**Year 11 Agriculture. JMC. Term 2, 2016.**

**A/S 1.7**

Internal Assessment Resource

Achievement Standard Agricultural and Horticultural Science 90155: Demonstrate knowledge of pasture/crop management practices

Resource reference: Agricultural and Horticultural Science 1.7 v4

Resource title: Growing how, growing why. Pasture management.

Credits: 4

| Achievement | Achievement with Merit | Achievement with Excellence |
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| Demonstrate knowledge of pasture/crop management practices. | Demonstrate in-depth knowledge of pasture/crop management practices. | Demonstrate comprehensive knowledge of pasture/crop management practices. |

Student instructions

**Introduction:**

**New Zealand farming, in fact the largest part of our economy, is dependent on successful pasture and crops. So it is important we know how to establish, manage and harvest them to efficiently maximize production and income.**

This assessment activity requires you to investigate pastures and identify management practices used in the production of the pasture. You will need to describe and explain the impact of the practices, and justify the practice you think is the most likely to maximise the yield of the pasture.

Present your findings using a method that allows information to be clearly understood by an audience, for example: a poster, video, a slideshow or oral presentation, or a written report.

You will be assessed on your ability to describe and explain the impact of the management practices on a pasture.

This is an individual assessment task.

You have 6 weeks in and out of class time to do this assessment.

**Due: June 15th.**

These are the topics we will learn about and discuss in class…

Part 1: **Establishing a pasture/crop.**

1. **Soil testing.** Nutrients and soil structure. What to test for, how to do it and why?
2. **Preparing the soil.** To cultivate or not? How does it happen and what does it change? Do I need to add lime?
3. **Seed selection.** Cultivars, crop rotation and how and why to choose what to plant.
4. **Planting/sowing.** When is it best to sow my crop? How do I do it?
5. **Pests and weeds.** What do I need to worry about that will affect the success of germination?

Part 2: **Managing a pasture/crop.**

1. **The stages of plant growth.** At what stage is my pasture at its best and how do I keep it there?
2. **Stocking rate and types of grazing.** How to feed my pasture efficiently to my stock.
3. **Maximizing growth.** Irrigation and fertilizer programs.

Part 3: **Harvesting.**

1. **Managing surplus.** Pasture**,** hay, bailage and silage. How is it made? What are the positives and negatives for each feed type? How do I store it?

**Tasks: You are to create a presentation (powerpoint/keynote, movie, pamphlet/brochure etc) as if you were a field rep. for ie Farmlands advising a farmer on the What, How and Why’s of Establishing, Managing and Harvesting a pasture.**

**Do it in 3 parts or chapters…1= Establishing a pasture. 2 = Managing it. 3 = Harvesting it.**

**Part One: Establishing a pasture. Answer these questions/do these specific tasks.**

* **Soil testing…**
1. What are some of the types of soil test a farmer should do? (Ohlsen P. Visual soil assessments etc). Research these…ie. Hills Labs.
2. What will these tests tell them?
* **Liming…**
1. What does adding lime do to the soil and to help plant growth?
2. When is the best time to add lime id preparing to plant a new pasture?
* **Cultivation…**
1. What is ‘cultivation’? (Cultivation is…) Write a paragraph that explains why cultivation is carried out and the advantages and disadvantages of it.
2. Find images of some of the implements used in cultivation and describe **what** each one does to the soil, **how** it does it and **why** it might improve plant growth and/or soil condition
* **Seed/cultivar selection… Use the PGG Wrightsons or Farmlands seed selection guides.**
1. Write an introduction that explains why selecting the right seed mix is so important.
2. Senario: You are a field rep. for Wrightsons or Farmlands and you are to advise a Southland farmer on low rolling hill country who farms 1200 sheep and 44 beef cattle. He wants to resow 2 paddocks into pasture and you have to recommend what seeds he uses and explain/justify to him why they would suit his farm and type of production. In your explanation compare the seeds you chose to other seeds less suitable. **Use the seed guide brochures to make your choice and get your information.**
* **Sowing…** The farmer will sow his seeds using a tractor and seed drill. See presentation by teacher
1. What are the most important things the farmer must know/do when sowing?
2. Explain how a seed drill works. (You can use diagrams, images, etc)

**Part Two: Managing a pasture.**

* **Pest and weed control…**
1. Identify some of the common problem weeds and pests that can effect a pasture and describe what the pest/weed is and why they effect it and how. (3x weeds, 3x pests)
2. What is recommended a farmer does to control these? (mention **inorganic** methods ie spraying and **organic** methods ie crop rotation)
* **Grazing methods and stocking rate…**
1. Write a description of : **Set stocking, rotational stocking and strip grazing.**
2. For each method list the **advantages and disadvantages.**
* **Irrigation...**
1. Why irrigate?
2. What are some types of irrigation?
3. What things does a farmer have to consider and monitor when irrigating or deciding wether to irrigate or not?
* **Fertilization…**
1. What are some common fertilizers used? (**organic and inorganic**).
2. Why are they used?
3. What environmental aspects might a farmer need to consider before fertilizing?
* **Drainage…**
1. What can effect drainage on a farm? (describe a ‘hard pan’ and a ‘water table’)
2. How does it effect plant growth?
3. How can a farmer fix a poorly drained paddock? (2 methods, give instructions on how it is carried out)
* **Topping…**

14. What are the stages of grass growth?

 15. When is grass at its most productive quality and quantity?

1. Why does topping help?

**Part three: Harvesting/storing a pasture.**

* **Pasture surplus…**
1. Describe how hay is made. (Stage of grass growth/when to cut, moisture content, implements used, storage etc).
2. Describe how silage is made. (Fermentation, moisture content, anaerobic environments).
3. Compare the nutritional qualities of hay to baylage to silage. Justify which method you would use if you where a farmer and why you (compare and contrast the digestability, palatability, carbohydrate and protein levels, cost efficiency).

**THIS IS DONE UNDER TEST CONDITIONS!!!! IT IS A PART OF AN ASSESSMENT therefore assessment rules apply. Do not share your work, use your own words (no copy and pasting text unless quoted and referenced).**

**Resources to use:**

[**www.clarkiecourses.weebly.com**](http://www.clarkiecourses.weebly.com) **for links to some presentations, websites, exemplars etc**

[**http://www.hill-laboratories.com**](http://www.hill-laboratories.com) **company often used by farmers getting soil tests**

[**http://www.pggwrightsonseeds.com/uploads/2014/PastureOptions2014/index.html#/1/**](http://www.pggwrightsonseeds.com/uploads/2014/PastureOptions2014/index.html#/1/) **seed guide brochure**

[**https://www.farmlands.co.nz/Help/FarmingAdvice/GrainAndSeed/**](https://www.farmlands.co.nz/Help/FarmingAdvice/GrainAndSeed/)