

SUSTAINABLE BIOECONOMY

FOR ARID REGIONS



EXCEL FOR AGRIBUSINESS: CHARTS

OVERVIEW

This Excel video lesson is focused on creating charts in Excel. Charts are often used in the agribusiness sector because they provide a visual representation of large amounts of data. In the lesson students create charts from data related to yield, farm labor, and production on 300-acre farm.

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Excel for Agribusiness: Charts

STUDENT LEARNING OBJECTIVES:

After completing this lesson, students will:

1. Understand the importance of effective charts for data representation.
2. Be able to create effective charts for their data sets.
3. Be able to choose the appropriate chart based on their data.

TIME REQUIRED:

40 to 55 minutes

10 minutes teacher preparation

RESOURCES:

1. Excel for Agribusiness: Charts Lesson Plan
2. Excel for Agribusiness: Charts Video: <https://youtu.be/D2EarijJvXY>
3. Excel for Agribusiness Case Studies Workbook

EQUIPMENT AND SUPPLIES NEEDED:

1. Computer with Excel software
2. Device with access to YouTube Videos: <https://youtu.be/D2EarijJvXY>
3. Copies of How to Create Charts in Excel Quiz (page 5) for all students
4. Copies of Farming Production Cases (page 7) for all students

THIS LESSON WOULD WORK WELL AS PART OF:

- Math curriculum
- Computer science curriculum
- Agribusiness curriculum
- Agriculture curriculum

THIS LESSON IS ALIGNED TO AFNR, FFA, COMMON CORE MATHEMATICS AND NGSS STANDARDS. Expanded standards listed on page 9.



LESSON PLAN:

1. Learning about Charts (3 to 5 minutes)

Ask students if they know what charts are? (*Data condensed into a visual and understandable format that represent your main points.*) Ask students:

- Have you created charts in Excel before?
- How many types of charts can you think of?
- How would charts be related to agriculture and agribusiness?

2. Begin Excel for Agribusiness: Charts lesson video (13 minutes)

Students will watch Excel for Agribusiness: Charts lesson video, stopping at 12:18 (video will tell you to stop). This section covers effective and ineffective chart examples, rules to make effective charts, chart importance, and the steps to make charts in Excel.

3. Complete How to Create Charts in Excel Quiz (5 minutes)

After students watch the video, complete How to Create Charts in Excel Quiz. Have students correct their quiz using the answers key (page 6).

4. Complete the Farming Production Case Report (5 to 10 minutes)

Open Excel for Agribusiness Case Studies Workbook. Open the Case 2 worksheet (from the bottom tab) that contains three different farming production case tables. Students need to analyze each given table and create an appropriate chart on each gray section. Students will also write the type of chart they used for each case on the Farming Production Cases Report (page 7).

5. Continue Excel for Agribusiness Video (10 to 15 minutes) from 12:18

Have students watch the video from to review their work. Both sections will go through the procedures to complete the “How to Create Charts in Excel Quiz” and the “Farming Production Case Report”. Stop the video periodically to check for comprehension.

6. Leveling Up Questions (3 to 5 minutes)

- Ask students where and how they can use charts generated by the Excel Software (*4H projects, FFA, schoolwork, posters*).
- Ask your students how charts in Excel could improve efficiency in data analyses and research?

7. Exit Ticket Discussion (3 to 5 minutes)

Ask students to discuss other chart features, or elements in Excel they would like to learn more about.



DEFINITIONS:

Excel for Agribusiness: Introduction (Lesson 1)

Acre: Unit of land area (66 by 660 feet).

Cell: The rectangular area located in the worksheet.

Cell Reference: Area that shows name of cell.

Crop Yield: Refers to the amount of agricultural (crop) production harvested.

Format: The top bar where we can modify number formats, align your numbers/content, or modify the font for text.

Formulas: A formula category that includes addition, subtraction, division, multiplication, SUM, and average.

lbs.: Abbreviation for pounds. This is the unit of mass used in yield to indicate amount of crop harvested.

Range: A group of selected cells/tables.

Table: A tool used to group data together in the Excel program.

Workbook: Excel program file.

Worksheet: Worksheet within the excel file.

Excel for Agribusiness: Charts - Lesson Video 2

Charts: The term for graphical representation of data. Charts represent data as a symbolic alternative including bar, line, or pie charts.

Graph: A chart that specifically plots data along 2 dimensions.

