

Activity 7.01.01

Expected Progeny Difference Scenarios

*Teacher's Note: students can also do this activity without computers if you print off the required EPD sheets in advance and provide some graph paper.

Expected Progeny Difference Scenarios

Expected Progeny Difference (EPD) is a prediction statistic used to determine how future progeny of an individual animal are expected to perform relative to the progeny of other animals listed in the database. EPDs can be compared within the same breed, but may not be accurately compared across breeds. Breed associations will calculate the EPDs using all known data on the animal including the animal's weight and performance records along with its existing progeny. The ACC (Accuracy) listed on EPDs indicates how reliable the EPD is. The accuracy is determined by the number of progeny and ancestral records on file for analysis. Accuracies closer to one indicate a higher degree of accuracy. The EPD characteristics this project will focus on are:

- Birth Weight (BW) – measured by pounds at birth
- Weaning Weight (WW) – measured by pounds at weaning
- Yearling Weight (YW) – measured by pounds at one year of age
- Docility (DOC) – measured by the percent of progeny that are rated as most docile when being handled by cattle workers in chutes and head gates.
- Calving Ease (CED) – measured by the percent of unassisted births
- Scrotal Circumference (SC) – measured by centimeters. Indicator of the age of daughter calves' maturity. A larger circumference indicates daughter calves will reach puberty earlier.
- Maternal Milk (Milk) – measured by pounds attributed to milking ability of progeny.

Collect All EPD data from <http://usa.absglobal.com/>

Scenario 1 –The beef cattle in your herd need more maternal care, labor is limited at calving time, and you have had problems in the past with aggressive cows. You will look at the EPDs for Angus cattle since you heard these had the highest price per pound when sold.

(http://abs-bs.absglobal.com/beef/Angus_ss_main.asp) . Make a graph comparing the priority EPDs for your top four picks for your bull.

*Note: in order to see the Milk and Docility categories select the "Maternal" box at the top of the EPD chart.

Priorities: The three EPD's you should be concerned with are:

- Calving Ease
- Maternal Milk
- Docility

Make a bar graph comparing your 4 chosen bulls' EPDs using excel. Then copy the graph to a word (similar) program and answer the following questions in DETAIL!!!

1. Which EPD is the most important? Why?
2. Least important? Why?

3. Which bull would you end up using? Why?

Scenario 2 – The beef cattle in your herd need more milk to gain weight since you sell these calves at weaning. Family labor is plentiful on your farm thankfully. You will look at the EPDs for Herefords since that’s what your grandfather had and you like tradition.

(http://abs-bs.absglobal.com/beef/Hereford_ss_main.asp).

Priorities: The three EPD’s you should be concerned with are:

- Calving Ease
- Milk production
- Weaning Weight

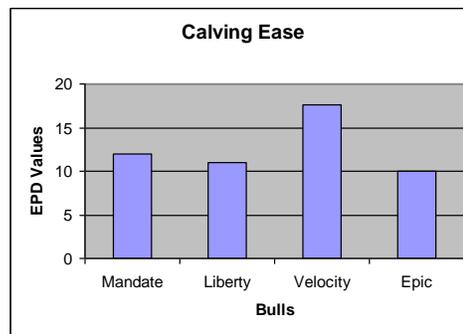
Make a bar graph comparing your four chosen bulls’ EPDs using excel. Then copy the graph to a word document and answer the following questions in DETAIL!!!

1. Which EPD is the most important? Why?
2. Least important? Why?
3. Which bull would you end up using? Why?

For each Scenario:

Make a bar graph for each EDP you are using. Include your top 4 Bull choices.

