

Vineyard Site Selection

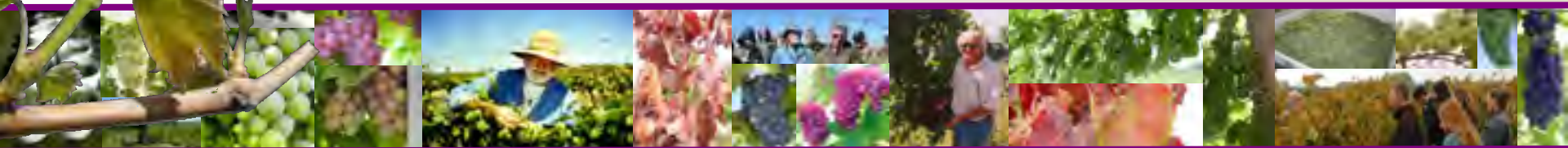
Paul Read

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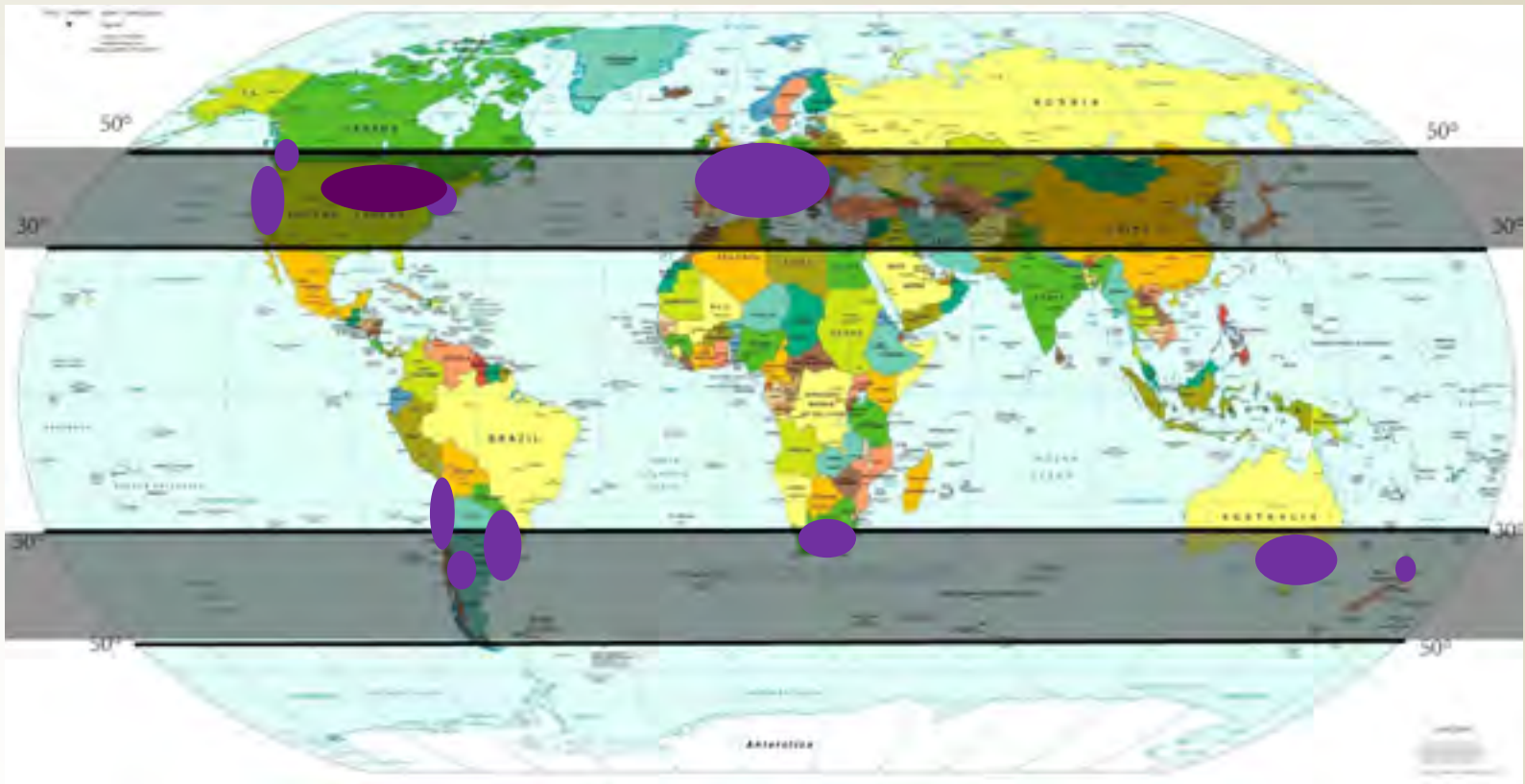
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