

You Say Tomato!

Middle school students Jennifer and Lucas Harris would like to devote some acreage from their thriving new vegetable business to heirloom tomatoes, which they've noticed are big sellers at the farmers' market. "There are some juicy varieties that look great and taste even better!" exclaimed Lucas. "But with all those varieties, how will we decide which seeds to invest in?" Jennifer wondered.

Jennifer and Lucas met with Raymond "Red" Vines, the local representative of the Herbivore Seed Company. "Well," said Red, "I can't predict which tomato variety will give the biggest yield in the future, but I can show you data on how my customers have done over the past four years with my two best-selling seeds."



WORK THE MATH

Use separate paper to show your work.

Tomato Seed Yield (Tons per Acre)

Tomato Variety	Year	Farm 1	Farm 2	Farm 3	Farm 4	Farm 5
Red Ready	2009	19	15	11	14	20
	2010	16	18	16	16	16
	2011	10	19	11	12	16
	2012	14	12	20	16	18
Crimson Champ	2009	26	0	12	20	17
	2010	0	14	10	26	28
	2011	30	28	16	17	26
	2012	10	16	17	10	17

1. Prepare a **frequency table** for each variety of tomato.
2. Calculate the **expected value** for each variety.
3. How risky do you think it is for Jennifer and Lucas to rely on Red's data?

NOW TRY THIS:

What would you advise Jennifer and Lucas to do about the tomatoes? *Hint:* Be sure to consider not only the expected value of each variety but also how risky the yield for each variety is. If the yield can deviate (vary) widely from the mean, the poor yield in some years could be a financial disaster.

If you would like to learn more about the topic of variance from the mean, including standard deviation, visit www.actuarialfoundation.org/pdf/Probstat_SG_2012.pdf, beginning on page 24.

