Dividing and Storing Dahlia Tubers

New England Dahlia Society

December 2023

Prepare tuber clumps for winter storage:

Remove excess soil or wash clumps (optional)

Remove tubers with broken necks, feeder roots, tubers growing out of tubers, all rotted tubers and mother tubers, trim down stems, and label each clump

Before storing away whole clumps or divided tubers, let tubers rest/cure to allow skin to thicken. Keep at low temp (~40°F) but high humidity to prevent dehydration and shriveling

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Store fresh whole clumps either:
- wrapped in newspaper inside plastic bags or boxes
- or in the open at high humidity (>80%) (root cellar) leave bags or containers cracked open to allow airflow and to prevent mold

Avoid storing freshly dug tubers immediately in vermiculite or wood chips since vermiculite will dry out tubers that haven't fully cured.

(Note: potatoes should also rest 2 weeks at high humidity immediately after digging and before processing)

Dividing tubers

Varieties that don't store well if divided - Store those as clumps!

Wizard of Oz, Bowen, Jowey Winnie, Show N Tell, Nick Sr., Ketchup & Mustard Spartacus, Vassio Meggos, and all their sports

Varieties with skinny spidery tubers

Varieties that don't store well in general – keep undivided, process first

Peaches 'N' Cream, Purple Joy, Tartan, Hollyhill Black Cherry, Porcelain, Chimacum Troy, Rose Toscano, Mi Wong, Lismore Moonlight, Yellow Baby, Rhonda, Valda, Mingus Nicole

Dividing tubers
Tools:

Clippers, scissors, pruning knife, loppers (not shown)
Paint brush (to brush off soil)
Marker: industrial Sharpie or ink pencils (mark wet tubers)
Cutting board
Magnifier or reading glasses
Good light source

Not shown:
Battery powered Multi-Tool (DeWalt)
https://a.co/d/gvkBu4F
Zenport 8-inch gardening scissors
https://a.co/d/1DO2zom

Dividing tubers

Use BLEACH solution to disinfect tools between dividing each clump

Soak tools for at least 30 secs in ~10-20% bleach in water
Rinse in water or mild soap solution

Prevents transmission of microbial diseases such as viruses, fungi (mold), bacteria (rot)

Especially important after cutting into rotting tubers!

Treat tools with WD-40 or similar lubricant after use to prevent rusting.

ANATOMY OF A TUBER

Green: tuber
Purple: neck
Pink: crown

The crown is where the EYES (sprouting sites) of the tuber are.

The neck connects tuber and crown. Tubers with broken necks will not grow and should be discarded.

https://summerdreamsfarm.com/dahlia-tuber-and-splitting-guide

Dividing a Dahlia Clump

Belle of Barmera (AA, ID)

Clump was washed, most feeder roots removed; cured for 1-2 weeks
Eyes are easily detectable
Note: 2 mother tubers

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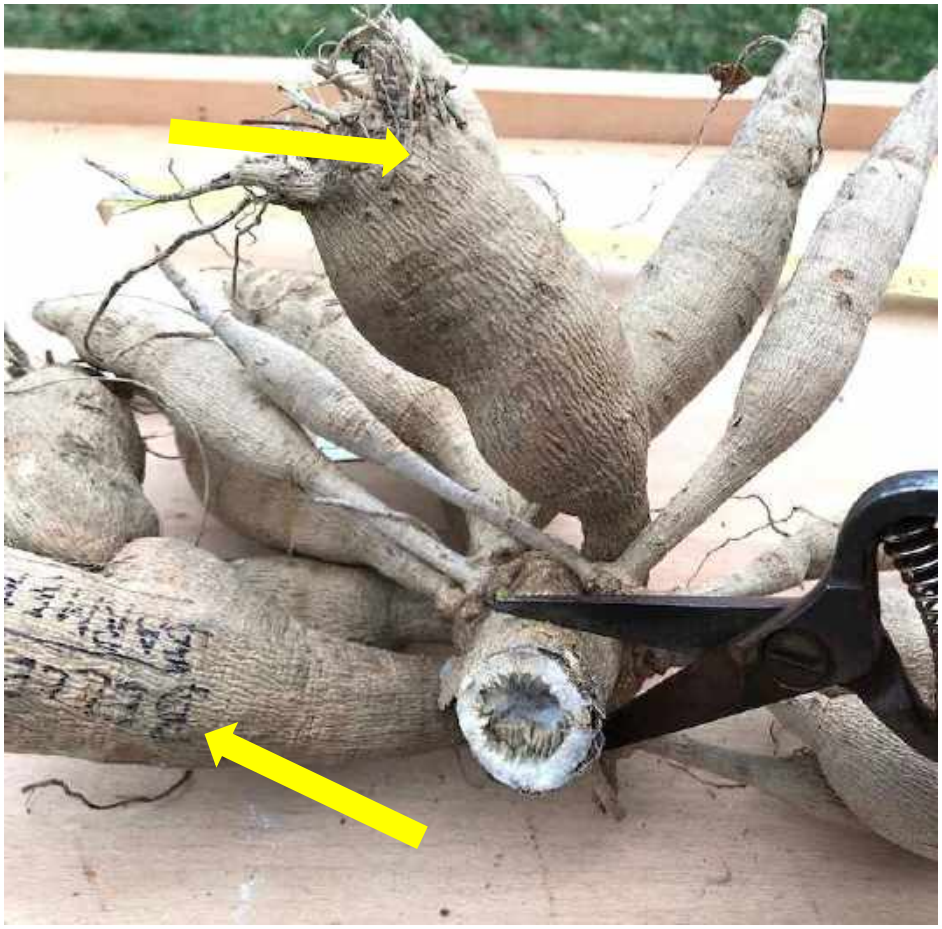
Dividing tubers

