

Considerations for Establishing a Vineyard in Iowa: Site, Cultivar Selection, & Cost

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Establishing a Vineyard

Keys to Success

- Determine if your site is suitable for a vineyard.
 - Climatic conditions (cultivar selection)
 - Topography (production potential)
 - Soil conditions (production potential)
- Select cultivars to plant.
 - Adaptation to your conditions
 - Use (wine, table, juice, jam & jellies)
- Develop a sound business / marketing plan.
- Plant the vines, establish trellis & begin training.
- Develop a good management program.
 - Cultural practices
 - Pest, Disease & Weed control
 - Fertility

Proper site selection can be the difference between success and failure



Site Considerations

| Climate | Topography | Soils |
|---|--|--|
| <ul style="list-style-type: none">• Winter Temperatures *• Spring Frosts• Length of Growing Season• Growing Degree Days• Precipitation | <ul style="list-style-type: none">• Elevation• Degree of Slope• Direction of Slope | <ul style="list-style-type: none">• Drainage• Moisture Holding Capacity• pH• Fertility• Organic Matter |

* The most important climatic consideration

Winter Temperatures

Determine what cultivars can be grown & how productive they will be.

Cane buds are the most tender portion of a grape vine.

- Each node on a cane contains 1°, 2° & 3° buds.
- **The 1° bud is the most productive.**
 - If it is injured, the 2° bud, which is less productive, will develop.
 - If the 2° bud is injured, the 3° bud, which produces few if any clusters, develops.



Winter injury of the primary cane bud.

