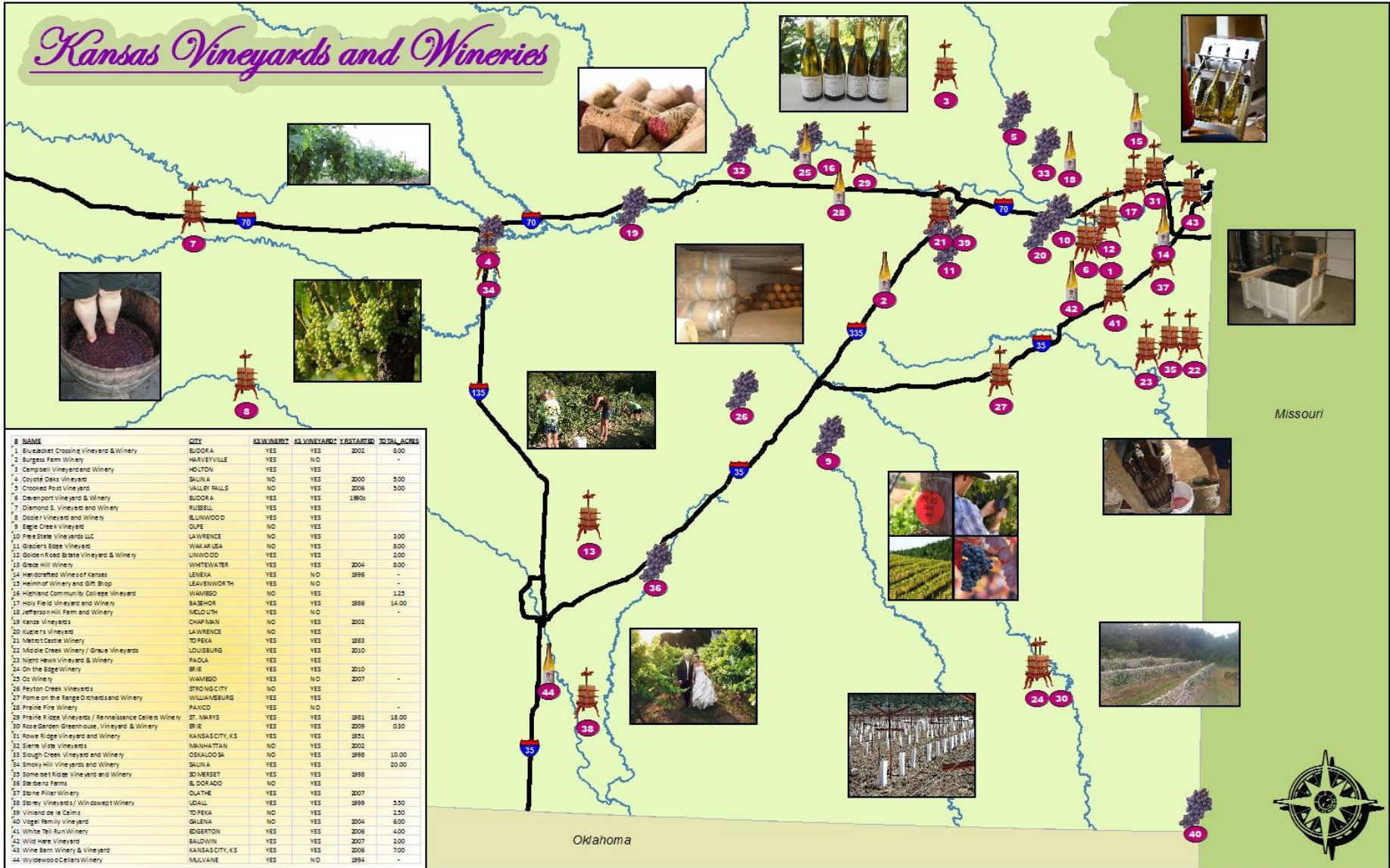


The Geography of Wine: Reign of Terroir

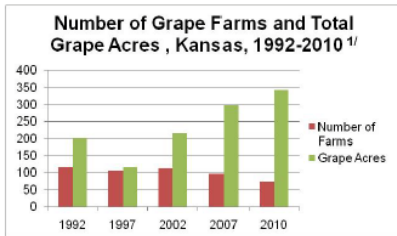




Cooperating with the Kansas Department of Agriculture
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Released: September 30, 2011

