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This document was created in response to a Freedom of Information request made to CSIRO.

FOI Number: FOI2011/41

Date: 20 October 2011

Request: Documents relating to CSIRO Food Future Flagship program to commercialise genetically modified wheat

Document: Documents 1-7

For more information, please refer to CSIRO's FOI disclosure log at [www.csiro.au/FOILog](http://www.csiro.au/FOILog)



## FOLLOW-UP MEETING WITH GREENPEACE

**Purpose:** To provide you with background information points for a follow-up meeting with Greenpeace

### Meeting Arrangements

Date: Tuesday, 13 September 2011  
Time: 2.30pm  
Venue: Minister's Office, Parliament House  
Present: Laura Kelly, Greenpeace  
Adviser/s: Gary Moorhead  
Dept Officer(s): Jeremy Burdon, Chief of CSIRO Division of Plant Industry

**Recent Dealings:** A representative of Greenpeace, Mr Steve Phillips, met with your Science and Research Adviser, Dr John Byron, on 18 July 2011. This meeting was also attended by three officers from CSIRO: Dr Bruce Lee, A/g Group Executive Food, Health & Life Science Industries; Dr Jeremy Burdon, Chief, CSIRO Plant Industry; and, Dr John Curran, General Manager Communication.

### Key Issues:

- Greenpeace wrote (on 19 July 2011) requesting a follow-up meeting between Greenpeace Anti-GM Campaigner Laura Kelly and the Minister to discuss CSIRO's GM wheat research.
- Greenpeace is running a targeted campaign against CSIRO's GM wheat research including releasing a report critical of CSIRO on 7 July 2011, lodging an FOI request for information on the research (still in progress), making allegations that former CSIRO Board members were conflicted in relation to commercial transactions on CSIRO's GM wheat research and general criticisms of CSIRO's involvement with multinational companies on their GM Wheat Research (see **Attachment D**, article by Dr Megan Clark "GM crops can play a vital role in health and food security")
- On 14 July 2011 a CSIRO GM trial site at Ginninderra in the ACT was cut with whipper-snippers. Greenpeace has claimed responsibility and a police investigation is underway. **To avoid prejudicing any possible criminal or civil legal action, this incident should not be discussed.** At the time of preparing this brief, no-one has been charged over this attack on CSIRO, but charges are expected to be laid soon.

**Sensitivity:** Yes. This brief is Legal and Commercial-in-Confidence as it relates to possible criminal and civil action and discusses commercial arrangements with collaborators.

**Attachment:** A) Talking points, B) Background, C) CSIRO position on Food Security, D) GM crops can play a vital role in health and food security

Alastair Robertson 02 9490 8468 / 0404443849 Consultation:  
Group Executive Food, Health and Life Science Nil  
Industries  
CSIRO  
6 September 2011

NOTED/PLEASE DISCUSS

Contact: Kimberley Shrives (0419 874 447)

Legal and Commercial-in-Confidence

Kim Carr / /

**TITLE**

**ATTACHMENT A**

**TALKING POINTS:**

- CSIRO is working across the food supply value chain providing a systems approach to research working all the way from the farm to fork.
- Through its National Research Flagships CSIRO is working with industry partners to achieve a total factor productivity growth across Australia's key agricultural industries of at least 2 per cent per annum over the next 20 years. CSIRO stands behind Gene Technology research as one of a number of tools in their plant research programs required to improved health, sustainability and food security (see attachment D)
- It is achieving this using various approaches including Genetically Modified (GM) and more conventional non-GM techniques to carry out genetic research.
- Plant genetic research using a variety of approaches is targeting a range of traits for improvement including increased resistant starch content for improved health (lower Glycaemic Index and improved protection from bowel cancer), increased yields, better performance in marginal environments such as salt and drought-affected areas, better performance in nutrient-limited soils (nitrogen & phosphate use efficiency in wheat/barley), and reduced loss from pests and diseases.
- CSIRO works with a wide range of Australian and international public and private collaborators. These linkages are vital to source Intellectual Property (IP), technical know-how and scientific expertise that complements the skills and expertise of CSIRO's own scientists. These companies are selected as important partners for CSIRO to deliver science outcomes which are relevant to industry and consumers both locally and globally. In all arrangements CSIRO ensures that it safeguards Australia's interests.
- The earliest anticipated introduction of GM wheat into the marketplace in Australia is 2017, subject to a long and involved process involving further research and development, followed by safety and efficacy studies of the crop which is a requirement of the regulatory bodies which oversee the necessary approval steps for commercialisation.

## BACKGROUND

## CSIRO GM Wheat Trials

- In 2009 and 2010, the Office of the Gene Technology Regulator (OGTR) approved applications from CSIRO to establish a range of small field plots of experimental genetically modified (GM) wheat and barley over the period 2009 to 2012, at three sites.
- The three trial sites currently involved are: Ginninderra in the ACT, Narrabri in NSW and Merredin in WA.
- There are four traits being tested in the field this year:
  - High amylose wheat ("HAW") which raises the amylose content from 25% (normal levels) to around 70%.
  - Nitrogen Use Efficiency – enabling a wheat or barley plant to take up nitrogen from the soil more efficiently, reducing fertiliser use.
  - Increased Yield – for increased food production.
  - Seed storage proteins.
- Deletion s7
- The established path for demonstrating health benefits, and the absence of negative health impacts, is to conduct a series of trials in small animals (eg. Rats), large animals (eg. Pigs) and finally in humans.
- CSIRO has completed rat and pig trials for the high amylose wheat trait that demonstrate a range of health benefits and with no negative effects being observed. Although OGTR and Human Ethics Committee permission has been granted for human trials for the high amylose wheat trait, no decision has been made to proceed with these trials to date.
- Deletion s7
- For further background on CSIRO's position on food security and production, see Attachment C.

## Greenpeace

- Greenpeace are carrying out a long-running and targeted media campaign against CSIRO criticising trials that involve feeding genetically modified wheat to humans including an "open letter" to the Chief Executive of CSIRO.
- CSIRO has responded confirming that, while such trials have been given approval to proceed by the OGTR, no such human trials are currently being undertaken. They may, however, be considered in due course as CSIRO looks to establish the health benefits of these modified grains. Such trials will need to be approved by the appropriate external ethics committees and internal CSIRO processes which are a requirement of any such trial process.
- CSIRO has emphasised that its work with GM wheat and barley is primarily directed at improving the health benefits and sustainable farming of these grains. CSIRO complies with all requirements of the relevant State and Federal regulatory authorities including Federal and State Governments, the Office of the Gene Technology Regulator (OGTR) and Food Standards Australia New Zealand (FSANZ).

#### Conflicts of Interest

- Greenpeace issued a media release on 7 July 2011 and also issued a report titled "Australia's Wheat Scandal".
- Greenpeace issued a media release on the 7 July and also issued a publicity document titled "Australia's Wheat Scandal". CSIRO has reviewed the 'Australia's Wheat Scandal' document and found it contains many errors, unsupported assertions and non-factual statements. As such, CSIRO is unable to regard this document as a constructive contribution to the current discussion on crops developed with gene technology.
- As part of the "Australia's Wheat Scandal" report, Greenpeace has made an allegation that two former Board Members of CSIRO, Dr John Stocker and Mr Doug Rathbone were in a position of conflict of interest because they were also on the Board of Nufarm Limited at the time when decisions were made by the CSIRO board to approve the commercial transactions in relation to which the GM trials are being undertaken. Dr Stocker's and Mr Rathbone's Nufarm directorships were declared to CSIRO and protocols were put in place to ensure that they did not participate in any CSIRO Board deliberations or decision-making concerning proposed CSIRO dealings with Nufarm Limited (or its subsidiaries). The protocol also covered discussions and deliberations concerning Nufarm's area of business interest.
- Nufarm and related entities are not involved in the commercial transactions in relation to which these GM trials are being undertaken.
- CSIRO has in place appropriate processes to identify and deal with potential conflicts of interest at Board and management level and is confident these have been complied with.

