

VIRGINIA-MARYLAND
REGIONAL COLLEGE
OF
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VM Library

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G. A. MacInnis
Extension Specialist

TO THE CLASS OF 1984

Welcome to the challenging and rewarding profession of veterinary medicine. You are students now and looking forward to the day when you graduate and are no longer students.

Don't ever stop being students!

The science of veterinary medicine is changing so fast that you will be out-of-date in a very short time if you don't continue to study. Attend local, state, national, and even international scientific meetings, subscribe to professional journals and read them, keep your library current, utilize autotutorial programs, talk to colleagues, and take advantage of all of the other continuing educational opportunities that will be available to you.

Newsletters are prepared for Virginia's veterinarians and Extension Agents, for other interested individuals, and now for you. It is intended to help the readers keep abreast of development in veterinary medicine. Hopefully, the articles will make your classroom work more meaningful.

Have a successful career.

THE EXAMINATION FOR PURCHASE

Before examining a horse for a prospective buyer, make sure two things have occurred:

1. The prospective buyer has tried the horse and found it suitable for the intended use.
2. The horse to be examined has been "in work" for a minimum of five days (and ten days is better) immediately prior to the examination for serviceability.

Dan Flynn, V.M.D.
Southern Veterinary Medical
Federation Meeting, Williamsburg
October 1980

GLAND OF THE THIRD EYELID

This small gland on the orbital surface of the nictitating membrane in dogs often becomes everted and edematous. Practitioners commonly remove this gland in one or both eyes for cosmetic reasons. Since the gland of the third eyelid has a lacrimal function, removing it may possibly contribute to subsequent keratitis sicca.

A better approach would be to suture the gland back in its proper position using 3 interrupted sutures of a fine absorbable suture

(6-0 Dexon). Dispense a soothing ophthalmic drop or ointment for administration Q.I.D.

Seth Koch, V.M.D.
Southern Veterinary Medical
Federation Meeting, Williamsburg
October 1980

REDUCED-DOSAGE STRAIN 19 VACCINE

The Uniform Methods and Rules for brucellosis eradication were changed October 1, 1980 to allow heifer calves of beef or dairy breeds to be vaccinated with reduced dosage between 4 and 12 months of age. The rules still call for vaccination with standard dosage at from 2 to 6 months of age for dairy calves and from 2 to 10 months for beef breeds, although some states may have different age requirements. In Virginia, the age requirement is 3 to 6 months for both dairy and beef breeds.

The reduced-dosage vaccine is already in use in the southeastern and south central states where drives are under way to drastically reduce relatively high levels of brucellosis infection. Virginia is a low-incidence state and the reduced-dosage vaccine will not be used here until after the first of the year. All licensed veterinarians in Virginia will be given the opportunity to attend informational meetings regarding the use of the reduced-dosage vaccine. The meetings will be held at the Regional Department of Agriculture Laboratories during November and December.

FOOD FOR THOUGHT

We have about two and a quarter billion acres of land - an average of $10\frac{1}{2}$ acres per person, but less than half (5 acres) is farmland. These 5 acres must yield most of our food, plus natural fibers for clothes and wood for shelter, plus other uses.

Today, the farmer feeds himself and fifty-six others, and by the year 2000, our population growth will require that he produce enough for himself and seventy-seven others, on only about 4 acres, one fifth less than today. (In 1776, the farmer produced enough food for himself and two other people.)

Dairy Illustrated
Fall 1980

CANINE PARVOVIRUS UPDATE

Vaccination

Administration of two doses of USDA approved, concentrated, inactivated feline panleucopenia vaccine (Parvocine-Dellen) at an interval of two to four weeks will produce a moderate antibody response in healthy dogs. Protection against parvovirus challenge is

provided two to four weeks after the second dose of vaccine.

Duration of effective protection is unknown but is believed to be at least eight months.

One dose of the concentrated, inactivated vaccine will not protect against challenge with parvovirus.

