BENCHMARKING AND TOOLS TO MAXIMIZE PROFIT

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ABSTRACT

An effective benchmarking effort can help improve profitability by identifying opportunities for lowering cost and improving efficiencies. Benchmarking practices are commonly used by modern production companies and businesses worldwide and should, therefore, be considered for use by swine production companies or producers. For best results, a benchmarking effort should allow comparison of both production cost and performance. By comparing financial and production data against peers and industry leaders, swine producers are more likely to find areas for improvement that otherwise might remain hidden or concealed by routine busyness and pressing daily activities. Methods and procedures should be put in place to ensure a benchmarking program provides an equitable and fair comparison. It is also important for a benchmarking effort to provide enough detailed information and analyses to allow investigation of why a disadvantage may exist instead of simply reporting a disadvantage or opportunity. This presentation will use a DEMO Agri Stats swine benchmarking report to show how opportunities may be identified and pursued using a structured benchmarking program.

BACKGROUND

Agri Stats, Inc.

Agri Stats is a privately held company providing professional benchmarking services to the commercial livestock industries. Services are currently provided for broiler, egg, turkey, and swine production companies as well as their harvest and processing plants. Since 1985, Agri Stats has been working with production companies in North and South America to help improve their profitability by identifying opportunities to lower cost and improve production efficiencies through comparative analysis or benchmarking.

Agri Stats collects participant financial and production data electronically each month. Internal auditors convert the data, prepare it for comparison and perform the monthly audits. Each company's financial data is reconciled to their general ledger to help ensure actual costs are reported. Raw numbers are used in Agri Stats' standardized calculations so all company numbers are calculated the same way.

Participants receive monthly detailed reports and graphs that allow them to compare their performance and costs to other participants, the average of all companies, the top 25% and the top five companies. Current month, previous quarter and previous twelve month periods are reported. Each monthly report contains nine sections for analysis and comparison:

- Performance Summary
- Feed Mill
- Ingredient Purchasing
- Weaned Pig Production
- Nursery
- Finishing
- Wean-To-Finish
- Market Haul
- Profit and Sales

Agri Stats account managers conduct on-site live reviews to assist with report utilization and analysis.

In swine, there currently are over seventy finishing and forty-three sow locations included in the monthly comparison. Their associated nursery, ingredient purchasing and feed mill locations are also included. The monthly report is populated by more than 1.9 million sows and over 3.1 million weaned pigs. Over a twelve month period, the number of weaned pigs included in the analysis is approximately 40 million. The finishing comparison includes nearly 36 million pigs over a twelve month period.

Benchmarking

Benchmarking is simply the act of comparing data to a contemporary group with the goal of improving performance. Although the creation of formalized benchmarking is credited to the Rank Xerox Corporation, the practice dates back to ancient times. Japan sent teams to China in 607 AD to learn best practices for business, government and education (Zimmerman, 2003). Zimmerman also mentions that "economic Darwinism" (meaning business evolution) will lead to more companies participating in and utilizing benchmarking to increase production and profitability.

Zimmerman further states that "benchmarking is a process of continuously comparing and measuring an organization's business processing against business leaders anywhere in the world to gain information which will help the organization take action to improve performance." Note the mention of "*continuously comparing and measuring"* and *"against business leaders"*. Obviously for benchmarking to be effective it must receive a committed and ongoing effort. Comparison should, of course, be against those companies or entities leading in the specific industry or a compilation of data from industry participants.

One benefit of benchmarking is that it contributes to the ability to see outside personal or professional practices. The term "paradigm blindness" refers to the situation when individuals or businesses become so focused on or entrenched in the operation of their respective activities they fail to see what is going on outside their world. This blindness may be a source of stagnation and an impediment to progress. Benchmarking allows visualization of what individuals, companies and/or competitors are doing and how one compares to them. Effective benchmarking breaks this paradigm blindness and leads to creation of practices or processes that improve performance.

Now that we realize the purpose and benefits of benchmarking, we should be able to agree with its use in the swine industry. In fact, it is used in various forms. These range from simple production comparisons to elaborate and sophisticated total production and financial comparisons. Each and every commercial swine operation is encouraged to participate in some benchmarking effort.

