Senate Rural Affairs and Transport Legislation Committee

ANSWERS TO QUESTIONS ON NOTICE

Budget Estimates May 2011

Agriculture, Fisheries and Forestry

Question: 71

Division/Agency: APD/RIRDC – Agricultural Productivity Division/Rural Industries Research and Development Corporation
Topic: Weeds program
Proof Hansard Page: 67 (24/05/11)

Senator NASH asked:

Senator NASH asked: Just on that weeds program, can you give us a bit of an outline of the expenditure of the $12.4 million, a bit of the detail around how that funding was expended? Obviously there were two staff so that would indicate a significant spend on areas other than staffing.
Mr Burns: I think the best thing to do would be to provide on notice the details of that, and we are quite happy to do that because we have recently announced a number of the projects. The projects vary in spend, but I will not go into the details of them; I will provide them on notice. For example, some might be $200,000 or $300,000 done in conjunction with the CSIRO, which is already putting in money. So we are effectively leveraging, say, a $1 million project through to smaller projects which might be $25,000 or $30,000 to look at other issues. (cont.)

Answer:

National Weeds and Productivity Research Program - expenditure by activities, 2010-11 and 2011-12

Research project	Research Organisation	RIRDC Budget Total (excl GST) $
Biodegradable weed management using agricultural wastes	CSIRO Materials & Science	170,000
Bio control of prickly acacia: host specificity testing of new agents from India	DEEDI QLD	152,534
Biological Control of Weedy Sporobolus Grasses by the fungus Nigrospora oryzae	NSW DPI	144,396
Biological control of sea spurge phase 2	CSIRO	298,383
Biological control of Hudson Pear in Australia.	NSW DII	145,635
Weed Risk Assessment for Australian Nursery & Garden Industries	Nursey & Garden Industry	130,705
Containment of invasive plants: a basis for decision making & best practice	CSIRO	246,049
The weight of the vine:Impacts of vine infestations on plant health	University of Wollongong	302,938

Question: 71 (continued)

Invasion and impact of high biomass grasses in Queensland	CSIRO	220,093
Risk assessment and mgt or paraquat resistance in the pasture seed industry	University of Adelaide	93,313
Management of glyphosate resistant weeds in non-agricultural areas	University of Adelaide	440,921
Diagnostic tools for detection of non target site herbicide resistance	University of WA	112,186
Evaluate fitness costs in herbicide resistant annual ryegrass	University of WA	115,982
Managing weeds on Native Title Lands	AIATSIS	187,612
Weed mgt under dry seeding and permanent residue farming practices	WA No Tillage Farmers Ass.	244,380
Desert uplands committee weed research proposal	Desert Uplands Committee	405,000
Manipulating weed successions when restoring native vegetation communities:RMA	Regional Development Aust.-Murray	89,000
Improving regional adoption of weed control- a case study in the New England	University New England	134,863
Harvest weed seed mgt workshops and evaluation of the Harrington Seed Destructor	University of WA	333,895
Golden Dodder- developing novel detection methods using DNA & aerial imagery	South Australia Food & Fisheries	273,131
Genetic, reproductive and demographic facilitation of Sagittaria invasion	CSIRO	194,050
Weed mgt on Indigenous lands: Indigenous values, preceptions & capacity	CSIRO	361,359
Cabomba ecology and dispersal in Australia	DEEDI QLD	69,195
Improving prevention and containment of serrated tussock in southwest Victoria	Roberts Evaluation	40,000
Tools for adoption of optimal weed management strategies in cropping systems	CSIRO	371,263
How do decisions by stakeholders affect weed distribution at a landscape scale?	University of QLD	226,642
Sustainability of wheat-selective preemergent herbicides in a changing climate	University of WA	132,876
Expanding the aquatic herbicide list: a proactive approach.	DEEDI QLD	79,107
Integrated weed mgt in vegetable crops:gap analysis & RD & E plan	Scholefield Robinson Hort. Services PL	75,000
Innovations in institutions to improve weed funding, strategy and outcomes	University of New England	109,590
Just how bad are coastal weeds: assessing geo-eco-psycho-socio-economic impacts	University of Melbourne	137,534
Suppressive plants as part of an IM program for pathenium weed.	University of QLD	150,000

Question: 71 (continued)

