# Respiratory diseases – a new approach

Disease management, and especially the management of respiratory disease, is becoming ever more challenging. Yes, we have drugs; yes, we have vaccines, but knowledge on the entities we encounter in the field and how to best use our treatment options are the real challenges. Thus, we need a source of data and a logical approach to their use.

In today's electronic age the answer can be found in modern computer software. Recently, International Pig Topics took a close look at Intervet's ResPig and its novel approach to the management of respiratory diseases.

Globally, roughly US$2.4 billion was spent on animal health products for swine during 2007. Of this total, about US$500 million was invested by the swine sector in vaccines against respiratory diseases.

In addition, an estimated US$300 million was spent on antimicrobials and US$400 million on metaphylactic feed additives, mainly in the prevention and treatment of respiratory infections.

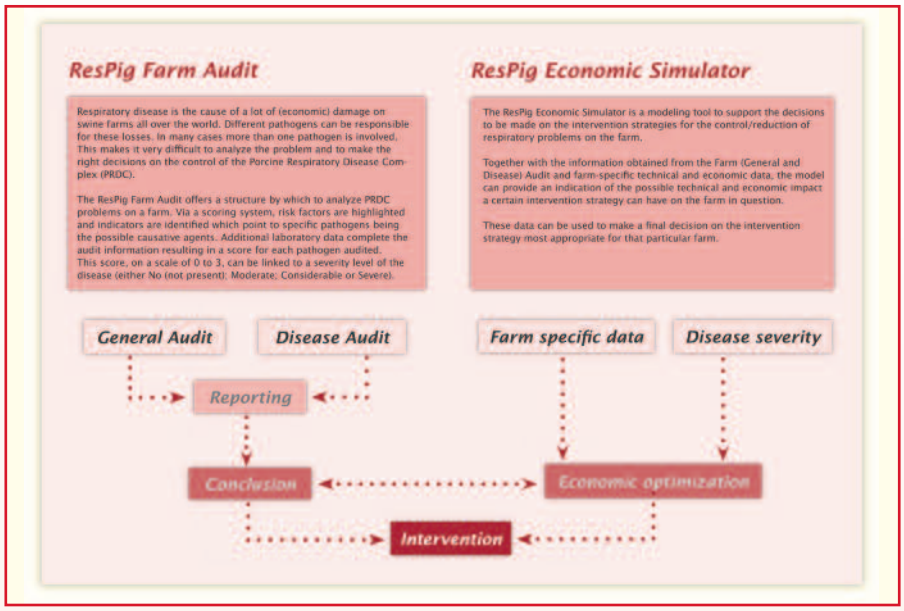
## Respiratory diseases

However, despite this estimated annual investment of around US$1 billion in fighting these diseases, an increasing number of pig producers still face a variety of respiratory problems at each and every stage, from the nursery to the finishing unit. It is largely a reflection of the plain fact that, over the years, the balance between health and disease on swine farms has become much more complex.

The average size of farm continues to increase, which means more animals on a single site, often of different ages, quite apart from the newly emerging pathogens which threaten the swine population worldwide.

In an increasingly competitive market, veterinarians and stockmen need to consider and manage all the risk factors, in order to be able to secure sustainable and profitable pig production.

Knowing that viral infections can only be prevented by vaccination and bacterial infections can either be prevented by vaccination or treated with antimicrobials, the wide variation in vaccination rates against the different respiratory pathogens is a matter of some surprise and no little concern.




***The inter-relationship between the ResPig Farm Audit and the Economic Simulator.***

The rate ranges from about 2.5% of commercial pigs being vaccinated against Glässer's disease (Haemophilus parasuis) or APP (Actinobacillus pleuropneumoniae), to about 65% of them receiving vaccines against Mycoplasma hyopneumoniae, with an estimated 8-10% being vaccinated against PRRS virus.

Regardless of the investment in prevention and treatment, respiratory disease remains a very significant factor in the economics of pig production. Mortality, growth performance and feed conversion rate are, to a large extent, the determinants of the production cost of a kg of pork.

With the past year's huge increase in feed costs, these figures will become even more relevant.

Bearing in mind that 'health products' constitute only about 5% of total production costs and feed costs have now reached about 85%, it is clear that economic performance will determine who will stay in the business of pig production and who will be forced out.

Respiratory problems in swine are seldom caused by a single pathogen. Usually several organisms interact with each other, increasing the severity of the associated clinical signs. It is often not easy to identify the causative agent or agents involved, or to devise an optimal intervention strategy to control them.