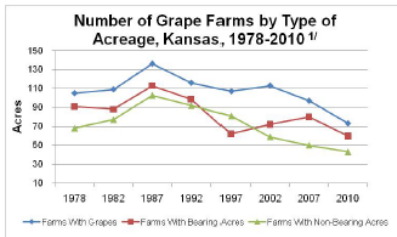
Total Grape Acres Up from 2007

Total acres of grapes in Kansas vineyards continues to grow. There were 342.1 acres of grapes in Kansas in 2010, up 14 percent from 299 acres in 2007. The number of farms with grape vines, at 73 farms, is down from 99 in 2007.



^{1/} Data from 1992 through 2007 are from Census of Agriculture.

Grape growers reported 223.3 bearing acres of grapes in Kansas in 2010, up 6 percent from 210 bearing acres in 2007. Acres with non-bearing vines increased as well. There were 118.8 non-bearing acres reported in Kansas during 2010, an increase of 33 percent from 2007.



^{1/} Data from 1978 through 2007 are from Census of Agriculture.

Although grape acres are up, the number of farms with grapes in Kansas has been declining since its peak in 1987 at 136 farms. Farms with bearing acres did however show a slight increase from 1997 to 2007 before declining in 2010.

Chambourcin and Norton were the most commonly reported varieties of bearing and non-bearing acreage, claiming nearly identical percentages for both in 2010. Norton did edge out Chambourcin in harvested acres by 2.2 percent of the State total.

Type of Acreage	Chambourcin	Norton (Cynthiana)
Bearing Acres	26.7	26.5
Percent of Total	12.0%	11.9%
Non-Bearing Acres	14.8	15.2
Percent of Total	12.5%	12.8%
Harvested Acres	20.6	24.5
Percent of Total	11.8%	14.0%

There were 174.7 acres of grapes harvested in Kansas in 2010. Norton, Chambourcin, and Seyval Blanc were the top three varieties harvested. There were 24.5 acres of Norton harvested. Chambourcin trailed with 20.6 acres, while Seyval Blanc accounted for 13.1 acres.

Variety	Harvested		Percent of Total
	Tons	Percent	
Chambourcin	52.5	14.8	
Seyval Blanc	34.8	9.8	
Norton (Cynthiana)	29.0	8.2	
Traminette	22.6	6.4	
Vignoles	21.1	5.9	
St. Vincent	18.9	5.3	
Marquette	18.1	5.1	
Cabernet Franc	15.6	4.4	
Chardonel	13.9	3.9	
Noiret	12.7	3.6	
All Other	115.5	32.6	
Total	354.7	100.0	

Kansas grape growers produced 354.7 tons of grapes in 2010. Chambourcin accounted for 52.5 tons, 14.8 percent of the total production. Seyval Blanc was a distant second with 34.8 tons, and Norton (Cynthiana) followed with 29.0 tons. There were nearly 50 different varieties reported grown in Kansas in 2010.

There were 139.3 tons of grapes sold by grape growers in Kansas during 2010. Virtually all grapes sold were to recipients in Kansas. Chambourcin was again the most widely sold variety, with 14.8 tons sold. Noiret followed with 12.7 tons sold.

