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Hanson Lecture: Driving costs out of a production system

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New Fashion Pork, Inc., Jackson, Minnesota

As the recent history of the U.S. swine industry has evidenced, survival in today's uncertain economic times depends upon a pig production business having either (1) marketing agreements that provide complete price protection against prolonged declines in both carcass and meat prices or (2) competitively low costs of production along with a marketing agreement that at least dampens declines in market prices. These proceedings offer one view on how cost management can be addressed in a contemporary pork production operation. Our ideas are offered as one approach for how costs can be managed. We do not believe that our method is the only, let alone the best, approach for managing costs. There are, no doubt, numerous approaches being used across the industry today to lower costs, as we all struggle to identify ways of surviving. Our approach has worked for New Fashion Pork, Inc. (NFP), dropping its costs by nearly $3.00/CWT liveweight over the last 3 years or so; so we know it works. Perhaps, there is something in our approach that will work for you.

Cost management occurs at two levels. The first level involves the control of the purchase price of inputs. The price of some inputs is established, often for long periods of time into the future, when the business structure is established; for example, whether barns are owned or contracted. The price of other inputs is established through the day-to-day purchasing practices of the company. Input purchasing is typically centralized, with responsibility being seated at the level of senior management or staff officers hired specifically to purchase the inputs used by the farms. The farm staff typically has no influence over the cost of the inputs that their farms consume. The second level of responsibility occurs at the farm level, where farm staff controls how many units of an input are consumed, called "unit use." Office staff has little influence on the rate of use of inputs, unless they restrict how many units of an input are delivered to a farm. While it may seem intuitive, low production costs not only require that inputs be purchased competitively but also that they be used sparingly. Because cost management occurs at two levels, the office and the farm must work in concert to drive out costs: the office working to purchase inputs as cheaply as possible, the farm staff working to use as few inputs as they can. If either group fails in their responsibility, cost creep occurs.

These proceedings focus initially, but only briefly, on approaches that NFP has used to control the cost of its inputs. The majority of our analysis will focus on the little understood area of how to control the rate of usage of its inputs.

Cost of inputs

The business structure that the founders and managers of a pork production company establish has a major influence on the cost of some inputs. For example:

- Facility Costs: Contract production fees are typically more expensive than the sum of the costs associated with barn ownership (e.g., principle and interest or lease-to-own payments, utility costs, R&M expenses, and labor costs). We believe that long-term cost competitiveness will go to those that own their own barns or have production contracts and leases that are written down as fixed asset loans are paid off.
- Manure: Building barns in geographic areas in which manure is viewed as fertilizer can result in manure being purchased for the cost of its land application by nearby crop farmers. As more and more crop farmers come to understand the relative benefits of organic fertilizers versus inorganic chemical fertilizers, manure may someday be sold at a price above its land application cost. At this point, it will become a cost-offsetting revenue for production.
- Feed: Feed costs are, obviously, lower in geographic areas where grains are produced cheaply and where there is insufficient transport infrastructure (e.g., trains, rivers) to transport grain to distribution and processing centers (e.g., some areas of southern Minnesota and northern Iowa).

The cost of nearly all inputs can be reduced from their normal retail level. While negotiations, in the form of traditional one-on-one interactions, can be used to lower input costs, there are several other methods of reducing input costs. Examples include:

- If done correctly, feed inputs can be hedged, providing price protection. Mark-ups on inputs (especially corn) purchased for inclusion in feed are often done while discounting manufacturing and delivery costs.

Thus, total cost/ton of feed delivered to the site is the first metric that we use to evaluate cost competitiveness of feed inputs. Total feed cost (ingredient costs plus grind, mix, and delivery costs) per pound of gain provides a second metric.

- Gilts: Replacement females destined for company farms can be produced in multiplication systems reducing, in most but not all instances, both their genetic costs and costs associated with rearing. We have obtained volume discounts on genetic purchases arising from group discounts when we have entered into joint ventures with other producers. We have also used within herd internal multiplication to control gilt genetic costs. In these farms, gilts are produced within the herd that they are being used. While multiplication costs may be cheaper with internal multiplication systems, we find that cost control usually becomes more difficult. In fact, we have found that costs may increase when (1) excess gilts are sold for market (i.e., wasted) rather than being retained as herd replacements, (2) herd productivity is compromised due to insufficient gilts being available (especially during summer breeding), and (3) sales of byproduct barrows and non-select gilts are discounted.
- Supplies: The purchase price of health products and supplies can be reduced with the volume discounts afforded purchasing groups.
- Labor costs typically are managed through the control of starting wages, turnover rates, and farm staffing levels. Labor rates, in themselves, are all too often blamed for the creep in labor costs or for labor costs being non-competitive, when manning levels and sub-optimal production are more often the primary cause.
- Utilities: As with many commodities, LP gas can be purchased on the Board to lock in prices during periods of anticipated high market prices.

Services and products can often be provided to other producers, resulting to two cost savings effects: (1) the additional volume reduces the cost of all inputs being produced, and (2) the production and sale of an input at a profit can result in cost off-setting revenues. Examples include:

- Culled breeding stock sales can be contracted for sale, thereby ensuring optimal revenue as markets change. Culled stock revenues are significant cost-offsetting revenues for weaned pig cost of production.
- Company-owned facilities can be leased to or contracted with other producers at rates greater than their cost, thereby reducing the facility costs associated with the production of company-owned pigs.
- Semen can be produced on a cost-plus basis for other pork companies, resulting in an additional volume of semen being produced by the stud, which reduces semen production costs, and the creation of cost-offsetting revenues. Both effects lower the cost of producing semen for company-owned breeding farms.
- Feed: Toll-milling feed for other producers adds volume to the mill, thereby reducing the manufacturing cost of all feed processed through the mill. If the feed is sold at above its cost of production (e.g., toll milling), then the external feed provides cost off-setting income for feed manufactured for company-owned farms.
- Utilities: With capital investments in on-farm generators, electricity can be sold back to many power companies, resulting in cost-offsetting income.

