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State researchers tout bird flu vaccine hopes

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Scientists at Auburn University and the Birmingham biotechnology company Vaxin Inc. have created an avian flu vaccine that can be rapidly produced and applied to help prevent the devastation of chicken flocks in Asia and protect the poultry industry in Alabama, authorities said Tuesday.

Final testing and approval from the U.S. Department of Agriculture still are pending. But the potential is so great that an official said Vaxin representatives are traveling to Asia in two weeks to discuss producing the vaccine in that region of the world, where deadly outbreaks of bird flu have become common.

"We are talking about licensing the vaccine to a number of Asiatic countries right now," said Kent Van Kampen, CEO and president of Vaxin. "They're very excited about it."

Van Kampen said the new vaccine - produced with Auburn poultry expertise and Vaxin genetic engineering- offers significant advantages over existing bird flu vaccines. The improvements include:

Faster production. Many existing vaccines require replicating viruses in egg embryos, but the new vaccine is produced with a manufacturing process that uses tissue cultures, which cuts time and adds quantity.

Quicker delivery to flocks. Existing vaccines require injections into each chicken. The new vaccine can be injected directly into eggs at a rate of hundreds of doses a minute using robotic machines that already exist for delivering a vaccine against Marek's disease.

Better detection of sick birds. Existing vaccines create an immune response that is so similar to a real infection, it's hard to tell the difference between birds that have been infected and birds that have been vaccinated. The new vaccine will allow producers to make this determination, and cull flocks instead of destroying them.

New science:

Many traditional vaccines are made by killing or weakening a virus and injecting it to stimulate the immune system, which produces antibodies against a disease. That response provides protection against the virus and prevents illness.

The new vaccine was created by inserting a gene from an avian flu virus strain into a harmless, non-replicating virus that causes colds in humans. The approach also stimulates an immune response. As bird flu viruses constantly mutate, new vaccines can be designed in a lab and be ready within a few months.

Dr. Haroldo Toro, a doctor of veterinary medicine at Auburn, said testing has shown this new type of bird flu vaccine works well when properly targeted. Key research on the vaccine will appear in an upcoming issue of the scientific journal Vaccine.

"The protection is extremely good," Toro said. "We have proven the principle, which is the major step in leading to commercially produced vaccine that could be vital to the poultry industry."

Bird flu has devastated poultry flocks in Asia in recent years, and occasionally killed humans who have come in contact with infected chickens, ducks and turkeys. U.S. health officials are monitoring chicken flocks and migratory birds that might bring a highly pathogenic form of the disease, tagged H5N1, into this country.

The existing policy for dealing with a serious outbreak in the poultry industry would be quarantine and destruction of infected flocks. Quick vaccination around a quarantined area could help contain an outbreak, Toro said.

The United States also could produce vaccines for different strains of bird flu as they crop up around the world, and have them in reserve in case of an outbreak in America, Toro said.

All this is of vital economic interest to Alabama, a state that produces 27 million broilers a week.

Toro's research was funded through a USDA program. It also involved the Southeast Poultry Research Laboratory in Athens, Ga.

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