Wildflowers

Kentucky's prairies were once known for their breath-taking floral displays. Prairie wildflowers coexisting with prairie grasses formed one of the most complex and intricate plant communities in the world. The native prairie is now one of the rarest plant communities in North America, having been largely destroyed by modern land use practices. Wildflower prairies enhance biodiversity in any given area, providing unique wildlife habitat while at the same time returning the land to its natural beauty.

Site Selection

Prairies and meadows require sunny, open sites. An area should receive at least 6 hours or more of full sunlight and have good air circulation. South, west, and east-facing slopes receive more sun, and are hotter and drier; therefore they are usually well suited for prairie meadows. North-facing slopes are protected from the sun, and stay cooler and more moist; therefore these slopes are best suited for shade tolerant species. You must match wildflower species requirements with soil moisture and duration of sunlight. Some species thrive in full sun with dry soils while others do better in partly shaded, wet conditions (see Wildflower Selection Guide).

Soil types are directly related to soil moisture and can be broken down into three basic classifications: sands, loams, and clays. Sandy soils are loose and easy to work. They allow water to drain easily and tend to be low in nutrients. Clay soils tend to be dense and hard to work. They have a high water-holding capacity and are generally rich in nutrients. Loamy soils can be considered intermediate between the previous two types. Loamy soils combine fertility and

Figure 1. Wildflowers add vibrant color to your wildlife plantings.

moisture-holding capacity with good drainage. Loamy soils can be considered the best of the three types.

Figure 2. Members of the poppy family make colorful additions to wildflower prairies.

Site Preparation

Site preparation is the most important factor in establishing a wildflower prairie. Use caution when establishing a prairie on sites with extended histories of weedy competition, especially if the competition includes fescue and/or sericea lespedeza. Such sites will require extensive preparation to reduce the competition for nutrients, water, and sunlight. Reducing the existing vegetation is the first step in site preparation. Smothering, cultivating, chemically treating, or some combination thereof can accomplish this task.

If you are establishing a small prairie, you may choose to smother the competition. This technique is simple, effective, and requires no chemicals or special equipment. Cover the area desired for the planting with black plastic, plywood, carpet or thick layers of leaves for a full growing season. This will restrict the sunlight and kill all existing vegetation.

Cultivation (plowing, tilling, or disking) requires intensive labor but gives desired results. Cultivation should start in the spring and continue through fall if herbicides are not used. Cultivate every 2 weeks or less at a depth of 4-5 inches to keep the vegetation from resprouting. This method takes one full growing season. If herbicides are going to be used, chemically treat the area, allow 2 weeks for uptake of the chemical, and cultivate 3 to 4 times to form a good seed bed.

Chemical treatment* of areas that you want to plant in the same year is the best option. Chemical treatment can give fast and cost-effective results if done correctly. Some wildflower species are resistant to a herbicide known as Plateau®. This herbicide used in combination with Roundup® or a similar chemical can give fast results and provide residual effects for up to 8 weeks. If you wish to establish wildflower species not resistant to Plateau®, other herbicides, such as Roundup®, will suffice for the initial spraying, but do not give the residual effects. Do not plant areas treated with Roundup® or related herbicides for at least 2 weeks. Best results can be obtained by using prescribed burning* on the area after the chemical treatment has killed the existing vegetation. This helps reduce excess duff material that can accumulate over the years, assuring good seed-to-soil contact. Do not plant wildflowers in areas treated with Atrazine within the last 2 years. Some prairie grasses can tolerate low levels of Atrazine, but prairie wildflowers cannot. Atrazine will break down in 2 to 3 years depending on soil type, precipitation, and the amount originally applied.

Site preparation is one on the most important factors in establishing a wildflower prairie.

Lime & Fertilizer

On first year plantings, the addition of lime and fertilizer* is not recommended as long as the soil pH is above 5. In the first year of growth, both wildflowers and native warm season grasses put a lot of energy into root development. By applying lime and fertilizer the first year, you will be promoting weed growth. However, you can lime and fertilize stands that are well established and see productive results. Some federal programs require lime and fertilizer on enrolled plantings. You can mix the seed with the lime to facilitate broadcast seeding. However, apply the fertilizer as late as possible to minimize cool season weed growth.