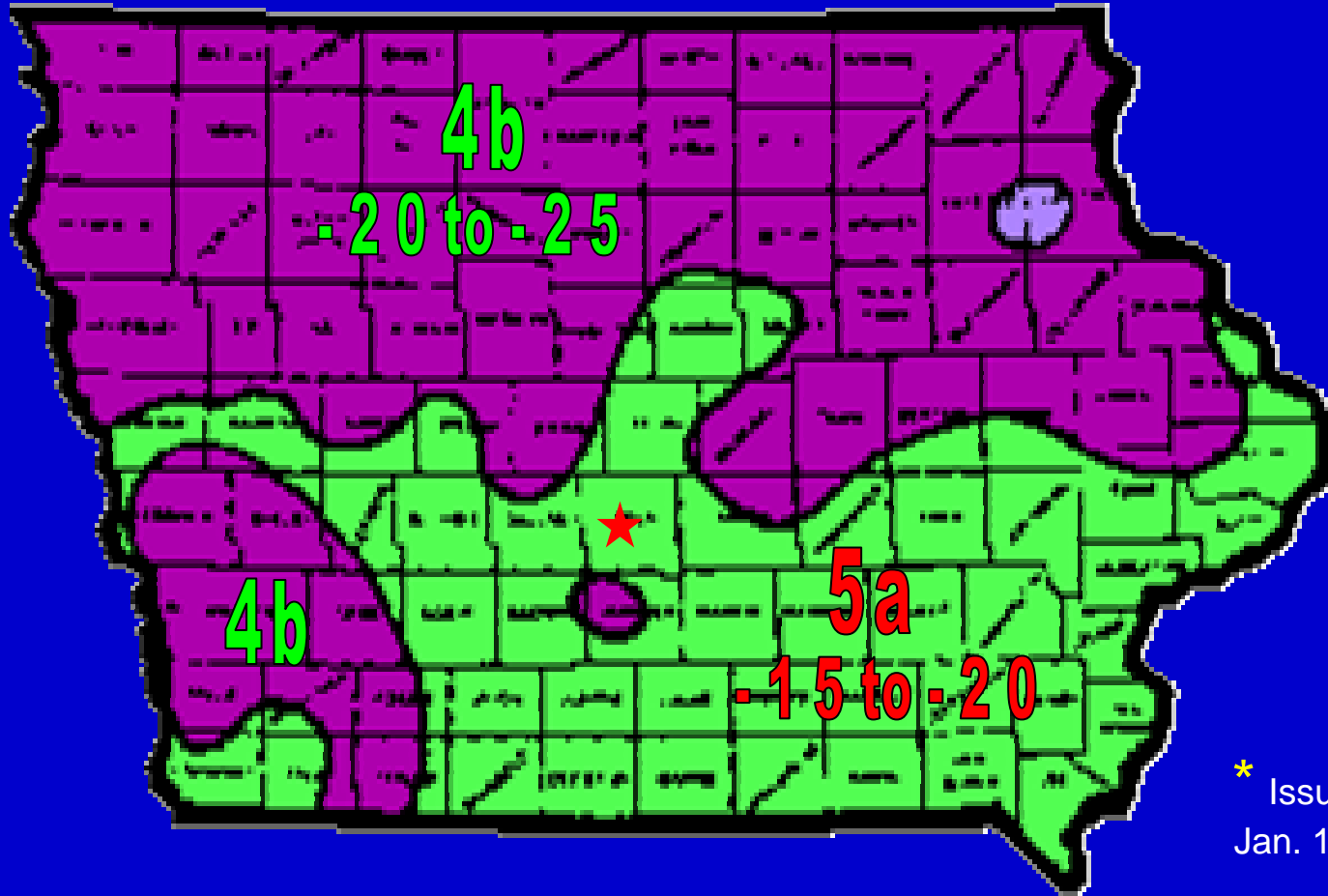


Classification of Vine Hardiness

Based on the temperature
at which injury begins to occur

| Temp. (F°) | Category | Suitable Type |
|---------------|---------------------|---|
| ≥ 0 | Very cold tender | Almost any. |
| - 5 | Cold tender | Most northern <i>vinifera</i> . |
| - 10 | Moderately Hardy | Hardy <i>vinifera</i> , moderately hardy French hybrids. |
| - 15 | Hardy | Hardy French hybrids, most <i>labrusca</i> . |
| $\leq - 20$ | Very hardy | Hardy <i>labrusca</i> , most <i>riparia</i> hybrids. |

