Location

The Centre is located within the Postgraduate Research and Training Complex of the Department of Agriculture next to the National Analysis Laboratory. It is, however, available for research and teaching by all other departments and centers of the university.

Objective of the Centre

UBC strives to accomplish high quality research and training outcomes with an entrepreneurial characteristic that emphasizes the application of biotechnology in addressing issues associated with agriculture and food production, forestry and the environment in PNG.
Keeping the center as a modern state-of-the-art facility and its operation at an international standard through stringent control and containment is a challenge, but it is necessary to ensure provision of high quality services and products to attract quality clients from within and overseas.
The Centre continues to fulfill its primary commitment and obligation in training skilled manpower through undergraduate and postgraduate students as well as those on short-term training attachments.

Facilities & Services

The tissue culture research facility at the UBC provides an excellent condition for research and technology transfer activities having met the required safety standards at an international level. The facility is well set to store plants in vitro for conservation of plant genetic resources (PGR) and to provide the necessary quarantine measures for national and imported germplasm.
It also has the capacity to mass propagate plants for farmers and commercial stakeholders while utilizing this facility.
The Molecular biology lab has facilities for DNA fingerprinting and is available to do genotyping of indigenous crop plants and animals. This facility also provides a highly sensitive diagnostic tool (conventional microbiological diagnostics techniques, and DNA-based, molecular and serological techniques for diagnosis of viruses, microorganisms and pests.

Harnessing biotechnology to improve livelihoods

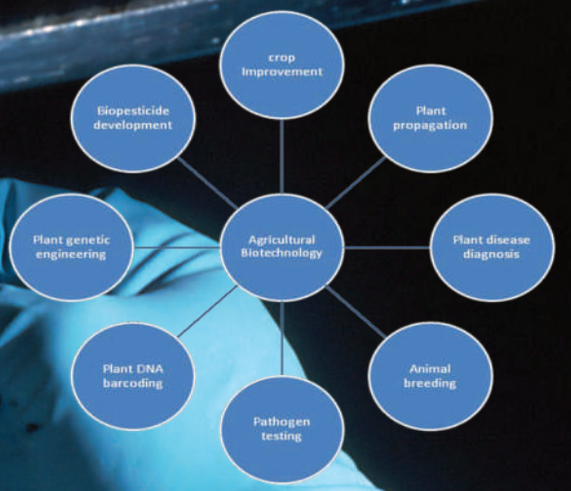
and R&D. UBC also facilitates undergraduate and postgraduate student research covering all areas of biological and biochemical sciences in Agriculture, Forestry, Applied Sciences, Mechanical Engineering and Applied Physics Departments of PNGUT. Other collaborators include National Agriculture Research Institute, Binatang Research Centre, Trukai Industries Limited and the Australian Centre for International Agricultural Research.

Products & Services

The Centre has the technical capacity to conduct sound consultancies in agriculture and related fields.
Some of our emerging products include:

i) A range of fungal inoculum for agarwood production to support eaglewood cultivation in the country, and

ii) *In vitro* production of potato microtubers to support the potato seed scheme of FPDA.



Research & Development

The Centre collaborates in applied research and consultations with several national and regional research institutions. Examples of these include tissue culture activities particularly micro-propagation (solanum potato seed system –Fresh Produce Development Agency), embryo

rescue (cocoa, ornamental orchids), plant barcoding (cocoa – Cocoa Board) and clonal propagation (eaglewood–PNGUT, coconut clonal production - Kokonas Indastri Koporesen), and inoculum development (Eaglewood–PNGUT & farmers). The Centre is an active partner of the National Biotechnology Network in developing collaboration with Corteva (a subsidiary of Dow-DuPont) for gene discovery

WHAT IS BIOTECHNOLOGY?

The term 'biotechnology' refers to any technological application that uses biological systems, living or organism, or derivatives thereof, to make or modify products or processes for specific use. Biotechnology, in the form of traditional fermentation techniques, has been used for decades and centuries to make bread, cheese or beer. It has also been the basis for traditional animal and plant breeding techniques, such as hybridization and the selection of plants and animals with specific characteristics to create, for example, crops which produce higher yields of grain. Modern biotechnology – the difference here compared with 'traditional biotechnologies' is that researchers can now take a single gene from a plant or animal cell and insert it in another plant or animal cell to give it the desired characteristics, such as a plant that is resistant to a specific pest or such as a plant that is resistant to a specific pest or disease. Modern biotechnology is therefore centered on the application of, a) in vitro nucleic acid techniques, including recombinant DNA technology and direct injection of nucleic acid into cells or organelles, or b) fusion of cells beyond the taxonomic family, that overcome natural physiological reproductive or recombination barriers and that are not techniques used in traditional breeding and selection in plants and animals.

Modern biotechnologies can be categorized into three main areas 1) Cell & Tissue Cultures,
2) Molecular Biology/Breeding and
3) Diagnostics.

The potential and possibilities can be appreciated in the diagram on the left. The Unitech Biotech Centre has the basic facilities and expertise in national scientists and technicians to provide services and advice in each of these three areas.

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UNITECH BIOTECHNOLOGY CENTRE

Background

The Papua New Guinea University of Technology (Unitech) Biotechnology Centre was initiated at the Department of Agriculture. It was formally established in 1997 by the University Council as the Unitech Biotech Centre (UBC) to encompass 'modern biotechnology' research, training and its application in agriculture and also related disciplines such as food science and technology, forestry, environmental safety. UBC therefore remains as one of the very few modern biotechnology research facilities in PNG.

BIODIVERSITY: BIOSAFETY: FOOD SECURITY

These are issues that impinge on modern biotechnology. Public awareness is the key to responsible adoption and accountability in the application of agricultural biotechnology to benefit and protect our rich biodiversity, ensure bio-safety and guarantee food security.