#### FOI Request

- CSIRO recently received a Freedom of Information (FOI) request from Greenpeace Australia Pacific relating to the testing of genetically modified wheat. That FOI request was cast in terms that required CSIRO to review a very large volume of documents.
- Under the FOI Act, agencies are not required to process excessively voluminous FOI requests that would divert the agency's resources away from ordinary business, including processing FOI requests made by other applicants.
- The Greenpeace FOI application has not been rejected. In fact, CSIRO is currently assisting Greenpeace to modify the terms of the FOI request to enable it to be actioned appropriately. That consultation process is being undertaken in accordance with the provisions of the FOI Act.

#### CSIRO's Research findings

- Information on the field trials is publicly available through the Office of the Gene Technology Regulator's website at [www.ogtr.gov.au](http://www.ogtr.gov.au).
- Fact sheets on these trials, detailing commercial partners and funding organisations, and the essential facts regarding these trials, have been publically available on CSIRO's website since 2009 at:  
<http://www.csiro.au/resources/GMwheat-barley.html>  
<http://www.csiro.au/resources/GMwheatbarley-DIR093.html>  
<http://www.csiro.au/resources/GMwheat-barley094.html>  
<http://www.csiro.au/resources/GM-wheat-barley-DIR099.html>
- Additional information on CSIRO's Gene Technology research, including CSIRO's Gene Technology Position Statement, is available at: <http://www.csiro.au/resources/Gene-technology.html>

**Legal and Commercial-in-Confidence**

- CSIRO will also seek to publish any research findings from this trial in peer-reviewed scientific journals.

## ATTACHMENT C

### CSIRO POSITION ON FOOD SECURITY AND PRODUCTION

The world's population is anticipated to exceed 9 billion in 2050 and economic development is driving changes in consumption levels. These factors along with modest expansion of biofuel production and continuing high levels of food loss and wastage, is creating unprecedented pressure on world food production systems.

The challenges for agriculture in the 21st century are to produce 70 per cent more food by 2050 to feed a projected increased population, while implementing more sustainable food production methods and responding to climate change (FAO, 2009). Australia's trade surplus in fresh and manufactured food fell from \$4.5 billion in 2004-05 to \$150 million in 2008-09.

#### *Working across the supply chain*

CSIRO invests approximately \$234 million (appropriation and external revenue) annually providing a systems approach to research working all the way along the food value chain – from the farm to fork. In addition, more than \$200 million is invested through the Environment Group in areas such as sustainability, water systems and climate.

#### *Improving agricultural productivity*

Through its National Research Flagships CSIRO is working with industry partners to achieve a total factor productivity growth across Australia's key agricultural industries of at least 2 per cent per annum over the next 20 years. Genetic research is improving yields by enabling plants to perform well in more marginal environments such as salt and drought-affected areas or nutrient-limited soils (nitrogen and phosphate use efficiency in wheats/barley), whilst minimising losses from pests and diseases. New technologies are being developed to more efficiently generate livestock derived products that have enhanced nutritional and quality attributes with a reduced environmental footprint.

#### *Producing more with less*

Increased productivity needs to occur whilst reducing the environmental footprint of food and fibre production. CSIRO is developing new methods for maximising nutrient utilisation and measuring water footprints of food. CSIRO is working to reduce greenhouse gas emissions per unit of food and fibre production by at least 50 per cent by 2030 through a mix of productivity growth, ruminant emissions reduction and carbon storage in soils and vegetation.

#### *Food Manufacturing*

Food manufacturing is inherently linked to the whole supply chain. CSIRO is continuing research in efficient conversion of agricultural materials into food including the optimisation of energy use, novel water purification and recycling technologies, use of food waste as biomass for energy generation and adding value to waste through emerging technologies.

ATTACHMENT D  
EDITORIAL BY CSIRO CHIEF EXECUTIVE, DR MEGAN CLARK,  
PUBLISHED IN THE *NATIONAL TIMES*

## National Times

OPINION • ANALYSIS • COMMENTARY

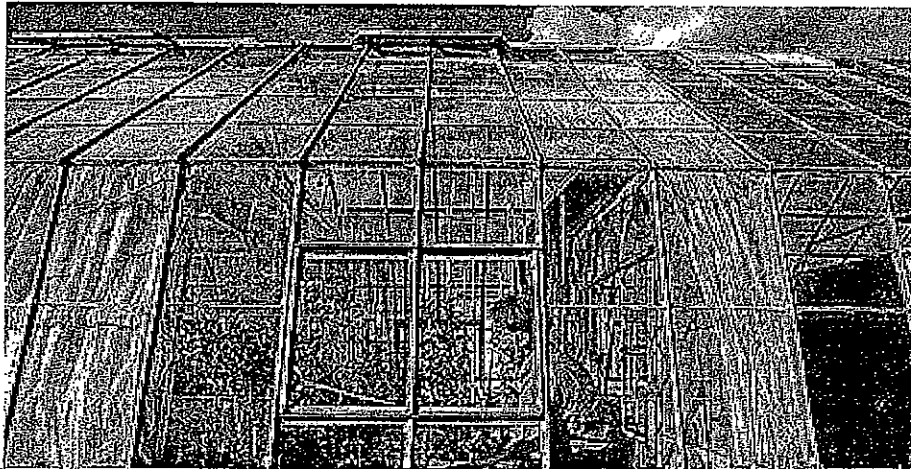
### GM crops can play a vital role in health and food security

**Megan Clark**

August 26, 2011

Opinion

[Comments 58](#)



Genetically modified peas being grown at CSIRO. Plant gene research can help improve health and food production. Photo: Jacky Ghossein

Research to understand how the genes we inherit from our parents and how they change during our lives has proved invaluable in preventing and treating many diseases. This type of research into how plant genes work is also key to improving the health benefits of the food we eat, increase crop yields and prevent plant disease.

We recognise that the modification of genes in plants causes concern in sections of the community. However, we also know that many people will be comfortable with genetic modification in food products if they can be assured they are beneficial for human health and safe for the environment.

There is a gap between the concerns of the community and the knowledge of our scientists around genetic research. That gap requires scientists and food producers to understand community views and share their knowledge of the science in order to earn community trust. We must bridge this gap if scientific developments in plant genetics are to improve health and support global food supply.

Plants are more complex than most people realise and, in many cases, have more genes than humans. We research the genes of plants to improve human health outcomes, increase the take-up of nutrients from soil, improve yields and provide resistance to plant diseases. Our genetic modification research generally involves turning off genes, changing the timing of the expression of some genes or inserting genes from different plants.

Anyone who has planted a grafted passionfruit in the backyard can appreciate research to improve the take-up of nutrients from the soil. Grafting uses the genes of one passionfruit variety with sturdy roots and strong growth as the rootstock and the genes of another variety to produce the best fruit for the family pavlova. Our scientists are researching genes that control the root systems in wheat to improve uptake of nitrogen from the soil to reduce fertiliser use.



By studying and understanding the genes of plants, we can use this information to bring better food to market for improved health outcomes. For example, we are researching how changing the digestibility of the starch in grains such as wheat can lower the biomarkers that indicate colon cancer and improve their glycaemic index.

When it comes to our food supply, the world's population could reach 9 billion by 2050 and the global challenge is to produce **70 per cent more food** in the next 40 years. To meet that food demand we need to increase our agricultural yields and increase the efficiency of how plants take up nutrients. It means growing plants that use less water to produce the same output and improving resistance to disease and pests.

The world is not turning its back on GM technology. Plantings are **rapidly increasing** around the world with 1 billion hectares of GM crops planted in 29 countries by 15.4 million farmers in 2010. Indeed, most Australians with insulin dependent diabetes inject themselves daily with Insulin produced using GM technology.

Across the very extensive and prolonged use worldwide, there has been no evidence of harm to human health associated with the use of GM technology. In Australia we've been growing and consuming GM products for at least 15 years with GM cotton and carnations grown commercially since 1996 and GM canola since 2008.

Australia has for many decades led the world in plant research and our farming community has had a partnership with science that is truly remarkable on the global stage. Australia leads the world in the understanding of the wheat genome, and Australian farmers supply **10 per cent** of the global trade in wheat.

Our research teams work shoulder to shoulder with the world's best public and private partners including plant breeders, Australian farmers, food manufacturers, nutritionists, government research bodies and NGOs, both nationally and globally.