Unit use of inputs

The rate and efficiency of input use on the farm is controlled by how much of the product is released by office management staff from company stores to the farm (i.e., central control) and by the amount used and wasted on the farm. In order for either to happen, the involved staff, regardless of where they work in the organization, needs to know how much of an input should be used as the production of the farm varies. We believe that all levels of management need to be involved, if costs are to be managed effectively. NFP follows a six-step approach in the control of the number of units of an input used on a farm:

- Set production budgets that accurately project performance.
- Use unit-use budgets to predict line-item costs on the P&L.
- Link budgets to P&Ls to identify cost variances and their sources.
- Use compliance reports to identify input wastage.
- Link production and line-item variances to financial opportunities.
- Empower farm and service staff to drive out costs.

When any of these are not adhered to with rigor, the cost management process breaks down. Here is how NFP approaches each of the six steps.

Production budgets

Production budgets project what herd productivity will be during the coming fiscal year. We establish weekly budgets in advance of each fiscal year that extend from the first week of the year to its end. As illustrated in **Table** 1, the outcome of production budgets for the breeding

Table 1: Weekly Breeding Herd Production Budget

Breeding Herd #3

August 2003 - July 2004

Week		No.	PCP	Post Ultra-		Sows	BA		Pigs Weaned		
Served	*Weaned*	Served	Rate	sound CF (%)	%FR	Farrow	/Litter	% PWM	*/Litter*	*Total*	*Cum'l*
12	31	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	2,142
13	32	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	4,284
14	33	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	6,426
15	34	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	8,568
16	35	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	10,710
17	36	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	12,852
18	37	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	14,994
19	38	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	17,136
20	39	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	19,278
21	40	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	21,420
22	41	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	23,562
23	42	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	25,704
24	43	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	27,846
25	44	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	29,988
26	45	299	85%	5%	80%	239	10.30	13.0%	9.0	2,142	32,130
27	46	306	83%	5%	78%	239	10.30	13.0%	9.0	2,142	34,272
28	47	314	82%	6%	76%	239	10.30	13.0%	9.0	2,142	36,414
29	48	323	80%	6%	74%	239	10.30	13.0%	9.0	2,142	38,556
30	49	323	80%	6%	74%	239	10.30	13.0%	9.0	2,142	40,698
31	50	323	80%	6%	74%	239	10.30	13.0%	9.0	2,142	42,840
32	51	323	80%	6%	74%	239	10.30	13.0%	9.0	2,142	44,982
33	52	323	80%	6%	74%	239	10.30	13.0%	9.0	2,142	47,124
34	1	323	80%	6%	74%	239	10.30	13.0%	9.0	2,142	49,266
35	2	323	80%	6%	74%	239	10.30	13.0%	9.0	2,142	51,408
36	3	314	82%	6%	76%	239	10.30	13.0%	9.0	2,142	53,550
37	4	306	83%	5%	78%	239	10.30	13.0%	9.0	2,142	55,692
38	5	299	85%	5%	80%	239	10.30	13.0%	9.0	2,142	57,834
39	6	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	59,976
40	7	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	62,118
41	8	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	64,260
42	9	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	66,402
43	10	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	68,544
44	11	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	70,686
45	12	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	72,828
46	13	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	74,970
47	14	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	77,112
48	15	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	79,254
49	16	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	81,396
50	17	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	83,538
51	18	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	85,680
52	19	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	87,822
1	20	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	89,964
2	21	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	92,106
3	22	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	94,248
4	23	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	96,390
5	24	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	98,532
6	25	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	100,674
7	26	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	102,816
8	27	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	104,958
9	28	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	107,100
10	29	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	109,242
11	30	291	86%	4%	82%	239	10.30	13.0%	9.0	2,142	111,384
	Qtr 1	3,789	86%	4%	82%	3,107	10.30	13%	8.96	27,846	
	Qtr 2	4,093	82%	6%	76%	3,107	10.30	13%	8.96	27,846	
	Qtr 3	3,796	86%	4%	82%	3,107	10.30	13%	8.96	27,846	
	Qtr 4	3,789	86%	4%	82%	3,107	10.30	13%	8.96	27,846	
	Year	15,467	85%	4%	80%	12,428	10.30	13%	8.96	111,384	
	Per Sow					2.27		PW/MF	7.21	20.34	

herd is number of pigs weaned/week and weaning weight. The prime numbers driving weaned pig output are:

- number of females served,
- % farrowing rate (%FR),
- number of pigs born alive/litter (BA/L), and
- % preweaning mortality (%PWM).

As shown, the production budget module that we use for the breeding herd holds number of sows farrowing/week constant throughout the year. As percent farrowing rate changes during the year with projected circannual changes in fertility, the number of females served changes with each week of the year. We have designed our production system to compensate for seasonal changes in fertility by allowing sufficient gilts to be mated during the summer months to maintain constant farrowing numbers. On farms having gestation-space bottlenecks, we will breed and gestate gilts in the gilt development unit (GDU), as needed. Born-alive litter size and %PWM can also be varied during the year, if changes in performance are predicted. The weaning weight of our pigs is predicted according to a growth rate algorhythm, such that weaning weight changes with changes in weaning age.

As shown in **Table** 2, the production budget module that we use for the growing pig herd is based upon the projected number of pigs produced from a sow farm each week. In addition the following production parameters are inputted as prime numbers and used to project the CWTs of pork sold:

- % mortality,
- % cull pigs,
- ADG by days placed of survivors (interpolated from a growth curve),
- number of nursery and finishing spaces, and
- number of facility down days (days that barns or rooms in barns are not occupied by pigs).

From the pigs placed per week into a production flow and the total spaces in the flow, the total growing days that a pig spends in a production facility are calculated. The first-in/last-out (FILO) days are calculated from the total growing days less the down days. The market weight of each group of pigs is calculated from its ADG and FILO days. Seasonal changes in ADG, mortality, and % culls are also budgeted. The effects of planned interventions that change one or more of the prime numbers can also be scheduled in the budget.

Unit-use budgets

Some line-items are influenced by the volume of pigs passing through the system. For these variable-cost and step-wise variable costs, increasing the number of pigs produced, increases the cost of the line item in either a linear or step-wise fashion, respectively. We have a separate budget for each variable use input, called a unit-use budget. These budgets relate the number of units of an animal product (e.g., pounds of pork; number of head of weaner, feeder, cull, and market pigs; number of replacement gilts or culled sows) passing through the production system to their projected rate of input use. For example, if we budget for a genetic improvement to be made in a breeding farm that would result in an increase in the average number of BA/L, the overall number of pigs born per week would increase and, therefore, the number of routine piglet treatments, such as fortified iron, would also increase accordingly. Our system uses seven unit-use budgets, including ones for:

- feed,
- health products and services,
- semen,
- replacement gilts,
- labor,
- live haul, and
- growing pig spaces.

