

## AVIAN INFLUENZA COMMENT: H7N3 AND H5N1

British Columbia experienced an Avian Influenza outbreak in 2004. Some 17 million mostly broiler (eating) chickens had to be either culled or depopulated (i.e. they went for human consumption if they tested negative, saving the government compensation dollars) to bring it under control.

I am a practicing physician, researcher and breeder of endangered Gyr and Saker falcons. My moderate sized project came through the Fraser Valley epidemic without a scratch, indeed most exotics escaped “depopulation” which was really aimed at BC’s \$1 billion dollar a year poultry industry. My breeding project is/was both biosecure and genetics rare and close to irreplaceable. I believed I would probably have been exempt from any proposed slaughter unless AI occurred within 3 Km radius of my property.

The inept, incompetent, unscientific handling of this crisis has so appalled me that I feel compelled to write this. My criticisms “slag” just about everyone concerned: Not sparing the Provincial and Federal Ministries of Agriculture as well as BC’s Poultry Industry. I originally felt it prudent sit on these opinions, as my operation is dependent on Provincial and Federal sanction. My dealings with the various government agencies have always been polite and civil. They were unprepared “virgins” in so far as they had never been confronted with a similar outbreak before. I gave testimony at the Canadian Parliamentary Standing Committee on Agriculture hearings in Abbotsford 19 Jan. 2005, which was both very interesting and informative. The CFIA (Canadian Food Inspection Agency a branch of the Federal Ministry of Agriculture) which had the lead role in all of this was roundly criticized and really only interested in damage control. The opinions expressed here with 20/20 hind site are my own and are intended to be constructive.

## DATE/TIME LINE

This Avian Influenza outbreak started 19 Feb. 2004 in a Sumas Prairie, Abbotsford Broiler breeding chicken farm, located in BC’s Fraser Valley, about 50 miles east of Vancouver. In retrospect it could and should have been stopped there. There was bad miscommunication from the very start as the first farm tested were not informed that they had tested positive and consequently went about their business normally for a further week including sending their birds off to market, bringing in teams of “catchers and “barn cleaners to further disseminate the virus. Initially this was a mild strain but soon mutated into more highly pathogenic (for chickens that is) H7 form. This mutation took place in the first barn because the CFIA took an interminably long 6 weeks before this flock was culled because their administrative structure and dissemination of information was unbelievably bureaucratic and convoluted. The testing had to first be tested, retested, tested again to confirm. The Federal and BC Provincial Ministries of Agriculture eventually sorted out their problems. Especially important was the development of a PCR (Polymerize chain reaction) test, which was both quick and accurate. Eventually the testing backlog was very satisfactorily addressed.

The Avian Influenza virus was initially thought to be very fragile and unlike human influenza could not be readily aerosol spread. Surprise, surprise when the chickens were culled outside the virus was carried a few kilometers by the prevailing wind to an adjacent farm and so on. Ultimately some 40 farms and 10 back yard flocks were infected, most were commercial broiler chicken operations

BC's H7 variety was not a danger to humans, causing at worst sniffles and/or mild pink eye in a couple of workers. The Asian H5N1 strain can be very lethal to humans and some animals, and has killed to date close to 100 people all of whom have come into very close contact with infected birds. Public health fears are of further mutation into a strain that can be easily passed from human to human, then watch out. This fear underlies Governments draconian actions, especially with memories of SARS havoc in Canada so fresh. Frantic work is taking place to quantity produce an H5N1 vaccine for both poultry and humans. The best protection to date is Tamiflu, which can be improved with Probenicid (Benemid)

I'll digress because I believe there are important differences between BC's H7 outbreak and the H5 strain that is sweeping Asia, Africa and Europe. Just as Mad Cow (variant Jakob Creutzfeld disease caused by a virus like organism called a preon) is caused by inappropriate feeding of infected carcasses to cattle, somewhat similarly poultry industry practices are likely largely responsible for BC's recent H7 outbreak and therefore by extrapolation its consequences.

Viruses like Foot and Mouth, Newcastle and Avian Influenza can at present only be controlled by a scorched earth depopulation policy.

Every infectious disease has an incubation period. Agricultural virologists confirm that for Avian Influenza is 3-7 days. The CFIA chief virologist in Winnipeg, Manitoba told me that it took 3 days for chickens injected with infected blood to develop a positive PCR (in their level 4 secure Lab facility of course). CFIA practice was to test 60 birds in each flock with throat and cloacal swabs and if PCR negative then next morning these birds were released to be allowed to be taken to market. There could not be a 100% assurance that they were not in fact incubating Avian Influenza as they were released to go to the processing plant only 12 hours after testing.

