

THE HOWS AND WHYS OF SEEDING

The Annual Bedding Plant Calendar consists of dates and common variety plants grown in our area, and has been the successful basis for the commercial crops of annuals and perennials distributed for spring bedding transplants.

This calendar does not include the culture for vegetative cuttings of geraniums, fuchsia, or other popular outdoor plants.

By following this seeding plan, you will quickly develop your own custom reference of seeding dates, particular to the conditions and projected crop fruition.

As with any endeavor you want to succeed, a certain commitment of involvement should not be ignored. Because we are working with dormant seeds that have to be artificially 'awakened', then knowing what to do with them once they become part of the family, requires simple but important factors that must be considered before we take on the odious task of early spring seeding.

We have the desire, but we also need a work area in which to prepare seeding mix, transplant mix and storage for immediate work related tools and supplies. A room one third the size of the total area needed to grow your crops, until bedded outdoors, is an optimum formula for success.

Unlike the writing of a document or the painting of a wall, in most cases, we can't re-do the procedure of seeding and conditioning the seedlings until we get it right.

"There are no secrets in this business, only the belligerence of individuals to recognize a problem, then learn, and adapt".

To truly appreciate the wonder (and consternation) of germination, we should know the properties and potential of the seed.

In botanic terms: a seed is the ripened ovule of a flower that is covered by a husk, and contains food that sustains a miniature dormant plant. In 'real world' terms: a seed becomes a silent and demanding obsession that begins in January and tests our resolve until May.

Successful germination of seeds require the natural availability of light, temperature, moisture and oxygen. It is the combination of these conditions that dictate the success rate, and future, of these plants.

We should be aware that annual seeds and perennial seeds are vastly different. Perennial seeds discussed in this session will be of native species to Alberta.

To guarantee the future of plants and their continued growth by seed, nature has provided varied

and ingenious methods of controlling rampant germination, thus ensuring the species survival.

Seed germination depends upon the environmental conditions of temperature, light, humidity and gas. Contrary to some opinion, the smaller the seed, the longer it will survive in a dormant condition. Because of the compactness and hard seed coating, there is less chance of moisture or air invading the embryo to cause germination, rot, pest contact or desiccation. There are the seeds of corn and legumes found in the ancient pyramids that are still viable, but only because of their hermetic condition of storage. It is unlikely these same conditions are prevalent 'in the field'.

Hard seed coats of our perennials are one of the best defenses against total germination, by : depriving the seed of water, depriving the seed of gasses, and by mechanically restricting the growth of the embryo.

Depriving the seed of water is a method attributed to the legume family of plants. This is accomplished by having a waxy coating upon the seed and is a first defense to the seed. A back-up system is in place: if the wax is removed or beached, and water or high humidity becomes a threat, small openings in the seed husk are protected by 'valves' called Hilar fissures that open and close, keeping the water out when wet, and opening to expel humidity from the embryo when conditions are dry. Our perennial lupine is endowed with this ability.

Not quite as high tech as the Hilar system of protection, is the thickness of the seed coat; or thickness' of the seed coat. Seeds of one variety of plant may have various layers of coats, so the conditions of germination may be optimal for some seeds but not others. Our own canola seed, which is a relation to the turnip and radish, has as protection against total germination, a coating of oil of varied thickness' over the seed.

Depriving the seed of gasses sounds complicated or impossible in the home, but is really quite common, and necessary. Introducing oxygen to the seeding tray may make the difference between acceptable results or not. Conversely, retarding the oxygen supply from the seeding tray, will severely hamper the germination rate of seed, such as salvia, nicotiana, coleus, fuchsia and geraniums. Oxygen to the seed, erodes a natural inhibitor, allowing germination.

Mechanically restricting the growth of the embryo by the plant, is probably the most difficult to overcome for the home grower. Although water, oxygen and light may be available to some perennial seeds, the seed coat is so strong that the embryo cannot expand with enough effort to break apart the coating. Time and natural scarification will eventually succeed in grinding enough of the husk away to permit germination. The gas plant (*Dictamnus alba*) is the common perennial that needs mechanical scarification; either by organic solvents or by hand. Other chemical scarificants are sulfuric acid for evergreen cones. Acetone or alcohol may also be used on specified seeds.

Now that we know some of the facts of perennial seeds, it opens the way to understanding at least some of the reasons for problems and successes you may have endured while 'growing your

own'.

In recent years, a dramatic increase of home gardeners has had an impact upon the seed distributors, but more importantly, the seed suppliers. To sell their product of annual and perennial seeds, the suppliers have had to package their seed with the same consideration as when packaged for the commercial grower. This consideration involved a process of seed husk cleaning, pelleted seed and de-fuzzing the seed. These terms may not seem familiar, but mean most seed varieties have been de-husked, scarified, coated with fertilizer, or the 'hairs' taken off to ease seeding either by hand or by mechanical means.

Our annual seed varieties do well when germinated under home conditions, and the procedure associated with perennial seeds need not be as daunting as the seeding of annuals.

There are, however, constants that need recognition and adherence when seeding annuals.

1. A clean neat orderly room, supplied with good light, both for growing and to work by. Water supplied by tap or reservoir, and a dependable heat source, with back-up necessary in case of power or gas failure.
 2. Work bench(s) of solid construction with under storage room for the daily necessities.
 3. The use of a circulating fan to maintain air quality suitable for you and your seedlings.
 4. If not a window in at least one wall for natural light and fresh air, at least a vent pipe from the outside that can be dampered for oxygen and air control.
 5. Heating source for germination can be that of heat tape or pad, or even a heat lamp directed under the 'flats' from below.
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Don't forget your plan, your seeding schedule, and your diary. It really is worth the time, trouble, worry, expense and effort.