

## GENERAL RULES OF SEED GERMINATION

A rule of thumb is to know as much as possible about the plant you are choosing, i.e. if the plant you want to reproduce is best propagated by seed, division or cuttings.

For propagation by seed, plan your seed sowing according to how many plants you want and when you want them for setting out in the garden. Sow more seeds than the number of plants wanted. Consider color scheme, bloom time, dimension of the plant and any special cultural requirements. For example, don't plan something that takes very little water among plants that need much more water.

Before sowing any seed, refer to the packet information regarding any pre-germination treatments and special seed handling techniques for the varieties you want to grow.

It is important to not sow seed too early. In general, seedlings remain in seed flats for 3-4 weeks after germination, and then in individual containers for 5-6 weeks more. To set plants out at the beginning of the frost-free period in spring, you must sow seeds 8-10 weeks before the average last date of frost in your area.

After the frost-free date, and throughout the warmer months (until about midsummer) seeds can be safely sown outdoors in a seedbed or frame.

## TIPS

- Sow seeds in a light, loose soil, covering them with no more than 3 - 4 times their thickness of soil.
- Large seed can be soaked in water overnight and then planted singly.
- Small seed should be just barely covered with soil.
- Fine seed should be sprinkled on the soil surface and watered with a fine mist or from below.
- Plant flat seeds edgewise.
- Plant winged seeds with the wings uppermost or gently remove them first.
- Keep the soil moist, but not soggy. Do not let soil dry out.
- Seedlings are best transplanted on a cool, moist or foggy day.
- Seedlings are often best transplanted up to the cotyledons (seedling leaves)
- Seeds from temperate regions will often germinate best at cool temperatures (50° - 65°F)
- Seeds from tropical regions like warm temperatures (70° - 85°F)
- Germination is often helped by gentle bottom heat along with air circulation.

## STRATIFICATION (COLD TREATMENT)

Cold treatment is required for some seeds. Seeds can be sown in fall in pots, flats or well mulched beds to let Mother Nature and winter handle the chilling. When sowing indoors in spring, mix seeds with 2-3 times their volume of moist peat moss or vermiculite. Place them in a plastic bag, seal and store in the refrigerator for length of time specified in directions. If treatment is to last more than 30 days, check that medium is still moist. Remove seeds from refrigerator - and sow according to directions.

## SCARIFICATION (FOR SEEDS WITH HARD, IMPERMEABLE SHELLS)

Nick or scratch the surface of the seed coat with a file or with medium grit sandpaper on the opposite side of the seed from the hilum (the small dent where the seed was attached to the pod).

**Hot water treatment** Place seeds in a container and pour at least 4 - 5 times their volume of hot water on them and leave them to cool. Let soak for 2 - 24 hours. Those that have not swollen after 24 hours can be scalded a second time, but no more. Nicking or sanding before soaking often helps swelling and germination.

**Double dormancy** Some seeds need 2 seasons of cold alternated with warm periods, or two seasons of warm alternated with cold periods. If planted outside they will germinate after the second season. Otherwise, give cold treatment as above for 3 - 6 weeks, remove from refrigerator for 3 - 6 weeks, and return to refrigerator for 3 - 6 weeks; OR, keep at room temperature for 3-6 weeks, stratify for 3-6 weeks and return to warm temperatures for 3-6 weeks. (Stir for air circulation, check for moisture.)

## TRICKS

Germinating in Paper Towels and determining viability

A way to hasten germination is to start seeds in damp paper towels:

- Fold a paper towel in half or in quarters and dampen (it should NOT be wringing wet).
- Place about twice the number of seeds on it as the number of plants wanted, spacing them so they don't get entangled as they germinate.
- Gently and loosely roll up the paper towel with the seeds on the inside (For seeds which need light to germinate lay the paper towel flat inside the plastic bag with the seeds on the outside top, facing the light. (Check directions with each variety to determine light requirements.)
- Place the paper towel in a plastic bag, and seal the bag.
- Keep the plastic bag on a counter or in a warm area, checking it for germination every few days.
- When the seeds begin to germinate, move them into good seed-starting mix in prepared flats, pots or "clamshells" (see below). Carefully remove seeds with roots and/or leaves from paper towels. If roots are growing through paper towel, tear the paper towel without harming the little root, leaving a piece of paper towel adhering to the root.

**The seeds that germinate the fastest either in paper towels or in soil have the most viability and will produce the best plants.**

- Place the germinating seeds, root down, in damp, seed-starting mix. If there is paper towel attached to the seed, put the germinating seed into the planting medium by pushing the paper towel into the mix (make sure all the paper towel is below soil level). The seeds should be slightly below the surface of the planting medium. Cover the planted seeds with a light sprinkling of the planting medium, and water gently, preferably from the bottom by standing the container in a little water for a few minutes. Let containers drain, then place them in a warm, sunny area or under lights. Keep soil moist but not wet throughout germination and seedling stage.
- If you prefer, you can cover flat or pots with plastic, or place them in plastic bags to maintain moisture during germination. However, once germination takes place, it is important to remove the plastic or the little seedlings will "cook" and die.