Livestock Breeding Systems

**Media Type:** Microsoft® PowerPoint® Presentation
**Duration:** 109 slides

**Goal:** To present students with all the components of a breeding system and to provide detailed steps in creating a breeding program.

**Description:** Designing a breeding program is a never-ending process—markets change, livestock change, technologies change and we change. However, this presentation outlines proven breeding programs (i.e., rotational, rotational-terminal, static cross breeding) which have withstood the test of time. It also provides information pertaining to sire and replacement female selection. This presentation will aid students in designing a system best suited for their operational needs.

**Objectives:**
1. To learn how to set goals for a successful breeding program.
2. To learn about choosing and weighing traits in a breeding program.
3. To learn how to determine measurements in a breeding program.
4. To learn how to devise a strategy for selecting parents in a breeding program.

**Common Core Standards**

**College & Career Readiness Anchor Standards for Reading**

**Reading Standards for Literacy in Science & Technical Subjects**

<table>
<thead>
<tr>
<th>Key Ideas &amp; Details</th>
<th>Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.</th>
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<tbody>
<tr>
<td></td>
<td>Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.</td>
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<td></td>
<td>Analyze how and why individuals, events, and ideas develop and interact over the course of a text.</td>
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<tr>
<td>9-10.1</td>
<td>Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.</td>
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<tr>
<td>9-10.2</td>
<td>Determine the central ideas or conclusions of a text; trace the text’s explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.</td>
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<tr>
<td>9-10.3</td>
<td>Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.</td>
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<tr>
<td>11-12.1</td>
<td>Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.</td>
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<tr>
<td>11-12.2</td>
<td>Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.</td>
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<tr>
<td>11-12.3</td>
<td>Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.</td>
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## Common Core Standards

### Agriculture, Food & Natural Resources Career Cluster (AG)

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Standard</th>
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<tbody>
<tr>
<td>Analyze how issues, trends, technologies and public policies impact systems in the Agriculture, Food &amp; Natural Resources Career Cluster™.</td>
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<tr>
<td>Evaluate the nature and scope of the Agriculture, Food &amp; Natural Resources Career Cluster™ and the role of agriculture, food and natural resources (AFNR) in society and the economy.</td>
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<tr>
<td>Examine and summarize the importance of health, safety and environmental management systems in AFNR businesses.</td>
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<td>Demonstrate stewardship of natural resources in AFNR activities.</td>
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<td>Describe career opportunities and means to achieve those opportunities in each of the Agriculture, Food &amp; Natural Resources Career Pathways.</td>
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<tr>
<td>Analyze the interaction among AFNR systems in the production, processing and management of food, fiber and fuel and the sustainable use of natural resources.</td>
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### Agribusiness Systems Career Pathway (AG-BIZ)

- Apply management planning principles in AFNR businesses.
- Use record keeping to accomplish AFNR business objectives, manage budgets, and comply with laws and regulations.
- Manage cash budgets, credit budgets and credit for an AFNR business using generally accepted accounting principles.
- Develop a business plan for an AFNR business.
- Use sales and marketing principles to accomplish AFNR business objectives.

### Animal Systems Career Pathway (AG-ANI)

- Analyze historic and current trends impacting the animal systems industry.
- Utilize best-practice protocols based upon animal behaviors for animal husbandry and welfare.
- Design and provide proper animal nutrition to achieve desired outcomes for performance, development, reproduction and/or economic production.
- Apply principles of animal reproduction to achieve desired outcomes for performance, development and/or economic production.
- Evaluate environmental factors affecting animal performance and implement procedures for enhancing performance and animal health.
- Classify, evaluate and select animals based on anatomical and physiological characteristics.
- Apply principles of effective animal health care.
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Lesson Plan

Class 1: Distribute the Livestock Breeding Systems Vocabulary Handout and Student Notes for students to fill in as they view the presentation. Show slides 1 to 16 of the Livestock Breeding Systems - Designing a Breeding Program segment. Hand out the Breeding Systems Project and allow the remainder of the class for students to work.

Class 2: Show slides 17 to 35 of the Livestock Breeding Systems - Designing a Breeding Program segment. Students should use any remaining time to work on their Project.

Class 3: Show slides 36 to 53 of the Livestock Breeding Systems - Designing a Breeding Program segment. Students should complete the corresponding Assessment. Distribute the Suffolk Ram Lamb Scenario Activity and have students complete it. Students should use any remaining time to work on their Project.

Class 4: Remind students to use the Vocabulary Handout and Student Notes as references. Show the Livestock Breeding Systems - Types of Breeding Systems segment. Have students complete the segment Assessment. Students should continue working on their Project.

Class 5: Show the Livestock Breeding Systems - Crossbreeding Methods segment and have students complete the segment Assessment. Hand out the Create a Composite Activity and have students begin working on it.

Class 6: Remind students to use the Vocabulary Handout and Students Notes. Show the Livestock Breeding Systems - Systems of Mating segment. Have the students complete the corresponding Assessment. Allow students to continue working on their Breeding System Project and Create a Composite Activity. Distribute the Livestock Breeding Systems Crossword for homework.

Class 7: Distribute the Livestock Breeding Systems Final Assessment. Then have the students present their Breeding System Project and turn in their Crossword and Create a Composite Activity.

Lesson Links

Livestock Judging
- www.livestockjudging.com

Breeding Systems for Beef Production
- www.colorado.agrilife.org

Career & Technical Student Organizations

FFA
- Livestock Evaluation

Career Connections

- iCEV51052, Jerry B. Black, D.V.M., Wagonhand Land and Livestock Chair in Equine Sciences, Director of Undergraduate Programs, Department of Animal Science, Colorado State University
- iCEV50006, Kerry Blanton, D.V.M, Veterinarian, South Plains Veterinary Clinic
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Lab Activities

Suffolk Ram Lambs Scenario
Directions:
Students will complete an Expected Progeny Difference Scenario and rank four rams based on which will best fit the situation.

Create a Composite
Directions:
In this activity, students will develop a composite breed. Have students divide into groups of three or four. They will work as a group to create a new composite breed. They will write one paper with a description and characteristics of their new breed, as well as, a composed picture.

Projects

Breeding System
Directions:
Students will develop a livestock breeding program which should include setting goals, choosing and weighing traits, measuring animals and devising a strategy for selecting parents. Students will make two different breeding systems also with a different mating system for each one. They will have to justify why each system was chosen and present a short presentation to the class.