

FOREIGN ANIMAL  
DISEASE REPORT

## ADENOVIRUS 127 - SURVEY

Early in 1978, officials of Ireland notified the U.S. Department of Agriculture (USDA) that researchers at Belfast have isolated an adenovirus (adeno 127) associated with drops in egg production in laying flocks of chickens. The disease occurred in flocks hatched from eggs imported from continental Europe. Since 1973, the United States has permitted under certain conditions the importation of hatching eggs from countries not known to be free of viscerotropic velogenic Newcastle disease to enhance bloodlines.

In 1978, a program to survey and test U. S. flocks containing birds hatched from imported eggs was established. The same year, the import requirements of the United States were adjusted to require testing of the parent flock. Twenty-five percent of the birds in the flock over 30 weeks of age must be tested and found free of adenovirus (adeno 127) antibodies before the eggs are allowed entry into the United States. At about the same time, a program was established to survey and test U. S. flocks hatched from imported eggs. On May 4, 1978, during the survey, a breeding flock hatched from imported eggs was serologically sampled. Two of the 220 sera had hemagglutination inhibition (HI) antibodies to adenovirus 127. The birds from the houses with positive titers were resampled on June 15, 1978. Again, some of the birds had some antibodies to adenovirus 127. Twenty-six birds were sent to Plum Island Animal Disease Center (PIADC). Four birds were bled, necropsied, and tissues submitted to the National Veterinary Services Laboratories (NVSL). No antibody or virus was detected from sera and tissue submitted to NVSL. PIADC reported to Veterinary Services on August 18 that a virus had been isolated from one of the birds having an antibody titer of 1:8. As a result, the following occurred:

1. The flock owner and the State officials were notified of the virus isolation.
2. Subsequently, PIADC reported that a virus similar to adenovirus 127 was isolated and reisolated from two different birds.
3. All birds from the flock in question were slaughtered. Samples were collected at the processing plant and sent to National Veterinary Services Laboratories (120 sera, 120 sets of tracheal and cloacal swabs, and 55 sets of tissue). No antibody or virus was detected. Flock records were reviewed. No evidence of production problems was identified.
4. Progeny of the breeding flock in question has been sampled, with 82 sera from 4,000 progeny showing no evidence of adenovirus 127 HI antibodies when screened at 1:10.
5. The two commercial egg flocks which had reported egg production problems were investigated and resampled. No evidence of adenovirus 127 was noted.
6. Sera from migratory waterfowl were collected.
7. A virus isolated from ducks in Missouri was sent to PIADC for further characterization. Chickens have been inoculated to produce antisera to the duck isolate. The duck isolate has been evaluated by inoculating it into layers at the Southeastern Poultry Research Laboratory in Athens, Georgia. The layers were not affected and egg production and quality remained normal.



8. National Veterinary Services Laboratories are producing inactivated adenovirus 127 antigen and reference serum and will provide them to diagnostic laboratories on request.
9. Some large commercial duck flocks were found to have antibody to adenovirus 127.
10. The sera from migratory waterfowl have a very low frequency of antibody to adenovirus 127.
11. Two additional isolations of a virus similar to adenovirus 127 have been made from commercial duck flocks from California and New York.

#### Summary

A survey was carried out on flocks in the United States hatched from imported eggs. A low level of antibody was determined in a breeding flock during this survey. Positive-titered birds were sent to PIADC and NVSL. A virus similar to adenovirus 127 was isolated and reisolated from two different birds at PIADC. There is no agreement among scientists as to the significance of low HI titers in chickens and flocks in the United States, since most of the infected flocks in Europe were associated with much higher titers.

Since no clinical signs were noted in the flock, no virus or antibody was detected in the rest of the flock or in progeny of the flock, and no drop in egg production was noted; the virus isolate is considered avirulent and not a significant risk to the U.S. poultry industry.