1. Cut off STEM
(hollow & moldy)

2. Locate MOTHER
tubers (yellow arrows)

Marked tuber =
mother tuber from last year
Often large, with thicker skin than new tubers. May have blunt ends with many feeder roots

Mother tubers will be discarded - unless that's all you have. Mothers can be stored if healthy (cut of ends to check).



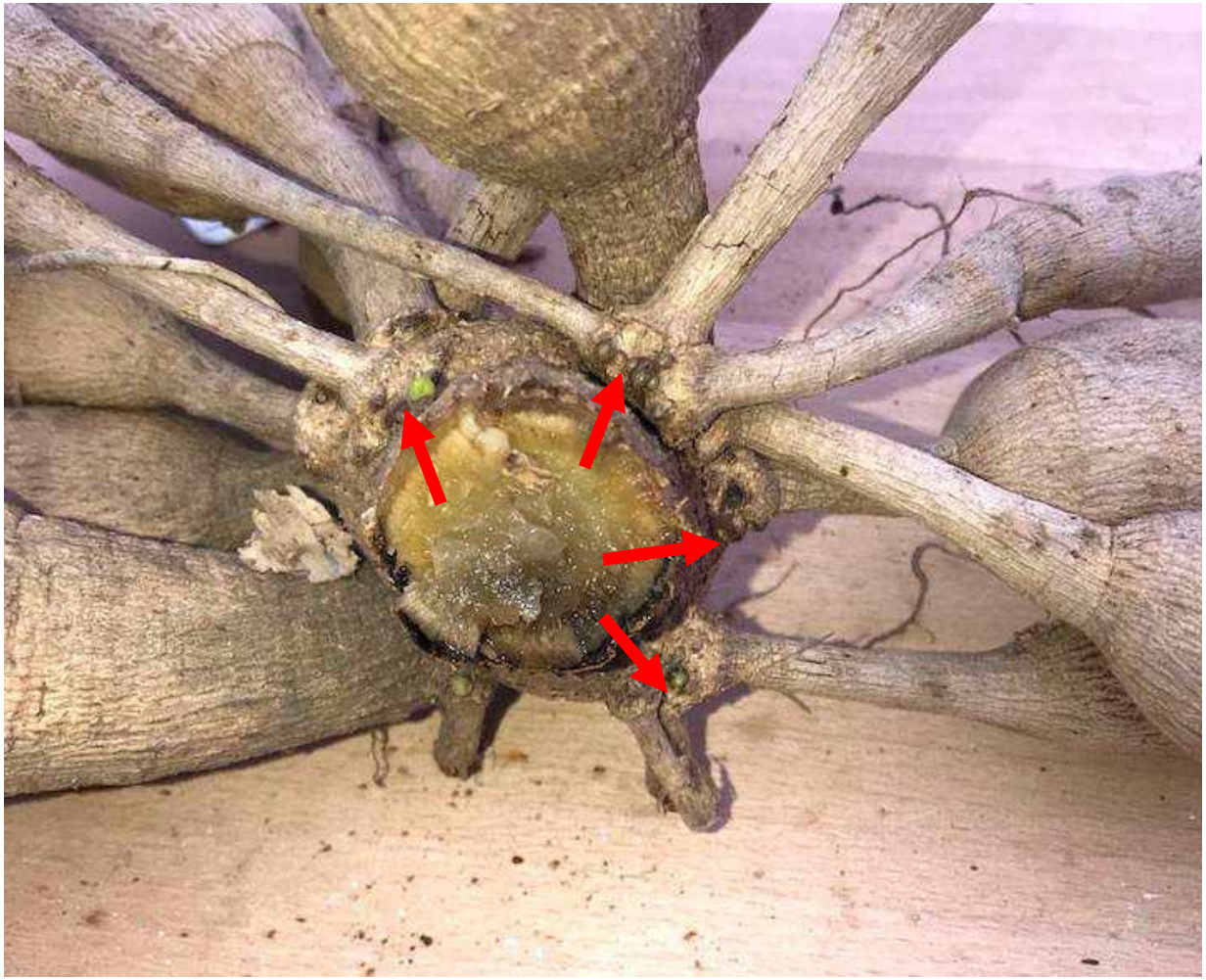
Dividing tubers

3. Locate the EYES

On a clump the eyes are on the crown near the stem or on the stem.
Eyes are often difficult to detect when dividing in Fall. Visibility of eyes also differs between varieties.