Weed control in aerobic rice to increase water efficiency	Agropraisals PL	131,000
A microwave system to kill weed seedlings without herbicide	University of Melbourne	167,000
Precision sensing technology for infield identification of summer weeds	University of Southern QLD	224,054
Use of hyperspectral remore sensing for enhanced detection of weeds	Charles Stuart University	180,000
Biological control of weeds in South Eastern Australia	DPI VIC	500,000
Sudden death syndrome/dieback in weeds	CSIRO to lead	300,000
Future proofing the National Post Border Weed Risk Management Protocol	NSW DPI	150,000
Does the tolerance of weeds to herbicide change with elevated CO2?	University of Canberra	143,598
Climate change impacts on agricultural weeds in Western Australia(Phase II)	Curtin University of Technology	136,228
Tackling Australia's weed seed bank liability with the Seed-Persistence Tool Kit	University of WA	200,000
Minor use of chemicals	RIRDC	300,000
Molecular control of reproduction in weeds	University of Melbourne	146,890
Biological control & ecology of alligator weed & cabomba	CSIRO	250,000
Biological control of Crofton weed on Lord Howe Island	CSIRO	121,152
Climate change and the risks of weed invasions in the Murray Darling Basin	CSIRO	242,534

Total research projects	9,380,088
Program management	700,000
Weeds web portal	250,000
Other projects under consideration	947,185
GST	1,127,727
Total National Weeds and Productivity Research Program	**12,405,000**

Senate Rural Affairs and Transport Legislation Committee

ANSWERS TO QUESTIONS ON NOTICE

Budget Estimates May 2011

Agriculture, Fisheries and Forestry

Question: 72

Division/Agency: APD/RIRDC – Agricultural Productivity Division/Rural Industries Research and Development Corporation
Topic: Biofuels
Proof Hansard Page: 68 (24/05/11)

Senator NASH asked: So you don't know for lignocelluose?
Mr Burns: A little bit but not a lot at the moment.
Senator NASH: Okay. So what sort of second generation—
Mr Burns: Again, I do not have that detail with me, unfortunately. I can take that on notice and provide all of those details as to the breakdown of the individual projects under those programs.
Senator NASH: That would be very useful.

Answer:

RIRDC Lignocellulosic Projects

PRJ-003403: Agricultural benefits of green manuring leaf biomass from bioenergy crops

The aim is to develop robust farming systems which benefit from the synergies of integrating the production of conventional broad-acre crops and new biofuel crops. This project will do this by providing new information to researchers and biofuel producers and users regarding the coppicing/suckering abilities and growth of the four sub-species of the prospective biofuel crop *Acacia saligna*. It will also assess the feasibility of using the less desirable leaf fraction of woody biofuel feedstocks as green manures.

Funding:
RIRDC $240 000.00
Research Organisation: $263 340.00
Finishing 2012

PRJ-004060: Prospective taxa for short-rotation bioenergy in the tropics and sub-tropics

The aim is to assess eucalypt mallees as potential short rotation bioenergy crops for subtropical and tropical drylands. The project plans to compare the performance of southern Australia's best-bet species (2-3 representative species) with a small number (10-20) of vigorous mallee-form eucalypts selected from the summer-dominant rainfall zone including western, central and northern Australia. The trials will be grown at four sites, two in southern Queensland and two in northern Queensland that are situated in prospective bioenergy plantation regions and representative of target plantations sites. The trials will be grown for two years to reach a size suitable for

Question: 72 (continued)

assessment and harvest. The trials will assess traits such as survival, biomass production, woody matter basic density and first-rotation coppicing ability. This information will provide basic data for other researchers, such as a preliminary list of bet-bet species for these regions and guidance on productivity for modelling and scenario planning.

Funding:
RIRDC $95 000.00
Finishing 2013

PRJ-004679: Evaluation of biomass potential of some Australian native grasses

This project will have two major components. Firstly, a fully replicated comparison of the amount of biomass produced by species for which there is a substantial current level of technology and where existing seed stocks permit a large number of plants to be produced. Secondly, there will be a collection and preliminary evaluation of a wide range of novel species which are less well known and for which current seed stocks are very limited. Most resources will be allocated to the fully replicated work.

The project aims to evaluate the potential for the production of cellulosic biomass from a range of Australian native grasses. It will provide some reliable data on the total biomass that can be produced quarterly, biannually and annually from a selected range of native grasses.

