SYLLABUS IN SHEEP HUSBANDRY
AND WOOL SCIENCE

FORMS II – IV
ORDINARY AND CREDIT LEVELS
Approved by the Secondary Schools Board on 11 August, 1971.

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June 2001

2001307
New material indicated by marginal stroke

It is considered that the subject is essentially a practical one and that classes should be organised to devote at least three-quarters of the time to practical activities associated with the handling of sheep or wool. Thus, suggested time allocation is three periods to Practical Work and one period to Theoretical Studies each week. An extension of some topics is included for optional study to the credit level.

**SHEEP HUSBANDRY**

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<thead>
<tr>
<th>THEORY</th>
<th>PRACTICAL</th>
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<tr>
<td><strong>The Importance of Wool and other textile fibres.</strong>&lt;br&gt;Wool and the Australian Economy.</td>
<td>Microscopic examination of wool, hair etc.</td>
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<td><strong>The Types of Sheep.</strong> Differences in their wool type and uses made of their wool.</td>
<td>Examination and observation of types of sheep. Showing of appropriate movies.</td>
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<td><strong>Classification of Breeds of Sheep.</strong> Basis of classification, length of fibre, fibre diameter, country of origin or evolution. &lt;br&gt;The salient characteristics fitting them to specific purposes, covering conformation, faults, uses and economic relationships of the more important sheep breeds used in Australia. &lt;br&gt;Classification:</td>
<td>Examination of various sheep breeds in the field, collection of photographs, project activities. &lt;br&gt;(Australian) Merino, Corriedale, Polwarth, Zenith. Border Leicester, Lincoln Leicester, Romney Marsh. Dorset Horn, Southdown, Suffolk Down, Hampshire Down, Ryeland, Shropshire, Polled Dorset Horn. Cheviot, Scotch Blackface. &lt;br&gt;Examination of external features of wool and mutton sheep types. Post mortem examination, films, charts to illustrate the various body systems. Recording by simple labelled diagrams. Preparation from study of specimens, diagrams indicating the chief divisions of alimentary canal. Comparison of development of rumen and associated organs in animals of various ages (eg lambs on milk and mature sheep on pasture). Selected specimens, slides, charts, etc. Examination of selected specimens to illustrate stages of sexual cycle. Films on use of vasectomised rams and the role of artificial insemination. ‘Mouthing’ of sheep of various ages. Preparation of models, charts and diagrams. Comparative field study of the points of constitution with suitably selected animals of each sex.</td>
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<td><strong>Sheep Biology.</strong>&lt;br&gt;<strong>The Points of a Sheep.</strong>&lt;br&gt;<strong>General Physical Structure and Physiology.</strong></td>
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<td>Detailed treatment of anatomy—physiology of the alimentary canal.&lt;br&gt;Ruminant Digestion.</td>
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<tr>
<td><strong>Study of Reproductive System.</strong> General structure and physiology. &lt;br&gt;The sexual cycle in the ewe — the role of the ovary — breeding cycle — fertility — mating — gestation, parturition. &lt;br&gt;<strong>Dentition.</strong>— Number and arrangement of teeth in the sheep — time of eruption — importance in age determination and food utilisation. &lt;br&gt;<strong>Points of Constitution</strong> with particular reference to Merino ram and ewe. &lt;br&gt;Cull points.</td>
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| **Sheep and Wool Terms.** (See Glossary of Sheep and Wool Terms.)
Introduce at appropriate times in the course particular terms and ensure that pupils fully appreciate their meaning and importance. |
| **Application of correct term especially when working with sheep or wool in the field or shed.** |
| **The History of Sheep and the Wool Industry.**
The Spanish Merino and its spread in the 18th and 19th century — early types and strains — Vermont — Rambouillet — Saxony. |
| **Study of maps and charts.** |
| **Evolution and Development of the British Breeds.**
| **Preparation of graphs etc.** |
| **Sheep Areas in the Commonwealth with particular reference to New South Wales.**
An outline of the areas devoted to sheep in the Commonwealth with reference to density of sheep population. The sheep districts in New South Wales — Coastal Tablelands, Western Slopes, near Western Plains or Marginal Country, far Western Plains. |
| **Distribution of Sheep Types.**
Relative importance of the main types in the different States and broad regions of occurrence. More particular study for New South Wales, percentage of Merino and crossbred wools from each State. |
| **Sheep Numbers.**
Fluctuations in sheep numbers and causes. |
| **Suitable charts and graphs.** |
| **Density of Sheep Numbers** in various districts especially in New South Wales. |
| **Showing of strip or movie films relating to farm details.** |
| **Carrying Capacity** and its significance. |
| **Visits to typical farms.** |
| **Size of Holdings.** General study of areas devoted to individual holdings and why farm size varies. |
| **Plans, diagrams and models displaying general layouts of farms.** |
| **Diseases of Sheep.** External parasites of sheep with particular reference to Fly Strike |
| **Collection and preparation of samples of pasture species.** |
| **Operations on a Sheep Property.** Purchase and care of rams. Classing of rams and ewes, mating, care and management of the breeding ewe. Vaccination. Lambing, weaning and care of the young animals. Earmarking, castration, tailing or docking and associated activities. Shearing, jetting, spretting. Dressings. |
| **Most beneficial experience is that associated with the performance of various operations on a sheep property or at least on animals of the school flock.** |
| **Visits and excursions.** |
| **Films.** |
### Pre-Course Reading - Theory

**Preparation of Stock Years** in detailed tabular form to show the various operations on a basis of breeding, feeding and general management for a typical year (e.g., for a given sheepshearing district).