An example of our unit-use budget for feed consumed by the breeding herd is given in **Table** 3. Please note that projections of feed usage are driven by the daily feed consumptions of various subpopulations of animals in the breeding herd.

Linking budgets to P&Ls

As most P&L reports do, our P&L statements report costs in terms of total dollars spent by line item during the time period (**Table** 4) and by dollars per unit sold (e.g., $/weaned pig or $/CWT sold; **Table** 5). Line item costs and revenues are reported relative to the budget, in terms of both a percent and dollar variance. This approach allows the reader not only to understand the cost opportunity in terms of dollars but also to determine the influence of production on the cost. For example, the total feed for a breeding herd may be under budget for a month, which at first glance appears to be a positive outcome. However, if the herd has not weaned the budgeted number of pigs, the cost on a weaned pig basis may be over budget.

The monthly as well as the year-to-date actual and budgeted production levels, revenues, and costs are reported on the P&L statement. This allows the user to understand information relative to the current month, but also discern whether costs are increasing or decreasing over time. When using accrual accounting practices, inconsistencies in the timing of expenditures may result in short-term fluctuations in a line item cost, which can lead to erroneous conclusions. For example, an unusually large gilt deliv-

Table 2: Monthly Growing Pig Production Budget

Growing Pig Flow 1

August 2003 - July 2004

Nursery Performance

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Total
	4	4	5	4	4	5	4	4	5	4	4	5	
Head Placed	4,460	4,460	5,629	4,532	4,532	5,665	4,532	4,532	5,665	4,532	4,532	5,665	58,736
Mortality	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	3%
Percent Culls	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0%
No. Pigs Moved Out	4,337	4,337	5,474	4,407	4,407	5,509	4,407	4,407	5,509	4,407	4,407	5,509	57,120
Average Wean Weight	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7
Average FILO	73	73	72	72	72	72	72	72	72	72	72	72	72
Average Daily Gain	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Ending Weight	75.7	75.3	74.9	74.9	74.9	74.9	74.9	74.9	74.9	74.9	74.9	74.9	75.0
Weight Gain/Head	62.0	61.6	61.2	61.2	61.2	61.2	61.2	61.2	61.2	61.2	61.2	61.2	61.3
Total Pounds Gained	269,123	267,356	335,246	269,665	269,665	337,081	269,665	269,665	337,081	269,665	269,665	337,081	3,500,956
Total Pounds Sold	328,545	326,778	410,237	330,046	330,046	412,557	330,046	330,046	412,557	330,046	330,046	412,557	4,283,504
Average Pigs on Feed	11,023	11,094	11,163	11,174	11,174	11,174	11,174	11,174	11,174	11,174	11,174	11,174	

Finishing Performance

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Total
	4	4	5	4	4	5	4	4	5	4	4	5	
Head Placed	4,337	4,337	5,422	4,337	4,337	5,422	4,389	4,407	5,509	4,407	4,407	5,509	56,823
Mortality	4.0%	3.8%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.8%	3.6%
Percent Culls	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Percent Lights	5.1%	4.1%	3.1%	3.1%	3.1%	3.4%	3.5%	3.5%	3.5%	3.5%	3.5%	4.6%	3.7%
No. Pigs Marketed	3,945	3,997	5,062	4,049	4,049	5,046	4,079	4,095	5,119	4,095	4,095	5,045	52,679
No. Lights Marketed	220	178	170	136	136	186	155	156	195	156	156	254	2,098
Ave. Entry Weight	76	76	76	76	76	75	75	75	75	75	75	75	75
Average FILO	126	126	126	125	125	124	124	124	124	124	124	124	124
Average Daily Gain	1.53	1.59	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.58	1.63
Ave. Market Weight	268	276	283	282	281	280	279	279	279	279	279	270	278
Average Market Weight Gain	192	200	207	207	206	205	204	204	204	204	204	195	203
Average Light Weight Gain	178	178	178	178	178	178	178	178	178	178	178	178	178
CWT Gained	7,816	8,175	10,670	8,503	8,470	10,526	8,484	8,516	10,644	8,516	8,516	10,107	108,942
Total Market CWT Sold	10,586	11,028	14,338	11,438	11,398	14,134	11,380	11,421	14,277	11,421	11,421	13,623	146,466
Average Pigs on Feed	18,065	18,088	18,121	18,188	18,257	18,334	18,399	18,404	18,404	18,404	18,404	18,375	18,287

Table 3: Sow Feed Unit-use Budget

Breeding Herd #2

FYE 7/31/2004

Lactating Sows	*Gestation Length*	*115.5*		*ADFI Prefarrow (lbs/d)*	*5*		*Lbs Consumed/Sow Farrowed*	*272.5*				
	Average Day Loaded into Farrowing	*110*		*Lactation Length (days)*	*21.0*		*Lbs Consumed/Lactation Length*	*12.98*				
	No. Days Prefarrow in Farrowing Crate	*5.5*		*ADFI during Lactation (lbs/d)*	*12.5*							

	Aug	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**
No. Weeks in Period	4	4	5	4	4	5	4	4	5	4	4	5
No. Sows Farrowing	956	956	1,195	956	956	1,195	956	956	1,195	956	956	1,195
Lactation Feed (lbs)	260,510	260,510	325,638	260,510	260,510	325,638	260,510	260,510	325,638	260,510	260,510	325,638
Lactation Feed (tons)	130	130	163	130	130	163	130	130	163	130	130	163

Gilts	*Entry-to-service Interval (days)*	*28*		*ADFI Gilt Pre-Service*	*5.0*		*Lbs Consumed/Gilt Preservice*	*140*				
No. Gilts Delivered	244	244	305	244	244	305	244	244	305	244	244	305
Gilt Developer Feed (lbs)	34,160	34,160	42,700	34,160	34,160	42,700	34,160	34,160	42,700	34,160	34,160	42,700
Gilt Developer Feed (tons)	17.1	17.1	21.4	17.1	17.1	21.4	17.1	17.1	21.4	17.1	17.1	21.4

