

RURAL NATURE OF NYS

20 – Agriculture/2

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1

Agriculture Exercise

Required Exercise 13 looks at agriculture within the regions and compares county production and trends to NYS averages.

➤ **It is due by May 1.**

2

Agricultural Regions

Based on historical and potential use.

Why this pattern?

CLIMATE

LANDFORMS

Appalachian Upland Dairy Region	North Country Dairy Region
Central Wood Farming Region	Western Wood Farming Region
East Central Dairy Region	W. N.Y. Pasture/Traffic Dairy Region
Long Island Dairy Region	North West Agriculture
Long Island Wood Farming Region	Western Woodland Dairy Region

<https://www.acrevalue.com/map/NY/> aerial land use survey

URBAN

Economic Geography of Agricultural Regions

❖ What determines the quality and its use for farming?

- What constitutes an agricultural region?
- What geographic factors would a person look for if seeking farmland?

<p>PHYSICAL</p> <ul style="list-style-type: none"> ▪ Topography (slope) ▪ Climate (esp. length of growing season) ▪ Water supply ▪ Soil 	<p>MARKET</p> <ul style="list-style-type: none"> ▪ Price of commodity ▪ Market demand ▪ Distance to market ▪ Overhead costs (as labor, taxes, power, regulations)
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WHAT IS SOIL?

The top layer of the earth composed of organic and inorganic material created over time in reaction to temperature and moisture working on parent material (bedrock).
Varies locally with conditions.

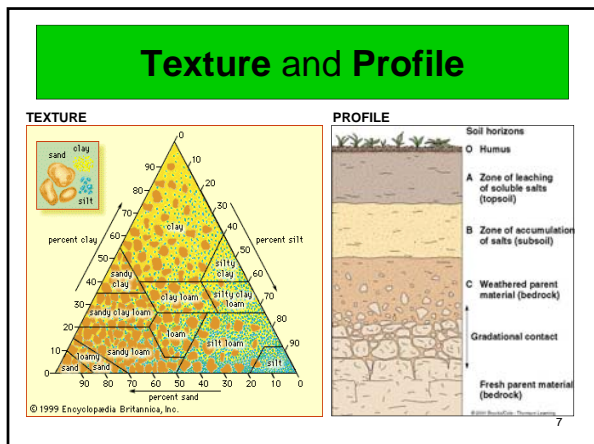
Read the **SOILS of NYS** handout from the home page.

5

Factors in Soil Analysis

- **Texture** – grain size of soil (sand-silt-clay ratio)
- **Structure** – the way soil particles hold together
- **Drainage** – the way water is retained
- **pH** - soil acidity and the ability of roots to absorb nutrients
- **Soil profile** – the layers (horizons) of a soil

6



Nature of New York's Soils

- ✓ Relatively **young** soils: post-glacial.
- ✓ Formed from **transported material**: soil, glacial till and scoured bedrock; variety of nutrients.
- ✓ Scoured **bedrock near the surface**: source of soluble minerals.
- ✓ Soils **vary locally**: slope angle, sun orientation, ground water.

NYS Soil Pattern

- ❖ **Best soils** are found on **lime-rich glacial till** that is **fine-textured** and on **level to rolling land**.
- **Good drainage** is important.
- Highly organic **muck soils** are found at the sites of glacial lakes.
- **Poorest soils** are thin, acidic and steep-sloped.
- In some areas there is a **boulder problem**.

County Soil Surveys

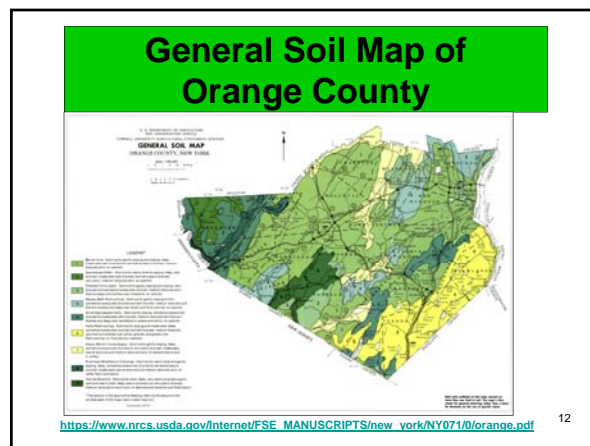
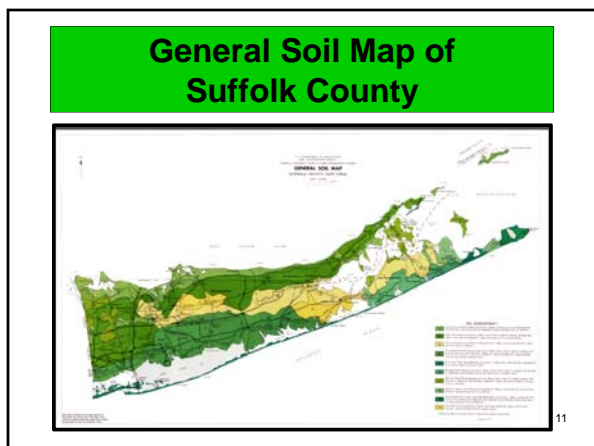
Soil surveys provide a detailed analysis and mapping of local soils.

