

*Fasciola hepatica* (the liver fluke) is an important parasite of cattle and sheep globally. Current diagnostic tests are laboratory based, which can involve gathering in stock to collect a sample (which may require a veterinarian) and results taking several days to be returned. Stock would have to be gathered in again for treatment if necessary or repeated sampling if testing was negative. All of which adds costs to the diagnosis. This can discourage farmers from engaging with the industry message to test before treating. Treatment in the absence of a diagnosis can contribute to the development of resistance to anthelmintics. We have developed and evaluated the performance of a lateral flow test (LFT) to detect antibodies in response to fluke infection using whole blood samples from cattle and sheep, giving results within 10 minutes and on farm. Sampling of a hypergeometric distribution indicated that sampling 10 animals on each farm would give a strong probability of detecting one infected animal, depending on prevalence. We sampled 10 sheep on 24 farms, and where possible, up to 10 cattle across North-West England, Wales and Scotland. LFT results obtained on-farm were compared to those obtained with an in-house antibody detection ELISA by linear regression, which showed a positive correlation. Bayesian analysis assuming no gold standard indicated that the LFT had a sensitivity (Se) of 77% (95% Credible Interval [CI] 61-91%) and specificity (Sp) of 80% (CI 70-89%) in cattle and 67% Se (CI 47-94%) and 71% Sp (CI 62-82%) for sheep. Sub-setting for first season lambs gave 96% Se (CI 85-100%) and 74% Sp (CI 65-84%). A group interview with the farmers who participated in on-farm trials indicated they found the LFT easy to use and thought it would be a useful tool to guide treatment decisions, together with advice from their veterinarian. The LFT will enable farmers to better engage with fluke management on their farms and encourage appropriate use of anthelmintics.