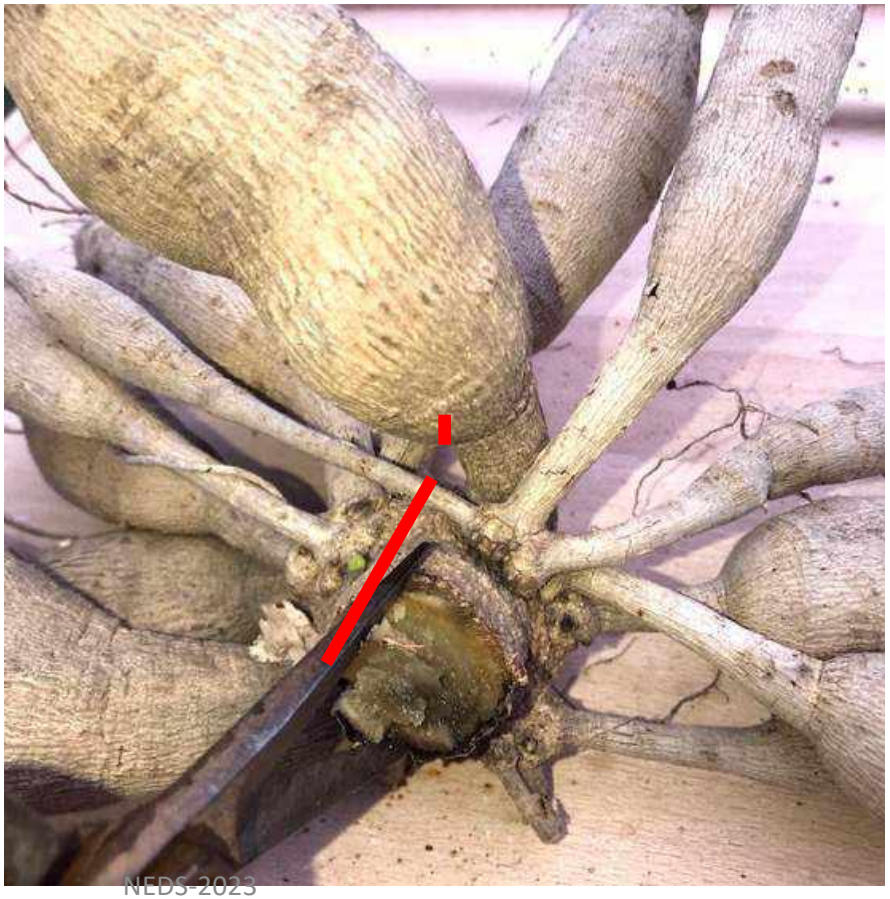
Here, many eyes are detectable.

Stem fleshy but has some rot/brown tissue (will be discarded)

