NSW Government BioFirst Portal.

The Biofirst Portal is an initiative under the NSW Government’s BioFirst Strategy, launched in 2001.

Environment

The environmental application of biotechnology techniques may yield benefits such as:

- reduced use of chemicals/pesticides, reduced ground water contamination, reclaiming of polluted or salt-affected land;
- increased agricultural productivity reducing the need for land clearing, thus protecting biodiversity;
- production of biodegradable plastics and biodiesel;
- bio-remediation of heavy metals, oils and chemicals;
- detection, removal and treatment of toxins in water, air, food and soil; and
- conversion of waste into energy.

The attached links provide further information on biotechnology outcomes in the environmental arena and information on new initiatives and the way biotechnology is managed.

NSW Links:

State of the Environment 2000
New South Wales State of the Environment 2000 (SoE 2000) provides important information to the community on the condition of our environment and how effective are our efforts to protect and enhance it. It reports on status and trends, key initiatives, reporting, etc.

NSW Agriculture
NSW Agriculture provides leadership in agricultural research, extension, education and regulation and provision of practical farm production solutions for profitable agriculture and for a better environment. This website provides further information relating to biotechnology in the area of food production and Agriculture.

NSW Health: Environmental Branch
Environmental Health is the interaction between the environment and the health of populations of people. It is often defined as "those aspects of human health determined by physical, biological, and social factors in the environment." It includes issues such as the provision of safe drinking water supplies, recreational use of water, sewage management, public swimming pools, etc.

Cooperative Research Centres
http://www.crc.gov.au
CRCs bring together researchers from universities, government laboratories, and private industry and public sector agencies to support research and development activities that achieve real outcomes of national economic and social significance. Programs containing a NSW environmental biotechnology component are listed below:

- CRC for Australian Weed Management
- CRC for Biological Control of Pest Animals
- CRC for Conservation and Management of Marsupials
- CRC for Freshwater Ecology
- CRC for Plant Based Management of Dryland Salinity
- CRC for Sustainable Tourism
- CRC for Waste Management and Pollution Control Ltd.

The program emphasises the importance of developing collaborative arrangements between researchers and between researchers and research users in the private and public sector in order to maximise the capture of the benefits of publicly funded research through an enhanced process of commercialisation or utilisation by the users of that research.

Other Australian Links

Biotechnology Australia
Biotechnology Australia’s information on environmental applications of biotechnology.

Biotechnology: Strategic development plan for Victoria
BioScience Capabilities: Environment
From BioInnovation SA - a South Australian Government Website. It considers environmental factors and covers such topics as crop protection, ecosystems management, soil and water.

Agriculture and Environment Biotechnology Commission (AEBC)
http://www.aebc.gov.uk/
The UK Government strategic advisory body on biotechnology issues affecting agriculture and the environment

Council for Biotechnology Information: Environment
http://www.whybiotech.com/index.asp?id=1805
Environmental information. From here you can also access an extensive list of environment related articles. This site is from Canada.

CSIRO
http://www.csiro.au/pubgenesite/research/#environment
This links to a full description of current Australian research being conducted by CSIRO scientists on environmental issues.

Environment Australia
Environment Australia advises the Commonwealth Government on environmental issues. This links to a fact sheet that describes ways biotechnology can be used to protect the environment better and conserve biodiversity.

Swinburne University of Technology, Melbourne, Australia. Environment and Biotechnology Centre
http://www.swin.edu.au/ebc/
The Centre is one of Swinburne University of Technology's principal research centres. It promotes the development of applied and industrial research in both environmental science and biotechnology.

International Links

Ag BioTech InfoNet
http://www.biotech-info.net/risks.html
This website contains articles, press releases, comments, reports, statements, etc. on biotechnology and associated environmental impacts.

Council for Agricultural Science and Technology (CAST)
http://www.cast-science.org
CAST assembles, interprets, and communicates science-based information on food, fiber, agricultural, natural resource, and related societal and environmental issues to our stakeholders--legislators, regulators, policy makers, the media, the private sector, and the public.

Animal Health

Biotechnology can play a key role in improving animal health and productivity. It has potential benefits for the whole community as well as industry, but like all technologies it must be carefully managed.

Benefits for animal health derived from biotechnology activities include:

- new medicines and treatments for farm and companion animals;
- Injectable vaccines;
- DNA comparisons in wildlife population management to determine how closely related species are to one another and whether endangered populations are being threatened by excessive in-breeding; and
- Enhanced feed products to boost nutrition and control disease.

The attached links provide further information on initiatives relating to animal health and the framework in which these are managed.

NSW Agriculture
The website of NSW Agriculture contains extensive information on the subject of animal health and biotechnology.

Animal Health Australia
Website of the Australian Animal Health Council Limited (AAHC). This site will provide information on current animal health issues and programs.

Animal Health Institute (AHI)
http://www.ahi.org/
This site is from the US. The AHI is a trade association that represents manufacturers of animal health care products. Contains up to date news information on animal health.