Funding:
RIRDC $95 000.00
Research Organisation $65 440.00
Finishing June 2011

PRJ-004758: Conversion of Lignocellulosic Biomass to Dimethyl Ether (BioDME)

The aim of this project is to produce a diesel substitute biofuel, such as Dimethyl Ether (DME), from Australian lignocellulosic feedstock such as stubble, cane bagasse, and annual and perennial grasses. The conversion of waste biomass to valuable biofuel will provide energy and cost effective technology for future bio-refineries.

Diesel blend or substitution is most promising for the Australian rural sector because diesel is used as a primary fuel in the field machinery and transportation vehicles. BioDME can provide fuel independence, add value to rural waste and generate revenue at the same time. There have been reports of several auto-makers developing engines for DME application and they are expected to be available in the next few years. Currently DME is being produced from fossil fuels, such as natural gas.

Question: 72 (continued)

Funding:
RIRDC $150 000.00
Research Organisation $45 000.00
Finishing 2013

PRJ-005009: Subtropical Tree Improvement Collaboration Workshop

This project will assess tree varieties for adaptability to future climate scenarios. Research and development into subtropical (and tropical) tree improvement has been fragmented in Australia for many years with periods of collaboration between state government, federal government and industry focused on short-lived projects. An approach that is better suited for the domestication of long-lived tree species is the formation of a 'cooperative' or 'alliance' to consolidate and focus research and development (R&D). It is proposed that a workshop is convened to draw together parties with interest in subtropical tree improvement and attempt to reach a consensus on how to structure R&D to achieve the long-term outcome of delivering genetically improved seedlings to improve the productivity of industrial and farm forestry plantings suitable for bioenergy crops. A process similar to what was undertaken to initiate the Australian Low Rainfall Tree Improvement Group will be facilitated and reported on for RIRDC.

Funding:
RIRDC $12 800.00
Research Organisation $8 000.00
Recently completed and report available on the RIRDC website.

PRJ-005295: Sustainable Biomass Supply Chain for the Oil Mallee Industry

Short cycle tree crops such as oil mallees have the potential to play an important role in the long-term sustainability of low rainfall agriculture. Significant research and development has to date focussed on the development of oil mallee processing facilities and harvesting systems. Only limited formal consideration has been given to the complete biomass supply chain, from field to factory.

The proposed project aims to:
- Review the material harvest, handling and processing requirements for a sustainable mallee biomass industry.
- Investigate tools, processes and models used in similar biomass industries (such as sugar) which are potentially applicable to the mallee industry
- Undertake a desktop assessment of the logistics for mallee supply.
- Identify critical elements, gaps and opportunities for further development of a sustainable mallee industry.

Funding:
RIRDC $106 350.00
Finishing October 2011

Question: 72 (continued)

PRJ-005509: Sustainable production & use of forest biomass - native species

Australia's response to climate change opens new opportunities for the use of forestry for bioenergy production crops on marginal land. Two key research priorities for forest species will be addressed.

The first objective, to extend the evaluation of woody species with biomass production potential from southern Australian to a national level, will be addressed by reviewing available biomass production data to identify and target the development of Australian native tree species as potential biofuels crops.

The second objective of the project addresses the need for comparative data on the amenability of Australian woody biomass species to conversion to biofuel. This project will evaluate a set of best-bet species from each of three growing regions for their suitability for pre-treatment and biochemical conversion using enzymes using a standard pre-treatment approach.

Funding:
DAFF/RIRDC $106 500.00
Research Organisation $41 817.00
Other Funding: $36 124.00
Recently completed. Report available soon.

PRJ-005515: Potential new bioenergy agroforestry systems for the NSW central tablelands

The project goal is to assess the potential for agroforestry based around bioenergy production to form a new sustainable land use option in the central tablelands of NSW. In particular, it aims to answer the following research questions:

1. What tree crops and bioenergy technologies might be viable in the case study region?
2. What potential economic and social benefits might a bioenergy-based agroforestry industry provide?
3. How might the widespread uptake of agroforestry for bioenergy contribute to landscape scale natural resource management goals?
4. What incentives and barriers exist for the uptake of such land uses and what policy measures could be employed to promote and guide them?

Funding:
DAFF/RIRDC $173 700.00
Research Organisation $119 700.00
Recently completed. Report available soon.

