



2016 Midwest Winter Production Conference Welcome!

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Growing Gourmet Garlic in Missouri

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Interesting Quotes

- *"What garlic is to salad, insanity is to [art](#)."*
Augustus Saint-Gaudens, 'Reminiscences'
- *"Three nickels will get you on the subway, but garlic will get you a seat."*
New York (Yiddish or Jewish ?) saying.
- *"There is no such thing as a little garlic."*
Arthur Baer
- *"Shallots are for babies; onions are for men; garlic is for heroes."*
unknown

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Interesting Quotes

- *"Tomatoes and oregano make it Italian;
wine and tarragon make it French.
Sour cream makes it Russian;
lemon and cinnamon make it Greek.
Soy sauce makes it Chinese;
Garlic makes it good."*
- Alice May Brock (of "Alice's Restaurant" fame)

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Interesting Quotes


- *"We season our garlic with food."*



Stinking Rose Restaurant
San Francisco, CA

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My Thanks

- **Bob Kipfer**, garlic beacon
- **Eric Fitts**, director of Bethlehem Farm and the source of much of my garlic
- **Katie Byers Peregoy**, partner in garlic
- **Tim Peregoy**, garlic guru

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Outline

- Introduction to garlic
- Garlic classification
- Choosing planting stock
- Garlic cultural practices
- Weed and pest management
- Garlic harvest and storage
- Marketing garlic

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Introduction to Garlic



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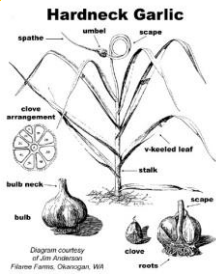
Introduction to Garlic

- Garlic is native to central Asia, and has been cultivated for five millennia
- Grown for culinary, medicinal and religious purposes
- Botanically, garlic is *Allium sativum* L.
 - Softnecks: *Allium sativum* var. *sativum*
 - Hardnecks: *Allium sativum* var. *ophioscorodon*

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Introduction to Garlic



- Garlic terminology
 - Bulb
 - Clove
 - Scape
 - Bulbil
 - Bulb wrappers
 - Bulb plate
 - Roots

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Introduction to Garlic

Top 10 garlic producers in 2010		
Country	Production (tonnes)	Footnote
China	13,664,069	Im
India	833,970	
South Korea	271,560	
Egypt	244,626	
Russia	213,480	
Burma	185,900	Im
Ethiopia	180,300	Im
United States	169,510	
Bangladesh	164,392	
Ukraine	157,400	
World	17,674,893	A

** = Unofficial figure | † = Official data | A = May include official, semi-official or estimated data
F = FAO estimate | Im = FAO data based on imputation methodology | M = Data not available
Source: UN Food & Agriculture Organization (FAO)™

- Leading US state in garlic production is California (87%), followed by Nevada and Oregon
- Annual per capita garlic consumption is 2.0 lbs and increasing...

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Introduction to Garlic

- Garlic is a growth industry
 - affinity for its flavor
 - promotion of the health benefits of garlic
 - Antibiotic effects
 - Antioxidant effects
 - Reduction of cholesterol
 - Reduction of blood pressure levels

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Introduction to Garlic

- Ideal growing environment
 - Moderately cold winter
 - Good snow cover
 - Adequate fall and spring moisture
 - Warm (not hot) and dry June and July
 - Direct sunlight and low humidity
 - Light sandy loam soil with good drainage
 - No plant competition

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Introduction to Garlic

- Labor - intensive and extensive
 - Hand “crack” seed cloves
 - Hand plant - “basal root plate down”
 - Hand weed, hand weed, hand weed, ...
 - Removal (topping) of scape (stem)
 - Hand harvest and “hang” for curing
 - Hand clean, remove excess stem and roots
 - Hand sort for seed stock

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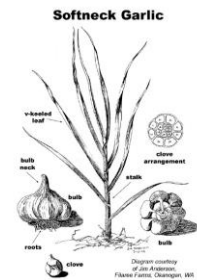
Garlic Classification



