

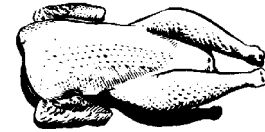


The University of Georgia

Cooperative Extension Service

College of Agricultural and Environmental Sciences / Athens, Georgia 30602-4356

JULY 2000



PROCESSING TIP...

PRESLAUGHTER STRESS MAY AFFECT POULTRY MEAT QUALITY

In the January 1996 Processing Tip, the effect of stress before slaughter on color of poultry breast meat was discussed. It was noted that birds exposed to stress before slaughter may yield abnormally pale or dark breast meat. Broilers experience preslaughter stress when they encounter an external stimuli or unsettling circumstances that are adverse or disruptive. The immediate response to the stress, among other things, is an increase in heart rate, a rise in blood pressure, and muscular tension. Many different factors cause preslaughter stress for broilers, such as cold or hot ambient temperatures, long transportation, physical exertion, and human contact. The remainder of this poultry tip will focus on stress incurred during transportation.

Transporting broilers may be stressful because of environmental temperatures, loading density, duration of transport, vibration and noise. It has been suggested that transportation may affect meat quality because of the broilers' hormonal and metabolic response to the stressor, with the resulting loss of body equilibrium. Fortunately, birds recover from stress relatively quickly, but even brief stress may account for varying meat quality. Preslaughter stress may affect the acidity, color and water binding properties of the meat. According to Lambooj (1999), there are several factors that affect broiler stress, meat quality and carcass contamination. These factors include poultry health, genetics, physical condition of broilers, management, and the catching crews. In his proceeding on ante mortem factors related to meat quality, Fletcher (1991) categorized production factors that can lead to carcass (C) or meat (M) defects. These production factors are summarized in the following table.

PUTTING KNOWLEDGE TO WORK

The University of Georgia and Ft. Valley State College, the U.S. Department of Agriculture and counties of the state cooperating.
The Cooperative Extension service officers educational programs, assistance and materials to all people without regard to race, color, national origin, age, sex or disability
An equal opportunity/affirmative action organization committed to a diverse work force..

Table 1: Summary of poultry carcass (C) and meat (M) defects and their suspected area of origin during production. (Fletcher, 1991; with modifications.)

Defect	Carcass (C) or Meat (M)	Production Cause
Bloody thigh	C, M	Management (feed contaminate - aflatoxin)
Breast blisters	C	Management
Brown spots (melanin)	C	Genetics, Nutrition (feed contaminate)
Bruises	C, M	Management (including catching), Nutrition
Composition	C, M	Genetics, Nutrition
Conformation	C	Genetics, Nutrition
Fat stability	M	Nutrition
Feather color	C	Genetics
Focal Myopathy (degenerative muscle)	M	Genetics
Hemorrhages	C, M	Nutrition
Leg problems	C	Management, Nutrition
Meat color	M	Genetics, Nutrition
Meat staining	M	Management, Nutrition
Meat tenderness	M	Genetics, Management
Muscular dystrophy	M	Genetics
Oily bird syndrome (OBS)	C	Management, Nutrition
Off flavor	M	Management, Nutrition
Scabby hip	C	Nutrition
Skincolor	C, M	Genetics, Management, Nutrition
Yield	C, M	Genetics, Management, Nutrition

By knowing the approximate source, it is much easier to control the conditions leading to the problem. In Europe, emphasis is being placed on limited transportation time and stricter production controls, partly due to animal welfare concerns. Since length of transportation does affect carcass and meat quality, as well as pathogen contamination, it may be time to focus more attention in this area.

References:

- Fletcher, D. L., 1991. Ante Mortem Factors Related to Meat Quality. Proceedings of the 10th European Symposium on the Quality of Poultry Meat. Beekbergen, The Netherlands.
- Lambooi, B., 1999. Contamination during transportation and stress. World Poultry Magazine, November. pp.44-45.
- Northcutt, J. K. 1996. Discoloration of chicken or turkey breast meat. Processing Tip. January.

Julie K. Northcutt
Extension Poultry Scientist

County Extension Coordinator/Agent

Consult with your poultry company representative before making management changes.

“Your local County Extension Agent is a source of more information on this subject.”