New York is an Agricultural State

<table>
<thead>
<tr>
<th>2012 NATIONAL RANK</th>
<th>COMMODITY</th>
<th>2012 NATIONAL RANK</th>
<th>COMMODITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Tot. Value, Agric Products</td>
<td>5</td>
<td>Artichokes</td>
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<tr>
<td>27</td>
<td>Number of farms</td>
<td>5</td>
<td>All fresh vegetables</td>
</tr>
<tr>
<td>1</td>
<td>Pumpkins</td>
<td>5</td>
<td>Onions</td>
</tr>
<tr>
<td>1</td>
<td>Cabbage</td>
<td>5</td>
<td>Horseradish</td>
</tr>
<tr>
<td>2</td>
<td>Apples</td>
<td>5</td>
<td>Ducks</td>
</tr>
<tr>
<td>2</td>
<td>Maple syrup</td>
<td>6</td>
<td>Christmas trees</td>
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<tr>
<td>2</td>
<td>Squash</td>
<td>8</td>
<td>Strawberries</td>
</tr>
<tr>
<td>3</td>
<td>Corn silage</td>
<td>8</td>
<td>Sweet cherries</td>
</tr>
<tr>
<td>3</td>
<td>Cauliflower</td>
<td>8</td>
<td>Oats</td>
</tr>
<tr>
<td>3</td>
<td>Snap peas</td>
<td>9</td>
<td>all Floriculture</td>
</tr>
<tr>
<td>3</td>
<td>Milk coex (milk/sour)</td>
<td>10</td>
<td>Blueberries</td>
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<tr>
<td>3</td>
<td>Cucumbers</td>
<td>14</td>
<td>Potatoes</td>
</tr>
<tr>
<td>4</td>
<td>Dairy products</td>
<td>15</td>
<td>Aquaculture</td>
</tr>
<tr>
<td>4</td>
<td>Pears</td>
<td>21</td>
<td>Grain corn</td>
</tr>
<tr>
<td>4</td>
<td>Snap beans</td>
<td>22</td>
<td>Soybeans</td>
</tr>
<tr>
<td>4</td>
<td>Sweet corn</td>
<td>22</td>
<td>all Hay</td>
</tr>
<tr>
<td>5</td>
<td>Tomatoes</td>
<td>22</td>
<td>Eggs</td>
</tr>
<tr>
<td>5</td>
<td>Tomatoes</td>
<td>32</td>
<td>Wheat</td>
</tr>
</tbody>
</table>


Agriculture Exercise

Required Exercise 15 looks at agriculture within the regions and compares county production and trends to those of NYS.

It is past due but needs to be completed.

10% of final grade

Early Agriculture

The Native Americans were skilled in agriculture but limited by their lack of iron tools and beasts of burden.

- The "slash and burn" method of agriculture was employed; ash residue fertilized the soil.
- Fields were planted annually until crop yield lowered (usually after 7-10 yrs).
- Chief crops were corn, beans and squash, called the Three Sisters.
- No orchards but a variety of fruits, nuts and berries were gathered from the forest.
- Animals and fowl were hunted for meat; eggs were gathered.
- Fish were an important dietary supplement.


Early Agriculture

- The Dutch appreciated the fertile land, good climate, ample water (without the drainage problem) and the ample forest resources; limited their farms to areas close to the shore and along the Hudson.
- The English learned techniques from the Iroquois and introduced European plants and domesticated animals to the New York Colony. They cleared the land and built fences.
- The Americans replaced corn as the main field crop with grains (wheat/oats/barley/flax/hemp) in early 1800s.
Early Agriculture
NY became the granary of the new USA (early 1800s).
However on the farm:
- Quality of cattle was poor – no selective breeding; little food in winter for them; minimal grazing in summer – they were lean and provided little milk.
- Pigs were widespread, self-sufficient and an important food source.
- Sheep were kept in small numbers mainly for wool.
- Chickens were kept for their eggs.
- Apples were the chief fruit used as both a food and beverage.

19th Century Agriculture
- After 1825, the Erie Canal shifted population inland; enabled speedier movement of harvests to market and supplies back to the farm.
- Scientific farming methods used; horses in cities provided manure for farms, increasing production.
- The ample NYS harvests and the reduced price of food fed the cities of the mid-1800s.
- By the late 1800s, the US agricultural heartland had moved to the Midwest.
- NYS farms were now at a disadvantage.
  - Quality of location changes with time!!

20th Century Agriculture
- Throughout the 20th century, NYS agriculture continued to decline.
- Farms were abandoned, taken over by agricultural corporations or sold to non-farm developers.
- Suburbanization invaded the farmland that surrounded the cities (especially around NYC after WWII).
- Remaining farms grew in size and specialized.
- Focus changed: provide the cities with fresh fruits, vegetables, dairy, and most recently, with sod and horticultural plants.
- In spite of this, NYS today is a high ranking agricultural state in certain products.

Trends in Agriculture
- Today (2013 data) farmland and pastureland occupy about 23% of the state (down from 49% in 1954).
- Number of farms has decreased: 36,000 from 104,000 in 1954
- Average size of a farm has increased to 197 acres/farm (up from 150 acres/farm in 1954).
- During the 20th century, farms in less fertile areas near cities tend to be overpriced.
  - Farm owners face property value hardships, esp. with tax rates (actual use vs. potential use).
  - Farms near populated areas tend to be regulated for noise, smell, dust and water pollution issues.

Farmland Preservation
NYS is a leader in preserving farmland.
- 1974 Suffolk County becomes the first county in NYS to regulate resale of farm land.
- 1992 NYS Farmland Protection Program created to preserve farmland and reduce economic pressure on owners by providing funding to struggling farms.
Agricultural Regions

Based on historical and potential use.

Why this pattern?

Economic Geography of Agricultural Regions

What determines the quality and use of farmland?
- What constitutes an agricultural region?
- What would a person look for if seeking farmland?

PHYSICAL
- Topography (slope)
- Climate (esp. length of growing season)
- Water supply
- Soil

MARKET
- Price of commodity
- Market demand
- Distance to market
- Overhead costs (as labor, taxes, power, regulations)

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.

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

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 and sun orientation.
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.

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


Be Print Careful. A 919-page document!

General Soil Map of Orange County


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

Growing Season

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

http://hurricane.ncdc.noaa.gov/cgi-bin/climatenormals/climatenormals.pl

Average Dates of Killing Frosts

http://hurricane.ncdc.noaa.gov/cgi-bin/climatenormals/climatenormals.pl
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

Growing Degree-Day Tracker

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.

Top AgCounties (receipts)

1. Suffolk
2. Wyoming
3. Cayuga
4. Genesee
5. Wayne

Pumpkins

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

NY is a top grape growing and wine producing state.

Long Island Vineyards

Greatest concentration of dairy cows is in Western NYS and the Mohawk Valley.

NY is a major national producer of dairy products.

NY is a top 5 national supplier of fruits and berries.
HORSE FARMING
One of the fastest growing industries in NYS
1960 – 12 farms
1980 – 450 farms
2000 – 11,000 farms
2006 – 13,900 farms
2012? – expect decrease

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.

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

NYS ranks in the top 5 states nationally.

EQUINE INVENTORY
There are 197,000 Equines in NYS
87,000 Pleasure 44%
11,100 Lessons 5%
14,500 Racing 7%
26,900 Breeding 14%
4,700 Specialty 2%
25,800 Other