Question: 72 (continued)

PRJ-005725: Determining Biomass in residues following harvest in Pinus Radiata forests – NSW

This project will determine quantities of the different biomass fractions in residues following Pinus radiata (radiata pine) harvest operations. The project will include a preliminary cost benefit analyses from extracting that resource. The focus will be on underutilised material from softwood plantations for which commercial values are low and markets are currently small or nonexistent. In addition, the project will develop inventory techniques targeting the incorporation of recoverable harvest residues, and also investigate the implications of biomass removal on nutrient levels.

Funding:
DAFF/RIRDC $224 500.00
Research Organisation $123 000.00
Industry $60 000.00
Finishing November 2011.

Senate Rural Affairs and Transport Legislation Committee

ANSWERS TO QUESTIONS ON NOTICE

Budget Estimates May 2011

Agriculture, Fisheries and Forestry

Question: 73

Division/Agency: APD/RIRDC – Agricultural Productivity Division/Rural Industries Research and Development Corporation
Topic: Biofuels
Proof Hansard Page: 68 (24/05/11)

Senator NASH asked: So what sort of things are being considered as elements that would make the biofuels industry sustainable?
Mr Burns: I will take that one on notice.
Senator NASH: I do understand that you cannot possibly have all of the information required in your head, Mr Burns. One of the things that you have done in the past is, if I am right, to do with the on-farm impacts of an Australian emissions trading scheme economic analysis. That was one of yours, wasn't it?
Mr Burns: Yes.

Answer:

Bioenergy sustainability

RIRDC has several R&D projects investigating ways to make the bioenergy industry more sustainable.

Sustainable Production of Bioenergy – A review of global bioenergy sustainability frameworks and assessment systems

This report was prepared by CSIRO and available on the RIRDC website. It reviews the sustainability issues that have arisen through rapid international expansion of the biofuels industry. It also reports on the international response to these issues in terms of both institutional systems, and sustainability assessment systems. It reviews institutional systems in place at the level of the Australian Government, and for one state (Victoria) as a case study. The theory and application of outcomes-based criteria and indicator assessment systems are discussed. The potential options and implementation pathways (should Australia choose to develop or apply these approaches) are also put forward.

Funding:
RIRDC $75 000.00

Link to report
https://rirdc.infoservices.com.au/items/09-167

PRJ-003403: Agricultural benefits of green manuring leaf biomass from bioenergy crops

Project is described in response to 72 (APD/RIRDC) of Budget Estimates 2011.

Question: (73 continued)

Funding:
RIRDC $240 000.00
Research Organisation: $263 340.00
Finishing 2012

PRJ-005295: Sustainable Biomass Supply Chain for the Oil Mallee Industry

Project is described in response to72 (APD/RIRDC) of Budget Estimates 2011.

Funding:
RIRDC $106 350.00
Finishing October 2011

PRJ-005509: Sustainable production & use of forest biomass - native species

Project is described in response to 72 (APD/RIRDC) of Budget Estimates 2011.

Funding:
DAFF/RIRDC $106 500.00
Research Organisation $41 817.00
Other Funding: $36 124.00
Recently completed. Report available soon.

Senate Rural Affairs and Transport Legislation Committee

ANSWERS TO QUESTIONS ON NOTICE

Budget Estimates May 2011

Agriculture, Fisheries and Forestry

Question: 74

Division/Agency: APD/RIRDC – Agricultural Productivity Division/Rural Industries Research and Development Corporation
Topic: Emissions Trading Scheme (Report)
Proof Hansard Page: 69 (24/05/11)

Senator Nash asked:

Mr Burns: But we have not specifically followed up on that and we do not have any plans to do that at the moment. A lot of the work that is being done on climate change is being done through a collaborative effort which was part of one of these strategies that are being organised through PISC. The University of Melbourne currently runs a thing called, **CCRSPI** which is coordinating a lot of the climate change research that is being done. We are part of that program. We have not got any projects to my knowledge—but I will check—that are following up on that specific report.
Senator NASH: When was that report initiated?
Mr Burns: I could not tell you that. That was before I started at the organisation. I would have to take that one on notice too.
Senator NASH: Yes, on notice. Is that something that you would have been asked to do? What is the situation with these sorts of reports that you do? Are you asked by government to do them or are they initiated from within RIRDC?
Mr Burns: Most of our projects are ideas that come to us from researchers. We have an open call for ideas and we have advisory committees that look at those ideas and make recommendations to us about what work should usefully be done. It is possible for the government to ask us to do particular work. I do not know the circumstances of that project because, again, it was before my time, but I will check and provide you with that information.
Senator NASH: That would be useful.(cont.)

