



## YEAR 12 Agriculture

### Elective - Research

<b>Due Date:</b> Monday 26 <sup>th</sup> August 2019	<b>Assessment Name:</b> Elective - Research
<b>Mark:</b> x /30	<b>Weighting:</b> 15 %

#### SYLLABUS OUTCOMES TO BE ASSESSED:

- H3.4 **Evaluates** the management of the processes in agricultural systems
- H4.1 **Applies** appropriate experimental techniques, technologies, research methods and data presentation analysis in relation to agricultural problems and situations
- H5.1 **Evaluates** the impact of innovation, ethics and current issues on Australian agricultural systems.

#### DIRECTIVES TO BE ASSESSED:

**Evaluates:** Make a judgment based on criteria; determine the value of

**Applies:** Use, utilise, employ in a particular situation

#### TASK DESCRIPTION:

This assessment task requires you to carry out an independent research that will enable you to write a report on **ONE** recent technological development in Agriculture. To carry-out the research you will need to use the Internet, Scientific Journals, the Department of Primary Industries website and the School's Library as sources of information (see appendix 1 for suggested references). The selected technology must have been developed or implemented within the past 10 years (i.e. 2009 – 2019).

A research topic can be selected from the following examples or can be used as a guide:-

1. *Ultrasound scanners*
2. *NLIS reader in cattle*
3. *GM crops – herbicide tolerant OR pest resistant*
4. *Semen or embryo sexing*
5. *GPS or precision agriculture – fertilizer application OR herbicide spraying OR monitoring of yield*
6. *Robotic shearing*
7. *Robotic dairy*
8. *Remote sensing to monitor vegetation conservation or estimation of crop yields*
9. *Use of laser technology in land preparation.*
10. *Embryo transfer*

Before you begin you must select **ONE** recent technology that your report will focus on. Your research report should address each of the following, which you should also use as headings to organise your report.

1. Introduction – Importance and significance of the named technology using "timeline"

2. **Evaluate** issues that are related to the development of the technology and major components of the research design process. For example, funding sources, patents, plant breeders right, animal welfare and legislation
3. **Evaluate** how the named technology has impacted on production efficiency, profitability or assisted the agricultural industries in meeting set objectives. For example improved record keeping from the use of the computer based *Cropmate* software that provides weather and climate information and access to a range of decision tools to improve farm business.
4. **Evaluate** the methods that companies may use to market the technology to potential clients. For example trade shows, conferences, demonstrations and field days.
5. **Evaluate** the impact of the technology in terms of economic, environmental, social, legal and managerial factors.
6. Make sure it is in the report format and you must ensure that you **apply** and address all of the above 4 headings.
7. Conclusion – summary of the identified agricultural problems and solutions.

**ASSESSMENT CRITERIA – STUDENT CHECKLIST:**

You will be assessed on your ability to:

- Write a report, using the headings given
- Address each of the questions outlined above
- Provide a response to each question that clearly addressed the **DIRECTIVES**
- Make sure your technology is less than 10 years

**MARKING GUIDELINES**

H3.4 **Evaluates** the management of the processes in agricultural systems

Description	Possible Mark	Actual Mark
<p><b>Outstanding evaluation</b> of major issues that are related to the development of the technology and the research design process.</p> <ul style="list-style-type: none"> <li>- Properly identifies a recent technology developed within the past 10 years</li> <li>- Using specific examples evaluates 3 issues related to the development of the technology</li> <li>- Makes a clear judgement (evaluate) to a high level of accuracy that is linked to examples of each of the above</li> <li>- Demonstrate a clear and excellent understanding of all the questions and directives required</li> </ul>	9-10	
<p><b>High level evaluation</b> of major issues that are related to the development of the technology and the research design process.</p> <ul style="list-style-type: none"> <li>- Properly identifies a recent technology developed within the past 10 years</li> <li>- Using specific examples evaluates 2 issues related to the development of the technology</li> <li>- Makes judgement (evaluate) that is linked to examples of each of the above</li> <li>- Demonstrate a clear and good understanding of all the questions and directives required</li> </ul>	7-8	