Sample:



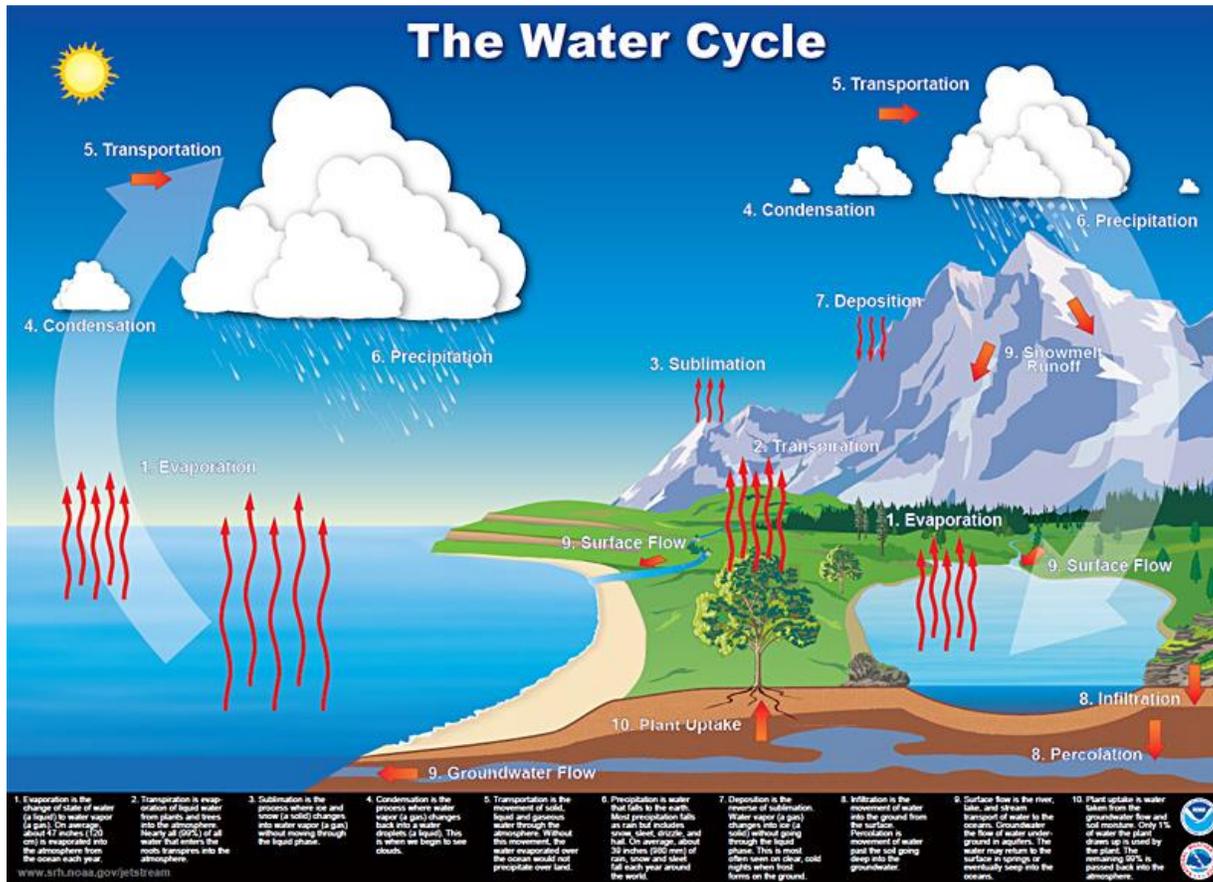
Answer the following questions on the bottom of your Word document.

1. Which scenario aligns most with the goals of sustainable or heritage breeds? Why?
2. Do you think that EPDs are an effective way to judge what animals to breed?
3. What alternative methods could you think of for choosing bulls?

Activity 7.02.01

Nutrient Cycling

Review with your students some cycles they are familiar with like the water cycle.



Have students design a nutrient cycle based on the information provided about cycling nutrients on farms. Have them create two cycles, one that represents a sustainable farm and one that represents a conventional system.

