

The image features a white background with decorative green leaves and branches in the top-left and bottom-right corners. The leaves are small, oval-shaped, and have a light green color with visible veins. The branches are thin and dark green.

Bird Buffet: Discovering Birds Favorite Seeds

Introduction

My project explores which type of bird seed birds prefer. Bird feeding preferences has an important effect on birds health and the local ecosystem. Scientists that have performed this experiment including Dr. David Horn. He conducted an experiment called “Project Wildlife” which analyzed 1.2 million feeder visits across North America to determine preferences in 10 common bird seeds. Over 100 participants recorded over 1.25 million bird visits at feeders. The most favored seed through his experiment was black-oil sunflower, medium sunflower chips, and white proso millet. This information can help bird seed manufacturers choose the the right seeds in seed mixtures birds will actually eat.

Questions and Predictions

- Question- Which bird seeds do birds prefer to eat?
- Hypothesis- If I test what bird seed birds like to eat the most, then I think the birds will like the black oil sunflower seeds the most because according to my research the sunflower seed is most favored of all the birds including the Cardinal, House Finches, and the Grosbeaks.
- Variables
- **INDEPENDENT**: The different seeds in the bird feeders
- **DEPENDENT**: The amount of bird seed that is most eaten
- **CONSTANTS**: The type of bird feeder, the weather conditions, how high the bird feeder is, and where the bird feeder is the 579 rule. A feeder should be at least 5 feet off the ground, 7 feet away from any structures like fences or trees, and 9 feet below any overhanging branches.

Methods and Procedures

Materials:

1. 3 Platform bird feeders
2. Black oil Sunflower seeds
3. Nyjer (Thistle)seeds
4. Safflower seeds
5. Measuring stick
6. Lab Notebook
7. Optional: Binoculars

Purpose of the Experiment:

The purpose of this experiment is to know which seeds birds like best. I would hope they like the black oil sunflower seed because they have more nutrients. This would help the birds so that the birds can eat them and get more energy they need to pollinate. This experiment could be helpful for other bird watchers or photographers so the seeds would attract the most birds.

Methods and Procedures

Procedures:

1. Load up the Platform bird feeders with the three bird seeds. Record the height of each bird feeder with the seeds. Make sure each platform has the same amount of seeds. Record the time that the bird feeder was placed outside in your front or backyard.
2. Flatten out the bird seeds to get a better height.
3. Place the bird feeder in a convenient location, so birds can access it and you can view and monitor it.
4. Place the Platform feeder in different locations following the 5 7 9 rule and at least 10-15 feet apart. A feeder should be at least 5 feet off the ground, 7 feet away from any structures like fences or trees, and 9 feet below any overhanging branches.
5. Try to monitor the bird feeders regularly to see which they visit the most. In the lab notebook, try to record which birds are coming to the bird feeder and at what time.
6. After 1 week, record the height of the seeds and see which had the most and less amount of seeds. Then repeat this process for the next two trials.

Results and Data

Trial 1

Time: 4:55 Beginning: 5:20pm Ending:5:20pm

Variables:

Sunflower seeds	Safflower seeds	Thistle seeds
0.5 in	0.5 in	0.5 in

Independent – The different seeds in the bird feeder

Dependent – The amount of bird seed that is most eaten

Constants – The type of bird feeder, the weather conditions, how high the bird feeder is, and where the bird feeder is the 579 rule, a feeder should be at least 5 feet off the ground, 7 feet away from any structures like fences or trees, and 9 feet below any overhanging branches.

Results of Trial 1 experiment were:

The results of Trial 1 of this experiment was that the safflower and black oil sunflower seeds were both at the same height 0.5 inches. The Thistle seeds were at the same height 0.5. Yet I think as I was bringing the seeds outside in the front yard some might have fallen because the Thistle seeds are very small.

Observations/ thoughts from my experiment:

My thoughts and observations from this experiment is I think since the bird seeds weren't eaten out of or touched, I think the Platform feeders should be out for a longer time. I also think that hopefully in the next two trials the seeds would get at least some birds since they will be in the same spot and a longer time.

My expectation was that:

My expectations from this experiment was that I thought since I left the bird feeder out for 2 days the birds would recognize the bird feeders and come to them. I didn't see any birds come and go on the feeders and none of the bird feeders got any birds.

