California ND – a challenge to control

Over the past nine months the South West of the USA is fighting against the velogenic viscerotropic Newcastle disease with relative success.

New outbreaks have been found even further away from the initial source. An update.

By Dr Simon M. Shane, Durham, NC, USA.

The outbreak of (vND) in Southern California has continued for nine months since initial recognition of the infection at the beginning of October 2002. The disease was first diagnosed in a backyard flock in suburban Los Angeles and the virus was verified as a velogenic strain exotic to the USA by the National Veterinary Services Laboratory in Ames, Iowa. In accordance with OIE regulations, the Agency was informed of the characterization of the virus, resulting in embargoes against US breeding stock, eggs and poultry meat by most of the Pacific Rim countries and a few trading partners in Latin America. Most of these restrictions have subsequently been lifted, applying the principle of regionalization, confining the embargo to California and the adjoining states of Arizona and Nevada.

Game fowl (fighting cocks) and in-contact non-commercial backyard poultry represent the focus of infection. The outbreak extended rapidly from east of Los Angeles and is concentrated at the convergence of San Bernardino, Riverside and Los Angeles counties (see Map). In total, six counties have reported cases of vND and eight southern California counties have been quarantined, in addition to one county each in Nevada and Arizona.

Backyard to commercial units

Inevitable extension of infection from backyard farms to a commercial unit occurred in mid-December 2002 with confirmation of an outbreak on an egg-production farm on December 21. The affected flock of 100,000 egg-producing hens was depleted, but this was followed immediately by an outbreak in a unit with one million hens. Additional commercial flocks were diagnosed in subsequent weeks and by mid-January 1.7 million birds, predominantly commercial egg flocks, had been depleted. At the beginning of April, 22 units with over 3.2 million hens had been destroyed, with compensation to owners based on fair-market value.

A state of Extraordinary Emergency was declared in Southern California on January 6th and Federal involvement was initiated thereafter. At the beginning of April 2003, almost 1.5 million Federal and State workers were involved in surveillance and eradication, with over 2,500 premises diagnosed with vND. Over 15,000 privately owned backyard flocks have been quarantined in an attempt to prevent dissemination of the infection by movement of birds.

In 1971, the United States Department of Agriculture – Animal and Plant Health Inspection Service expended $35 million over a two-year period to eradicate vND in backyard and commercial egg-production flocks in Southern California. The current campaign involves the same principles of detection, depletion and disinfec tion with re-stocking after demonstration of freedom from infection using sentinel chickens. Unfortunately, this approach is flawed by the reality of an endemic focus of vND virus among the estimated State population of 500,000 game fowl, comprising breeders and fighting cocks. Owners of these birds are extremely secretive in their activities that border on the illegal, and place a high value on their stock. Accordingly, there is a high degree of evasion of the quarantine, as evidenced by outbreaks in Nevada and Arizona. It is anticipated that additional outbreaks may occur in other areas as a result of clandestine movement of birds consistent with the realities of the game fowl fraternity.

Result of illegal imports

According to preliminary research, the virus is similar to a strain of vND endemic to Mexico and it is presumed that the virus was introduced by illegal importation of birds. If the disease is in fact endemic in the population of game fowl spreading over the eight quarantined counties, detection and depletion required for eradication would be unachievable, negating the 1971-73 approach to eradication. Deficiencies in biosecurity among the commercial poultry units supplying the metropolitan areas of Southern California, extending from San Diego northwards to Santa Barbara, will continue despite superficial measures to exclude infection. Commercial farms with over one million hens, ranging in age from 16 through 150, weeks are inadequately fenced, frequently located adjacent to major roads and are vulnerable to wind-borne infection. Few of the units...
have installations to decontaminate workers, many of whom have close contact with backyard poultry. Feed mills supplying integrated operations and independent farms do not have facilities to adequately decontaminate delivery vehicles, resulting in possible transmission of infection.

The lack of investment in both structural and operational biosecurity over the past 30 years, as evidenced by the emergence and spread of low-pathogenicity H6 strain avian influenza starting in 2000, has contributed to the current outbreak of vvND. Destruction of 3 million commercial hens has resulted in an imbalance of supply and demand in the region and a consequential escalation in the price of eggs from approximately $1.50 per dozen at retail prior to the outbreak to as much as $2.50/dozen at the beginning of last April. This has resulted in transport of both graded and nest-run eggs from the Midwest and other regions with surplus eggs. Although common carriers transport eggs using non-returnable packaging, there is always a possibility of transmission of infection to other regions in addition to movement of personnel to and from Southern California. One national producer with over 6 million hens operates on the Eastern Seaboard, the Midwest and in Southern California, attesting to the risks of extending the infection to other areas.