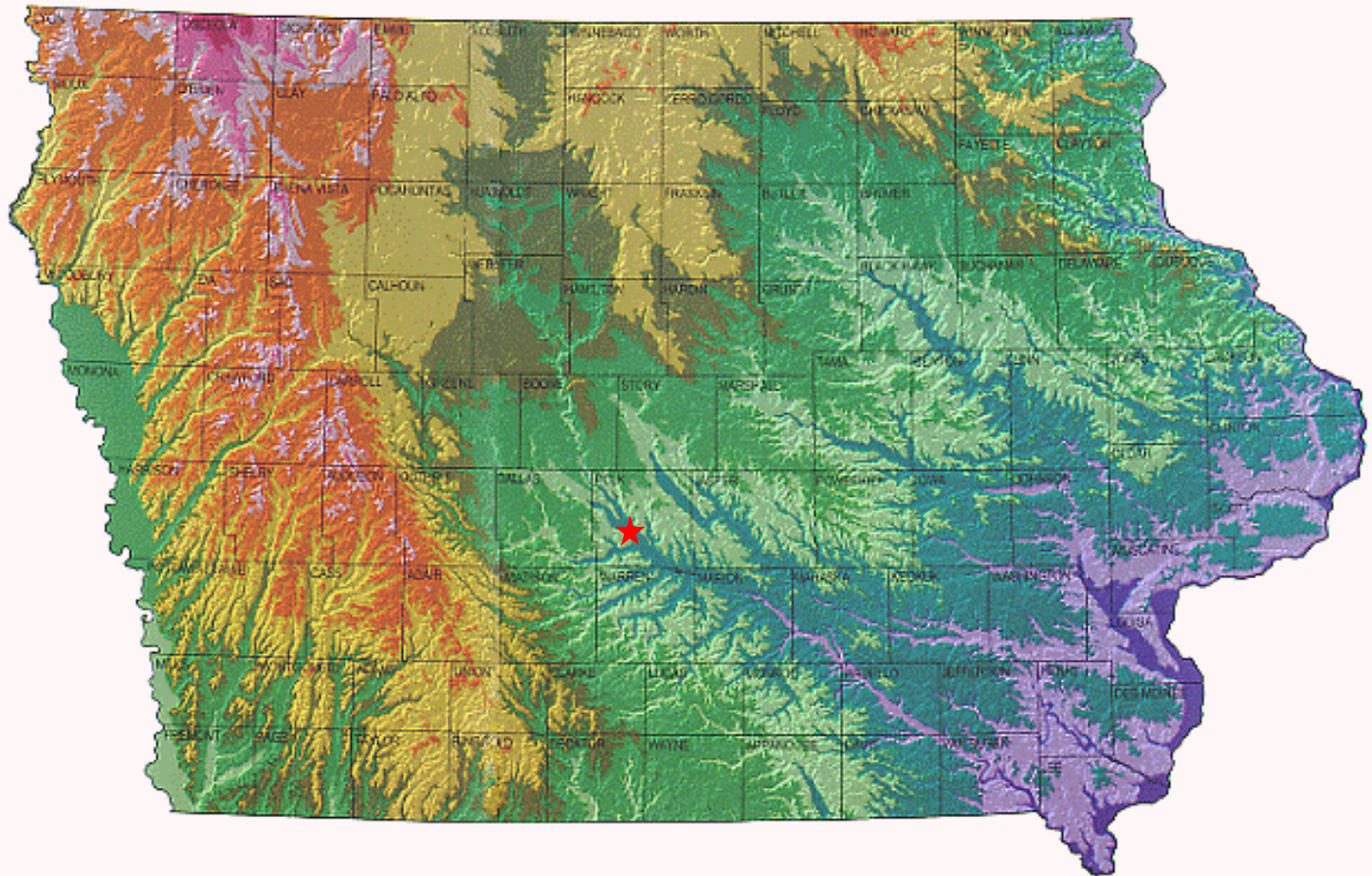
Current USDA Zone Hardiness Map *



* Issued:
Jan. 1990

The map (based on a 30 year average) does not take into account the elevation of the recording sites. This is particularly evident in southwest Iowa where the towns are located along the rivers. Based upon this map, we should confine our selection of cultivars to those classified as being “hardy” and “very hardy”.