Our plant scientists are unsung heroes in Australia's history and they deserve our support. The partnership they have with our agricultural and food manufacturing community is a foundation of Australia's competitiveness.

It is these partnerships that have led to consistent productivity gains in the past. It is only through such partnerships that we will continue to innovate and make the advances in productivity needed to address global food security challenges and sustain quality human life.

GM technology is just one of several technologies we employ in our research programs that are designed to deliver on this future. CSIRO will continue to conduct research on the genes of plants and investigate GM solutions, given the vital contribution this technology can make to Australia and humanity.

Dr Megan Clark is chief executive of **CSIRO**.



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Poll: **Should the CSIRO be leading the way in research into genetically modified foods?**

Yes

70%

No

30%

Total votes: 552 | Poll closed 30 Aug 2011

Total votes: 552

These polls are not scientific and reflect the opinion only of visitors who have chosen to participate.

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From: Stockwell, Paul  
Sent: Monday, 22 August 2011 10:11 AM  
To: 'Julie-Anne.Price@health.gov.au'  
Cc: 'Smith, Annika'  
Subject: FW: GM Wheat Correspondence - Input Requested by Wed 17 Aug 2011  
[SEC=UNCLASSIFIED]

Security Classification: UNCLASSIFIED

Hi Julie-Anne,

For your information, CSIRO's response on GM Wheat correspondence is below. Obviously this has missed the deadline for inclusion in the draft reply but you may find it useful in the future.

Regards,

Paul Stockwell  
Biotechnology Innovation Policy | Innovation Division  
Ph: 02 6276 1631

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From: MPLO@csiro.au  
Sent: Monday, 22 August 2011 9:05 AM  
To: Stockwell, Paul  
Subject: RE: GM Wheat Correspondence - Input Requested by Wed 17 Aug 2011  
[SEC=UNCLASSIFIED]

Hi Paul

CSIRO's input is below:

#### GM research

Securing a healthy, safe and sustainable food supply to the world's 9.2 billion people will be a significant challenge that will require global food production to increase by 50-80% (from 2010 levels) by 2050.

In addressing the issue of food security, CSIRO research uses both traditional and Genetically Modified (GM) approaches with careful consideration being given to the most appropriate strategy. CSIRO's first focus on solving particular problems is to adopt a traditional breeding approach. GM approaches are used where traditional approaches cannot deliver the required outcome.

CSIRO's work in GM wheat and barley is primarily directed at increasing yield, reducing fertiliser use (impacting positively on greenhouse gas emissions) and enhancing health benefits (higher resistant starch), all traits that can contribute to sustainable food supply. This particular research does not involve inserting genes from one organism into another, rather existing genes are "silenced" or "turned off" in the plant to encourage or halt the trait under consideration.

When undertaking work on GM plants, CSIRO complies with all requirements of the relevant regulatory authorities including Federal and State Governments, the Office of the Gene Technology Regulator (OGTR) and Food Standards Australia and New Zealand (FSANZ).

The commercialisation of any product of scientific research and development containing GM material will first be determined by the regulatory bodies (OGTR and FSANZ). Public sentiment will determine the ultimate success of any such product, whether it is made from GM or not. If the public decides that any particular GM product is not wanted, then it will not be commercially viable and will not succeed.

#### More information

More information about the work undertaken by CSIRO in regards to GM crop research, or the extensive range of other plant and crop-related research undertaken by the organisation, is available at one of the following web pages:

- CSIRO and gene technology: <http://www.csiro.au/resources/Gene-technology.html>
- CSIRO Plant Industry: <http://www.csiro.au/org/PI.html>
- CSIRO Food Futures Flagship: <http://www.csiro.au/org/FoodFuturesFlagship.html>
- CSIRO Sustainable Agriculture Flagship: <http://www.csiro.au/org/Sustainable-Agriculture-Flagship.html>

Cheers

Karen

Document 4

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**From:** Stockwell, Paul [mailto:Paul.Stockwell@innovation.gov.au]  
**Sent:** Tuesday, 16 August 2011 10:33 AM  
**To:** MPLO  
**Cc:** Ruuska, Sari; julie-anne.price@health.gov.au  
**Subject:** RE: GM Wheat Correspondence - Input Requested by Wed 17 Aug 2011 [SEC=UNCLASSIFIED]

Thanks Karen,

This letter is a form letter from the Greenpeace website and we have since learnt that the Department of Health has received over 1500 letters identical to this one. Therefore, it has been decided that we will not be replying to the letter. However, Health are keeping a log of the letters received and are drafting correspondence in preparation for other letters raising these issues.

Therefore, could you please provide your input to me and I will pass it on to Health, or alternatively, provide the input directly to Julie-Anne Price (copied into this email) and copy me in.

Regards,

Paul Stockwell  
Biotechnology Innovation Policy | Innovation Division  
Ph: 02 6276 1631

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**From:** MPLO@csiro.au [mailto:MPLO@csiro.au]  
**Sent:** Wednesday, 10 August 2011 10:34 AM  
**To:** Stockwell, Paul; MPLO@csiro.au  
**Cc:** Ruuska, Sari  
**Subject:** RE: GM Wheat Correspondence - Input Requested by Wed 17 Aug 2011 [SEC=UNCLASSIFIED]

Hi Paul,

Thanks for your message. I am just seeking advice from our action officer and will get back to you as soon as I hear back from them.

Cheers

Karen

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**From:** Stockwell, Paul [mailto:Paul.Stockwell@innovation.gov.au]  
**Sent:** Tuesday, 9 August 2011 5:12 PM  
**To:** MPLO  
**Cc:** Ruuska, Sari  
**Subject:** GM Wheat Correspondence - Input Requested by Wed 17 Aug 2011 [SEC=UNCLASSIFIED]

Dear CSIRO MPLO,

Please find attached a letter, addressed to the Prime Minister, which an advisor from Minister Carr's office will be replying to. The letter raises concerns about GM wheat and asks the Australian government to prevent it being grown in Australia. Could you advise if CSIRO is able to provide input for the reply letter?

If you could provide any input by Wednesday 17 August 2011 it would be much appreciated. FSANZ and the OGTR are also being contacted for input. If you wish to discuss this, please feel free to contact me.

Regards,

Paul Stockwell  
Biotechnology Innovation Policy Section

Pharmaceuticals, Health Industries & Enabling Technologies Branch  
Innovation Division

Department of Innovation, Industry, Science and Research  
Level 10, 10 Binara Street, Canberra City ACT 2601  
GPO Box 9839, Canberra ACT 2601  
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Email: [Paul.Stockwell@innovation.gov.au](mailto:Paul.Stockwell@innovation.gov.au)  
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ABN 74 599 608 295

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Minister  
Innovation, Industry, Science and Research

B11/2816

For Information

CSIRO Requested

CSIRO No. C2011/6292

## CSIRO RESEARCH INTO GENETICALLY MODIFIED (GM) WHEAT

**Purpose:** To inform you of the rationale and benefits around CSIRO's research into genetically modified wheat.

### Background:

- You were briefed the week of 10 July 2011 on the incursion at CSIRO's GM wheat trail at Ginninderra in the ACT (refer B11/2734). The police and the regulatory authority (the Office of the Gene Technology Regulator (OGTR)) investigations into this incursion are ongoing. CSIRO will provide you with a briefing on the outcomes of these investigations when they are completed.
- This brief address some of the criticisms directed towards GM research and CSIRO's role in such work.

### Issues:

- Securing a healthy, safe and sustainable food supply to the worlds 9.2 billion people will be a significant challenge that will require global food production to increase by 50-80% (from 2010 levels) by 2050.
- CSIRO research uses both traditional and GM approaches with careful consideration being given to the most appropriate strategy. CSIRO's first focus on solving particular problems is to adopt a traditional breeding approach. GM approaches are used where traditional approaches cannot deliver the required outcome.
- CSIRO's work in GM wheat and barley is primarily directed at increasing yield, reducing fertiliser use (impacting positively on greenhouse gas emissions) and enhancing health benefits (such as higher resistant starch which has the potential to impact positively on both bowel health and Type 2 diabetes).
- The potential to capture value from GM wheat is significant. For example high amylose wheat (HAW), nitrogen use efficiency wheat and yield gains are estimated to have a combined value of over \$2 billion in estimated direct returns to Australia (see Attachment A for more details).
- CSIRO complies with all requirements of the relevant regulatory authorities including Federal and State Governments, the OGTR and Food Standards Australia New Zealand (FSANZ).