Trial 2

Time: 5:20 Beginning: 5:20pm Ending:5:20pm

Variables:

Sunflower seeds	Safflower seeds	Thistle seeds
0.5 in	0.5 in	0.5 in

Independent – The different seeds in the bird feeder

Dependent – The amount of bird seed that is most eaten

Controls – The type of bird feeder,the weather conditions,how high the bird feeder is,and where the bird feeder is the 579 rule, a feeder should be at least 5 feet off the ground, 7 feet away from any structures like fences or trees, and 9 feet below any overhanging branches.

Results of Trial 2 experiment were:

My results for trail 2 is that once again the seeds got left untouched. The safflower, Sunflower, and Thistle seeds all stayed at the same height of 0.5 inches on the bird feeder.

Observations/ thoughts from my experiment :

My thoughts and observations are I think they just needed more time so the birds could recognize the feeders and actually come to them.I think they always need to stay out for a week and somewhere calm and peaceful so the birds can eat.

My expectation was that:

My expectations were that since the bird feeders were out for two days last trial the birds would at least recognize them a little more. Rather than what really happened they all got left un–touched, at the same height of 0.5 inches.

Trial 3

Time: 5:00 Beginning:5:20pm End:5:20pm

Variables

Independent–The different seeds in the bird feeder

Dependent – The amount of bird seed that is most eaten

Controls – The type of bird feeder,the weather conditions,how high the bird feeder is,and where the bird feeder is, the 579 rule, a feeder should be at least 5 feet off the ground, 7 feet away from any structures like fences or trees, and 9 feet below any overhanging branches.

Results of Trail 4 experiment were:

The Safflower seeds were all gone. There were only the safflower seeds shells all over the place and there was a glob of poop in the feeder so it came out as 0 inches. The thistle seeds had a tiny spot of poop in it and it's height was a total of 0.25. For the sunflower seeds there were shells covering the top of the feeder but the bottom still had sunflower seeds not including the shells. It was 0.25 : safflower seeds

Observations/thoughts from my experiment:

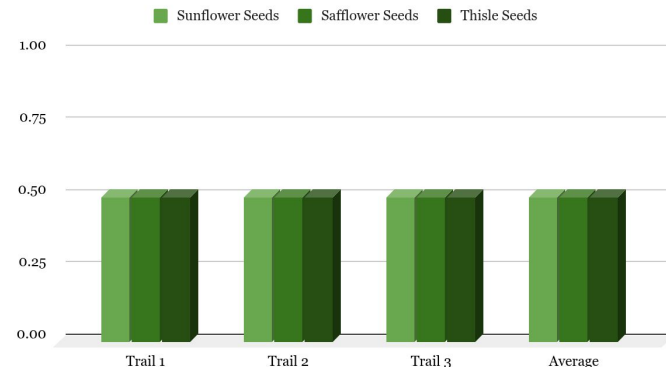
My thoughts on this experiment was that it went very well because birds were always coming to the feeder no matter if it even rained. The birds mostly came to the safflower seeds. I think they might have come to this one because they had a bush nearby so if they saw someone as a threat they could just hide in the bush.

My Expectation was that:

My expectation was that since it was out for a longer time the birds finally realized that there was food out for them.

Sunflower seeds	Safflower seeds	Thistle seeds
0.5 in	0.5 in	0.5 in

Bird Seed Preferences Trails 1-3



Trial 4

Time:5:00 Beginning:5:20pm End:5:20pm

Sunflower seeds	Safflower seeds	Thistle seeds
0.25	0	0.25

Variables

Independent–The different seeds in the bird feeder

Dependent – The amount of bird seed that is most eaten

Controls – The type of bird feeder,the weather conditions,how high the bird feeder is,and where the bird feeder is, the 579 rule, a feeder should be at least 5 feet off the ground, 7 feet away from any structures like fences or trees, and 9 feet below any overhanging branches.

Results of Trail 4 experiment were:

The Safflower seeds were all gone.There were only the safflower seeds shells all over the place and there was a glob of poop in the feeder so it came out as 0 inches. The thistle seeds had a tiny spot of poop in it and its height was a total of 0.25. For the sunflower seeds there were shells covering the top of the feeder but the bottom still had sunflower seeds not including the shells. It was 0.25 inches.

