



# Managing competition between forestry plants

## Year 12 Agriculture

### Outcomes

- H1.1 explains the influence of the physical, biological, social, historical and economic factors on sustainable agricultural production
- H2.1 describes the inputs, processes and interactions of plant production systems

### Students learn about:

- Competition in plant communities.

### Students learn to:

- Describe sources of competition in plant communities.
- Investigate how farmers manage plant competition through plant density and weed control strategies.



Photo: M Ryan



### Introduction to plant competition

Plants usually grow in fairly close proximity to other plants, either of the same species or of different species. There are a number of ways that plants can impact on each other. Including:

- a) Competing for the same resources when growing e.g. light and nutrients.
- b) Altering the surrounding microclimate (the environment directly surrounding the plant) e.g. by casting shade on it.
- c) Attracting pests and disease to the area which can then spread to the surrounding plants.
- d) Releasing allelopathic chemicals into the soil to suppress the growth of other species or promote the growth of their own species.

The management decisions about the density of plants in the final coupe, crop or pasture will influence the yield per hectare significantly.

### Activity One:

Using the URL link below, view the article on forest thinning and answer the following questions.

URL: <http://www.sciencemag.org/news/2017/04/save-forests-cut-some-trees-down-scientists-say>

**Source Material:** An introduction to the forestry management and competition.

**Online Publication:** Science – American Association for the Advancement of Science

**Title of Article:** To save forests, cut some trees down, scientists say

**Author:** Ula Chrobak Apr. 21, 2017 , 2:00 PM



**Answer the following questions after reading the news article “save forests, cut some trees down, say scientists”:**

a) Identify the two main benefits of thinning forests.

b) What factors are “stressed” trees more at risk of.

c) Summarise the experiment being conducted in north-western Montana since 1961.

d) Summarise the findings of the experiment to date.

e) Explain the advantage of “big trees”.

f) Identify a potential problem with early thinning of some tree species.



### Activity Two:

View the footage from the following video news report to gain an understanding on the process of tree thinning before completing your workstation activity.

News report URL: <http://abc7news.com/weather/uc-berkeley-testing-ecosystem-by-cutting-down-trees-in-sierra/1429478/>

**Source:** Anc 7UC Berkely testing ecosystem by cutting down trees in Sierra. Dan Ashley Friday, July 15, 2016

### Activity Three:

Using the workstation resources your teacher has printed for you, summarise each with respect to their relevance to the topics below\*:

1. Competition (and its effect) between plants in the forestry industry  
and/or
2. Management of competition by farmers/producers.

*\*N.B. If the workstation only has relevance to one topic only complete this area of the table.*



**Table One: Summary of workstations**

<p>Tree basal area is:</p> <p>and is used to:</p>		
Workstation	Summary of plant competition	Summary of management by farmers to reduce competition
Competition and height growth		
Competition and diameter growth		



Competition and volume production		
Competition and branch development		



Introduction to thinning		
Tree and Forest Measurement		



## References

1. Science – American Association for the Advancement of Science: To save forests, cut some trees down, scientists say ([Ula Chrobak](#)) Apr. 21, 2017  
Accessed 18<sup>th</sup> May 2017  
<http://www.sciencemag.org/news/2017/04/save-forests-cut-some-trees-down-scientists-say>
2. Berkely testing ecosystem by cutting down trees in Sierra. Dan Ashley Friday, July 15, 2016  
Accessed 18<sup>th</sup> May 2017  
<http://abc7news.com/weather/uc-berkeley-testing-ecosystem-by-cutting-down-trees-in-sierra/1429478/>
3. Farm Forest Line. Rowan Reid, Marina Hurley and Peter Stephen. Melbourne University, Australia.  
Accessed 16<sup>th</sup> May 2017  
[http://farmforestline.com.au/pages/6\\_tree\\_forest\\_meas.html](http://farmforestline.com.au/pages/6_tree_forest_meas.html)

## Creative Commons License



This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](#).

**ForestLearning** is an initiative of Forest and Wood Products Limited and these resources have been developed by qualified educators and designed to assist teachers deliver the Australian Curriculum.