https://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/new_york/

They are important for programs in agriculture, road and building construction, flood control, land preservation (esp. wetlands), and soil conservation.

<https://www.nrcs.usda.gov/wps/portal/nrcs/surveylist/soils/survey/state/?stateid=NY> : USDA Soil Survey of NYS

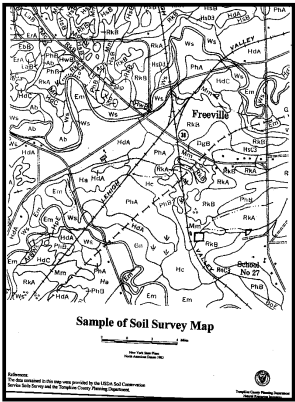
- https://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/new_york/NY025/0/Delaware.pdf Delaware county report (631 pages long)
- https://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/new_york/NY065/0/oneida.pdf Oneida County Survey pdf (1200 pages long)



Detail of Soil Survey Map: Tompkins Co.

Soils vary in composition and fertility within short distances. Factors include:

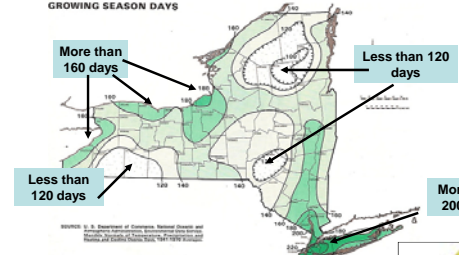
- drainage
- source material
- slope angle
- vegetation cover
- sun orientation



Sample of Soil Survey Map

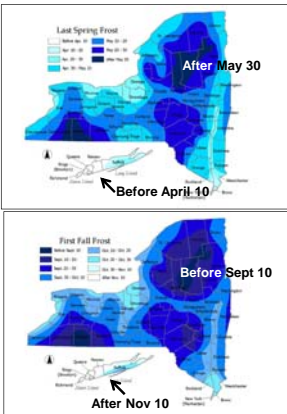
Growing Season

GROWING SEASON DAYS



GROWING SEASON: the period between the last killing frost of the spring and the first killing frost of the autumn.

Average Dates of Killing Frosts



Last Spring Frost

After May 30

Before April 10

First Fall Frost

Before Sept 10

After Nov 10

Growing Degree Days

❖ **Growing Degree Days (GDD)** is a tool used to predict the date that a plant or insect will reach a particular stage in its growth cycle.

- Relates crop growth and insect development to temperature.
 - Computed by subtracting a base temperature (50°F) from the average temperature for the day (simplest description).
- Used by some farmers to schedule their use of pest controls.
 - Example: Apply the treatment at the point that the pest is most vulnerable.

Growing Degree-Day Tracker

❖ **Growing Degree-day (GDD) Tracker** is a measure of **heat accumulation** during a growing season and compare it to the norm for the same period.

Many events associated with plant and insect life cycles depend on heat accumulation. These events can be predicted based on temperature readings from the start of a season.

