Scientific Journal

11 September

We listed possible variables for growing seeds:

- amount of light
- amount of water
- kinds of soil
- types of liquids
- heat
- amount of fertilizer
- amount of compost
- in pot/in garden
- size of pots
- different types of seeds
- distance between seeds
- kinds of light
- depth of planting
- amount of liquids
- inside/outside

For our variable we will grow seeds that are different AGES.

We wrote our question and hypotheses.

Question

Which seeds will grow the tallest, 2014, 2015, 2016, or 2017, measured in height?

Hypotheses

Aqua—The 2017 will grow the highest because they are new and ready to be planted. The others are old and have kind of given up on planting.

Orange—The older the seed, the smaller it will grow. The older seeds are not as strong.

Yellow—The older the seed, the less it will grow. The older seeds are not as strong.

Purple—The 2016 seeds will grow the tallest because they had a year to develop but they wouldn't be dry.

Green—The 2016 seeds will grow the tallest because they had enough time to develop inside the seed unlike the 2014 which probably died.

Red—2014 will grow the tallest.

Blue—The seeds will all be the same because of the strong protective shell around the seeds.

Pink—All the seeds will grow the same because of the strong protective shell around the seeds.

Procedure

1. Plant the seeds at the same depth in potting mix in the Styrofoam cups.
2. Place them all in the same light.
3. Use the same amount of water in each cup each time we water.
4. Measure the height of each plant every week on Wednesday.
5. Observe any other changes and note them in our journal.
6. Record the final results, the final heights of the plants, at the end of two months.

Materials and Equipment List

- seeds from 2014, 2015, 2016, and 2017
- potting mix
- Styrofoam cups
- water
- light
- ruler

Experimental Data

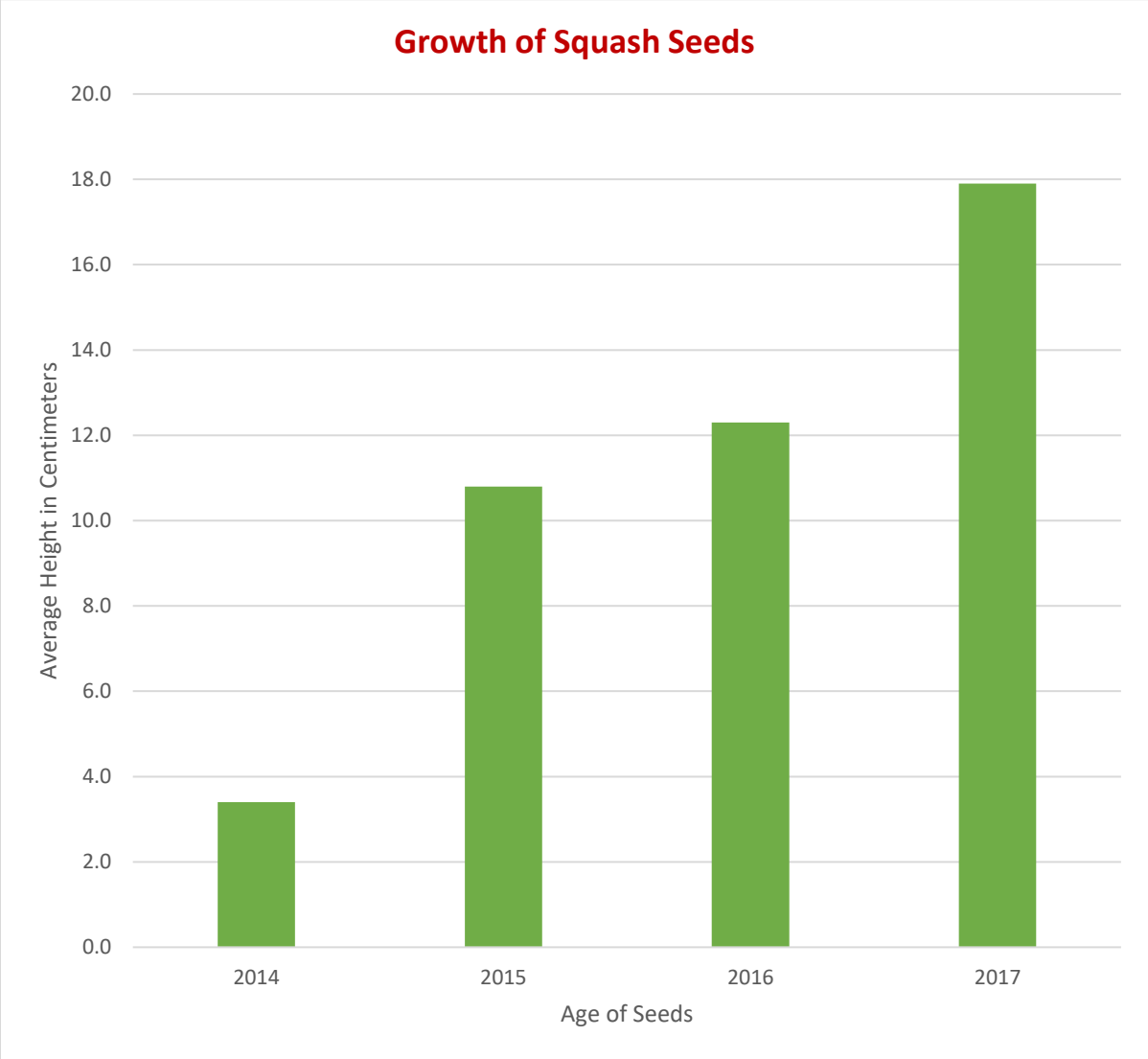
Observations of Seed Growth— 9/18/2017	2014 seeds	2015 seeds	2016 seeds	2017 seeds
red				
orange				I saw a little bit of green pushing up the dirt.
yellow				
green				
blue				
purple				
pink				
aqua				

