



How to Collect?

Seed can be stripped by hand from many species (blazingstars, asters, grasses). Efficiency can be improved by keeping both hands free by fastening collection bags and containers around the waist. In species with seed in ‘salt-shaker’ pods, try tipping the pod into an open container to collect (shooting star, giant St. John’s wort, larkspur, wild columbine). This will minimize the need to clean seed later. If seed is held tightly in the seed head, simply clip a portion of the seed head for later cleaning. Prickly seed heads like rattlesnake master (*Eryngium yuccifolium*) or pale purple coneflower (*Echinacea pallida*) will require gloves and shears for efficient collecting. Plastic combs aid efficient stripping of seed from grasses as illustrated in the photo below. Species with explosive pods can be bagged with nylon hosiery just prior to seed dispersal.

Leather gloves and good-quality scissors or shears are a must for effective seed collecting. Unbreakable plastic combs are inexpensive and efficient tools for stripping grass seed. Choose brightly colored tools that will be easy to spot if dropped or misplaced in the prairie while collecting. Use breathable bags (cloth or paper) for collecting that will allow moisture to escape. Even seemingly dry seed/seed heads retain enough moisture when first collected to cause mildew or rot if left unchecked in plastic bags. Use care not to leave collected material in closed vehicles that may heat up in the sun.



Seed head of pale purple coneflower (*Echinacea pallida*) sliced in half to reveal lighter-colored seeds tucked in between bracts.

Where to Collect?

Many areas have been planted to native species (reconstructed prairies). Planted prairies provide important wildlife, soil and water quality benefits. They have far fewer species than remnant prairies, and often the original source of seed for the planting has not been recorded or is unknown. If seed source is important for your project, collect from planted prairies only if you know the original source of the seed and it meets your restoration goals.

Obtain permission from the landowner or proper land management agency prior to collecting. Be mindful that removal of any plant or plant part from preserves, natural areas, and parks is restricted, so check with the proper agency before collecting in these areas. Harvesting from roadsides may be restricted in some states and counties. Many counties in Iowa, for example, are planting native prairie in roadside rights-of-way. Ask permission from the county roadside managers, engineers, or state department of transportation before collecting from roadsides.

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Collecting from Remnant Prairies

Remnants are small remaining patches of the original prairie landscape that have not been cropped, over-grazed, or otherwise destroyed. Very few remnant prairies exist in the Midwest today, and most are in need of careful management if they are to be conserved. A commonly expressed rule is “take half, leave half” when harvesting seed from remnants. Be mindful of legal and ethical considerations when collecting. While remnants are important local genetic sources of seed stock for restorations or seed nurseries, they should not be directly exploited for commercial production of seed. Federal and state endangered and threatened species cannot be collected without proper permits (go to Iowa DNR’s webpage to download a list of Iowa’s threatened and endangered species: www.iowadnr.gov/Conservation/Iowas-Wildlife/Threatened-and-Endangered).

Keep in mind two important ideas:

- » Attempt to collect roughly equal amounts of seed from several individuals in the population.
- » Generally speaking, near neighbors are more closely related genetically than distant individuals, so it is important to collect seed from throughout the population.

Removal of any plant or plant part from preserves, natural areas and parks is restricted; check with the proper agency before collecting in these areas.



Remnant prairies provide genetically adapted seed for restoring prairies for future generations of Iowans!

Are There Negative Impacts to Collecting from Remnants?

Most prairie species are perennial, meaning their roots survive over winter to regrow shoots the next spring, so an annual seed crop is not essential to the perpetuation of the population. Exceptions are annual, biennial, and short-lived perennial species; rare and uncommon species; or common species poorly represented in a remnant. Avoid intense, repeated, annual harvesting of the same remnant area. The negative impacts of over-collecting include trampling of vegetation and introduction of exotic or invasive plants brought in on clothing or equipment. Manipulation of a remnant prairie to maximize seed production – such as whole-site, repeated annual burns; herbicide treatments; or fertilizing – is inappropriate and damaging to remnant biodiversity. Finally, any mechanical harvesting occurring in remnant sites should include a careful inspection and cleaning of equipment prior to use, including vehicles, to avoid introducing exotic/invasive species that may contaminate the equipment and lead to the degradation of the remnant or create long-term management issues.

Federal and state endangered species cannot be collected without proper permits, and should only be done as part of a recovery effort by qualified professionals.

Collecting Seed for Genetic Diversity

An important restoration goal should be to capture genetic diversity from remnant populations. Here are some rules of thumb to guide your efforts. First, of course, be reasonably sure the site is a remnant (never plowed, not planted).

Collect seed from at least 20 to 30 well-dispersed individual plants within a population, if possible. Randomize the process; avoid intentionally selecting plants based on size, color, vigor, or any other trait. The point is to capture genetic diversity, not novelty. To sample large populations, walk transects and collect seed perhaps every 10 paces. Collect roughly equal amounts of material (seed or seed head) from each plant you encounter. If collecting from multiple sites, attempt to equalize the contribution of seed from each site, particularly if collecting seed as foundation stock for nursery production to generate seed for other reconstructions.

When to Collect?

Seed ripening and timing of harvest varies by species, environmental conditions, and regional adaptation of plants. Most species ripen gradually, so not all seed will be at the same stage of maturity at any given time. Seed maturity usually progresses from top to bottom of the seed head in grasses and many forb species. However some ripen from the bottom up, as in the blazingstars. Mature seeds are usually quickly dispersed either by gravity, wind, water, or animals, so it’s important not to delay collecting.

The tables illustrate approximate seed maturity times for selected tallgrass prairie species in Iowa. Cold, moist conditions will delay seed maturity, while hot, dry conditions hasten it. Latitude affects ripening since many plants flower and set seed in response to photoperiod. Seed maturity occurs earlier in populations adapted to northern Iowa, and later in populations adapted to southern Iowa. Optimal collection periods when more species are likely to be in fruit are indicated.

Harvest grasses at the hard-dough stage, when firm thumbnail pressure slightly dents the caryopsis. Many grasses do not hold seed long after maturity. Test ripeness by firmly striking the seed head against your palm; if some shattering occurs, the seed is ready to harvest.

In forb species, the seed head or stalk immediately below will appear dry or discolored as seed matures. A notable exception is the spiderworts (*Tradescantia*), members of the day-flower family, which drop mature seed while bracts remain green and other flowers in the same cluster are in bud or blooming. Species with a dispersal apparatus, i.e. ‘parachutes’ (blazingstars, asters, goldenrods, milkweeds) will appear dry and fluffy at maturity and should be picked immediately at this stage. Some species forcefully eject seed at maturity (phlox and violets, for example), and must be checked daily or bagged loosely with a mesh bag so seed is captured upon dispersal.

Keeping Records

Keeping records of where and when you collect provides important information about a prairie restoration. Basic information to include is location (county, township, section and quarter section), soil type (sandy, clayey, loamy), and moisture (wet, medium, dry), slope and aspect (direction slope faces), approximate size of population, number of plants collected, and date. It’s a good idea to include a sketch of the site to jog your memory about where the species occurred within the prairie.

Data Collected :				
Collector(s):				
Address:				
Contact Information:				
Species Collected :				
County:	Township:	Range:	Section:	Quarter Section:
Property Owner/Land Management Organization:			Sketch of Site :	
Soil Type:				
Slope :				
Aspect (direction slope faces) :				
Approximate Size of Population:				
No. of Individual Plants Collected From:				
Associated Species:				

Example of Seed Collecting Label