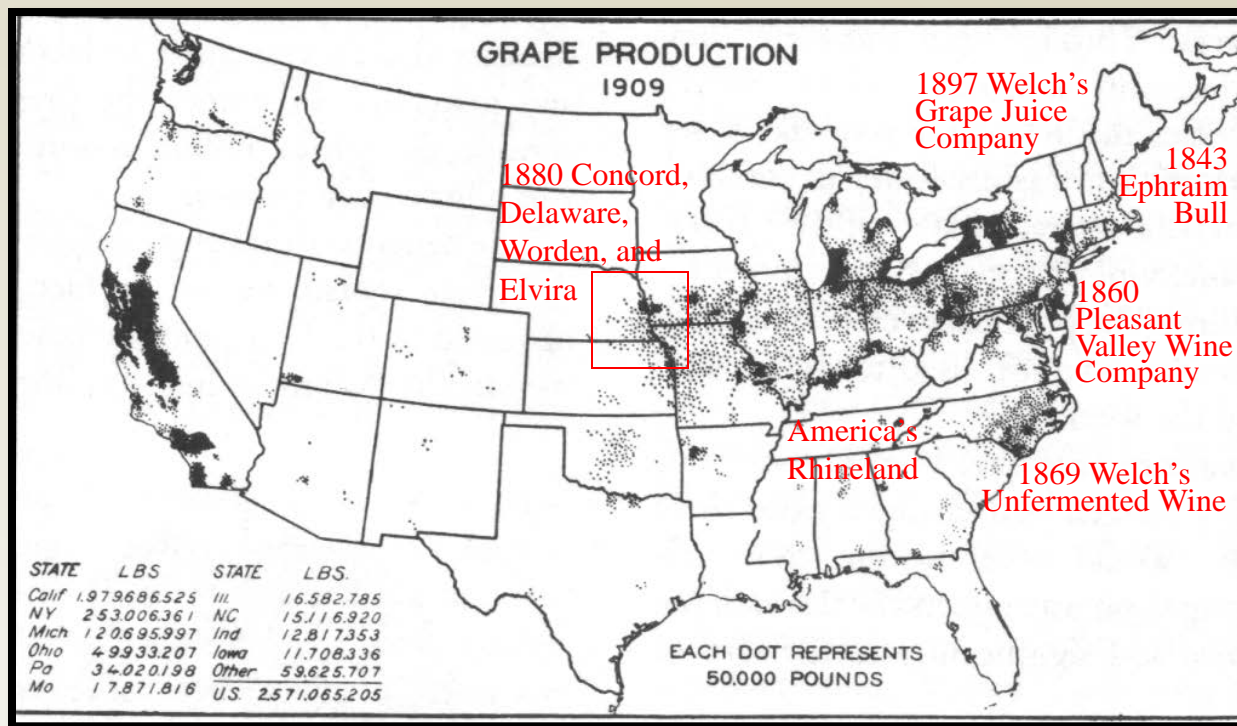


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Worlds Major Wine Regions





Grapes were grown in Nebraska prior to Prohibition about 5000 acres.

