TRANSMISIBLE GASTROENTERITIS IN SWINE (TGE): AND IT'S CONTROL WITH A NEW ORAL VACCINE.

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INTRODUCTION:

Anew and unique vaccine for transmissible gastroenteritis (TGE) in swine has been developed by Ambico Inc.

Virulent TGE virus, when fed to pregnant sows overcomes the disadvantages of the IM administered vaccine. However, even virulent TGE virus will not produce adequate immunity if injected IM or intramammarly into the sow. It is apparent that infection or sensitization of the gastrointestinal tract of the sow is necessary to achieve good protection in both the sow and her nursing pigs.

The fact that virulent TGE virus, administered orally to sows, does produce substantial immunity in both sows and their nursing pigs has been utilizad commercially in some States (Illinois Missouri). Virulent virus is harvested from the intestines of infected baby pigs centrifuged for partial pu ification, and incorporated into large hard gelatin capsules which are then frozen and stored in the frozen state. One capsule is administered per pregnant sow about three to four weeks before farrowing. This procedure, however, is hazardous since the disease can be perpetuated or disseminated to other swine herds. In addition, contaminating viruses may also be disseminated since there are no control measures or assurances that the intestinal tra ts of the donor pigs are completely disease free.

In order to avoid the hazards and disadvantages of the above two immunization approaches, efforts at Ambico Inc. have been directed toward the development of a vaccine which might posses the following characteristics:

1.- The vaccine virus should preferably be live and not capable of producing disease when fed to insolated baby pigs (the most sensitive animal model available).

2.- The virus should possess certain qualities which would allow its incorporation into feed for oral consumption by swine of all ages.

3.- The vaccine virus should not only produce a resistance in the sow's gut to TGE, but it should also induce the sow to develop a strong persisting protective milk which prevents morbidity and mortality from TGE in her nursing pigs.

4.-The vaccine virus should be capable of inducing resistance to TGE when fed to young pigs before weaning, even though the pigs are nursing TGE immune sows.

SUMMARY:

The TGE vaccine developed by Ambico, Inc. consists of a unique strain of TGE virus, originally virulent for baby pigs, but which has been modified so that it no longer causes disease in swine. Most strains of TGE virus utilized in vaccine studies consist of isolates from intestinal contents of infected baby pigs. When they are passaged in cell culture they may lose some of their ability to produce disease, but they are generally not suitable vaccine agents.

The Ambico strain of virus has been apecially treated and purified prior to its extensive experimental evaluation in the following areas:

1.- Purity and safety. Vaccine virus was shown to be free from other possible contaminants by extensive testing in animals. Inoculation of the virus into baby pigs, pregnant sows, boars feeder pigs, rabbits, hampsters, suckling and adult mice and guinea pigs produced no adverse reactions. Particular emphasis was placed upon its evaluation in baby pigs isolated from the sow since these pigs are most sensitive to TGE When vaccinal virus was passaged orally from pigs to pig six times there was no evidence of its reversion to virulence. The vaccine was shown to be safe for swine under laboratpry conditions prior to its evaluation under field conditions. In addition to the above animal studies extensive laboratory in vitro testing has also been done in order to confirm purity of the vaccine.

2.- Vaccine efficacy. Efficacy of TGE vaccine was also determined under controlled laboratory conditions prior to its evaluation under field conditioons. Pregnant sows were vaccinated within five to six weeks of farrowing with AMBICO vaccine or the comercially available vaccine recommended for intramuscular use. After farrowing all sows and half of each litter of pigs were exposed to virulent TGE.

Sows which received Ambico vaccine were protected from TGE and they provided excellent milk-protection to their baby pigs. These results were clearly superior to the results observed in sow wich had received the intramuscular vaccine. The latter vaccine did reduce mortality of the baby pigs, but did not prevent sow or baby pigs morbidity, These results were very similar to observations reported by tho other laboratories.

Milk samples from both groups of sows, when analysed for their TGE antibody levels also reflected superior results from the oral vaccine:

Of particular significance in our studies was the observation that milk antibody titers in orally vaccinated sows were substantially higher 3-6 days post-Farrowing than milk antibody titers observed for intramuscular vaccinates.

Vaccine can also be used orally to actively immunize baby pigs even while they are nursing TGE inmune sows. This is advantageous so that pigs can be immunized actively before they are weaned since they normally lose their passive protection at that time.