What Should/Could Food Animal Agriculture Look Like in 2020?

Steven C. Blank
Agricultural and Resource Economics Department
University of California, Davis

Food animal producers are in the middle of a dynamic economic sector that is undergoing significant changes which will continue for decades.

Livestock producers are between suppliers of feed (and other inputs) and animal processors in the flow of products within the "meat product" sector.

All of the industries in this sector are shifting in structure.

- The structural shifts caused by the concentration of buyers for livestock (i.e., animal processing firms) are enabling the exercise of market power,
- which hastens the shifts in structure,
- thus the shifts are inevitable.

Presentation Objectives

- First, summarize the limited data available at this early stage in the trend toward increased use of market power.
- Second, present the implications of the trends in industry structural changes.

Industrialization of Agriculture

- Agribusiness firms are becoming larger and more industrialized, causing industries to become more concentrated.
- This change in agribusiness's structure is being driven partly by economies of scale.

Industrialization Leads to Vertical Coordination

"Vertical coordination refers to the synchronization of successive stages of production and marketing, with respect to quantity, quality, and timing of product flows"

Production and marketing contracts are two methods of vertical coordination

- Use of these contracts, especially production contracts, is an indicator of industrialization in agriculture
- Contracting has increased in recent decades

Share of total agricultural sales under Marketing contract (%)

Item	*1991-93*	*1994-95*	*1996-97*	*1998-2000*	*2001-02*	*2003*
All Commodities	17.0	21.2	21.5	20.4	19.7	21.7
Crops	22.8	24.0	21.1	22.5	24.7	29.7
Corn	10.2	13.8	12.9	12.6	14.7	13.8
Soybeans	9.6	9.8	13.2	9.7	9.5	13.6
Wheat	5.8	6.2	9.0	6.9	6.4	7.5
Sugar Beets	88.5	83.7	74.6	83.1	95.8	95.1
Rice	19.7	25.2	25.8	30.5	38.6	51.8
Tobacco	0.3	0.6	0.3	1.9	52.6	54.8
Cotton	30.4	44.4	33.8	42.9	52.6	50.9
Fruit	N/A	61.0	54.3	63.3	60.1	67.2
Vegetables	N/A	45.3	32.3	27.3	31.5	36.4
Livestock	11.6	18.2	22.0	18.4	14.5	13.7
Broilers	5.9	3.4	4.0	3.9	4.2	1.1
Hogs	N/A	2.4	2.7	9.1	6.1	6.8
Cattle	N/A	4.3	5.9	4.6	2.7	3.4

Share of total agricultural sales under Production contract (%)

Item	*1991-93*	*1994-95*	*1996-97*	*1998-2000*	*2001-02*	*2003*
All Commodities	11.8	13.0	10.6	16.9	18.0	17.5
Crops	1.9	1.9	1.8	4.2	3.1	1.1
Vegetables	N/A	9.7	6.1	12.4	10.6	6.3
Livestock	21.1	24.7	22.9	29.6	33.8	33.7
Broilers	82.8	81.2	80.1	84.9	88.1	95.5
Hogs	N/A	28.7	47.3	76.3	78.1	84.8
Cattle	N/A	14.7	11.1	19.7	18.3	25.4

Industrialization Leads to Industry Concentration

The rate of increase in concentration for the meatpacking industry, in which there is also the highest degree of production contracting, significantly outpaced agriculture as a whole.

This facilitates the use of market power.

Commodity Processing Industry Concentration (%)

Commodity	*CR4 1987*	*CR4 1992*	*CR4 1997*	*CR4 2002*
Broilers	29	34	56	54
Hogs	20	25	64	68
Cattle	39	50	84	86
Soybeans	71	71	75	95
Corn	74	73	80	69
Wheat	44	56	62	49
Oats	27	33	64	70
Barley	19	23	46	87
Rice	41	51	69	57
Cotton	18	19	20	26
Sugar beets	83	85	85	85
Tobacco	70	76	83	89

Economic Effects of Production Contracting?

- Contractors are larger in scale than are independent producers
- Contractors are less diversified, especially in livestock industries
- Contracted livestock producers have lower income, net worth as specialization increases (compared to independents)

Production Contracting in American Agriculture, Average per Producer, 1996-2004

	Broilers	***Hogs***	***Cattle***
Farmers who Production Contract (%)	86.3	25.8	1.04
Contracting share of commodity sales (%)	95.5	78.7	18.6
Sales of the commodity, Contractors ($)	675,979*	753,164*	631,546*
Sales of the commodity, Independents ($)	27,513	70,979	29,023
Total farm sales, Contractors ($)	909,943*	1,329,973*	2,839,963*
Total farm sales, Independence ($)	626,224	435,290	395,561
Commodity share of total sales, Contractors (%)	74.3*	56.6*	30.5*
Commodity share of total sales, Independents (%)	4.1	15.6	7.3
Total household income, Contractors ($)	71,003*	104,172	158,879*
Total household income, Independents ($)	190,669	99,924	86,189
Off-farm share of income, Contractors (%)	58.2*	33.4	53.04*
Off-farm share of income, Independents (%)	23.3	39.4	21.4
Farm net worth, Contractors ($)	698,145*	894,956	981,894
Farm net worth, Independents ($)	899,987	940,565	975,049

Implications of the Contracting Results

- Production contracts lead to production specialization which, in turn, may reduce off-farm income opportunities, both of which can increase the income risk of producers.
- Contracting reduces use of spot markets, reducing market alternatives for producers.

The Future

- Location of feed production is stable, making animal production stable

- Industrialization leads to supply chains
- “Blended” industries reduce conflict in supply chains
- “Metasystems” will expand, raising focus on product quality