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Agricultural research and nuclear science

It's not well known that nuclear science and technologies, including the OPAL reactor at Sydney's Lucas Heights, are used to benefit the agricultural industry quite significantly.

Every year, researchers and scientists from agricultural businesses and universities, use technologies at the Australian Nuclear Science and Technology Organisation (ANSTO) for research including:

- Analysing soil cores
- Environmental and pollution monitoring
- Analysing new machinery for wear and fatigue
- Analysing new farm chemicals
- Irradiating seeds to produce new traits for disease resistance, different food qualities and agronomic traits to improve the productivity and marketability of grain crops
- Groundwater assessment

In addition ANSTO provides other services to industry, such as fruit fly sterilisation and fruit irradiation, which assist Australian farmers and make it possible to access key export markets. As an example, New Zealand now accepts irradiated Australian mangoes.

ANSTO meets with Kimba farmers

When CEO of ANSTO, Dr Adi Paterson visited Kimba in May 2018, he met with local farmers and explained how the facility will offer its host community a chance to partner into the broader Australian science and research community.

"The facility will be resourced as a centre of excellence, becoming part of Australia's world-class nuclear science network that includes the OPAL reactor and associated science infrastructure at Lucas Heights in Sydney, the Australian Synchrotron in Melbourne, and other government and medical facilities."

In May 2018, ANSTO Senior Researcher Dr Mathew Johansen discussed with locals' environmental projects ANSTO is conducting that focus on agriculture.

"ANSTO is involved in a range of research with different universities across Australia and the world conducting agricultural research. Examples include helping grain producers optimise their existing fertiliser methods and adopt new technologies to help improve crop yields, as well as water research that helps to better understand environmental sustainability issues around arid rivers, which could have significant implications for land management."

In 2017, some Kimba farmers visited ANSTO's Lucas Heights campus and met researchers including Dr Justin Davies, Manager of ANSTO's Gamma Irradiations, who spoke about the applications of his work to food and agriculture.

"Our research uses nuclear science to really practical outcomes for agricultural communities, to protect crops and even improve some crops. One of the projects focuses on the irradiation of wheat, and how it could potentially contribute to the creation of new varieties resistant to wheat stem rust."