

Producer attitude to pododermatitis in broilers and risk factors for high carcass rejection rates



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Abstract

Pododermatitis (PD) is a significant welfare problem in the poultry meat sector. Producers who had experienced PD on farm were more likely to describe PD as a welfare problem ($p < 0.001$). PD lesions and total carcass reject rates (CRR) were assessed from 672 flocks of Ross broilers (30 million) aged 39 to 42 days. There was a trend ($p < 0.06$) for contract reared birds to be reported for high levels of PD. Flocks not reported for high PD or score 1 had a median 0.90% CRR, whilst PD score 2 had a median 1.3% CRR. ($p < 0.001$). A binary logistic regression model linked high CRR with flocks reported for high levels of PD and crops processed between January and March. This has an economic impact on flock productivity.

Introduction & Materials & Methods

Pododermatitis (footpad dermatitis) and, in its more severe form plantar necrosis, is a significant welfare problem in the poultry meat sector with multifactorial aetiology (1,2,3). The broiler directive is the first piece of legislation that aims to assess farms' based on welfare outcomes, including mortality, pododermatitis and post mortem results, and apply stocking density reductions where these levels are unacceptable (4). A series of workshops with producers and field staff were held across England and Wales in 2005 & 2006 to educate and inform about the broiler directive and pododermatitis. Producers were asked to complete questionnaires about pododermatitis and the broiler directive before and after the event. For 14 months throughout 2006 and the first two months of 2007, in a UK poultry abattoir processing 25 million Ross broilers per annum, pododermatitis lesions were assessed based on a modification of the method described in the broiler directive. Where lesions triggered a threshold, reports were sent to local State Veterinary Service (Government) Offices indicating a potential welfare problem on farm. Total carcass rejection rates were calculated for all farms and associations with factors including farm type (contractor or company owned), season and severity of pododermatitis lesion reported were investigated. Analyses were performed using Minitab and a binary logistic regression model was developed for high carcass rejection rates (CRR).

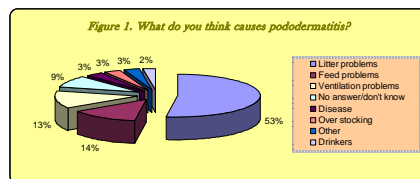
Results

Table 1. Is PD a significant welfare problem?

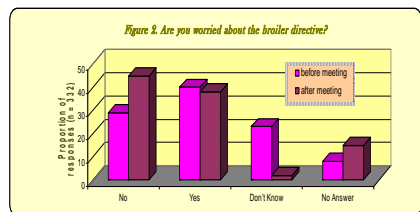
	No	Yes	Don't Know	
No PD	10	73	9	92
PD on farm	10	168	7	185
Don't know	7	30	10	47
	27	271	26	324

Chi square = 23.37 ($p < 0.001$)

332 producers out of 450 completed the questionnaire, although some were not fully completed. 84% believed that pododermatitis (PD) was a significant welfare problem and 73% believed that it had significant effects on productivity. However the answers were influenced by those that had had a PD problem on farm (Table 1), although not significantly for the productivity question. 57% of producers were aware of previous PD problems in their flocks, 28% had not, 14% did not know and 2% failed to answer this question.



Farmers overall had a reasonable understanding of what caused PD (Figure 1) although 56% only proffered single aetiologies with 34% understanding the multifactorial aetiology of the disease. At the start of the session 80% of farmers felt they did not know enough about the broiler directive. Figure 2 shows the shift in concern about the broiler directive before and after the meeting. This was not a simple shift of don't knows to no longer worried. 62% of those who did not know whether to be worried and 31% of those who were worried shifted to not worried by the end of the session, however 18% of those who had not been concerned did become more worried by the end of the session.



Discussion

Whilst the workshops demonstrated 80% of producers knew little about the broiler directive, producer attitudes could be changed to reduce concern about impending legislative change. It also showed that a producers' perception of whether they believed PD was a significant welfare problem was dependent on prior experience of problems on farm, or whether indeed they were looking for PD in their flock. This is important in understanding how to educate producers about monitoring PD on farm.

The preliminary data analysis on carcass reject rates demonstrated a key effect of season, which has previously been reported (5), and when flocks were reported for high levels of PD there was more likely to be a high carcass reject rate. UK flocks currently aim for a carcass rejection rate below 1%, which this plant (representing over 3% of the UK industry output) was achieving. A 1% increase in carcass rejection rate for a 100,000 bird flock results in a loss of approximately €1474 (£1,000) per crop. It is important that producers recognise the productivity implications of PD that goes beyond looking at bird growth and feed conversion.

Between Jan 2006 - March 2007, 672 flocks of Ross broilers (30 million) aged 39-42 days from 95 farms were processed. 18% were company owned whilst 82% were contract reared by independent producers. There was a trend ($p < 0.06$) for contract reared birds to be reported for high levels of PD. The median carcass reject rate was 0.93%. Flocks not reported for high PD or class 1 (Fig 3) had a median level of 0.90% carcass reject rate (CRR), whilst PD class 2 (Fig 4) had a median level of 1.3% CRR. ($p < 0.001$). A binary logistic regression model with the outcome as $>2\%$ CRR retained only Swedish foot score and time of year as significant predictors (Table 2), with a high CRR being three to four times more likely when foot lesions were reported. High CRR was greatest January to March and significantly less likely April to September.



Figure 3. Class 1 lesion



Figure 4. Class 2 lesion

Table 2. Binary logistic regression model for predicting high levels of carcass condemnation ($> 2\%$ per crop)

Predictor	Coef	SE Coef	Z	P	Odds ratio	95% CI
Constant	-2.0379	0.2454	-9.66	<0.001		
Swedish Foot score						
1 (mild)	1.2120	0.5908	2.05	0.040	3.36	1.06 - 10.07
2 (severe)	1.3405	0.3728	3.60	<0.001	3.82	1.84 - 7.93
Time of Year						
Q2 (04 - 06)	-1.0151	0.5136	-1.98	0.048	0.36	0.13 - 0.99
Q3 (07 - 09)	-1.1113	0.5089	-2.18	0.029	0.33	0.12 - 0.89
Q4 (10 - 12)	-0.3466	0.3819	-0.91	0.364	0.71	0.33 - 1.49

References

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