Topographic Map of Iowa

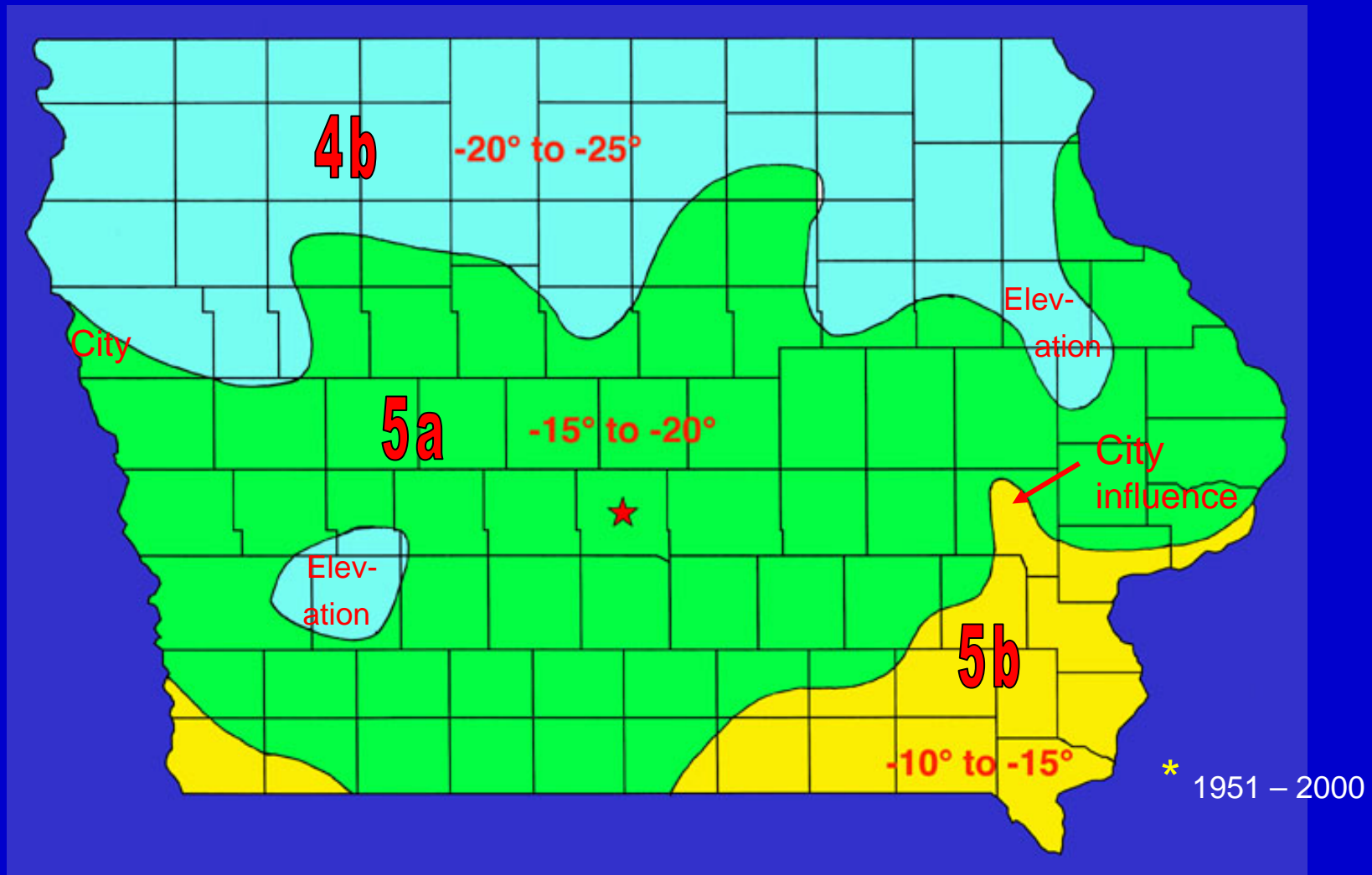


Surface elevation above sea level (approximate)