<p><b>Sound level evaluation</b> of issues that are related to the development of the technology and the research design process.</p> <ul style="list-style-type: none"> <li>- Identifies a recent technology developed within the past 10 years</li> <li>- Using specific examples evaluate 1 issue related to the development of the technology</li> <li>- Demonstrate a good understanding of all the questions and directives required</li> </ul>	5-6	
<p><b>Basic level evaluation</b> of issues that are related to the development of the technology and the research design process.</p> <ul style="list-style-type: none"> <li>- Identifies a technology used in the Agricultural industry</li> <li>- Presents a basic report on issues related to the development of the technology</li> <li>- Demonstrate a basic understanding of all the questions and directives required</li> </ul>	3-4	
<p><b>Limited level evaluation</b> of issues that are related to the development of the technology and the research design process.</p> <ul style="list-style-type: none"> <li>- Limited or no attempt to identify a recent technology used in the Agricultural Industry</li> <li>- Demonstrate a limited or no understanding of all the questions and directives required</li> </ul>	0-2	

H4.1 **Applies** appropriate experimental techniques, technologies, research methods and data presentation analysis in relation to agricultural problems and situations

Description	Possible Mark	Actual Mark
<p><b>Outstanding level of application</b> of appropriate method in the presentation of your investigative research</p> <ul style="list-style-type: none"> <li>- Presents a cohesive, well-reasoned and detailed research paper using 2 examples</li> <li>- Research paper excellently explained using text and graphics such as graphs, tables and images</li> <li>- Makes a clear judgment (applies) that links 2 aspects of the research objectives to the research outcomes.</li> <li>- Research paper includes appropriate acknowledgement and bibliography</li> <li>- Demonstrate a clear and excellent understanding of all the questions and directives required</li> </ul>	9-10	
<p><b>High level of application</b> of appropriate method in the presentation of your investigative research</p> <ul style="list-style-type: none"> <li>- Presents a well-reasoned and detailed research paper using 2 examples</li> <li>- Research paper well explained using text and graphics such as graphs, tables and images</li> <li>- Makes judgment (applies) that links 1 aspect of the research objective to the research outcomes.</li> <li>- Research paper includes acknowledgement and bibliography</li> <li>- Demonstrate a clear and good understanding of all the questions and directives required</li> </ul>	7-8	

<p><b>Sound level of application</b> of appropriate method in the presentation of your investigative research</p> <ul style="list-style-type: none"> <li>- Presents a detailed research paper using 1 example</li> <li>- Research paper was explained using text and graphics such as graphs, tables and images</li> <li>- Makes judgment (applies) that links the research objective to the research outcome.</li> <li>- Research paper includes acknowledgement and/or bibliography</li> <li>- Demonstrate a good understanding of all the questions and directives required</li> </ul>	5-6	
<p><b>Basic level of application</b> of appropriate method in the presentation of your investigative research</p> <ul style="list-style-type: none"> <li>- Presents a basic research paper without the use of examples</li> <li>- Makes judgment (applies) without links between the research objective and the research outcome.</li> <li>- Research paper excludes acknowledgement and/or bibliography</li> <li>- Demonstrate a basic understanding of all the questions and directives required</li> </ul>	3-4	
<p><b>Limited level of application</b> of appropriate method in the presentation of your investigative research</p> <ul style="list-style-type: none"> <li>- Presents a limited or no attempt to present a research paper</li> <li>- Makes no or invalid judgment (applies) about the links between the research objective and the research outcome.</li> <li>- Research paper excludes acknowledgement and bibliography</li> <li>- Demonstrate a limited or no understanding of all the questions and directives required</li> </ul>	0-2	

H5.1 **Evaluates** the impact of innovation, ethics and current issues on Australian agricultural systems.

