Infectious diseases and survival of Ethiopian village chickens

Bettridge, J.¹,², Lynch, S.¹,², Melese, K.³, Dessie, T.¹, Wigley, P.² and Christley, R.², ¹International Livestock Research Institute, Ethiopia, ²University of Liverpool, United Kingdom, ³Ethiopian Agricultural Research Institute, Ethiopia; judybett@liv.ac.uk

The majority of chicken production in Ethiopia is in backyard flocks, where they are important to the livelihoods of rural smallholders, who identify infectious disease as a major production constraint. Epidemics during the rainy season are usually assumed to be Newcastle disease; however information on pathogens responsible or risk factors for infection is limited. We sampled 400 birds in the Ethiopian highlands before the rainy season, using stratified random sampling at 4 levels (Household, Village, Market shed and Region). Plasma and faecal samples were collected and birds were examined for ectoparasites. After the rainy season, farmers were re-interviewed to determine the fate of sampled birds. Plasma was tested for antibodies to Newcastle disease, Marek’s disease, infectious bursal disease and Salmonella enterica O9 serotypes; all were prevalent in both regions. The most prevalent enteric parasites were Eimeria and ascarids. The most common ectoparasites were Cnemidocoptes mutans (scaly-leg mite) and lice. At follow-up, 202 survivors were identified (50.5%). Owners reported one in five birds had died of disease, and described various symptoms. Differences between regions and villages were evident, both in the amount of disease, and the degree of clustering at household level. Birds reported to have died of disease were compared to survivors, using mixed-effects models. Univariable analysis suggests a strong effect of region; other risk factors, including previous infections, may also be important. Multivariable analyses are underway to investigate these factors further. In conclusion, multiple diseases may be of importance in village chickens in Ethiopia, with differences at regional and more local levels in patterns of disease occurrence. Improving surveillance through increasing the use of diagnostic facilities is important to develop control strategies tailored to local needs.