**Communication:** Information on the field trials is publicly available through the OGTR's website at <<[www.ogtr.gov.au](http://www.ogtr.gov.au)>> and fact sheets on these trials are available on CSIRO's website. CSIRO will also seek to publish any research findings from these trials in peer-reviewed scientific journals.

**Sensitivity:** No

**Attachments:** A) Additional material

Bruce Lee 0407 358 639  
Acting Group Executive, Food, Health and  
Life Science Industries

CSIRO

21 July 2011

Contact: John Williams 02 9490 8229

Consultation  
Nil

NOTED/PLEASE DISCUSS

*[Signature]*  
09/08/11  
Kim Carr

## ATTACHMENT A

### ADDITIONAL MATERIAL

#### Background:

- CSIRO research uses both traditional and GM approaches with careful consideration being given to the most appropriate strategy. CSIRO's first focus on solving particular problems is to adopt a traditional breeding approach. GM approaches are used where traditional approaches cannot deliver the required outcome.
- CSIRO research involving gene technologies is strictly managed in accordance with the Commonwealth Gene Technology Act. This involves compliance with licence conditions for either contained laboratory work or field trials.
- CSIRO supports the current regulatory system for protection of human health and the environment that is underpinned by critical analysis of the available scientific data and evidence. CSIRO is currently using GM approaches to tackle issues in water use efficiency, disease resistance, nutrient use and grain quality in wheat (see below for more information).
- Currently, there is no commercial GM wheat anywhere in the world although research is being undertaken widely.

#### Social and economic benefits of this work

##### *In-confidence*

*The following figures on the estimated returns from individual traits are commercially sensitive and should not be used in public. If a talking point is needed for economic benefits then use "The combined estimated value to Australia of GM wheat with these traits is over \$2 billion".*

- Deletion
- Deletion
- Deletion

s7

#### There are three traits being trialled in the field this year:

- High amylose wheat ("HAW")- 

Deletion
- Nitrogen Use Efficiency - 

Deletion

s7

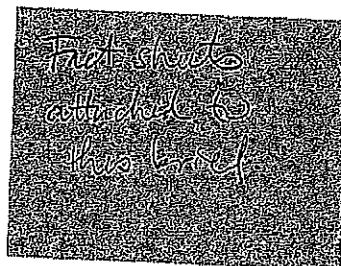
s7

- Yield- Deletion 57

- Modified Seed Storage Proteins- Deletion 57

#### Research findings

- Information on the field trials is publicly available through the Office of the Gene Technology Regulator's website at [www.ogtr.gov.au](http://www.ogtr.gov.au).
- Fact sheets on these trials are available on CSIRO's website at:
  - GM wheat trial - DIR092
  - GM wheat and barley trial - DIR093
  - GM wheat and barley trial - DIR094
  - GM wheat and barley trial -DIR099
- CSIRO will also seek to publish any research findings from these trials in peer-reviewed scientific journals.





# GM wheat trial

## OGTR application DIR092

### Food Futures Flagship

#### National Research FLAGSHIPS

Food Futures



The Office of the Gene Technology Regulator (OGTR) has approved an application from CSIRO to establish a small field plot of experimental genetically modified (GM) wheat and barley in the ACT.

This trial is part of a larger program run by the CSIRO Food Futures National Research Flagship that aims to deliver grains with better yield, improved baking qualities and improved nutritional characteristics.

#### Aim of the trial

The specific aim of this trial is to obtain a sufficient quantity of wheat seeds to investigate the baking characteristics of the grains, and various properties of the resulting dough. The nutritional value of these grains will also be assessed through rat and pig feeding trials.

#### About the GM wheat

The trial includes four different lines of GM wheat, each with slightly altered protein or fibre (carbohydrate) composition. The wheat lines with altered protein composition are used to understand the function of a particular type of storage protein in the grain. The lines with altered carbohydrate content are being studied for their potential to reduce glycaemic response and improve metabolic health.

Through the Food Futures Flagship, CSIRO scientists are involved in many collaborative research projects using both GM approaches and conventional breeding techniques to deliver grains with enhanced nutritional properties, a reduced impact on glycaemic response and high quality baking properties, to the Australian public.

#### The trial site

This GM wheat trial will be planted in 2009, 2010 and 2011. The site for this trial is one hectare located at an ACT-based CSIRO experimental site and each year only a portion of the site will be planted to this GM wheat trial. This site will also be used to grow two other GM wheat and barley trials that have been separately submitted to the OGTR for assessment.

#### Preventing GM pollen transfer

Wheat plants are self pollinating plants. This greatly reduces the incidence of pollen dispersal. However, the following strategies are in place to further prevent pollen dispersal.

To restrict animal access and any associated pollen transfer there are:

- A 1.8 m high deer mesh fence surrounding the trial site
- Two strands of barbed wire above the deer mesh
- Bird netting over the planted area
- 80cm of mesh fence covered with chicken wire at the base of the deer mesh
- Mouse traps interspersed around the trial site

To avoid pollen transfer from the GM plants the trial site includes:

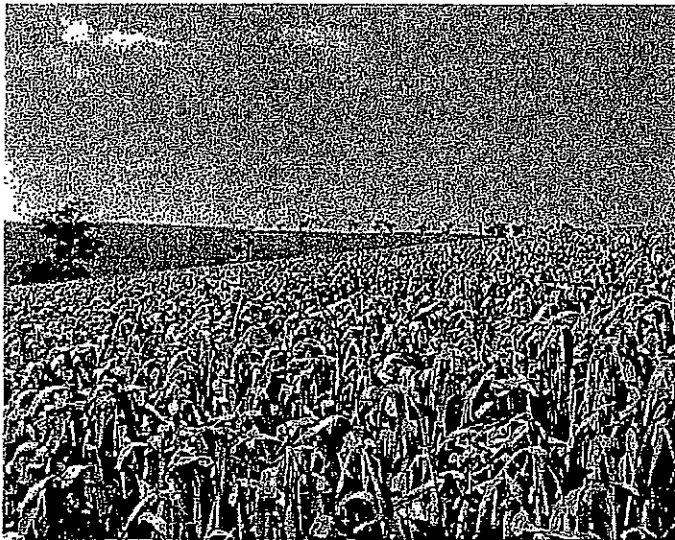
- A 2-4m buffer zone around the GM plants. Previous studies have shown that gene transmission to the outer edge of the buffer zone occurs at very low frequencies (0.012%)



> This trial will investigate properties of the dough resulting from this GM wheat

- A 200m buffer of pasture beyond the fence that will be grazed
- A 10m area beyond the fence that will be regularly treated with herbicide

A site survey revealed no wheat-compatible plant species in the 500m around the fence.



> Careful measures will be in place at the trial site to avoid gene transfer

## Animal trials

Some of the grain produced in the 2009-11 field trials will be used to conduct a series of rat and pig trials in 2010 or 2011, depending on the yield obtained.

The main aim of the animal feeding trials will be to confirm the potential health benefits of these grains.

Specifically, the feeding trials will aim to determine whether the new grains are digested more slowly in the small intestine and, therefore, whether the conversion of starch to glucose is reduced. If less glucose enters the body during digestion, the glycaemic response is lowered and the body needs to produce less insulin to control blood glucose levels.

Chronically elevated blood insulin levels (especially when linked to abdominal obesity) are believed to contribute to 'metabolic syndrome' – a combination of medical disorders that increases the risk of developing cardiovascular disease and diabetes. Grains with higher levels of soluble fibre seem to assist by improving blood glucose control, and may also lower blood cholesterol levels which are a known risk factor for coronary heart disease.

These trials follow a strict and established protocol that involves using rapidly growing animals (such as rats) for the initial nutritional trials to determine the effects of the grains on indicators of blood glucose control, lipid metabolism and body fat.

