Garlic Production

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Garlic

- Member of the onion family
- Cultivated for thousands of years
- Average yield 8,000-10,000 lbs per acre
- ‘Many uses’
Hardneck Garlic
Softneck Garlic

- v-keeled leaf
- bulb neck
- stalk
- roots
- bulb
- clove arrangement
Two Categories

• Hardneck varieties
  – Produce a flower stock (scape)
  – Difficult to braid
  – Does not store well
  – 4-12 cloves produced

• Softneck varieties
  – Do not produce a seedstock (may in a cold winter)
  – May produce bulblets within the stem
  – More productive (10-40 cloves)
  – Longer self life
Garlic Types and Varieties

• Rocambole
  – Hardneck
  – Named selections—German Red, Spanish Roja

• Purple Stripe
  – Hardneck
  – Performs well in cold climates

• Glazed purple stripe
  – Hardneck
Garlic Types and Varieties

- **Marbled Purple Stripe**
  - Hardneck
  - Very vigorous in cold climates

- **Porcelain**
  - Hardneck
  - Bulbs are large
  - Named selection-Music
Garlic Types and Varieties

• Asiatic
  – Shorter plant
  – Hardneck
  – Clones very prone to splitting

• Artichoke
  – Softneck, but may bolt following a cold winter
  – Usually most productive softneck in cold climates
  – Named selections—Inchellium red, Susanville
Garlic Types and Varieties

• Turban
  – Softneck-may form a flower stalk in the north
  – Does not store well
  – Earlier maturing

• Creole
  – Softneck-may form a flower stalk in our climate
  – Most suited for warm climates
Garlic Types and Varieties

- Silverskin
  - Softneck
  - Most suited for warm climates
Elephant Garlic

- Note a true garlic
- Type of leek
- Larger
- Can develop a bitter taste in cold climate
Site Preparation

• Free of perennial weeds
• Well drained soils high in organic matter
• Sandy loam is preferred
• Well composted manure
• Optimum ph is 6-7
• Soils should be well tilled before planting
Planting

• One to two weeks after first killing frost
  – Roots should develop but shoots should not emerge from soil

• Plant cloves
  – 2-3 inches below the soil line
  – Pointed side up
  – Six inch apart
  – Separate cloves the day of planting
Planting

• 100 foot row will require four to five lbs. of bulbs
• One pound of garlic bulbs will yield 4-8 pounds of harvestable bulbs
• 50 cloves per pound
• Do not plant garlic purchased at a grocery store
Mulch

• Cover with 3-4 inch layer of straw/organic matter 3-5 weeks after planting
Snow—a great mulch
Nitrogen Fertility

- Moderate to high levels of nitrogen
- 100 lbs N per acre medium organic matter level
- Apply prior to planting
- Do not apply after first week in May
- Nitrogen deficiency includes yellowing of older leaves, poor vigor, and low yields
Phosphorus and Potassium

- Use soil test to determine needs
- Potassium levels generally high in our soils
- Phosphorus deficiency –purple leaves and stunted growth
Removing mulch

- Remove in the spring after threat of hard freeze
- Shoots can tolerate air temperatures to 20 degrees
- Plant death, multiple shoots, and poor bulb development can occur if temperature go below 10 degrees
- Return the mulch when plants are 6 inches tall
Spring cold injury
Multiple shoots following cold damage
Poor bulb development following cold damage
Remove mulch
Mulched garlic
Irrigating Garlic

- Garlic has a shallow root system
- Critical stage is end of May to mid July
- Irrigation should be discontinued two weeks prior to harvest
Removal of scapes

• Yields can be reduced by 20% if scapes are not removed

• Remove just after the scapes began to curl
Removing scapes
Weed control

• Poor competitor with weeds
• Roundup application prior to planting
• Use weed free mulch
• Shallow cultivation prior to returning the mulch
Herbicides

- Prowl 3.3E
- Prefar 4E
- Buctril 2E
- Fusilade DX 2E
- Poast 1.5E
- Select 2E
Insects

- Not a major problem
  - Onion thrips
    - Small, sucking insects prevalent during dry weather
  - Onion maggots
    - Follow sound rotation
  - Wireworms
    - Common in fields that have been sod
    - Brown larvae half inch long
Diseases

• Control with proper rotation and disease free seed
Harvesting and Curing

- 2\textsuperscript{nd} week of July-first week in August
- Different varieties will mature at different times
- Harvest too early will result in small bulbs that do not store well
- Harvest too late will force cloves to pop out of their skin
Harvesting and Curing

• The lower leaves will begin to dry, 50% of the leaves will remain green
• Cut a bulb in half-clove, should fill the skin
• Dug with shoots and roots
  - Let dry than brush off dirt
Harvesting and Curing

- After digging 10-15 bulbs should be tied to a bundle and allowed to dry
- After 3-4 weeks the tops should be removed
- Leave ½ inch of stem on the bulb
Storage

• Table stock 32-40 degrees and 60% humidity
• Can be stored at room temperature, but will dehydrate faster
• Softneck will store 6-8 months
• Hardneck will store 3-4 months
Planting stock storage

- 60-70% humidity and room temperature
- Garlic stored at 32-40 degrees will not bulb properly
Souris Valley Garlic and Grape Festival

• September 19, 2009
• Sponsored by local Lions clubs
• Minot Municipal Auditorium
  – Classes
  – Wine testing
  – Great food
  – Grape stomping
Super Gardening Saturday

- April 18, 9:00 am
- North Central Research Extension Center
- Daniel Dix, Wood Spirits Gardens, Backus, MN—Keynote speaker
  - Creating a Garden Sanctuary
  - Stonescaping-the building Blocks of your Landscape
Source of Information

- Google ‘Growing Garlic in Minnesota’
Questions