Vaccination will not halt the progress of the disease in a kennel where infection already exists.

Puppies with significant maternal antibodies do not respond to vaccination with the concentrated, inactivated vaccine until as late as 12-14 weeks of age.

Administration of two doses of commercial, inactivated feline panleucopenia (not concentrated) vaccine at an interval of two to four weeks will produce a low antibody response. Protection against parvovirus challenge is provided two to four weeks after the second inoculation.

Duration of effective protection is unknown but is probably similar to that provided by the concentrated vaccine.

One dose of the inactivated vaccine will not protect against challenge.

Administration of two doses of inactivated mink enteritis vaccine at an interval of two to four weeks will produce antibody response and protection as good as that generated by the inactivated FPL vaccine.

Administration of modified live (attenuated) panleucopenia virus vaccine does not cause disease in dogs, produces high antibody response, and protects against parvovirus challenge probably within five to seven days after vaccination.

The duration of protection with MLV vaccines is unknown but is probably as good or better than that produced by inactivated vaccines.

One dose of MLV vaccine may provide adequate protection against challenge but two doses are recommended.

Use of an MLV panleucopenia vaccine could possibly halt the progress of canine parvovirus infection in an infected kennel.

Puppies with maternal antibodies to canine parvovirus do not respond to vaccination with MLV vaccine.

It is not now possible to formally recommend the use in dogs of non-approved vaccines, though they have proven to be safe and effective. The individual veterinarian and owner must make a rational

decision based on the availability of vaccine and the incidence of disease in the area.

Regardless of the vaccine used, it is recommended that an annual single booster vaccination be given. If a dog is entering an area where the risk of exposure is high (i.e., dog shows, boarding kennels, etc), six months or more following CPV vaccination, a booster vaccination should be given.

R. L. Ott, D.V.M.
College of Veterinary Medicine
WSU, Pullman, WA
WSU Animal Health Notes
October 1980

MORE CANINE PARVOVIRUS UPDATE

Sixty-three cases of canine parvovirus (CPV) have now been confirmed by the Virginia Department of Agriculture's Animal Health and Dairies Laboratories. These 63 cases of CPV have come from 88 submissions where CPV was suspected.

Where age and sex are known, 68% of the samples are from males, and 66% are from dogs that are less than 1 year old.

Virginia Department of Agriculture
Animal Health & Dairies Laboratory
The Lab's Line Bulletin

THE LACK OF PROPER VENTILATION IN COLD WEATHER CAN LEAD TO RESPIRATORY DISEASE IN PIGS

A number of Virginia swine producers have noted they have more trouble with infectious atrophic rhinitis and pneumonia in their pigs during changeable or cold weather. The reasons for this are now becoming better understood. Work just completed at Virginia Tech (funded by the Virginia Pork Industry Commission) indicates that air quality in swine units during cold weather is sometimes poor, and can be contributing to the respiratory problems in the pigs housed in those units.

A common way to have poor air quality in a swine unit is to greatly reduce or stop air flow. Unfortunately, this is exactly what happens in cold weather. Ventilation systems are designed primarily to control heat or temperature buildup. In cold weather, the exhaust fans are usually slowed or stopped by manual or thermostatic controls. This reduces or stops air flow. Often supplemental heating is used in the unit. In order to reduce energy needs, and help avoid the pigs getting chilled, there is a strong temptation to stop all exhaust fans. It is well known that if the pigs are chilled, or temperature stressed, they are susceptible to all kinds of infections,

including those in the respiratory tract. The main problem with the above ventilation management is that temperature control is the main consideration, while little, if any consideration is given to moisture, dust, waste gas, or airborne germ buildup. Our recent work indicates these other factors are also important to the health of the pigs, and need to be considered in the management of ventilation and air quality.