Answer:

1) There has been no further work carried out in relation to carbon pricing. RIRDC has commenced a project on the trade implications of climate change policies. The purpose of this project is to analyse emerging climate policies in Australia and around the world with a view to understanding any trade implications arising from changes to relative costs of production and relative prices.

2) The National Farmers Federation (NFF) raised the issue of undertaking work on an Emissions Trading Scheme (ETS) in June / July 2008. After canvassing a variety of stakeholders, the terms of reference were finalised and a researcher was engaged to undertake the work in September 2008.

3) RIRDC's Global Challenges Program (GCP) is managed within the National Rural Issues portfolio. This is the only portfolio of research addressing cross-sectoral issues. Within the GCP, a variety of engagement methods are used to

Question: 74 (continued)

canvass stakeholders regarding research topics, in addition to receiving proposals from researchers through an open call. These stakeholders include Department of Agriculture, Fisheries and Forestry, Department of Foreign Affairs and Trade, Department of Climate Change and Energy Efficiency, livestock industry peak councils, Research and Development Corporations and the NFF. A number of projects within the GCP are initiated through engagement with these stakeholders.

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ANSWERS TO QUESTIONS ON NOTICE

Budget Estimates May 2011

Agriculture, Fisheries and Forestry

Question: 75

Division/Agency: APD/RIRDC – Agricultural Productivity Division/Rural Industries Research and Development Corporation
Topic: "New connections driving innovation and productivity" case studies
Proof Hansard Page: Written

Senator Colbeck asked:

With regard to the "New Connections Driving Innovation and Productivity" case studies, is RIRDC intending to do further comparative studies, including examining service technologies?

Answer:

No further comparative studies are planned however research proposals relating to the application of broadband technologies to rural and regional areas are consistent with the priorities of RIRDC's Dynamic Rural Communities program.

Senate Rural Affairs and Transport Legislation Committee

ANSWERS TO QUESTIONS ON NOTICE

Budget Estimates May 2011

Agriculture, Fisheries and Forestry

Question: 76

Division/Agency: APD/RIRDC – Agricultural Productivity Division/Rural Industries Research and Development Corporation
Topic: Pollination Program
Proof Hansard Page: Written

Senator Colbeck asked:

The Commonwealth has made $2 million available to the Asian Honeybee National Management Group to support the national pilot program aimed at creating an ongoing solution to the management of the Asian honeybee. A plan is being developed in relation to the utilisation of this funding.

1. When will the plan be finalised, and can RIRDC provide the timeline for the development of this plan and a detailed breakdown of the budget allocations?

The Pollination R&D program has identified objectives and anticipated share so the annual Program budget.

1. How were the research objectives for the program identified and defined?
2. How were budget allocations determined?

One of the objectives of the program is listed as 10% allocation to communication activities, including pollination education, extension and capacity building.

3. Please provide details of the expenditure in the current financial year and for 2011-12 for communication activities and the percentage this is of the program budget.
4. Please provide details of the types of communication activities undertaken in the current financial year and planned for 2011-12.
5. How is the efficacy of the communication activities assessed?
6. Are extension activities also included under the other program objectives?
7. If so, please provide details of the types of activities undertaken and the percentage these activities contribute to the budgets of individual projects.
8. Please provide details of expenditure and projects under the Pollination program that relate directly to pollination dependent Tasmania's agricultural industries.
9. Does this expenditure correlate with the relative contribution of Tasmanian pollination agricultural industries as compared to the value of the national pollination dependent agricultural industries?

Senate Rural Affairs and Transport Legislation Committee

ANSWERS TO QUESTIONS ON NOTICE

Budget Estimates May 2011

Agriculture, Fisheries and Forestry

Question: 76 (continued)

Answer:

Pilot management program for Asian Honeybees

1. RIRDC are not part of the Asian Honeybee working group.

Pollination R&D Program

1) The *Pollination Five-Year R&D Plan 2009-2014* (available at rirdc.infoservices.com.au/items/09-125) outlines the process for how the research objectives of the program were identified. The process included stakeholder workshops and feedback from peak industry bodies on a draft version of the plan.

