Prediction of egg-laying events

In group-housed poultry, hormone and environment modulated variability in the processes of follicle maturation and egg formation make it difficult to predict a daily egg-laying event (oviposition). Recording daily egg laying events has required individual cages or expensive technology such as RFID equipped nests or labor intensive trap nests. Our hypothesis was egg-laying events are associated with feeding activity of breeders. In this study, random forest classification algorithm which is a kind of machine learning approaches was built to predict oviposition events of 202 free run Ross 708 broiler breeder hens fed by a precision feeding system from week 21 to 55, based on a dataset recording information of all visits to the station. The results showed that overall accuracy of the model for predicting egg-laying events was 0.8482. The model set an example of using big data and machine learning for poultry industry. On the basis of automated technologies (e.g. precision feeding system) which can continuously monitor animals and gather real-time data of animal's behaviour, machine learning can provide an accurate prediction of animal production.