AGEC 115: Decision Tools for Ag Econ and Agribusiness

Chapter 2.
Data Visualization

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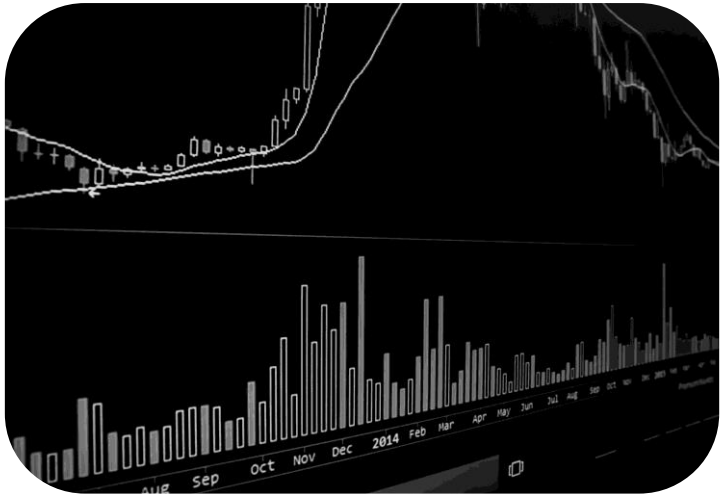
Manhattan, Kansas

Kansas State University | Agricultural Economics

Today's Agenda

How to Select a **Chart Type** ?

How to **Customize Chart**?



Practice **Examples**

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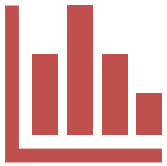
How to Select which Chart to Make ?



Comparison:

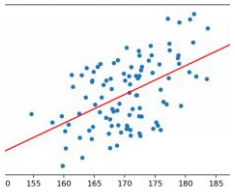
Use bar charts

Amount:

Use pie charts

Time-series:

Use line charts



Relationship:

Use Scatter Chart

Dual Data:

Use Combo Chart

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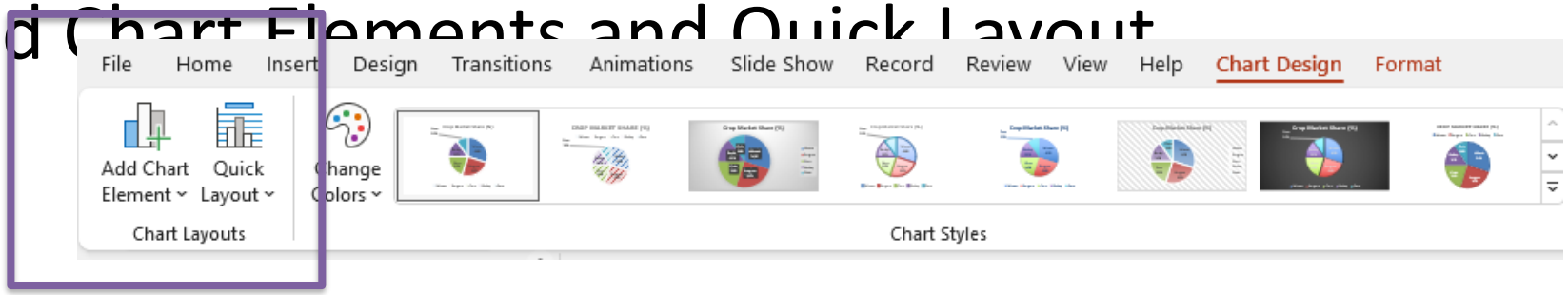
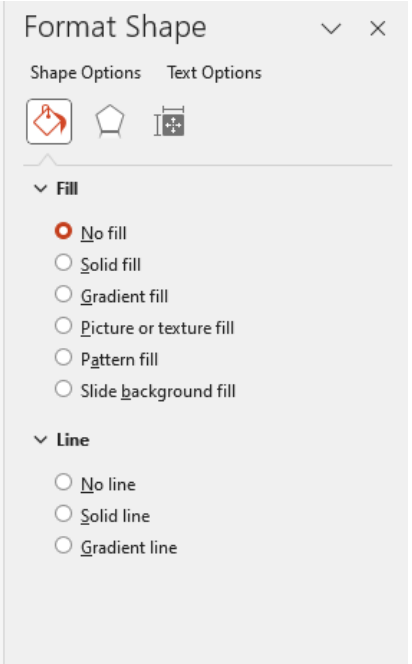
How to Customize Charts ?

- Use Add Chart Elements and Quick Layout



- Double Click & See “Format Shape”



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EXAMPLES

From : Agriculture business

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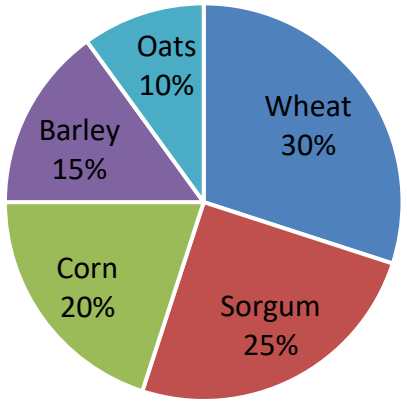
Crops Market Share

In the small town in Kansas- Cooper and his friends grow a variety of crops. They want to see which crops dominate their local market.

Crop	Market Share (%)
Wheat	30
Sorgum	25
Corn	20
Barley	15
Oats	10

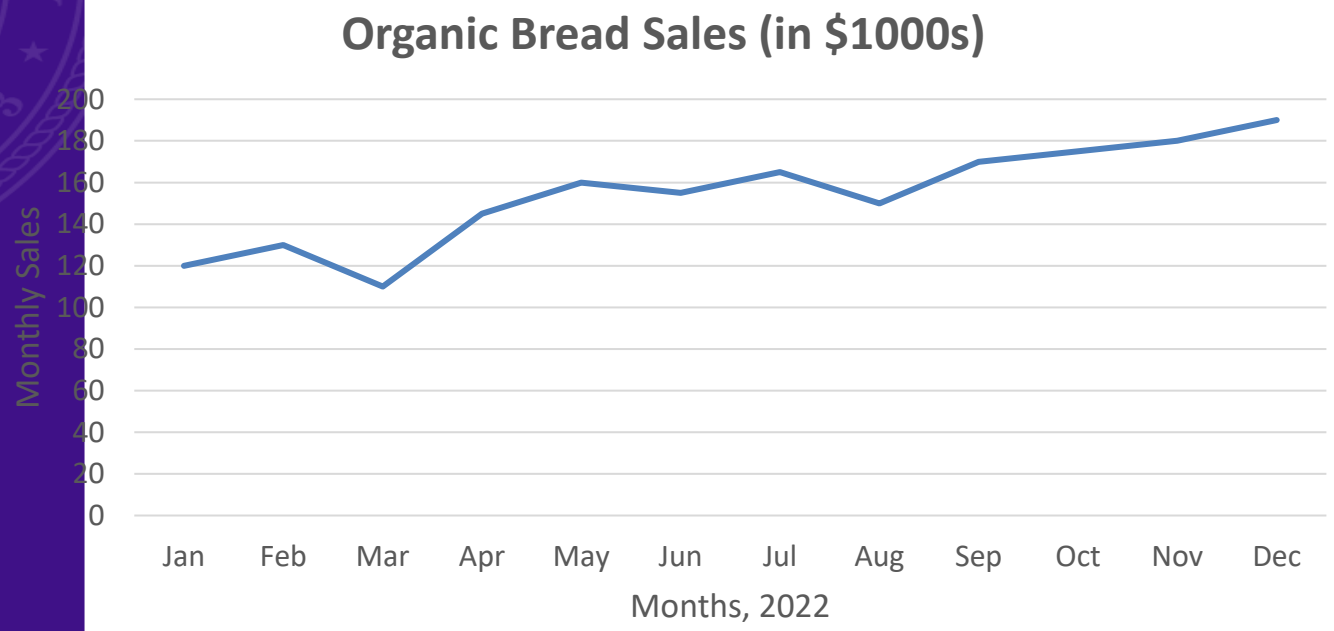
Crop Market Share (%)