2) The *Pollination Five-Year R&D Plan 2009-2014* sets out how the proposed budget allocations were determined. Annually, the available budget is allocated across objectives based upon the projects approved for funding by the Rural Research and Development Corporation (RIRDC) and Horticulture Australia Limited (HAL) on advice from the Pollination Program's Advisory Committee. RIRDC and HAL jointly fund the Program.

3) In 2010-11 $33,587 was expected to be expended on the Pollination Program's primary communication project called *Develop and implement a RIRDC-HAL Pollination Program communication strategy,* representing approximately 14 per cent of the Program's annual expenditure.

In the 2011-12 financial year $30,320 is expected to be expended on the Pollination Program's primary communication project called *Communication for the Pollination Program 2011-13,* representing 8 per cent of the Program's annual expenditure.

4) In 2010-11 and 2011-12 the following types of communication activities have been, or will be, undertaken under the auspices of the Pollination Program.

- publication of project reports via RIRDC's website
- preparation of media releases
- preparation of articles for general media, RIRDC and HAL industry newsletters
- initiation of a story for the ABC TV Landline program
- media training for the program's media spokesman
- Development of information posters.

5) The efficacy of the communication activities is assessed through an analysis of RIRDC's web statistics and assessment of Media Monitors

Question: 76 (continued)

6) Opportunities for extension activities exist under each of the program's objectives.

7) The type of extension activities undertaken varies by the focus of the project. By way of example, the *BeeForce: Improving high risk surveillance* project has a relatively large focus on extension activities, as beekeepers are trained in how to perform monitoring tasks that contribute to the surveillance of honeybee pests and diseases. While the project budget is not required to specifically identify the cost of extension activities, it is estimated that these activities form approximately 25 per cent of the total cost of the project.

8) All projects funded under the Pollination Program relate directly to pollination dependent Tasmanian agricultural industries. The following projects relate most directly to these industries.

   Pollination Aware: the real value of pollination in Australia assesses the dependence on European Honeybees of 35 horticultural and agricultural commodities and commodity groups, many of which are grown in Tasmania. The project cost $106,315.

   Pollination manual for growers and pollination service providers in Australia and New Zealand. Many of the crops to be included in the manual are grown in Tasmania. The project costs $54,512

   Scoping study for a Honeybee and Pollination Security CRC is preparing a bid for a cooperative research centre. It is anticipated that the bid will include a program of pollination research that will include crops grown in Tasmania. The project costs $98,400.

9) As indicated in answer 8 above, all projects funded under the Pollination Program relate directly to pollination dependent Tasmanian agricultural industries.

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Agriculture, Fisheries and Forestry

Question: 77

Division/Agency: APD/RIRDC – Agricultural Productivity Division/Rural Industries Research and Development Corporation
Topic: Funding Allocations
Proof Hansard page: Written

Senator Colbeck asked:

1. Please provide details of the funding allocations across RIRDC's portfolios, specifically:
    - Animal Industries
    - Plant Industries
    - Rural People and Issues
    - Rural Environment
    - Research
2. Please provide details of the funding allocations to the programs within each of these portfolios.

Answer:

RIRDC has three investment areas which are structured to reflect its legislated mandate:

- New and Emerging Industries covers a wide range of new and emerging animal and plant industries
- Established Rural Industries deals with specific established rural industries
- National Rural Issues addresses national rural issues.

The budget allocations to each area are shown below together with allocations by program. The budgets shown for 2011-12 do not include corporate expenses such as Board expenses, corporate services, property costs, information and communication technology costs.

Senate Rural Affairs and Transport Legislation Committee

ANSWERS TO QUESTIONS ON NOTICE

Budget Estimates May 2011

Agriculture, Fisheries and Forestry

Question: 77 (continued)

RIRDC BUDGETED PROGRAM FUNDING 2011-12

RIRDC Portfolio	**Expenses ($'000)**
New Industries	
New Plant Products	1,371
New Animal Products	880
Buffalo	73
Kangaroo	210
Deer	99
Rare Natural Animal Fibre	195
Goat Fibre	46
Wildflowers & Native Plants	352
Essential Oils & Plant Extracts	705
Tea Tree Oil	490
Olives	432
Bioenergy Australia	500
Methane to Market (M2M)	202
Bioproducts, Bioproducts and Energy	895
New Rural Industries Australia (including salary)	180
Total New Industries	**6,630**
Established Industries	
Chicken Meat	3,340
Honeybee	795
Rice	1,055
Horses	726
Fodder Crops	435
Pasture Seeds	565
Organics	240
Total Established Industries	**7,156**

