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EXTENDING KNOWLEDGE >> CHANGING LIVES

# **UPCOMING WEBINARS**

## April 16 - Ghosts in Your Gardens

- Janet Knodel, NDSU Extension entomologist and professor

· April 23 - No Webinar

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## · April 30 - Food Preservation Tool Kit

- Karen Blakeslee, Kansas State University Extension associate

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 Please complete the short online survey that will be emailed to you after today's webinar. It will take just a couple minutes!

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Be sure to sign up for an opportunity to win a prize in the drawing. After submitting the survey, a form to fill out with your name/address will appear.

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## ALL ABOUT ALLIUMS: GARLIC, GREEN ONIONS, DRY BULB ONION, LEEKS AND SHALLOTS

Harlene Hatterman-Valenti, NDSU Department of Plant Sciences professor





# Field to Fork- All About Alliums: Garlic, Green Onion, Dry Bulb Onion, Leeks

Wednesday, April 9, 2025 2:00 PM - 3:00 PM

Marion County Extension Office, 210 N lowa Street Knoxville, IA 50138

Lydia Dingeman (641) 842-2014

All About Alliums: Garlic, Green Onion, Dry Bulb Onion, Leeks and Shallots — Harlene Hatterman-Valenti, professor, NDSU Join ISU Extension and Outreach, Marion County in partnership with NDSU Extension for free weekly webinars!

#### **THREE MAJOR ONION TYPES**

- **1**. Cepa group (common onion)
  - Bulbs formed as single plants
  - Propagated from true seeds
- 2. Aggregatum group (shallots)
  - Many lateral bulbs or shoots
  - Propagated by vegetative means
- 3. Proliferous group (tree onions)
  - May have poorly developed bulbs
  - Propagated by vegetative means and bulblets



#### **CULLINARY ALLIUMS**

- Chives Allium schoenoprasum
- Dry bulb onions Allium cepa
- Garlic Chives Allium tuberosum
- Hardneck Garlic Allium sativum ssp. ophioscorodon
- Leeks Allium ampeloprasum
- Scallions or Green Onions Allium fistulosum
- Shallots Allium cepa var. aggregatum
- \*Elephant Garlic Allium ampeloprasum
- \*Softneck Garlic Allium sativum ssp. sativum



#### **ALLIUM BASICS**

- Herbaceous, cool-season plants
- Primarily biennial vegetables grown as annuals
- Shallow, fibrous roots develop from a basal plate
- Generally combo of day-length and temp triggers bulb initiation
- Yield determined by # leaves present at bulb initiation
- Medicinal value derived from sulfur compounds and polyphenols
  - Antimicrobial
  - Antifungal
  - High anti-platelet
  - Anti-inflammatory



#### **ANATOMY OF ALLIUMS**



## - Part Of Clove -



#### **CHIVES VERSUS GARLIC CHIVES**

- Chives (Onion Chives):
- Hollow and cylindrical leaves.
- Mild onion flavor.
- Used as a garnish, in salads, or flavoring in various dishes.
- Produce pinkish-purple flowers.
- Garlic Chives:
- Flat and rather solid leaves.
- Mild garlic flavor, often described as a garlic/onion mix.
- Commonly used in stir-fries, dumplings, and soups.
- Produce star-shaped white flowers.



#### **WHAT'S WRONG WITH THIS?**



If you haven't tried garlic chives maybe grab some this week and give them a try and let us know how you like them

#### What's the Difference between SHALLOTS and ONIONS?

### **SHALLOTS**

grow in clusters
vary in shape
only come in one flavor
contain more Vitamin A
can sometimes contain more magnesium

#### **ONIONS**

 one onion plant produces a single onion
 always round or oval in shape
 always symmetrical
 vary in flavor

#### **GROWING SHALLOTS**

- Plant sets in the spring as early as you can.
- If seed, sow indoors ~ 10 wks before last expected frost.
- Sandy loam soils are ideal; raised beds or raised rows are recommended for heavier soils to promote soil drainage.
- Plant at 6" spacing and 8-12" rows. When planted at 2" spacing, shallots are more likely to form a single bulb.
- Grow best with at least 1" per week of rain or irrigation, especially during the bulbing phase. Plants need 3-4 mo to mature.
- Harvest when necks become soft and tops are falling over, pull and sun-cure at least 2–7 days or dry in protected location.



#### **GROWING SCALLIONS**

- Never form a bulb despite environmental triggers for bulb initiation
- Sow early spring in 2-4" bands with < 0.5" between seed.</p>
- Sandy loam soils are ideal; raised beds or raised rows are recommended for heavier soils to promote soil drainage.
- Grow best with at least 1" per week of rain or irrigation,
- Harvest as needed individually or by the bunch.



#### **GROWING LEEKS**

- Cultivars range in days until maturity from 75 -120 days.
- Sow indoors ~ 8 wks before last expected frost.
- Prepare a trench 12" deep and 6" wide.
- Fill the bottom six inches with a layer of well-rotted manure or compost. Set seedlings 4-6" apart in trenches 15" apart.
- As the plants grow, fill in the trench so that by the end of June the ground is level and six inches of leek stem is underground.
- Harvest when wanted. Leeks will store for several weeks.
   Store at near-freezing temperature.