Largely grown in the southeastern portion of the state.

The viticultural knowledge of the region was lost until The Farm Winery Act (1986).

28 bonded wineries in Nebraska today and about 200 growers and 500 acres of vines.



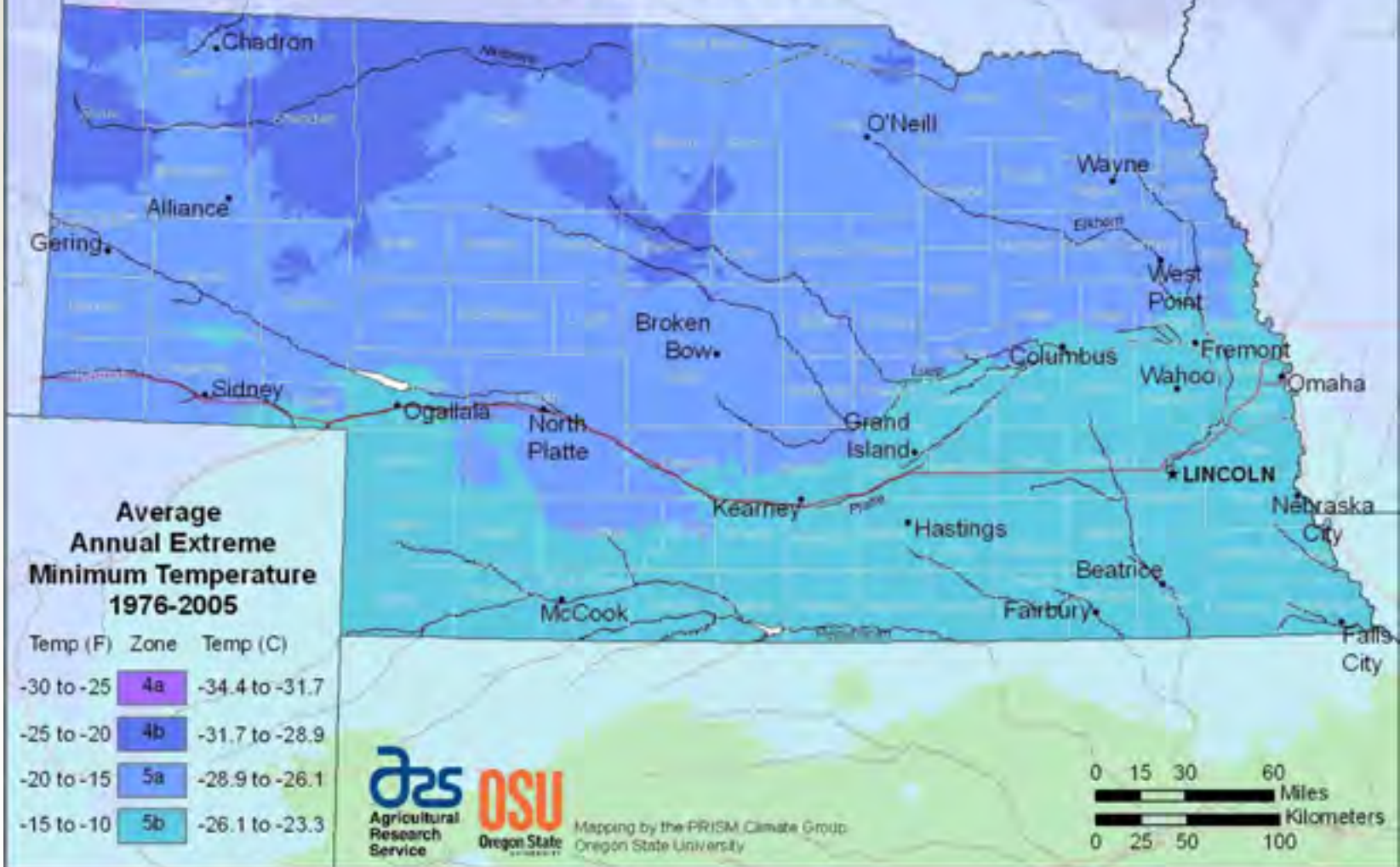
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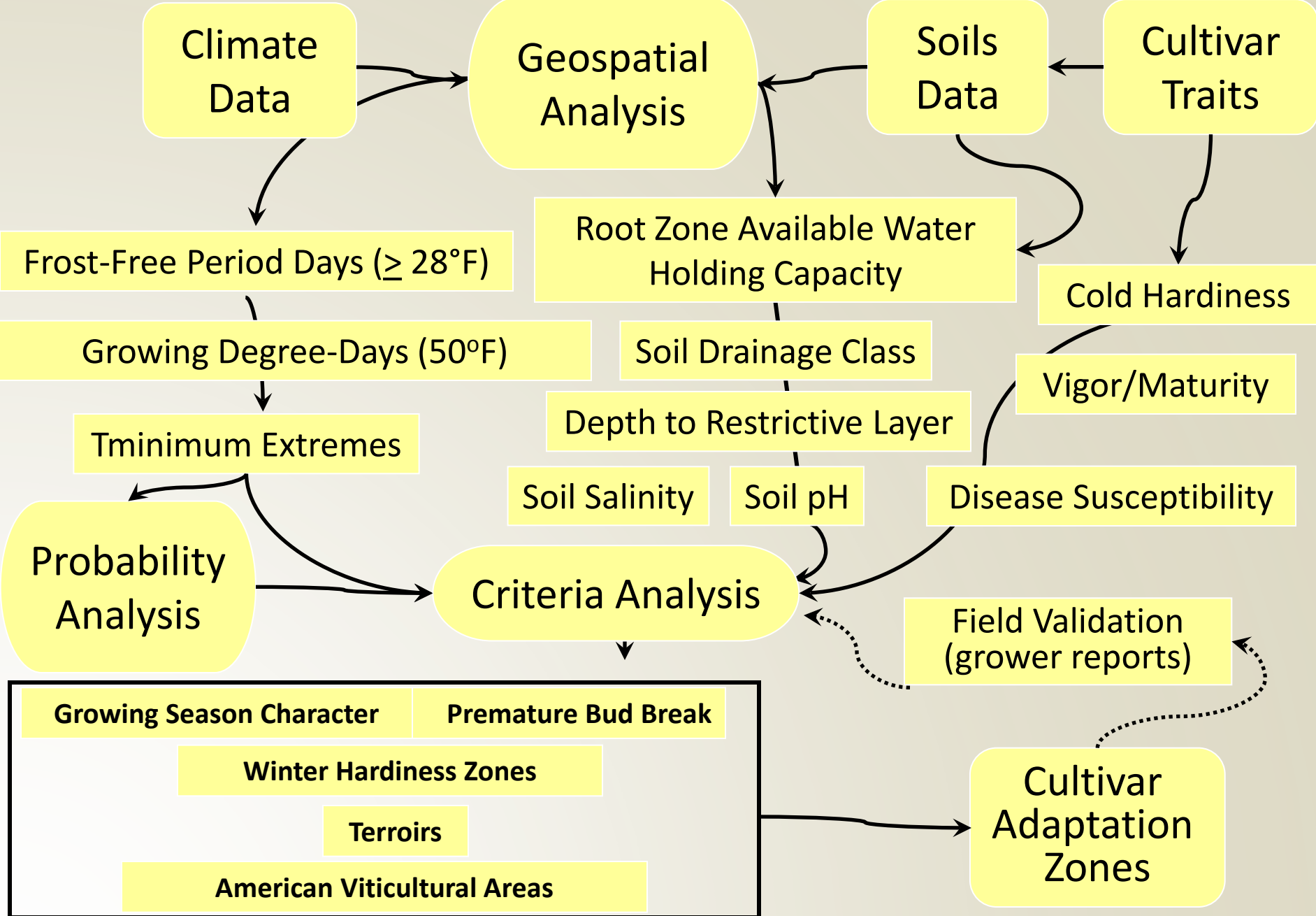
Plant Hardiness Zone Map