Weaner Sows	*ADFI of Weaned Sows (lb/d)*	*4.25*		*Wean-to-Service Interval (days)*	*7.6*		*Lbs Consumed/Weaned Sow*	*32.3*				
No. Weaned Sows	956	956	1,195	956	956	1,195	956	956	1,195	956	956	1,195
Gestation Feed for Weaned Sows (lbs)	30,879	30,879	38,599	30,879	30,879	38,599	30,879	30,879	38,599	30,879	30,879	38,599
Gestation Feed for Weaned Sows (tons)	15	15	19	15	15	19	15	15	19	15	15	19

Opportunity Sows												
No. Services	1,292	1,243	1,457	1,166	1,166	1,457	1,166	1,166	1,457	1,166	1,166	1,566
% Opportunity Sows Service	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%
No. Opportunity Sows Bred	142	137	160	128	128	160	128	128	160	128	128	172
No. Opportunity Sows Bred/Week	36	34	32	32	32	32	32	32	32	32	32	34
% of Opportunity Animals Bred	85%											
No Opportunity Animals	42	40	38	38	38	38	38	38	38	38	38	41
Days in Opportunity Section	21											
ADFI in Opporunity Section	6.5											
Pounds Consumed/Opportunity Female	137											
Gestation Feed for Opportunity Females	5,705	5,488	5,149	5,149	5,149	5,149	5,149	5,149	5,149	5,149	5,149	5,531
Tons for Opportunity Females	2.9	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.8

Gestating Sows	Total Female Inventory	5,475		Weaned Sow Inventory	259		Gestating Female Inventory	4,061				
	Average Lacatating Inventory	785		Opportunity Sow Inventory	125		ADFI of Gestating Female	4.85				
	Average Entry-Service Gilt Inventory	244		Total Gestating Female Inventory	4,061							
Gestation Feed for Gestating Females (lbs)	551,462	551,462	689,327	551,462	551,462	689,327	551,462	551,462	689,327	551,462	551,462	689,327
Gestation Feed for Gestating Females (tons)	276	276	345	276	276	345	276	276	345	276	276	345
Total Gestation Tons	294	294	367	294	294	367	294	294	367	294	294	367

Table 4: Profit and Loss Analysis

Breeding Herd #4

Month Ending: 30-May-03

Updated: 26-Jun-03

No. Weeks: 4 Period No.: 10

	Actual	Budget	Cost Variance Total	Cost Variance Percent	Year-to-Date Actual	Year-to-Date Budget	Year-to-Date Cost Variance Total	Year-to-Date Cost Variance Percent
Pigs Weaned	9,814	8,908	906	10%	92,341	92,494	(153)	0%
Cull Sows	330	195	135	69%	2,274	2,060	214	10%
Gilts Delivered	300	180	120	67%	3,329	1,935	1,394	72%
TOTAL COSTS								
Net Sales	28,000	19,239	8,761	46%	156,701	152,629	4,073	3%
COGS								
Purchased Animals	42,433	19,955	22,478	113%	260,272	214,813	45,459	21%
Feed	69,231	61,669	7,562	12%	637,043	658,802	(21,759)	-3%
Animal Health	9,074	9,779	(705)	-7%	118,089	113,248	4,841	4%
Trucking	4,047	5,837	(1,790)	-31%	48,369	62,752	(14,383)	-23%
Semen Fees	11,961	8,719	3,242	37%	136,781	120,076	16,705	14%
Repairs & Maintenance	2,956	4,680	(1,724)	-37%	49,400	46,800	2,600	6%
Utilities-LP	-	3,000	(3,000)	0%	34,434	52,800	(18,366)	-35%
Utilities-Electric	10,741	6,120	4,621	76%	85,342	59,160	26,182	44%
Utilities-Other	208	575	(367)	-64%	2,926	5,750	(2,824)	-49%
Supplies	3,048	3,271	(223)	-7%	34,187	33,050	1,138	3%
Production Payroll	46,940	47,662	(722)	-2%	534,712	512,365	22,348	4%
Sub-Total Controllable	200,638	171,266	29,372	17%	1,941,556	1,879,616	61,940	3%
Other Facility Expenses	43,115	64,695	(21,580)	-33%	398,148	465,055	(66,907)	-14%
Inventory Adjustments	24,327	-	24,327	100%	(141,486)	-	(141,486)	100%
Miscellaneous COGS	144	891	(747)	-84%	5,610	8,915	(3,304)	-37%
Total COGS	268,225	236,853	31,372	13%	2,203,828	2,353,586	(149,758)	-6%
Gross Profit (Loss)	(240,225)	(217,614)	(22,611)	10%	(2,047,127)	(2,200,958)	153,831	-7%
Gen. & Admin.								
Total Gen. & Admin.	12,268	11,185	1,083	10%	115,995	116,118	(123)	0%
Operating Income	(252,492)	(228,799)	(23,693)	10%	(2,163,122)	(2,317,075)	153,954	-7%
Other Income(Expense)								
Interest Expense	-	-	-	0%	-	-	-	0%
Other	-	-	-	0%	-	-	-	0%
Total Other	-	-	-	0%	-	-	-	0%
Total Expenses	280,492	248,038	32,454	13%	2,319,823	2,469,704	(149,881)	-6%
Net Income	(252,492)	(228,799)	(23,693)	10%	(2,163,122)	(2,317,075)	153,954	-7%

