

Greater Success with Seeds



Stratification and Scarification

March 5, 2020

Before Sowing Seeds

Read package directions for

- When to plant (indoors and in the ground)
- Light requirements for germination

More research may be required to determine how to prep seeds for best germination –

Cold stratify?

Scarify?

Soak?



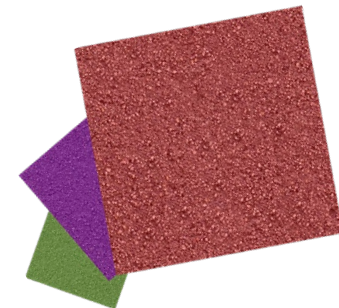
Scarify or Stratify?

Some seeds need help to germinate -

- **Stratification** – period of cold temperature
 - Option 1 – plant seeds in ground in October/November
 - Option 2 – refrigerate seeds
 - Option 3 – place seeds in pots and leave outdoors during cold months



- **Scarification** – nick or break the seed coat
 - Option 1 – animals eat seeds and then
 - Option 2 – physical or chemical abrasion



Refrigerator Stratification (Option 2)

- In November, put seeds in a folded moistened paper towel. Fold the paper towel so the seeds can't fall out. Put the paper towel inside a resealable plastic bag.
- Put the sealed plastic bag into a crisper drawer in the refrigerator for 3 months. Check every few weeks to make sure the paper towels stay moist; add water if needed. Remove any seeds that germinate and plant them.
- After 3 months remove from refrigerator and plant in a flat/pot. Put the flat/pot in an area with gradually warming temperatures and partial sunlight and keep it watered. Watch for emergence of seed leaves.

"Shocking" seeds that have been refrigerated by soaking them in warm water for 24 hours also seems to improve germination rates.



Natural Stratification – Option 3

- Put soilless potting mix in a pot
- Sprinkle the seeds evenly over the surface of the mix
- Cover the seeds with a thin covering of soil about equal to the diameter of the seed. Gently press down on soil
- Water with a very gentle flow of water
- Place pot outside, exposed to natural temperatures
- Keep soil moist, not soggy
- Watch the flat as weather warms for emergence of seed leaves.



Seeds to Cold Stratify

(Plant in Fall or Refrigerate)

- Penstemon
- Poppies - plant in Fall or early Spring when still cool
- Milkweed

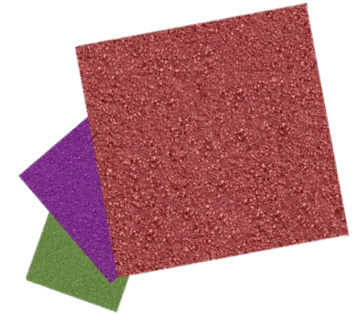


Even after stratification, seeds of many plant species will not germinate or will be slow to germinate, especially in extreme cold or high-altitude areas (short growing season). Soaking seeds may help.

Scarification

Methods

1. Place seeds in a container with coarse sand and shake container for a 30 seconds
2. File with a metal file
3. Rub with sandpaper
4. Nick with a knife
5. Nick with nail clippers or nail nippers



Nick the seed just enough to see the lighter colored innards of the seed

Nick the Seeds



Nail nippers



Sandpaper under seed to hold in place and use nail clippers



Nicked sweet pea seed



Soaking Seeds

Seeds that need Scarification and Soaking

(Warm water 6 to 24 hours per documentation)

Morning Glories

Nasturtium

Sweet Peas

Lupine

Milkweed

Mallow

Columbine

Large seeds of flowers and perennials

Many natives and wildflowers (at a minimum – soak them)



Spinach

Winter Squash



Sunflowers, parsley, peas, beans, corn, pumpkins, squash, chard and beets don't need to be nicked, but **soaking will help them to germinate more quickly.**