Nebraska



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Select a site with good AIR DRAINAGE

- Cold air is heavier than warm air
- Cold air flows downward and settles in low areas
- A 3-5 degree difference may save your crop
- Gradually sloping site higher than the surrounding terrain is desirable
- A tree or brush line will form a frost pocket



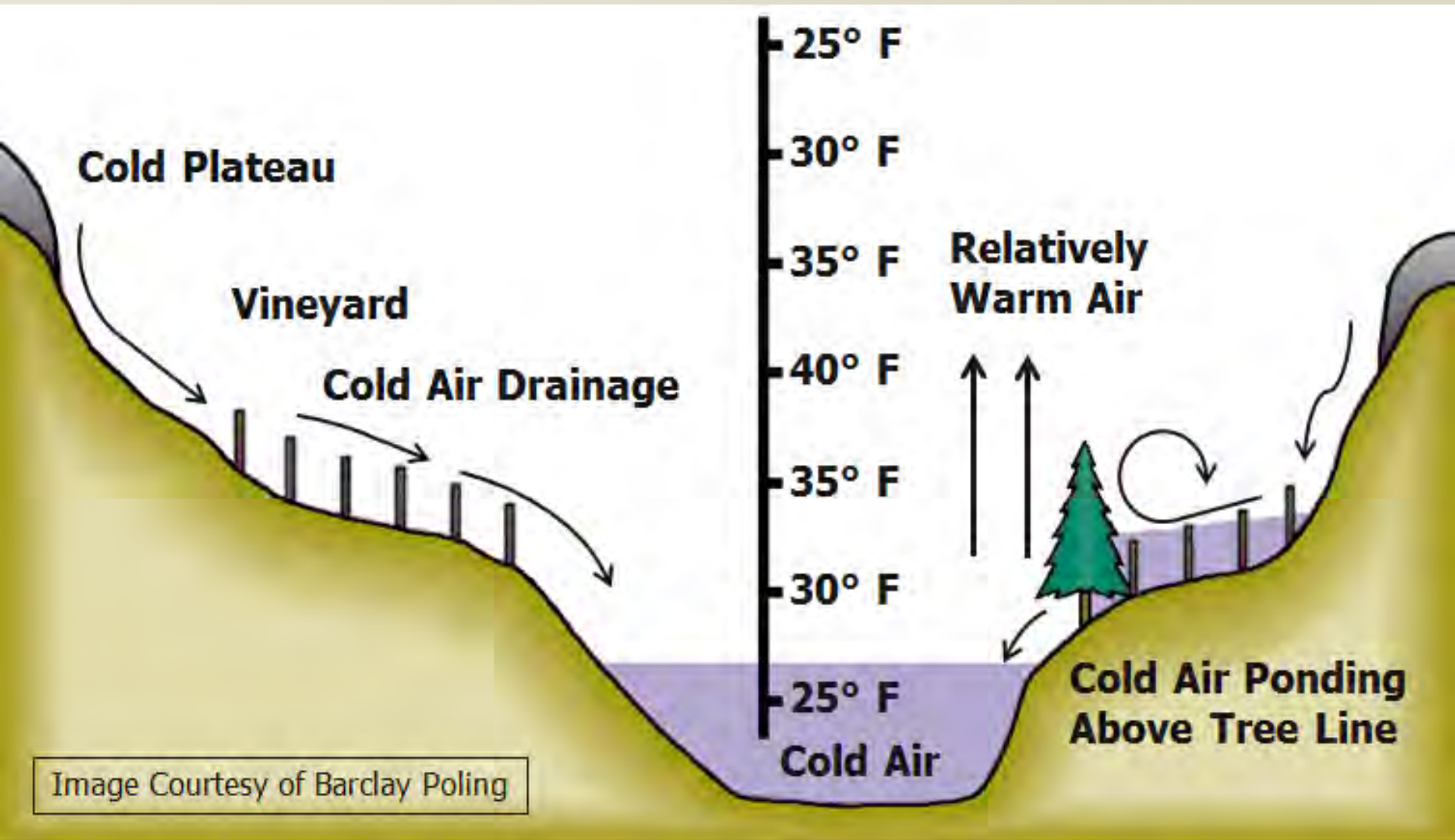


Image Courtesy of Barclay Poling

Select a site with good **SURFACE WATER DRAINAGE**

- If water stands for a day or more after a rain, choose another site
- A 2-5 percent slope is excellent
- Depending on soil type, a cover crop between rows should be considered



Select a soil with good **INTERNAL WATER DRAINAGE** for adequate aeration

Impervious layers beneath the surface impede
internal water drainage

Dig a hole 2 feet deep, fill it with water

If water drains out in:

8 hours – very good

48 hours – adequate

24 hours – good

>48 hours – poor

Modifications to correct drainage problems will be expensive



Select a soil with good FRUIT PRODUCTION POTENTIAL

- Reasonably fertile (do soil sampling)
- Has not had excessive erosion of topsoil
- Does not have excessive stone content
- Has favorable pH, organic matter content, and texture
- Has no impervious layers near the surface
- Soil depth of at least 3 feet



SITE SELECTION CHECKLIST

- **Soil characteristics-grapes adapt to a wide range of soil types**
- **Conduct a soil test. Is the pH too high or too low?**
- **6.0 to 6.8 is ideal; as low as 5.5 and as high as 7.5 may be acceptable**
- **Soil Depth-several feet with no impeding layer**