Table 5: Profit and Loss Analysis

Breeding Herd #4

Month Ending: 30-May-03

Updated: 26-Jun-03

No. Weeks: 4 Period No.: 10

	Actual	Budget	Cost Variance Total	Cost Variance Percent	Variance due to: Prod'n	Variance due to: Cost	Year-to-Date Actual	Year-to-Date Budget	Year-to-Date Cost Variance Total	Year-to-Date Cost Variance Percent	Year-to-Date Variance due to: Prod'n	Year-to-Date Variance due to: Cost
Pigs Weaned	9,814	8,908	906	10%			92,341	92,494	(153)	0%		
Cull Sows	330	195	135	69%			2,274	2,060	214	10%		
Gilts Delivered	300	180	120	67%			3,329	1,935	1,394	72%		
COST/WEANED PIG												
Net Sales	2.85	2.16	0.69	32%			1.70	1.65	0.05	3%		
COGS												
Purchased Animals	4.32	2.24	2.08	93%	(0.44)	2.52	2.82	2.32	0.50	21%	0.00	0.49
Feed	7.05	6.92	0.13	2%	(0.72)	0.85	6.90	7.12	(0.22)	-3%	0.01	(0.24)
Animal Health	0.92	1.10	(0.17)	-16%	(0.09)	(0.08)	1.28	1.22	0.05	4%	0.00	0.05
Trucking	0.41	0.66	(0.24)	-37%	(0.04)	(0.20)	0.52	0.68	(0.15)	-23%	0.00	(0.16)
Semen Fees	1.22	0.98	0.24	25%	(0.12)	0.36	1.48	1.30	0.18	14%	0.00	0.18
Repairs & Maintenance	0.30	0.53	(0.22)	-43%	(0.03)	(0.19)	0.53	0.51	0.03	6%	0.00	0.03
Utilities-LP	-	0.34	(0.34)	0%	-	(0.34)	0.37	0.57	(0.20)	-35%	0.00	(0.20)
Utilities-Electric	1.09	0.69	0.41	59%	(0.11)	0.52	0.92	0.64	0.28	44%	0.00	0.28
Utilities-Other	0.02	0.06	(0.04)	-67%	(0.00)	(0.04)	0.03	0.06	(0.03)	-49%	0.00	(0.03)
Supplies	0.31	0.37	(0.06)	-15%	(0.03)	(0.03)	0.37	0.36	0.01	4%	0.00	0.01
Production Payroll	4.78	5.35	(0.57)	-11%	(0.49)	(0.08)	5.79	5.54	0.25	5%	0.01	0.24
Sub-Total Controllable	20.44	19.23	1.22	6%	(2.08)	3.30	21.03	20.32	0.70	3%	0.03	0.67
Other Facility Expenses	4.39	7.26	(2.87)	-40%	(0.45)	(2.42)	4.31	5.03	(0.72)	-14%	0.01	(0.72)
Inventory Adjustments	2.48	-	2.48	100%	(0.25)	2.73	(1.53)	-	(1.53)	100%	(0.00)	(1.53)
Miscellaneous COGS	0.01	0.10	(0.09)	-85%	(0.00)	(0.08)	0.06	0.10	(0.04)	-37%	0.00	(0.04)
Total COGS	27.33	26.59	0.74	3%	2.78	(2.04)	23.87	25.45	(1.58)	-6%	0.04	(1.62)
Gross Profit (Loss)	(24.48)	(24.43)	(0.05)	0%	2.49	(2.54)	(22.17)	(23.80)	1.63	-7%	(22.17)	23.80
Gen. & Admin.												
Total Gen. & Admin.	1.25	1.26	(0.01)	0%	(0.13)	0.12	1.26	1.26	0.00	0%	0.00	(0.00)
Operating Income	(25.73)	(25.68)	(0.04)	0%	2.62	(2.66)	(23.43)	(25.05)	1.63	-6%	(0.04)	1.66
Other Income(Expense)												
Interest Expense	-	-	-	0%	-	-	-	-	-	0%	-	-
Other	-	-	-	0%	-	-	-	-	-	0%	-	-
Total Other	-	-	-	0%	-	-	-	-	-	0%	-	-
Total Expenses	28.58	27.84	0.74	3%	(2.91)	3.64	25.12	26.70	(1.58)	-6%	0.04	(1.62)
	-	-	-	0%	-	-	-	-	-	0%	-	-
Net Income	(25.73)	(25.68)	(0.04)	0%	2.62	(2.66)	(23.43)	(25.05)	1.63	-6%	(0.04)	1.66

ery into a breeding farm or extra gestation feed delivered in anticipation of a holiday or storm, can make "purchased animal" and "feed" costs, respectively, appear above budget when they actually are not.

Compliance reports

We use a series of compliance reports to assist the user in determining if an overage in total dollars is due to increased number of units used or due to higher unit cost. Our managers receive these compliance reports monthly along with the P&L statement for their farm(s). We have the following compliance reports for breeding herds and their associated growing pig flows.

Semen usage

As illustrated in **Table** 6, this compliance report indicates how much semen was delivered to the unit and subsequently used. It is based, in part, on the number of sows bred during a time period and the mating/service, both captured in PigCHAMP(. Actual usage is then related to the budget in regards to total doses delivered, cost per dose, number of sows bred, number of doses used per female bred, and the % of doses that were delivered and not used (i.e., wasted). Therefore, variance in semen cost can be explained by increased semen usage due to:

- breeding more females than budget,
- having a higher number of matings/service than budget,
- higher than budgeted semen wastage; or
- higher than budgeted cost per semen dose.

Feed usage

The total tons used of each diet during the time period and the cost per ton are reported in the feed compliance report (**Table** 7), which helps the user identify if feed cost variance is due to unit use (tons of feed) or due to unit cost (cost per ton). Our compliance report lists feed usage (i.e., disappearance) by feed type. An understanding of how the different subpopulations of breeding females are moved among barns is required to interpret this report.

Animal health

The total dollars spent per health product by generic class are compared to the budgeted amount in the animal health compliance report (**Table** 8). We also monitor the diagnostic costs relative to budget. Our staff veterinarian (CJR) works with farm staff to establish projected use rates of the different biologicals, pharmaceuticals, and diagnostic tests. Along with the farm management and service staff, he is expected to review monthly usages of all farms and flows monthly. He is also personally required to approve and justify to senior management any changes in our health management strategies and to continually look for ways to reduce health expenditures.

Utility usage

In the utility compliance report (**Table** 9), the total units (i.e., gallons of LP or kilowatt hours) along with the cost per unit are used to explain variances in total utility costs. We vary the amount of utilities budgeted with month of year to account for seasonal effects on farm consumption.

Labor

Manning levels, hours worked, and labor dollars spent relative to budget provide managers the diagnostic information that they need to manage the labor costs of their farms.

Opportunity analysis

Understanding the number of units sold (i.e., weaned pigs or CWT pork sold) is key in explaining costs in terms of cost per unit sold. Our opportunity analysis reports (**Table** 10) focus on the production factors that drive the number of units sold or transferred to the next stage. For example, if more weaned pigs are produced than were budgeted, the overage in production will reduce cost/weaned pig. A manager can determine if the overage is due to the impact of the breeding department (e.g., more females serviced than budgeted, higher than budgeted farrowing rate) or the farrowing department (e.g., a higher BA/L than budgeted, lower than budgeted %PWM.) For each production parameter (e.g., %FR, BA/L, %finishing mortality), the opportunity analysis report gives the relative contribution of each factor (positive or negative) on overall number of pigs weaned or CWTs or head of pork sold.

