From:	Nicky McGrath
To:	Oliver Burman; Clive Phillips; Cathy Dwyer;
CC:	
Subject:	Experiment 2 design
Date:	Monday, May 20, 2013 4:48:32 AM
Attachments:	Short summary of design.docx Dupjan et al (2011) Behavioural and cardiac responses towards conspecific distress calls in domestic pigs.pdf

Dear all,

Please find attached a short summary of my design for the next experiment.

My hypotheses are:

In short:
Domestic chickens respond preferentially to reward-associated vocalisations over:
a) a control sound (A pure tone at the same average frequency as the reward-associated calls) **(**Experiment 2)
b) a synthetic sound (composed of chicken vocalisation with certain parameters changed) (Experiment 3)

In more detail
- Domestic chicken behaviour changes when they perceive the vocalisations of other chickens recorded in anticipation of rewards
- Domestic chickens demonstrate behaviour consistent with anticipation of rewards when they perceive vocalisations of chickens recorded in anticipation of rewards, despite the absence of rewards.

I have attached a short summary of my design which I would be very grateful if you could have a look at

I would also really appreciate it if you would comment on the following:

Pairs or individuals?

In my initial experiment, I tested the chickens as individuals. In this experiment, there is a possibility we could use pairs of chickens. However I am concerned that, as we are measuring behavioural responses to playback of other chicken sounds, pairs of chickens may influence each other's behaviour.

Control sounds

In their experiment measuring conspecific responses to distress calls Dupjan et al 2011 (attached) used one control measure (a pure tone). I would also like to do the same – Will the pre-stimulus and post-stimulus silence also act as a control in this case, or would I have to do 3 treatments as below?
1. Conspecific call
2. Pure tone
3. Silence

Playback sounds:
I have identified that chickens emit a clearly excited series of low frequency clucks in anticipation of rewards. There is some individual variation, but I identified 83 excited "anticipation" calls (as opposed to whines of frustration) from the 300 total vocalisations I recorded. In order to avoid pseudoreplication I am going to playback 12 different reward-related vocalisations to 12 birds (or 12 pairs of birds) However, due to the nature of my first experiment (multiple rewards) I am not clear on whether I should I be generating 4 dustbath-related vocalisations, 4 mealworm vocalisations and 4 normal food vocalisations within this as per the rewards presented in the first experiment? Or should I be presenting 12 of each to avoid pseudoreplication? I am not confident that chickens have a "dustbath-related" vocalisation and a "mealworm" vocalisation - I believe these are similar enough to be classified as "reward-related".

Measuring behaviour – distance from playback sounds

In their experiment measuring conspecific responses to distress calls, Dupjan et al placed 2 speakers on one wall of the experimental room. The room divided into three areas of equal size by equidistant chalk lines parallel to this wall. This was to measure where the pigs were in relation

to the speakers. They then created a distance score to measure time spent in each area In order to avoid testing highly interdependent data of the times spent in the three areas (sums of all behaviours in each area) Raw data were transformed into a single distance score value by adding the total duration spent in area 1 with the duration spent in area 2 multiplied by 2 and the time spent in area 3 multiplied by 3.

The alternative is to place one speaker (protected) at floor level in the middle of the room and create circular lines around the speaker to enable us to measure distance from the speaker.

I would very much appreciate it if you could you get back to me as soon as possible on the above design and questions? (by Monday 27th May if at all possible)

All the best,

Nicky