Developing a Methodology for Behavioural Demand in Ducks – 2014 RSPCA Australia Scholarship for Humane Animal Production

Lorelle Barrett

PhD Candidate, The University of Western Australia

When compared to chickens, duck welfare has received relatively little attention amongst scientists. Behavioural demand tests are a useful tool to assess how important a resource is to an animal, and have previously been used in other poultry species, such as chickens and quail (e.g. Cao et al., 2014; Cooper & Appleby, 2003). For example, behavioural demand methods have shown that laying hens are highly motivated to access a nest when given the opportunity; this knowledge contributed to the EU LayWel project's recommendation that hens should be provided nest boxes for egg laying (Cronin et al., 2012). The overall aim of my PhD research is to demonstrate that methods such as behavioural demand testing can be used to provide the scientific evidence needed by duck producers, scientists and legislators to develop practical management strategies and industry-relevant regulations. The RSPCA-funded component of my PhD research aimed to establish a behavioural demand method that can be used to assess the resource needs of commercially farmed ducks.

The behavioural demand method comprises two steps: firstly, teaching an animal to exert work to access a resource; and secondly, determining how hard they are prepared to work for that resource. This often involves training the animals to pass through an increasingly weighted door. Thus, the first part of this project involved designing the apparatus and determining what shape of door was easiest for the ducks to use. After the basic structure of the behavioural demand unit (BDU) was determined, we needed to ascertain what door shape would be most successfully used by the ducks. Sixteen female Pekin ducks, of approximately 22 weeks old were used. They underwent an initial 3-day training period to learn the BDU layout, where there was no door in place and they had free access to a resource. Two doors, with different shaped openings, were then introduced. Each duck was given 9 opportunities (3 attempts on each of 3 consecutive days) to learn to pass through each door shape in order to access the resource. One shape of door opening resulted in better performance from the ducks and was then used in the second experimental stage to quantify the amount of work the ducks were prepared to do to access a resource. Over a period of days, increasing amounts of weight were added to the door to make the ducks work harder. Weights began at 10% of the average body weight of all birds and increased in 10% increments up to 100% of body weight. Results indicated that ducks could push up to 100% of body weight if motivated to do so.

The developed behavioural demand method has subsequently been used in the remainder of my PhD research. This includes assessing how motivated ducks are to access an established nest site, and how motivated they are to access a nest with a preferred substrate. The information from these experiments will provide new knowledge on the nesting needs of breeding Pekin ducks kept in commercial production systems that can be used to inform management practices for these birds. Future opportunities for the use of this method could include further investigation into nesting preferences, or other resources such as open water or space allowances.