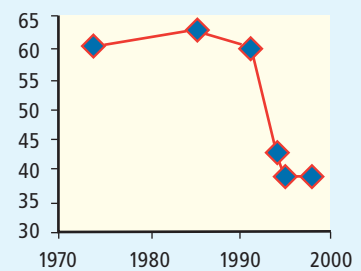


# Application of Inductively Coupled Plasma (ICP) Techniques for the Determination of Selenium in Soil

## Why is selenium important?

- Selenium is essential for human health and for the health of grazing livestock such as sheep and cattle
- The amount of selenium in the food we eat or in the grass eaten by grazing animals depends on the amount present in the soil where the plant is grown
- Intake of selenium by the UK population has declined by around 33% in recent times. This is due to the replacement of American milling wheat grown in selenium rich soil with UK-sourced grain from soil which contains significantly less selenium
- Vitamin supplements containing selenium are often given to grazing animals and are taken by some people

Human intake of Selenium in the UK ( $\mu\text{g}/\text{day}$ )



## How are levels of selenium measured?



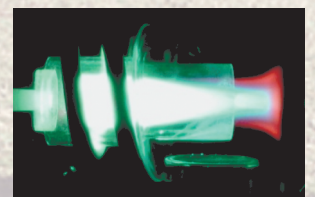
Soil sample is taken...



...dried and milled...



...dissolved in strong acid...



...and sprayed into a hot argon plasma...

The concentration of selenium in solution can then be determined by ICP-OES or ICP-MS (see poster "Metals analysis by Inductively Coupled Plasma (ICP)").

This value is then calculated to determine the concentration of selenium in the soil.

Scottish agricultural soils have been found to contain between 0.2 and 1.5 mg/kg.