#### **GROWING GARLIC**

- Garlic Types: Hardneck groupings
- Rocambole Porcelain Purple Stripe Glazed Purple Stripe
   Creole Asiatic Turban Marbled Purple Stripe
- Raised beds help with drainage for heavy soil. Poorly drained soils may lead to disease and/or poor bulb formation.
- Plant in the fall between mid September and end of October (good root growth and limit top growth before winter).
- Push root end of clove down 2-3" and 6" spacing between cloves.
- Cover with a 3-4" layer of mulch after a hard freeze and before ground freezes.
- Cut scapes when they begin to curl.
- Harvest when 3-5 leaves turn brown. Cure 2-3 wks in a warm, shady place with good air circulation.



#### FORMATION OF STORAGE ORGANS IN RESPONSE TO PHOTOPERIOD

**Classification** 

Vegetable crop

Day neutral: Carrots, beets, turnips, radishes

Long day (short night): Onions, garlic

Short day (long night): Potatoes, sweet potatoes, yams



#### **ONION TYPES**

- American: pungent, 2-3" diam., globe shaped that stores well.
- European: Bermuda & Spanish types
  - Spanish: mild, 4-5" diam., round that are used for the fresh market and ring processing.
  - Bermuda: mild and adapted to southern latitudes for winter production. Poor for storing.
- F1 hybrids more vigorous and uniform than open-pollinated cvs, but have limited adaptation.

#### **OTHER CLASSIFICATIONS**

- Skin color: red, white, yellow
- Taste: mild, pungent
- Shape: round, flat, globe
- Minimum photoperiod: short day (12-13 hr), intermediate day (13-14 hr), long day (14-16 hr).
- Short and intermediate day cultivars require a long growing season (180 days).

#### **SHORT-DAY ONIONS**

 Bulbing is induced with 12-13 hours of daylight



Yellow Granex

Mild flavor

 White Bermuda, Yellow Granex (Vidalia), Texas Grano, Crystal White Wax, Torpedo



White Bermuda

#### **INTERMEDIATE-DAY ONIONS**

Bulbing induced by 13-15 hours of daylight

- Adapted for nearly all areas of the US

Sweet red





cimarron

#### **LONG-DAY ONIONS**

 Bulbing induced by 14-16 hours of daylight

Mild to pungent





Wala Wala

 Yellow Sweet Spanish, Wala Wala, Early Yellow Globe, Sweet Sandwich, Fiesta



**First Edition** 

#### SETS

- Use sets < 0.5" diam.</p>
- Larger sets used for green onions.
- 3-4 wks earlier than seeded onions.



#### **CULTURAL PRACTICES**

- Spacing
- Weed control
- Water
  - 1"/wk during seedling stage
  - 1.5"/wk during bulbing stage
  - stop when tops start to fall over
- Fertility



- 10-20-10 ½ cup/10 ft row incorporated before transplanting
- $34-0-0\frac{1}{2}$  cup/10 ft row every 2-3 wks (soft neck).

#### WHAT CONTROLS BULBING?



#### Fargo, North Dakota, - Sunrise, sunset, dawn and dusk times, table.

Date	Sunrise	Sunset	Length	Change	Dawn	Dusk	Length	Change
March 16	07:38	19:34	11:56		07:08	20:04	12:56	
March 17	07:36	19:35	11:59	00:03 longer	07:06	20:06	13:00	00:04 longer
March 23	07:25	19:44	12:19	00:23 longer	06:54	20:14	13:20	00:24 longer
March 30	07:11	19:53	12:42	00:46 longer	06:40	20:24	13:44	00:48 longer
April 13	06:40	20:15	13:35	01:39 longer	06:08	20:47	14:39	01:43 longer
May 11	05:52	20:55	15:03	03:07 longer	05:17	21:31	16:14	03:18 longer
June 7	05:32	21:23	15:51	03:55 longer	04:53	22:03	17:10	04:14 longer
September 21	07:03	19:41	12:38	00:42 longer	06:33	20:12	13:39	00:43 longer

#### WHY DO MY ONIONS FLOWER?

Plants/sets beyond the juvenile stage (5 leaves) are sensitive to vernalization.

 Plants exposed to alternating warm and cold temps that cause the plant to go dormant and resume growth will prematurely flower.

Results in smaller bulbs that do not store.



#### **HOW TO GROW GIANT ONIONS**

- Start with a cultivar known for its large size, like 'Ailsa Craig' with bulbs potentially reaching 2 pounds or even up to 6 pounds.
- Has a mild, sweet taste, making it excellent for fresh eating.
- Allow 6" spacing between plants to realize best size potential.
- Keep soil weed free and consistently moist, but not waterlogged and provide a balanced fertilizer every 2-3 weeks.
- Not ideal for long-term storage, best used fresh.



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Analysis Person Revised July 2019



