

## UNIVERSITY OF CALIFORNIA

### Pigeons and Exotic Newcastle Disease

On October 3<sup>rd</sup>, 2002 exotic Newcastle disease was diagnosed in a poultry flock in Southern California. This disease causes serious illness and death in most bird species. Pigeons can be infected with exotic Newcastle disease virus, and when infected, they will show clinical signs, such as depression, diarrhea, and sudden death. Like infected chickens and turkeys, all ages are susceptible and can experience very high mortality (up to 90%). There is some confusion over the relationship between pigeon paramyxovirus and Newcastle disease virus. Currently, we know that they are very closely related but not identical (for additional information on pigeon paramyxovirus and Newcastle disease see *Twins or Cousins—Paramyxovirus type 1 of Pigeons and Fowl*, California Poultry Letter, Mar/Apr 2001, <http://animalscience.ucdavis.edu/Avian/cplbackissues.htm>). Vaccination for either Newcastle disease or paramyxovirus will not protect pigeons or other birds from either becoming infected with the virus or showing the clinical signs of Newcastle disease.

Pigeon lofts experiencing excessive mortality should immediately seek veterinary advice, submit birds to a local diagnostic laboratory, and stop all human and bird traffic in and out of suspect lofts. At this time, there is no evidence that pigeons are involved in the current disease outbreak in California although the investigation is not yet complete.

### **Twins or Cousins--Paramyxovirus Type 1 of Pigeons and Fowl**

Dr. Joan Jeffrey, University of California, Davis presented a talk on Paramyxovirus type 1 (PMV-1) or Newcastle disease virus. Dr. Jeffrey relayed the diagnostic challenge that exists for differentiating pigeon paramyxovirus (PPMV-1) from Newcastle disease virus which is also a paramyxovirus type 1. Newcastle virus has a worldwide distribution and affects most bird species. It is a common virus of chickens and turkeys that can cause anything from mild respiratory disease to deadly infections with high mortality in 24 hours. These would be called low pathogenic and highly pathogenic viruses, respectively.

California suffered from an outbreak of highly pathogenic NDV in 1971, which had devastating effects on the California poultry industry. Vaccination of commercial poultry against NDV is almost universal, but it cannot protect against highly pathogenic strains of the virus. Dr. Jeffrey showed that depending upon which diagnostic tests are used PPMV-1 and ND virus may appear alike. A standardized test, called the intracerebral pathogenicity index (ICPI) is one of several tests that are used to gauge the pathogenicity of paramyxoviruses. Both PPMV-1 and highly pathogenic Newcastle viruses rank greater than 0.7 on the ICPI test. Dr. Jeffrey pointed out that this could raise concerns about the protection of commercial chickens and turkeys (with the vaccination programs currently used). She quoted a study performed by J. Gelb *et al.* that tested the ability of pigeon viruses to harm chickens vaccinated with B1 Hitchner and LaSota strains of NDV (the most commonly used strains for vaccination). This trial showed complete protection against the pigeon PMV-1 viruses with ICPI scores of 0.84 or above.

Dr. Jeffrey relayed that the danger of PPMV-1 to U.S. poultry producers was in affecting the ability of the industry to export products outside of the USA. Currently, rules are pending approval by the International Organization of Epizootics (O.E.I.), for determining what is considered a highly pathogenic PMV-1. The O.I.E. is a group made up of over 200 member nations, that makes international rules aimed at preventing the spread of dangerous diseases across international borders. The O.I.E. has stated that any PMV-1 virus with an ICPI of greater than 0.7 will be considered a highly pathogenic virus. Any country that identifies such a virus will be subject to export bans. Dr. Jeffrey concluded that pigeon PMV-1 and Newcastle disease virus are related, but appear to have differences in disease-causing potential for commercial poultry. The problem is, that if they are judged by the ICPI test, pigeon PMV-1's could have a negative impact on the export of all poultry products from California and the U.S.A.