If successful, these rat trials will be followed by studies with pigs. Pigs are used because they are closer to humans in gut physiology. Pigs also consume human foods in quantities close to those consumed by humans. Data from these pig studies will be used to determine whether to proceed to a nutritional trial in human volunteers in the future. If human trials are to take place, a separate OGTR application will be submitted.

The animal trials will be conducted under strict ethical regulations established by Food Science Australia, and all animals will be humanely put down after the trial is completed.

## Antibiotic resistance

CSIRO does not intend to breed antibiotic resistance into commercial GM wheat varieties. These traits were used only in the laboratory testing phase of the development of these plants, and will be removed from the plants if they are ever developed commercially.

## Research findings

Information on the proposed trial will be made publicly available through the Office of the Gene Technology Regulator's website at [www.ogtr.gov.au](http://www.ogtr.gov.au).

This fact sheet is also available on CSIRO's website at: [www.csiro.au/resources/GMwheat-barley](http://www.csiro.au/resources/GMwheat-barley).

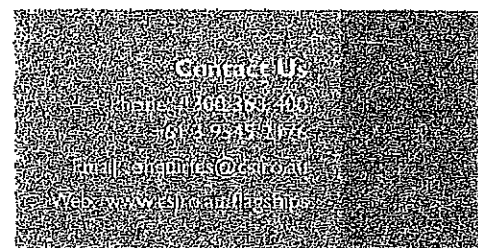
CSIRO will also seek to publish any research findings from this trial in peer-reviewed scientific journals.

If field and feeding trials are approved, and their outcomes are positive, commercial varieties of these GM wheat plants will be available in 2015, or later, as they will have to undergo several strict assessments before they can be approved.

*This research is conducted as a collaboration between CSIRO and the Grains Research and Development Corporation.*

For further information:

**Food Futures Flagship**  
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Web: [www.csiro.au/foodfutures](http://www.csiro.au/foodfutures)



## CSIRO and the Flagships program

CSIRO is a leading research and innovation organisation. CSIRO is a member of the National Research Flagships program, which is a partnership between CSIRO and the National Research Flagships to address the challenges of the future. The program is designed to support research and innovation in the areas of health, environment, and energy.

# GM wheat and barley trial

## OGTR application DIR093

### Food Futures Flagship

## National Research FLAGSHIPS

Food Futures



The Office of the Gene Technology Regulator (OGTR) has approved an application from CSIRO to establish a small field plot of experimental genetically modified (GM) wheat and barley in the ACT.

This trial is part of a larger program run by the CSIRO Food Futures National Research Flagship to develop grains with enhanced nutritional properties with the potential to improve bowel health in humans and help prevent serious diseases such as colo-rectal cancer and type 2 diabetes.

### Aim of the trial

The specific aim of this field trial is to produce grain from these GM wheat and barley plants to establish their potential to improve human health and lower disease risk.

These new lines will be modified to raise their content of resistant starch and will be used in animal and possibly human trials.



### Background on the trial

Starch is a glucose polymer produced by plants and is an important nutrient for humans. It is digested extensively in the small intestine and the resulting glucose is absorbed and used for energy.

Resistant starch is a component of starch that escapes digestion in the small intestine and passes into the colon. There, it is broken down by the resident bacteria releasing short chain fatty acids (SCFA). These SCFA are a source of energy for the large bowel wall and play an important role in promoting bowel health. Resistant starch also contributes to total dietary fibre intake.

Resistant starch is already present in whole grains such as wheat and barley, but the levels are low and most Australians only consume 10-20 per cent of the recommended daily intake. These inadequate intakes are thought to contribute to the high rates of diet-related diseases such as diabetes and colo-rectal cancer in this country.

Colo-rectal cancer accounts for over 4,400 deaths a year in Australia, with 11,000 new cases diagnosed annually. Type 2 diabetes currently affects over eight per cent of Australians and can lead to early onset heart disease, circulatory problems and increase the risk of colo-rectal cancer.

Through the Food Futures National Research Flagship, CSIRO is committed to providing Australians with consumer

food options (such as bread and breakfast cereal) that are high in resistant starch. This will give consumers the opportunity to improve their health by increasing their intakes of resistant starch through consumption of familiar products.

### About the GM wheat and barley

The GM wheat and barley have had a single gene and the GM barley two very closely related genes switched off which lead to an alteration of the composition of the starch and an increase in the content of resistant starch. No new genes have been added to these plants. Glasshouse trials and laboratory analyses have shown the health potential of these GM grains. Nutritional trials are the next step to confirm this.

Availability of a final product will depend on how this proof-of-concept research progresses, which is largely dependant on the outcome of research results and regulatory approval processes. In respect of these factors, commercial varieties of these GM wheat and barley plants would not be available before 2015.

### The trial site

This GM wheat and barley trial will be planted in 2009, 2010 and 2011. The site for this trial is one hectare located at an ACT-based CSIRO experimental site and each year only a portion of the site will be planted to this GM wheat and barley trial. This site will also be used to grow two other GM wheat and barley trials that have been separately submitted to the OGTR for assessment.

> The trial site will be carefully monitored

## Preventing GM pollen transfer

Barley and wheat plants are self pollinating plants. This greatly reduces the incidence of pollen dispersal. However, the following strategies are in place to further prevent pollen dispersal.

To restrict animal access and any associated pollen transfer there are:

- A 1.8m high deer mesh fence surrounding the trial site
- Two strands of barbed wire above the deer mesh
- Bird netting over the planted area
- 80cm of mesh fence covered with chicken wire at the base of the deer mesh
- Mouse traps interspersed around the trial site.

To avoid pollen transfer from the GM plants the trial site includes:

- A 2-4m buffer zone around the GM plants. Previous studies have shown that gene transmission to the outer edge of the buffer zone occurs at very low frequencies (0.012%)
- A 200m buffer of pasture beyond the fence that will be grazed
- A 10m area beyond the fence that will be regularly treated with herbicide

A site survey revealed no wheat-compatible plant species in the 500m around the fence. Some barley-compatible plants were identified, but spraying, grazing and buffer zones ensure no cross pollination occurs.

## Animal and human trials

Grain produced from these field trials will be used to conduct a series of feeding trials in rats and pigs. If approved, human nutritional trials may also be conducted.

The aim of these studies is to clarify the health benefits of the starch in the GM grain and determine if there are any other effects of the GM grain.

These trials follow a strict and established protocol which involves using rapidly growing animals such as rats for the initial nutritional trials to determine the effects of the new grains on indicators of bowel health. If successful, these will be followed by studies with pigs. Pigs are used because they have a similar gut physiology to humans. Pigs also consume human foods in quantities close to those consumed by humans. Data from these pig studies will be used to determine whether to proceed to a nutritional trial in human volunteers in the future.

The animal trials will be conducted under strict ethical regulations established by CSIRO Human Nutrition, a centre of Food Science Australia, and all animals will be humanely put down after the trials are completed.

## Antibiotic resistance

CSIRO does not intend to breed antibiotic resistance into commercial GM wheat or barley varieties. These traits were used only in the laboratory testing phase of the development of these plants, and will be removed from the plants if they are ever developed commercially.

## Research findings

Information on the proposed trial will be made publicly available on the Office of the Gene Technology Regulator's website at: [www.ogtingov.au](http://www.ogtingov.au).

This fact sheet is also available on CSIRO's website at: [www.csiro.au/resources/GMwheat-barley](http://www.csiro.au/resources/GMwheat-barley).

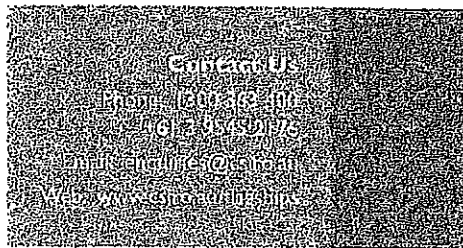
CSIRO will also seek to publish any research findings from this trial in peer-reviewed scientific journals.

If field and feeding trials are approved, and their outcomes are positive, commercial varieties of these GM wheat and barley plants will be available in 2015, or later, as they will have to undergo several strict assessments before they can be approved as human food.