Empowering staff

If the rate of use of inputs at the farm is to be controlled, the farm staff must be enrolled into active participation. As shown above, a key step in making them aware of the rate of input use is providing them with compliance reports. While providing them a benchmark is useful in getting their commitment to cost management programs, making them responsible for the multi-million dollar business that they manage is essential. We establish this responsibility by holding monthly meetings in which the managers of breeding farms and the service managers of growing pig flows are required to submit written summaries of the P&L for their farm(s), explaining significant variances in any line items.

For each line item expense, we ask them to explain the variance if one of the following criteria is met:

- *When a line item expense is $10,000 or less*, determine which is greater: (1) 5% of the budgeted amount or (2) $1,000.
- *When a line item expense is greater than $10,000*, determine which is greater: (1) 5% of the budgeted amount or (2) $2,500.

Table 6: Semen Usage Compliance Report
Breeding Herd #2
Month Ending: 30-May-03

	Current Month				Year-to-Date			
	No. Weeks: 4		Period No.: 10					
			Variance				Variance	
	Actual	**Budget**	*Total*	*Percent*	**Actual**	**Budget**	*Total*	*Percent*
SEMEN COST								
Semen Cost	$ 14,704	$ 11,918	$ 2,786	23%	$ 145,424	$ 130,198	$ 15,226	12%
Doses of Semen	2,795	2,292	503	22%	27,868	25,038	2,830	11%
Cost/Dose	$ 5.26	$ 5.20	$ 0.06	1%	$ 5.22	$ 5.20	$ 0.02	0%
SEMEN USAGE RELATIVE TO BUDGET								
Females Bred	1,290	1,122	168	15%	12,827	12,256	571	5%
Doses Delivered/Female Bred	2.17	2.04	0.12	6%	2.17	2.04	0.13	6%
Doses Used at Bdgt Doses/Female Bred	2,635				26,204			
Excess/(Shortage) Delivered Doses	160				1,664			
Overage/(Underage) Delivered Semen	$ 840				$ 8,682			
SEMEN USAGE RELATIVE TO PIGCHAMP								
Matings/Service	1.97	1.90	0.07	4%	1.99	1.90	0.09	5%
Doses Used at PigCHAMP Matings/Service	2,541	2,132	410	19%	25,487	23,287	2,201	9%
Excess/Shortage Semen Del'd for Females Bred	254	160	93	58%	2,381	1,751	629	36%
% Wasted/(Saved) Doses	9%	7%			9%	7%		
Overage/Underage Semen Del'd for Females Bred	$ 1,335	$ 834	$ 501	60%	$ 12,423	$ 9,107	$ 3,316	36%

Table 7: Feed Usage Compliance Report
Breeding Herd #1
Month Ending: 30-May-03

Period No.: 10

Current Period

	Actual			Budget			Cost Variance			Variance due to	
	Tons	*Cost*	*Cost/Ton*	*Tons*	*Cost*	*Cost/Ton*	*Tons*	*Cost*	*Cost/Ton*	*Usage*	*Cost*
Gestation	390	$ 56,390	$144.49	377	$ 53,043	$140.68	13	$ 3,347	$ 3.81	$ 1,908	$ 1,438
Lactation	157	$ 26,782	$170.37	147	$ 24,297	$164.82	10	$ 2,485	$ 5.55	$ 1,666	$ 819
Gilt Development	79	$ 11,796	$149.06	89	$ 13,050	$146.00	-10	$ (1,253)	$ 3.06	$ (1,527)	$ 273
Total	627	$ 94,968	$151.56	614	$ 90,390	$147.25	13	$ 4,578	$ 4.31	$ 1,932	$ 2,646

Year-to-Date

	Actual			Budget			Cost Variance			Variance due to:	
	Tons	*Cost*	*Cost/Ton*	*Tons*	*Cost*	*Cost/Ton*	*Tons*	*Cost*	*Cost/Ton*	*Usage*	*Cost*
Gestation	4,122	$ 596,208	$ 144.63	4,051	$ 569,827	$ 140.68	72	$ 26,381	$ 3.96	$ 10,348	$ 16,033
Lactation	1,694	$ 281,914	$ 166.46	1,585	$ 261,195	$ 164.82	109	$ 20,720	$ 1.65	$ 18,112	$ 2,607
Gilt Development	948	$ 141,745	$ 149.55	961	$ 140,282	$ 146.00	-13	$ 1,463	$ 3.55	$ (1,949)	$ 3,412
Total	6,764	$ 1,019,868	$150.79	6,596	$ 971,304	$147.25	167	$ 48,563	$ 3.54	$ 25,230	$ 23,333