"Exotic" is a misnomer

A number of poultry practitioners and epidemiologists, not connected with the State or Federal taskforce, hold that the current program is a campaign of attrition since it will be impossible to eradicate vvND with an existing endemic focus in game fowl and backyard poultry. The term “exotic Newcastle disease” (END) as applied to the current outbreak is in fact a misnomer, and reflects official policy on control and eradication control. Veterinarians with experience in prevention of vvND in countries where the disease is endemic recognize the value of extensive and thorough immunization of flocks. The initial objective should be to reduce the proportion of susceptible poultry in the population to below the outbreak threshold and then to further lower the number of non-protected birds to below the endemic threshold. Both effective vaccination and a high level of biosecurity in commercial operations are essential to control viral diseases with a potential for catastrophic mortality in susceptible flocks.

The continued expenditure of funds on an endless eradication program will eventually bring the authorities to the realization that total eradication is impractical and an unattainable goal. Redirecting their efforts to intensive immunization of both backyard and commercial flocks will bring to an end to outbreaks of clinical Newcastle disease quicker than an ineffective eradication program. A more balanced approach will ultimately eliminate infection, provided that backyard and fighting cock populations are not expanded by illegal imports of infected birds from beyond the borders of the United States. This anticipation may not be valid based on the isolated case of vvND diagnosed in a single backyard flock in El Paso County, Texas on April 9th, 2003. This event is not related to the ongoing outbreak in California but represents a new introduction, given the proximity to Mexico and the extensive movement of workers from this country. Prompt eradication of the affected flock and imposition of a quarantine extending over five neighbouring counties in Texas and adjoining New Mexico should prevent extension from the index case.

Denver to host 13th World Poultry Veterinary Congress

The World Poultry Veterinary Association (WVPA) will hold their 13th World Congress from July 19-23 in Denver, Colorado, USA. The event will focus on a number of important issues.

Over the past years the poultry industry is increasingly suffering from highly infectious diseases. Aside from antibiotic resistance problems and the ban on antibiotics, veterinarians are confronted with ever more clever viruses and bacteria. Their activities raise a growing number of questions on how to keep flocks healthy and produce safe poultry products.

The ongoing Newcastle Disease problem in the South West of the USA is one example, while the Avian Influenza outbreaks in the US and Europe indicate that the intensive manner in which poultry is being produced is causing enormous losses. Is there an answer to these problems? The gathering of the world top researchers could be the platform to provide some solutions.

The 13th Congress of the WVPA, in conjunction with the 140th Annual Convention of the American Veterinary Medical Association, will be held at the Colorado Convention Center in Denver.

For more information and registration contact: American Association of Avian Pathologists, 382 West Street Road, Kennett Square, Pennsylvania 19348-1692, USA. Tel: +1 610-444-4282. Email: aaap@vet.upenn.edu Web: www.aaap.info

The program includes:

- Houghton Lecture
  Dr Vladimir Zelnik, Institute of Virology, Bratislava, Slovakia
- Viral Respiratory Diseases of Poultry
  Dr David Swayne, USDA, Southeast Poultry Research Laboratory, Athens, Georgia, USA
  Dr Richard J. Jones, University of Liverpool, Liverpool, UK
- Enteric Diseases of Poultry
  Dr YM Saif, Ohio State University, Wooster, Ohio, USA
  Dr David Chapman, University of Arkansas, Fayetteville, Arkansas, USA
- Mycoplasmal and Bacterial Diseases of Poultry
  Dr John Glisson, The University of Georgia, Athens, Georgia, USA
- Neoplastic Diseases of Poultry
  Dr Richard Witter, Avian Disease and Oncology Laboratory, East Lansing, Michigan, USA
- Immunity and Immunosuppressive Diseases of Poultry
  Dr Jagdev Sharma, University of Minnesota, St. Paul, Minnesota, USA
- Developmental, Nutritional, and Metabolic Disease of Poultry
  Dr Kirk C Klausing, University of California, Davis, California, USA
- Food Safety and other Contemporary Industry Concerns
  Dr John Maurer, University of Georgia, Athens, Georgia, USA
  Dr Paul McMullin, Poultry Health Services, North Yorkshire, UK
- New Concepts of Management and Disease Control in Poultry
  Dr John Smith, Fieldale Farms Corp., Baldwin, Georgia, USA
- Emerging and Endemic Diseases in Developing Countries
  Dr AA Sami Ahmed, University of Alexandria, Alexandria, Egypt
- Lasher History Lecture
  Dr Peter M Biggs, St. Ives, Cornwall, UK