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## **Tree cover and injurious feather-pecking in commercial flocks of free-range laying hens: a follow up**

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### **Abstract**

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*Injurious feather-pecking in non-cage systems is a serious economic and welfare concern for the egg-producing industry. This study presents results from data of over 1,000 flocks from producers who supplied free-range eggs to McDonald's Restaurants Ltd UK between 2008 and 2013. These producers had a minimum 5% of the outdoor range planted in trees. We investigated the correlation between the plumage damage of end-of-lay hens with i) proportion of the total range planted with trees and ii) proportion of canopy cover within tree-planted areas. As tree canopy developed over the study period, we also investigated whether there were any changes in end-of-lay plumage-damage scores within farms, with year over the five years. There was a negative correlation between canopy cover and plumage damage at the end of lay, ie less canopy cover within tree-planted areas resulted in significantly worse plumage damage at the end of lay. There was no correlation between the amount of range planted and plumage damage at the end of lay. These results support the notion that it is the degree of shade and shelter (ie quality of cover) that is important to the hens rather than the absolute area. We did not find any association between year and end-of-lay plumage-damage scores. Due to commercial changes in supply, the proportion of farms providing data for  $\geq 3$  years was small, thereby limiting the data set with which to compare individual farms' plumage-damage scores. It is hoped the relationship between year and plumage-damage score will be re-examined in a future study.*

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**Keywords:** animal welfare, free range, injurious feather-pecking, laying hens, plumage damage, tree cover