Some Notes on the Harvesting and Storing of Daylily Seeds[1]

by R. A. GRIESBACH, Illinois

Harvesting of Seeds

In certain plants the stage of maturation of the seed at the time of harvest has a pronounced effect on its initial degree of viability, on its keeping quality, on its germinative capacity (degree of dormancy), and sometimes even on subsequent growth and development.

In regard to Hemerocallis, apparently viability at least is not impaired by premature harvest.

In one expriment, capsules (Kraus 2817 X Kraus 35) representing three different stages of development were harvested on the same day. Capsules of Stage I (mature) were of a yellow-green color, soft, and had started to dehisce.

[1]The major portion of the experimental work described in this article was carried out at The University of Chicago under the direction of Professor Paul D. Voth.

These capsules had reached maturity within fifty to fifty-four days following pollination. Stage II capsules had been harvested between forty-five and forty-eight days after pollination. They were quite firm, predominantly green in color, and had not begun to dehisce. Capsules of Stage III were hard and green. The seeds, which were smaller than those of the previous two stages, were still firmly attached to the capsule. These fruits had been developing for forty to forty-two days. Of two lots of seeds selected from each of the three stages, one lot of fifty seeds was peeled (i.e., the delicate membrane was removed from the protruding portion of the embryo) immediately following harvest while the other lot of thirty-five seeds was left to dry for a period of two weeks; remoistened and then peeled. The two lots of each stage were placed on the surface of moistened filter paper within petri dishes and maintained at room temperature (65-75°F.) for germination. All of the 255 seeds used in the experiment eventually germinated. The rate of germination for the seeds of Stage III which had been peeled immediately following harvest, however, was considerably slower than that for the remaining five lots.

In another experiment ('Autumn Prince' X ?), capsules were harvested, the seeds of which were still in the soft and milky stage. In one case, fifty seeds were removed from the capsules and left to dry for two weeks at room temperature; while in another lot (30) the seeds were left within the capsules to dry. A third lot of seeds (25) had been left to mature on the stalks which in turn had been placed in a container of tap water. In each case the peeled seeds showed 100% germination.

In neither experiment were the seedlings kept for observation of subsequent growth and development. Neither was the effect of stage of maturation at the time of harvest on seed longevity studied.

Storage and Life Span of Seeds

The life span of seeds varies greatly from species to species. Some seeds (e.g., river maple, wild rice, willows, poplars, English and American elms, etc.) lose their viability in a very short time if they are kept at room temperature in open air after harvest. Sometimes longevity is only a matter of a few weeks. At the other extreme are those seeds, usually of the hard-coated type, that retain their viability for literally hundreds of years (e.g., Indian lotus, many members of the pea family).

Hemerocallis seeds are relatively short-lived, losing their viability within about a year or so after harvest.

As is well known, the conditions of storage greatly modify the life span of most seeds. Maintenance in moist air at relatively high temperatures is generally conducive for a rapid loss of viability. This was found to be especially true for Daylily seeds. Storage of recently harvested seeds for as little as one month at 80° F. and above, or two months at 70° F. in a relatively moist condition brought about nearly complete loss of viability. Conversely, storage in a relatively dry condition within sealed containers kept at temperatures slightly above or below freezing has in general been proven effective in prolonging the life span of short-lived seeds.

Since improvements in hybridization of Daylilies has been quite rapid of late, it is true that a means for greatly prolonging the longevity of seeds would hardly be of much practical value. Due to uncontrollable variability of seed set from year to year, however, it might well be worthwhile to store part of one's seed crop of a good year for the following year which in turn might not be so good. Thus, in this way one can have a better control over the size of his seedling crop—regulating it from year to year according to available space, time, etc.

In one experiment, 288 seeds of eleven different crosses (donated by Mr. Orville Fay of Northbrook, Illinois) had been stored within a closed glass jar for fifteen months in a household refrigerator maintained at about 40° F. Following this storage period, each lot of seeds was moistened, peeled and then placed in a petri dish to germinate. Within nine days after being removed from the refrigerator, 89% overall germination was recorded. Five of the lots exhibited 100% germination while one lot (sixty-three seeds) showed 98% germination. A small lot of ten seeds on the other hand gave only 40% germination.

Another experiment involved the determination of germinative capacity following storage for twenty-five months under conditions similar to the previous experiment. The seeds used in this experiment were donated by Dr. E. J. Kraus of the Department of Horticulture, University of Oregon. Of four lots of fifty seeds each that were peeled and placed into petri dishes and then kept at room temperature (68-72° F.), only eighty-seven germinated (44%). On the basis of individual lots, percentage germination was as follows: 80%, 48%, 36%, and 10%.

If it were desired to retain seeds for more than a year, one might possibly do so by storing them in a drier than usual condition within sealed containers kept at still lower temperatures. At any rate, preliminary experiments have shown that two months of storage in a Deep-Freeze (-20° C.) did not prove lethal—all seeds retaining their capacity to germinate when peeled!

Department of Biological Sciences
DePaul University
Chicago, Illinois

Packing and Shipping Hemerocallis

by Mary Lester, Georgia

New ways to ship successfully are currently being devised. The most vital factor to consider is the temperature. Most people are impatient to get new plants soon after blooming time. August is the most difficult month in the South, being our hottest period and the time when the new growth is lush and tender.

Plants can be shipped at any time however if precautions are taken. The worst thing that can happen is rot caused by too much moisture in conjunction with heat on a long trip. If plants are to be several days on the way, try pack-