➤ **Events cannot be reversed, only slowed, by a lack of heat.**

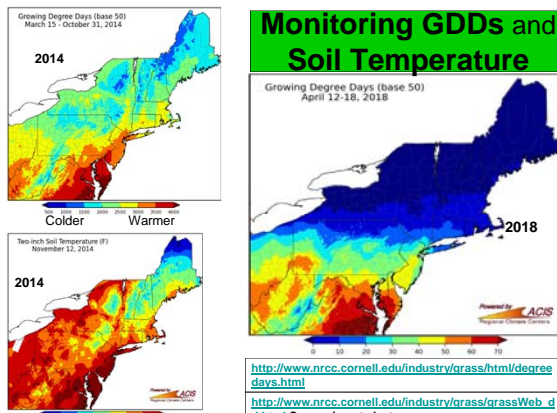
Examples:

- Sprouting of seeds
- Blossoming of flowers
- Ripening of fruit
- Hatching of insect eggs
- Appearance of pests
- Appearance and spread of plant disease

<http://climatesmartfarming.org/tools/csf-growing-degree-day-calculator/> (Cornell Univ. calculator)

<http://www.nrc.cornell.edu/industry/grass/html/> - Cornell Univ. site

Monitoring GDDs and Soil Temperature



Growing Degree Days (base 50) March 15 - October 31, 2014

2014

Colder Warmer

Two-inch Soil Temperature (F) November 12, 2014

2014

Growing Degree Days (base 50) April 12-18, 2018

2018

Powered by ACIS Regional Climate Centers


<http://www.nrc.cornell.edu/industry/grass/html/degree-days.html>

http://www.nrc.cornell.edu/industry/grass/grassWeb_d.html Comparison to last year

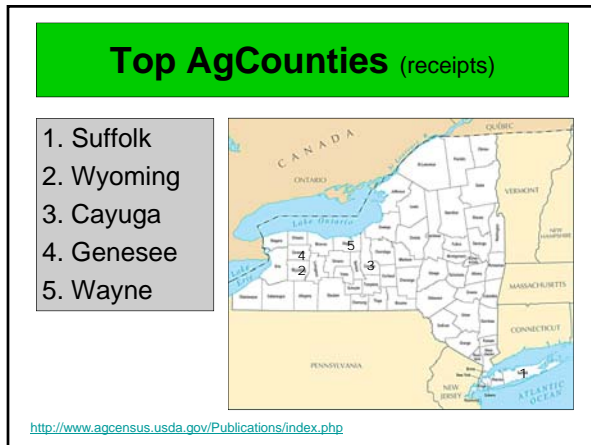
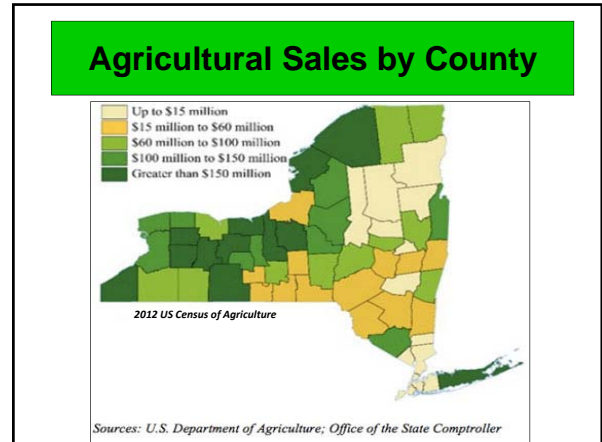
Weather and Crops

- ❖ The National Agricultural Statistics Service (NASS) of the US Dept of Agriculture (USDA) issues weekly *Crop Progress and Conditions Reports* for every state during the growing season.
- Weather conditions (too wet; too dry; too cold; too warm) affect all stages of the agricultural process (crop planting, growing, harvesting; raising of poultry and livestock).
- Weather conditions will influence quality, yield and price of the commodity.

https://www.nass.usda.gov/Statistics_by_State/New_York/Publications/Crop_Progress_&_Conditions/index.php Weather and Crop Conditions



County	Last Week Weather Summary			Temperature		Precipitation		Evaporation		Soil Moisture	
	Max	Min	Total	Max	Min	Actual	Potential	Top 2"	2-4"	4-8"	8-12"
Albany	58	38	2.00	43	23	0.00	0.00	100	100	100	100
Albany	58	38	2.00	43	23	0.00	0.00	100	100	100	100
Albany	58	38	2.00	43	23	0.00	0.00	100	100	100	100
Albany	58	38	2.00	43	23	0.00	0.00	100	100	100	100
Albany	58	38	2.00	43	23	0.00	0.00	100	100	100	100



Maple Syrup



How the sap flows

Sap flow from sugar maples is an entirely temperature dependent process. How it works:

- NIGHT** Below-freezing temperature. When the temperature falls to near or below freezing, the pressure inside the tree may become negative in relation to atmospheric pressure.
- DAY** Warmer temperature. During the day, the warmer temperature creates pressure inside the tree that pushes the sap back down to the bottom and through the spouts.

