

Keeping Your Birds Healthy Resource Kit

A biosecurity information package to aid in creating sustainable poultry farming in Nepal

Devin Hanna

November 24, 2014

Background on Nepal

Nepal is a relatively small country located between India and China. Unfortunately Nepal is a landlocked nation which means transportation to the country is more difficult as the only way to ship there would be either a direct flight or by shipping indirectly to China or India and taking it across the border. The population of Nepal was estimated to be approximately 31,000,000 as of July 2014 (CIA, 2014), and the poultry population was approximately 23 million as of 2004/2005 and with Nepal's constant increase in population and in poultry over the past 9 years, it is expected that the poultry population would currently be larger than 23 million (Table 1). Most poultry are housed in small-scale or scavenger systems, but there are also some larger scale farms.

Table 1: Poultry population in Nepal

| SN | Years | Poultry | Ducks | Poultry Layers | Duck Layers |
|----|-----------|----------|--------|----------------|-------------|
| 1 | 1996/1997 | 15576525 | 415758 | 4886764 | 218065 |
| 2 | 1997/1998 | 16164730 | 416943 | 5181880 | 218687 |
| 3 | 1998/1999 | 17796826 | 421423 | 5420900 | 220400 |
| 4 | 1999/2000 | 1861936 | 425160 | 5667817 | 222401 |
| 5 | 2000/2001 | 19790060 | 411410 | 5998367 | 215376 |
| 6 | 2001/2002 | 21025030 | 409861 | 6453860 | 214090 |
| 7 | 2002/2003 | 22260000 | 408311 | 6622558 | 213751 |
| 8 | 2003/2004 | 22525112 | 400083 | 6676954 | 211838 |
| 9 | 2004/2005 | 22790224 | 391855 | 6643350 | 183208 |

Source: Poultry Production, Management and Bio-Security Measures

Product Description

This kit contains various resources and materials for starting a biosecurity system or improving already established biosecurity systems. It has a brochure on “How to Prevent and Detect Disease in Backyard Flocks and Pet Birds” in which, it outlines 5 key practices that are

important to disease prevention and detection in poultry. One of the Main points that the brochure makes is the importance of preventing contact with wild animals and birds who may be carrying disease as it can be spread from wild animals and birds to a poultry flock through droppings or contact with feathers and other materials. Another point it makes is putting an emphasis on cleaning. Organic matter such as litter or soil is a place where many parasites, viruses and bacteria can survive, so an emphasis must be put on farmers to clean thoroughly all housing systems and implements used on and around poultry as often as possible. The third point that the brochure mentions is that it is important to spot signs of disease early to protect the rest of your flock as some diseases can be spread very quickly if untreated. The brochure also says that it is important to limit exposure to visitors on the farm. People have the capability of spreading bird diseases as well, so it is essential that if visitors do have to enter a barn that they follow very strict biosecurity measures. These measures may include having clean clothes, hands and feet before seeing the birds, foot coverings such as plastic boot covers may be used as well. Wheel wells on vehicles should also be cleaned before entering the barn area as they may be carrying debris that could be carrying disease. Lastly the brochure informs farmers on the importance of keeping new birds separate from their flock, the brochure urges farmers to segregate new birds for at least 30 days before allowing them entry to their original flock in order to defend against potentially spreading disease to the whole flock.

Another resource offered in the kit are two different posters. A “How to Prevent and Detect Disease in Backyard Flocks and Pet Birds” poster with a summary of the 5 basic rules of daily care for birds which are found in the above mentioned brochure as well as a “Biosecurity Risk Levels of Selected Poultry Diseases” poster that can aid farmers in disease detection within their flock. Two flyers are also offered in the kit, “Spotlight on Managing Sick Birds” which

shows the cost/benefit of biosecurity and describes the speed at which an unguarded disease can travel through a flock. The other flyer, “What is Biosecurity?” provides a brief overview of biosecurity and associated practices. A weatherproof biosecurity sign also comes in the package, this is a great resource for farmers to deter visitors from potentially contaminating their flocks by accident. Finally the kit contains a CD which covers various biosecurity topic.

Benefits to Canada

This is a product that is offered free to farmers from the Government of Canada, the chances for profit to be made in Canada are very high and the price of the product is very flexible as the cost of the kits for farmers in Nepal could be as low as the price to ship the product. Increased demand for the product would create jobs in the production of the kits, the marketing of the kits and the relations between supplier and consumers in Nepal would also create jobs. Transport companies such as A1 Freight Forwarding who ships from Toronto to Kathmandu, the capital of Nepal, would also receive benefits from the export of this product. Through offering this product in Nepal trade relations between both countries would be improved, and this resource would also be aiding in improving international biosecurity while bringing revenue back to Canada.

Benefits to Nepal

These kits have the potential to make a huge impact on the poultry industry in Nepal, as well as providing revenue to Canada. As a business opportunity in Canada it is a great export opportunity as it is very low cost to produce as it is mostly printed sheets and a CD, which may or may not need to be shipped since computers are most likely scarce in the farming regions of Nepal. This kit may also be cost effective for the Nepalese as all of this information can be held

in a 12×9 inch envelope, so shipping is less expensive than many other forms of biosecurity improvement items, such as biosecurity outfits to help in minimalizing disease spread. A rough quote from A1 Freight Forwarding's website was that it would cost approximately \$1-5 dollars per unit to ship to Nepal, dependant on what quantity is being shipped. For example the cost is estimated to be \$6380 to ship around 4000 units, which equals approximately \$1.60/unit.

Probiotech Industries, a Nepal based poultry feed manufacturer, with is actively working with local Nepalese farmers and International Finance Corporation's (IFC) Global Agriculture and Food Security Program (GAFSP) advisory services in trying to improve the poultry supply chain by "... [Aiming] to reach around 4,000 farmers through seminars annually" and since they intend to "...focus on training women farmers on biosecurity and farm management" (GAFSP, 2014) it is a great marketing opportunity for these kits to be sold to Probiotech Industries as a way of supplementing their seminars with tangible items containing the information for proper biosecurity and practices. This product is extremely beneficial as a means to increase food, animal and human safety in Nepal as well as poultry sustainability. A study conducted by A. Adhikari, R. Gupta and G. R. Pant (2008) in Nepal of chickens from various farming systems and different ages, shows that in some flocks up to 50% of birds are infected with some type of coccidiosis (*Eimeria*). This is of serious concern because coccidiosis "...represents a major disease problem demanding attention of poultry producers, feed manufactures and poultry disease experts. The economic importance of the disease is due to its high rate of morbidity and mortality in young birds, reduced feed conversion efficiency and egg production in sub-clinical cases" (Adhikari, Gupta & Pant , 2008). However simple daily chores on farms would be able to reduce the harm and spread of this disease in flocks. The biosecurity kit would provide information on how it is important to clean the bird's housing system and any implements that

are to be used around the birds as they can potentially be carrying diseases such as coccidiosis. Although it is not only coccidiosis, there are other bird illnesses that this kit and its simple practices could help prevent the spread of, such as New Castle disease, IBD and Pullorum disease (Table 2). This product is a great opportunity and I hope that through this product being sold in Nepal, poultry production can stay stable and safe for all Nepalese farmers.

Table 1: Poultry Disease Compilation of 2002-2006:

| SN | Poultry Disease | Outbreaks | Affected | Dead | Vaccinated | Treated |
|----|---|-----------|----------|-------|------------|---------|
| 1 | Coccidiosis | 4861 | 497510 | 30960 | 0 | 493695 |
| 2 | Respiratory Disease (unclassified) | 2989 | 193020 | 13153 | 0 | 183472 |
| 3 | IBD | 741 | 294147 | 29219 | 651694 | 230882 |
| 4 | New Castle disease | 592 | 226594 | 22298 | 1042139 | 55289 |
| 5 | Pullorum disease (<i>S. Pullorum</i>) | 364 | 89072 | 6254 | 0 | 83437 |

Source: Poultry Production, Management and Bio-Security Measures

Uses of This Information

As previously mentioned, the kit contains a brochure that outlines five key daily practices that would be able to help ensure the safety and health of Nepalese farmer's flocks. One of the points was to prevent contact with other birds and wild animals who may be carrying disease; this is especially a problem for farming in Nepal since most housing systems are open or chickens are on a scavenger system leaving them vulnerable to infection by wild animals, knowing the risk is the first step towards prevention, so informing farmers of the risk of wild animals could motivate them to increase measures to protect their birds. The second point is the importance of cleaning, as it can help reduce the spread of disease and illness which can be found in organic material such as manure, litter and soil. The third piece of information that would be made available to Nepalese farmers is that it is very important to be able to quickly

detect the signs of disease in your flock to protect the rest of the birds, the “Biosecurity Risk Levels of Selected Poultry Diseases” poster that comes with the kit is a good resource to assist in the detection of poultry diseases. A fourth useful practice described in the brochure is to limit visitor exposure to the birds. Since most of the farms or poultry operations in Nepal are a part of the household or very near the household, it will be important for farmers to make a distinction between the house and the poultry to minimize the spread of disease from visitors to their flock. The Biosecurity sign which is provided with the kit warns of a restricted biosecurity area and is a good way to deter visitors from unintentionally contaminating birds. Lastly the brochure will give information to Nepalese farmers on the importance of keeping new birds separate from their flock, this is especially important for Nepal as they have no large scale hatcheries in the country. They must import birds from either India or China which has caused issues in the past as avian influenza imported from India through poultry began to spread through Nepal (Indo-Asian News Services [IANS], 2013). This is why the brochure urges farmers to segregate new birds for at least 30 days before allowing them entry to the other birds.

Currently there is little or no biosecurity procedures being practiced in Nepal and without proper biosecurity workers may be putting their flock and themselves in danger. In the Thimi Municipality Nepal, a study was conducted in 2012 with 96 poultry workers on their awareness and protective practices in regards to Avian Influenza. The study showed that although almost all of the workers knew that they were at an increased risk for infection, most did not know proper biosecurity practices past simply washing their hands (Manadhar, 2013). The information that would be provided to the Nepalese could help increase the awareness in proper practices for preventing and protecting against disease spread because without it these workers could seriously endanger their flock, the people rearing the product and the consumer of their product.

Challenges and Other Possible Options

This export idea was presented in front of a seminar group of first year agriculture students at the University of Guelph and it was brought to my attention that it may be cheaper to print the product in Nepal than to ship it there. I am currently unaware of the cost or ability of the Nepalese to be able to print these documents. Furthermore I believe it would be too expensive to set up a system to print, package and distribute these packages from scratch in Nepal, especially when there is already a system of printing and packaging in place in Canada. Another point that was brought up during the questions following the presentation was if Nepalese farmers would be readily available to this information from the internet prior to receiving the kits. In 2009, there were only 577,800 internet users in all of Nepal, and most likely very few poultry farmers would have internet access, therefore the information would be extremely hard to find if farmers do not receive these kits (CIA, 2014). Another problem facing the export of these kits are that they only come with English and French text since they are Canadian made. In 2011 there were a total of 123 mother tongue languages reported in the census and for the most part only business people and members of government know English. The kit would either have to be translated to Nepali as it is the language that 44.6% of the population speaks or changed to a simplified picture book version as the literacy rate in Nepal is only 57.4% (CIA, 2014). Most farmers in Nepal would not be able to benefit from this information in its current arrangement. In terms of competition for this product, I was unable to find any type of biosecurity information kit similar or as useful as the one offered by the Government of Canada that is available to the farmers of Nepal.

Recommendation

This product has information that is extremely important for the growing poultry industry in Nepal and its sustainability. The information in these kits could save thousands of chickens' lives and improve the quality of farming in Nepal by lowering the rate at which diseases enter their flocks. The cost of these kits is very reasonable if shipped in large quantities and could be sold for approximately \$3-4 per kit to either the farmer, a company involved in providing this information to farmers, or perhaps the Nepalese Government as it could be distributed much like it is in Canada, as a free resource. However, with the language barrier of most English speaking Nepalese people being in government or business and not in agriculture, the effectiveness of this English and French written information kit is extremely limited. Unless the kit can be translated into Nepali or into a simplified picture book format the product is not worth exporting to Nepal, even though the information it contains is extremely relevant and important to the problems that are facing Nepalese poultry industry. It is recommended that the Government of Canada looks into sharing their knowledge of biosecurity and disease and bird management by making these kits more accessible through a translated version or picture book version.

References

- A1 Freight Forwarding. (2014). International Air Shipping to Kathmandu from Canada. <http://www.a1freightforwarding.com/city/air-city/kathmandu-10/>
- Adhikari A., & Gupta R., & Pant G. R. (2008). Prevalence and Identification of Coccidian Parasite (*Eimeria* SPP) In Layer Chicken of Ratnanagar Municipality, Chitwan District, Nepal. *J. Nat. Hist. Mus.*
- CIA. (2014). Nepal. *The World Factbook*. <https://www.cia.gov/library/publications/the-world-factbook/geos/np.html>
- Dam A. (2013). Keeping Your Birds Healthy Resource Kit. *Ministry of Agriculture, Food and Rural Affairs*. <http://www.omafra.gov.on.ca/english/livestock/poultry/facts/hbresourcekit.htm>
- IANIS. (2013). India Responsible for Bird Flu Outbreak in Nepal. *The Health Site*. <http://www.thehealthsite.com/news/india-responsible-for-bird-flu-outbreak-in-nepal/>
- Manandhar, K., Chataut, J., Khanal, K., Shrestha, A., & Shrestha, S. (2013). Awareness Regarding Preventive Measures of Avian Influenza among the Adult People of Thimi Municipality, Nepal. *Kathmandu University medical journal (KUMJ)*, 11(41), 45-49.
- Probiotech. (2014). \$3.8 Million Investment to Boost Poultry Productivity and Farmer Incomes in Nepal. *GAFSP*. <http://www.gafspfund.org/content/probiotech>
- Sharma, B. (2010). Poultry Production, Management and Bio-Security Measures. *The Journal of Agriculture and Environment*.