Criteria and Points:

1. Students will create two cycles. These should be labeled appropriately.
 - a. 5 points per cycle for labeling and including their name. 10 points total.
2. Each cycle should have at least 5 steps.
 - a. 5 points per cycle. 10 points total
3. Each step should have a caption and color illustration.
 - a. 5 points per step = 50 points total
4. Have students include a written explanation of how their two cycles are different.
 - a. 10 points per cycle. 20 points total
5. Details and effort of work.
 - a. 10 points
6. Total Points = 100 points for the assignment

Activity 7.02.02

Digestion Models

Recycled Models of Cattle and Poultry Digestion.

1. Students will be provided with the following materials (or as many as possible)
 - a. Extension Articles (links below)
 - b. Poster or larger piece of paper
 - c. Straws
 - d. Cardboard
 - e. Paper Cups
 - f. Paper Plates
 - g. Plastic bags
 - h. Cereal Boxes
 - i. Aluminum Foil
 - j. Aluminum Cans – be careful of sharp edges!
 - k. Plastic Drink Bottles
 - l. Rubber Bands
 - m. Toilet Paper Rolls
 - n. Tape
 - o. Toothpicks
 - p. Glue
 - q. Balloons
 - r. Paperclips
 - s. Any recycled materials students bring from home.
 - t. *Note: This activity can be done entirely from recycled material provided by students if desired.
2. With these materials groups of students will be asked to design one of two digestive systems
 - a. Poultry
 - i. The goal is to accurately show (not necessarily to scale) the parts of a poultry digestive system. Includes Beak, Esophagus, Crop, proventriculus, gizzard, and intestine. A picture is shown below and an Extension article provided for reference.
 - b. Cattle
 - i. The goal is to accurately show (not necessarily to scale) the parts of a cattle digestive system. Includes Mouth, Esophagus, Rumen, Reticulum, Omasum, Abomasum, Intestines. A picture is shown below and an Extension article provided for reference.
3. Students are informed of their materials, the rubric they will be graded on, and given the Extension articles. Provide an appropriate amount of time to plan, depending on the class. (30 plus minutes)
 - a. Poultry Digestion Extension Article: <http://www2.ca.uky.edu/agc/pubs/ASC/ASC203/ASC203.pdf>
 - b. Cattle Digestion Extension Article: https://pubs.ext.vt.edu/400/400-010/400-010_pdf.pdf
4. Students then build their model attaching the parts to the poster board to keep them arranged.
5. Use the following rubric to grade student projects.
6. Additional Ideas:
 - a. Students present posters (Optional grading section included below)
 - b. Students do a “gallery walk” where they look over the different posters and answer the following questions (also included in rubric):
 - i. Look at a poster that represents a digestive tract you did NOT do as a group. What are the parts of this system and the description of each?

- ii. What item is recycled creatively in someone else's project? Choose an object you think was well chosen and describe how it was used and what organ it represents.
- iii. Do you spot any errors in any digestive tracts? Be kind to your peers, we all make mistakes. Find one mistake and write what was incorrect about this representation.

Digestive System Poster Rubric

Content

- Poster correctly represents the assigned animal 5 4 3 2 1
- All of the parts of the digestive system are present 5 4 3 2 1
- All organs are labeled 5 4 3 2 1
- All organs are given a description 5 4 3 2 1
- Total x2 = _____/40

Organization & Creativity

- The poster is neat and orderly 5 4 3 2 1
- Students were creative with the use of materials 5 4 3 2 1
- Captions and Title were legible from a distance of 5 feet. 5 4 3 2 1
- Total _____/15

Presentation

- Students showed proficient knowledge on their topic 5 4 3 2 1
- The presentation was engaging and appropriate for the audience 5 4 3 2 1
- Students presented all parts of their digestive tract 5 4 3 2 1
- Total _____/15

Activity 7.03.01

Temple Grandin Movie Questions

1. When Temple was diagnosed with Autism her mother rejected the standard treatment. What was that treatment? What did she do instead?
2. What are 2 things that Temple reacted differently to when she arrived on her Aunt's farm?
3. What event upset Temple at her aunt's farm and how did she regain her composure?
4. What did Temple build in order to deal with the stress of college?
5. How did Temple Grandin convince the college administration of the value of her squeeze box?
6. When Temple was in college she earned a degree in _____.
7. Temple's Masters is in _____.
8. What new challenges did Temple face as she entered into the world of cattle ranching?
9. Describe the method Temple develops to get cattle to move through facilities.
 - i. Did this new method work?
10. What, in your opinion, was Temple's greatest achievement depicted in the movie and why?

