Feed*, various issues.

In 1996, the National Agricultural Statistics Service (NASS) began reporting on feedlots with one-time capacities exceeding 50,000 head and switched from a 13 state reporting

base to a total U.S. feedlot inventory. By 2000, 52 feedlots with one-time capacities of 50,000 head or more, representing 0.05 percent of all feedlots, accounted for 24.5 percent of all fed cattle marketings.

### **Commonly Expressed Concerns About Captive Supply**

Changes in concentration and vertical coordination have generated concerns, especially among feedlots and livestock producers. In 1997, Ward and Schroeder produced a report in which they identified several concerns about captive supply and suggested their perceived causes.<sup>16</sup> One concern was that the use of captive supply reduces public market information because prices of captive supply sales are not reported to AMS. At the time of Ward and Schroeder's report, price reporting to USDA's AMS was voluntary and no mechanism existed to report prices or other conditions of trade for transactions outside the spot market. Mandatory price reporting to USDA's AMS now provides for reporting of all prices, regardless of procurement method, but limitations still exist on reporting of specific contractual arrangements and terms of trade.

Another concern about captive supply identified by Ward and Schroeder is the belief that the use of captive supply reduces competition for fed cattle on the spot market. When a packer has a portion of its slaughter needs committed to it in advance of slaughter through captive supply arrangements, the packer is in a stronger negotiating position on the spot market and may bid less aggressively for cattle in the spot market, reducing prices paid for cattle in the spot market.

Closely related to the concern about the effect of captive supply on the aggressiveness of bidding for fed cattle is the concern that packers holding a captive supply of cattle have increased market power. That is, packers may maintain enough rights on timing of cattle delivery under captive supply arrangements to time deliveries of captive supply so as to decrease prices they pay for cattle on the spot market. In addition, because prices for many captive supply arrangements are calculated from formulas derived from spot market prices, some believe prices paid for all cattle are decreased by packers' strategic use of captive supply to meet their slaughter needs.

Some suggest that increases in captive supply may increase the potential for exercise of market power. A common perception is that packers gain an advantage when cattle procurement moves away from spot markets toward marketing agreements, forward contracts, packer feeding, vertical alliances, and other forms of vertical coordination between producers and packers. Some also suggest that some types of vertical coordination may constrain smaller producers' marketing opportunities. For example, some marketing arrangements are not available to smaller volume producers, but packers' use of such arrangements may diminish the need and therefore the demand for cattle in the spot market where the smaller volume producers sell their cattle. There is also concern that packers may use captive supply arrangements as a mechanism for discriminating among producers. Larger volume producers may be given more favorable

---

<sup>16</sup> Ward, C. and T. Schroeder. *Captive Supply and Their Impacts*, Oklahoma Cooperative Extension Service, Oklahoma State University, WF-555, December 1997.

terms and higher prices through captive supply arrangements, while smaller volume producers may be subject to less favorable terms and lower prices. Additionally, there is concern that larger packers may use captive supply predatorily to block smaller packers from supply.

### **Commonly Expressed Support for Captive Supply**

Captive supply proponents argue that the economic benefits accruing to both producers and packers are the primary drivers behind the shift from spot markets toward increasing vertical coordination between producers and packers. One potential source of cost savings is a reduction in transactions costs. Spot market transactions require negotiation over each transaction, subjecting both the buyer and the seller to transaction costs at each negotiation. In contrast, marketing agreements establish trading and pricing terms for many transactions over an extended period of time, spreading a one-time transaction cost over all transactions under the marketing agreement.

Proponents of captive supply often note that producers have made significant investments to improve animal quality to meet packer and consumer demands. These individuals contend that spot markets do not send appropriate price signals throughout the marketing channel. In particular, proponents contend that the traditional method of buying cattle prices a pen of cattle according to the cattle's average value. Consequently, it does not encourage the production of desirable beef qualities or discourage the production of undesirable beef qualities. In contrast, they contend marketing arrangements between packers and producers utilize formula- or grid-pricing systems that pass clear signals to producers about packer and consumer preferences that reward desired quality and discount undesired quality.

Proponents also argue that captive supply procurement arrangements reduce market volatility and are an essential component of risk management. Marketing agreements, for example, provide producers with assurance of a buyer for their cattle. Proponents say these arrangements improve producer access to financing, as some lenders seek assurance that borrowers have long-term commitments with buyers for cattle.

In short, proponents argue that captive supply arrangements provide benefits to producers and packers. They reduce transactions costs, better reward cattle of higher quality, reduce market risk, and increase access to financing.