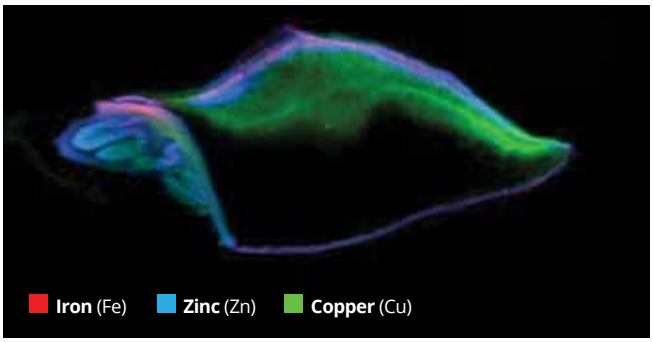
Accelerating food solutions

Australian Synchrotron

The Australian Synchrotron is being used to develop new wheat varieties to help solve nutritional deficiencies.

The Australian Synchrotron is one of the most important landmark research infrastructure platforms in the southern hemisphere. Thousands of Australian and international researchers are using the unique properties of synchrotron light to help a range of industries including the food production industry who are benefiting from new food technologies and more efficient production processes.



X-ray fluorescence microscopy images showing the concentration and distribution of iron, zinc and copper in a single wheat grain. Image courtesy University of Adelaide.

Improving crop yields by 15 per cent

Using the Australian Synchrotron's Macromolecular Crystallography beamlines, researchers from the University of Queensland have developed plants that are less susceptible to pre-harvest diseases. This can cause crop losses of up to 15 per cent in a single season and helping improve plant resistance to fungal and microbial infections.

Solving nutritional deficiencies

Researchers from the University of Melbourne and University of South Australia are utilising the Australian Synchrotron's X-ray Fluorescence Microscopy Beamline to validate new iron and zinc-enriched rice and wheat varieties to help solve nutritional deficiencies affecting two billion people around the world.

The goal is to distribute the rice and wheat varieties to farmers in developing countries to improve global health. Australian growers will also benefit from access to the new varieties, particularly the micronutrient-enriched wheat, which is likely to grow better in zinc-deficient soils.

A more competitive meat industry

Working with the Australian Meat Processing Association, and universities and state agriculture departments in Victoria and New South Wales, researchers are using the Australian Synchrotron to validate and understand tests for meat tenderness and juiciness. These results are being correlated with feed, season and region to help improve the quality of Australian meat.

New milk varieties to overcome intolerances

Research on milk digestion conducted on the X-ray Absorption Specroscopy Beamline could lead to the production of new types of milk suitable for premature babies and people with milk intolerances with the potential to open up new markets for Australian dairy particularly in the fight against obesity.

Researchers have used the Synchrotron to study the nanostructure of milk, and how its components interact with the human digestive system.

For more information about the important work undertaken by the Australian Synchrotron please call 03 8540 4100.

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