

**383 Detection of feed-ingested plant DNA fragments in salt-cured pork product.** T. Reuter<sup>\*1,2</sup>, K. Aulrich<sup>2</sup>, W. Schnäkel<sup>3</sup>, and T. McAllister<sup>1</sup>, <sup>1</sup>*Agriculture and Agri-Food Canada Research Centre, Lethbridge, AB, Canada*, <sup>2</sup>*Federal Agriculture Research Centre, Westerau, Germany*, <sup>3</sup>*Hochschule Anhalt, Bernburg, Germany*.

The use of genetically modified (GM) plants in animal nutrition is increasing, and feed related DNA-fragments are constantly exposed to the gastrointestinal cell wall and are able to enter the tissues of humans and animals. This leads to the possibility that, foreign DNA in food animals may survive food processing and be consumed. We used PCR techniques to track feed-ingested DNA fragments in a minimally processed salt-cured pork product. The presence of plant-specific DNA (a 140-bp fragment of chloroplast *rbcL*, encoding Rubisco) was confirmed in 53 of 144 muscle tissue samples collected from 48 pigs fed to slaughter on diets containing 70% parental or GM maize ( $n = 12$ ;  $n = 36$ ). Gammon was produced from 12 frozen vacuum-packed *rbcL*-positive *M. gluteus maximus* samples. Samples (800 g) were thawed at 6°C, then dry-salted, cured (14 d; 6°C), rinsed (2 h), dried (5 h), and smoked (7 d) at <20°C. Total DNA was extracted from 25 mg subsamples and PCR was conducted using the primer pair Rub01/Rub02 to amplify the *rbcL* 140-bp fragment with consideration for the appropriate positive and negative controls. Feasibility of the PCR was confirmed and the limit of detection was established at 0.8 pg/μL. Gel electrophoresis revealed substantial degradation of DNA during gammon production. However, the 140-bp fragment was detected in 6 of the 12 samples. To date, only native (i.e., non-GM) plant DNA has been detected in animal tissues or food products. Research suggests that foreign DNA in GM crops behaves similarly to endogenous DNA, thus rates of uptake and/or survival of foreign and endogenous DNA would presumably also be similar. The likelihood of uptake of a transgenic fragment will increase with the prevalence of GM feedstuffs, but low copy number of introduced genes in GM crops may continue to hinder their detection.

**Key Words:** GMO, Food, Pig