



Worthwhile Operational Guidelines & Suggestions

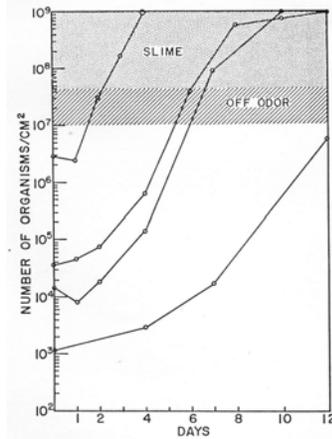
BROILER PROCESSING TIMELY INFORMATION - DECEMBER, 2001

PRODUCT SHELF-LIFE

Shelf-life represents the useful storage time of food products. Beyond this period, changes in smell, color, taste, texture, or appearance make to product unacceptable.

Because of unique biological and chemical properties, meat products undergo deterioration progressively from slaughter until consumption. As a matter of fact, fresh meat has a shelf-life of only 1 day or less at ambient storage temperatures of 68 to 86 F. Microbial growth is by far the most important factor in spoilage of fresh meats. Microorganisms have specific growth requirements for temperature, moisture, pH, nutrients, and time. Since meat spoilage results from the activity of mixed populations of microorganisms, the time to spoilage and signs of spoilage depends on type of meat product, type and number of microorganisms involved, and storage temperature. The nutrient composition of meat and poultry represent an optimum medium for microbial growth. While the deep tissues of animals are relatively free from microbial contamination, the surface of the meat becomes contaminated during slaughter with a variety of microorganisms, including spoilage and pathogenic bacteria, yeasts, and molds, that originate from the skin, fecal material, soil, water, and air.

Reducing the initial microbial load and maintaining low product temperatures are the two most effective means to extend the shelf-life of fresh meats. As illustrated in attached figure, off-odor and slime develops, when bacterial numbers reach about 10^7 and 10^8 cells per cm^2 of fresh poultry, respectively. As the initial number of organisms increase, the retail shelf-life is reduced. Product with an initial bacterial load of 10^4 cells/ cm^2 will exhibit slime in 16 days at 32 F, 5 days at 41 F, and only 2 days when stored at 50 F.



Contact: S. F. Bilgili, Ph.D.

Phone: (334) 844-2612

E-mail: sbilgili@acesag.auburn.edu



Poultry Science Department, Auburn University, Auburn, AL 36849-5416

www.ag.auburn.edu/dept/ph/