It was found that when exhaust fans are significantly slowed or stopped, that there is a rapid buildup of ammonia (up to 75 parts per million) and carbon dioxide (up to 9000 ppm). In addition, inside relative humidity climbs to as much as 24% higher than the outside relative humidity, often reaching 85% or greater. These changes have some bad affects on the pigs. Let's consider each of them.

Ammonia gas is easy to detect in most swine units. The human nose can usually detect as little as 7 ppm in the air, so you can smell ammonia before it is a problem. Remember to smell down at the pig's level, where the gas is more concentrated. When it begins to irritate the eyes, the ammonia levels are near 30 ppm, or above. At this level, (30 ppm or greater) ammonia can affect the lining of the sinuses, airways and lungs. Ammonia gas is very soluble in water, so it combines with the mucus which lines the pig's respiratory tract. This forms an irritating alkaline solution in the mucus, which slows the movement of material off the surface of the respiratory tract, and causes degeneration of the lining cells. A variety of inhaled bacterial, mycoplasmal and viral agents, are included in the material which lands on the mucus lining. These germs then have an easier time getting established and growing into an active infection, especially in places where the lining cells are degenerating or dead.

Carbon dioxide (CO₂) is not an irritating gas, and you cannot smell it. It requires special equipment to measure its buildup. When CO₂ builds up in the air to the levels noted (30 times the normal atmospheric concentration) it affects the respiratory tract lining in at least two ways. First, it causes a slow down of movement of debris off the lining, as does ammonia. Secondly, it affects alveolar macrophages, which are housekeeping cells deep in the lung.

These cells normally swallow up and digest germs on contact in the lung, and prevent these germs from becoming an infection. These cells are active, and use oxygen to do their work, and give off CO₂ as a waste product. If the pigs are breathing air which is exceptionally high in CO₂, these macrophages can't get rid of their CO₂ and they slow down in their clean-up duties. This gives inhaled germs a better chance to start a lung infection.

In cold weather, when there is little or no air flow, the concentration of germs in the air within the pigs environment goes up tremendously. This means that the pigs also are exposed to more germs, each time they inhale. The reason for the increased airborne

concentration of germs is two-fold. The obvious reason is that with little fresh, clean air coming in to mix with the inside air, germs accumulate in the air, due to the pigs breathing, and from the urine and manure being moved around. There is also another less obvious reason. With little or no air flow, moisture accumulates in the inside air. This moisture accumulation can be appreciated by the fact that it readily condenses on cold windows, walls and ceilings. The source of this moisture is primarily from the pig's breathing, from urine, manure, wet feed, and spraying done during clean-up. If the relative humidity stays above 85% consistently, germs in the air that would normally die by drying out, do not. These germs live longer and can therefore travel farther and cause more harm to the pigs.

In summary, decreased air flow in cold weather allows a build-up of waste gases, moisture and germs, in the inside air of swine units. Under the right set of conditions, these factors help each other in causing pigs to have more respiratory infections.

What can you do to assure you have sufficiently good air quality? Check your air flow. Even in the coldest weather, you need a minimum of about three or four air changes an hour. Less than that and you will likely have marginal or poor air quality. The signs of this marginal air quality will be the persistent strong ammonia odors, and nearly constant moisture buildup. If you are experiencing more or less constant trouble with infectious atrophic rhinitis or pneumonia, even though you vaccinate and feed antibiotics, you should consider increasing the air flow. It will cost more for heating the swine units, but you should more than offset that cost, by having less respiratory infections. There may be some benefit in reducing enteric infections in young pigs, as well.

Remember, good ventilation is not just good temperature control; it must also include moisture, waste gas, and germ control, in order to have healthier pigs.

H. P. Veit, D.V.M., Ph.D.

Editors note: Dr. Veit is interested in assisting Virginia or Maryland swine producers that are having respiratory problems with their pigs in closed housing systems. He can be reached by writing to the Virginia-Maryland Regional College of Veterinary Medicine, Virginia Tech, Blacksburg, Virginia 24061 or by calling 703-961-7666.

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