Table 8: Health Product Usage Compliance

Breeding Herd #7

Month Ending: 30-May-03

		Current Month			Year-To-Date		
No. Weeks 4			Period No. 10				
Pharmaceuticals	**Actual**	**Budget**	**Variance**	**Actual**	**Budget**	**Variance**
Amoxicillin	$ -	$ -	$ -	$ 126	$ -	$ 126
Ampicillin	$ -	$ -	$ -	$ 64	$ -	$ 64
Deneguard	$	$ 35	$ (35)	$ 348	$ 374	$ (26)
Estrumate/Prostamate	$ 1,000	$ 723	$ 277	$ 7,479	$ 7,768	$ (289)
Excenel/Naxcel	$ 1 ,442	$ 3,409	$ (1,968)	$ 37,325	$ 36,649	$ 676
Gentamicin	$ -	$ 27	$ (27)	$ 136	$ 291	$ (155)
Iron	$ 503	$ 1,362	$ (859)	$ 12,888	$ 14,637	$ (1,749)
LA-200	$ -	$ -	$ -	$ -	$ -	$ -
Lincomix -	$	$ -	$ -	$ -	$ -	$ -
Marquis -	$	$ -	$ -	$ -	$ -	$ -
Oxytocin	$ 186	$ 27	$ 160	$ 1,205	$ 286	$ 920
Penicillin G	$ 193	$ 215	$ (21)	$ 1,997	$ 2,309	$ (312)
PG-600	$ 411	$ 677	$ (266)	$ 6,459	$ 5,116	$ 1,343
Predef	$ -	$ -	$ -	$ 705	$ -	$ 705
Promace -	$	$ -	$ -	$ 133	$ -	$ 133
ReStart/Solutein	$ 248	$ 307	$ (59)	$ 2,669	$ 3,288	$ (618)
SulfaTrim	$ -	$ -	$ -	$ 600	$ -	$ 600
Tetrabac	$ -	$ 26	$ (26)	$ 342	$ 277	$ 65
Tylan 200	$ -	$ 72	$ (72)	$ 101	$ 774	$ (672)
Vitamins	$ -	$ -	$ -	$ -	$ -	$ -
Total	**$ 3,983**	**$ 6,878**	**$ (2,895)**	**$ 72,578**	**$ 71,768**	**$ 810**
Biologicals						
A. suis	$ -	$ -	$ -	$ -	$ -	$ -
Clostridium	$ 990	$ 886	$ 104	$ 9,342	$ 9,535	$ (193)
Dewormer	$ 1,770	$ 924	$ 846	$ 9,671	$ 10,627	$ (956)
E. coli	$ 690	$ 1,043	$ (353)	$ 7,325	$ 11,226	$ (3,902)
Erysipelas	$ -	$ -	$ -	$ -	$ -	$ -
Ileitis	$ 1,455	$ -	$ 1,455	$ 1,926	$ -	$ 1,926
Myco/Myco+Ery	$ -	$ 122	$ (122)	$ 403	$ 1,312	$ (909)
PLE	$ 2,877	$ 808	$ 2,069	$ 8,958	$ 8,690	$ 268
PRRS	$ -	$ -	$ -	$ -	$ -	$ -
PRV	$ -	$ -	$ -	$ -	$ -	$ -
Rota	$ 192	$ 143	$ 49	$ 2,107	$ 1,494	$ 613
Salmonella	$ 2,160	$ -	$ 2,160	$ 2,160	$ -	$ 2,160
SIV 5	$,900	$ 1,568	$ 4,333	$ 24,470	$ 16,851	$ 7,620
Strep Vaccine	$ -	$ -	$ -	$ -	$ -	$ -
Total	**$ 16,035**	**$ 5,493**	**$ 10,542**	**$ 66,361**	**$ 59,734**	**$ 6,627**
Diagnostics	**$ 983**	**$ 1,345**	**$ (363)**	**$ 12,956**	**$ 14,463**	**$ (1,507)**
Unbudgeted Products						
Citric Acid	$ -	$ -	$ -	$ 138	$ -	$ 138
Aureomycin	$ -	$ -	$ -	$ 658	$ -	$ 658
Iodine	$ 23	$ -	$ 23	$ 77	$ -	$ 77
Ingelvac HP	$ 4,185	$ -	$ 4,185	$ 5,929	$ -	$ 5,929
Total Health Products	**$ 25,208**	**$ 13,716**	**$ 11,492**	**$ 158,697**	**$ 145,966**	**$ 12,731**

Table 9: Utility Usage Compliance
Breeding Farm #7
Current Month Ending: 30-May-03

Period No.: 10
No. Weeks: 4

	Actual			*Budget*			*Variance*		
LP	**Gallons**	**Cost**	**$/Gallon**	**Gallons**	**Cost**	**$/Gallon**	**Gallons**	**Cost**	**$/Gallon**
Current	-	$ -	$ -	8,400	$ 5,208	$ 0.62	(8,400)	(5,208)	$ (0.62)
YTD	64,100	$ 43,573	$ 0.68	97,200	$ 60,264	$ 0.62	(33,100)	(16,691)	$ 0.06
Electrical	**Kilowatt Hours**	**Cost**	**$/KW Hr**	**Kilowatt Hours**	**Cost**	**$/KW Hr**	**Kilowatt Hours**	**Cost**	**$/KW Hr**
Current	333,952	$ 19,972	$ 0.060	230,000	$ 14,720	$ 0.064	103,952	5,252	$ (0.00)
YTD	1,924,386	$ 95,502	$ 0.050	1,740,000	$ 111,360	$ 0.064	184,386	(15,858)	$ (0.01)

Table 10: Opportunity Analysis
Breeding Herd #6
Month Ending: 30-May-03

	Current Month					Year-To-Date				
	No. Weeks: 4			Period No.: 10		No. Weeks: 43				
			Variance		No.			Variance		No.
	Actual	Budget	*Total*	*Percent*	Opp Pigs	Actual	Budget	*Total*	*Percent*	Opp Pigs
FEMALE INVENTORY										
Number of Animal Spaces	5,822					5,822				
Breeding Female Inventory Current	6,269	5,475	794	115%		5,793	5,475	318	106%	
% Capacity Utilization	108%	94%	14%			100%	94%	5%		
Breeding Female Inventory (140 days ago)	5,671	5,475	196	104%		5,102	5,475	(374)	93%	
% Capacity Utilization	97%	94%				88%	94%			
% Culling Rate	68%	34%	34%	199%		49%	34%	15%	144%	
% Mortality Rate	7%	8%	-1%	89%		7%	8%	-1%	87%	
% Replacement Rate	62%	42%	20%	149%		70%	42%	28%	167%	
Net Inventory Change	-13%	0%	-13%			14%	0%	14%		
BREEDING PERFORMANCE										
% Farrowing Rate	86%	82%	3.7%	105%	424	83.1%	80.2%	2.9%	104%	3,245
Number Services/Week (140 days ago)	311	305	6	102%	191	293	307	(13)	96%	(4,091)
Litters Farrowed/Week	267	250	17	107%	614	244	246	(2)	99%	(846)
FARROWING PERFORMANCE										
Bornalive/Litter	11.0	10.2	0.76	107%	679	10.4	10.1	0.3	103%	2,605
% Preweaning Mortality	16.4%	13%	3.4%	126%	(395)	15.5%	13.6%	1.8%	113%	(1,974)
Pigs Weaned/Sow Farrowed	9.2	8.9	0.3	103%	311	8.8	8.7	0.1	101%	686
Pigs Weaned/Litter Weaned	10.3	9.2	1.1	112%		9.2	9.0	0.2	102%	
REPRODUCTIVE CYCLE										
Lactation Length	17.3	19.0	1.7	91%		16.6	19.0	2.4	87%	
NPD/Inventoried Female/Year	41	47	5	89%		38	52	14	73%	
Litters/Inventoried Female/Year	2.45	2.37	0.07	103%		2.48	2.34	0.15	106%	
PRODUCTIVITY										
PWMF (PBA/L x (1-%PWM) x %FR)	7.9	7.3	0.6	108%		7.3	7.0	0.3	104%	
Pigs Weaned/Inventoried Female/Year	22.5	21.2	1.3	106%		21.9	20.4	1.5	107%	
Pigs Weaned/Week	2,454	2,227	227	110%	906	2,147	2151	(4)	100%	(153)
Pigs Weaned/Wk/1000 Sows	433	407	26	106%		421	393	28	107%	

For both categories, when the variance in a line item expense exceeds the larger of the two, it must be explained.