BENCHMARKING TOOLS TO MAXIMIZE PROFIT

In the current swine industry, much discussion is given to the maximization of performance in specific production variables. These may include Pigs per Mated Sow per Year, Average Daily Gain, etc. Efforts to improve performance in each area of production are important and necessary for growth and survival of swine production companies and the swine industry. Benchmarking production can help improve performance and efficiency. Yet, including only production measurements in a benchmark comparison can lead to ineffective efforts and may create a level of "paradigm blindness". Some measurements of cost and/or financial performance should also be included. We must remember the ultimate goal is increasing profitability – not simply increasing level of production. Most pages in the Agri Stats report are ranked on cost of production. A common saying in the Agri Stats circle is "you cannot produce your way to the top of the page".

Agri Stats Finishing Example

For an example of how benchmarking would identify opportunities to improve profit, DEMO data from a constructed Agri Stats report will be used.

Table 1. DEMO Big Picture Analysis, Twelve Month Period, vs. AVG and Top 25%.

	%Tile	Rank	varT25%	DEMO	AVG	Top25%	$vs.T25%
Profit, $/cwt	49%	39-74	-4.22	-5.20	-5.53	-0.98	-13.3m
Sales, $/cwt	45%	42-74	-1.65	47.19	47.09	48.84	-5.21m
Cost, $/cwt	20%	20-52	3.22	52.39	52.72	49.17	10.2m

NOTE: THESE ARE NOT REAL NUMBERS AND ARE CREATED FOR DEMONSTRATION PURPOSES ONLY.

These numbers show us that DEMO has opportunities compared to both the average company (AVG) and the top 25% (T25%). By ranking in the 49th percentile in profit, we know immediately that opportunities exist. We can see DEMO actually has a better profit and cost position than the AVG. Therefore, the comparison should shift to the T25%. DEMO has a $4.22/cwt disadvantage in profit compared to the T25%. This is due to a $1.65 disadvantage in sales price received and a cost disadvantage of $3.22/cwt. The $4.22/cwt profit disadvantage equates to an economic impact of -$13.3million versus the T25%. (Profit should equal sales minus cost. In this case the profit and sales comparison comes from the profit section that contains both 3-phase or feeder pig to finish and wean-to-finish farms. The cost comparison comes from the 3-phase section only since this provides a more accurate cost comparison.)

Obviously there is a cost disadvantage that needs to be investigated. The next table provides a detailed cost comparison of DEMO vs. 3-phase or feeder to finish locations.

Table 2. DEMO Detailed Finishing Cost, $/cwt, vs. AVG and Top 25%.

	%Tile	Rank	varT25%	DEMO	AVG	Top25%	$vs.T25%
Pig Plcmt	67%	18-52	1.46	19.78	19.95	18.32	4.61m
Facility	77%	13-52	0.03	4.79	5.11	4.76	99.1k
Feed	56%	24-52	1.58	24.74	25.01	23.16	4.99m
Mill&Del	52%	26-52	-0.07	1.52	1.54	1.59	-240k
Med&Vac	35%	34-51	0.05	0.41	0.30	0.36	165k
Haul	35%	34-51	0.08	0.53	0.42	0.45	260k
Overhead	28%	37-50	0.09	0.62	0.48	0.53	266k
Total	63%	20-52	3.22	52.39	52.72	49.17	10.2m

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This detailed analysis allows us to gain multiple pieces of valuable information:

- DEMO has opportunities in each cost category and overall (see %Tile and Rank).
- We can see where DEMO has opportunities compared to the T25% and we can see where the biggest opportunities are (see varT25%).
- The $vs.T25% column gives us the economic impact of the disadvantage vs. T25% and allows us to prioritize or target efforts toward opportunities with the greatest economic gain.
- We no longer have to guess what the areas of largest opportunity are and we would not be spending lots of time on those areas with little opportunity.

It is obvious the largest opportunity for DEMO is in feed cost - $1.58/cwt or $4.99 million. The Agri Stats finishing report contains sixteen pages of detailed information to help drill down and analyze factors affecting feed cost. Key factors are summarized here:

- Feed cost disadvantage vs. T25% = +$1.58/cwt
- Ingredient owning cost vs. T25% = +$1.63/cwt
- DEMO Mortality = 5.26%; T25% Mortality = 5.78%
- DEMO Feed Conversion = 2.67; T25% Feed Conversion = 2.80
- DEMO Caloric Feed Conversion = 4115 kcals/lb gain; T25% = 4138 kcals/lb of gain
- DEMO Adjusted Feed Cost/Ton = $224.41; T25% = $214.31/ton (adjusted for ingredient owning and to 1500 kcals/lb)