Activity 7.03.02

Animal Welfare Letter

You have been hired by the NCDA to work in their public relations department to deal with a recent influx of letters from citizens. You work with a team of other people trained in public relations and they have been nice enough to give you a choice of which letter to respond to since you're new. Choose one of the letters below and respond appropriately using the USDA publications provided and looking up any information you are not familiar with, remember you are meant to be the expert. Be sure to educate this person about agricultural practices and take this opportunity to enlighten them about their viewpoint.

Letter #1

NCDA Complaint Department
1234 Agriculture St
Raleigh, NC

Dear NCDA,

My name is Jenny Sue and I live in Clinton, NC. I have recently seen a video online that shows cruel farm workers at an egg laying farm cutting off the beaks of the chickens in their care. Why would they be so inhumane? I know there can't be a reason for this and I wanted you to know as a concerned citizen I will continue to write until my concerns have been addressed.

Your chicken loving citizen,

Jenny Sue

Jenny Sue Biddie
25 Feather Farm Rd
Clinton, NC

Letter #2

NCDA Complaint Department
1234 Agriculture St
Raleigh, NC

Dear NCDA,

My name is Malik and I live in Hickory, NC. My daughter came home from school the other day crying. She said classmates had shown her a video about how mother pigs are kept in a tiny crate when giving birth and they are not able to move around as they normally would. I am writing to demand an explanation for this practice. Is our land so scarce in North Carolina that we cannot offer more space for these farm animals to roam? Please respond quickly so I can get my daughter to stop crying.

A Very Concerned Father,

Malik

Malik Barrow
4012 Swine Herd Rd
Hickory, NC

Letter #3

NCDA Complaint Department

1234 Agriculture St
Raleigh, NC

Dear NCDA,

My name is Selena and I live in Rocky Mount, NC. I am a high schooler who is active in campaigning for People for the Ethical Treatment of Animals (PETA) at my school. My latest issue with the commercial food system is the way that all male animals are castrated my very painful methods with no regards for the rights of the animal to reproduce. Why is this such a widely practiced procedure and why doesn't the government make it illegal? I mean, people wouldn't like it very much if they were castrated at birth without a choice. I think animals should have the same treatment. Please explain and defend this practice, if you can.

An Angry Teen,
Selena

Selena Perez
54 Animal Rights Way
Rocky Mount, NC

Remember to include the following in your letter:

1. Return Address.
2. Address of recipient at the top of the letter.
3. Answers in complete sentences and paragraph form.
4. Explain the reason that the question practice is done.
5. Explain alternatives to the practice and if there are shortcomings to the alternatives as well.

USDA Articles

Beak Trimming –

Article 1 –

<http://www.ars.usda.gov/SP2UserFiles/Place/50201500/Genetic%20Selection%20Fact%20Sheet.pdf>

Article 2 -

<http://www.ars.usda.gov/SP2UserFiles/Place/50201500/Beak%20Trimming%20Fact%20Sheet.pdf>

Swine Confinement –

<http://www.ars.usda.gov/SP2UserFiles/Place/50201500/Farrowing%20System%20Fact%20Sheet.pdf>

Castration –

<http://www.ars.usda.gov/SP2UserFiles/Place/50201500/Castration%20Fact%20Sheet.pdf>

Activity 7.03.03

Animal Husbandry Group Project

In groups of three you will be making a 5-8 minute presentation on an animal important to NC agriculture. This presentation will need to show an in depth look at how these animals are produced in North Carolina.