As the maple tree begins to freeze, sap is sucked up into the tree through large wood pores that connect with the tree's roots. The flow continues while the cycle of warm and below-freezing temperatures repeats.

Maple syrup was first discovered by Native Americans who taught the European settlers the process of retrieving and processing the sap. Maple trees store starches during winter which turns to sugar in spring.

<https://www.nysmaple.com/> Official site of NYS maple syrup producers.

<< NW of Monticello in Catskills, 2.5 hr drive.

<https://www.youtube.com/watch?v=OvqALfkB2CU> Cornell Univ Maple Syrup program

Pumpkins

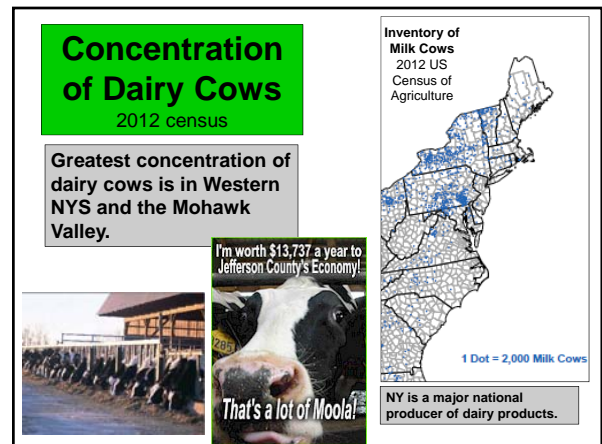
NYS is usually a top (ranking 1st, 2nd or 3rd annually) pumpkin growing state in the nation.



U-pick Pumpkins
Pumpkin Patch in the Hudson Valley

OCHS ORCHARD
Route 94
Warwick, NY 10990
845-986-1591
OCHSORCHARD.NET

PICK YOUR OWN FOR EVERY SEASON



Dairy Farming Landscape

Northern NYS
Clinton County



AgriTourism



Central NYS



Apple Orchards

New York Orchards



NY is a top 5 national supplier of fruits and berries.








Grape Regions

NY is a top grape growing and wine producing state


WINE GRAPES




WINE GRAPES




WINE GRAPES



WINE GRAPES




WINE GRAPES



Wine Regions

The Finger Lake wine region was the first to rival California and European wine production. Now Long Island wines are being acclaimed.



Long Island Vineyards







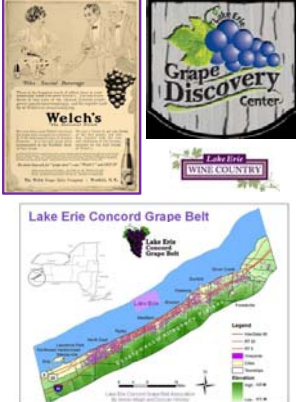
Finger Lake Vineyards









Welch's


Lake Erie Concord Grape Belt

<http://www.grapediscoverycenter.com/exhibits>

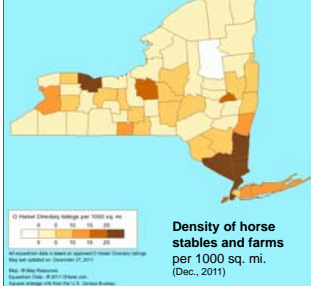
Western NYS Vineyards



Welch's vineyards overlooking Lake Erie.



EQUINE INVENTORY



Density of horse stables and farms per 1000 sq. mi. (Dec., 2011)


HORSE FARMING
 One of the fastest growing industries in NYS until 2008.
 1960 – 12 farms
 1980 – 450 farms
 2000 – 11,000 farms
 2006 – 13,900 farms
 2012 – 11,400 farms
 2017 – ???

In 2017, NYS horse inventory ranked **5th** in value among the 50 states

Good natural conditions:
 Grass to the end of November
 Local hay and oats
 Rolling terrain for muscles and stamina

Benefits:
 Preserves rural landscape with the negative aspects of dirt farming.
 Caters to both the racing industry and leisure time recreation.
 Over half the horses are kept for leisure activities.





EQUINE INVENTORY



Category	Count
Pleasure	87,000
Other	25,800
Breeding	26,900
Lessons	11,100
Racing	14,500
Competition	27,000
Specialty	4,700

There are 202,000 Equines in NYS

Pleasure 44%
 Lessons
 Competition 14%
 Racing
 Breeding 14%
 Specialty
 Other

NEXT

Nature of Urban New York