11-12-1996

Increased Hog Production in South Dakota: One Possible Solution - Contracting

Gene Murra
South Dakota State University

SDSU

ECONOMICS COMMENTATOR

SOUTH DAKOTA STATE UNIVERSITY No. 369 November 12, 1996

INCREASED HOG PRODUCTION IN SOUTH DAKOTA: ONE POSSIBLE SOLUTION -- CONTRACTING

by

Gene Murra
Extension Livestock
Marketing Specialist

This issue of the *Commentator* will be devoted to a discussion of the South Dakota pork industry. Specifically, it will include a brief overview of the current status of the industry and an evaluation of one method of production currently receiving much attention--contracting. The issue will conclude with a few comments about other ways in which expansion could occur.

Current Situation

It is no secret that pork production in South Dakota is well below what it was only a year or so ago. The inventory estimates shown in Table 1 can be used to show that situation.

For example, the breeding inventory on Sept 1, 1996 in South Dakota was only 130,000 head, down 31.6 percent from 1995 and 45.8 percent below 1994. The market hog inventory on Sept 1, 1996 was 1.01 million head, down 25.7 percent below 1995 and 37.2 percent below 1994.

The September 1 total inventory of hogs and pigs in South Dakota of 1.14 million hogs was the lowest Sept 1 inventory on record. One would have to go back to Dec 1, 1940, when the total hogs and pigs inventory in South Dakota was 1.103 million head, to find a quarterly inventory as low as it was on Sept 1, 1996.

With a Sept 1 inventory of about 1 million head, total market hog production in South Dakota is approximately 2 million head per year. While exact figures are not available, it is estimated that independent producers account for about 60-65 percent (1.2 to 1.3 million head) of that total while "colonies" account for 35-40 percent (700,000 to 800,000 head). The percentage produced by colonies has grown considerably during the last few years, partly because of increased production there and partly because of decreased production elsewhere.

There are several reasons for the recent decline in hog numbers in South Dakota. They include low hog prices in late 1994 and early 1995 (pork production was unprofitable for many producers during that period), high corn prices in late 1995 and most of 1996 (some producers chose to sell corn rather than feed it to hogs), concern about changes in the U.S. pork industry (fear of not being able to compete or have market access) and age and family considerations (no one in the family ready to takeover when "Dad" retires).

Table 1. South Dakota Hog Inventory, Sept. 1

	Breeding Inventory	Market Inventory	Total
	(000)		
1990	240	1520	1760
1991	255	1665	1920
1992	235	1570	1805
1993	230	1570	1800
1994	240	1610	1850
1995	190	1360	1550
1996	130	1010	1140

Source: South Dakota Agricultural Statistical Service

The above situation has led to many concerns, -- also to possible solutions. One concern is the impact of reduced pork production on the state's economy. Lower revenue to pork producers and the related impact on feed suppliers, animal health businesses, banks and many service providers are a few of the areas affected.

Another concern is that if pork production in South Dakota continues to decline (or does not grow), we could lose some or all of our pork slaughter/processing industry. Currently, the state's two major hog slaughtering plants (Morrell's and Dakota Pork) have a capacity of about 6 million head of hogs per year. Recently, slaughter levels have been below capacity and have averaged closer to 5 million head per year. Of that slaughter, less than 50 percent is obtained from within South Dakota (today, that number probably is closer to 40 percent). The rest is imported from other states (mainly Minnesota, Iowa and Nebraska) and Canada. As South Dakota production

declines, more hogs must be imported to keep slaughter plants efficient. Or, those plants could move to "where the hogs are" and there would not be any slaughter hog facilities in the state.

The concern about lower pork production leads to discussions about possible solutions. Increased production is viewed by some as a good example of value-added activity. In other words, why not feed corn that now is exported from the state to hogs. The area of economic development also comes up in discussions -- maintaining an industry already in the state and/or helping that industry expand is as much economic development as adding new businesses. Whether one emphasizes value-added or economic development or both, increased hog production certainly would provide economic benefits to the state.

There are several ways to increase hog production in South Dakota. One which has drawn considerable attention in recent months is contracting. That will be the major topic for the rest of this issue of the *Commentator*.

Contracting

Defined -- Basically, contracting involves an agreement between two or more partners relative to activities and actions required by both parties. With regard to hog production, contracting usually involves an agreement by one party to provide feeder pigs, feed, management expertise, and market access and another party agrees to provide buildings, equipment, some utilities and labor. The agreement includes performance standards and methods of compensation.

Pros and Cons -- Most of the discussion about contracting of hogs in South Dakota is similar to discussions in other states. Two major areas are involved: (1) environmental impacts and (2) economic impacts. Both are important.