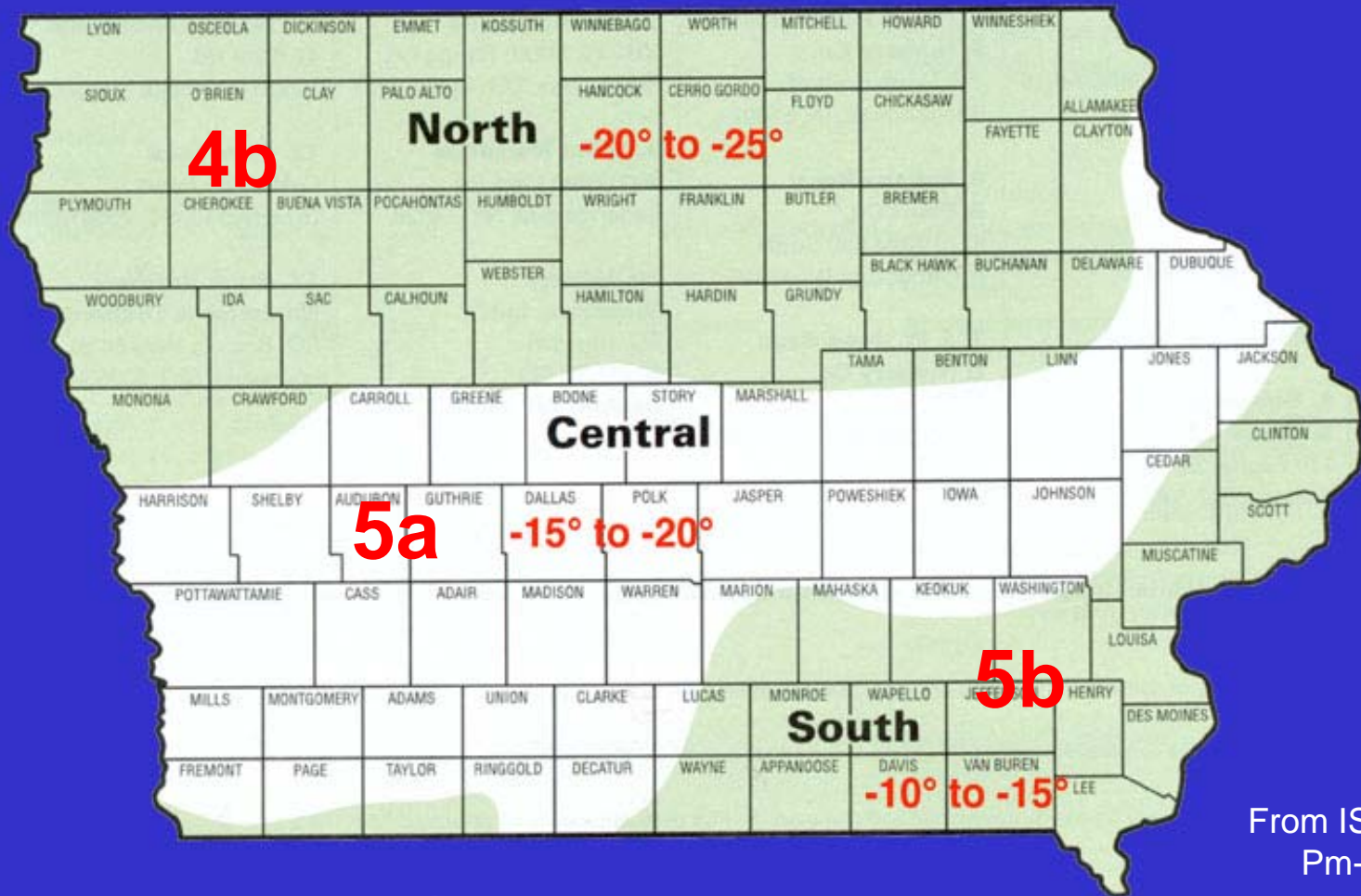
By James D Giglierano; adapted from Iowa Geology 1999, Iowa DNR