Represent this visually using a pie chart.

Organic Sales

Residents in New York started buying more and more organic stuff as the year went on



Month	Sales (in $1000s)
Jan	120
Feb	130
Mar	110
Apr	145
May	160
Jun	155
Jul	165
Aug	150
Sep	170
Oct	175
Nov	180
Dec	190

Represent this visually using a line chart.

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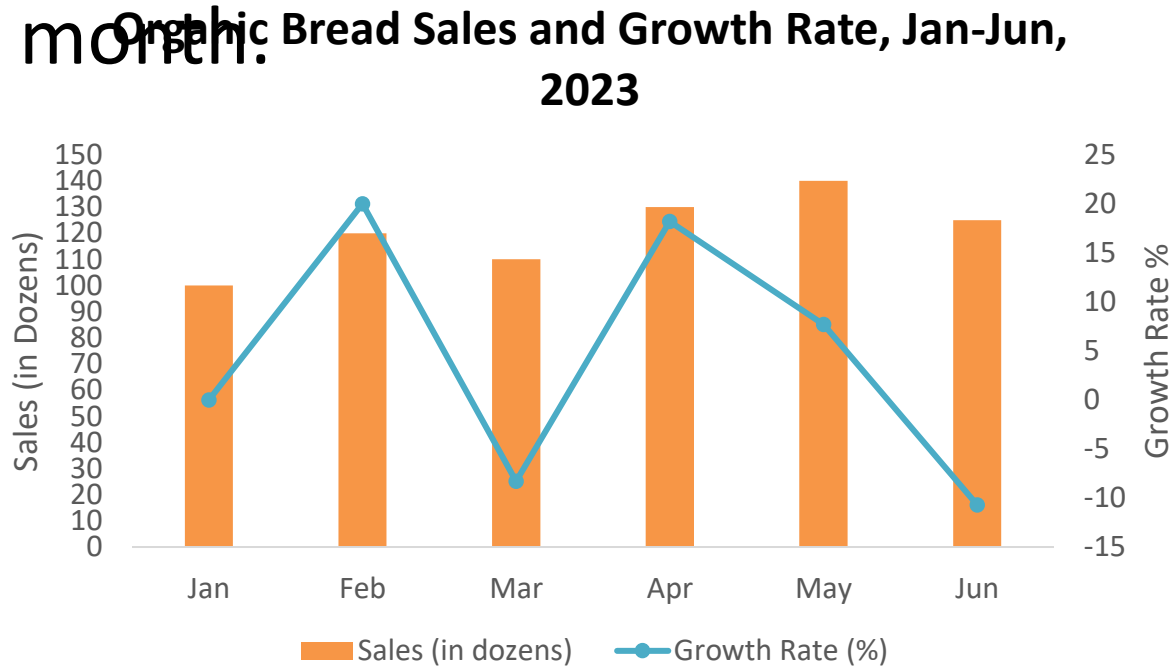
Combo Chart

Callie and her friends opened a bakery in Manhattan, NY. She noticed changes in her sales and wanted to understand how her cake sales grew or declined each month.

	Organic Bread Sales (in dozens)	Growth Rate (%)
Jan	100	0
Feb	120	20
Mar	110	-8.3
Apr	130	18.2
May	140	7.7
Jun	125	-10.7



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Types of Graphs

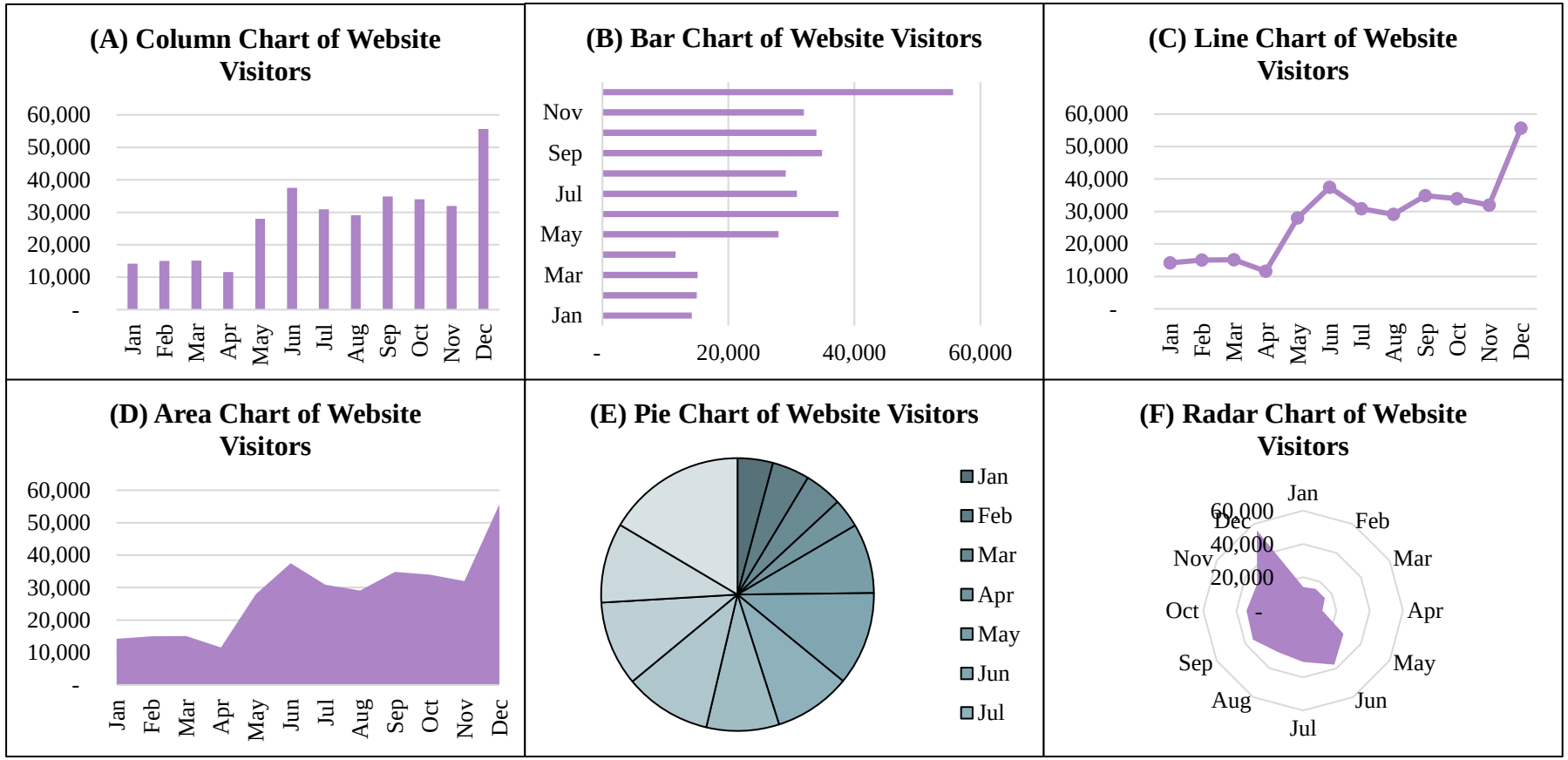
- Bar Charts
- Point and Line Graphs
- Pie Charts
- Radar graphs
- Density graphs