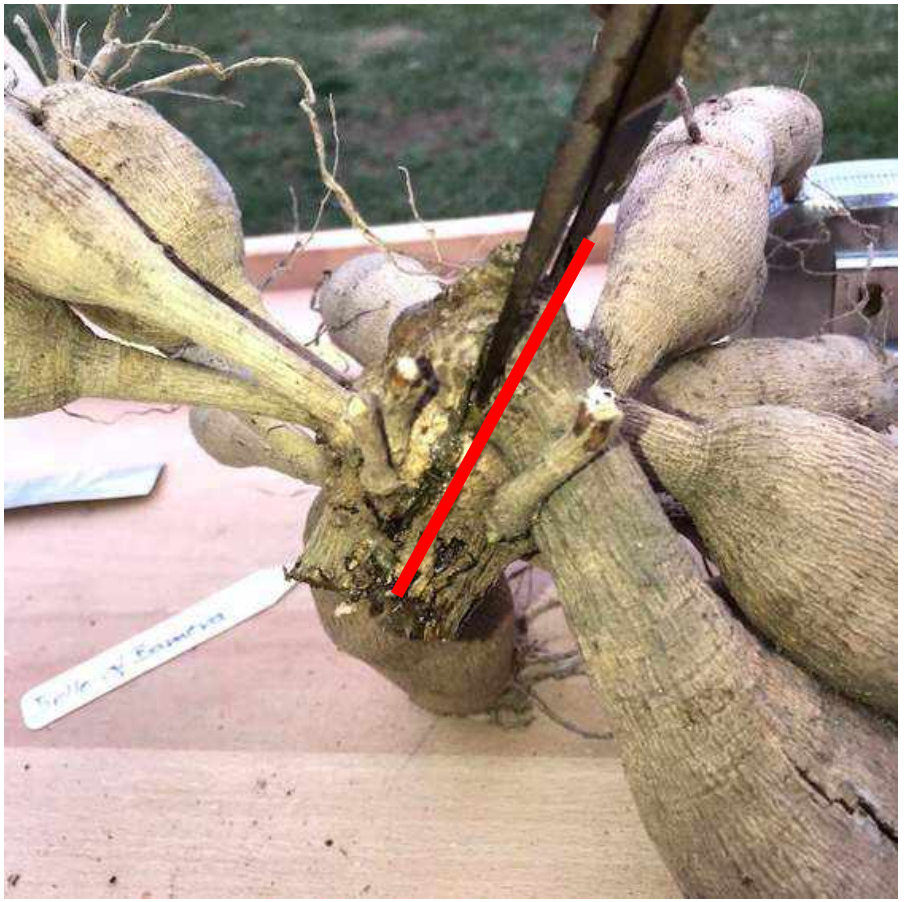


4. Remove tubers by cutting through the stem

Here: cut clump in half by cutting through stem
Avoid damaging eyes

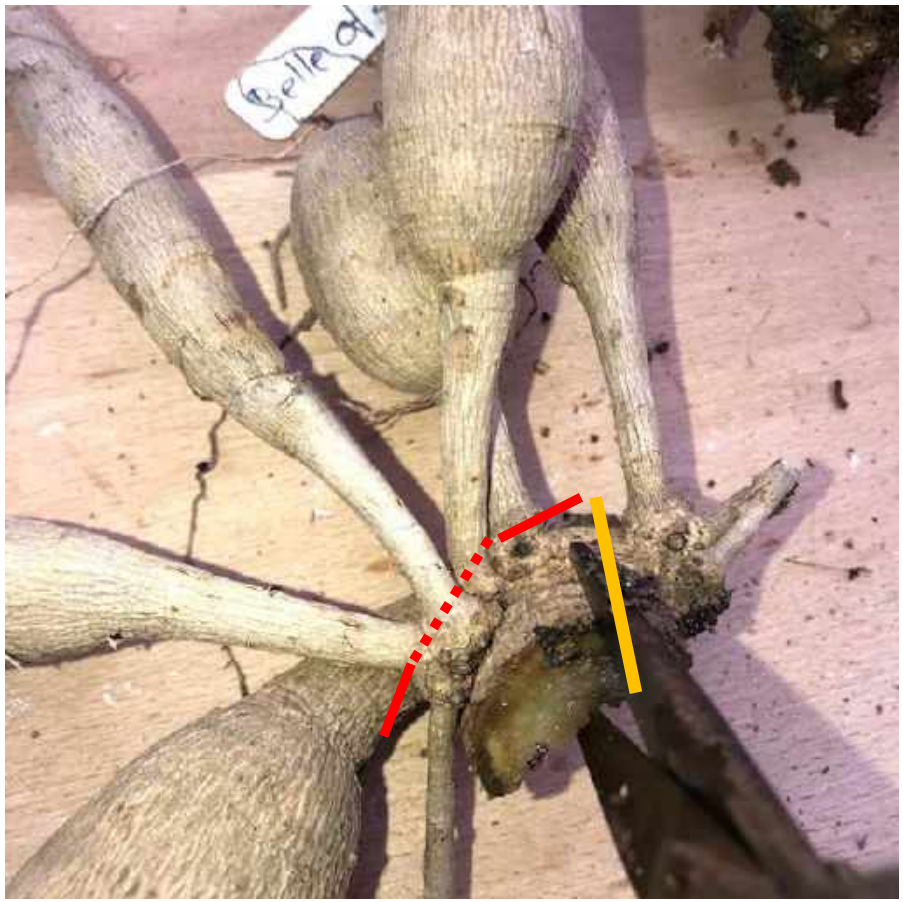


Turn clump upside down - view & cut from below (as shown: cut sacrifices mother tuber on bottom right)