Description	Possible Mark	Actual Mark
<p><b>Outstanding level of evaluation</b> of the impact of the technology in terms of economic, environmental, social, legal and managerial factors.</p> <ul style="list-style-type: none"> <li>- Evaluate the impact of any 3 of the following factors (economic, environment, social, legal and managerial) on the efficiency and profitability of the technology.</li> <li>- Evaluate 2 methods that companies may use to market the technology to potential clients.</li> <li>- Makes a clear judgement (evaluate) that links the technology to cost of production and the requirements of consumers.</li> <li>- Demonstrate a clear and excellent understanding of all the questions and directives required</li> </ul>	9-10	
<p><b>High level of evaluation</b> of the impact of the technology in terms of economic, environmental, social, legal and managerial factors.</p> <ul style="list-style-type: none"> <li>- Evaluate the impact of any 2 of the following factors (economic, environment, social, legal and managerial) on the efficiency and profitability of the technology.</li> <li>- Evaluate 1 methods that companies may use to market the technology to potential clients.</li> </ul>	7-8	

<ul style="list-style-type: none"> <li>- Makes a judgement (evaluate) that links the technology to cost of production and the requirements of consumers</li> <li>- Demonstrate a clear and good understanding of all the questions and directives required</li> <li>-</li> </ul>		
<p><b>Sound level of evaluation</b> of the impact of the technology in terms of economic, environmental, social, legal and managerial factors.</p> <ul style="list-style-type: none"> <li>- Evaluate the impact of any 1 of the following factors (economic, environment, social, legal and managerial) on the efficiency and profitability of the technology.</li> <li>- Makes judgement (evaluate) that links the technology to cost of production and the requirements of consumers.</li> <li>- Demonstrate a good understanding of all the questions and directives required</li> </ul>	5-6	
<p><b>Basic level of evaluation</b> of the impact of the technology in terms of economic, environmental, social, legal and managerial factors.</p> <ul style="list-style-type: none"> <li>- Evaluate the impact of any of the following factors (economic, environment, social, legal and managerial) on production</li> <li>- Makes judgement (evaluate) without links to the technology, cost of production and the requirements of consumers.</li> <li>- Demonstrate a basic understanding of all the questions and directives required</li> </ul>	3-4	
<p><b>Limited level of evaluation</b> of the impact of the technology in terms of economic, environmental, social, legal and managerial factors.</p> <ul style="list-style-type: none"> <li>- Limited or no attempt to evaluate the impact of any of the following factors (economic, environment, social, legal and managerial) on production</li> <li>- Makes no or invalid judgement (evaluate) about the links between the technology, cost of production and the requirements of consumers.</li> <li>- Demonstrate a limited understanding of all the questions and directives required</li> </ul>	0-2	

## Appendix – 1

### Suggested references

Animal welfare [www.schools.nsw.edu.au/animalsinschools](http://www.schools.nsw.edu.au/animalsinschools)

IP Australia, Plant Breeders Rights <http://www.ipaustralia.gov.au/pbr/index.shtml>

CSIRO, Gene Technology and Farming <http://www.csiro.au/science/Gene-Tech-Farming.html>

Meat and Livestock Australia (MLA) newsletter <http://www.mla.com.au/Publications-tools-and-events/eNewsletters>

TaLe website <http://www.tale.edu.au/tale/live/teachers/secondary/>

Farming Ahead, Kondinin Group <http://www.kondinin.com.au/>

Farm Industry News <http://farmindustrynews.com/>

Australian Government Department of Agriculture, Fisheries and Forestry <http://www.daff.gov.au/>

NSW Department of Primary Industries <http://www.dpi.nsw.gov.au/agriculture>

Victorian Department of Primary Industries <http://new.dpi.vic.gov.au/>

The Agricultural Marketing Resource Center <http://www.agmrc.org/>

HSC Online <http://www.hsc.csu.edu.au/agriculture/>

Spatial Information Exchange <https://six.maps.nsw.gov.au/wps/portal/>

Australian Government Bureau of Meteorology [www.bom.gov.au](http://www.bom.gov.au)

The Official Global GPS Cache Hunt site [www.geocaching.com](http://www.geocaching.com)

You Tube <http://www.youtube.com/>

ABC Landline <http://www.abc.net.au/landline/>

National Livestock Identification System <https://www.nlis.mla.com.au/>

Future Dairy <http://www.futuredairy.com.au>

20. Larkin PJ, Genes at work: Biotechnology, CSIRO Publication

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A look at Our Future

<https://www.21stcentech.com/agriculture-new-technologies-food-security-21st-century/>