Charts

- General suggestions:
  - Think of your audience
  - Remove unnecessary items or distractions.
  - Fancy isn't always better.
  - Should be clear and easy!
  - "Off the floor" test – can I understand the story without all the context?

Same but different

Month	Visitors
Jan	14,185
Feb	14,996
Mar	15,123
Apr	11,596
May	27,973
Jun	37,492
Jul	30,875
Aug	29,098
Sep	34,877
Oct	33,978
Nov	31,977
Dec	55,656



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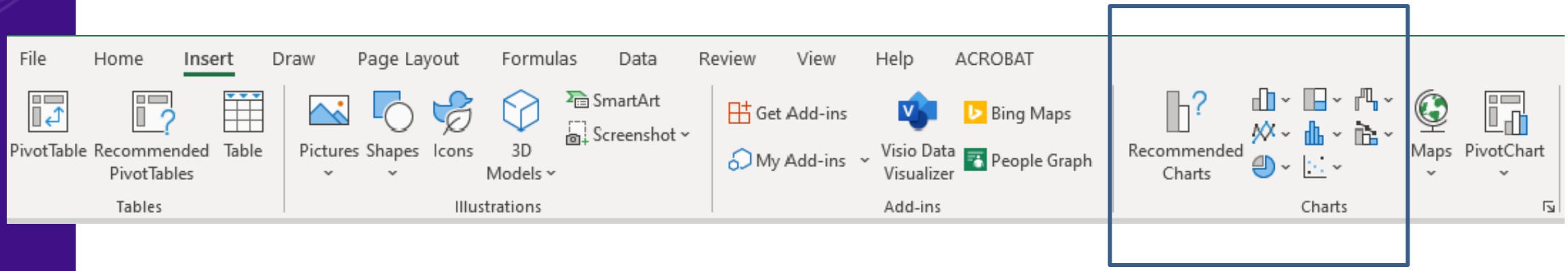
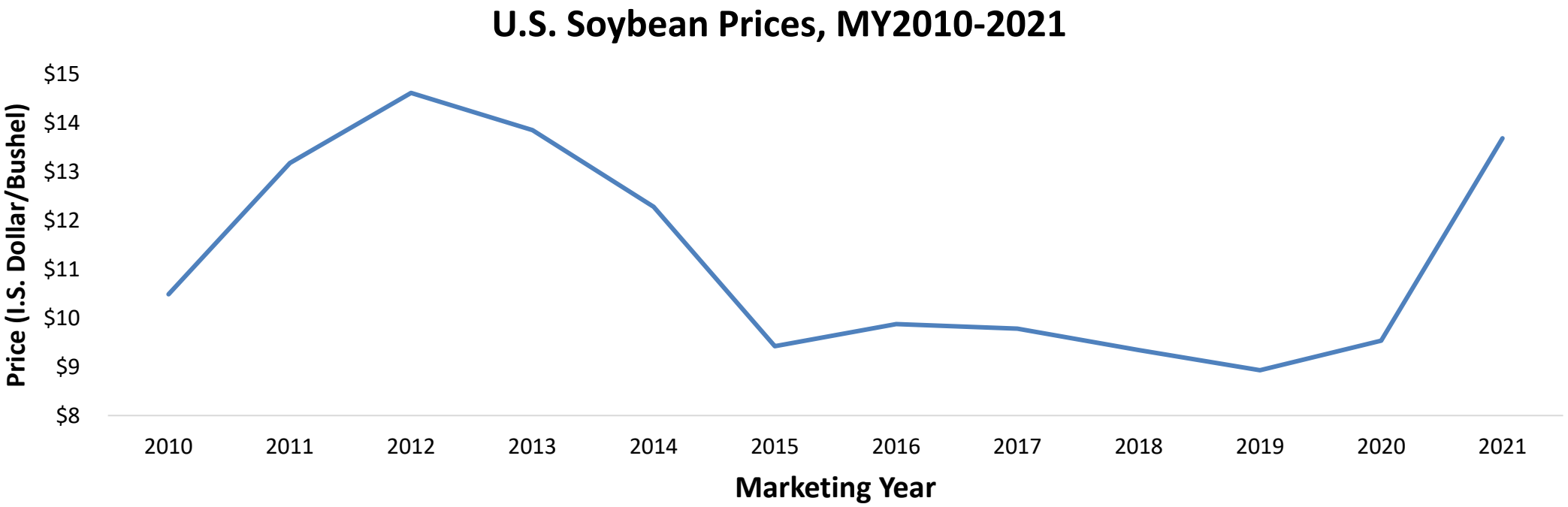
Creating Charts

- You will need to either have your data ready or cleanse/manipulate in a way it can be read into Excel.
- Highlight all data. Include column/row names in selection if you can.
- If possible, use Excel's recommended charts tool.