Clump divided into two halves

Further divide right half of clump with 2 cuts

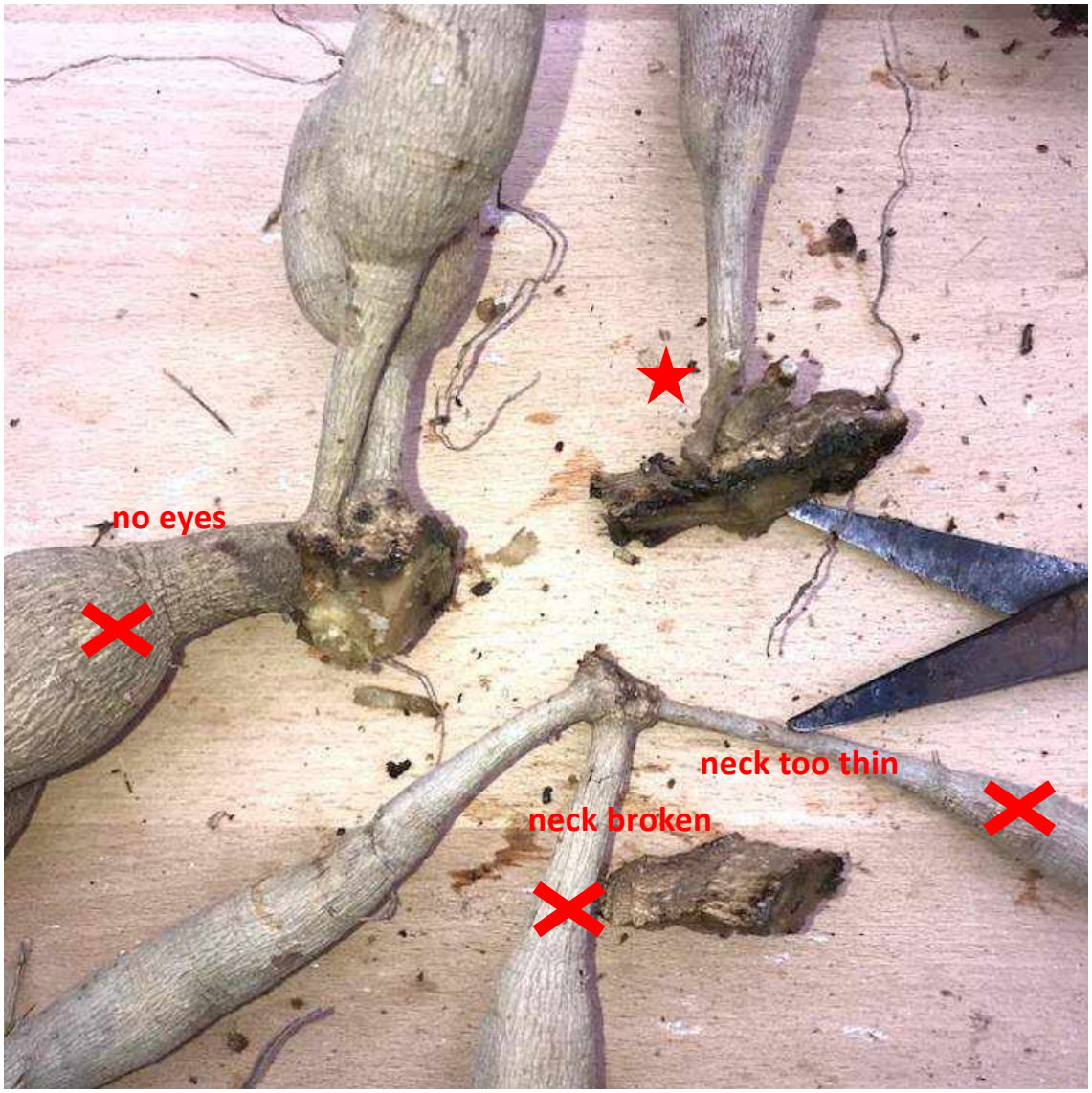


Dividing tubers

5. Clean up crown of single tuber ★

Remove tubers that are too thin, have broken necks or lack eyes.

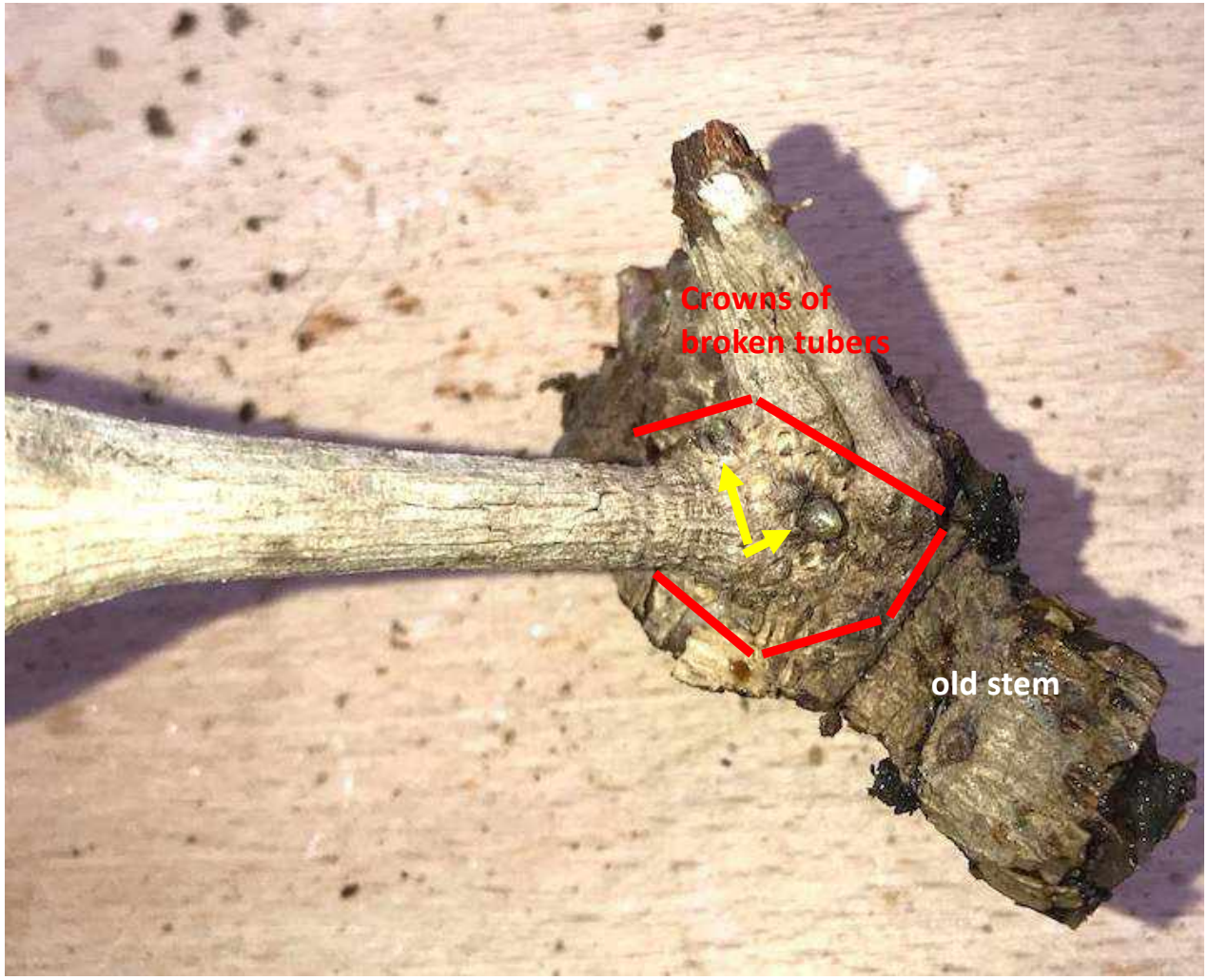
Result of dividing right half of clump after 2 cuts -->



