EDUCATION, SCIENCE AND TRAINING

SENATE LEGISLATION COMMITTEE - QUESTIONS ON NOTICE
2005-2006 SUPPLEMENTARY ESTIMATES HEARING

Outcome: CSIRO
Output Group: CSIRO

DEST Question No. E749_06 – Final

Senator Wong provided in writing.

Question:

The 12 September 2005 internal document, titled, **"**Advice to Executive Management Council" states that CSIRO will shift away from basic agriculture research. See extract below:

"Plant based agriculture
Reduce over time research supporting small incremental changes in agriculture. … While overall resource levels in the area are envisaged to remain constant, investment in plant and forest based agriculture is likely to decrease as the outputs manifest themselves in a number of other areas (for example , further processing, manufacturing, health and the environment).

How much money will CSIRO shift away from plant and forest based agriculture (per year if possible)?

What is currently classified as plant and forest based agriculture?
Please provide examples of research projects currently in this area.

Where will the money be invested? Please provide details of research projects.

Over what time period will this shift occur?

Answer:

CSIRO has provided the following response.

Plant and forest based agriculture research

CSIRO is not reducing its research effort in plant and forest based agriculture. It is maintaining its investment of 25 percent of CSIRO's total appropriation based research budget.

However, CSIRO is refocusing its agricultural research in response to the Science Investment Process which is a broad research directions setting framework that will guide CSIRO's future research priorities. The process of defining research projects is still in progress and only broad areas of focus where CSIRO can have the greatest impact have been identified. A 5+ year perspective will be taken for the shifts in research focus to occur.

CSIRO has several hundred projects in the areas of plant and forest research and these are largely undertaken in the Divisions of Plant Industry and Entomology, and the Food Futures Flagship. CSIRO's forest based research is conducted in Ensis (joint venture with Scion formerly New Zealand's Forest Research).

CSIRO plant and forest based research covers a wide range of areas including farming, biotechnology, horticulture, cotton and native plants. The examples below indicate the breadth of projects undertaken by CSIRO in these areas:

- **Manipulating genes to enhance cotton fibre elongation and cellulose synthesis**

The length and strength of cotton fibre are key determinants of quality for the end use of this product in textile production. CSIRO are determining which genes are important in controlling cotton fibre length and strength and manipulating these genes to improve fibre quality.

- **Drought Proofing Grain Size in Wheat**

Drought is a serious problem affecting wheat yields in Australia resulting in small grains which can not be filled. CSIRO are examining the role of carbohydrates stored in the stem as an insurance policy for grain filling under drought, as these carbohydrates can be remobilized to the filling grain when leaf photosynthesis has stopped due to drought stress.

- **Increasing profits in the High Rainfall zone**

This project aims to increase farm profits in the High Rainfall Zone as a direct result of farmers incorporating dual-purpose winter wheats into previously wholly-grazing systems (potentially >$145 million annually) and indirectly through reductions in soil acidity (potentially >$16 million annually). The project will quantify the 'best-bet practices' required to optimise the value of the grain/animal production from winter wheats and incorporate these into the whole-farm decision support tool FarmWi$e, to provide a vehicle for more efficient adoption of the technology by farmers.

- **Using GrassGro to set benchmarks for districts and farms within a district**

CSIRO is using its computer-based decision support tool “GrassGro” to simulate the resources that underpin grassland systems so that the sustainable carrying capacity of grazing systems can be estimated. The project aims to help graziers lift production and maximise profitability without over-stretching soil, pasture and animal resources. The research will provide a method for assessing grazing land capability that will be essential for farmers throughout southern Australia.

- **Forest condition and biodiversity**

Provide decision support, and hazard and risk assessment tools in natural and planted forests to assess forest vigor and anticipate impacts of forest health, stresses and nutrition problems on delivery of wood products and environmental services.

- **Germplasm development**

Development and deployment of germplasm to support the establishment of commercial plantations, and plantations in ‘marginal’ (especially low rainfall) environments where a mix of commercial and environmental objectives are required.

- **Forest Biosecurity**

To quantify and mitigate the risks to forests and forest ecosystems from biosecurity threats. Biosecurity is defined as the exclusion, eradication, or effective management of risks posed by pests (insects, pathogens and weeds) to the economy, environment, and human health.

- **Crop Biofactories Initiative**

In the first phase of the Crop Biofactories Initiative, CSIRO and the Grains Research and Development Corporation (GRDC) are investing $13 million to look at a range of compounds that plants can produce and evaluate their potential as replacements for petrochemicals in the manufacture of polymers and other industrial products.

- **Cotton Pest Management**

The research aims to develop robust integrated pest management strategies for cotton and grain ecosystems in eastern Australia through a better understanding of the ecology and behaviour of major pests such as the cotton boll worm, other invertebrate pests and beneficials.