Maryland researchers develop avian flu rapid detection

COLLEGE PARK, MD. — Scientists with the University of Maryland Agricultural Experiment Station (UMAES) have developed a rapid detection system for a strain of avian influenza, a virus responsible for the destruction of more than 14 million chickens and turkeys in the mid-Atlantic region in the last 12 months.

According to the scientists, having the system two years ago could have saved poultry farmers and allied industries in Pennsylvania some of the estimated $150 million lost through the quarantine and destruction of flocks.

"The detection system is called ELISA. Actually, it is an assay that has been used for other types of poultry viruses and adapted to detect avian influenza," said Dr. David B. Snyder, principal investigator in the project and a UMAES researcher assigned to the Virginia-Maryland Regional College of Veterinary Medicine at the university.

Snyder and team colleague Dr. Warren W. Marquardt said laboratory and field tests of the ELISA system showed it is more sensitive, diagnoses avian influenza faster and sooner than other conventional forms of disease detection.

"This means that ELISA can detect avian influenza even when concentrations of antibody to the disease in a flock are low," Snyder said.

"It also means that ELISA takes less time to analyze flock blood samples. Hundreds of samples can be analyzed in a few hours, where other methods take anywhere from 12 to 48 hours for the same number of samples.

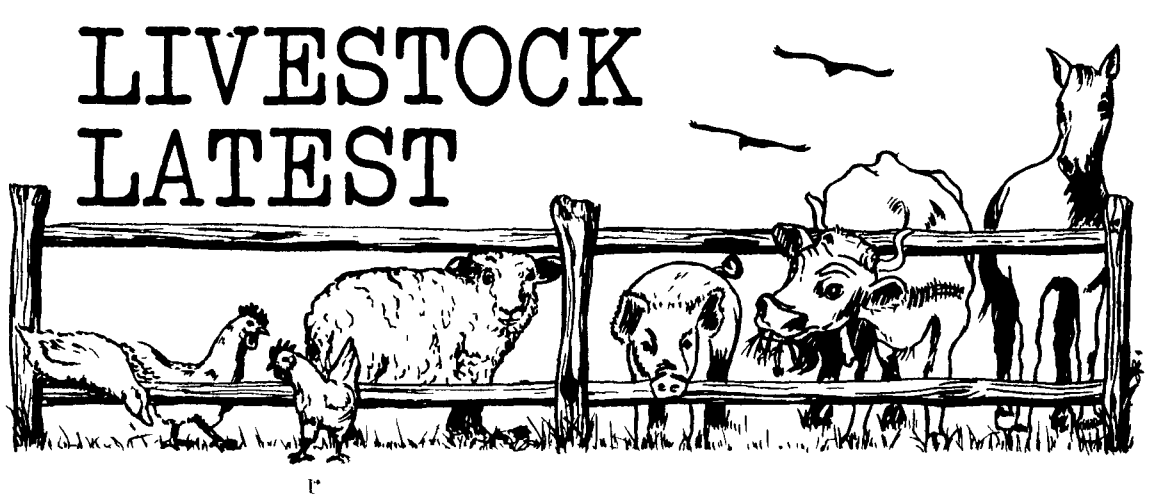
"Finally, it appears ELISA can detect antibodies against avian influenza earlier in the disease's life cycle in a bird than the conventional detection methods," Snyder added.

Laboratory and field tests showed that ELISA could detect antibodies against avian influenza as few as eight days after a bird became infected. One conventional method did not detect avian influenza until 21 days after inoculation with the disease. Another failed to detect infection for 35 days.

Most animal disease experts agree that failure to detect avian influenza early enough played a significant role in the final destruction of more than 14 million birds in the mid-Atlantic region.

Says Snyder: "The most often-used method of detection is so insensitive to the disease that it may have lulled the poultry industry into a false sense of security."

By the time anyone knew what was infecting flocks, it was too late. The disease was too widely spread, according to Snyder.



Cornell breeding system boosts lamb production

ITHACA, N.Y. — A new lambing system developed by animal scientists at Cornell University has the potential to dramatically increase production of this seasonal meat. This meas more profit potential for farmers; for consumers, it means the possibility of high quality, lean lamb year round.

"The system has the potential of boosting lamb production per ewe by as much as 67 percent," says Brian Magee, the initator of this new "accelerated lambing system."

Another major advantage of this system for sheep farmers is that five lamb crops can be managed in a yearly cycle. Thus, the cash flow from a sheep enterprise could be made constant.

Nicknamed "Star", the new method calls for dividing the year into five, 73-day intervals. On a round calendar, the five starting dates represent five points to form a star shape, hence the nickname, Magee explains.

The Cornell method is ready for adoption by sheep farmers throughout the world who have the feed, labor, and adequate housing for sheep during harsh weather in order to profit from accelerated lambing.

Magee is manager of the sheep barn at Cornell's Animal Science Teaching and Research Center in Harford, New York. He and Douglas Hogue, professor of animal science in the New York State College of Agriculture and Life Sciences at Cornell, developed the new lambing method using Dorset and Finnsheep.

Here is how the new system works. Ewes lambing during January (the first 30 days of the 73-day interval) are separated from their lambs in early March and exposed to a ram between mid-March and mid-April, early in the second 73-day interval. These ewes than could lamb a second time within a 12 month period. Meanwhile, other portions of the flock breed and lamb on a staggered schedule.

Under the Cornell system, each ewe has a chance to produce five lamb crops in three years, two more than the traditional once-a-year lambing.

