Role of range use in infections with parasites in laying hens

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In organic layer farms a free-range area is provided for animal welfare reasons. Both higher and lower worm burden (*Ascaridia (Asc), Heterakis (Het) and Capillaria (Cap)) are described* in hens housed in free range systems compared to other systems. Parasite infections can reduce health, welfare and productivity. We investigated the role of the range area in helminth infections: 1. Is infection of manure different for samples being collected in the free-range or inside the house, assuming to distinguish 'outdoor hens' from 'indoor hens'? 2. Is there an association between the proportion of hens using the range area and parasite eggs in soil and manure? 3. Is there an association between parasite eggs in manure, health and production parameters? Forty one flocks are being visited once when hens > 45 weeks old and > 3 weeks after a deworming. Together with farmers the proportion of hens using the free-range was estimated assuming optimal conditions (%HensOut), as well as health status (score on scale 1 (=bad) to 10 (=perfect)). Lay % at 60 weeks and mortality % till 60 weeks were collected too. Six soil samples per farm were taken at 5, 20 and 50 m from the pop-holes. Seventy individual manure droppings, pooled into 7 samples were collected inside and 70, pooled into 7, outside. On the free-range, manure samples were collected > 50 m from the pop-holes, assumed to originate from 'outdoor hens'. Manure samples inside were taken from the inner part of the barn, away from the pop-holes, assumed to originate from 'indoor hens'. All soil and manure samples, 20 per farm, were analysed for parasite eggs per gram (EPG; McMaster method). This abstract contains preliminary results from 14 farms. From the soil samples (n=84) 7% was infected with *Asc*, 5% with *Het* and 0% with *Cap*. From the manure samples collected outside (n=98), 76% was infected with *Asc and* 26% with *Het*. From the manure samples collected inside (n=98), this was respectively 68% and 14%. There was no difference in number of positive manure samples between outside and inside, neither for *Asc*, nor for *Het*. A negative correlation between %HensOut and soil samples infected with *Asc* was found (-0.57; p=0.034). A tentative explanation may be that the hens' behaviour changes the soil surface into an environment detrimental to parasite egg survival. No correlation was found between %HensOut and soil samples infected with *Het*. Furthermore, no correlation was found between %HensOut and manure samples infected with *Asc,* nor with *Het*. No correlation was found between manure samples positive for *Asc* and health status, lay% 60 weeks or mortality till 60 weeks. Furthermore, no correlation was found between manure samples positive for *Het* and health status, lay% 60 weeks or mortality % till 60 weeks. These preliminary results indicate that range use may not be a risk factor for parasite infections in laying hens.