Stage 5 Agricultural Technology: Year 9
Unit 5: Sheep 1

Name of enterprise: Sheep production 1	
Duration: 8 weeks	
Factors to consider: This unit would be taught in Year 9 and would be followed by a further sheep unit concentrating on prime lamb production in Year 10.	
Date started:	**Date completed:**

Outcome	Enterprise specific objectives At the end of this unit students should be able to:	Suggested teaching and learning strategies
5.1.1	• Name and classify the main breeds of sheep in Australia. • State their main uses and products, e.g. wool, terminal sires etc. • Draw and label the points of a sheep.	• Match pictures of breeds to end-use. Pictures could be found in rural newspapers, Internet sites or *Dynamic Agriculture black line masters Book 1*, p. 37. • Video: *Sheep breeds* (an old one from Elders). • Visit Melbourne show and complete worksheet. • Inspect and describe the various breeds at the school farm or at the sale yards. • Brainstorm. • *Enterprising Agriculture,* p. 86. • Breed research assignment using *Agfacts*, Internet, library etc. Make a breed fact sheet or pamphlet. • *Dynamic Agriculture* Book 1.
5.1.1	• List and describe the classes of sheep.	• Cut and paste using description and name. Glossaries.

Outcome	Enterprise specific objectives	Suggested teaching and learning strategies
	At the end of this unit students should be able to:	
5.1.1 5.1.2 5.3.1	• Map the distribution of sheep in Australia. • Describe climatic conditions in various areas of Australia. • Link distribution to climate and other limiting factors.	• Meat and livestock Australia web site: www.mla.com.au • Graph numbers state by state. • *Enterprising Agriculture* • Internet research on places given by the teacher as wool producing areas.
5.1.1 5.1.2 5.2.1 5.3.1 5.3.2 5.3.4 5.4.1 5.4.2 5.4.3 5.5.1 5.5.2 5.6.1 5.6.2	• Develop a calendar of events for sheep production in our area including timing of activities. • Define and explain husbandry and health practices. • Link to climate and other factors. • Undertake husbandry activities including: muster, yard, draft, drench, catch and tip, mouth, castrate and tail dock, vaccinate, ear tag, foot pare, drench, treat for lice (backline etc), weigh and record information. • Determine treatments.	• Brainstorm: What activities take place on a wool station? (Joining, vaccinating, marking, mulesing, crutching, wigging, ringing, castrating, docking, dipping, jetting, foot paring, culling etc). • Video: *White Gold From Deniliquin* (from the old Australian Wool Corporation 1987). • Cut and paste pictures of activities into table. First column is activity, second is picture and third is an explanation. Research answers using text books and *Workboot* series. • Video and work sheet: *Sheep: Handle with Care,* Dept of School Education, Victoria. • Make a calendar wheel, see *Agriculture and You 1,* p. 134, *Enterprising Agriculture,* p. 105 and others. • *Agskills*: Sheep • *Enterprising Agriculture*, www.pestgenie.com.au, *Agfacts*, *Dynamic Agriculture* 3 etc. • Describe, show videos, demonstrate, supervise attempts and practice. • Worksheet, e.g. aging sheep from *Agskills*: Sheep • Practical assessment. • Label reading exercise, weigh sheep, calibrate

Outcome	Enterprise specific objectives	Suggested teaching and learning strategies
	At the end of this unit students should be able to:	
		• drench guns etc.

5.3.1
5.3.4
5.4.1
5.4.2
5.5.1
5.6.1
5.6.2
	• Explain the processes of mammalian reproduction using the sheep as an example. Include the following:
	   – parts and function of the female reproductive system
	   – parts and function of the male reproductive system
	   – stages of pregnancy including problems that may arise
	   – undertake pre-joining checks.
	
	• Explain several breeding programs, e.g. line breeding, cross breeding etc,
	• List and explain management techniques to optimise fertility, fecundity and quality, e.g. steaming up, hormone usage, teasing, synchronisation, heat detection, AI, embryo transfer, pregnancy diagnosis, wet and drying etc.
		• Dissection of reproductive systems, preserved parts.
		• Draw parts, state function – various texts, *Agfacts* etc.
		• Video*: Sheep breeding and sheep embryo* (an old one from Elders breeding services)
		• Video: *Ram Selection* (from the old Dalgety's Wool Information Service).
		• Check the 4 Ts: teeth, toes, tossle, testes.
		• Sutherland, *Understanding Agriculture*
		• *Agriculture and You books 1 & 2*
		• Vet to demonstrate a range of techniques.
		• Ultrasound sheep.
		• Video: *Elders Livestock services*
		• Visit AI centre.
		• Observe semen under microscope.

5.1.1 5.1.2 5.2.1 5.3.1 5.3.4	**Wool industry** • State the Merino is the backbone of the Aust. wool industry • Describe the Aust. Merino and its development. • Locate the main wool growing areas on a map and relate to climate. • Compare and contrast at least two wool production systems, e.g. high rainfall, sheep wheat belt, pastoral zone, crossbreds.	• Visit to local museum. • Pamphlets from Wool Corporation etc. • Internet research. • Library research. • Templates. • www.meares.com.au Go to *resource*. • Table.
5.1.1 5.3.2 5.4.2 5.5.1	**Wool** • List and explain the features of wool, e.g. lustre, microns, staple length and strength, tender wool, crimp, colour etc and relate to end product. • Explain how farmers can manipulate or influence these characteristics.	• Wool samples. • *Enterprising Agriculture*, pp. 158–163. • Visit from wool classer or visit to TAFE. • Manual of Practical Agriculture.