Kansas Grape Varieties, 2010

Variety	Bearing	Non-Bearing	Harvested	Total Production	Yield	Sold	Used	Species
	Acres			Tons	Tons/Harv. Acre	Tons		
Cabemet Franc	6.9	2.9	6.9	15.6	2.3	7.2	8.4	Vitis Vinifera
★ Catawba	5.6	1.8	1.3	1.5	1.2	1/	1/	Native American
Cayuga White	3.3	1.3	1.3	0.9	0.7	0.0	0.9	French-Am. Hybrid
Chambourcin	26.7	14.8	20.6	52.5	2.5	14.8	37.6	French-Am. Hybrid
Chardonel	6.4	3.5	6.4	13.9	2.2	1/	1/	French-Am. Hybrid
★ Concord	7.3	1/	5.1	3.5	0.7	1/	1/	Native American
★ Fredonia	6.4	1/	4.2	8.3	2.0	1/	1/	Native American
Frontenac	6.8	2.1	5.6	8.2	1.5	1/	1/	French-Am. Hybrid
La Crosse	3.6	0.0	3.6	7.1	2.0	1/	1/	French-Am. Hybrid
Marquette	7.8	1/	7.5	18.1	2.4	1/	1/	French-Am. Hybrid
Melody	4.3	2.1	3.3	6.9	2.1	0.0	6.9	French-Am. Hybrid
Noiret	3.3	8.1	3.0	12.7	4.2	12.7	0.0	French-Am. Hybrid
★ Norton (Cynthiana)	26.5	15.2	24.5	29.0	1.2	7.4	20.1	Native American
Seyval Blanc	13.8	1.0	13.1	34.8	2.7	6.0	28.7	French-Am. Hybrid
St. Vincent	7.3	3.3	6.8	18.9	2.8	1/	1/	French-Am. Hybrid
Steuben	5.3	1/	4.0	9.9	2.5	8.7	1.2	Native American
Traminette	11.8	9.2	10.7	22.6	2.1	5.0	17.6	French-Am. Hybrid
Vidal	5.0	7.1	4.0	6.4	1.6	1/	1/	French-Am. Hybrid
Vignoles	14.0	2.5	11.9	21.1	1.8	5.7	15.4	French-Am. Hybrid
★ All Other	51.2	43.9 ^{2/}	30.9	62.8	2.0	71.8 ^{2/}	76.9 ^{2/}	
Total	223.3	118.8	174.7	354.7	2.0	139.3	213.7	

^{1/} Data suppressed for confidentiality

^{2/} All Other varieties represent varieties not included in this table, in addition to those suppressed for confidentiality.

We would like to thank all the grape and wine producers who took the time to participate in the Vineyard and Winery Surveys by responding by mail, telephone, or personal interview. More than 140 individuals were contacted for the Vineyard Survey with nearly 90 percent completing the questionnaire. Summary results are a tabulated summation of the reports received. No attempt was made to estimate for non-response. Statistics gathered by this survey will help growers and other market participants make sound management decisions by observing trends in varieties, bearing and non-bearing acreage, prices, and usage. This report would not have been possible without the valuable input from respondents, and funding from a USDA specialty crop block grant. Results from the wine production survey can be viewed in the Kansas 2010 Wine Production release.

Rose Garden Greenhouse, Vineyard & Winery Erie, Kansas



Vineyard Economics*

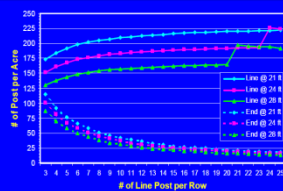
- **Foch vineyard**
 - Moderately vigorous & productive vine
 - Spacing: 7 x 9 ft
 - Vines (691) @ \$1.75
 - Line post @ 28 ft
 - Labor @ \$8.00 / hr
 - Production potential 3.5 tons / A
 - Sell to a winery @ per ton: \$1,000

*See: Cost of Establishing a Vineyard in Iowa, and Estimated Vineyard Establishment Costs per Acre under "Other ISU Information"