1. Students will be able to choose their animal, but it needs to be one that has statistics based on NCDA.
2. No overlap between groups will be allowed - students will sign up for an animal with your teacher once they've been assigned a group.
3. Group members will be assigned a specific task as outlined below - recorder, or two information gatherers. All group members should be busy at all times. If you're waiting for another group member you finish - you can stay busy by helping them with their part.
4. Presentations can be made on PowerPoint or any other electronic presentation tool (Ex: Prezi)

Purpose:

Students are meant to gain some basic literacy on the topic they choose. They need to go beyond simply finding facts to reading and learning information about their topic. If they are unsure what anything means they should take time to do the back research and share that information with the class. Many other students will have the same questions.

Information to include in your project:

1. At least 8 statistics from reputable sources on the animal of your choice. These statistics should be presented in a way where they're easily understood and any new terminology is described (anything that's not common knowledge should include a definition).
 - a. This animal should be one that is important to NC and therefore you should be able to find many of the below statistics on NCDA's website. <http://www.ncagr.gov/stats/2012AgStat/>
2. An overview of the current production systems in use in North Carolina.
 - a. Examples of information that could be included are:
 - i. What type of growing system is used? Where are animals raised - inside? Outside? What kind of pens or crates are they kept in if at all?
 - ii. Where in the state is this animal raised? Is there a reason they're raised there?
 - iii. What breed is used?
 - iv. How many animals are typically housed on a single site?
 - v. What are the animals fed? How many times a day are they fed? What are current prices for those feed commodities? Is that higher or lower than in the past?
 - vi. What are some typical animal health problems in this production system? How are they treated?
 1. Some useful health information is listed on http://www.aphis.usda.gov/animal_health/nahms/
 - vii. Are there any sustainable practices used to raise these animals in North Carolina or elsewhere?
3. Include any other points of interest or controversy that would allow your group to give a comprehensive view of how your animal is raised in NC. This list of questions is by no means complete, but gives you a place to start.
4. All information should be cited using MLA format.

Grading:

Student group members will be given a project grade for this assignment based on the final product AND their fellow group members perception of their input to the group. Each group will get a grade for the overall project and then individual grades will be calculated based on that overall grade and then what percentage their peers gave them on the rubric below. Outliers will not be counted. If there appears to be any personal grievance involved those evaluations will not be used.

Project grades will be based on the inclusion of the information above along with the delivery, creativity, and professionalism of their presentation. A rubric is included below.

Group Roles:

1. **Recorder:** This person will be inputting the information gathered by other group members into the presentation format. They need to be able to lead the group in a sense since they will need to ask Information Gatherers when they need more data or facts to help make the project more comprehensive.
2. **Information Gatherer:** These group members will need to be able to find quality information from reputable sources. They will need to effectively communicate with the recorder to take down the information. They should make sure all sources are cited correctly. They also need to read behind the recorder to make sure everything makes sense and the information is correct.
3. All group members will be involved in the group presentations.

Activity 7.03.03

Animal Husbandry Group Project Rubric

CATEGORY	4	3	2	1
Preparedness for presentations	Students were all well-prepared and appeared to have rehearsed their presentation several times.	Students were mostly well prepared for the presentation. Could've used a couple more practices.	Students were underprepared for the presentation. Appeared to have practiced very little.	Students were unprepared and did not appear to have ever practiced.
Information in presentation (Category x2)	Information is detailed and relevant. Students offer a comprehensive view of how their animal is raised in NC	Information is complete and mostly relevant. Students offer a nearly complete view of their animal's production. Left a few questions unanswered	Information answers some of the required questions. Offers only a partial explanation of that animal's production in NC.	Information offers only a little of the information requested. Doesn't offer a full view of production in NC.
Student Understanding	Students all have a full understanding of the information presented.	Students have a reasonable understanding of the information presented.	Students have little understanding of their information. Appear to be reading and not speaking to the group.	Students don't have any comprehension about what they researched.
Graphics/ Illustrations - Relevance	All graphics are related to the topic and make it easier to understand using clear descriptions.	All graphics are related to the topic and most make it easier to understand using descriptions.	All graphics relate to the topic where no description is given.	Graphics do not relate to the topic.
Attractiveness	The presentation is exceptionally attractive in terms of design, layout, and neatness.	The presentation is attractive in terms of design, layout and neatness.	The presentation is acceptably attractive though it may be a bit messy.	The presentation is distractingly messy or very poorly designed. It is not attractive.
References	Students have at least 3 resources cited in their presentation. References are all properly cited. All information was gathered from reputable sources. MLA is used.	Students have at least 2 resources cited in their presentation. References are properly cited for the most part. Information was gathered mostly from reputable sources. MLA is used.	Students have at least 1 resource cited in their presentation. References are improperly cited. All information was gathered from reputable sources.	Students didn't have any sources listed.

