



Worthwhile Operational Guidelines & Suggestions

BROILER PROCESSING TIMELY INFORMATION – FEBRUARY 2006

CYANOSIS

Carcasses with dark, cyanotic appearance, but without any visible pathological lesions, are often condemned during inspection, because little is known about their safety and quality. Factors contributing to the development of this dark, firm and dry (DFD)-type of condition in poultry remains to be fully elucidated. In many instances these carcasses are categorized as septic or toxemic (systemic disease states caused by disease producing microorganisms or their toxins, respectively). Shipping stress or other stressors prior to slaughter are believed to play a critical role in this condition. Chronic hypoxia from overcrowding during transportation, heat stress, pre-slaughter dehydration, exposure to mycotoxins, fat quality, and improper bleeding has been incriminated as other potential contributing factors. Biochemical status of the muscle at slaughter directly influences the pH value, which in turn alters the light reflecting properties of the meat. Hence, pH and color values of the breast muscle can be used to assess and monitor this cyanotic condition objectively. Cut-off pH value of 6.3 was established for classifying the breast muscle cyanotic. Whereas, the cut-off CIE color coordinates of 39-40 for lightness (L^*) and 3-4 for redness (a^*) have been proposed (Mallia et al, 2000). Variations in muscle color (and pH) have a significant influence on the shelf-life, odor development, marinade pick-up, drip loss, and water holding capacity and cook loss of the meat.



*J. G. Mallia, S. Barbut, J. P. Vaillancourt, S. W. Martin, and S. A. McEwen, 2000. Roaster breast meat condemned for cyanosis: a dark firm dry-like condition? Poultry Science 79:908-912.



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