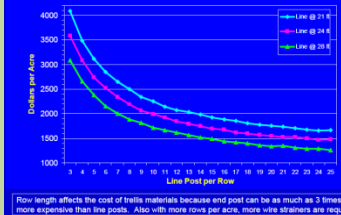
Vineyard Establishment Cost

Pre-plant	169.00
Planting (spacing of 7 x 9 ft)	
Vines (691 @ \$1.75)	1,209.00
Planting expenses (w/ planter)	138.00
Trellising:	
Materials (11 rows, 448 ft long w/ 15 line posts / row @ 28 ft)	1,482.00
Installation	520.00
Cultural expenses	1,022.00
Land charge	120.00
Operating interest @ 8 %	186.00
Total Establishment Cost	\$ 4,846.00

Number of Post per Acre At a 9 ft Row Spacing

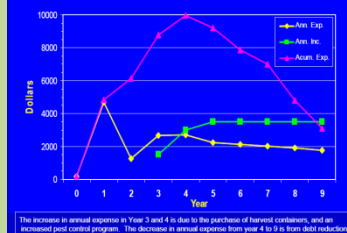


Trellis Materials Cost per Acre Rows 9 ft apart w/ 2 wires



Row length affects the cost of trellis materials because end post can be as much as 3 times more expensive than the posts. Also with more rows per acre, more wire strainers are required.

Vineyard Budget Analysis



The increase in annual expense in Year 3 and 4 is due to the purchase of harvest containers, and an increased pest control program. The decrease in annual expense from year 4 to 9 is from debt reduction.

SOILS



Soil Selection Factors:

- Internal Drainage Characteristic
 - Most important
 - Roots need aeration to function
- Moisture-Holding Capacity
 - Texture
 - Depth
- pH
- Fertility

Optimal pH: 5.0 to 6.5

- American Varietals: 5.0 to 6.5
- French Hybrids: 5.5 to 6.5; will tolerate a pH up to 7.0

Adjusting Soil pH:

- Below 5.5: bring up to 6.0 or 6.5 with lime.
- Above 7.0: consider lowering to 6.5 or 6.0 with sulfur, or using acid-forming fertilizers (ammonium sulfate).

Optimal Test Ranges*:

- Organic Matter (2-3%)
- Phosphorus (20-50ppm)
- Potassium (125-150ppm)
- Magnesium (100-125ppm)
- Boron (0.75-1.0ppm)
- Zinc (4-5ppm)
- Nitrogen (~0.18%)