Observations of Seed Growth— 9/19/2017	2014 seeds	2015 seeds	2016 seeds	2017 seeds
red				
orange			Seed has sprouted.	Seed has sprouted.
yellow				
green				Seed has sprouted.
blue				
purple			Seed has sprouted.	Seed has sprouted.
pink		Seed has sprouted.		
aqua			Seed has sprouted.	

Observations of Seed Growth— 9/21/2017	2014 seeds	2015 seeds	2016 seeds	2017 seeds
red	Seed just barely sprouted.	No growth.		
orange			No growth.	Plant is 6 cm. tall.
yellow	No growth.	Seed just sprouted.		
green			Seed just sprouted.	Plant is 12 cm. tall.
blue	No growth.	No growth.		
purple			Plant is 9 cm. tall.	Plant is 4 cm. tall.
pink	No growth.	Plant is 5 cm. tall.		
aqua			Plant is 5 cm. tall.	Plant is 7 cm. tall.

Observations of Seed Growth— 9/25/2017	2014 seeds	2015 seeds	2016 seeds	2017 seeds
red	13.5 cm	6.5 cm	x	x
orange	x	x	0	15 cm
yellow	0	16 cm	x	x
green	x	x	14 cm	22 cm
blue	0	7 cm	x	x
purple	x	x	20 cm	14.5 cm
pink	0	13.5 cm	x	x
aqua	x	x	15 cm	20 cm
TOTAL	13.5 cm	43 cm	49 cm	71.5 cm
AVERAGE	3.4 cm	10.8 cm	12.3 cm	17.9 cm

Graph of Data



Analyzing Results

We observed that even though the 2015 seeds sprouted later, they still grew fast. We also observed that the 2017 seeds were the tallest, and the 2014 grew the least. Even though one 2016 seed sprouted first, the 2017 seeds grew faster.

The charts and the graph show the average of the 2017 plants was the highest at 17.9 cm, the 2016 was next, the 2015 was next, and the 2014 was the lowest at 3.4 cm.

One reason why the 2017 seeds grew better is they were more recent. The age of the seed is the issue.

Judging by our results, the 2017 seeds and the 2016 are more likely to grow. The 2014 seeds and the 2015 seeds are less likely to grow. This means that newer seeds grow better.

Yes, there were some problems. At the end of the experiment almost all the plants snapped because they fell over and drooped against the cup. One 2016 plant never sprouted, which was unusual compared to the other 2015, 2016, and 2017 plants.

We could improve our experiment by keeping the blinds open more. We had trouble keeping the amount of water the same for all the cups. We could have done more plants for each year.

Conclusion

The orange, yellow, and aqua groups' predictions were correct. They predicted the older seeds would not grow because they would most likely die.

The data proves their predictions to be correct because the height of the 2017 seeds were the tallest. The 2014 hardly grew at all.

We learned that new seeds grew taller than the older seeds. Most of the oldest seeds died.

Our experiment is important because it can tell farmers how old the seeds should be so they can grow more crops for the growing population. Also, if you want to grow a garden, you should know to buy fresh seeds.

This experiment relates to real life because people who have never gardened before need to know which age seeds would grow successfully. It also represents which age seeds grow fast or slow.

One question we have is, will the plants continue to grow after the experiment? We also wonder if the 2014 seeds will EVER sprout.

We could extend the time of our experiment to see which squash grew the largest. We could also see which year stopped growing the first.