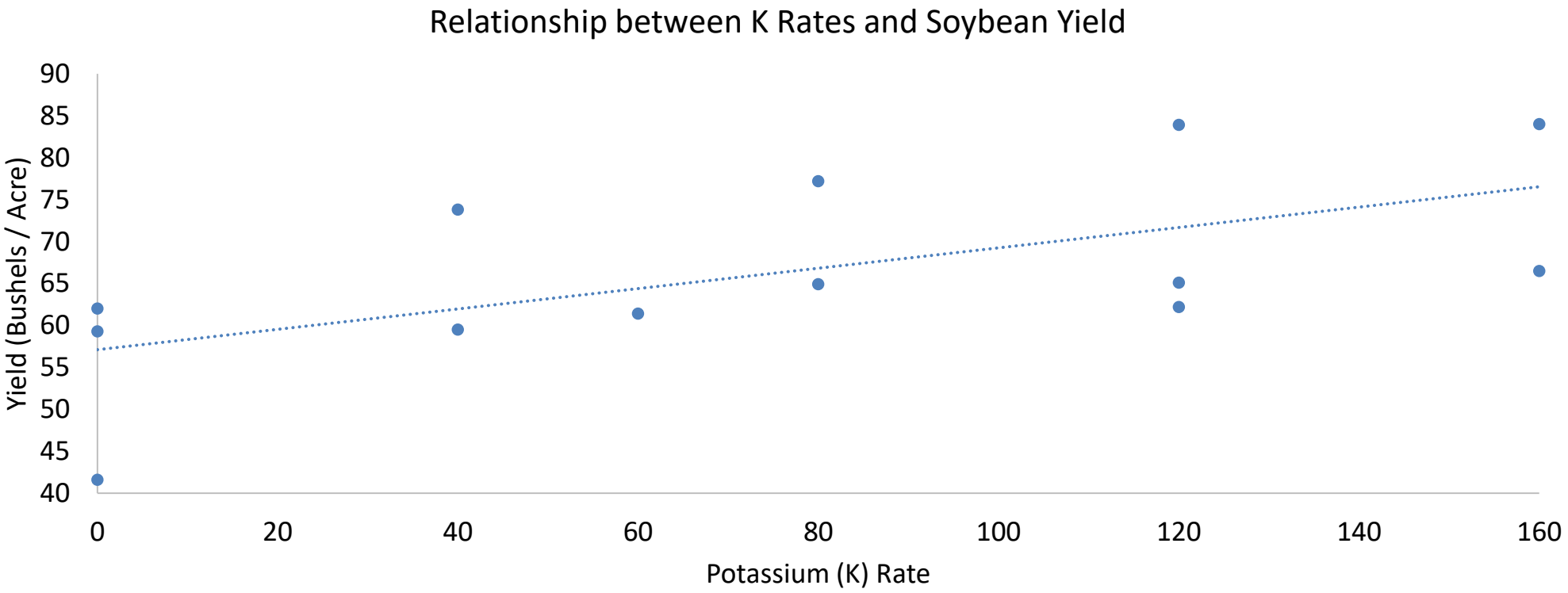
Line Charts

- Categorical data on the horizontal axis (X-axis)
- Value data on the vertical axis (Y-axis)



Scatter Charts (XY Charts)

- Combinations of X and Y values.
- Irregular intervals: scientific, statistical, engineering, agronomic, etc.



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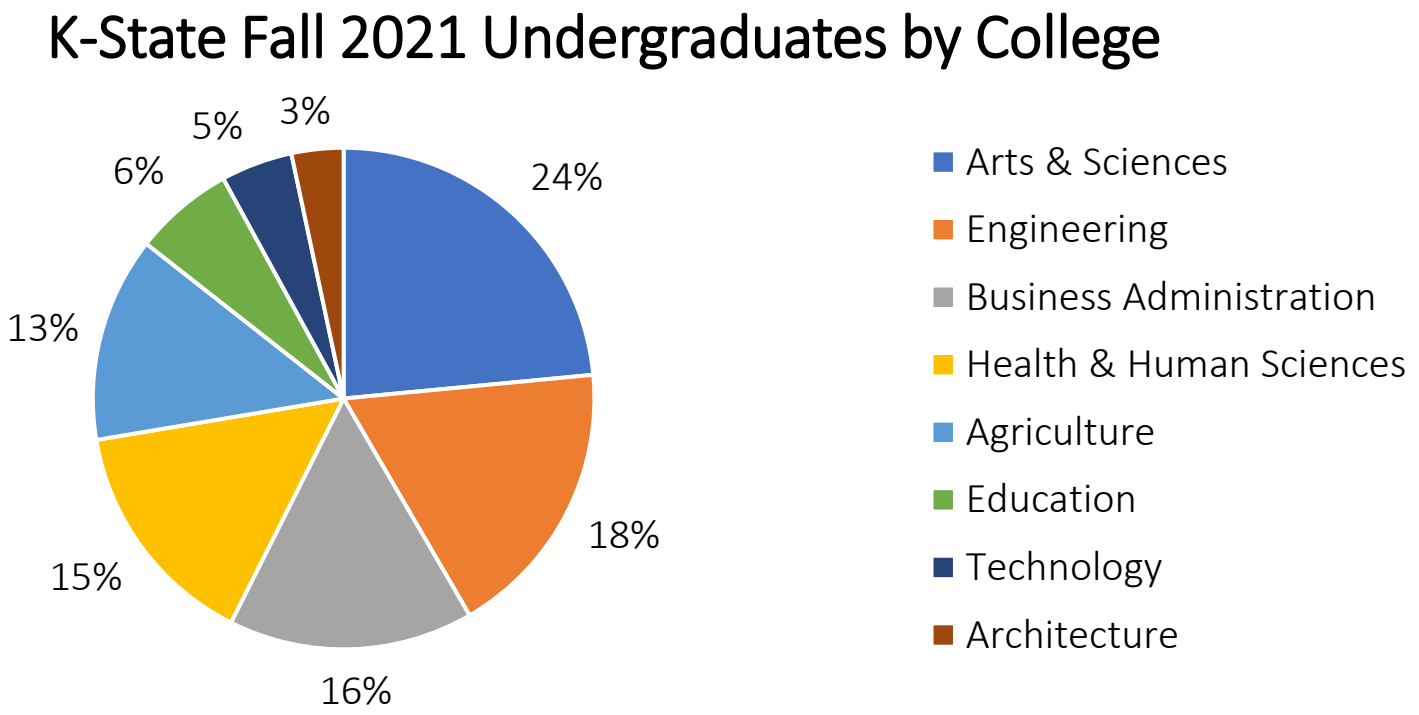
Pie Charts

- Represent the share of one category relative to a sum.
- Suggested for one data series (parts of a whole).