* Midwest Small Fruit Pest Management Handbook

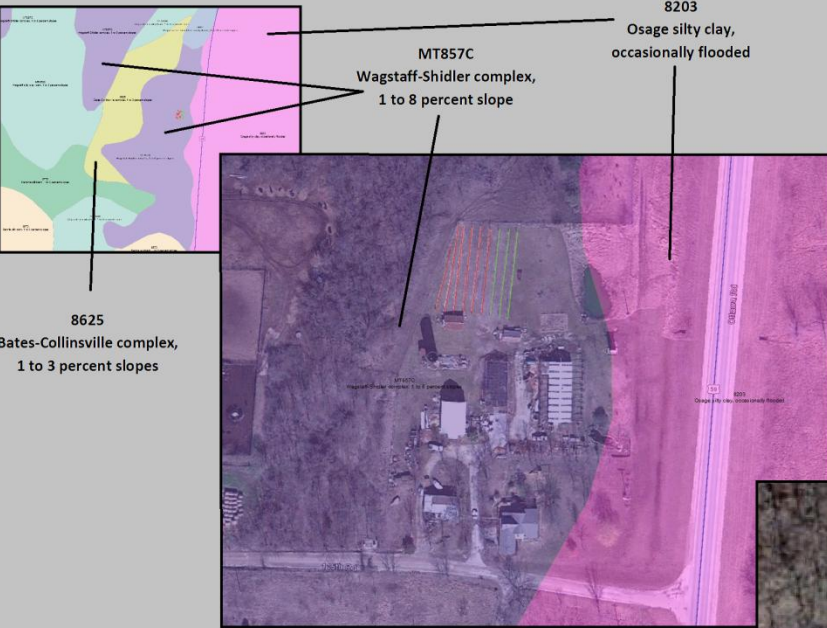
SSURGO Data



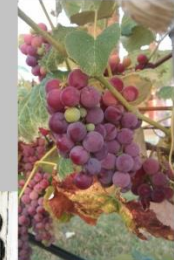
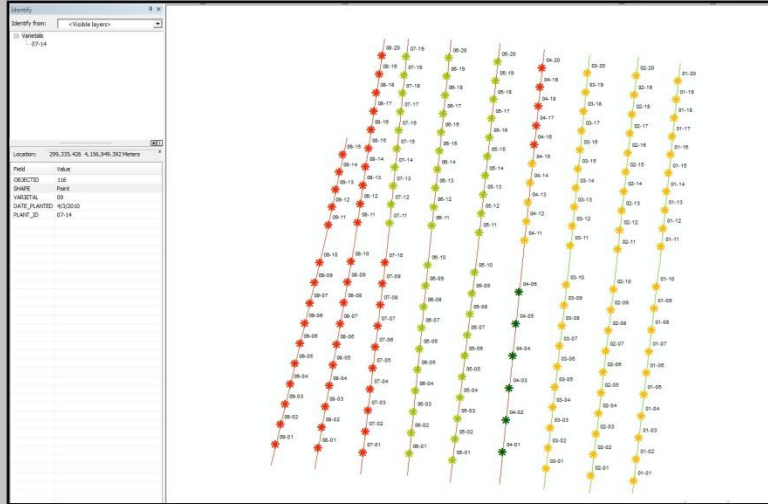
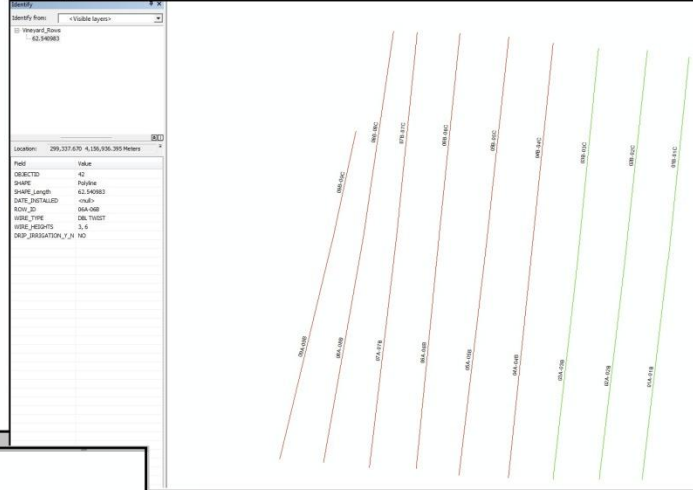
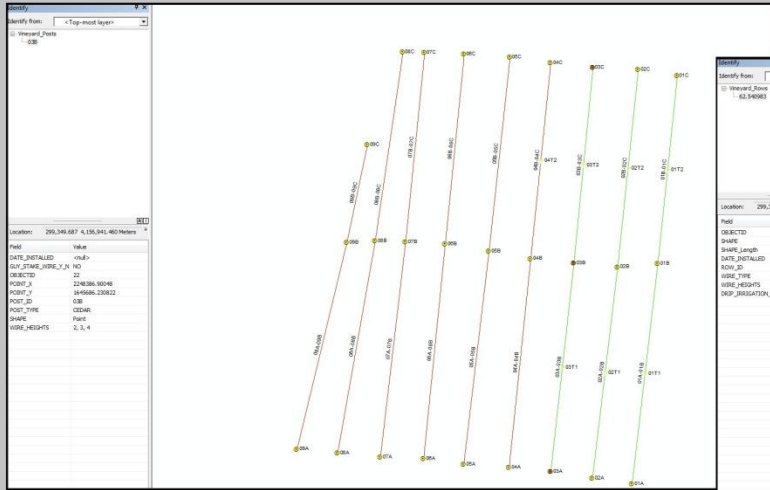
Reasons for Poor Soil Drainage:

