

PULLING THE PIN ON DISEASE

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Having a new disease enter a herd is a risk that we all face in intensive swine farming. As units are becoming larger, a new (or new variant of) disease may have a greater financial impact, especially with tight (or nonexistent) margins.

Disease management may encompass everything from basic antibiotic therapy, a new vaccination program, flow management, partial depopulation or full depopulation.

A decision to choose a disease management option should focus on:

- What is the cost of the disease?
- What is the cost of treating this disease?
- How effective is the treatment?
- Are there risks associated with the treatment?

When we are determining the cost of the disease, we should be examining mortality rates and performance reduction. Performance indicators would include average daily gain, weight spread, and other expenses (feed, labour).

Table 1 indicates the approximate cost of disease.

Often, I hear that because a barn is continuous flow, that it is difficult to determine the daily gain or feed conversion. One method of getting around this is to determine the average weight in and weight out of a barn; number of pigs in the barn; determine a time frame (one to three months); and then look at premix or supplement purchases for that period. You can then figure back on how much feed was made and the weight of the pigs eating it. It's a rough calculation, but important to know and understand, especially with disease. With feed costs increasing, differences in F/G and ADG become even more important to monitor.

Direct costs of disease are always easy to figure out. These are drug costs (injectable, in-feed and water) and also the labour needed to administer the treatment. However, there are often other things that are applied along with drugs to reduce a disease's impact, namely changing the environment (warmer/colder); changing feed (mycotoxins to no mycotoxins) or changing how we manage the pigs (heavier weights going into a barn; reducing variability somehow). Once we start doing a number of changes at the same time as a treatment, it becomes difficult to evaluate that treatment. However, we still assign a cost to the drugs as given.

Table 1. Estimated effect of different diseases on ADG, FE, and cost of production. (Source: Dufresne, L. 1999. Allan D. Leman Conference. pp 193-196.)

Disease	ADG	Feed Efficiency	Cost
Mange	4.5 to 12% 8% 0-5.7% 10%	10%	
Swine Dysentery	10-17%	3-10%	\$2.60-8.60/pig \$15/pig \$8.28/pig
Enzootic Pneumonia	3 to 7% 17%	3% 14%	
APP	8 to 17% 0-20% 34% 0-35%	3 to 10% 26%	
Atrophic Rhinitis	3 to 9 % 5-8% 0-13% -2.5-7%	3 to 6 %	
PRRS	10-20%		\$236/sow \$18.21/pig \$7.5 – 15/pig \$18/pig 6.90/17.25/sow m
Salmonellosis	7-44%	1-22%	

Risks can be associated with treatment. For example, a producer may elect to use serum injection as a treatment for PRRS. A sample of cull sows should be injected first to determine that the serum will not cause problems. Most of the time it doesn't. However, if this isn't done, there is a risk of causing more abortions and sickness in the herd, and therefore increased financial loss. We need to be aware of this before choosing this option.

Or, the vaccine may not be totally effective on its own. TGE vaccine is a good example. It is not as effective by itself in controlling TGE; however, when used in conjunction with feedback exposure and sow and gilt management, it becomes a very useful tool.

Some vaccines are spectacularly effective. The recent introduction of the circovirus vaccines are a great example. There is low risk with their usage, and the disease is considerably reduced, both in mortality and improvement in growth.

Return on investment is another way to look at investment in disease. A general rule is that a low cost/low risk intervention should return 20-25%. A high cost/high risk investment should return 150-300% on its use.

However, decisions should not be made on simple suggestions. A spreadsheet and sensitivity analysis (what happens if...) should be used when trying to evaluate what to do. Trying to do this on paper is not realistic anymore. There are many good programs available that will allow you to run several scenarios to determine what's best for your own operation.

Some diseases may be kept under control for the most part, but then may rear their ugly heads again and again to cause losses in the barn. APP is a good example of this, or having more than one strain of PRRS in a barn, or having APP, PRRS, Mycoplasma and throw in some E. coli and nasty Streps. The more usual case is trying to decide what to do in a barn with numerous problems.

At some point it's just not fun to go to the barn anymore. Disease has been creeping up. We tend to think that it's going to get better (to be human is to be optimistic). Some weeks are, many are not. Gradually, you realize that everything is sliding backwards. More pigs are getting composted.

WHAT TO DO?

First, get your barn examined. Call in your veterinarian, your feed representative, even your ventilation guy. Check everything out.

Then describe the problem. Is it disease? Is it something else? Is it a combination of events, a "perfect storm"?

If it is disease... What is it? How much of it is there? What is the cost of it?

WHAT IS THE COST OF CONTROL?

And ... get crunching some numbers. If there is a lot of disease challenge, you and your advisors may come up with a management plan – for now. Have an end point in mind if the challenges are serious. Monitor the effectiveness of the treatments.

And draw your line in the sand. When you reach the point that too many pigs aren't leaving the barn other than as a barbeque or as a compost pig, make the right decision.

Use the right tools. Spreadsheet analysis will easily let you plot many options, dependent on hog prices, feed inputs, and performance indicators. And you can monitor your line in the sand.