Question: 77 (continued)

National Rural Issues	
Global Challenges	700
Dynamic Rural Communities	1,477
Farm Health and Safety	255
Weeds	5,863
Total National Rural Issues	**8,295**
RIRDC Portfolio Total	**22,081**

Senate Rural Affairs and Transport Legislation Committee

ANSWERS TO QUESTIONS ON NOTICE

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Agriculture, Fisheries and Forestry

Question: 78

Division/Agency: APD/RIRDC – Agricultural Productivity Division/Rural Industries Research and Development Corporation
Topic: Weeds
Proof Hansard page: Written

Senator Colbeck asked:

Weeds – Phase 2 Research projects

1. How many research projects from phase 1 have been extended to phase 2?
2. Please provide details of project proposals received for Phases 1 and 2 of this program that relate to Tasmanian weeds.

Answer:

1. None. Phase 1 of the National Weeds and Productivity Program (2008-2010) was subject to an open call for applications and managed by the Department of Agriculture, Fisheries and Forestry (DAFF). The projects were completed in 2010 and reports are being published by the Rural Industries Research and Development Corporation (RIRDC).

   Phase 2 (2011-2012) is being managed by RIRDC. The projects were selected from a second open call on the basis of merit, although there was consideration of the results achieved in Phase 1 and the critical need for further research in priority areas. Consequently, many of the Phase 2 projects extend on the research in Phase 1 in areas such as biological control; herbicide resistance; using novel techniques for weed detection and treatment (eg, use of unmanned aerial vehicles and hyper-spectral remote sensoring); predicting weed spread including under climate change; molecular control of weed reproduction; wetland invasion by aquatic weeds; treatment of weed seed banks and seed persistence; and impacts of invasive grasses on biodiversity.

2. The research projects deal with many of the Weeds of National Significance which cause agricultural and environmental problems in Tasmania. This is a national program and projects were not selected on the basis of location, although the geographic spread of weeds being researched in the projects covers most of Australia. A full list of projects in Phase 1 and Phase 2 (to date) is provided in the attached.

Question: 78 (continued)

APPENDIX 1: NATIONAL WEEDS AND PRODUCTIVITY RESEARCH PROGRAM
PHASE 1 (2008-2010) Managed by the Department of Agriculture, Fisheries and Forestry

- Overcoming paraquat resistance: The potential for herbicide mixtures to reverse paraquat resistance
- Using Unmanned Aerial Vehicles and innovative classification algorithms in the detection of Cacti
- Biological control of weedy Sporobolus species by the fungus Nigrospora oryzae
- Developing best practice methods to manage invasion pathways of gamba grass
- Managing weeds and herbicides in a genetically modified farming system
- Implementation of biological control of Chilean needle grass and Serrated Tussock
- Protecting agricultural production and iconic Australian grasslands from herbicide resistant serrated tussock
- Best practice for making strategic decisions about weeds of commercial value
- Molecular control of reproduction in weeds
- Ecological approach to landscape restoration of wetlands degraded by invasive grasses
- Quantifying aquatic weed impacts and reducing herbicide use through seasonal efficacy trials
- Pollen-mediated gene flow in weed species from adjacent farms into organic farms
- Novel platform technologies for weed diagnostics and their potential application in Australia
- Fencelines and roadsides as invasion sites for problematic weed species

Question: 78 (continued)

- Integrating adaptive weed management and biodiversity conservation in the Blue Mountains
- Predicting ecosystem invasibility: towards spatial prioritisation of weed management
- Livestock grazing: a practical tool to control exotic grasses in remnant vegetation
- Lippia biological control
- Biological control and ecology of cabomba and alligator weed
- Field host range of high priority potential biocontrol agents of Parkinsonia aculeate
- Seed banks of weed-invaded wetlands: implications for biodiversity and restoration
- Weed response to cyclones in the Wet Tropics rainforests: impacts and adaptation
- Establishment of a National Weed Surveillance Mapping Portal
- Does clonality facilitate rapid invasion of the aquatic weed Sagittaria platyphylla?
- Introduction of lacy-winged seed fly for Chrysanthemoides monilifera biological control
- Maximising knowledge for adoption on recent weeds research
- Phytotoxins produced by Phomopsis spp. with potential herbicidal activity against Carthamus lanatus
- Management of Creeping lantana – Stage 2
- Improved detection and eradication of Hieracium: experiments and 2nd generation dispersal models
- Overcoming and avoiding metabolism based herbicide resistance in Lolium rigidum