Ribbon Tab: Upper nine tabs that contain File, Home, Insert, Page Layout, Formulas, Data, Review, View, and Help.

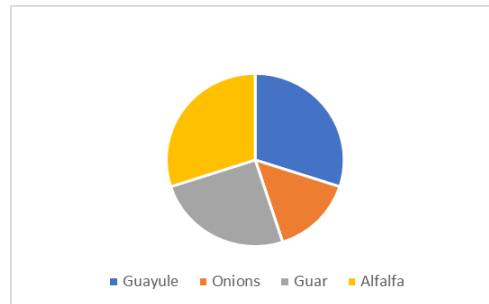
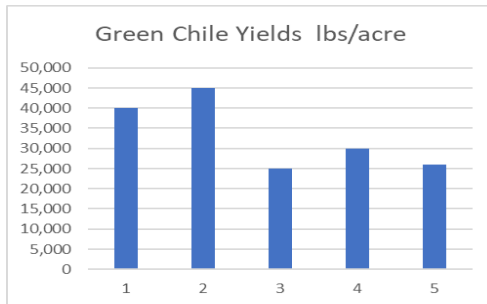


How to Create Charts in Excel Quiz

Name:

Directions: Answer each question

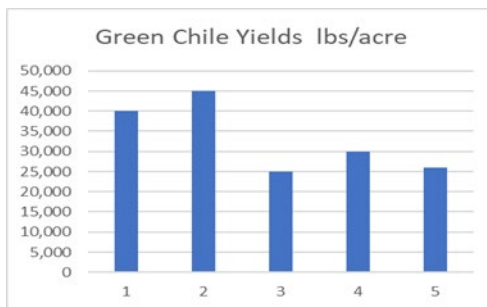
1. What is the Excel ribbon tab that contains the chart options?
2. Briefly describe at least 3 types of charts:
3. Provide the name for each type of chart shown below. Explain why you would choose each chart type for this data.



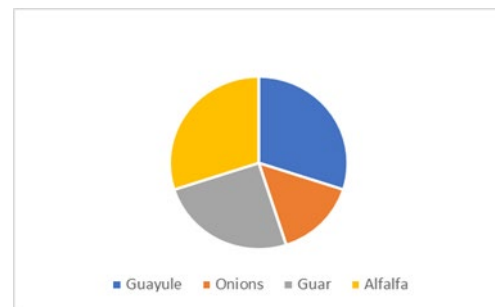


Answer Key for How to Create Charts in Excel Quiz

1. What is the Excel tab that contains the chart options?
Insert
2. Describe at least 3 types of charts:
Column, Line, Pie, Bar, Area, X Y Scatter, Histogram, etc.
4. Provide the name for each type of chart shown below. Explain why you would choose each chart type for this data.



Column Chart



Pie Chart

A pie chart is used for showing proportions of a whole. In this example it is showing all crops grown on a farm and it is easy to see what proportion each crop takes up. The column chart is used for displaying categories of data represented in a rectangle. This makes differences more obvious.



Farming Production Case Report Excel for Agribusiness Case Studies Workbook

Name:

Directions: Answer each question

1. Open Excel for Agribusiness Case Studies Workbook. Open Case 2 worksheet, located in the workbook bottom left side. The Farming Production Cases are on this worksheet. Review the given data on each table and the questions at the bottom.
 - a. Chart used on Green Chile Yield table:

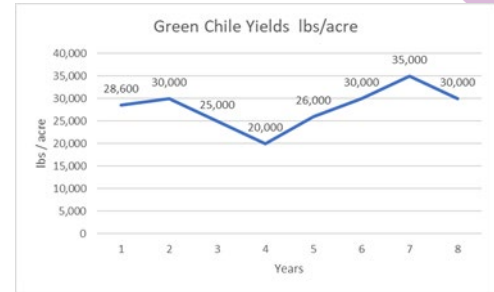
 - b. Chart used on Farm Labor table:

 - c. Chart used on 300 Acres Farm table:

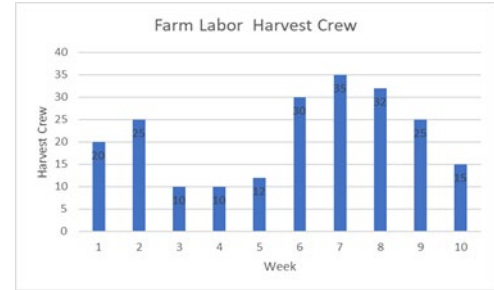


ANSWER KEY: Farming Production Cases

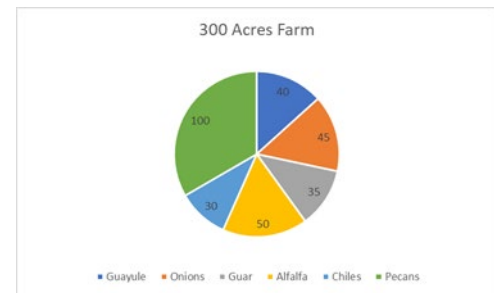
- a. Chart used on Green Chile Yield table:
Line Chart



- b. Chart used on Farm Labor table:
Column Chart



- c. Chart used on 300 Acres Farm table:
Pie Chart





STANDARDS DETAILS (AFNR, FFA, COMMON CORE MATHEMATICS, NGSS)

AFNR Career Ready Practices

CRP.02: Apply appropriate academic and technical skills. Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive.

CRP.02.01. Use strategic thinking to connect and apply academic learning, knowledge and skills to solve problems in the workplace and community.

CRP.02.02. Use strategic thinking to connect and apply technical concepts to solve problems in the workplace and community.

CRP.03.02 Design and implement a personal financial management plan.

CRP.04: Communicate clearly, effectively, and with reason. Career-ready individuals communicate thoughts, ideas and action plans with clarity, whether using written, verbal and/or visual methods.

CRP.07: Employ valid and reliable research strategies. Career-ready individuals are discerning in accepting and using new information to make decisions, change practices or inform strategies.

CRP.08: Utilize critical thinking to make sense of problems and persevere in solving them.

CRP.11. Use technology to enhance productivity

AFNR Agribusiness Systems Career Pathway

ABS.02. Use record keeping to accomplish AFNR business objectives, manage budgets and comply with laws and regulations.

ABS.02.01.02.c. Recommend and select tools and services to track, record and audit AFNR business transactions that meet business needs and priorities (e.g., electronic and paper based systems, etc.).

FFA Precept

FFA.PL-A. Action: Assume responsibility and take the necessary steps to achieve the desired results, no matter what the goal or task at hand.

FFA.PL-E. Awareness: Understand personal vision, mission and goals.

FFA.PL-F. Continuous Improvement: Accept responsibility for learning and personal growth.

FFA.PG-J. Mental Growth: Embrace cognitive and intellectual development relative to reasoning, thinking, and coping.

FFA.CS-M. Communication: Effectively interact with others in personal and professional settings.

FFA.CS-N. Decision Making: Analyze a situation and execute an appropriate course of action.

FFA.CS-O. Flexibility/Adaptability: Be flexible in various situations and adapt to change.

Common Core Mathematics with NGSS connections

Middle School:

MP.4: Model with mathematics (NGSS MS-LS2-5)

6.RP.A.3 Use ratio and rate reasoning to solve real-world and mathematical problems. (NGSS MS-LS2-5)

6.SP.B.5 Summarize numerical data sets in relation to their context. (NGSS MS-LS2-2)

7.EE.B.3 Solve real-life and mathematical problems using numerical and algebraic expressions and equations. (NGSS MS-LS2-5)

High School:

MP.2 Reason abstractly and quantitatively. (HS-ESS3-1),(HS-ESS3-2),(HS-ESS3-3),(HS-ESS3-4),(HS-ESS3-6)

MP.4 Model with mathematics. (HS-ESS3-3),(HS-ESS3-6)



HSN.Q.A.1 Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. (HS-ESS3-1),(HS-ESS3-4),(HS-ESS3-6)

HSN.Q.A.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. (HS-ESS3-1),(HS-ESS3-4),(HS-ESS3-6)

NGSS

HS-ETS1-4. Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem.

HS-ESS3-2. Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.



AUTHOR BIOGRAPHY

Luis Enrique Ramos-Coronado is an International Graduate student at New Mexico State University. Currently, he is doing a Master's in Agriculture with specialization in Agribusiness through the Department of Agricultural Economics and Agricultural Business (AEAB). Luis earned his B.S. degree in Agronomy at New Mexico State University. He is from Guanajuato, an important agricultural state in Mexico. His plan is to learn and acquire experience focused on sectors like crop production and agribusiness, and someday apply his knowledge in Guanajuato, Mexico.

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