Experiment Set-up



Heat-mat - pots covered with plastic



No bottom heat – no covering

Sweet Peas 2 Weeks After Sowing Indoors



Started on heat-mat – soaked for 24 hours – kept inside



Scarified

Not-scarified

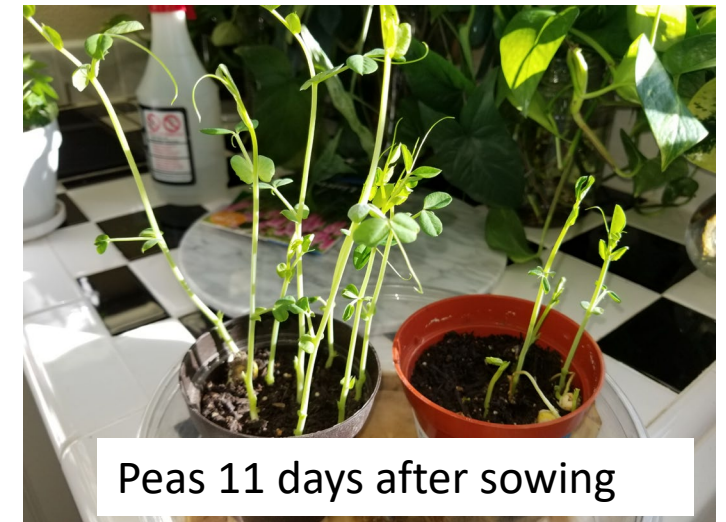
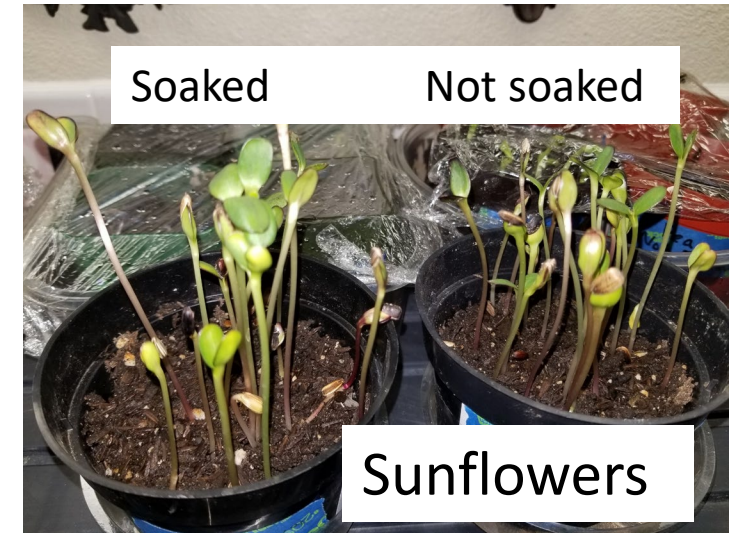
No heat-mat – soaked for 48 hours days - inside at night, outside during day

Sweet Pea Conclusion

- Sweet pea seeds are slow to germinate
- Scarifying made a difference when using heat-mat
- Scarifying didn't make a difference when not on a heat-mat
- Soaking for 48 hours got better results than soaking for 24 hours
- Variation in temperatures (inside at night and outside during the day) was better than keeping indoors while germinating



Seed Soaking Results — 5 days after sowing (using heat-mat)



No Prep Needed - Just Sow the Seeds



Marigold

- outdoors in the spring after the danger of frost has passed **or**
- indoors up to about 8 weeks before the last frost
- usually germinate within 4 to 14 days in soil temperatures between 70 and 75 degrees



Cosmos

- outdoors after danger of frost has passed, or for an early start on summer blooms **or**
- indoors four to five weeks before the last Spring frost date



Phlox

- outdoors after danger of frost has passed, **or**
- indoors 8 weeks before last frost

No Prep Needed



Chocolate Flower - Plant outdoors after danger of frost

Hollyhock



- Plant Sept/Oct for flowers the next year. If plant in Feb/Mar will wait a whole year for blossoms
- Do best sown directly in ground
- Need temperatures around 59 to 68° to germinate; leave the seeds on the surface of the soil, or just sprinkle them very lightly with soil or compost; seeds need light to germinate, won't sprout if planted too deeply

No Prep Needed



Amaranth

- Start six to eight weeks before the last frost
- or
- Outdoors, sow seeds after the soil has begun to warm in the spring; cover lightly with soil

Most vegetables



Summary – “per the experts”

Scarify and Soak

Flowers:

Morning Glories
Nasturtium
Sweet Peas
Lupine
Milkweed
Mallow
Columbine
Large seeds of flowers
and perennials

Vegetables:

Spinach
Winter Squash



Soak

Flowers: Sunflowers

Herbs: Parsley

Vegetables: Peas, beans, corn,
pumpkins, squash, chard and
beets

**Many natives and
wildflowers**





Cold Stratify

Penstemon
Poppy
Milkweed



No Need to Stratify or Scarify

Examples (Club Member Seeds)	Start Indoors & Plant Outdoors After Danger of Frost 	Sow Seeds Outdoors After Danger of Frost 
Dahlia seeds	X	
Celiosa Argentea or silver cock's comb	X	
Amaranth		X
Savory	X	
Marigold	X	
Chocolate flower		X
Cosmos	X	
Most vegetables		X
Hollyhock		X

When to Fertilize

When the 2nd set of “true leaves” appear -
begin feeding your **seedlings** with a diluted fertilizer solution (half recommended rate) twice a week.

Challenge

Start Marigold Plants for May Plant Sale

1. Put damp potting mix (soilless) in pot
 2. Sprinkle seeds over mix
 3. Cover with thin layer of potting mix
 4. Cover with plastic wrap and place in warm spot (e.g. top of refrigerator, south window, etc.) (no light needed)
 5. Should germinate in 4 to 14 days
 6. After getting 2 sets of true leaves remove plastic and provide light
- Note: If there are several healthy seedlings per pot, remove all but 2 or 3



Or try putting outside during the day and bringing in at night until weather warms up

*Try seed starting and tell us
what worked!!!*