Question: 78 (continued)

- Weed seed retention at crop maturity of major south-eastern Australian weed species
- Climate change impacts on agricultural weeds in Western Australia
- Summer weeds – counting the costs for a climate changed future
- Identifying the basis of dual glyphosate and paraquat resistance in Lolium rigidum selected at reduced rates of glyphosate
- National bellyache bush (Jatropha gossypiifolia) best practice manual
- Host testing of the gorse pod moth, Cydia succedana, for the biological control of gorse in Australia
- Estimation of investment required to achieve weed eradication; New Name: Branched Boom rape & Siam weed: Estimating the investment needed for eradication
- The impact of boneseed invasion on biodiversity
- Web-enabling the National Weed Incursion Toolkit for coordinated weed management.

PHASE 2 (2011-2012) Managed by the Rural Industries Research and Development Corporation

- Biodegradable weed management using agricultural wastes
- Bio control of prickly acacia: host specificity testing of new agents from India
- Biological Control of Weedy Sporobolus grasses by the fungus Nigrospora oryzae
- Biological control of sea spurge phase 2
- Biological control of Hudson Pear in Australia.
- Weed Risk Assessment for Australian Nursery & Garden Industries
- Containment of invasive plants: a basis for decision making & best practice
- The weight of the vine: Impacts of vine infestations on plant health

Question: 78 (continued)

- Invasion and impact of high biomass grasses in Queensland
- Risk assessment and management of paraquat resistance in the pasture seed industry
- Management of glyphosate resistant weeds in non-agricultural areas
- Diagnostic tools for detection of non target site herbicide resistance
- Evaluate fitness costs in herbicide resistant annual ryegrass
- Managing weeds on Native Title Lands
- Weed management under dry seeding and permanent residue farming practices
- Desert uplands committee weed research proposal
- Manipulating weed successions when restoring native vegetation communities: River Murray Area
- Improving regional adoption of weed control- a case study in the New England
- Harvest weed seed management workshops and evaluation of the Harrington Seed Destructor
- Golden Dodder- developing novel detection methods using DNA & aerial imagery
- Genetic, reproductive and demographic facilitation of Sagittaria invasion
- Weed management on Indigenous lands: Indigenous values, preceptions & capacity
- Cabomba ecology and dispersal in Australia
- Improving prevention and containment of Serrated tussock in southwest Victoria
- Tools for adoption of optimal weed management strategies in cropping systems
- How do decisions by stakeholders affect weed distribution at a landscape scale?
- Sustainability of wheat-selective preemergent herbicides in a changing climate

Question: 78 (continued)

- Expanding the aquatic herbicide list: a proactive approach.
- Integrated weed mgt in vegetable crops: gap analysis & RD & E plan
- Innovations in institutions to improve weed funding, strategy and outcomes
- Just how bad are coastal weeds: assessing geo-eco-psycho-socio-economic impacts
- Suppressive plants as part of an integrated management program for pathenium weed.
- Weed control in aerobic rice to increase water efficiency
- A microwave system to kill weed seedlings without herbicide
- Precision sensing technology for infield identification of summer weeds
- Use of hyperspectral remote sensing for enhanced detection of weeds
- Biological control of weeds in South Eastern Australia
- Sudden death syndrome/dieback in weeds
- Future proofing the National Post Border Weed Risk Management Protocol
- Does the tolerance of weeds to herbicide change with elevated CO2?
- Climate change impacts on agricultural weeds in Western Australia(Phase II)
- Tackling Australia's weed seed bank liability with the Seed-Persistence Tool Kit
- Minor use of chemicals
- Molecular control of reproduction in weeds
- Biological control & ecology of alligator weed
- Biological control of Crofton weed on Lord Howe Island

Question: 78 (continued)

- Climate change and the risks of weed invasions in the Murray Darling Basin
- Alternative approaches to chemical weed control measures
- Systematic review of weeds surveys
- The use of weed sensors for variable rate herbicide application: Wimmera
- Collation of information on weeds into the National Plant Health Status Report
- Paterson's curse as a model to measure impact of climate change on biocontrol for weeds
- Weeds Web Portal