- Poor surface runoff
 - Slope
 - Depressions
- Lateral seepage
 - On slopes
 - Textural change
- Texture
 - High clay content
- Impervious layer in substrata
 - Clay layer
 - Compacted layer
 - Abrupt textural change
- High water table

Chances of success are limited under conditions of poor soil drainage



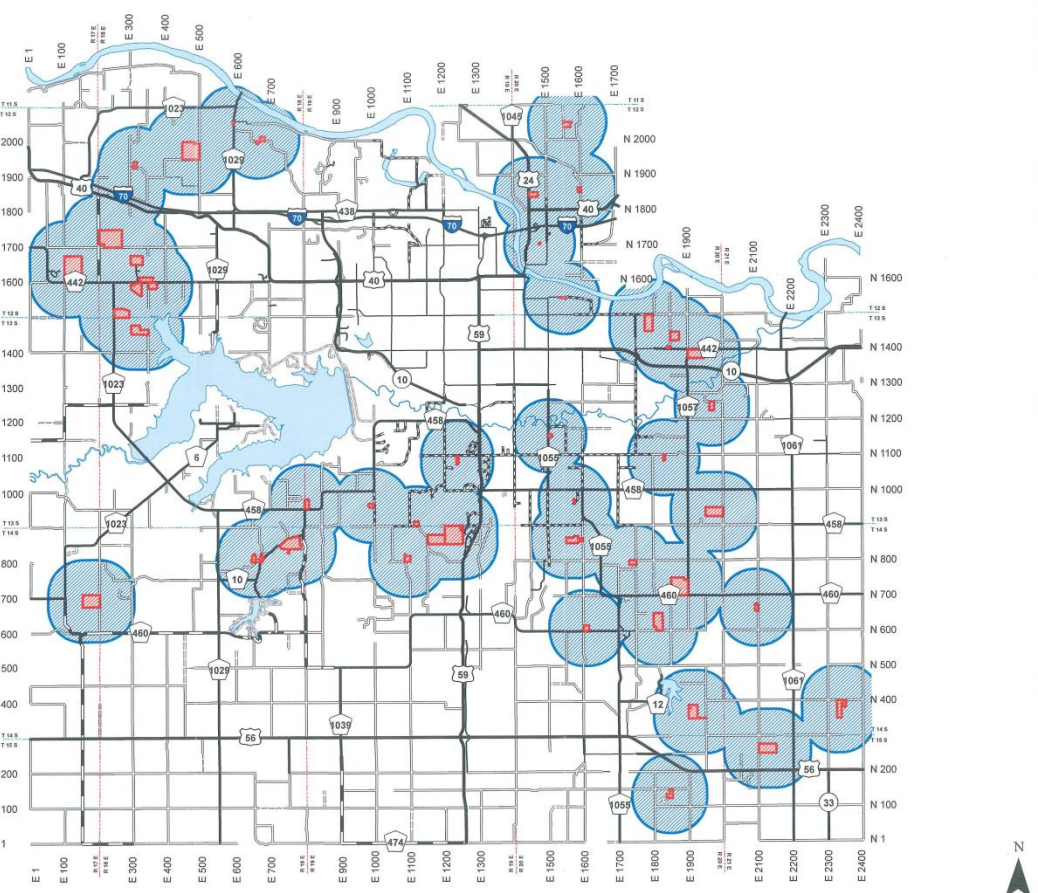
Posts, Rows, and Varietals



Lemburger (50)
Fredonia (11)
Others

Hibernal (50)
Niagara

Concord
Catawba
Blackberries (10)



**DOUGLAS COUNTY, KS
PUBLIC WORKS
OPERATIONS**
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Lawrence, KS 66046
(785) 331-1330 Fax (785) 331-1332
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Sensitive Crop Locations

Sensitive Crop Locations
 1 Mile Buffer

The locations shown in red hatch have been registered with the Sensitive Crops Program through the Kansas Department of Agriculture. If chemicals are to be sprayed near any of these properties please notify the land owner prior to the spray date. To find a list of landowners and phone numbers, or for more information on the Sensitive Crop Program please contact the Douglas County Public Works Operations Division.