The environmental impacts include water and air quality, manure disposal, pollution and other related issues. The environmental impacts will not be addressed here. That does not mean they are not important.

The economic impacts include income generation, profits, risk management, capital, taxes and the impact on "family farms". The economic impact will be emphasized in the discussion that follows.

Assumptions -- It is assumed that more hogs could be produced in South Dakota. Weather, feed supplies and other necessary ingredients either are favorable and/or available or could be made available. For the analysis that follows, it is assumed that an additional 1 million hogs would be produced by contracting. It should be noted here that there still would be plenty of room for added production by other types of production before the state's slaughter capacity would be overtaxed.

There will be other assumptions noted for specific aspects of the analysis. They will be stated as used. In general, when a choice of which assumption to use was made, the more conservative assumption was used.

Type of Facilities -- There are a variety of ways that hogs can be produced under contract. While this analysis relies heavily on what is called the "Murphy Farm" system, the economic impacts apply to whatever system is used.

The system chosen for this analysis is one with a 3-barn, 1100 capacity per barn setup. With a 2.5 turnover rate per year for each barn, total annual production per 3-barn site would be about 7800 head. (Actual production at full capacity equals 1100 x 3 = 3300 x 2.5 = 8250 - a 5% death loss or 8250 - 412 = 7838 head.) About 128 separate sites would be needed to produce 1 million head.

Economic Impact of Contracting

The economic impact discussed below is based upon one 3-barn hog finishing facility (unit) with an annual output of about 7800 hogs. Remember, it would take 128 of these units to produce 1 million hogs per year. On Dec. 1, 1995, there were 5400 farms with hogs in South Dakota. About 65% of those had more than 100 head and 17% (almost 900 farms) had more than 500 head. Another 128 sites would not be a big percentage change in the number of producers. And, many of the sites could be on property of farmers already producing hogs.

Construction Impact -- Construction costs for one 3-barn unit would be approximately $400,000. This assumes an earthen basin for manure handling. A cost closer to $475,000 would be incurred if a concrete tank is used. Per pig space costs range anywhere from $110 to $145. The $400,000 cost is based upon about $125 per head of pig space (earthen basin) or about $50 per head of pig produced (turnover rate of 2.5 per year). The construction impact would be of three types: (1) temporary jobs and material/supply/equipment purchases during construction, (2) long term debt service, and (3) taxes (property taxes) on buildings. The tax issue will be addressed later.

The construction impact through wages and salaries paid could vary considerably. However, a conservative assumption that construction labor expenses are 10 percent of construction costs means an added labor impact of about $40,000 per site, or $5.12 million for 128 sites. Assuming a multiplier impact of 2, there is a per site impact of $80,000, or over $10.2 million for 128 sites. This payment would be temporary and could cover a span of 6-12 months for each site constructed.

There also would be a sales tax impact. If it is assumed that $100,000 of the $400,000 per site costs were spent in an area where South Dakota sales taxes of 4 percent are collected, each site would generate $4,000 in sales taxes, or $512,000 for all 128 sites. In some areas, 5 or 6 percent sales taxes are collected. In those areas, the impact would be even greater than assumed here.

Construction costs money and usually is financed with borrowed capital. If the entire $400,000 is financed to be paid off in 10 years at 9 percent, an annual debt service charge of

about $60,804 is required. This assumes a monthly payment of $5,068. If quarterly payments were made, they would be $15,315.39 or $61,261.56 annually. If one annual payment was made, it would be $63,376.33. As borrowed money is repaid, it can be loaned out again by the source of borrowed funds. While this creates positive economic benefits, no added dollar impact is included here.

Operation Impacts -- There are four major areas which are impacted under the operations area: (1) payments to labor or management, (2) payments for day to day operations, (3) taxes (to be discussed later) and (4) the corn market. Each is discussed below.

It is assumed that the "manager" of the 3-barn unit can "manage" the entire operation without additional labor requirements. In fact, most estimates place the total management/labor requirement at only 3-4 hours per 3-barn unit per day.

Returns to this input (labor may be a more appropriate term than management under a contracting arrangement) are a residual. It is what is left over after all day to day operating expenses, taxes, and debt service are paid. An abbreviated cash flow (income and expenses) is shown in Table 2.

Table 2. Cash Flow Analysis - Annual

Revenue	
Base Payment: $30,000/barn x 3	$ 90,000
Incentives: 7800 head x $1.50/head	11,700
Total Revenue	$101,700
Expenses	
Utilities: $100/barn/month	3,600
Property Tax: $1,200/barn/year	3,600
Insurance: $600/barn/year	1,800
Repair & Maintenance: $1200/barn/year	3,600
Other: (Propane, Rendering, Information Services, Environment mgmnt)	3,000
Total Expenses	15,600
Net Before Debt Service	86,100
Debt Service	60,804
Net to Manager	$25,296

As can be noted from the table, the labor residual is slightly over $25,000 per site per year, or $3.2 million for 128 sites. If a multiplier of 2 is used, the economic impact would be $50,000 per site or $6.4 million for all 128 sites.

