

**Agriculture  
Statistics in Ag Quiz**

Name

*Key*

1. The table below lists the U.S. winter wheat production measured bushels (in billions) for 2001 - 2016.

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Bushels	1.35	1.14	1.72	1.5	1.5	1.29	1.5	1.89	1.52	1.45	1.49	1.63	1.54	1.38	1.37	1.66

Source: USDA

Use the table to find the following information:

- mean
- median
- mode
- Range
- IQR
- standard deviation
- Explain which measure of central tendency you think best predicts the average U.S. wheat production and why.
- Describe the spread of the data. Is the data consistent? Are there outliers?

Mean = 1.5      Median = 1.5      Mode = 1.5

Range = .75      IQR = .215      Standard deviation = .17

While the mean, median, & mode are all 1.5, the best measure of central tendency for this data is the mean since the data is over a range of time & there are no outliers.

The range & IQR are close together which indicates consistency & there are no outliers.

2. Find the mean and standard deviation.  
the height (in feet) of a sample of trees:  
12.5, 9.8, 13.5, 11.2, 12.3, 14.2, 11.7, 9.8, 12.6, 10.4

*AO*

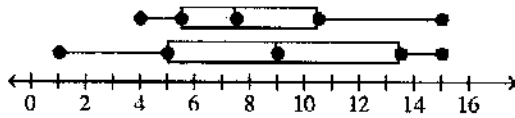
- mean = 11.8 ft;  
standard deviation = 1.43 ft
- mean = 13.1 ft;  
standard deviation = 1.43 ft
- mean = 11.8 ft;  
standard deviation = 4.52 ft
- mean = 13.1 ft;  
standard deviation = 4.52 ft

3. Compare the data sets by making two box-and-whisker plots above one number line.

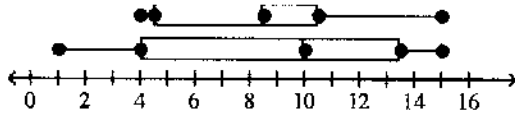
Set X: 14, 11, 7, 1, 5, 4, 6, 13, 2, 12, 13, 4, 3, 14, 15, 15

Set Y: 10, 9, 7, 4, 11, 15, 15, 8, 6, 9, 4, 10, 7, 13, 4, 5

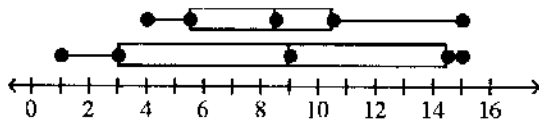
a.



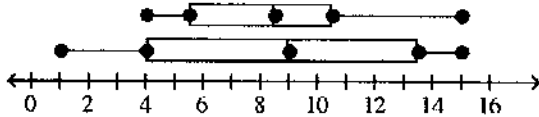
b.



c.



d.



Set X

Min = 1

Q<sub>1</sub> = 4

Med = 9

Q<sub>3</sub> = 13.5

Max = 15

Set Y

Min = 4

Q<sub>1</sub> = 5.5

Med = 8.5

Q<sub>3</sub> = 10.5

Max = 15

4. A set of data has a mean of 66 and standard deviation of 7. Find the z-score of the value 32.

a. 0.4

b. 4.9

c. -34

d. -4.9

$$Z = \frac{x - \bar{x}}{\sigma} = \frac{32 - 66}{7} = -4.86$$

5. The average height of a corn stalk is 65 inches with a standard deviation of 2.7 inches. Sketch a normal curve labeling the horizontal axis at one, two, and three standard deviations from the mean.