Date: April 26, 2011
Produced By: Douglas County Public Works

MAP DISCLAIMER: All data, information, and maps are provided "as is" without warranty or any representation of accuracy, timeliness or completeness. The burden for determining accuracy, completeness, timeliness, merchantability and fitness for or the appropriateness for use rests solely on the requester. Douglas County makes no warranties, express or implied, as to the use of the information obtained here. There are no implied warranties of merchantability or fitness for a particular purpose.

2, 4-D Quick Facts:

- 2,4-D is a commonly used herbicide for broadleaf control in agriculture, roadsides, and lawns
- Grapes are very sensitive to 2,4-D exposure
- Effects of exposure may last one or more seasons
- Several factors determine the extent of injury to grapes exposed to 2,4-D
- Growers and applicators alike can take steps to prevent exposure to 2,4-D
- There are other causal agents to consider when diagnosing herbicide injury to grapes



Picture 1. Symptoms on young shoots



Picture 2. Symptoms on older leaves



Picture 3. Older leaves may appear puckered



Picture 4. Flower clusters affected by 2,4-D

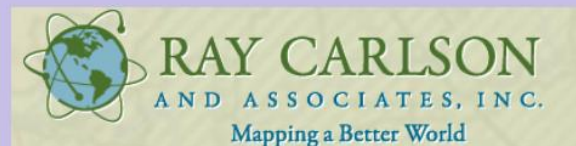
2,4-D belongs to a group of herbicides referred to as Plant Growth Regulators (PGR). PGR are the most common active ingredients in herbicides used to control broadleaf weeds. They affect the plant's natural growth hormones by mimicking auxins, the plant hormones that regulate growth and development.

GIS and the Wine Industry



IOWA STATE UNIVERSITY
University Extension

Dept. of Horticulture, 245 Horticulture, Iowa State University, Ames, IA
Viticulture



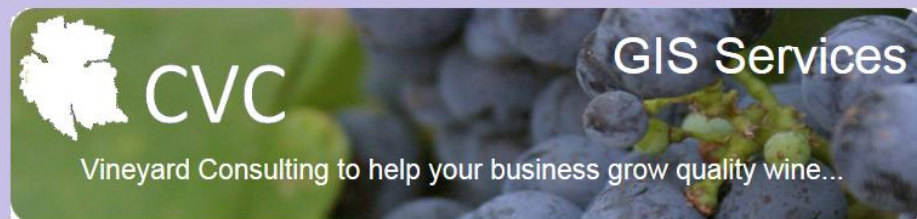
A screenshot of the Martha's Vineyard Commission website. The top left features a map of the island and the text 'MARTHA'S VINEYARD COMMISSION'. The main header shows a scenic view of a rocky coastline with the text 'Português What's New Site Map Contact Us Printer Friendly'. Below the header is a navigation menu with 'The Commission', 'Calendar', 'DRIs', 'DCPCs', 'Planning', and 'Resource Center'. A search bar is on the left. A secondary menu lists various planning categories like 'Comprehensive/Master Planning', 'Transportation', 'Water Resources', etc. At the bottom, there is a section for 'ISLAND PLAN' and 'GIS / DATA COLLECTION'.



UNIVERSITY OF CALIFORNIA, DAVIS

Intermediate GIS for Vineyard Management

Northern California Wine County
GIS Users Group



The Geography of Wine



Normalized Difference Vegetation Index (NDVI) data
Shown in ICropTrak software



Picture of a vineyard taken through infrared lens



Site Selection

Site Characterization

Yield Mapping

Quality Monitoring

Soil Mapping

Wireless Weather Stations

Frost Prediction

Marketing

Database integration (mapping the numbers)

Cartographic Design (web, print, or display)