So the favorite seeds in this trail was the safflower seeds

Observations/thoughts from my experiment:

My thoughts on this experiment was that it went very well because birds were always coming to the feeder no matter if it even rained. The birds mostly came to the safflower seeds. I think they might have come to this one because they had a bush nearby so if they saw someone as a threat they could just hide in the bush.

My Expectation was that:

My expectation was that since it was out for a longer time the birds finally realized that there was food out for them.

Trial 5

Time: 5:00 Beginning:5:20pm End:5:20

Sunflower seeds	Safflower seeds	Thistle seeds
0.25	0.125	0.125

Variables

Independent–The different seeds in the bird feeder

Dependent – The amount of bird seed that is most eaten

Controls – The type of bird feeder, the weather conditions, how high the bird feeder is, and where the bird feeder is, the 579 rule, a feeder should be at least 5 feet off the ground, 7 feet away from any structures like fences or trees, and 9 feet below any overhanging branches.

Results of Trial 5 experiment were:

The results of trial five were the sunflower seeds were all gone by about a quarter of the seeds on the floor. Due to the rain and wind during this experiment some of the seeds fell. The safflower seeds were all gone with about 0.125 inches on the floor. The safflowers seeds also had some poop from the birds in the feeder. The thistle seeds had about 0.125 inches left in the feeder with some poop and some fell on the floor.

Observations/thoughts from my experiment:

My observations on this experiment were the Pine siskin, House finch, and the Mourning dove were the only ones that I saw come to all three feeders.

My Expectation was that:

My expectation was pretty similar to what happened, I thought that since in the first trial a lot of birds came and the feeder was practically empty, I thought more birds would come again and there would be different species than just the three that have been coming.

Trail 6

Time: 5:00 Beginning:5:20pm End:5:20pm

Sunflower seeds	Safflower seeds	Thistle seeds
0.125 in	0.125 in	0.125 in

Variables

Independent–The different seeds in the bird feeder

Dependent – The amount of bird seed that is most eaten

Controls – The type of bird feeder,the weather conditions,how high the bird feeder is,and where the bird feeder is, the 579 rule, a feeder should be at least 5 feet off the ground, 7 feet away from any structures like fences or trees, and 9 feet below any overhanging branches.

Results of Trail 6 experiment were:

The results of this experiment was that all of the bird seeds had none left in them. However there were a lot of seeds on the floor due to the rain and wind that caused the seeds to fall. So I would say that about 0.125 inches had fallen on the ground. Nevertheless this trial was very successful having the most birds come to this trial. So the amount of seeds left in all three feeders would be about 0.125 inches.

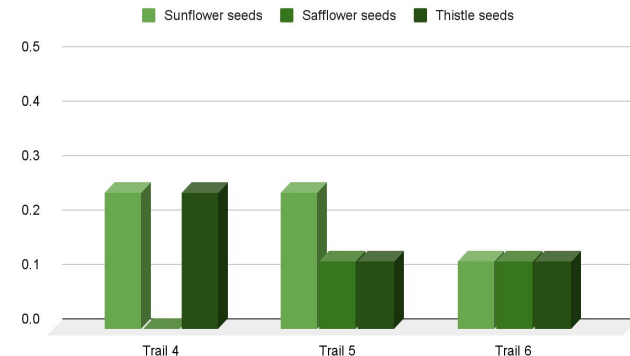
Observations/thoughts from my experiment:

Throughout this trial I've noted that even though there was some rain, birds still came after the rain. I also saw that a lot of seeds fell out of the feeders and it would be better if the bird feeders had a more stable branch that it could hang on.

My Expectation was that:

My expectation was that the birds would like the sunflower seeds the most but the bird still ate the sunflower. They just favored the safflower and thistle seeds.

