

Learning Standards and Assessment Vegetable varieties investigation (Vvi)

Vvi is a companion program to [Vegetable Varieties for Gardeners](#) (VVfG). Vvi is designed to engage youth participants in interviewing gardeners about their opinions on vegetable varieties, and submit their findings to the online library of vegetable variety data. Gardeners, plant breeders, and horticulture researchers use findings reported by Vvi youth participants.

These sections are geared toward educators in formal classroom learning settings.

- Main Performance Indicators**
- Research**
- Science Learning**
- Assessment Tools**

Main Performance Indicators

Commencement level:

- Explain the importance of preserving diversity of species and habitats.
- Describe the range of interrelationships of humans with the living environment.

Intermediate level:

- Describe sources of variation in organisms and their structures and relate the variations to survival.
- Describe how living things, including humans, depend upon the living environment for their survival.

Research

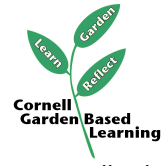
The research objective of this project is to determine the success of specific vegetable varieties in relation to particular growing conditions and desired outcomes by gathering gardeners' opinions.

Research Questions:

- What are the characteristics of the gardener's growing site?
- What is the gardener's experience level?
- What vegetable crops does the gardener grow?
- On a scale of 1 to 5, how does the gardener rate particular vegetable varieties with regard to overall satisfaction, taste, ease/reliability, and yield?

Why is researching Vegetable Varieties for Gardeners important?

Choosing the right plant for the right location is one of the most critical factors in both gardening success and ecological stability and sustainability. However, research on the performance of vegetable varieties is often limited to commercial production. Home and community gardens are frequently overlooked, in part, because visiting thousands of gardens to collect data would be an overwhelming task.



Yet, collectively, gardeners possess an astonishing amount of knowledge about vegetable varieties. By compiling the opinions of a wide range of gardeners, a valuable pool of information is produced. Gardeners learn from gardeners. Scientists, plant breeders, and seed companies learn from gardeners. Their collective knowledge is available for the success of future generations and the promotion of biodiversity.

Why is promoting biodiversity important?

Diversity is one of the principle qualities of nature, and essential to ecological stability and sustainability. Historically, farmers across the world raised thousands of vegetable varieties that were uniquely adapted to specific climates and conditions. With the advent of industrial agriculture and mass commercial production, selection of vegetables focused on fewer varieties which produce heavy yields and withstand transport across great distances. Consequently, vegetable varieties which evolved over thousands of years to grow in certain conditions and for a particular flavor were lost in many plant breeding programs. Continual decrease in the number of varieties grown will ultimately lead to the loss of unique genetic information and characteristics that can lead to local adaptation. With a limited gene pool, crop success can become more dependent on heavy inputs of fertilizers, pesticides, and irrigation.

Unlike commercial agriculture, gardeners have traditionally chosen vegetable varieties for their superior taste, acclimation to unique growing conditions, and cultural and historic significance. Centuries of effort by gardeners have diminished the loss of unique genetic information. And tapping gardeners' experience and knowledge now will help us catalogue and preserve the diversity of our vegetable varieties history for future success and sustainability.

Science Learning

Vvi is a great opportunity for youth to learn about two aspects of science:

1. Skills critical for science inquiry, or “doing science.”
2. Content, which includes facts and concepts.

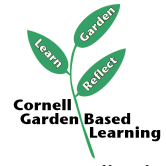
“Skills for Inquiry” Learning Objectives

Conducting the Vegetable Varieties Investigation with youth will help youth learn the following skills critical in developing and testing hypotheses:

- ✓ Master concepts (such as vegetable crops, types, and varieties) and the value of carrying out a specific protocol in order to gather quality data.
- ✓ Learn and apply interview skills to gather opinions from gardeners using specific survey approaches and data forms.
- ✓ Synthesize and transfer verbal information from gardeners to data forms.
- ✓ Submit data electronically by transferring written data to online data forms.
- ✓ Reflect on data collected to shape content and approaches for further inquiry investigations they might carry out on their own.

“Content” Learning Objectives

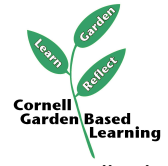
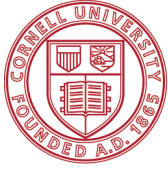
Conducting the Vegetable Varieties Investigation with youth will help youth learn the following facts and concepts:



- ✓ Vegetables, vegetable varieties, and particular characteristics of different vegetable varieties.
- ✓ Physical, biological, cultural and ecological science concepts related to the garden environment, vegetables crops, and vegetable growing practices.
- ✓ The historical and contemporary importance of biodiversity and how it links to vegetable varieties in gardens, agricultural systems, and the produce section of our grocery stores and farmers markets.

Assessment Tool

<i>Skills for Inquiry Learning Objectives</i>	<i>Evidence of Learning</i>
<p>Master concepts and the value of carrying out a specific protocol in order to gather quality data.</p> <p>Learn and apply interview skills to gather opinions from gardeners using specific survey approaches and data forms.</p> <p>Synthesize and transfer verbal information gathered from gardeners to data forms.</p> <p>Submit data electronically by transferring written data to online data forms.</p> <p>Reflect on data collected to shape content and approaches for further inquiry investigations.</p>	<p>The Vvi activities and the interview planning discussion are evidence of youth's ability to understand how the survey questions relate to specified research questions.</p> <p>The completed data forms are evidence of youth's ability to effectively apply their interview skills to gather the appropriate data.</p> <p>The appearance of youth's collected information in the online database is evidence of youth's ability to submit data electronically.</p> <p>Youth participation in the post interview discussion indicates youth ability to relate skills to future inquiry projects.</p>
<i>Content Learning Objectives</i>	<i>Evidence of Learning</i>
<p>Vegetables, vegetable varieties, and particular characteristics of different vegetable varieties.</p> <p>Physical, biological, cultural and ecological science concepts related to the garden environment, vegetables crops and vegetable growing practices.</p> <p>The historical and contemporary importance of biodiversity and how it links to vegetable varieties in gardens, agricultural systems and the produce section of our grocery stores and farmers' markets.</p>	<p>Initial and closing activities and discussions about vegetable gardening, vegetable varieties, gardener responses, and biodiversity will help assess changes in youth knowledge about key concepts.</p> <p>The quality of the data the youth collected on the Gardener Profile and Rate this Variety Forms will also indicate understanding of concepts.</p>



Additional ideas for collecting evidence of learning:

- Use sign-in sheets, data collection forms, notes, and photos to help you remember who participated and important learning moments during the Vegetable Varieties Investigation.
- During the interview(s), notice the youths' interview skills and interactions with the gardeners. Are they able to obtain the information needed to complete the Vegetable Varieties data forms? Do they ask follow-up questions? Do they ask new questions based on their own interest in the gardener's responses?
- Use a camera to document youth participation in the interviews. You may already be using a camera to take photos of the gardener and plants in the garden, but you can also take pictures of the youth as they conduct the activity.

Ideas for further assessment of learning:

- Compile best and poorest rated varieties from the gardeners interviewed, or create a list of recommended vegetable varieties by crop for the local garden or community at large. Youth can post the results in the garden for other gardeners to see and add them to their scrapbook/documentation.
- Youth may ask the gardeners for a recipe that reflects the cultural use of a vegetable variety they grow. They can write up the recipe along with a description of the plant and the role it plays in the gardener's culture. Make copies of the recipe for youth to take home and share with their families. These can also be posted in the garden for others to use or compiled for a book or program website.