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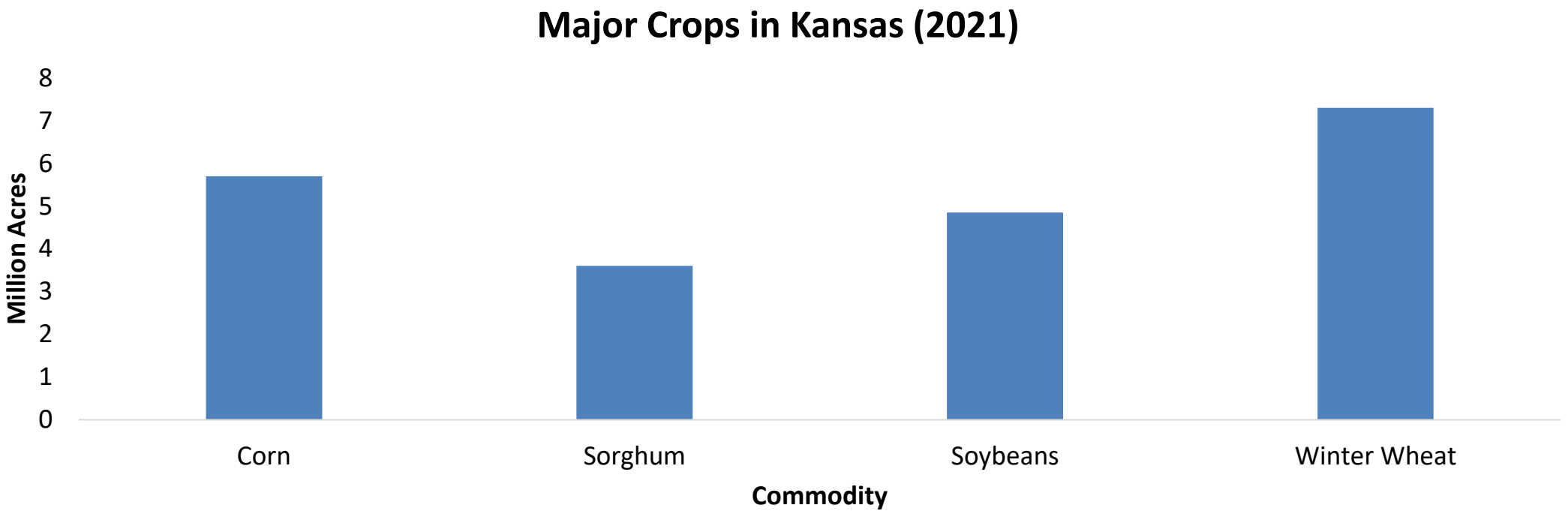
Bar Charts

- Used for comparison among individual items.
- Categories are along the X-axis while values are in the Y-axis.



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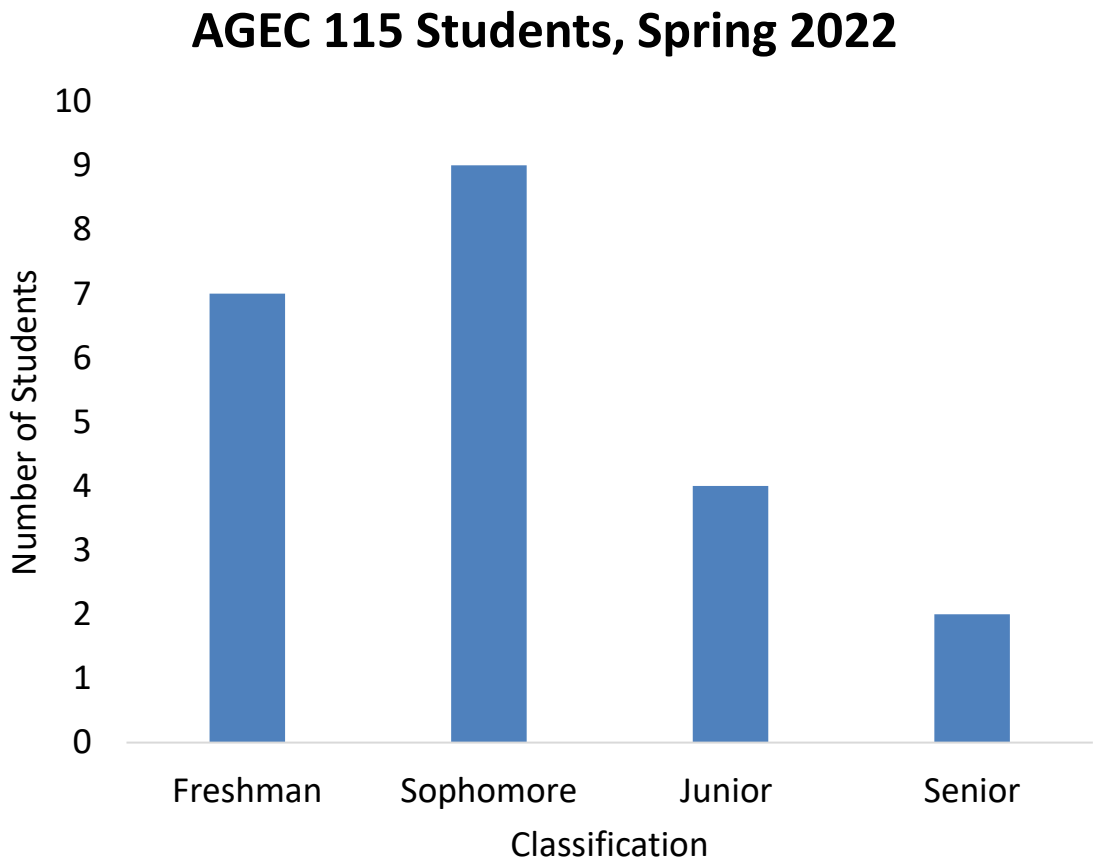
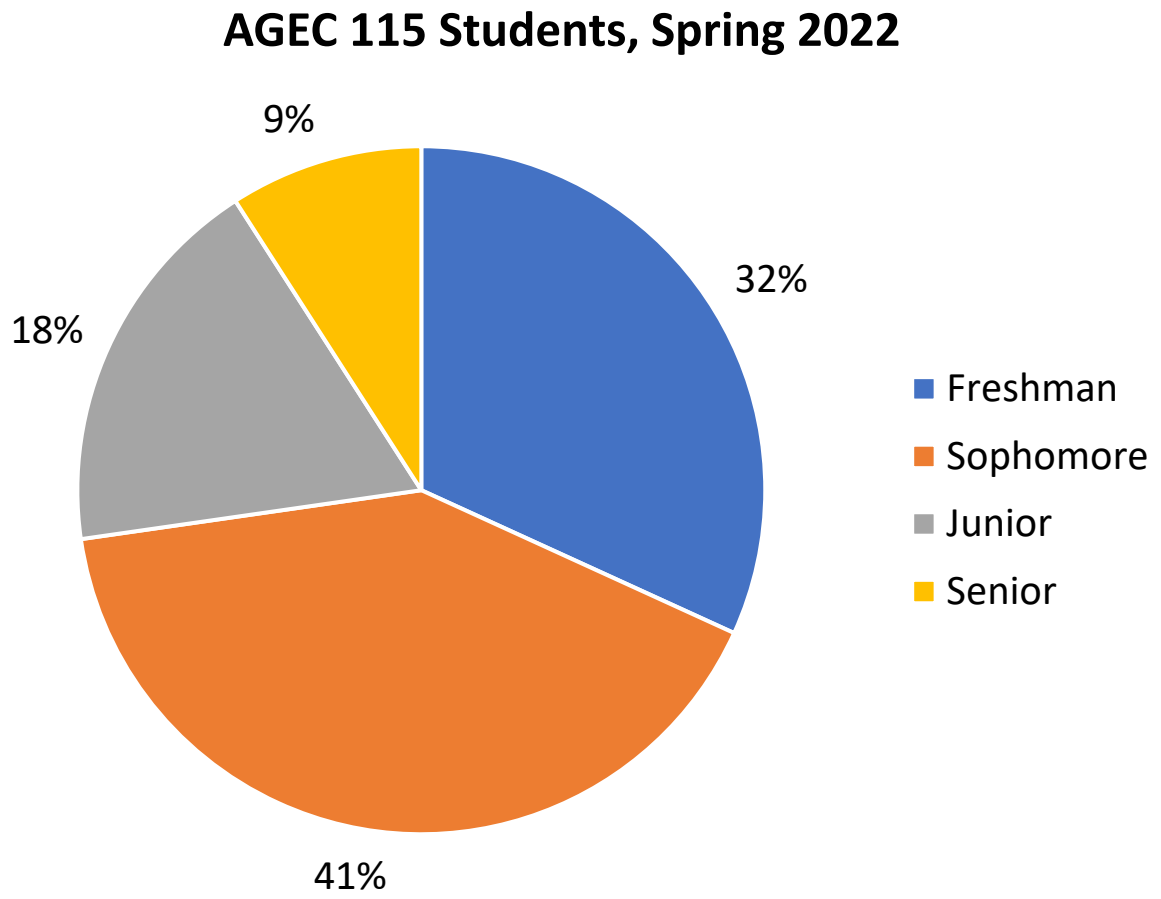
Real Data