50-Yr Avg. Min. Winter Temperature *



Northern boundary of "5a" is risky because injury can occur when vines are not at their maximum hardiness.

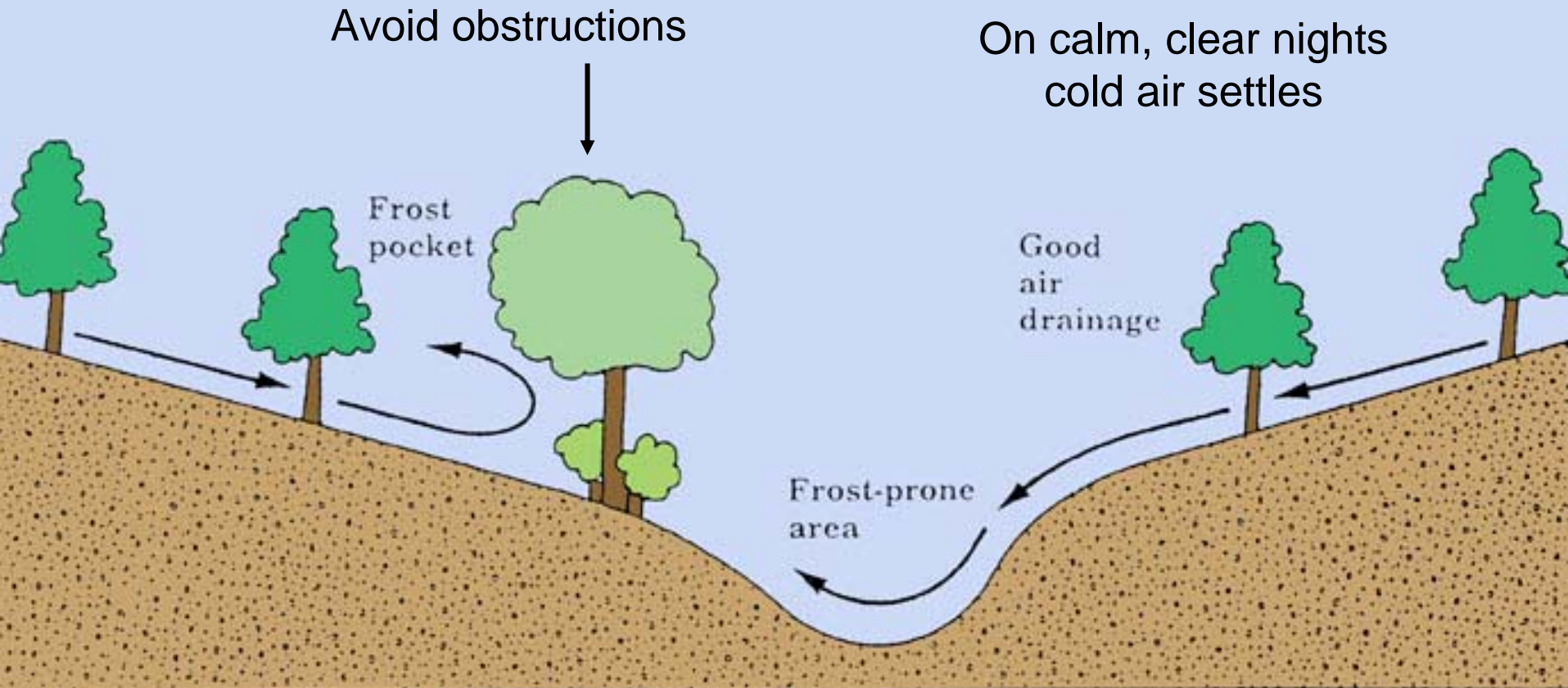
Old USDA Zone Hardiness Map



From ISU Ext.
Pm-453

This old map is safer for “4b”, and the 50-yr map is safer for “5b”. It is still best to plant “hardy” and “very hardy” cultivars. “Moderately hardy” cultivars should be planted on a trial basis in the warmer zones.

Topography



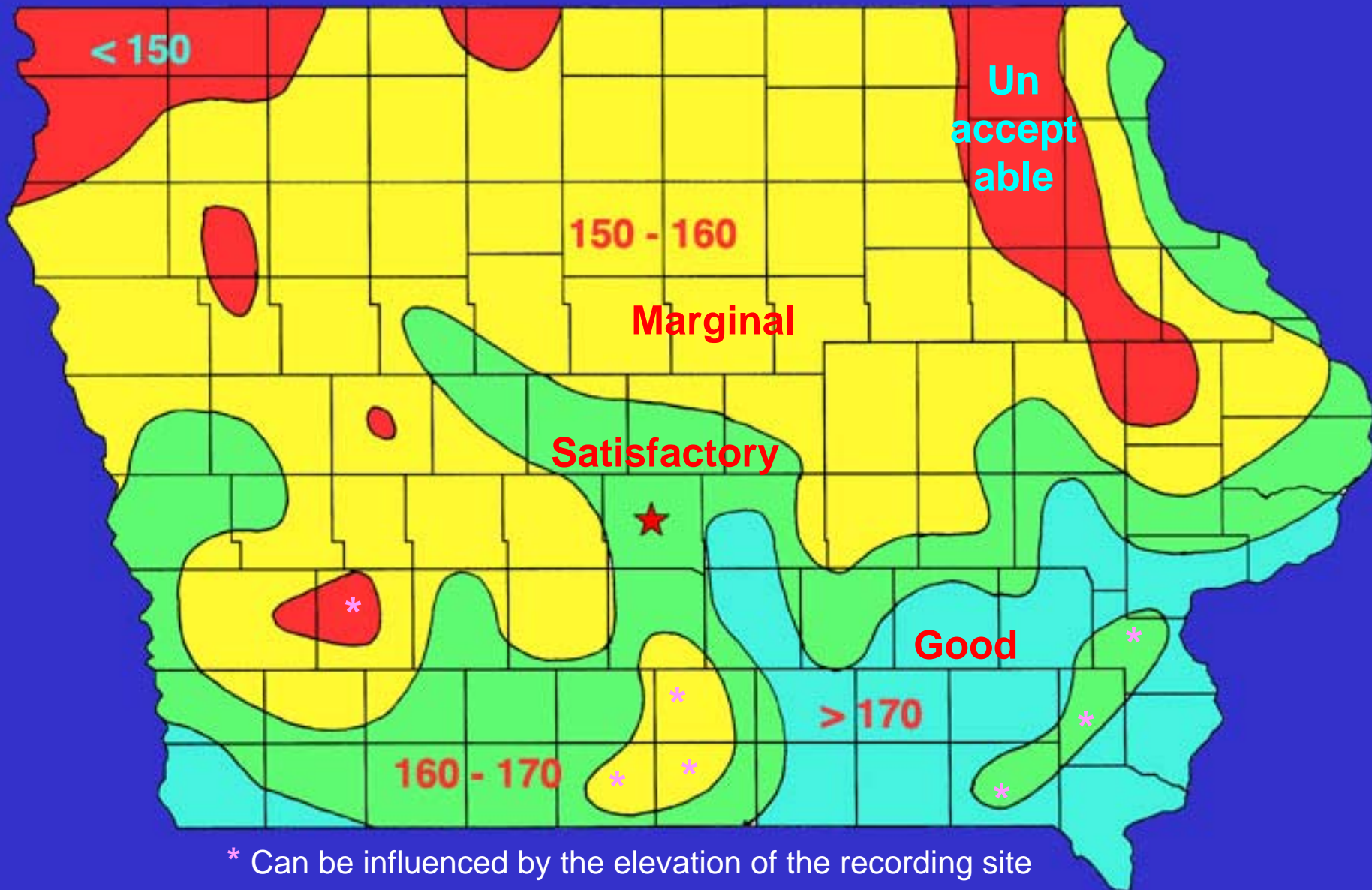
To avoid spring frosts and extreme winter freezes, plant at least 50 feet above the valley floor.