Desirable Soil Test Ranges for Grapes

Test	Midwest Small Fruit Pest Management Handbook	ISU	U of MN
pH	5.5 – 6.5	6.0 - 6.5	6.0 – 7.0
Organic Matter	2 – 3%	2 – 3 (4)%	--
Phosphorous (P)	20 – 50 ppm	> 30 ppm	> 25 ppm
Potassium (K)	125 – 150 ppm	> 150 ppm	> 150 ppm
Calcium (Ca)	--	--	> 600 ppm
Magnesium (Mg)	100 – 125 ppm	100 – 125 ppm	☐ 100 ppm
Boron (B)	.75 – 1.0 ppm	--	> 1 ppm
Zinc (Zn)	4 – 5 ppm	4 – 5 ppm	> 1 ppm
Manganese (Mn)	--	--	> 6 ppm
Cooper (Cu)	--	--	> 0.2 ppm



CHECKLIST (Cont.)

- **Fertility-it is not necessary that soils be highly fertile; too much fertility, especially nitrogen, may cause vines to be excessively vegetative. Desirable soil test amounts: (actual pounds per acre, phosphorous 40 to 50, boron-1.5 to 2.0 and zinc-8 to 10) and exchangeable pounds per acre, potassium-250 to 300 and magnesium-200 to 250.**



CHECKLIST (Cont.)

- **Organic matter- 1 to 3% is desirable. Very high organic matter levels can exacerbate the problems noted earlier regarding excess nitrogen.**
- **Exposure to prevailing (usually westerly) winds when excessive, can be damaging, but wind can also help dry the foliage after a rain or dew, thus helping minimize disease incidence.**



CHECKLIST (Cont.)

- **Slope- conventional wisdom says that southern exposure is best; however, promotion of early bud-break may result, leading to damage from late frosts. Northern exposure will delay bud break, but may delay ripening of fruit. Eastern facing vineyards will dry more quickly in the morning. North-south row orientation is strongly recommended.**



CHECKLIST (Cont.)