Dividing tubers

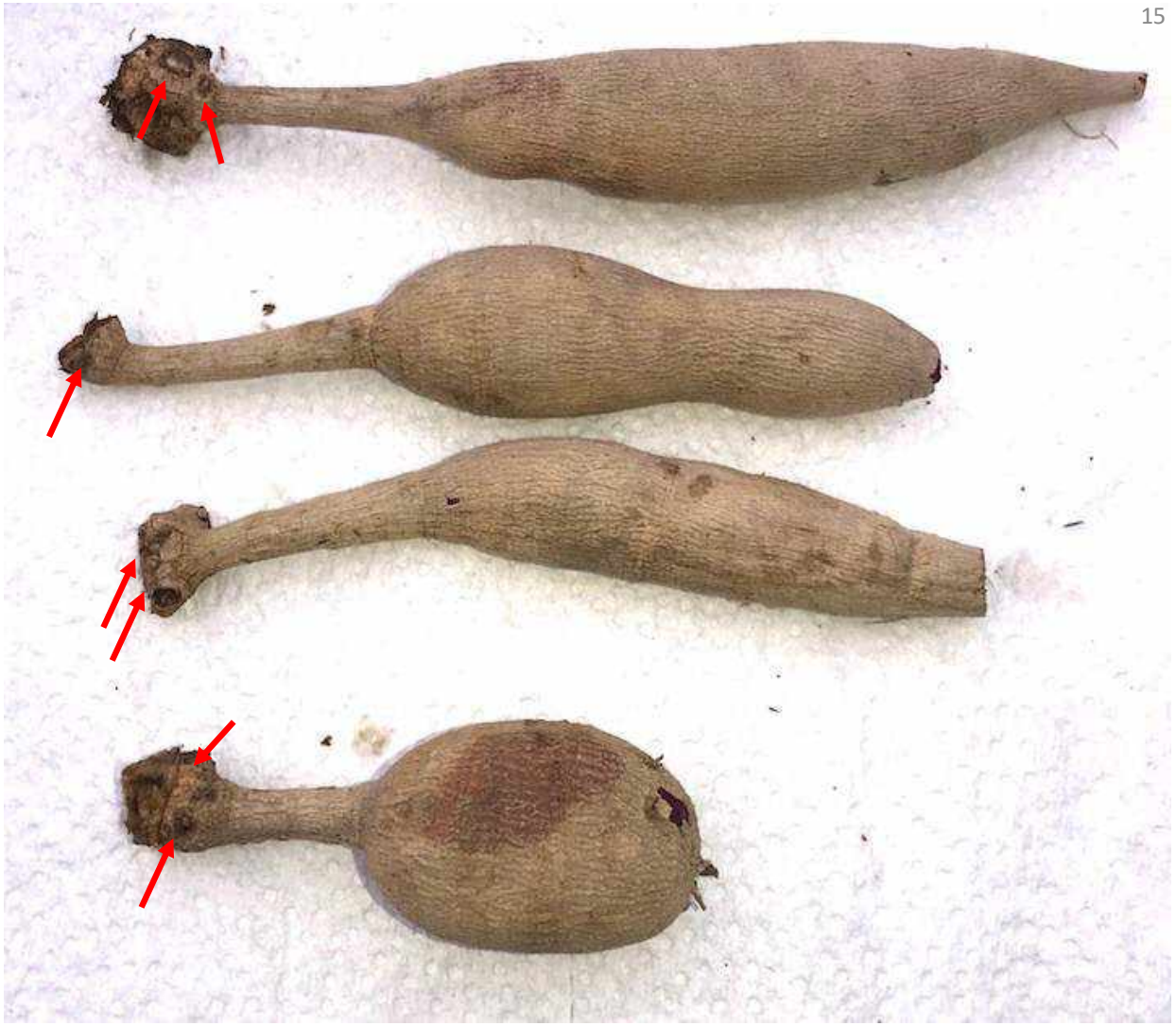
Close-up: clean-up crown of single tuber without damaging eyes (yellow arrows)

Here, remove piece of old stem (all tissues with rot) and crowns of tubers that had broken necks.