From these numbers we can see that DEMO has production advantages – lower mortality and better feed conversion - yet has higher feed cost/cwt. The ingredient owning cost is an Agri Stats calculation that determines an ingredient purchasing advantage or disadvantage based on geography and ingredient availability. It tells us in theory DEMO should have had a feed cost disadvantage of $1.63/cwt based on their disadvantage in ingredient cost. After including this owning adjustment and adjusting all companies to 1500 kcal ME/lb feed, we can see DEMO has an adjusted feed cost per ton disadvantage of $10.10/ton. Since we have removed the ingredient

purchasing disadvantage and standardized calorie content, we can conclude the only thing left to create this higher cost would be a difference in formulation. Referring to the nutrient profile pages, DEMO does show higher protein, lysine and other amino acid levels. So, we can conclude DEMO has higher feed cost/cwt due to disadvantages in ingredient purchasing and differences in feed formulation. We would then go through many ingredient purchasing pages to compare DEMO's ingredient purchasing to the average and their region. This would show opportunities in ingredient purchasing. The nutrition and production teams would likely together determine if formulation changes would be appropriate.

The second largest economic opportunity for DEMO was pig placement cost. Two pages in the Agri Stats report would provide detailed analysis of pig placement cost. The effects of placed cost per pig, mortality, placement weight and finished weight would be reported and examined to determine what would be creating a disadvantage in pig placement cost. In this example, DEMO's pig placement cost was higher because of a higher incoming cost per head and heavier placement weight. DEMO's mortality advantage helped lower their placement cost as did a slightly heavier finished pig weight. We would challenge DEMO to show an advantage in finishing age and weight since they started with a heavier pig. In this case the heavier placement weight (52 lbs vs. 48 lbs) did give DEMO an advantage in finishing weight and days (263 lbs in 184 days vs. 265 lbs in 191 days). We would then conclude that DEMO's disadvantage in pig placement cost was due to a heavier incoming pig and should not be considered an opportunity to target.

Agri Stats Weaned Pig Production Example

For a shorter example, we will look at total cost and production effects on weaned pig cost.

Table 3. DEMO Cost and Production Comparison – Effects on $/Weaned Pig (EOC).

	Farm $/Sow/Week	#Weaned/100 Sows/Week	Production Measurements			
			LMSY	%Pool	NBL	PWM
DEMO	13.20	39.61	2.21	7.26	11.56	12.72
AVG	12.94	41.80	2.34	5.38	11.39	13.86
T25%	11.72	45.68	2.46	3.06	11.29	11.77
EOC	0.71	1.68	1.92	0.67	-0.47	-0.41

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In this case we can see DEMO has both a cost and production disadvantage in the production of weaned pigs. The Farm $/Sow/Week number represents total sow farm cost. This data shows DEMO has higher sow farm cost which adds $0.71 to the cost of their weaned pig. The production measurement of # Pigs Weaned /100 Sows/Week shows a disadvantage which adds $1.68 to the cost of a weaned pig for DEMO. DEMO's disadvantage in Litters/Mated Sow/Year adds $1.92 to the cost of their weaned pig and a larger % Gilt Pool adds $0.67. Advantages in Number Born Live and Pre-Wean Mortality lowered DEMO's weaned pig cost $0.88.

Therefore, we would focus on ways to analyze and improve LMSY and % Gilt Pool. There are two additional pages in the Agri Stats report that would allow us to investigate open sow days for unbred gilts and active sows. We would follow this analysis with a detailed cost per weaned pig analysis similar to the one done for finishing.

CONCLUSIONS

These examples have used constructed numbers to demonstrate how information from a swine benchmarking program can be used to identify opportunities and help improve profit. It should be clear that benchmarking can help identify opportunities and focus efforts on the opportunities with the greatest economic gain. Though all producers may not be part of or fit into an Agri Stats type benchmarking program, all producers could participate in benchmarking in some way. Commercial benchmarking opportunities are available. Producer groups could design and operate their own benchmarking effort. In these challenging economic times each producer or company must capitalize on opportunities to increase efficiency, lower cost and improve profit. Modern businesses do it as part of doing business. Swine producers or production companies should also.

LITERATURE CITED

Zimmerman, J. 2003. Accounting for Decision Making and Control. Fourth Edition, McGraw-Hill Higher Education, New York, New York