Rural and Regional Affairs and Transport Legislation Committee

ANSWERS TO QUESTIONS ON NOTICE

Additional Estimates February 2014

Agriculture

Question: 54

Division/Agency: Agricultural Productivity Division/Grains Research and Development Corporation

Topic: Genetically modified funding

Proof Hansard page: 58

Senator SIEWERT asked:

Senator SIEWERT: Could you take on notice to provide me with an updated list of the GM work that you are currently funding?

Mr Harvey: I certainly can.

Senator SIEWERT: Do you do an assessment of the uptake of GM crops amongst farmers?

Mr Harvey: We have done some work looking at the uptake of canola and looking at the impact of GM canola, its benefits and its costs in a farming systems context.

Senator SIEWERT: How long ago did you do that?

Mr Harvey: That work has been done over a number of years and it is due for release Friday week, 7 March.

Senator SIEWERT: Have you done any other crops?

Mr Harvey: Not to my knowledge. I would need to check and confirm that.

Senator SIEWERT: If you could take that on notice it would be appreciated.

Answer:

Any project involving basic molecular biology techniques is, by definition, a GM project (GM lab techniques are routinely applied in molecular biology) and Grains Research and Development Corporation (GRDC) currently funds several hundred molecular biology projects. Most of these projects relate to molecular biology proof-of-function studies where GM plants are produced to examine gene function in a laboratory or glasshouse setting (controlled environment). The knowledge of gene function is then passed on to plant breeders for subsequent manipulation of these genes by traditional plant breeding processes.

A very limited number of projects generate transgenic plants with the aim of delivering a commercial product (GM variety) for Australian growers to use. Current projects in this category are:

Question: 54 (continued)

1. Sorghum GWD Collaboration "**CSP00118: Feed Grains Partnership Sorghum Project**"

   The project builds on patented outcomes of CSP00060, transferring new insights in starch modification from wheat to sorghum for animal feed applications where the goal is improved feed conversion efficiency and enhanced product quality. The project involves both GM and non-GM delivery methods

2. **CSP00145: Omega3 canola collaborative research project**

   This project is a collaboration between Nuseed, the Commonwealth Scientific & Industrial Research Organisation (CSIRO) and the GRDC to develop genetically modified (GM) canola, which contain healthy long-chain omega-3 oils. The GM long-chain omega-3 canola contains a single construct of seven genes involved in the biosynthesis of omega-3 fatty acids, designed to enhance the plant's oil profile. The gene transfer is from one plant, microalgae, to another plant, canola. The aim of the omega-3 canola is to provide a sustainable, renewable long-chain omega-3 oil product as an alternative to using finite wild fish stocks.

3. **CSP00167: Crop Biofactories Initiative 3**

   This project aims to generate super high oleic safflower (SHO) genetically modified to express over 90% oleic acid in the seed oil. SHO oil is particularly valuable in the international industrial oleochemicals market for manufacture of diacids (azelaic acid), oleyl alcohol and other chemical derivatives; in lubricants, hydraulic fluids and electrical transformer oils; and in pharmaceutical and cosmeceutical formulations. SHO oil is not expected to be used in the food oils industry

4. **UWA00129: Generation of genetically-modified herbicide tolerant narrow-leaf lupin**

   The project will generate genetically modified HT narrow-leafed lupins. There are direct economic and agro-environmental benefits to producers through reduced herbicide use, improved yields and weed management; economic benefit to the commercialisation partners from product success. Adoption of herbicide tolerant cultivars by farmers would ensure better weed control in lupin crops.

5. **ACP00002: Australian Centre for Plant Functional genomics**

   The Australian Centre for Plant Functional Genomics, conducts research aimed at increasing the ability of wheat and barley to grow and yield in harsh production environments using the latest biotechnology technologies. This research involves both genetic modification (GM) and non-GM techniques. Specifically, the ACPFG applies information about genome composition, gene expression, and metabolic processes to determine how plants respond to abiotic stresses such drought, salinity, heat, frost and nutrient deficiencies. This knowledge and associated breeding tools are delivered to breeders to accelerate production of new cultivars that can cope with adverse environmental conditions with improved yields.

No. GRDC has not done work on uptake of GM for other crops. Canola is the only GM commercially grown crop on which GRDC collects levies.

Rural and Regional Affairs and Transport Legislation Committee

ANSWERS TO QUESTIONS ON NOTICE

Additional Estimates February 2014

Agriculture

Question: 55

Division/Agency: Agricultural Productivity Division/Grains Research and Development Corporation

Topic: Water use efficiency initiative

Proof Hansard page: 61

Senator O'SULLIVAN asked:

Senator O'SULLIVAN: Are you able to advise the committee on the outcome of that initiative?

Mr Harvey: My understanding is that the initiative was working with grower groups right across Australia—researchers and growers. It looked at exploring a whole range in which growers could actually improve their profitability by improving their water use efficiency. The program had a very ambitious target of achieving a 10 per cent increase in water use efficiency. I believe that program is coming close to its conclusion. I would need to take on notice exactly whether we achieved that 10 per cent, but I know that we had very successful outcomes and very practical changes on-farm as a consequence of the practices that were developed by those growers and researchers in partnership.

Senator O'SULLIVAN: When would you expect the final data to be available in terms of the assessment of the program?

Mr Harvey: I would need to take that on notice.

Senator O'SULLIVAN: Could you do that?

Mr Harvey: Yes.

Answer:

Grains Research and Development Corporation (GRDC) has received the national final report and 16 regional reports from the National Water Use Efficiency Initiative. GRDC also commissioned an independent evaluation of the Initiative by Agtrans Research 'An economic analysis of GRDC investment in Water Use Efficiency'(WUE).

The final reports outline that the WUE increases were demonstrated well above the 10 per cent target (often 20 to 60 per cent) from a range of pre- and in-crop management practices and their combination. Evidence of significant on-farm adoption has been documented during the Initiative, and the better informed growers and advisors are an important legacy for continued

Question: 55 (continued)

practice change. The report also highlights significant economic, environmental and social outcomes from the Initiative.

The economic analysis undertaken by Agtrans Research stated that given the assumptions made, the investment in 13 of the WUE Initiative projects with total combined investment of $25.4 million (present value terms) has been estimated to produce total gross benefits of $93.2 million (present value terms) providing a net present value of $67.8 million. The benefit-cost ratio is 3.66 to 1 over 30 years using a 5 per cent discount rate and an internal rate of return of 18.5 per cent.