

Geochemical lead contamination of cattle, sheep and free range chickens on UK farms

Area of research interest: [Chemical hazards in food and feed](#)

Study duration: 2011-12-01

Planned completion: 1 March 2014

Project code: FS241030

Conducted by: Food and Environment Research Agency

Background

Lead is a naturally occurring chemical compound that is present in soil, water and the atmosphere and therefore it is likely to occur at various levels in a wide range of foods including meat and offal.

The study provided an indication of the levels of lead likely to be found in different tissues of cattle, sheep and free range poultry and the relationship to soil lead levels. The results confirm and provide further insight for previous data from statutory surveillance and notifications of on-farm geochemical lead incidents. In such cases following a risk assessment, proportionate risk management advice is provided by FSA to ensure that meat and offal entering the food chain is safe to eat.

Research Method

To try and establish levels of geochemical lead in cattle, sheep and free range poultry, samples were representatively collected from 112 animals at slaughter. Meat (muscle) and liver samples were collected from cattle, sheep, laying hens and broilers. Additionally kidney was collected from cattle and sheep and eggs collected from laying hens.

The approximate age ranges of animals sampled were; 16 to 130 months for cattle, 6 to 72 months for sheep, 9 to 26 months for laying hens and 2 months of age for broilers.

A total of 82 animals were from areas of high geochemical lead with the remaining 'control' animals from areas of low geochemical lead.

Results

The results of the study indicated that the levels of lead in meat from cattle, sheep and poultry reared extensively on land containing naturally high levels of geochemical lead were below the maximum level for lead in meat.

Levels of lead found in liver and kidney from animals reared on land containing naturally high levels of geochemical lead were above the permitted level for lead in liver and kidney, however the levels are not considered to be a risk to consumers.

Research report

PDF

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