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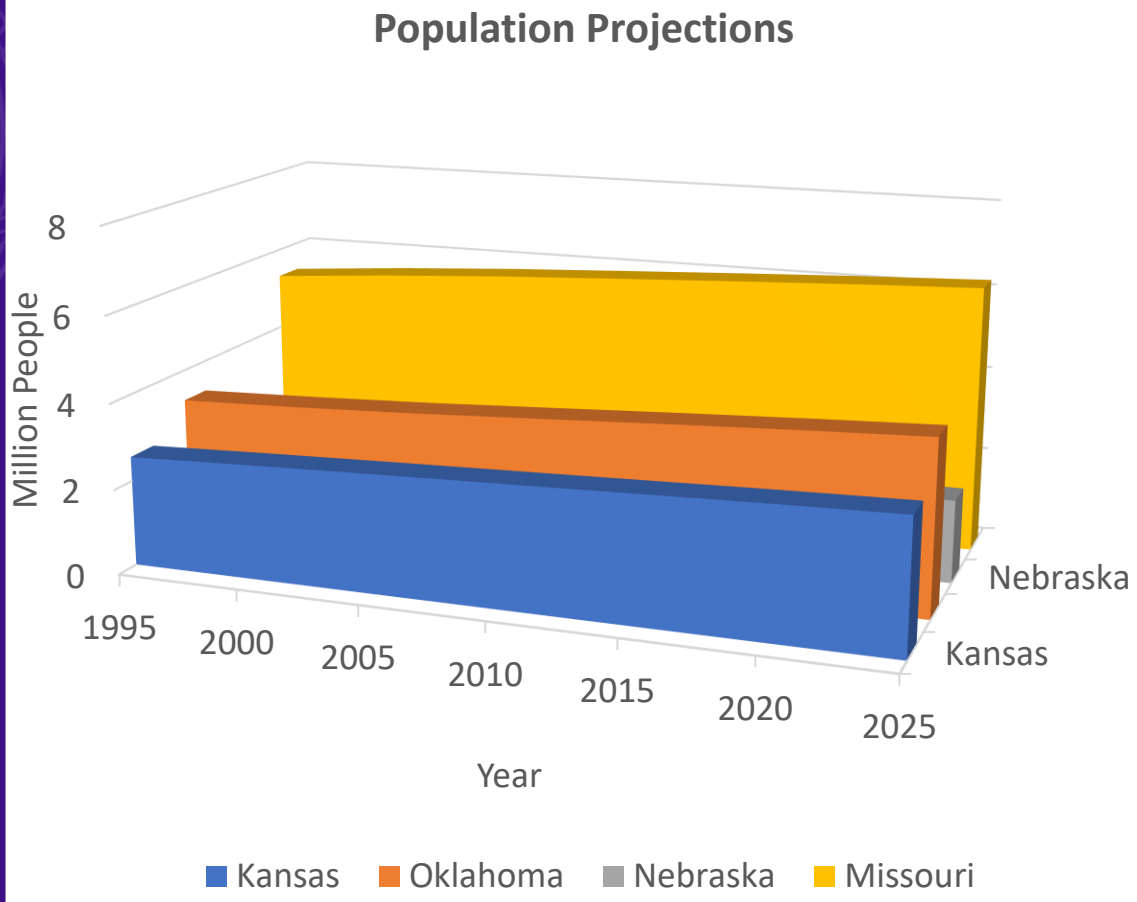