Planting Techniques

There are 4 basic methods of establishment for wildflowers. The seed can be no-till drilled into a chemically treated sod, drilled into a prepared seedbed, broadcast seeded onto a prepared seedbed, or they can be established with the use of transplants. The best time to plant wildflowers is during the spring and early summer months. Shoot for a target date ranging from April through May depending on soil temperature and moisture. Many prairie wildflowers are warm season plants that germinate best after the soil temperatures have warmed up. In any wildflower planting you should incorporate some native warm season grasses into the mix for extended weed suppression. Wildflowers and native grasses grow together naturally with minimal competition. Some native warm season grasses* that should be considered in the wildflower planting include sideoats grama, little bluestem, big bluestem, and indiangrass. Do not include switchgrass or gamagrass. They can dominate an area, shading out the wildflowers.

Drilling the seed, whether into a chemically treated sod or a firm seedbed, has its benefits. With the use of a good drill, seed calibration and depth can be adjusted accurately. A no-till drill can be used on highly erodible sites to minimize soil erosion. Remember good seed-to-soil contact is essential. Do not drill the seed too deep. A planting depth of 1/4 inch is desired. Drilling the seed will allow you to cultivate the planting during early establishment for extra weed control. Be careful to stay between the rows when cultivating.

Areas encompassing one acre or less can be broadcast seeded by hand. On larger plantings, a mechanical broadcast seeder can be used. The seedbed must be well prepared and firmed with a cultipacker. The ideal seedbed should be smooth and firm, barely showing footprints after walking over it. The prairie seed can be mixed in a larger volume of a lightweight, inert material such as sawdust or peat moss. Slightly dampen the material so the seed will stick to it. Mix thoroughly to distribute the seed equally within the mix. Take approximately one half of the mix and spread it across the seedbed evenly. If you run out, use enough of the remaining mix to finish. After the entire area has been seeded once, go over the area with the remaining mix perpendicular to your first seeding. Roll the site

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with a roller or cultipacker to ensure good seed-to-soil contact. Do not roll the site if the soil is wet. Wait until the soil dries to avoid soil compaction. You can cover the area with a light mulching of clean, weed-free straw. This will help hold in moisture, increase germination, and combat soil erosion. Do not mulch the area too heavily; some soil should be visible through the mulch. Never use field hay because it will contain unwanted weed seeds.

Transplants are often preferable to seeds on small prairie gardens. Perennial wildflowers are sometimes slow to grow from seed and can take up to 3 years to bloom. Transplants often bloom the first year and should be spaced approximately 1 foot apart.

Spring and summer plantings can benefit from watering during drought conditions. Watering helps encourage germination and seedling survival during the first few weeks. Water early in the morning. Watering midday or afternoon can be less effective and is not recommended. Be careful not to water too much.

Planting Rates

Wildflower seed can be very expensive and ultimately it comes down to what you want to spend on a planting. Best results can be obtained by seeding 8-10 Pure Live Seed (PLS) pounds of wildflowers ("forbs") in combination with 1-2 PLS pounds of native warm season grasses per acre. Keep in mind at that rate it can be very expensive depending on which wildflower species you choose to plant. Successful plots can be obtained by seeding 3-5 PLS pounds of wildflowers in combination with 2-3 PLS pounds of native warm season grasses. Each time you reduce the poundage of wildflowers in a plot, increase the poundage of native warm season grass. This will help keep out unwanted, invasive grass species. In plots where wildflowers are the main focus, plant shorter varieties of native warm season grasses such as little bluestem or sideoats grama. Taller grass species such as indian grass and big bluestem may be planted if the main focus is diversity and not wildflowers. All four grass species are resistant to Plateau®.

Weed Control and Maintenance

Perennial wildflowers and native warm season grasses sometimes take a year or two to become fully established and weedy competition can further slow the establishment time. The herbicide Plateau® can greatly enhance the establishment process by providing excellent weed control. (See Wildflower Selection Guide for Plateau®-resistant species.) Herbicide treatment can replace mowing for desired weed control if the selected wildflower species are herbicide tolerant.