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Softneck Garlic

- Generally do not form scapes
- Many cloves per bulb
- Tighter clove skins
- Generally longer storage life than hardnecks
- Grow better in warmer climates than hardnecks
- Can be planted mechanically
- Flexible stalk allows for braiding
- Most commercial garlic is of this type
- Latest classification (2003) – 2 varietal groups
 - Artichoke
 - Silverskin



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Artichoke

- Common type in markets
- Bulb wrappers coarse and thick
- Adaptable, easy to grow
- 3 to 5 clove layers containing 12 to 20 total cloves; inner cloves are smaller
- Clove skins adhere fairly tightly, one reason for their long storage life.
- Very vigorous and large bulbed.
- Flavor ranges from mild to full flavored
- Some Artichoke strains produce large round, symmetrical bulbs, others have a knobby, asymmetrical appearance.
- 1 pound of cloves will produce approx 90 plants

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Artichoke



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Silverskin

- Softneck
- Easily braided
- Late harvest season
- Longest storage potential
- Bulb wrappers fine, smooth, and white
- 12-20 cloves per bulb; 3 clove layers are common; inner cloves are smaller
- Lots of variability in this group in flavor
- Widely adapted as a group, do well in a wide range of climates, hot southern, wet maritime, and cold northern climates as well.
- Plant growth is more upright than other types.
- One pound of seed garlic will very roughly produce 90 plants

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Silverskin



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Hardneck Garlic

- Produce scapes and bulbils
- Few and larger cloves per bulb
- More uniform sized cloves
- Clove skins easier to remove
- More variation in taste characteristics
- Generally shorter storage life than softnecks
- Adapted to cool growing conditions
- Latest classification (2003) – 8 varietal groups
 - Rocambole
 - Purple types – stripe, mottled, glazed
 - Porcelain
 - Turban
 - Creole
 - Asiatic

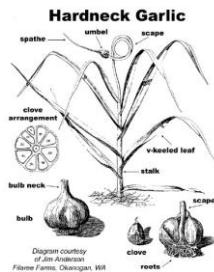


Diagram courtesy of Jim Anderson
Flavor Farm, Okemo, VT

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Rocambole

- Hardneck
- Thin bulb wrappers
- 7-9 clove per bulb
- Strong, rich, deep flavor
- Best in cold climates
- Short storage potential
- Scapes form complete double loop
- 1 lb of cloves will produce approx. 60 plants

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Rocambole



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Purple Stripe, Mottled, Glazed

- Hardneck
- Thick, vividly striped outer wrappers
- 8-12 cloves per bulb
- Widely adapted
- Rich flavor, often mild; excellent baked
- Scapes make 270° curl
- Midseason harvest time
- Medium storage time
- 1 lb of cloves will produce approx. 60 plants

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Purple Stripe, Mottled, Glazed



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Porcelain

- Hardneck
- Thick bulb wrappers
- Large, fat cloves; 4-8 per bulb
- Rich flavor, often hot tasting
- Late harvest
- Good storage potential
- Very hardy, adaptable, best in northern areas
- Scapes coil in many directions
- 1 lb cloves will produce about 40 plants

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Porcelain



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Turban

- 5-7 fat cloves per bulb
- May not have a scape
- Pungent flavor
- Scapes form upside down U



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Creole

- White bulbs wrapper, reddish clove wrappers
- 8-12 cloves per bulb
- Flavor that is full but not hot
- Small bulbs
- Best in warm climates



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Elephant Garlic

- Type of leek
- Culture is similar to garlic
- 4-6 large cloves per bulb
- Mild flavor
- Produces scapes



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2016 Garlic Festival

- MU Extension – Greene County
 - 2400 S. Scenic, Springfield, MO
 - 417-881-8909
 - byerspl@missouri.edu
- September 21, 2016
- Learn about:
 - Performance of over 30 garlic strains
 - Garlic and human nutrition
 - Taste test several garlic strains
 - Purchase garlic bulbs

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Any Questions?



<http://extension.missouri.edu/greene/HorticultureProgrammingInGreeneCounty.aspx>

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