Even worse, any country boy will confirm that chickens are the messiest eaters imaginable and only a small proportion of their food actually goes down their throat, while most of it gets tossed around ending up with their droppings on the floor. The day after the Chicken Catchers have come in, the Barn Cleaners arrive and the manure from the floor is released for spreading on the fields. It is generally acknowledged that Avian Influenza virus can live for 3 months in manure. Wild birds in great abundance, crows, and seagulls' starlings follow the spreader and feast on the food contained therein. Again, it is quite possible that this is full of incubating Avian Influenza virus.

The BC Broiler Chicken industry practices are dependent on use of traveling teams of “Chicken Catchers”, who descend on a poultry farm about once every 42 days. The following day a team of “Barn Cleaners” arrives. These people are paid little more than the minimum wage for doing one of the most revolting jobs imaginable. They travel from farm to farm. I believe they are very likely carriers. Shower facilities must be mandated and their clothing should be incinerated on that same farm. The tightest possible Biosecurity is the key. I’ve found that reasonable biosecurity was a chore initially but not too onerous once you get used to it.

What to do with infected chicken carcasses? Here is a story of what NOT to do. The Fraser Valley is bordered by mountains to the north; by mountains and the US border (48th Parallel) to the south and the Pacific Ocean to the west. While bird owners were forbidden to take their birds beyond their farm gate The CFIA had the infected chicken carcasses trucked to Cache Creek landfill 100 miles outside the control area or similarly to a Princeton mine 50 miles closer. When these communities refused to accept them, these infected culled birds from the “hot zone” were trucked to Richmond 50 miles west of Abbotsford, where the refrigeration broke down and leaked liquid chicken from the Reefer trucks. They should have been incinerated on site but because of problems they were composted off site. To do this off site is also dumb. Needless to say Abbotsford suffered a Fly epidemic of near biblical proportions that summer. Composting works of course but this was a very inferior way to do it.

I believe that the CFIA, The Federal Government Authority trying to manage this emergency handled things poorly from the outset. In defiance of basic public health principles they tried to contain this epidemic from the inside out when they should have tested from the periphery inwards to establish the extent of the spread and then cull, if necessary, the birds in the center.

The Netherlands had experienced a 2003 Avian Influenza outbreak (incidentally one veterinarian died there). According to our press the Dutch offered help and advice resulting from their experience, which was rebuffed by our BC provincial minister of Agriculture.

The Abbotsford, Sumas Prairie area has the highest density of poultry farms in North America. That H7 AI did not jump the US border just about proves to my satisfaction that our own Canadian poultry industry practices and CFIA actions are the underlying cause of its spread. Because experience with this outbreak has shown that Avian Influenza can in fact be readily aerosol (airborne) spread I suggested privately to Mary Reeves the former Mayor of Abbotsford that there was a need to greatly increase the municipal set backs for new poultry farms, acknowledging that existing operations would have to be grandfathered. She was not interested probably because these same farmers were her constituency.

There is a jurisdictional mess here too. The poultry industry is BC provincial government responsibility through the BC Ministry of Agriculture. The Provincial Minister was

reported in our press as saying the industry is largely self-regulating (Probably largely due to draconian public service cut backs). This is great if only the industry impose high standards on themselves in their own as well as the public's interests. The broiler chicken industry blamed this epidemic on the back yard flocks. This must not be allowed to happen, as it will lead to inaction by passing the blame.

Now here is my opinion on H5N1 to add to many, many opinions already out there. I do not know what is going to happen. The potential to cause a global human pandemic is certainly present but unlikely in the short term. BC's H7 outbreak occurred predominantly in commercial flocks housed indoors in poultry barns although a few back yard flocks became infected also. Poultry barns provided an ideal culture media for mutation. H7 virus did not cause serious human disease. The H5N1 strain, which has spread across Asia, the Middle East and now to Europe and Africa, causes a very lethal type of pneumonia and has killed about 100 people to date. I believe poultry barns provide a better culture medium in which this virus can mutate. As far as I am aware H5N1 is a disease of back yard poultry and is disseminated mostly by migratory birds. It is worrying because it can jump the species barrier affecting not only humans but also other animals including the cat family. It has clearly demonstrated its ability to pass from infected chickens to humans by close contact. H5N1 is already widely disseminated across nature and will hopefully never mutate sufficiently to acquire the ability to cause easy human-to-human infection. Epidemiological forecasting is an inexact science, a bit like weather forecasting. Storms come and pass; similarly epidemics even pandemics occur and peak but they pass too. It is quite possible that H5N1 will even mutate becoming more benign rather than the reverse, especially as it has already been around for about 10 years without ever developing the ability to easily pass from human to human, at least not yet. However if it ever does... watch out!