

WRIPM Progress Report for year 1 of 2

“Economic Analysis of Host-Based Poultry Ectoparasite Control”

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The study began last summer and we have completed two full replications of the economic impact studies to date (Fall 2006 and spring 2007). Studies are being done in our experimental poultry facilities at UC Riverside. Those two experiments went very well and were done using hens from a commercial producer who beak-trims at 8 weeks of age. We have just begun a study this fall that will directly contrast hens trimmed at 1 and 8 weeks of age. The chicks are being raised right now which will be used in spring studies (full economic impact study) using hens that were trimmed at 1 week of age. The latter two studies require us to invest a lot of time in raising, vaccinating, etc., but this is necessary to acquire hens that represent the greater part of the industry that beak-trims at an early age, with only supplemental trimming later in life.

Full analysis is pending, but preliminary results are as follows. The 8-week trimmed hens were significantly lighter than untrimmed hens, with an overall difference of 105 g in the first experiment. This probably reflects the stress of trimming and at least temporary reductions in feed consumption, which may reduce weight gains for a period after it is done. This weight difference was exaggerated in mite-infested hens, where the more heavily-infested, trimmed birds weighed on average nearly 200 g less than intact hens. The louse-infested hens gained significantly less weight: 6 g less per week relative to uninfested hens. Beak-intact hens also wasted more feed; the ratio of wasted to consumed feed was about 30% less for trimmed hens. Interestingly, while the differences in feed waste between intact and trimmed hens are consistent among groups (mite-infested, louse-infested, or controls), the mite-infested hens thus far have wasted less feed relative to control or louse-infested hens. The reason is unclear, although it may relate to generally depressed activity (perhaps including feed-throwing) of the mite-infested birds. Egg weights are similar for control and louse-infested hens, but beak-trimmed, mite-infested hens had eggs that were lighter by over 2 g (3-4% weight reduction) during the initial experiment. Packed cell volumes (a measure of possible anemia) were lowest for mite-infested hens (2.3% less than controls), which is the first demonstration of significant blood loss by the mite-infested birds. Interestingly, louse-infested hens also seemed to suffer a slight reduction in packed cell volume. Chicken body lice (*Amblycera*) are perhaps underestimated as blood-feeders on birds. The differences in packed cell volume are not regarded as representing clinical anemia, but probably do reflect blood removal by the ectoparasites.

The full economic analysis will be conducted by D. R. Kuney once the full data set is available. All behavioral filming has been done as planned in the experiments done so far, but those tapes have not been examined in detail as yet.