Institute for Animal Health
http://www.iah.bbsrc.ac.uk/
A research centre in the UK working to improve the health of farm animals. It aims to understand the processes of infectious diseases and from that knowledge improve the efficiency and sustainability of livestock farming, enhance animal welfare, safeguard the supply and safety of food and protect the environment. The site contains extensive information plus provides reports, publications, information on research efforts, information on training opportunities, etc.

International Federation for Animal Health (IFAH)
http://www.ifah.be/
This global federation represents manufacturers of veterinary medicines, vaccines and other animal health products in both developed and developing countries across five continents. Its goal is a harmonised science-based regulatory and trade framework that supports a global animal health industry which is economically viable and high-technology driven, contributing to a health and safe food supply. The site contains an archive of the IFAH's position papers and other public policy papers.

Peptech
http://www.peptech.com/htm/
Peptech has a specific section devoted to animal health. Peptech Animal Health (PAH) is focused on the development of veterinary pharmaceuticals that utilise the company's proprietary technology in the control of animal reproduction.

Pfizer
Pfizer is a world leading research-based animal health care company. For more than 150 years it has been involved in the discovery, development, manufacture and marketing of treatments.

**BioMedical**

Some of the potential benefits of using biotechnology products and techniques in the health sector are already being realised. Biomedical technologies are currently being used to develop:

- diagnostic tools;
- better and safer drugs;
- improved vaccines;
- new therapies and treatments for incurable diseases such as diabetes mellitus and Parkinson's disease; and
- testing and treatment for genetic components of disease.

The attached links provide further information on biotechnology outcomes in the biomedical arena and information on new initiatives and the way biotechnology is managed in NSW and Australia.

**NSW Links:**

Agenix
http://www.agenix.net/
Agenix Limited is a leading edge biotechnology company with operations in three niche businesses: AGEN Biomedical Limited, Milton Pharmaceuticals Pty Ltd and Phytoprotein Pte Ltd. It is located in North Ryde, NSW.

Ambri
Ambri is a biotechnology company that is located in Chatswood, NSW. Principal research is carried out in the healthcare industry.

The Centenary Institute of Cancer Medicine and Cell Biology
http://www.centenary.usyd.edu.au/
The Centenary Institute is an independent medical research centre. It is located in Sydney, Australia. The Institute was established by an Act of the NSW Parliament in 1985 and has formal affiliations with both the University of Sydney Medical School and the Royal Prince Alfred Hospital.

Garvan Institute of Medical Research
The Garvan is one of Australia's leading medical research institutes with programs focused on gene research and new therapies.

Inhalix
Inhalix is a biotechnology company that develops, manufactures, and sells innovative products for measuring and preventing personal
exposure to health damaging airborne particles. The first products are targeted to allergens associated with asthma, rhinitis and eczema, such as those from house dust mite, cat, dog, cockroach etc. It is based in Sydney, Australia.

Hunter Medical Research Institute (HMRI)
http://www.hmr.net.au/
The Hunter Medical Research Institute (HMRI) is a world class medical and health research organisation. It supports and promotes research initiatives by the University of Newcastle, Hunter Health and the community generally.

Making Connections: NSW Premier's Forum on Spinal Cord Injury & Conditions
http://www.spinalforum.com/
On Monday 27 and Tuesday 28 January 2003 more than 800 people gathered in Sydney to share their knowledge, research and experiences about spinal cord injury and related conditions. Participants, researchers and practitioners made connections and discussed how to create improvements for those with spine-related injuries – in Australia and around the world.

Polartechnics
Polartechnics aim to develop and commercialise medical instruments utilising the physical characteristics of human tissue as a means of diagnosing precancer and cancer. It is located in Sydney, NSW.

Prince of Wales Medical Research Institute (POWMRI)
http://www.powmri.unsw.edu.au/
The Prince of Wales Medical Research Institute (POWMRI) is situated on the Prince of Wales Hospital site, adjacent to the Medical School of the University of NSW. The Institute was officially opened on 8 November 1993. The Institute has grown to become the largest aggregate of research on the brain and nervous system in Australia.

Ventricor Limited
http://www.ventracor.com/
Ventricor Limited is located in Sydney, Australia. It has 2 divisions: Ventrassist that manufactures devices for patients with heart failure and Micromedical which designs and sells ECG equipment.

Westmead Millenium Institute
http://www.wmi.usyd.edu.au/
A New South Wales' medical research institute. It offers a significant addition to the biotechnology and biomedical research capability of Western Sydney.

Other Australian Links:

Novogen
http://www.novogen.com/
Novogen is a rapidly expanding international biotechnology company based in Australia and the USA. Novogen has three key aims: research into drug technology, research into some of the major degenerative diseases and establishment of a successful business model.

International Links:

BioMedNet
http://www.bmn.com/
BioMedNet is a gateway to evaluated biomedical websites for biomedical researchers. This site provides access to reports, books, current news, links to related sites, etc. Registration is free.

Biotech Applied
http://www.accessexcellence.org/AB/
Biotech Applied looks at the practical applications of biotechnology, including revelations in medicine.

Biotech Technology Industry Organization
http://www.bio.org/er/healthcare.asp
Information about the application of biotechnology to human health care.