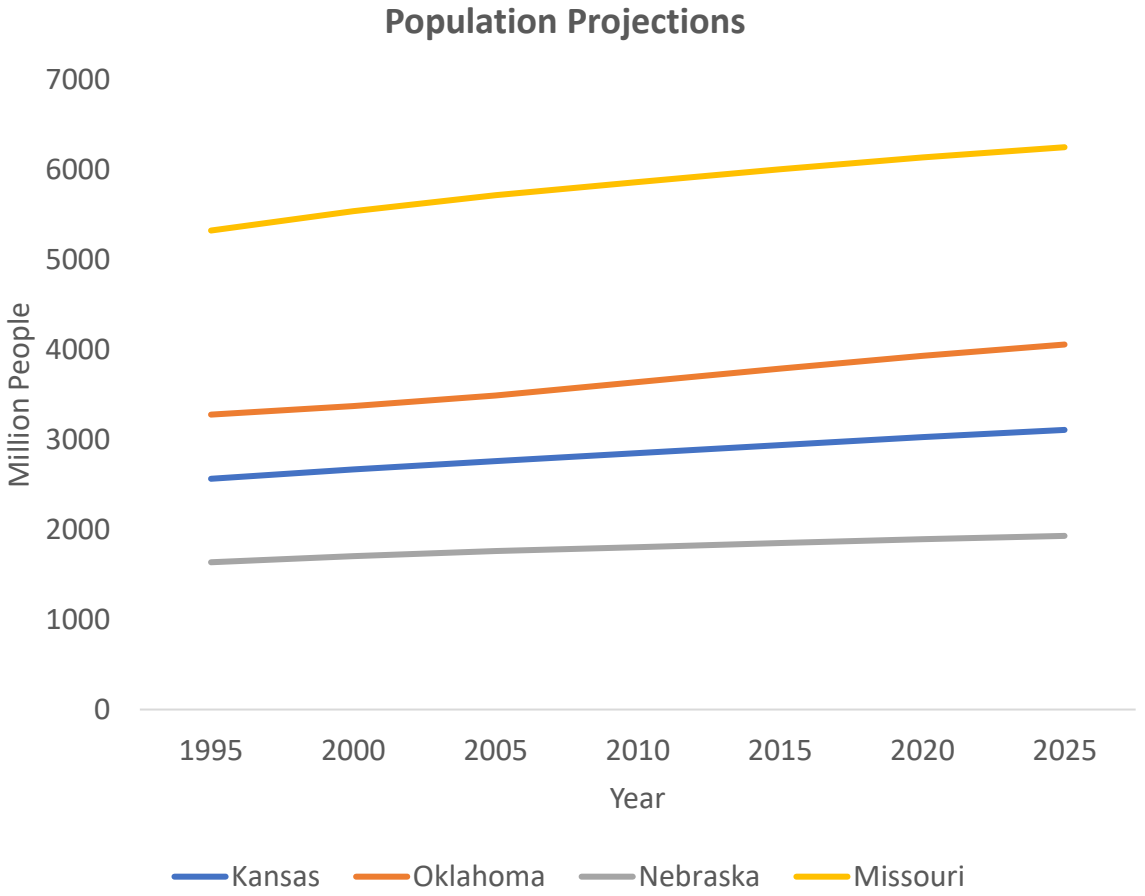

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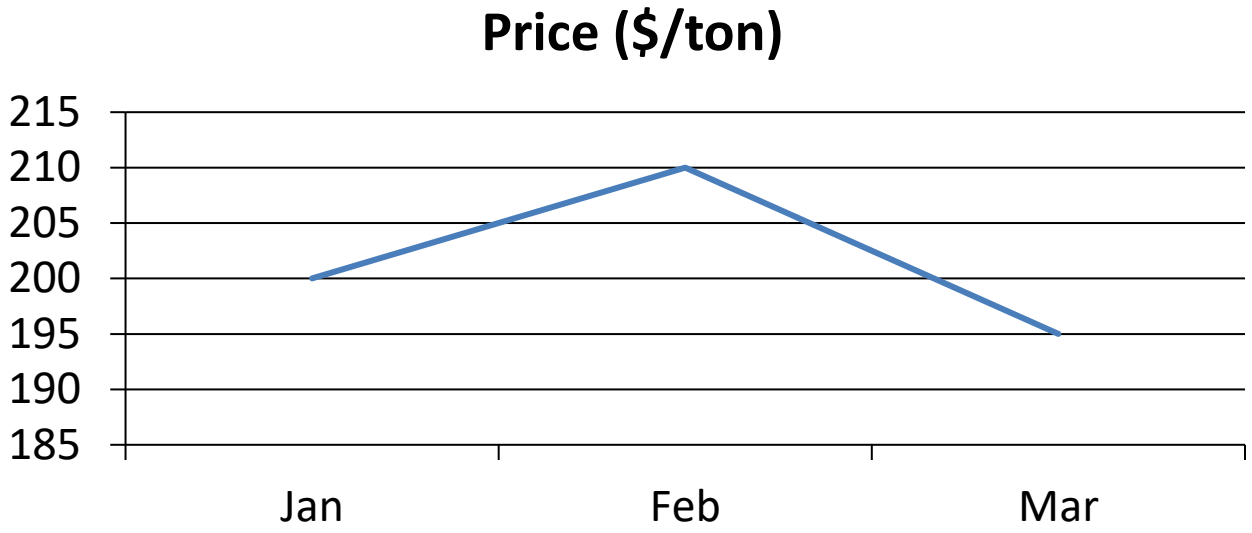
Heat Maps

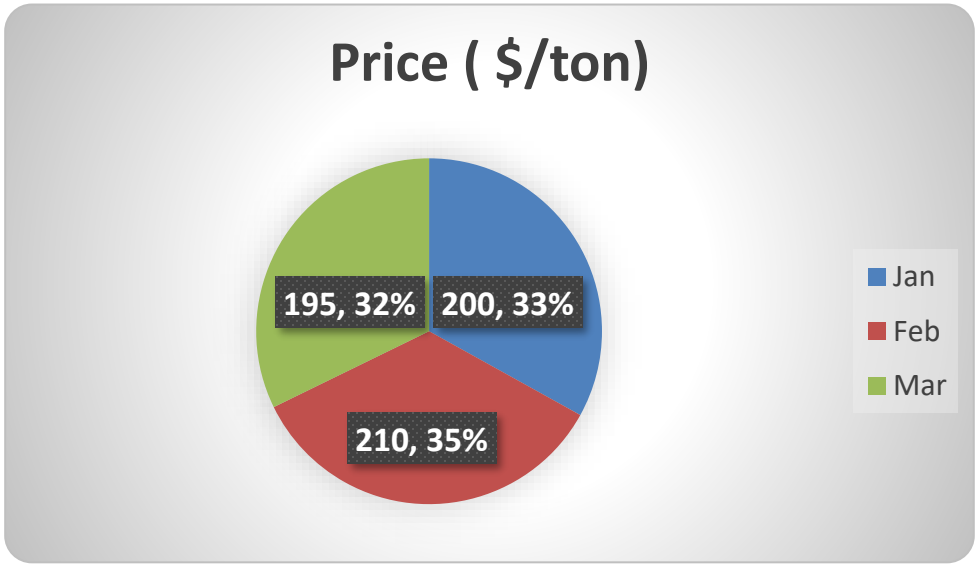
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Average Monthly Temperatures at Central Park, New York													
2		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
3	2009	27.9	36.7	42.4	54.5	62.5	67.5	72.7	75.7	66.3	55.0	51.2	35.9	
4	2010	32.5	33.1	48.2	57.9	65.3	74.7	81.3	77.4	71.1	58.1	47.9	32.8	
5	2011	29.7	36.0	42.3	54.3	64.5	72.3	80.2	75.3	70.0	57.1	51.9	43.3	
6	2012	37.3	40.9	50.9	54.8	65.1	71.0	78.8	76.7	68.8	58.0	43.9	41.5	
7	2013	35.1	33.9	40.1	53.0	62.8	72.7	79.8	74.6	67.9	60.2	45.3	38.5	
8	2014	28.6	31.6	37.7	52.3	64.0	72.5	76.1	74.5	69.7	59.6	45.3	40.5	
9	2015	29.9	23.9	38.1	54.3	68.5	71.2	78.8	79.0	74.5	58.0	52.8	50.8	
10	2016	34.5	37.7	48.9	53.3	62.8	72.3	78.7	79.2	71.8	58.8	49.8	38.3	
11	2017	38.0	41.6	39.2	57.2	61.1	72.0	76.8	74.0	70.5	64.1	46.6	33.4	
12														

