

AVIAN INFLUENZA IN CHILE: A SUCCESSFUL EXPERIENCE

VANESSA MAX, JOSÉ HERRERA, RUBÉN MOREIRA, AND HERNÁN ROJAS

Servicio Agrícola y Ganadero (SAG) - Livestock and Agricultural Service from Chile

Avian Influenza (AI) was diagnosed in May of 2002 for the first time in Chile and South America. The epidemic was caused by a Highly Pathogenic (HPAI) virus subtype H7N3 that emerged from a Low Pathogenic AI (LPAI) virus. The index farm was a broiler breeder, located in San Antonio, V Region, which at the time was a densely populated poultry area. Stamping of 465,000 breeders in 27 sheds was immediately conducted. Surveillance activities detected a second outbreak, one week later, at a turkey breeding farm from the same company. The second farm was located 4 km of distance from the index case. Only 25% of the sheds were infected, and 18,500 turkeys were destroyed. In both outbreaks, surveillance zones and across the country control measures were put in place.

The most effective way to control an outbreak of HPAI is to take appropriate control measures immediately, working with full commitment of all stakeholders and interested parties. The description of the epidemic in Chile and control measures that prevented further spread is described in this article. This report points out the importance of combination of control measures during and after an outbreak of AI.

After stamping breeders on two farms (Table 1), the national emergency plan was immediately put into effect. An emergency team and office of Livestock and Agricultural Service from Chile SAG was settled near the outbreaks to control them and prevent further spread in accordance with the Main Emergency Plan. Two restriction zones were established with movement control, census of poultry population and clinical and serological surveillance among other activities. Nationwide surveys were conducted to evaluate potential further spread of the Avian Influenza (AI) virus.

Surveillance testing during the outbreak included enzyme-linked-immunosorbent serologic assay (ELISA) the first week after the outbreak and later Haemagglutination Inhibition (HI), Agar Gel Immunodiffusion Test (AGID) and Virus Isolation. Positives samples were sent to reference laboratories of AI (National

Veterinary Service Laboratories - NVSL [Ames, Iowa] and Veterinary Laboratory Agency - VLA, Weybridge). At the end of the outbreak, the Real Time Polymerase Chain Reaction (RT-PCR) technique was available in the official laboratory of SAG. The complete depopulation in the index farm occurred during the 1st and the 8th of June and the affected sheds of the second farm were depopulated between 15th and 19th of June. All sanitary actions recommended by the World Organization for Animal Health (OIE) were applied and no more outbreaks of AI were reported in Chile.

The outbreak of HPAI in Chile during 2002 was controlled quickly, even though SAG had no experience in controlling AI epidemic. The risk factors recognized for the introduction and spread of AI virus can be controlled when early diagnosis, preventive quarantines, animal movement restrictions and strict biosecurity measures are adopted.

Conclusions from the HPAI Chilean outbreak include:

1. **If HPAI is detected early, it can usually be controlled.** Quarantines were put into practice as soon as the disease was detected in both farms. Measures included movement restrictions, continuous official supervision, testing samples in national and reference laboratories as well as notifying the disease to the OIE and commercial partners.
2. **HPAI can be controlled if there is correct leadership from the veterinary service and close working between the stakeholders and other involved parties.** The most effective way to control an outbreak of HPAI is to take appropriate control measures immediately, working with full commitment of all stakeholders and interested parties. After a disease causing high mortality was notified to Livestock and Agricultural Service from Chile (SAG) on the 23rd of May, the national emergency plan was immediately put into effect.
3. **Stamping out of AI virus immediately after the detection and cleaning and disinfection procedures were the correct sanitary measures and prevent shed of the virus.** Stamping out policy was carried out in both outbreaks destroying 465,000 broiler breeders, 18,500 turkey breeders and 116,000 hatchery eggs.
4. **Strict biosecurity measures avoid further spread of AI virus.** An emergency office was set up in the V Region. National and regional campaign chiefs were assigned. Working teams were in charge of several activities including: biosecurity, surveillance, risk communication, epidemiological investigation and database management. An emergency team and office of SAG was settled near the outbreaks to control them and prevent further spread in accordance with the Main Emergency Plan.
5. **Detailed schedule of activities helps to evaluate the activities as well as a good tool to work at farm and national level.** Stamping out, cleaning, disinfection and to detect silent infection of the virus was agreed between private industry and the veterinary service. A detailed work calendar was made. Silence activity of the virus was assured with serological test of sentinel broilers and turkeys in both affected farms. All the control measures were conducted according to the calendar activities. Chile was declared officially free of AI before seven months after the detection of the virus.

Table 1. Number of deaths, total number of birds, and mortality rate by date in the index case farm (Chile, 2002).

Date	No. of deaths	Total no. of birds	Mortality rate
March 25–31	1046	494,780	0.21
April 1–7	1242	493,615	0.25
April 8–14	1544	492,249	0.31
April 15–21	1198	515,342	0.23
April 22–28	1043	514,194	0.20
April 29–May 5	938	513,321	0.18
May 6–12	2681	511,941	0.52
May 13–19	12,403	528,633	2.35
May 20–26	86,831	500,139	17.36
May 27–31	51,266	445,140	11.52