

Hyperspectral Imaging for Quality and Safety Inspection
of Agro-food

Products

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Hyperspectral imagery is a fusion of imaging and traditional spectroscopy. ARS has developed various line-scan-based hyperspectral techniques for visible/near-infrared (NIR) reflectance and fluorescence imaging, to use as both lab-based research tools and as online inspection platforms for poultry and produce screening. We recently expanded the line-scan HI capabilities to include rapid macro-scale Raman chemical imaging. The current state of the art of line-scan hyperspectral imaging (HI) systems and their applications in agro-food industries are discussed, including rapid online safety and quality inspection of poultry and of fresh produce as well as the relatively new NIR-based HI detection of food adulterants for ingredient authentication. We expect HI techniques to remain significant as critical research tools in the agro-food sector, and their implementation for high-speed applications in food processing to be widely adopted as lower-cost instrumentation capable of high-speed operations becomes available.