Payments for day to day operations (utilities, insurance, repair and maintenance, heating, rendering, market data information and environmental concern) have been estimated to be about $12,000 per year per site, or $1.536 million for all 128 sites. Again, a multiplier of 2 yields an impact of $24,000 per site or over $3.0 million for all 128 sites.

Payments for taxes include sales tax, property tax, and a trucking tax. All three areas are addressed in the next section.

If each site produced 7800 hogs per year, an added 78,000 bushels of corn would be required. If that increased demand (along with the increased demand from the other sites constructed) increased corn prices to South Dakota corn producers by only 10¢ per bushel, the per site impact would be $7,800. Or, if 1 million hogs were finished at 128 sites, an additional 10 million bushels of corn would be required. At 10¢ per bushel, this would mean an added $1 million to corn producers (it is assumed that corn would be purchased in South Dakota because we have the lowest corn price in the nation). The assumed multiplier of 2 means a $2 million impact.

Taxes -- Property taxes would be paid on buildings and equipment. It is assumed that property taxes are $3,600 per site ($1,200 per barn), or $460,800 for all 128 sites.

Sales tax would be paid on some items purchased. They are not included in this part of the analysis.

Trucking taxes would be paid (South Dakota has a trucking tax). If each site generated trucking fees of about $10,000 (movement of corn, other feeds, feeder pigs and slaughter hogs -- 50 total loads x $200 per load), then a $400 tax (assuming a 4 percent tax rate) would be collected for each site. That would mean about $51,000 for all 128 sites.

Other -- There are several areas of impact not included in the analysis. They include the impact of a feed mill if one was built. No allowances were made for the potential impact on soybean prices (through increased use of soybean meal). It was assumed that feeder pigs supplied to each site were produced out-of-state. Some could be produced in South Dakota, providing further benefits. No allowances were made for the value of manure. It was assumed that nutritive benefits (mainly nitrogen in South Dakota) were offset by disposal charges.

Summary of Impacts -- The following outline can be used to summarize results. It is based upon the preceding discussion and is what the author believes is a conservative estimate.

The numbers in the outline below can be used in many ways. Short term construction benefits (labor) per site are at least $40,000 ($80,000 with the multiplier). Long term annual benefits (at least 10 years) are approximately $100,000 per site ($200,000 with the multiplier). And, that is for only one site. That would mean about $13 million dollars for 128 sites, or $26 million with the multiplier.

Summary

It is recognized that contracting is not the only way to increase hog production in South Dakota. Independent production and networking are two alternatives often discussed. It was not the intent of this analysis to downplay the importance or potential contribution of those approaches. Rather, it is believed that there is room for all types of production. All types of production will be needed to help the South Dakota pork industry to grow.

SOUTH DAKOTA STATE UNIVERSITY
Economics Department
Box 504A
Brookings, SD 57007

SDSU

Address Correction Requested

Non-Profit Org.
U. S. Postage
PAID
Brookings, S. D.
Permit 24

Factor	Impact/Site*	Comment
Construction:		
- Labor	10% of $400,000 or $40,000	$80,000 with a multiplier of 2 One-time impact
- Sales tax	4% of $100,000 or $4,000	One-time impact
- Debt Service	9% of $400,000 for 10 years or about $60,000 per year	Long term benefit --10 years
Operation:		
- Labor (mgmt)	$25,000	$50,000 with a multiplier of 2 Long term benefit
- Day to day operations	$12,000	$24,000 with a multiplier of 2
- Corn	78,000 extra bu. @ 10¢ bu. or $7,800	Long term impact $15,600 with a multiplier of 2
Taxes:		
- Property tax	$3,600	Long term benefit
- Truck tax	$ 400	Long term benefit

*128 sites would be needed to produce 1 million hogs

Each alternative has pros and cons. Some require more capital than others. Some allow more "producer" freedom and ability to manage. Some have more risk (production, price and market access) than others.

The analysis presented here represents only one approach for expanding South Dakota pork production, and then only the economic aspects are considered. It is, however, an approach that can help build value-added enterprises, provide for economic development and provide an opportunity for the family farm to either stay in hog production or enter the business.

****

ECONOMICS COMMENTATOR

ECONOMICS DEPARTMENT
South Dakota State University
Box 504A
Brookings, SD 57007-0895
Phone: (605) 688-4141
Fax: (605) 688-6386
E-Mail: StoverP@mg.sdstate.edu

450 copies of this newsletter were produced at a cost of less than $100