Foundation for Biomedical Research
http://www.fbresearch.org/
The FBR aims to improve human and animal health by promoting public understanding and support for the humane and responsible use of animals in medical and scientific research. This site is from the US

Gradipore
http://www.gradipore.com
Gradipore is a global biotechnology company that researches, develops, manufactures and markets separation technologies for the life sciences market, and blood clotting tests for genetic disorders for the health industry.
Agriculture

Biotechnology has the potential to make agricultural activities more efficient and environmentally friendly.

The application of biotechnology techniques to primary production can help Australia to maintain and improve existing production efficiency and therefore our share of world markets, through:

- increased productivity and yield;
- more efficient use of agricultural and veterinary chemicals;
- savings in energy inputs to farm production;
- recovery of degraded land;
- reduced chemical sprays, with less exposure of farm workers;
- improved food storage and nutritional quality; and
- improved identification and management of agricultural pests and diseases.

NSW Agriculture provides leadership in agricultural research, extension, education and regulation and provision of practical farm production solutions for profitable agriculture and for a better environment. This website provides further information relating to biotechnology in the area of food production, the NSW Government BioFirst Awards, etc.

The development of genetically modified crops is a well known area of biotechnology activity. In Australia matters relating to genetically modified organisms are regulated by the Gene Technology Regulator, a position established under Commonwealth legislation.

The Gene Technology Regulator is an independent decision-maker on licence applications in relation to genetically modified organisms. The regulator is tasked with ensuring that human health and the environment are protected.

The following links provide information on biotechnology outcomes in the agricultural arena and information on new initiatives and the way biotechnology is managed in NSW and Australia.

NSW Links:

NSW Agriculture
http://www.agric.nsw.gov.au
NSW Agriculture provides leadership in agricultural research, extension, education and regulation and provision of practical farm production solutions for profitable agriculture and for a better environment. This website provides further information relating to biotechnology in the area of food production, the NSW Government BioFirst Awards, etc

Other Australian Links:

Agricultural Biotechnology: What is happening in Australia in 2000
A booklet from the Australian Department of Agriculture, Fisheries and Forestry

Australia: Department of Agriculture, Fisheries & Forestry
Australian government network with factsheets, papers, statistics and links related to mining, forestry, agriculture, quarantine, trade and the environment.

Avcare
This is the website for the National Association for Crop Production and Animal Health in Australia. It represents the manufacturers and distributors of both crop production and veterinary health products.
International Links:

AgBioForum
http://www.agbioforum.missouri.edu/
AgBioForum publishes articles on the economics and management of agricultural biotechnology. AgBioForum provides information on new ideas leading to socially responsible and economically efficient decisions in science, public policy, and private strategies relating to agricultural biotechnology.

AgBios: Agriculture & Biotechnology Strategies (Canada) Inc. (AGBIOS)
http://www.agbios.com/
Provides basic information about plants with novel traits, including genetically engineered crop species, and other general agricultural biotechnology related information. It also provides scientific and regulatory information

AgBiotechNet
http://www.agbiotechnet.com/
An online service for agricultural biotechnology. Contains news, information on the latest reports and conferences, etc. This is from the US.

Biotech Applied
http://www.accessexcellence.org/AB/BA/#Anchor-11481
Biotech Applied looks at the practical applications of biotechnology, including agricultural applications.

Technico
http://www.technituber.com/
Technico is an agri-biotechnology company using technology to impact on the US$100 billion per year global potato production.

U.S. Department of Agriculture (USDA). Biotechnology Website
http://www.usda.gov/agencies/biotech/
This website concentrates on biotechnology in agriculture. It covers research, laws and regulations, etc.

U.S. Department of Agriculture (USDA). Economic Research Service
http://www.ers.usda.gov/Briefing/Biotechnology/
This link contains information and research on biotechnology in agriculture - including adoption, economic and environmental impacts, marketing, labeling and trade issues.

BioLink Program

The BioLink program is designed to expedite the commercialisation of biotechnology-related research in NSW by assisting biotech research institutions with IP mining and commercialisation, entrepreneurship and the attraction of venture capital. Bio-link was created through a partnership of medical research organisations to provide world's best practice business development services to over 1,200 researchers both in Sydney and throughout the state of New South Wales (NSW).

The partnership includes:
- The Garvan Institute of Medical Research
- Hunter Medical Research Institute
- Westmead Research Hub
- Prince of Wales Medical Research Institute
- ATPinnovations
- IBM Australia
- Australian Graduate School of Management

Gene Technology in Australia
http://genetech.csiro.au/
This CSIRO site aims to explain the science of gene technology, and describe what Australian scientists are doing. It also covers some aspects of the public debate on gene technology.

Biotechnology Industry Organization
http://www.bio.org/bioethics/stemcell.asp
Stem Cell Research from the Bio Website.

National Institutes of Health Stem Cell Information
http://stemcells.nih.gov/
General information and reports on stem cell research. This information is from the US and is a source of recent news.

Projects allocated funds under the BioPlatform component of the BioFirst strategy are:
• the Agricultural Genomics Centre, which will link a number of regional centres including Wagga Wagga.
• the Australian Proteome Analysis Facility
• a Nanostructural Analysis Network Organisation