	Student	Test 1	Test 2	Test 3	Test 4	Test 5	Test 6	Average
7	Casey Ballard	95%	98%	92%	98%	97%	100%	97%
8	Pat Roberts	96%	98%	85%	94%	100%	90%	94%
9	Annette Palmer	75%	80%	87%	95%	97%	99%	89%
10	Philip Webb	70%	71%	97%	83%	97%	93%	85%
11	Angelica Weber	77%	78%	79%	87%	96%	88%	84%
12	Anita Perkins	91%	93%	90%	82%	72%	62%	82%
13	Misty Gilbert	76%	84%	74%	79%	85%	87%	81%
14	Tyler Gibbs	68%	73%	76%	79%	87%	95%	80%
15	Spencer Thornton	67%	65%	71%	62%	75%	79%	70%
16	Robyn Evans	60%	62%	65%	67%	71%	78%	67%
17	Timothy Nash	63%	62%	58%	62%	65%	71%	64%
18	Brett Mccarthy	64%	63%	63%	59%	64%	58%	62%
19	Angel Moss	52%	57%	58%	56%	67%	63%	59%
20	Loren Bowman	54%	59%	53%	58%	59%	62%	58%
21	Lillie Carlson	54%	58%	61%	54%	49%	53%	55%
22	Shane Neal	49%	51%	54%	59%	53%	54%	53%
23	Dianna Fleming	48%	47%	50%	44%	47%	45%	47%
24	Johnnie Holland	41%	43%	43%	43%	50%	58%	46%
25	Leslie Howard	51%	45%	48%	41%	41%	43%	45%
26	Lori Woods	33%	35%	48%	41%	51%	59%	45%
27	Salvador Gray	44%	48%	46%	48%	42%	37%	44%
28	Kelley Lyons	36%	39%	40%	42%	43%	57%	43%
29	Sue Lewis	44%	42%	40%	42%	46%	42%	43%
30	Mark Hudson	38%	39%	42%	39%	47%	51%	43%
31	Renee Hansen	43%	41%	38%	36%	39%	43%	40%

Market Price Fluctuation?

Month	Price
Jan	200
Feb	210
Mar	195





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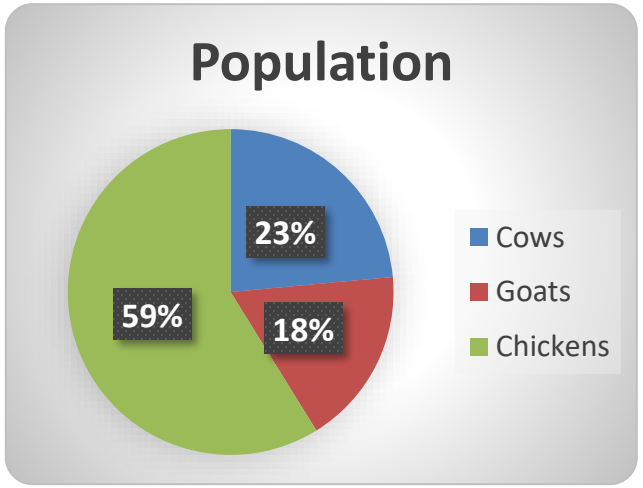
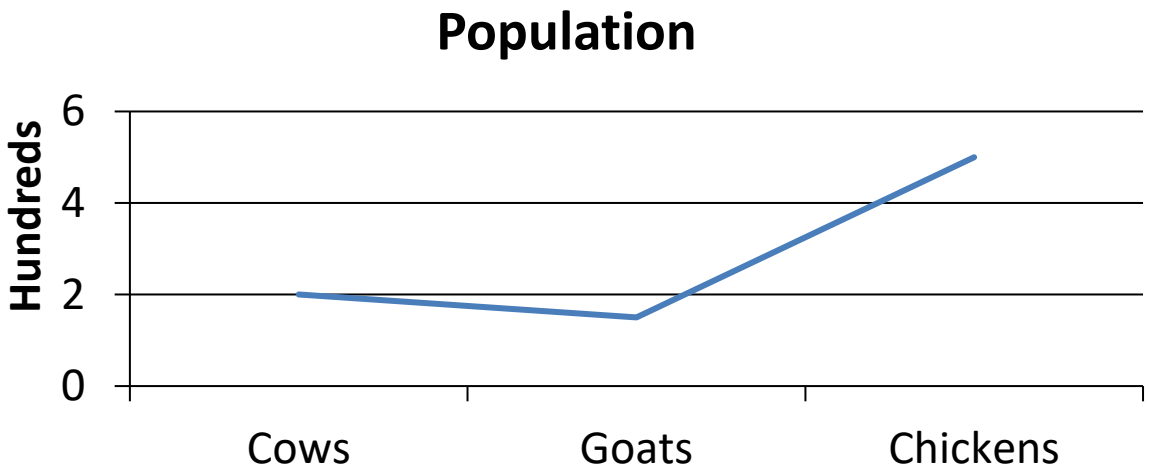
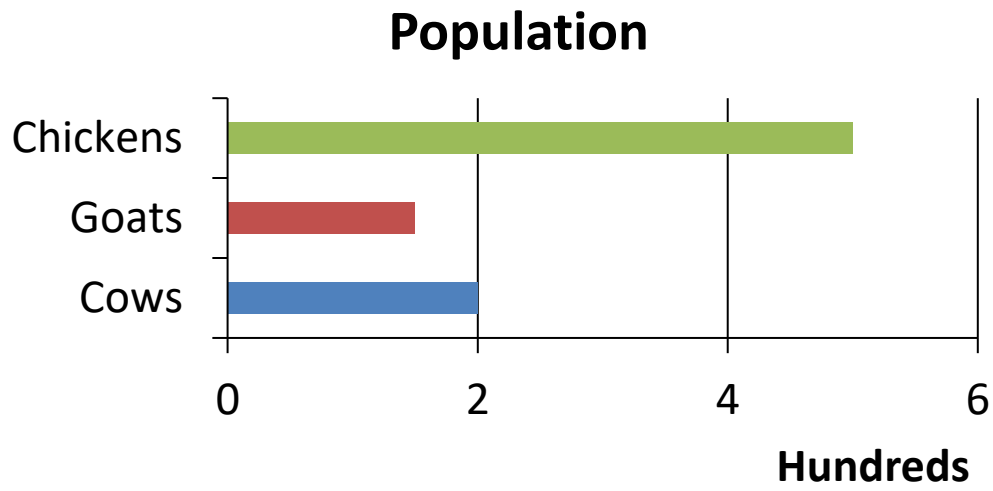
Livestock Population 850

Livestock	Population
Cows	200
Goats	150
Chickens	500







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