Result:
4 single tubers from left half of clump.
(3 tubers discarded)

Make sure each tuber has 1 or more eyes



Split other half of clump
Discard mother tuber; keep group of 3 tubers for direct planting; save small tuber for starting early in a pot

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6. Mark each tuber!

(or store together in marked container)

Tuber Problems - Shriveled Tubers

Some varieties dry out very quickly. These are best stored as a partial clumps (or use Saran wrap storage)
Cut into the tuber: if white flesh visible inside – tuber may still grow
If tuber is all brown, stiff or very light – not viable
(Divide and store varieties prone to dehydration quickly.)

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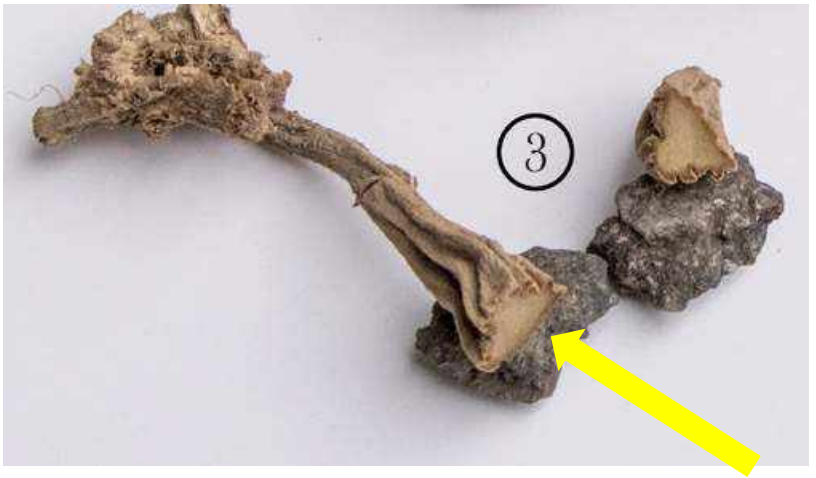
Dried out tuber



White flesh remains

Tuber Problems – bacteria and fungi causing rot and mold

Rotted tuber (left)
White mold (left & right)

Cut away rotted tissue from ends, but if progressive cuts reveal tuber core is bad or if tuber feels hollow - Discard!
Note: small amounts of white mold without rot might not necessarily harm tubers.

Disinfect tools after cutting into rotting or moldy tubers!

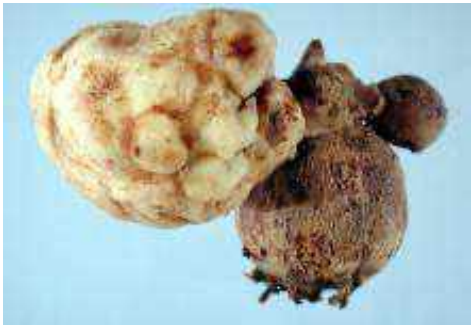
Tuber Problems: Knobby swellings between stem and tuber crown - Leafy Gall

Caused by bacterial infection (can be spread by splashing water)
Distorted growths on stem and tuber crown at the soil line or just below the soil surface
Often on tubers imported from Europe. (This was an import.)
Do not divide or store. Discard the clump in trash! Disinfect tools/hands. Do not plant tubers in the same spot for ~1 year.

Tuber Problems - Crown gall

- **Infection with Agrobacterium tumefaciens causes swelling of tissue into tumors or galls on stems or roots.**
- **Wide host range – many different plants can be infected**

