

Metal residues in swine slaughtered in provincially inspected abattoirs in Alberta

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This project determined the levels of eight metals in hogs slaughtered at provincially inspected abattoirs in Alberta. The 1343 kidneys analyzed (550 underweight hogs, 514 market hogs, 279 sows) were initially collected for antibiotic residue analysis. Sampling at 48 provincially inspected abattoirs was conducted over a three-month period in 2004. Random sample collection was based on the proportion of pigs slaughtered at each facility during the same time period in 2003. Kidneys were analyzed by spectroscopic techniques: mercury and lead by atomic absorption (AA) and arsenic, cadmium, copper, molybdenum, selenium, and zinc by inductively coupled plasma (ICP).

The Canada Food and Drug Act does not list maximum residue limits (MRLs) for metals in swine tissue. The Canadian Food Inspection Agency (CFIA) has compiled administrative guidelines for normal levels of a variety of metals in food products. Levels higher than the guidelines are not considered to be unsafe, illegal or a basis for regulatory action, but these levels may warrant further on farm investigation to identify the source and possible reduction strategies.

The percentage of analyzed kidneys above the CFIA administrative guidelines were: 1.2% cadmium, 4.9% copper, 0.1% lead, 0.2% mercury, 93.9% selenium, and 0.4% zinc. Most of these values lie within normal ranges for swine kidney. The guideline for selenium applies to all foods, and as such, may be too restrictive for pork kidney.

Implications:

These results give no indication of a widespread metals residue problem in the pork industry. There is, however, a need for the establishment of species and organ specific guidelines for metal residues.