We require that managers explain a variance whether it is an underage or an overage. In an effort to determine the sources of variance, any deviation from budget must be explained, regardless of whether it is positive or negative. For example, when "feed cost" is above budget for a growing pig flow, the service manager must explain whether the variance was due to the tons of any diet fed to the group (i.e., unit use) or to a variance in cost/ton of any of the diets (i.e., unit cost). Managers must account for all of the variance; that is, the sum of the expenditures contributing to the variance in a line-item cost should add up to at least 90% of the entire variance in a line item. For example, if there is a variance in the "purchased animal" line item on a breeding farm P&L, the manager will be asked to explain the dollars of variance that are due to a higher than budgeted number of gilts entering the farm and the dollars that are due to a higher than budgeted cost/replacement gilt. In our system, a negative variance is as important as a positive variance, as it may indicate change in the production system. For example, if animal health costs are lower than budget, there may be a compliance issue, with farm staff failing to administer a vaccine.

The managers are asked to partition line-item variances that qualify to be discussed into that part that is due to production (i.e., higher or lower than budgeted levels of production) and that which is due to either an increased use of units of input or increased cost/unit. The second page of our P&Ls expresses costs and revenues on a weaned pig and cwt basis, and they delineate the proportions of variance due to production and cost management (**Table** 5).

When the majority of the cost variance is not due to production but to cost control, they must explain whether there is a problem in unit use or unit cost. For example, when there is a positive variance in "labor costs" for a breeding farm, the manager is asked to explain how much of the variance is due to the staffing level of the farm and how much is due to labor rates (i.e., average payroll cost/hour).

At the end of their write-ups, managers and/or service staff are required to prepare an "opportunities" section, focusing on the production and financial opportunities in their farm. They are required to present their ideas for fixing or improving their farm(s) using the following format:

- The primary areas of opportunity existing for improvement. Opportunities must be quantifiable; in other words they are defined as either a production or financial number. An opportunity can exist if less than budgeted performance occurs or if the farm/flow is experiencing less than industry-leading levels of performance. Examples of opportunities that we have dealt with in some farms and flows recently include: BA/L, high finishing mortality, high "animal health" costs, high "repairs and maintenance" expense, and high sort loss.
- The risk factors (causes) of each opportunity area. For example, if BA/L is proposed as an opportunity for a breeding farm, parity distribution, lactation length, sow genotype and other similar risk factors might be discussed in quantitative terms as to their relative potential contribution to the problem.
- The solution for each risk factor proposed to contribute to the area of opportunity. For example in the BA/L example, managers would be expected to state, in detail, a plan on how they propose to establish a long-term plan for correcting the parity distribution problem on the farm.

Solutions are written up as an action plan for addressing each cause of an opportunity. They often can be presented in terms of short- and long-term actionable steps. When CAPEX expenditures or additional costs are incurred in implementing an action plan, managers must include a cost justification for the intervention.

After editing, written reports are turned in along with other financial information to our bankers and to any business partners. All farm management and service staff receive copies of the P&Ls and write-ups for all farms and flows. The farm managers are expected to discuss their written reports with the department heads and, in some instances, with their farm staff.

A work-up of potential risk factors contributing to an opportunity is expected. Data analysis is required whenever feasible. If data analysis cannot be done, we expect the manager to list the risk factors according to the following likelihood that they contribute to the opportunity.

- "Horses" are those risk factors that potentially have a substantial effect on the opportunity (e.g., effects of lactation feed intake on subsequent litter size).
- "Ponies" are those risk factors that have a modest effect on an opportunity (e.g., seasonal effects on born-alive litter size).
- "Zebras" are those factors that are unlikely to significantly influence the opportunity. Zebras often include "old wives tales" and "industry dogma" that are perceived to influence an endpoint, but scientific research has either (1) failed to prove a cause and effect relationship or (2) has, in fact, proven that there is not a relationship between the risk factor and the endpoint.

- "Draft Horses" are those factors perceived as having a huge effect on a production or financial endpoint (e.g., effects of parity distribution on litter size).

At the monthly financial meeting, managers and production staff are required to give a formal oral report in which they not only explain the direction (positive or negative) and the magnitude of variances for all line items in the P&L report. Other farm managers and service staff are encouraged to understand and critique the plan as it is being presented. The peer pressure that comes from oral presentation of results compels all good farm managers to understand their costs and apply rigor to the creation of their action plans. At subsequent meetings, the manager is expected to give a progress report on the segments of the action plan that they have initiated.

Budgets and targets

At NFP, the management team "lives and dies" by the budgets of their farms and pig flows. We interpret all measures of financial and production performance relative to the budget. Budget values are what we expect to achieve. They are what we will use to forecast financial performance. We also have targeted levels of performance. Targets are what we could achieve if things went well. They are a "stretch" for the farm to achieve, but are within the grasp of the farm staff if events unfold as desired. In most instances, our management team chases targets but rely on achieving budget.

Summary

In order for cost management strategies to be effective, a "low cost culture" must be created. This usually requires that biological endpoints, at least initially, be de-emphasized at the expense of financial endpoints. When breeding farm managers talk among themselves about their labor costs/weaned pig rather than the number of pigs weaned/sow/year (PWSY), you know that you have created the culture. When they are more proud of their breakeven or their weaned pig cost than they are of their ADG or farrowing rate, you have been successful in making them business people. We are not saying that biological endpoints are not important, just that they are less important than cost indicators. We are striving to not just make our managers good caretakers of our stock and our employees, but that they become some of the best business minds in animal agriculture.

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