Grape Growing for Gardeners

Growing Your own grapes

• Fresh Eating
• Juice
• Wine
• Challenging
• Rewarding
• Exciting
• Fun

Grapes in North America

• Grapes have been grown in our area since late 1800’s.
• Vitis riparia – Riverbank grapes are native.
• Vitis vinifera – grown in California – not hardy for this area
• New hybrid cold hardy grapes - developed in recent years
• French / American Hybrids
  – Elmer Swenson varieties
  – U of M varieties

Frontenac Grapes
Glen Ullin, ND

1990 Plant Hardiness Map

2012 USDA Plant Hardiness Map
Site Selection

- Full sunlight – as much as possible
  - Shade = Trees shrubs, buildings, fences
- Good Drainage - important
- Slope
  - South, Southeastern, Southwestern, facing slopes are best
  - Avoid North facing slopes if possible
- Avoid bottoms of valleys if possible
- Hillsides and tops of bluffs are best
  - Cold air flows down = less freezing in spring and fall

Site Selection

- Your Site - topography, or location of buildings are predetermined.
- If you have acreage and a slope, which is the best site?
- Trees or shrubs - will they shade your grapes?
  - If so cut them down while they are small.
- Hedges or Fences on windward side are beneficial
- Availability of water is important for first year or two

Site Selection

- **Slope:**
  1.5 to 3 percent helps cold air to flow out of vineyard
  Frost possibly 3 weeks earlier in valleys compared to hillsides
  Benefits of south slopes are legendary in viticulture

**Wind:**
Calm conditions can offer 18°F higher on leaves and fruit compared to windy sites
- Shelterbelts, South side of buildings, fence (home)

South Facing Slope

Northeast Facing Slope
SITES TO AVOID

- Wet sites: slow to dry out
- Poor sun: northern slopes
- Dense Clay: hardpan
- Chemical drift
- Frost pockets/poor air circulation

IDEAL SITE

- Full sun
- Southern hillside
- Sandy loam
- Near large body of water

Soil Test

- Check for
  - Nitrogen
  - Phosphorous
  - Potassium
  - pH
  - Dissolved salts
  - Organic matter
- Condition the soil if needed
- Add sand and organic matter if needed

Planting and Establishment

Year 1: Root growth
Year 2: Vine architecture, pruning techniques
Year 3: Vine health, pest presence, first fruit

Planting and Spacing

- Row spacing in backyards – 6 feet or more
- Plant spacing in rows should be 6 – 8 feet
- Plant rows North to South - ideal
- Grow tubes
  - Use after planting for first year establishment
  - Remove in early August to promote hardening off.

Planting

- Bare root planting is best
- Prepare large holes
- Don’t stuff!!!
- Keep roots out of direct sunlight
- Compact earth gently around roots
- Grow Tubes???
- Water when dry - do not over water!
First Year Training the Trunk

- Don’t cut off the side shoots
- Tie the main shoot to a wire

Training the Trunk

- Grow tube
- Use for 1st season
- Tie main shoot to a wire
- Remove grow tube in August

Training the Trunk – Mini-J

- Use for Tender varieties
- Easier to lay trunk down for winter covering

Pruning

- Prune late winter or early spring
- Vines produce fruit from only one year old wood
- Dormant buds on 1-yr-old canes (last year’s canes) give rise to new (current season) canes on which the grape clusters are produced.

Second Year Dormant Pruning

- Pruning mature grapevines requires replacing all fruiting wood each year.
- 80% or more of the 2-yr-old canes is removed and replaced with 1-year-old canes.

Pruning

Grape clusters on current season canes

Second Year Dormant Pruning

Spring

Before Pruning  One Stem Pruning  Two Stem Pruning
Second Growing Season Training

• Train canes into cordons

Third Year Dormant Pruning
Spring

Before Pruning

After Pruning

Pruning

Before Pruning

After Pruning

Third Season

• Partial crop can be allowed
• Cluster thinning may be necessary for good quality clusters and fruit

Pruning Mature Vines

Before pruning

After pruning

Pruning

Before Spring Pruning

After Spring Pruning
Pruning & Training

- Beginning the first year **Remember:**
  - Remove any flower clusters on the shoots (for at least 2 years).
  - Develop straight trunks to the desired wire.
  - Next, develop the cordons.
  - Allow cordons to fill in trellis length
  - Fruit can be allowed the third year

Why Trellis?