- **Isolation-** locating the vineyard at a distance from likely sources of herbicide drift can be of great importance (check with your neighbors to determine what ones they use and the timings). Avoid proximity to trees – they can shade and compete with the vines and may shelter pests.
- **Length of growing season-** depending upon cultivar, a frost-free period of 165 days or more is desirable.



Climate Comparison of Major Vineyards in Nebraska

Yearly Average

Weather Station	FFP (28°F)	Days <-10°F	T min Extreme	Abs T min	GDD (50°F)
Cuthills Vineyard Osmond	166	8.4	-21.0	-28	3249
Geo. Spencer Kearney 4 NE	177	3.8	-14.4	-30	3325
James Arthur Vineyard Lincoln AP	183	4.0	-15.2	-22	3605
Kimmel Orchard Nebraska City	190	2.8	-14.5	-25	3714
Nebraska Panhandle Crawford	153	4.3	-17.5	-33	2742
Geneva Research Farm Geneva, NY	198	0.5	-7.2	-16	2485



SITE SELECTION

A WATER SOURCE is essential

- **Irrigate for maximum yield in most years
(survival in some years)**
- **Water quality and quantity should be
considered (Analyze)**
- **Assess your water supply**



SITE SELECTION

- **Avoid planting where the same or closely related crops were grown before**
- **Disease and insect pests will likely be present from previous crops**
- **Inspect site and surrounding area for weed species that may host diseases and insects**
- **Remove and destroy these plants if possible**
- **Observe the EXISTING VEGETATION at the site**
- **Trees and brush may be expensive to remove**
- **Perennial weeds should be controlled before planting**



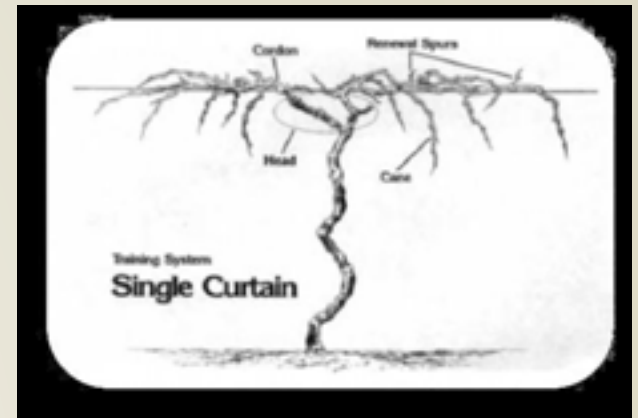
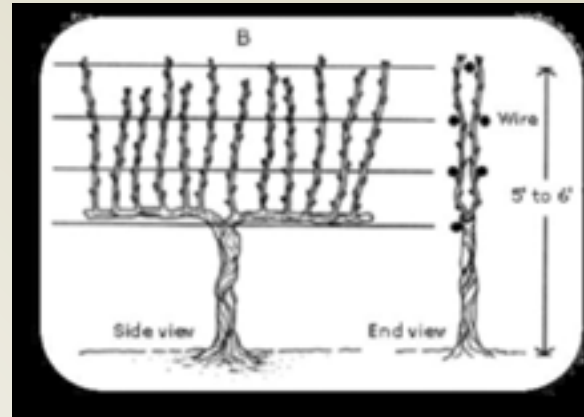
POTENTIAL VINEYARD PESTS

- Perennial Weeds
- Deer
- Birds
- Rabbits
- Neighbors
- 2, 4-D
- Nematodes
- Phylloxera
- Virus
- Bacteria
- Fungi



WHAT MAKES A GOOD TRELLIS

- End post
- Line post
- Wire
- Other hardware



Two Different End Post Styles



ADDITIONAL HARDWARE

- Springs
- Strainers
- Earth Anchors
- “Dead Men”
- Cross Arms
- Wire fasteners
- Wire splicers



WIRE

- High tensile wire
- Rolls of 4,000 feet
- Spinning Jenny



TRELLISING FOR A LIFE TIME



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