Stress in miniature chicken (*Gallus gallus f. dom.*), pigeons (*Columba livia f. dom.*) and miniature ducks (*Anas platyrhynchos f. dom.*) caused by different means of transportation in purpose built transport boxes.

Claudia Neff
Diss. 2000

SUMMERY

During the period from June to October 1998, three experiments were conducted with different species of fowl (miniature chicken, pigeons and miniature ducks), in order to learn more about the requirements of pedigree or racing fowl and stress during transport.

The animals were shipped in a specially developed transport box either by courier service or a private car. A control group supplied baseline data. A further group of animals remained in their transport box at the point of departure, to facilitate distinguishing changes due to stress from confinement in the boxes (e.g. lack of feed and water) from those resulting purely from transport.

Disturbances of physiological processes were detected using the following blood parameters: total protein, glucose, urea and uric acid, potassium, sodium and calcium, creatinine-kinase and hematocrit. The plasma corticosterone level and the H/L-ratio, changes in which indicate stress, were also measured. Also, changes of the internal body temperature and of body weight were recorded, as big changes in these parameters can also be linked to reduced well-being. Additionally, the temperature and humidity inside the transport boxes were measured in order to estimate the stress these factors posed for the animals.

The aim of the research was to determine, utilizing these parameters, whether it is appropriate to transport poultry in these boxes via courier service or car. Due to moderate temperatures outside and the small number of animals per box, ideal circumstances prevailed for the transport during the experiments.

Despite these ideal circumstances, disturbances (some of them statistically significant) in some of the parameters could be detected. In the miniature chickens, for example, changes were found in levels of glucose, potassium and hematocrit. In pigeons, changes were detected in urea, sodium, hematocrit and H/L-ratio measurements. Miniature ducks showed changes in total protein, level of urea, the ratio of urea to uric acid, the levels of potassium and sodium and the H/L-ratio. The extent to which these results show an impairment of physiological processes or stress on homeostatic mechanisms requires further research.

Generally, one has to assume that transportation is stressful for an animal. Measuring CK-
activity, is was possible to highlight that animals, during transport, did not incur damage to muscle cells due to bruises or other trauma.

The measurement of corticosteron often yielded very low values below the analytical limit in miniature chicken and pigeons. Statistically, no differences due to stress were evident between the four groups of the same species. But this result has to be interpreted with caution, as glucocorticoids are released episodically which may lead to misinterpretation of results. Judging from the individual measurements, which rarely lay outside the range of reference supplied by the literature, and from the clinical presentation of the animals, it can be concluded that, under the transport conditions given, no serious impairment of bodily functions occurred and that the specified transport boxes can continue to be used for the transport of fowl.