To assist veterinarians in the essential processes of diagnostic screening and economic evaluation, Intervet has developed ResPig, an on-line tool to support the multi-pathogen, multi-factorial, approach to controlling respiratory disease. Using this tool, it is possible to calculate the most economically beneficial vaccination programme in order to optimise the (long-term) profitability of a pig farm.

## A quantum leap

Several computer programs are already available to help pig producers with farm analysis, but ResPig takes the whole process forward by a quantum leap.

The ResPig tool provides and stores disease and economic data on a secure and protected web page, which means that the veterinarian can have access to the data wherever there is an internet connection.

The starting point for ResPig is a detailed audit of the farm, including many aspects of management, as well as of the disease situation.

Alongside general data about the farm, the

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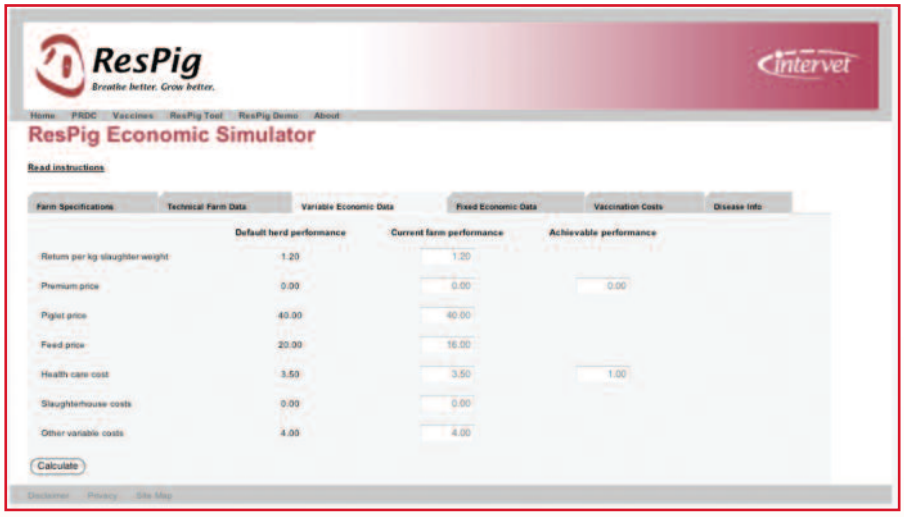


***Fig. 1. Farm specific or default data can be used.***

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audit includes a number of important health-related questions.

The stored data includes clinical signs and general farm data.

The results of the general audit are displayed under six different headings:

- Environment.
- Management.
- Housing.
- Animals.
- Respiratory health status.
- Slaughterhouse.

In the disease audit, the general data are linked to the specific diseases under consideration for that particular farm.

Farm data including laboratory data and slaughterhouse findings on PRRS, mycoplasma, APP, swine influenza, Glässer's disease, pseudorabies, PCV and atrophic rhinitis can all be added in and stored in the program.

Obviously the farmer can do this himself but it is much better done by, or with, the farm's veterinarian who should definitely be involved in the disease audit.

Once the audit is completed, an assessment of the severity of the various diseases is generated, the results of which can be displayed by disease, or by age group and can then be analysed at different levels to arrive at a final overview of the farm's respiratory disease status.

Then the severity level for each pathogen is loaded into an economic simulation model (based on published data) which calculates the economic and technical impact (average daily weight gain (ADG), feed conversion rate (FCR) and mortality percentage) of various intervention strategies for that farm. The costings are preferably undertaken using real cost data that has been fed into the program in the earlier audits, but if this data is not available default industry typical values can be used.

The veterinarian and farm manager can work together to decide which intervention strategy will be best suited to the farm in question, based on realistic and achievable objectives.

The program can generate farm specific cost benefit overviews to assist in this process. For example, these show the possible impact of different vaccination strategies ranked by their attractiveness.

This can be for single or multiple pathogen control strategies and these overviews can be provided in summarised or detailed formats. How everything comes together is summarised in the inset on the previous page which shows the relationship between the ResPig Farm Audit and the ResPig Economic Simulator.

The introduction of the ResPig concept is timely. With the increasing global competition for feed and an increasingly competitive market in pork products, every cent saved in the production costs of a kilogram of pork will be important to those producers who wish to stay in business. ■

***Fig. 2. Disease severities can be selected.***