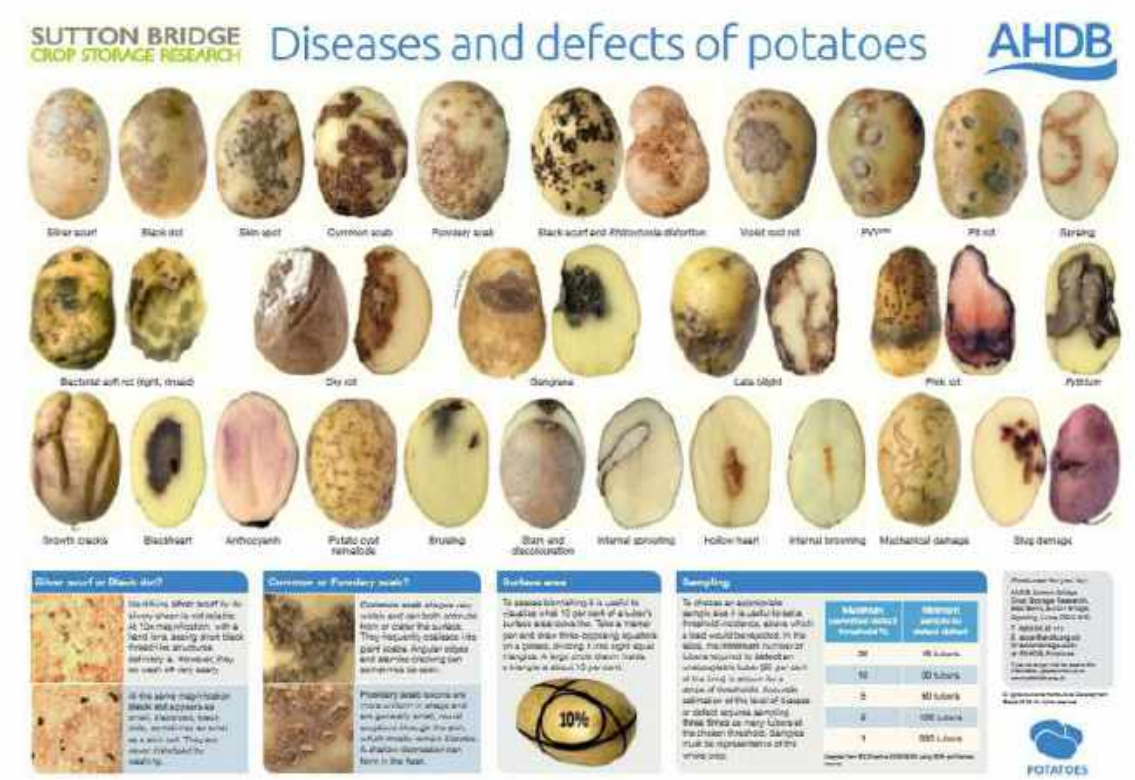
- **Do not try to divide. Discard entire clump in trash! Disinfect tools/hands. Do not plant tubers in the same spot for ~1 year.**



Not a Disease! Lenticels on tubers

Small white or brown spots on tubers are breathing pores that open when the tuber gets too wet.

There is very little information about dahlia tuber diseases.
But there is some overlap with potato tuber diseases….



https://potatoes.ahdb.org.uk/knowledge-library/potato-defect-identification

https://ag.umass.edu/vegetable/fact-sheets/potato-identifying-diseases

Storage in Vermiculite or Eastern Red Cedar Shavings

- Cover bottom of a plastic or styrofoam container with single layer of vermiculite or shavings
- Spread layer of tubers; alternate crowns and ends
- Cover tubers with a layer of vermiculite or shavings
- 3 to 4 layers of tubers fit into a shallow Sterilite box
- Label side of box with tuber varieties
- Keep box slightly opened for air flow, to prevent condensation

Red Cedar wood shavings are antibacterial. Avoid other wood shavings since they may mold. Available in Walmart's pet section: 5 Cu. Ft. ~$9

Wear dust mask when handling vermiculite!

Tuber Storage Conditions

Storage temperature: **40 – 50°F (ideal 42°F) (MUST be frost-free!)**
Stable temperature is best

Humidity: **higher is better but it depends on temperature**
Lower temps (40°F) higher humidity levels possible
Higher temps (55°F) reduce humidity to prevent rotting,
ensure airflow to prevent moisture build-up

Keep dark
- Check tubers **monthly** for moisture levels, check for rot or shriveling.
- Avoid storing tubers or clumps in unlined cardboard boxes. Cardboard wicks away moisture.

The best storage condition depends largely on each individual situation such as the availability and temperature of a basement, root cellar, unused bedroom, insulated garage, cooler, etc.

Tuber Storage Problems – Prevention of rot and mold

Avoid too much moisture and warmth during storage
Avoid temperature fluctuations in storage
For example, an unheated garage might be 60°F during the day and near freezing at night.
This causes condensation inside the storage container, which promotes mold and rot.
Store tubers in a cooler or used Styrofoam container (such as meat/fish shipping boxes) to reduce temperature fluctuations.

Monitor temperature and humidity with a digital thermometer/hygrometer (available online starting ~$10)
Make sure tubers are completely dry (but not shriveled) before storing.
Check if tuber feels warm to touch – it is dry. If tuber feels cool – still too moist to store.
Remove all diseased tubers, mushy or rotting stems before storing.

Optional: dust cut tubers or entire tuber with antibacterial and antifungal dust.

Preventing Rot and Mold on Divided Tubers

Some tuber varieties rot more easily than others. It might be useful to treat cut surfaces on tubers or entire tubers to prevent fungal or bacterial infections and to dry the cuts.

Possible treatments:

- **Cinnamon: acts as an inexpensive antibacterial and antifungal powder**
- **Sulfur or Copper dusts: antifungal plant treatments such as Bonide plant fungicides**
- **Mix clay dust ('Surround') with smaller amount of sulfur or copper dust**

Dip cut tuber ends or coat entire tubers ('shake & bake' or brush on)

Wear dust mask and gloves when working with sulfur or copper dust!

"Surround" or Kaolin clay dust can be purchased online from ARBICO-organics or in smaller amounts from Amazon.com https://a.co/d/aUYIBvh