Bird Seed Preferences Trails 4-6



Closing

In closing, this experiment went very well, with 5 different species of birds coming to my bird feeders including the Pine Siskin, House Finch, Mourning Dove, American Woodpecker, and the Lesser Goldfinch. In my first three trials no birds came but when I did three more trials about 4 weeks later I got 5 species of birds. During the fourth trial I got the Pine siskin, House finch, and Mourning dove going to all three of the bird seeds and the favorite seed this trail was the safflower seeds with all the seeds gone. In the fifth trial I got the same three coming to the bird feeder with the favorite of this trial being the safflower and thistle seeds. In the sixth I got a Lesser Goldfinch and the Arizona woodpecker plus the first three birds with the most eaten being the . Overall the most favorite bird seed of the whole experiment was the Safflower seeds. My hypothesis was: If I test what bird seed birds like to eat the most, then I think the birds will like the black oil sunflower seeds the most because according to my research the sunflower seed is most favored of all the birds including the Cardinal, House Finches, and the Grosbeaks. This hypothesis was invalid because I said that the birds would like the black oil sunflower seeds the most but the birds ate the safflower seeds the most.

From this project I learned that birds here in Tucson, Arizona like the safflower and thistle seeds the most and like the platform feeder because they have more space and allow them to lay and rest in them as the Mourning dove did. I also learned that you have to be patient and wait for the birds to come because of the calm environment they like. The questions I have for this experiment are: Why didn't the birds like the sunflower seeds? Why did no birds come the first three trials but they came the last three? Why did birds prefer the safflower seeds over the rest? Changes I would make to this experiment if I were to do it again are the time and day of when I put the bird feeder out and I would make the time I leave the bird feeder outside longer

Reflection

After thinking about it, I think my experiment was successful because of how many birds came. I was very excited to see 5 different species come to my feeders throughout the trials. Although my first three trials didn't turn out as well, I still think that there might have been some complications like how they only had 2 days outside compared to how I changed it. If I were to do this experiment again I would change the time and how long I let the bird feeders outside. I would change the time of day to the early mornings because this is when birds in Arizona are more active during the winter. I would let the bird feeders outside for a long period, like one to two weeks. Next time I test this experiment I would also try getting more information on my sources because I would want to get more research on birds migratory patterns and when birds are most active.

My experiment benefits the world because some birds need high quality nutrition to pollinate plants. The data and information I have collected will help you decide which bird seeds to use to nurture birds in Arizona. This experiment can also be beneficial to birds because it will help birds survive in harsh environments and if this experiment goes to the right birdseed manufacturer they can change their food mixes based on real data. This project can also help bird lovers because they can choose bird seeds birds will actually eat, keep them well nutritious, and reduce waste, which is all the bird seed shells that fall on the floor. The purpose of this experiment is to know which seeds birds like best. I would hope they like the black oil sunflower seed because they have more nutrients. This would help the birds so that the birds can eat them and get more energy they need to pollinate. This experiment could be helpful for other bird watchers or photographers so the seeds would attract the most birds.

Citations

Source 1

Title:Best seeds for feeding wild birds in tucson

Website:<https://localyardandgarden.com/best-seeds-feeding-wild-birds-tucson>

Citation: Friedman, J. (2020, July 5). *Best seeds for feeding wild birds in Tucson*. Local Yard & Garden Resources. <https://localyardandgarden.com/best-seeds-feeding-wild-birds-tucson>

Source 2:

Title: Identify 25 bird species Visiting Backyard bird feeders in Arizona

Website:<https://avianreport.com/identify-backyard-feeder-birds-arizona/>

Citation: Begazo, A. (2025, April 24). *Identify 25 bird species visiting backyard feeders in Arizona*. Avian Report. <https://avianreport.com/identify-backyard-feeder-birds-arizona/>

Source 3

Title:Promoting Bird Health In The Backyard

Website:<https://tucson.wbu.com/sick-birds-tucson-bird-feeders>

Citation: Wild Birds Unlimited - Nature Shop. (n.d.). <https://tucson.wbu.com/sick-birds-tucson-bird-feeders>

Source 4

Title:How to choose the right kind of bird feeder

Website:<https://www.allaboutbirds.org/news/how-to-choose-the-right-kind-of-bird-feeder/>

Citation: Powell, H. (2025, February 24). *How to choose the right kind of bird feeder*. All About Birds. <https://www.allaboutbirds.org/news/how-to-choose-the-right-kind-of-bird-feeder/>



This is an image of a Pine siskin with a safflower seed in its mouth.

This is the platform feeder with the Thistle seeds in at the start of the trial.



This is a photo of a Mourning dove and Pine siskin eating out of the safflower seeds.



This is the Safflower seeds at the end of the trial.

