

## Hula Hoop Math: Yield Prediction\*

*How many bushels will an acre of soybeans produce?*

Here is a fun way to estimate how many soybean plants you can find in an acre!

1. Put the hoop over soybean plants near the edge of the field. Count the plants within each hoop record the data.

Toss number 1: \_\_\_\_\_ plants

Toss number 2: \_\_\_\_\_ plants

Toss number 3: \_\_\_\_\_ plants

2. To get the average number of plants in each hoop, add the three tosses and divide by 3:

\_\_\_\_\_ + \_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_ divided by 3 = \_\_\_\_\_ plants

Measure the diameter (distance across the middle) of your hula hoop with the measuring tape.

\_\_\_\_\_ inches.

4. Multiply the average number of plants by the correct factor from Table 2. Be sure to choose the right diameter! *For example, if your hoop has a diameter of 21 inches, multiply the average number of plants inside the hoop by 18,119 to determine the number of plants per acre.*

\_\_\_\_\_ (average number of plants) X \_\_\_\_\_ (appropriate factor from the list below) =

\_\_\_\_\_ estimated number of plants in an acre.

Table 2 Diameter of Hula Hoop (inches) Factor

18	24,662
21	18,119
24	13,872
27	10,961
30	8,878
33	7,337
36	6,165

6. If each plant produces about 50 beans, how many soybeans will this acre produce? \_\_\_\_\_ (number of plants per acre) X 50 beans = \_\_\_\_\_ soybeans in an acre.

7. About 1500 soybeans weigh one pound. How many pounds of soybeans will this field produce? \_\_\_\_\_ (number of soybeans) divided by 1500 = \_\_\_\_\_ pounds of soybeans.

8. If one bushel of soybeans weighs 60 pounds, how many bushels will this field produce? \_\_\_\_\_ (pounds of beans) divided by 60 = \_\_\_\_\_ bushels of soybeans.

Reflection: Looking at Table 2, why does the factor decrease as the diameter of the hula hoop increase? What factors might impact the yield of this field? At this point in the growth of the crop, is there a way to increase the yield?

\*This lesson is an adaptation from Purdue Extension: <http://www.extension.purdue.edu/extmedia/SPS/SPS-104-W.pdf>. It was tested with over 500 6th graders at Newark City Schools in Ohio.