*This research is carried out by ARISTA, a joint venture between CSIRO, the Grains Research and Development Corporation and Limagrain Cereal Ingredients.*

For further information:

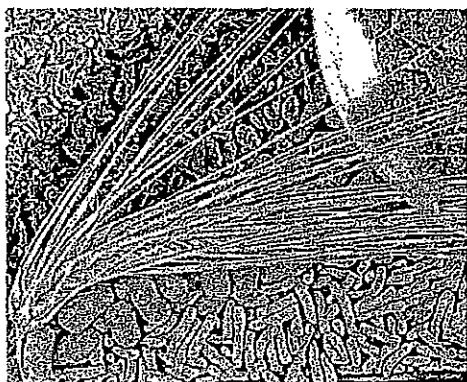
**Food Futures Flagship**  
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Web: [www.csiro.au/foodfutures](http://www.csiro.au/foodfutures)



## CSIRO and the Flagships program

The Flagships program is a joint venture between CSIRO, the Grains Research and Development Corporation and Limagrain Cereal Ingredients. The program aims to develop new wheat and barley varieties that are more nutritious and have improved processing qualities. The program is funded by the Australian Government, CSIRO, the Grains Research and Development Corporation and Limagrain Cereal Ingredients.

> The new GM grains have the potential to improve human health



# GM wheat and barley trial

## OGTR application DIR094

### Food Futures Flagship

#### National Research FLAGSHIPS

Food Futures



The Office of the Gene Technology Regulator (OGTR) has approved an application from CSIRO to establish a small field plot of experimental genetically modified (GM) wheat and barley in the ACT.

This trial is part of a larger program run by the CSIRO Food Futures National Research Flagship to develop high yielding wheat varieties that are significantly more effective at converting soil nutrients into grain, while maintaining grain quality.

#### Aim of the trial

The specific aim of this trial is to determine the nitrogen uptake and use efficiency of some experimental GM wheat and barley plants. This trial will evaluate these lines under field conditions.

#### About the GM wheat and barley

The GM wheat and barley plants have been genetically modified to make them more nutrient efficient. Nutrient efficiency is an important goal, both financially and environmentally, for our nation.

Applications of nitrogen fertiliser are expensive for the farmer and may in turn result in higher prices for consumers. More nitrogen efficient plants will require less fertiliser and will also reduce carbon dioxide emissions associated with manufacturing nitrogen fertilisers. If crops are able to use the nitrogen provided more efficiently, less nitrogen will leach into our waterways or be converted by soil organisms into nitrogen oxide, another powerful greenhouse gas.

This trial is an important component of the CSIRO's broader aim to improve Australia's agricultural sustainability and improve our food security.

#### The trial site

The GM wheat and barley trial will be planted in 2009, 2010 and 2011. The site for this trial is one hectare located at an ACT-based CSIRO experimental site and each year only a portion of the site is planted to this GM wheat and barley trial. This site is also being used to grow two other GM wheat and barley trials that have been separately submitted to the OGTR for assessment.

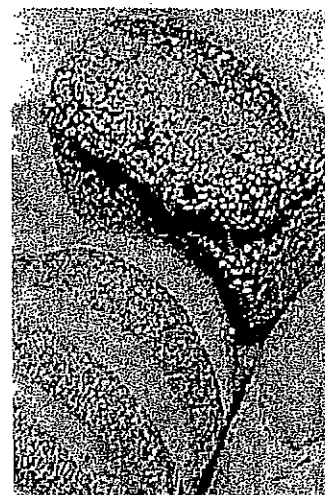
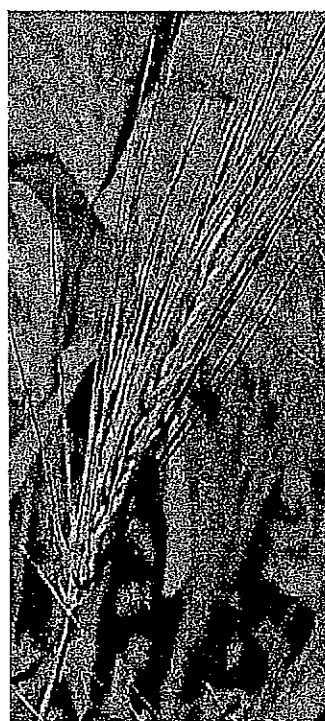
#### Preventing GM pollen transfer

Barley and wheat plants are self pollinating plants. This greatly reduces the incidence of pollen dispersal. However, the following strategies are in place to further prevent pollen dispersal.

To restrict animal access and any associated pollen transfer there are:

- A 1.8m high deer mesh fence surrounding the trial site
- Two strands of barbed wire above the deer mesh
- Bird netting over the planted area
- 80cm of mesh fence covered with chicken wire at the base of the deer mesh
- Mouse traps interspersed around the trial site

> The GM plants in this trial use nitrogen more efficiently





➤ The research findings of this trial will be published in scientific journals

To avoid pollen transfer from the GM plants the trial site includes:

- A 2-4m buffer zone around the GM plants. Previous studies have shown that gene transmission to the outer edge of the buffer zone occurs at very low frequencies (0.012%)
- A 200m buffer of pasture beyond the fence that will be grazed
- A 10m area beyond the fence that is regularly treated with herbicide

A site survey revealed no wheat-compatible plant species in the 500m around the fence. Some barley-compatible plants were identified but spraying, grazing and buffer zones ensures no cross pollination occurs.

### Antibiotic resistance

CSIRO does not intend to breed antibiotic resistance into commercial GM wheat or barley varieties. These traits were used only in the laboratory testing phase of the development of these plants, and will be removed from the plants if they are ever developed commercially.

### Research findings

Information on the trial is publicly available on the Office of the Gene Technology Regulator's website at: [www.ogtr.gov.au](http://www.ogtr.gov.au).

This fact sheet is also available on CSIRO's website at: [www.csiro.au/resources/GMwheat-barley](http://www.csiro.au/resources/GMwheat-barley).

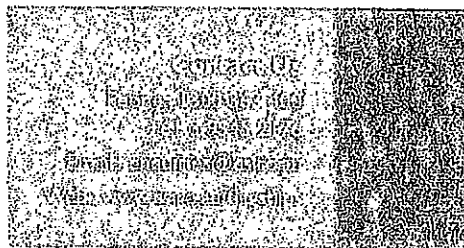
CSIRO will also seek to publish any research findings from this trial in peer-reviewed scientific journals.

If field trials are approved and their outcomes are positive, commercial varieties of these GM wheat and barley plants will be available in 2015, or later, as they will have to undergo several strict assessments before they can be approved as human food.

*This research is a collaboration between CSIRO, the Australian Centre for Plant Functional Genomics (ACPGF), and Arcodia Biosciences.*

For further information:

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### CSIRO and the Flagships program

The Flagships program is a collaborative effort between CSIRO, the Australian Government, and the private sector to develop and commercialise new technologies and products. The program is focused on four key areas: Food Futures, Water, Energy, and Environment. The Food Futures Flagship is one of the four Flagships and is led by CSIRO. It aims to develop and commercialise new technologies and products for the food and agriculture sector.

# GM wheat and barley trial

## OGTR application DIR099

### Food Futures Flagship

## National Research FLAGSHIPS

Food Futures



The Office of the Gene Technology Regulator (OGTR) has approved an application from CSIRO to establish small field plots of experimental genetically modified (GM) wheat and barley in NSW and WA.

This trial is part of a larger program run by the CSIRO Food Futures National Research Flagship to develop high yielding wheat varieties that are more effective at converting soil nutrients into grain, while maintaining grain quality.

### Aim of the trial

The aims of this trial are to assess the impact of the technologies on yield and/or the nitrogen uptake and use efficiency of the GM wheat and barley plants. This trial will evaluate these lines under field conditions.

### About the GM wheat and barley

The aim of the trial is to evaluate lines already being trialled in DIR092 and 094 in different environments.

Two different GM traits are being trialled. The first consists of GM wheat lines which have altered carbohydrate content. In glasshouse studies these lines have shown increased vigour and yield.

The second set of lines are GM wheat and barley plants which have been genetically modified to make them more nutrient efficient. Nutrient efficiency is an important goal, both financially and environmentally, for our nation.