- Grapes are true vines
- Vines grow into a bush
- Diseases, weeds - no control
- No fruit!!!

Trellis Building

**Materials:**
- 8', 5" diameter round endposts
- 8' steel line posts
- 12 gauge, high-tensile wire
- 40", 4" helix earth anchors
- Wire strainers (turnbuckles)

Trellising

- It’s all about sunlight
- Disease control
- Spraying for
  - Insects
  - Diseases
- Construct trellis first season.

Four Arm Kniffen

**Trellising**

- Inexpensive to build/maintain
- Limits crop quantity
- Variable Ripening
Four Arm Kniffen Trellis

- Distributes growth more evenly than standard Kniffen
- Use for cultivars with long canes

Umbrella Kniffen Trellis

- Good air circulation
- Good sun exposure

Fan System Trellising

- Vertical Shoot Positioning
- Upright growing varieties
- Good canopy support
- Excellent sun exposure
- High quality fruit

VSP Trellising
Vertical Shoot Positioning Trellis

Munson System Trellising
- Both upright and drooping varieties
- Accommodates very vigorous varieties
- Creates large canopy/crop

Munson Trellis

Hi Bilateral Cordon Trellising
- Varieties with downward growth habits
- Simple & inexpensive

Geneva Double Curtain Trellising
- Twice the space as Hi-Bilateral cordon system
- Trailing habit varieties
- Good light
- Good yield

Geneva Double Curtain Trellis
HIGH WIRE RENEWAL
- Variable ripening
- Inexpensive to build/maintain
- Single wire
- Good for vigorous vines
- Allows for easy harvest
- Less crowding than 4AK
- Low cultural needs/costs

Arbors
- Fruit production
- Shade and ornamental effects
- Many kinds of designs
- Plant on both sides of an arch-like structure
- Grow to about mid-point of top
- Good Foliage cover = larger and taller plant than for ordinary trellis

Arbors
- Use durable materials
- Low maintenane materials

Arbors
- Less quality fruit than traditional
- Usually too little pruning
- Often a mass of
  - Multiple trunks
  - Numerous canes
  - Weak growth
- Usually poor fruit production

Arbors
- Train plants to a single trunk
- Develop a portion of the trunk each year
- Tie uppermost vigorous cane in a vertical position
- Leave short horizontal fruiting canes
- Select fruiting canes at intervals of 2 to 3 feet.
- Limit fruiting canes to five or six buds - favors development of the upper trunk and canes
- Select and use renewal spurs for source of fruiting wood close to trunk
Varieties

- Juice & jelly – Valiant, Bluebell
- Raisins – Somerset Seedless
- Table Grapes – Swenson Red, King of the North
- Wine – Many choices available

Animals

Grow tubes for mouse, rabbit & deer control in winter

Insects

MALB Multi-colored Asian Lady Beetle
**Insects**
Phylloxera (Aphid) (Foliar damage) In Europe — damages roots of Vitis vinifera

**Diseases:**
Downy Mildew

**Diseases:**
Powdery Mildew

**Diseases:**
Anthracnose

**Herbicide Injury:**
Glyphosate

**Herbicide Injury:**
2,4-D
**Nutrient Deficiency:**

Iron Chlorosis

**Veraison – Beginning of Ripening Color Change**

**Harvesting Your Grapes**

- Harvest in mid to late September – Early October
- Sugar content will be at its highest
- Acid content will be lower

**NDSU: Future Research**

- Establishment of young vines: pruning, grow tubes
- Cultivar Trials at REC’s – Absaraka, Carrington, Williston, Langdon
- Cultural practices to hasten maturity
- Trellis system testing to determine most efficient
- Breeding program for new ND varieties

**Harvesting Your Grapes**

- Cut clusters
- Don’t pull