

Darm Crook's Talk on How to Grow Lilies from Seed

By Bill Mackay

On April 27, 2019 Darm Crook gave a great presentation on his work with lilies, primarily species lilies. Darm lives near Hay River, north of the 60th parallel. Pretty far north to grow all the species that he is able to grow. He grows all his lilies in raised beds with 10" of soil above the natural sandy soil of his area. He has found that these beds work well for him, they are well drained and heat up nicely in the spring. He was clear to point out that what happens with the lily plant in one year is directly due to growing conditions the previous summer and how much energy the bulb was able to store.

Darm makes his own pesticide from rhubarb leaves. He mixes one pound of leaves to 1 quart of water, boils for 10 - 15 minutes, he lets the mixture cool, he then filters out the leaves and sprays the clear liquid on his plants to kill pests. I wonder if this would work for the lily leaf beetle in Alberta?

His soil has a pH of 6.3 - 6.5 but he needs 7.2 - 7.5 for alkali loving lilies. He uses wood ash to raise the pH because lime leaches out too quickly. He used two parts ash to one part of the soil being treated. To make alkali soil acidic he used wood charcoal, crushed and worked into the soil.

Lilies that like alkali soil get mottled and bleached leaves if they are in acidic soil.

Darm told us that many of the species lilies that are available to gardeners are highly inbred and have a very low level of genetic diversity. As a result, one focus of Darm's work with lilies has been to increase the genetic diversity of species lilies by germinating seed that has been obtained from a wild species lily and crossing the resulting plant with a plant of the same species that has been in cultivation for a long time. Darm is well known in the species lily community for this work on species lilies and hence he has been sent seed from wild species lilies from lily fanciers around the world.

Growing lilies from seed

If you wanted to learn how to grow lilies from seed, including the multitude of species lilies Darm is the 'go to guy'. The remainder of this article will focus on what Darm had to say with regard to germinating lilies from seed as well as a bit of a review of the different types of germination found in various species/cultivars of lilies.

Darm keeps detailed notes with regard to all aspects of the work he does with lilies.

Handling seeds

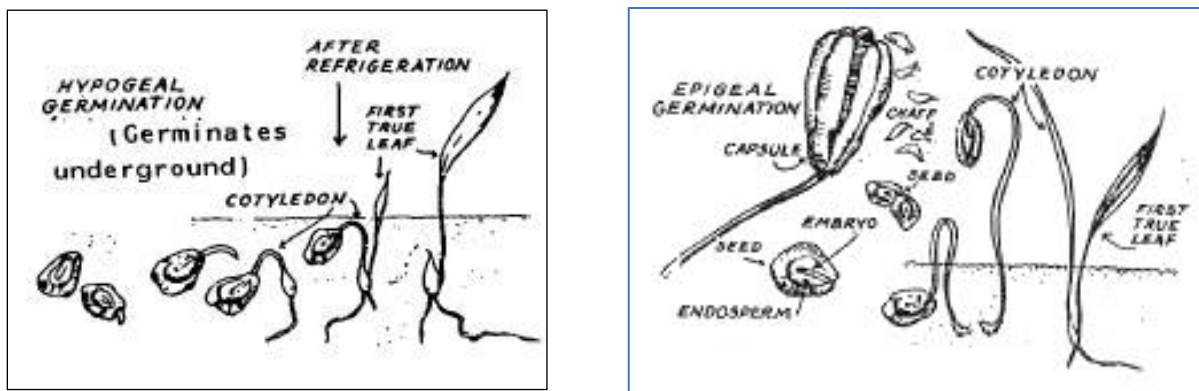
When seeds are harvested Darm dries them for 3 weeks in an envelope in his house which has low relative humidity. He puts seeds with epigeal germination in baggies in October in order to plant out successfully the next summer. To extend the length

of time seeds are viable he freezes them at -15 but he said you can use -20C domestic freezer or -10C fridge freezer.

Darm candles all his seeds. Ones without an embryo are discarded. If he sees a dark black ring around the embryo they have mould. He uses 100% bleach for 15 minutes to treat all contaminated seeds, then he rinses the seeds, plants them and in his experience they all germinate.

Germination of Seeds

As most lily aficionados know lilies have two types of germination, epigeal, the easy one and hypogeal the one that requires more care as it generally involved a period of cooling during the germination process. The two types of germination are summarized diagrammatically below.



Two types of germination of lilies. Diagrams from The Lily Nook
http://www.lilynook.mb.ca/Articles/Lilies_from_Seed.html

The first growth from the seed is the cotyledon which can be either above ground (epigeal) or below ground (hypogeal).

Epigeal is usually easy and quick

Hypogeal germination first occurs below ground, the cotyledons never extend above ground during initial short germination period. This is followed by a period in the dark at 18-20C for 4 months, then get true leaf emerging and you pot it up.

Plants that use immediate hypogeal germination are hardy and easy to grow. Seeds have to take up moisture to germinate. Put them in a baggie with medium that is wet enough that the seed is able to absorb the moisture. Darm uses 4 1/2" pots and seven seeds per pot placed under lights. Once the seed swells take out from under the lights and dry out. Once seeds have taken on moisture they will rot quickly if level of moisture in the medium is too high. So the seeds may need to be removed from a wet medium, dried some a placed in less moist medium.

Immediate epigeal seeds don't go into dark. Darm puts them under lights for 9 -24 days. When plants are one inch long he pots them up.

Species that use delayed epigeal germination need a cold period but length of the cold period varies from 6-12 weeks. Darm gives them all 12 weeks then to 10 C to germinate. For cultivars that use delayed hypogeal germination Darm puts seeds in a bag with moist medium and keeps them in the dark and cold for 3 to 5 or 6 months. Then he plants them out and in a few weeks first leaf appears.

Specific information on germination of various species, as documented by Darm is available on the Pacific Bulb Society Website at:

<https://www.pacificbulbsociety.org/pbswiki/index.php/LilyGerminationBySpecies>