Applications of nitrogen fertiliser are expensive for the farmer and may result in higher prices for consumers. More nitrogen efficient plants will require less fertiliser and reduce carbon dioxide emissions associated with manufacturing nitrogen fertilisers. If crops are able to use the nitrogen provided more efficiently, less nitrogen will leach into our waterways or be converted by

soil organisms into nitrogen oxide, another powerful greenhouse gas.

This trial is an important component of the CSIRO's broader aim to improve Australia's agricultural sustainability and improve our food security.

### The trial site

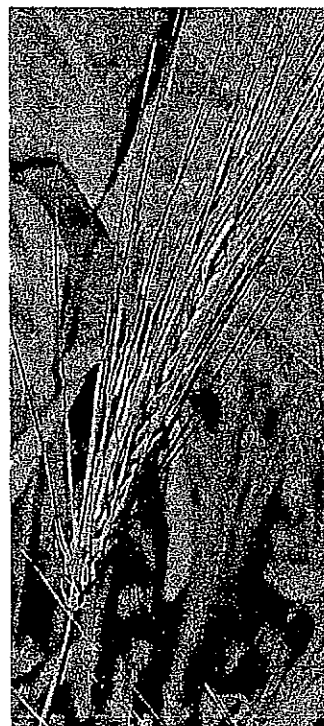
The GM wheat and barley trial will be planted in 2010, 2011 and 2012.

The sites for these trials are both one hectare and will be located in the shire of Narrabri, NSW and the shire of Merredin, WA.

### Research Collaborators

The altered carbohydrate content work is a collaboration between CSIRO and the GRDC.

The work on nitrogen use efficiency is a collaboration between CSIRO, the Australian Centre for Plant Functional Genomics (ACPGF) and Arcadia Biosciences.





➤ The research findings of this trial will be published in scientific journals

### Preventing GM pollen transfer

Barley and wheat plants are self pollinating plants. This greatly reduces the incidence of pollen dispersal. The following strategies are in place to further prevent pollen dispersal.

To avoid pollen transfer from the GM plants the trial site includes:

- A 2.4m buffer zone around the GM plants. Previous studies have shown that gene transmission to the outer edge of the buffer zone occurs at very low frequencies (0.012%)

- A 200m zone in which no wheat or barley will be grown
- A 10m area beyond the fence that is regularly treated with herbicide

### Antibiotic resistance

CSIRO does not intend to breed antibiotic resistance into commercial GM wheat or barley varieties. These traits were used only in the laboratory testing phase of the development of these plants, and will be removed from the plants if they are ever developed commercially.

### Research findings

Information on the trial is publicly available on the Office of the Gene Technology Regulator's website at: [www.ogtr.gov.au](http://www.ogtr.gov.au).

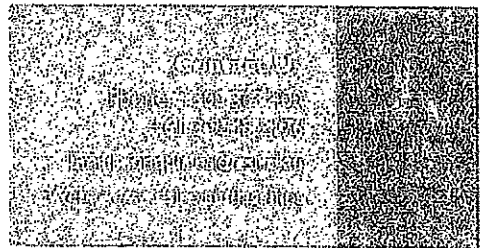
This fact sheet is also available on CSIRO's website at: [www.csiro.au/resources/GM/wheat-barley](http://www.csiro.au/resources/GM/wheat-barley).

CSIRO will also seek to publish any research findings from this trial in peer-reviewed scientific journals.

If field trials are approved and their outcomes are positive, commercial varieties of these GM wheat and barley plants will be available in 2017, or later, as they will have to undergo several strict assessments before they can be approved as human food.

For further information:

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Web: [www.csiro.au/foodfutures](http://www.csiro.au/foodfutures)



### CSIRO and the Flagships program

The Food Futures Flagship is a research program that aims to develop new food products and production systems that are sustainable, nutritious and profitable. The program is led by CSIRO and involves a number of other organizations, including the University of Queensland, the University of Western Australia, and the University of New South Wales. The program is funded by the Australian Government and the private sector.





Minister  
Innovation, Industry, Science and Research

B11/2589

For Meeting

CSIRO No. C2011/6195

## MEETING WITH GREENPEACE AND CSIRO

**Purpose:** To provide information for a meeting with Greenpeace on genetically modified (GM) wheat.

### Meeting Arrangements

Date: 18 July 2011  
Time: 11:00am  
Venue: Minister's Office Parliament House  
Present: Mr Steve Phillips Greenpeace  
Adviser/s: Mr Gary Moorhead  
Dr John Byron  
Dept Officer(s): CSIRO  
Mr Bruce Lee, A/g Group Executive Food, Health & Life Science Industries  
Mr Jeremy Burdon, Chief CSIRO Plant Industry  
Mr John Curran, Communications Manager  
Lectern: NA  
Audience Size: 6  
Arrangements:  
Media: NA  
Electorate: Canberra

**Recent Dealings:** Nil

### Key Issues:

- Greenpeace wrote requesting a meeting on 4 July 2011 to discuss CSIRO's GM wheat research. Greenpeace is currently running a campaign against CSIRO's GM wheat research including releasing a report critical of CSIRO on 7 July 2011 and lodging a FOI request for information on the research.
- Greenpeace have also made allegations that former CSIRO Board members were conflicted as they were on the Board of Nufarm Limited at the time decision where made by the CSIRO Board on commercial transactions in relation to GM wheat research (see Attachment B)
- Between 11:00pm on 13 July 2011 and 6:00am 14 July 2011 entry was made to a CSIRO GM trial site at Ginninderra in the ACT and one trial which had germinated was cut with a whipper snipper. Greenpeace has claimed responsibility and a police investigation is underway. To avoid prejudicing any possible criminal or civil legal action this incident should not be discussed during the meeting.

**Sensitivity:** Yes. This brief is Legal and Commercial-in-Confidence. As it relates to possible criminal and civil action and commercial arrangements with collaborators.

**Attachments:** A) Background; B) CSIRO position on Food Security and C) Talking points.

**Slipstream Version 15 July 2011**

Bruce Lee 02 9490 8490  
A/g Group Executive Food, Health & Life  
Sciences Industries  
CSIRO  
14 July 2011

Contact: Grant Farrell 02 6276 6051/  
0417 886 072

Consultation:  
Nil

NOTED/PLEASE DISCUSS

Kim Carr

## BACKGROUND

## CSIRO GM Wheat Trials

- In 2009 and 2010, the Office of the Gene Technology Regulator (OGTR) approved applications from CSIRO to establish a range of small field plots of experimental genetically modified (GM) wheat and barley over the period 2009 to 2012, at three sites.
- The three trial sites currently involved are: Ginninderra in the ACT, Narrabri in NSW and Merredin in WA.
- There are four traits being tested in the field this year:
  - High amylose wheat ("HAW") which raises the amylose content from 2.5% (normal levels) to around 70%.
  - Nitrogen Use Efficiency – enabling a wheat or barley plant to take up nitrogen from the soil more efficiently, reducing fertiliser use.
  - Increased Yield – for increased food production.
  - Seed storage proteins.
- ~~Deletion~~ 57
- The established path for demonstrating health benefits, and the absence of negative health impacts, is to conduct a series of trials in small animals (eg. Rats), large animals (eg. Pigs) and finally in humans.
- CSIRO has completed rat and pig trials for the high amylose wheat trait that demonstrate a range of health benefits and with no negative effects being observed. Although OGTR and Human Ethics Committee permission has been granted for human trials for the high amylose wheat trait, no decision has been made to proceed with these trials to date.

- ~~Deletion~~ 57
- For further background on CSIRO's position on food security and production, see Attachment B.

## Greenpeace

- Greenpeace have recently undertaken a media campaign criticising trials being conducted that involve feeding genetically modified wheat to humans including an "open letter" to the Chief Executive of CSIRO.
- CSIRO has responded confirming that no such human trials are currently being undertaken although they may be considered in due course as CSIRO looks to establish the health benefits of these modified grains.
- CSIRO has emphasised that its work with GM wheat and barley is primarily directed at improving the health benefits and sustainable farming of these grains. CSIRO complies with all requirements of the relevant regulatory authorities including Federal and State Governments, the Office of the Gene Technology Regulator (OGTR) and Food Standards Australia New Zealand (FSANZ).
- Greenpeace issued a media release on 7 July 2011 and also issued a report titled "Australia's Wheat Scandal".