Outcome	Enterprise specific objectives	Suggested teaching and learning strategies
	At the end of this unit students should be able to:	
		• Examine wool under microscope. • www.wool.com.au Go to *education*.
5.4.2 5.4.3 5.6.1 5.6.2	• Describe the role and importance of shearing. • Describe the activities surrounding shearing – preparation and in the shed. • Describe the steps involved in shearing. • Explain the importance of quality assurance in the shearing shed. • Investigate alternatives to conventional shearing.	• Video: *Sheep Management* (an old one from Elders). • Visit a woolshed. • Draw or build model of a woolshed. • *Enterprising Agriculture,* p. 149. • Observe at school or on excursion. • Various poems, e.g. Banjo Paterson. • Watch shearing and participate as appropriate. • Video: *Keep the clip clean: Best wool shed practices* (this was from Dalgety's (now Wesfarmers) wool information services. • Video: *Woolmark, the inside story* (from the old Australian Wool Corporation) • Video: *Wool processing* (from the old Dalgety's Wool Information Service) • CSIRO web site and research papers www.csiro.au • Assignment.
5.2.1 5.3.2 5.5.1	• Construct a flow chart from sheep to garment. • Evaluate the importance of wool to the Australian economy. • Name the main buyers of Australian wool. • Describe wool selling methods. • Compare and contrast wool qualities and uses to other fibres (end product study).	• Australian Agriculture (NFF) • Graphing exercises – pie graph. • ABARE web site www.abare.gov.au • Australian Wool Innovation Limited web site. • Pamphlets and Wool Corp video. Worksheet. Text books including *Enterprising Agriculture.*

Outcome	Enterprise specific objectives At the end of this unit students should be able to:	Suggested teaching and learning strategies
		• Textiles videos. • Flame test different fabrics. • CSIRO web site www.csiro.au

Resources:

Books:	Videos:	Web sites:
Australian Agriculture (NFF)	• *Sheep breeds* (an old one from Elders)	***Meat and Livestock Australia*** Provides R&D, market information and marketing to benefit the red meat industry. Also search for animal health. www.mla.com.au
Bannerman et al, *Enterprising Agriculture*	• *White Gold From Deniliquin* (from the old Australian Wool Corporation 1987)	
Brown et al, *Dynamic Agriculture 1–4*	• *Sheep: Handle with Care* (Dept of School Education, Victoria. Distributed by Marcom Projects).	***NSW Agriculture*** Information about animals by category. http://www.agric.nsw.gov.au/reader/12
Brown et al, *Dynamic Agriculture Blackline masters*		
Clarke, *Senior Australian Agriculture*	• *Sheep Breeding and Sheep embryo* (an old one from Elders breeding services)	***Breeds of livestock*** Information about sheep breeds. See the bottom of the web page. http://www.ansi.okstate.edu/breeds/
D'Arcy, J. B., *Sheep Management and Wool Technology*	• *Sheep Management* (an old one from Elders)	
Francis et al, *Agriculture and You 1*	• *Ram Selection* (from the old Dalgety's Wool Information Service (now Wesfarmers))	***Meares and Associates*** Meares and Associates is a specialist rural property marketing agency. Go to resources for information on agriculture in Australia. www.meares.com.au
Grassano, L. and U., *Manual of Practical Agriculture*		
Harmsworth, T. and Day, G., *Wool and Mohair*	• *Best wool shed practices* (from the old Dalgety's Wool Information Service)	
LGPA, NSW, *Sheep Production Guide*	• *Wool Processing* (from the old Dalgety's Wool Information Service)	***Commonwealth Scientific and Industrial Research Organisation (CSIRO)*** Innovation in the sheep and wool industry. www.csiro.au
NSW Dept of Agriculture, *Agfacts*		
NSW Dept of Agriculture and Fisheries home studies program, *Agskills: Sheep and Goats*	• *Woolmark, the inside story* (from the old Australian Wool Corporation).	***Australian Bureau of Agricultural and Resource Economics (ABARE)*** An Australian government economic research agency. *www.abare.gov.au*
NSW Dept of Agriculture, *Sheep Production Guide*		
Sutherland, *Understanding Agriculture*		
Victorian Dept of Agriculture, *Agnotes*		***Australian Wool Innovation Limited*** Up to date information about the wool industry. www.wool.com.au
Work boot series, *Wool*, Kondinin Group		

Ways of assessing student progress:

- Breed research poster or pamphlet.
- Merino research.
- Practical assessment on any or all of the following: muster, yard, draft, drench, catch and tip, mouth, castrate and tail dock, vaccinate, ear tag, foot pare, drench, treat for lice (backline etc), weigh.
- Research assignment on innovations.

Skills achieved in this topic:

- Muster, yard, draft, drench, catch and tip, mouth, pick up lambs, castrate and tail dock, vaccinate, ear tag, foot pare, drench, treat for lice (backline etc), weigh and record information.
- Care for animals.
- Keep records.
- Use spreadsheets.
- Gather data.
- Graph information, e.g. growth rates.
- Use microscopes.
- Feed sheep.
- Read chemical labels.