**Shed Management.**

*General Outline of the Arrangement of a typical shearing shed,* and the purpose and organisation of each section.

**Shed Labour** required and the duties of the various shed hands.

**Economic background to Sheep and Wool Production.** Introductory treatment of cost structure in relation to sheep and wool production.

Trends and possible development.

### WOOL SCIENCE

#### THEORY

**Biology of the Skin and of the Wool Fibre.** Skin structure; growth of wool fibre; follicle development; sebaceous glands; sudoriferous glands; structure of wool fibre; chemical composition.

**Properties of Wool and Wool Goods.** Felting capacity; elasticity; non-conductivity; affinity for dyes; chemical stability; non-inflammability; hygroscopic power; heat of wetting. New added properties. Si-Ro-Moth'd, Sironized, Si-Ro-Set, shrink-proofing, machine washability.

Relation of these properties to fibre structure.

**Fundamentals of Wool Quality.** Fibre diameter and definition of fineness; types of fabric; factors affecting wool prices; spinners and top-makers; carding wools; the fleece and the environment of the sheep.

**Principles Underlying Wool Type.** Recognition. Length; fineness; character; soundness; density; colour; softness.

**Wool Faults:**

- Hereditary
- Environmental

Hairiness, heterotypic fibres, unevenness, coloured fibres, tenderness, cotted, webby, stringy, stains.

Vegetable fault, dust and weathering.

Emphasis must be placed on the effect of wool faults on manufacture.

**Principles of Worsted and Woollen Yarn Production.** Elementary principles of yarn and cloth production.

Differences in fabric structure and materials used in cloth and yarn production.

**Manufacturer's Types.** Combing, carding, clothing wools, hosiery, felts, lamb's wool.

**Picking up, Skirting and Rolling.** Picking up, throwing out, skirting, rolling, picking up lamb's wool.

**Principles Underlying the Preparation of Wool for Market.** Free Merino, free cross-bred, inferior wools, such as tick-stained, overgrown, cotted, dusty, etc.

#### PRACTICAL

**Preparation of models, plans and diagrams.**

**Showing of selected films.**

**Microscopic examination of wool, hair, etc., with diagrammatic recording in form of labelled sketches.**

**Examination of slides, charts and models.**

**Simple experiments with wool and other fibres to illustrate and emphasise various properties.**

Brief recordings only.

**Practical exercises using wool types.**

**Practical exercises in sorting wool to type.**

**Recognition from suitable material of faults in wool.**

**The collection, mounting and correct labelling of wool displaying faults indicated.**

**Visits to mills. Use of film strip or suitable movie films.**

**Collection and appropriate mounting of samples of processed and semi-processed wools.**

**Detailed identification and assessment of wool type samples.**

**Practical experience in these operations in shed and classroom.**

**Practical exercises in sorting each type of wool.**
### THEORY

**Preparation of Lower Lines for Market.** Principles of sorting, Merino pieces, Merino lambs, come-back pieces, lines, crossbred lambs.

**Structure and Properties of Other Textile Fibres.** Groups of fibres, hair, mohair, alpaca and vicuna, cashmere, camel hair, horse and cow hair, fur fibres, silk cotton, flax, hemp, jute, china, grass, asbestos, man-made fibres, alginic acid.

**Economic Influence of Synthetic Fibres on the Status of Wool.**

### PRACTICAL

Preparation of lines in small and large clips.

Collection, examination and mounting of samples. Observation of fibres under microscope with suitable recordings of observations.

Collection and discussion of appropriate data relative to ‘Synthetics versus Wool’. Class debates.

### EXTENSION FOR CREDIT LEVEL

**The Feeding of Sheep.** Principles of nutrition: Carbohydrates, proteins, minerals, vitamins, fibre and water.

**Pasture Improvement.** The value of legumes; introduced grasses, pasture management; the effect on sheep and wool production.

**Diseases of Sheep.** Internal parasites: round worms. The species that affect sheep. Their life-cycle and districts where prevalent.

- Hydatid — life-cycle.
- Liver fluke — life-cycle.

**Principles of Sheep Management.** Sheep judging-points for consideration and their value in terms of production (wool and mutton).

**Manufacturers’ Types.** Spinner’s and topmakers types, warp, weft and French combing wools.

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