## Conflicts of Interest

- As part of "Australia's Wheat Scandal", Greenpeace has made an allegation that two former Board Members of CSIRO, Dr John Stocker and Mr Doug Rathbone were in a position of conflict of interest because they were also on the Board of Nufarm Limited at the time when decisions were made by the CSIRO board to approve the commercial transactions in relation to which the GM trials are being

### **Legal and Commercial-in-Confidence**

undertaken. Dr Stocker's and Mr Rathbone's Nufarm directorships were declared to CSIRO and protocols were put in place to ensure that they did not participate in any CSIRO Board deliberations or decision-making concerning proposed CSIRO dealings with Nufarm Limited (or its subsidiaries). The protocol also covered discussions and deliberations concerning Nufarm's area of business interest.

- Nufarm and related entities are not involved in the commercial transactions in relation to which these GM trials are being undertaken.
- CSIRO has in place appropriate processes to identify and deal with potential conflicts of interest at Board and management level and is confident these have been complied with.

#### *FOI Request*

- CSIRO recently received a Freedom of Information (FOI) request from Greenpeace Australia Pacific relating to the testing of genetically modified wheat. That FOI request was cast in terms that required CSIRO to review a very large volume of documents. Under the FOI Act, agencies are not required to process excessively voluminous FOI requests that would divert the agency's resources away from ordinary business, including processing FOI requests made by other applicants. CSIRO is currently assisting Greenpeace to modify the terms of the FOI request to enable it to be actioned appropriately. That consultation process is being undertaken in accordance with the provisions of the FOI Act.

## CSIRO POSITION ON FOOD SECURITY AND PRODUCTION

The world's population is anticipated to exceed 9 billion in 2050 and economic development is driving changes in consumption levels. These factors along with modest expansion of biofuel production and continuing high levels of food loss and wastage, is creating unprecedented pressure on world food production systems.

The challenges for agriculture in the 21st century are to produce 70 per cent more food by 2050 to feed a projected increased population, while implementing more sustainable food production methods and responding to climate change (FAO, 2009). Australia's trade surplus in fresh and manufactured food fell from \$4.5 billion in 2004-05 to \$150 million in 2008-09.

### *Working across the supply chain*

CSIRO invests approximately \$234 million (appropriation and external revenue) annually providing a systems approach to research working all the way along the food value chain – from the farm to fork. In addition, more than \$200 million is invested through the Environment Group in areas such as sustainability, water systems and climate.

### *Improving agricultural productivity*

Through its National Research Flagships CSIRO is working with industry partners to achieve a total factor productivity growth across Australia's key agricultural industries of at least 2 per cent per annum over the next 20 years. Genetic research is improving yields by enabling plants to perform well in more marginal environments such as salt and drought-affected areas or nutrient-limited soils (nitrogen and phosphate use efficiency in wheats/barley), whilst minimising losses from pests and diseases. New technologies are being developed to more efficiently generate livestock derived products that have enhanced nutritional and quality attributes with a reduced environmental footprint.

### *Producing more with less*

Increased productivity needs to occur whilst reducing the environmental footprint of food and fibre production. CSIRO is developing new methods for maximising nutrient utilisation and measuring water footprints of food. CSIRO are working to reduce greenhouse gas emissions per unit of food and fibre production by at least 50 per cent by 2030 through a mix of productivity growth, ruminant emissions reduction and carbon storage in soils and vegetation.

### *Food Manufacturing*

Food manufacturing is inherently linked to the whole supply chain. CSIRO is continuing research in efficient conversion of agricultural materials into food including the optimisation of energy use, novel water purification and recycling technologies, use of food waste as biomass for energy generation and adding value to waste through emerging technologies.

TALKING POINTS

- CSIRO is working across the food supply value chain providing a systems approach to research working all the way from the farm to fork.
- Through its National Research Flagships CSIRO is working with industry partners to achieve a total factor productivity growth across Australia's key agricultural industries of at least 2 per cent per annum over the next 20 years.
- It is achieving this using various approaches including Genetically Modified (GM) and more conventional non GM techniques to carry out genetic research.
- Plant genetic research using conventional approaches is targeting a range of traits for improvement, including increased yields or, by enabling plants to perform well in more marginal environments such as salt and drought-affected areas, or nutrient-limited soils (nitrogen & phosphate use efficiency in wheat/barley), whilst minimising losses from pests and diseases.
- CSIRO works with a wide range of Australian and international public and private collaborators. These linkages are vital to source Intellectual Property (IP), know-how and scientific expertise that complements the skills and expertise of CSIRO. The companies are essential partners for CSIRO in the delivery of its science into outcomes which are relevant to industry and consumers both locally and globally. In all arrangements CSIRO ensures that it safe-guards Australia's interests

subject to further safety and efficacy studies of the crop.

This is a requirement of the regulatory bodies which oversee the necessary approval steps for commercialisation

Commercial-In-Confidence



Minister  
Innovation, Industry, Science and Research

B11/2734

For Information

CSIRO Initiated

CSIRO No. C2011/

## INCURSION AT CSIRO GINNINDERRA WHEAT TRIAL

**Purpose:** To inform you of an incursion at CSIRO's genetically modified (GM) wheat trials in the ACT.

### Background:

- CSIRO is carrying out trials of genetically modified wheat at its Ginninderra site in the ACT.
- Between 11:00pm on 13 July 2011 and 6:00am 14 July 2011 entry was made to the site and one trial which had germinated was cut with a whipper snipper. It will not be clear for about 14 days whether herbicide has also been applied to the site.

[Deletion] Greenpeace has claimed responsibility for the incursion.

s47E

- The trials consist of three traits (1) a yield trait known as GWD, (2) high amylose wheat (which is a health trait) and (3) yet to be planted a nutrient efficiency trait for nitrogen known as NUE. The NUE was scheduled to be planted on the day of the incursion (14 July 2011), but this has been postponed.

[Deletion]

s47E

- The local police and the regulatory authority (the Office of the Gene Technology Regulator (OGTR)) were informed of the incident and have visited the site to carry out an investigation under their respective statutory authorities. There does not appear to have been a containment breach of genetic material due to the incursion although the OGTR are still investigating. The police investigation is ongoing.

### Issues:

- From this incident, and from the trial itself, there is absolutely no risk of any unforeseen consequences or human harm and, further, there is no evidence of material being removed from the trial site.

[Deletion]

s7

- CSIRO is conducting multiple trials in Northern NSW (Narrabri), and WA (Merridin) and has taken steps to ensure the trials sites have enhanced security, monitoring and surveillance. Security has also been increased at Ginninderra.

[Deletion]

s47E

### Communication:

- Steps have been taken to inform the relevant authorities. These include: The OGTR, ACT and Federal Police, collaborators and co-investors.

[Deletion] CSIRO has issued a standby statement to the media and Dr Jeremy Burdon, Chief of CSIRO Plant Industry as CSIRO spokesperson has been responding to media queries on behalf of the organisation.

s7

- A meeting between your office, CSIRO and Greenpeace was being arranged to discuss CSIRO's GM wheat research and Greenpeace's concerns with that research before this incidence. This meeting will occur on Monday 18 July 2011 in your Parliament House office. In attendance will be Dr John Byron and Mr Gary Moorhead from your office, Mr Steve Phillips from Greenpeace and Mr Jeremy Burdon, Mr John Curran and Mr Bruce Lee from CSIRO.

Commercial-In-Confidence

Sensitivity: Yes. This brief is Commercial-in-Confidence.

Attachments: Nil

Bruce Lee 02 9490 8490  
A/g Group Executive Food, Health & Life  
Sciences Industries

Division CSIRO

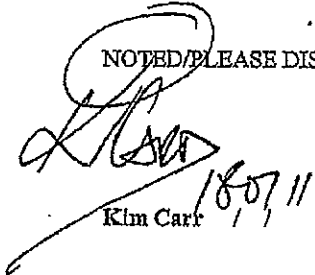
15 July 2011

Contact: John Williams 02 9490 8229/  
0410 698 724

*Slipstream Version 15 July 2011*

Consultation  
Nil.

NOTED/PLEASE DISCUSS

  
Kim Cart 18/07/11

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