"Increased production efficiency and year-round marketing of lamb should improve the quality of lamb at a reduced cost," Magee says.

Another advantage of this new management system is that it allows farmers to make better use of their hay crops in the fall because ewes not in breeding can feed on the hay. Traditionally, the last regrowth on hay fields is not harvested because in addition to being too cool and damp to be bailed, the estrogenic compounds in this feed may suppress fertility during fall breeding. With the "Star" system, lactating ewes and weaned lambs being raised for market can graze on this nutritious feed.

"Undoubtedly, some ewes in any flock have such long anestral periods — cycles of infertility — that they will not lamb on any accelerated schedule, but don't count your flocks out until you have tried the 'Star' system," Magee says.

He adds: "Careful attention to a few important details of feeding, breeding, and management will go along way toward releasing the tremendous production potential of sheep."

Larvadex emergency exemption withdrawn

HARRISBURG — State Agriculture Secretary Penrose Hallowell recently announced that the Environmental Protection Agency has notified him that the emergency exemption granted to Pennsylvania for use of Larvadex by poultry flock owners has been withdrawn.

The state Agriculture Department had requested and received approval from EPA for the emergency use of Larvadex premix as a poultry feed insecticide to control flies, which are transmitters of the avian influenza virus. The use has been permitted in the following counties: Adams, Berks, Chester, Cumberland, Dauphin, Delaware, Franklin, Lancaster, Lehigh, Montgomery, Northumberland, Perry, Schuylkill and York.

Hallowell said that as a result of the EPA action, the shipment, sale and use of Larvadex as a poultry feed additive in Pennsylvania would be halted. He advised poultrymen that unopened containers of the product may be returned to the dealer from which they were purchased or returned to the manufacturer.

Pork Prose

by
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Turn-Around Crates For Sows

Folks associated with the swine industry know what a gestation crate is-a device that saves both labor and feed by restricting movement of the sow. She can stand up, lie down, eat and sleep, but little else.

We're also aware that some people, many who aren't associated with the hog industry, are questioning the use of gestation crates They wonder if we're depriving a sow of a behavior need by putting her into a crate.

J. M. McFurlane and S. E. Curtis at the University of Illinois, have been conducting experiments with a special "turn-around" crate to learn if turning around is a preference of confined gilts.

They are using two sizes of crates in the study. At one end, the crates widen to 44 to 48 inches and at the other end they taper to a point. The center sections are either 22 or 24 inches wide. So they're similar to conventional crates, except that gilts are permitted to turn with a minimum of effort.

To be sure that the "view" from either end of the crate was equal during the study, the scientists surrounded all sides of the crates with black plastic. And they offered feed and water in one of four ways:

-Feed and water at the wide end.

-Feed and water at the narrow end.

-Feed at the wide end, water at the narrow end.

-Water at the wide end, feed at the narrow end.

What did they learn from this study? Given the chance, gilts turn around a lot–almost 12 times a day on the average. And when placed in the wider crate (25" wide at the center), gilts turned more often than those in the 22-inch crates.

When the feed and water were located at opposite ends of the crate, it was clear that the gilt would have to turn around sooner or later. But gilts in this study turned around just as often when feed and water were at the same end.

The direction a gilt faced had nothing to do with what her neighboring gilt was doing.

In short, gilts will turn around for no obvious reason. This means that turning around might be a behavior need in the pregnant gilt.

Will turning around have any effect on production? So far, no data has been collected at Illinois to answer that question.

At first glance these behavior experiments might seem to be of little value. But the fact is, we know very little about pig behavior. We need this kind of information. Knowing more about what makes a pig tick will make you a better manager. And it could be our "ace-in-the-hole" if the animal welfare movement really gets a grip on our Congressmen.

Growth hormone may increase carcass quality

LUBBOCK, Tx. — The meat of the future will be leaner, but meeting that goal will not be easy, stated Dr. Rick Olsen at the Reciprocal Meat Conference held recently at Texas Tech University.

"To the consumer, less fat will mean a more acceptable and perhaps healthier product that will require less trimming and cost less," said Dr. Olsen, a researcher in the Reproductive and Growth Physiology Unit of The Upjohn Company. "For the livestock industry, meanwhile, it will mean that animals will require less feed with resulting lowered feed costs and lessening demands for feedstuffs potentially available for feeding the human population."

Dr. Olsen continued to cite literature which suggests that the use or manipulation of growth hormone (GH) levels in domestic livestock may beone way to effectively reduce the amount of fat in a carcass while maintaining weight gain and generally increasing protein gain.

"While available data indicate that treatment with GH is an effective way to stimulate carcass protein and decrease carcass fat, there are some problems in doing so: lack of conclusive evidence, economics, negative incentive provided by the grading/pricing system and difficulties in delivering GH to the growing animal. All of these problems need to be addressed before the use of GH is feasible in the animal industry," Dr. Olsen reported.

"In spite of the problems, researchers and producers need not assume that GH will never become a vital part of the industry. It is possible that the research should focus not on GH alone, but on compounds which stimulate GH secretion. The most obvious candidates – growth hormone releasing factors – are gaining interest now in the research field, and seem to have greater potential."

Dr. Olsen explained that research conducted with growth hormone releasing factors (GRF) has indicated that GRF has potential benefits over GH such as the possibility of lower production costs and higher potency, but that many of the same problems encountered for GH also exist for GRF.

"While the prospects for growth hormone releasing factors are somewhat brighter than for GH, overcoming the research and development challenges will require enthusiastic acceptance of the challenges and innovative solutions," Dr. Olsen concluded.