Activity 7.03.03

STUDENT PEER EVALUATION SHEET – Evaluate your group members. This will be done confidentially and will have an effect on your grade for the project.

Your Name: _____

Rate your group members on the following scale: 1 (rarely/never) 2 (occasionally/sometimes) 3 (all/most of the time)

Group Member Name: _____

Group Role: Recorder or _____ did fair share of work
Information Gatherer _____ was cooperative/did agreed upon task
_____ contributed to ideas/planning
Comments: _____ was available for communication
_____ was positive, helpful
_____ contributed to overall project success

Word describing this person as a group member:

Group Member Name: _____

Group Role: Recorder or _____ did fair share of work
Information Gatherer _____ was cooperative/did agreed upon task
_____ contributed to ideas/planning
Comments: _____ was available for communication
_____ was positive, helpful
_____ contributed to overall project success

Word describing this person as a group member:

Rate your contribution as compared to your group members.

Rate your group members on the following scale: 1 (rarely/never) 2 (occasionally/sometimes) 3 (all/most of the time)

Your Role in the Group:

_____ did fair share of work
_____ was cooperative/did agreed upon task
_____ contributed to ideas/planning
_____ was available for communication
_____ was positive, helpful
_____ contributed to overall project success

Justify your self-evaluation score:

Activity 7.03.03

Animal Husbandry Group Project Rubric

Group Members: _____

CATEGORY	4	3	2	1
Preparedness for presentations	Students were all well-prepared and appeared to have rehearsed their presentation several times.	Students were mostly well prepared for the presentation. Could've used a couple more practices.	Students were underprepared for the presentation. Appeared to have practiced very little.	Students were unprepared and did not appear to have ever practiced.
Information in presentation (Category x2)	Information is detailed and relevant. Students offer a comprehensive view of how their animal is raised in NC	Information is complete and mostly relevant. Students offer a nearly complete view of their animal's production. Left a few questions unanswered	Information answers some of the required questions. Offers only a partial explanation of that animal's production in NC.	Information offers only a little of the information requested. Doesn't offer a full view of production in NC.
Student Understanding	Students all have a full understanding of the information presented.	Students have a reasonable understanding of the information presented.	Students have little understanding of their information. Appear to be reading and not speaking to the group.	Students don't have any comprehension about what they researched.
Graphics/ Illustrations - Relevance	All graphics are related to the topic and make it easier to understand using clear descriptions.	All graphics are related to the topic and most make it easier to understand using descriptions.	All graphics relate to the topic where no description is given.	Graphics do not relate to the topic.
Attractiveness	The presentation is exceptionally attractive in terms of design, layout, and neatness.	The presentation is attractive in terms of design, layout and neatness.	The presentation is acceptably attractive though it may be a bit messy.	The presentation is distractingly messy or very poorly designed. It is not attractive.
References	Students have at least 3 resources cited in their presentation. References are all properly cited. All information was gathered from reputable sources. MLA is used.	Students have at least 2 resources cited in their presentation. References are properly cited for the most part. Information was gathered mostly from reputable sources. MLA is used.	Students have at least 1 resource cited in their presentation. References are improperly cited. All information was gathered from reputable sources.	Students didn't have any sources listed.

Total: _____

Comments: