Could farmers have a greater role in poultry disease surveillance? Assessing knowledge and incentives for reporting

J. Young1,2, D. Grace1, M. Young2, R.G. Alders2, A. Kibaya3, H. Msami4, B. Bagnol2, A. Wyatt5

1 International Livestock Research Institute, Kenya; 2 KYEEMA Foundation, Australia; 3 State Veterinary Services, Tanzania; 4 Dodoma Rural District Council, Tanzania; 5 International Food Policy Research Institute, USA

Background
- Village chicken systems make a valuable contribution to rural people's livelihoods in the developing world. In Kenya and Tanzania, women are usually the household members who manage chickens.
- As chickens are easily marketed, they provide a valuable source of income for the family. Chickens and eggs also provide an important source of protein.
- Newcastle disease is an important constraint to village chicken systems and in areas where it is endemic, an outbreak can kill 50-100% of the village flock.
- Good surveillance is an important part of disease control but surveillance in village systems is often weak.
- Increasing participation of farmers in surveillance could increase reporting, providing farmers have both ability to recognize disease and incentives to report it.

Objectives
The goals of this study were to explore the knowledge, attitudes, and practices of farmers with regard to Newcastle disease. This study was part of a larger project that examined Newcastle disease vaccine uptake in Kenya and Tanzania by comparing villages with supportive vaccine delivery systems to villages without supportive vaccine delivery systems.

Methodology
- Ten villages were probabilistically sampled from one district in Kenya and 8 villages from one district in Tanzania.
- Participatory rural appraisal (PRA) and a household questionnaire were used to assess knowledge, attitudes, and practices of women and men farmers.

Kenya
- Household questionnaires (n=316)
- Key informant interviews (n=5)
- Focus group discussions (n=10)
- Meetings using participatory tools (n=10)

Tanzania
- Household questionnaires (n=457)
- Key informant interviews (n=14)
- Focus group discussions (women and men separate), (n=16)
- Meetings using participatory tools (n=8)

Results
Village chicken keeping was very common
- 93% of households in Kenya kept chickens, with an average flock size of 13. Male-headed households owned an average of 2 more chickens than female-headed households.
- 94% of households in Tanzania kept chickens, with an average flock size of 14. Average flock sizes for female- and male-headed households were similar.

Reported losses from Newcastle disease were high
- Kenyan households reported an average loss of 7 chickens in the past year. No significant differences were observed between female- and male-headed households.
- Tanzania households reported an average loss of 17 chickens in the past year. No significant differences were observed between female- and male-headed households.

Farmers were familiar with most signs consistent with Newcastle disease in chickens

Disincentives for reporting outbreaks
When farmers suspected that their chickens had Newcastle disease, the majority of farmers in Tanzania reported eating or selling the sick birds. In Kenya, treatment was common but was considered ineffective.

<table>
<thead>
<tr>
<th></th>
<th>Kenya (n=244)</th>
<th>Tanzania (n=457)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kill and eat the chicken, n (%)</td>
<td>16 (6.6)</td>
<td>269 (62.4)</td>
</tr>
<tr>
<td>Sell the chicken, n (%)</td>
<td>21 (8.6)</td>
<td>150 (34.8)</td>
</tr>
<tr>
<td>Treat the chickens, n (%)</td>
<td>157 (64.3)</td>
<td>123 (28.5)</td>
</tr>
</tbody>
</table>

Conclusions
- Farmers had relatively high knowledge of the clinical signs of Newcastle disease, but definitive diagnosis on the basis of clinical signs is impossible.
- Nevertheless, farmers perceived Newcastle disease to be an important problem and were experiencing high losses.
- The ability to get value (financial and nutritional) from sick birds through sale or consumption may reduce the incentive to report outbreaks.
- Newcastle disease control efforts need to increase collaboration with farmers to develop incentives for reporting disease outbreaks, while at the same time taking care that farmers are not penalised by inappropriate control responses.

Lessons Learned
- Farmers in the study sites demonstrated an ability to recognize signs consistent with Newcastle disease in chickens.
- The perceived costs to farmers to report outbreaks do not appear to outweigh the value (nutritional and financial) they get from either eating or selling sick chickens.
- Current surveillance offers insufficient motivation for reporting poultry disease.

Acknowledgements
The authors greatly acknowledge the farmers in Kenya and Tanzania and the participating field team including SVS, Tanzania and FIPS-Africa staff in Kenya.

Research was funded by the Australian Agency for International Development (AusAID) and ILRI and the lead field investigator, Jarrah Young, was funded by the Australian Youth Ambassador for Development program (AYAD).