From ISU Ext. Pm-672b

Length of the Growing Season

| Frost-Free Days | Suitability for Grapes |
|-----------------|--|
| < 150 | Unacceptable |
| 150 to 160 | Marginal: Only early season maturing varieties. |
| 160 to 170 | Satisfactory: Early & most mid-season maturing varieties. |
| 170 to 180 | Good: Early, mid-season & some late-season varieties. |
| > 180 | Excellent: Most varieties. |

Frost Free Days



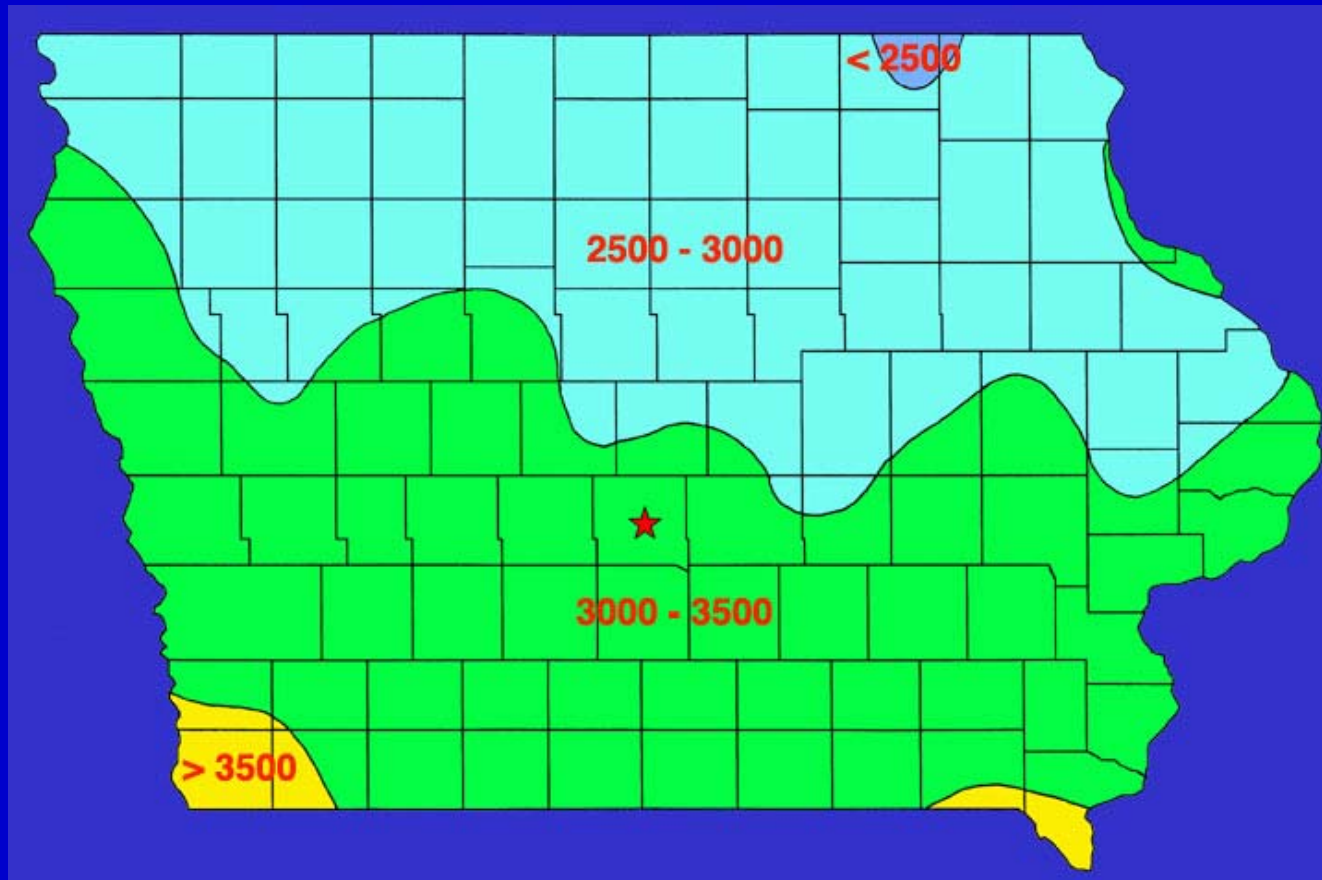
Grape Growing Regions

based on Growing Degree Days (Winkler)

| Region | Degree Days* | Suggested Varieties |
|--------|----------------|---|
| I | ≤ 2,500 | Early ripening varieties to achieve high quality. |
| II | 2,501 to 3,000 | Early and mid-season table varieties. |
| III | 3,001 to 3,500 | High production of standard to good quality table wines. |
| IV | 3,501 to 4,000 | High production, but table wine quality will be acceptable at best. |

* Base 50° F; Degree day = ((daily high + low) / 2) – 50

Growing Degree Day Regions



Based on Winkler's growing degree day regions, Iowa should produce good wines. However, our accumulation of heat units is high because our night temperatures are higher than those experienced in the California wine growing regions. In Iowa, minimum winter temperature and length of the growing season are more important than growing degree day regions for determining what cultivars to grow.

Grape Cultivar Adaptation

| Harvest Season: | Early | | | Mid | | | Late | | |
|-------------------------|-------|----|----|-----|----|---|------|----|----|
| Climatic Zone: | S | C | N | S | C | N | S | C | N |
| Cold tender (-5) | T | T? | N | T | N | N | T? | N | N |
| Mod. Hardy (-10) | Y? | T | T? | T | T? | N | T? | N | N |
| Hardy (-15) | Y | Y | T | Y | Y? | T | Y? | T | T? |
| Very Hardy (-20) | Y | Y | Y | Y | Y | T | Y? | Y? | T |

Y = Should be adapted.
 Y? = Testing may be required
 T = Testing is required

T? = Adaptability questionable,
 may not warrant testing.
 N = Not adapted.

Cultivar Selection*

- **Intended Use (Market):**

- Fresh
- Juice / Jam / Jelly
- Wine

Sell to a winery

Establish your own winery

*For additional information see: [Grape Cultivars for Iowa](#) and [Grape Cultivars for Consideration in Iowa](#) (listed under the 2002 Iowa Grape Growing Conference).

Fruit Characteristics

– Specific Characters

- **Fresh grapes**

- Color, skin thickness, skin adherence
- Seeds or seedlessness
- Postharvest shelf life

- **Processing grapes (juice & wine)**

- Color
- Chemical components (sugars, acids, pH)
- Flavor
- Wine quality

Cultivar Selection for Wine

Learn to make quality wines from a few cultivars before attempting any new cultivars.

Sell to a Winery:

- What **adapted** cultivars do they want?
 - Proven cultivar
 - New cultivar
- How much do they want?
- Are they willing to develop a long-term contract?

Establish a Winery:

- What do customers want?
- What **adapted** cultivars make quality wine?
- What types / styles of wine do I want to make?
- How much risk am I willing to take?
 - Cultivar adaptation
 - New cultivars

Develop a sound business / marketing plan before planting!