



For More Information

Baskin, C. C., & Baskin, J. M. (2014). *Seeds: Ecology, Biogeography, and Evolution of Dormancy and Germination*. 2nd edition. San Diego, CA: Academic Press. [Table 10.24 includes seed dormancy information for grassland forbs]

<http://scholarworks.uni.edu/facbook/102/>

Houseal, G. A. (2007). Tallgrass Prairie Center's Native Seed Production Manual.

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Row, J. M., & Wynia, R. L. (2006). Viability of Native Forb Seed Stored Under 2 Different Environments. In J.T. Springer & E.C. Springer. *Prairie Invaders: Proceedings of the 20th North American Prairie Conference*, University of Nebraska at Kearney. Paper presented at 20th North American Prairie Conference, Kearney, NE [Pages 177-186]. Kearney, NE: University of Nebraska at Kearney.



THE IMPORTANCE OF

SEED STORAGE
— FOR —
SEED VIABILITY

UNIVERSITY OF NORTHERN IOWA ROADSIDE OFFICE

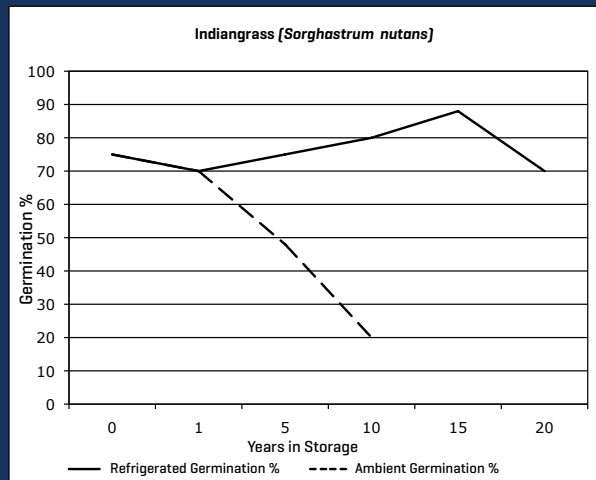
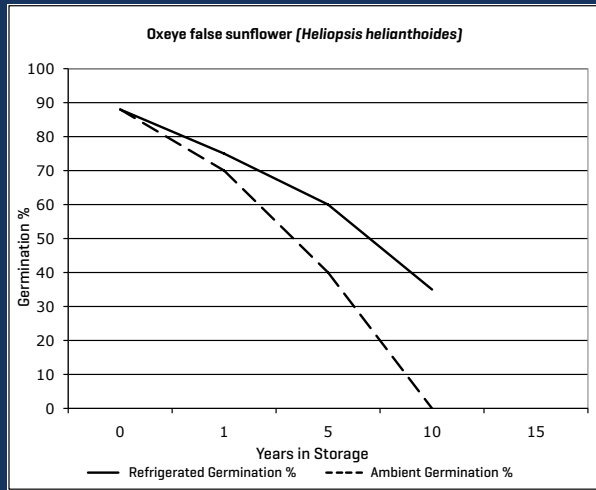
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Seed Storage Effects on Seed Viability

Maintaining seed vigor, or the ability of a seed to establish in the field, is important for increasing the success of roadside plantings. Preserving native seed viability, or ability of seeds to germinate, is also important. Seed viability for some species can decline quickly, even within one or two years, if the seed is not stored under climate-controlled conditions.



Seed germination often declines more rapidly under ambient temperature and humidity conditions than under climate-controlled conditions. Data from a long-term seed storage study at USDA NRCS Manhattan Plant Materials Center, Manhattan, Kansas [Courtesy of Rich Wynia, Manager, Manhattan PMC].



Proper Seed Storage Conditions

In order to preserve seed viability and vigor over the short term [a few weeks to a few months], seed should be stored in a cool, dry, and rodent-proof location. Specific information on best practices for storing seed over the long term [several months to a year or more] is below [source: Tallgrass Prairie Center Native Seed Production Manual].

- Seed stored at 60°F stays viable twice as long as seed stored at 70°F.
- The sum of the temperature in degrees Fahrenheit and relative humidity should not exceed 100. For example, if seed is stored at 50°F storing it at 40 percent humidity will work, but storing it at 60 percent humidity is not recommended.
- Relative humidity above 40 percent is especially detrimental to legume [oil-based] seeds.
- As a rule of thumb, the longevity of seed is halved for each 10-degree increase in storage temperature, or 1 percent increase in seed moisture content during storage.
- For seed that is collected rather than purchased, cleaning seed properly will extend viability. Seed that has been dried properly can be stored in moisture-resistant containers such as glass or plastic jars or 4-mil plastic bags.

Seed storage options

Lowest cost

The lowest cost option for climate-controlled seed storage is to store the seed in the basement of an office building. Some counties store their seed in the basement of the engineer's office building, for example. Since basements tend to have high humidity levels, it is especially important that the basement humidity and temperature consistently be maintained within the parameters mentioned under proper seed storage.

Mid-range cost

For a budget of between \$3,000-\$8,000, a county can build a climate-controlled seed storage room within an existing storage building. This option allows the IRVM program easy access to the seed within an existing storage shed. Some structures will be more conducive to accommodating a seed storage room than others depending on the dimensions of the shed and other uses of the building.

High-end cost

For a budget of between \$12,000-\$15,000, a county can construct a new storage shed that includes a climate-controlled seed storage room and a chemical storage room. This option can allow a county IRVM program to have all of its materials stored in one location separate from other county departments, resulting in greater efficiency for accessing and keeping track of IRVM supplies.



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