If chemical treatment is not an option, periodic mowing will help sunlight continue to reach the ground during the first year. Mow at a height of 6 to 8 inches to avoid cutting the desired species. Mowing once a month can be effective during the first year depending on rainfall, weed density, and height. Toward the end of the growing season, (August - September) do not mow the planting. Allow the area to establish as much

growth as possible to protect the young plants during the winter. The following spring, mow the entire area close to the ground and rake it if possible. This will allow sunlight to penetrate the ground, facilitating germination and plant growth. The herbicide Plateau® may again be used if resistant species were planted. Periodic mowing may be required depending on weedy competition.

Long-term management includes prescribed burning* (if possible) or mowing*. Timing of the burn for wildflowers is somewhat different than for native warm season grasses. It is recommended that you burn a wildflower prairie in the fall after a killing frost sets the plants into dormancy. The fall timing for a burn may negatively affect native warm season grasses if they are present in the planting. (Contact your local wildlife biologist for site specific recommendations.) Spring burns on the other hand often harm young rosettes that are produced by the wildflowers very early in the spring. Fall burns reduce the seed source and cover abundance for wildlife. For this reason, it is recommended that you break up any planting greater than one acre into 3 to 4 units. This way you can burn only 1 or 2 units each fall leaving other areas undisturbed for the winter months. Using rotational burning, you increase diversity within your planting. If burning is not an option, you will need to mow*, graze*, and/or chemically treat the area on a rotational basis.

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Wildflower Selection Guide

Species are listed alphabetically according to their botanical name.

MOISTURE (Soil Moisture): D=Dry, M=Medium, W=Wet
SOIL (Soil Type): S=Sand, L=Loam, C=Clay
SUN: F=Full, P=Partial sun
Resistant to Plateau at a rate of *4 oz per acre, **6 oz per acre, ***8 oz per acre

NAME	BOTANICAL NAME	HEIGHT	COLOR	BLOOM TIME	MOISTURE	SOIL	SUN
Yarrow***	Achillea millefolium	1'-3'	white	JUN	D,M	S,L	F-P
Leadplant***	Amorpha canescens	2' - 3'	purple	JUN-JUL	D,M	S,L	F
Partridge Pea***	Cassia fasciculata	1' - 2'	yellow	JUL-AUG	D	S,L	F
Ox-Eye Daisy***	Chrysanthemum leucanthemum	1' - 2'	white/yellow	JUN	D,M	S,L,C	F,P
Cosmos*	Cosmos spp.	1' - 3'	yellow/pink	MAY-OCT	D,M	S,L	F
Lanceleaf Coreopsis*	Coreopsis lanceolata	1' - 2'	yellow	JUN-AUG	D,M	S,L	F
Plains Coreopsis*	Coreopsis tinctoria	1' - 3'	yellow	JUN-AUG	D,M	S,L,C	F
Illinois Bundleflower**	Desmanthus illinoensis	3' - 4'	lavender	JUL-SEP	M	L,C	F,P
Purple Coneflower***	Echinacea purpurea	3' - 4'	purple	JUL-SEP	D,M	S,L,C	F,P
California Poppy*	Eschscholzia californica	1' - 2'	yellow	MAY-JUL	D,M	S,L	F,P
Lupine**	Lupinus perennis	1' - 2'	blue	MAY-JUN	D	S	F,P
Corn Poppy*	Papaver rhoeas	1' - 3'	white,red,pink	MAY-JUN	D,M	S,L	F
Purple Prairie Clover*	Petalostemum purpureum	1' - 3'	purple	JUL-AUG	D,M	S,L,C	F
Red Mexican Hat**	Ratibida columnaris	3' - 4'	red/yellow	JUN-AUG	D,M	S,L,C	F
Upright Coneflower**	Ratibida columnifera	2' - 4'	yellow	JUN-SEP	D,M	S,L,C	F,P
Black-eyed Susan***	Rudbeckia hirta	1' - 3'	yellow	JUL-SEP	D,M	S,L,C	F,P
Johnny Jump Ups***	Viola cornuta	1/2'-1'	pale blue	APRIL	D,M	S,L	F,P

SUMMARY OF OPTIONS:

Site selection and preparation are essential.

Select areas that receive 6 or more hours of full sunlight per day.

Broadcast seeding or no-till drilling into a well-prepared seedbed yields best results for larger plantings.

Weed control is also essential during establishment periods.

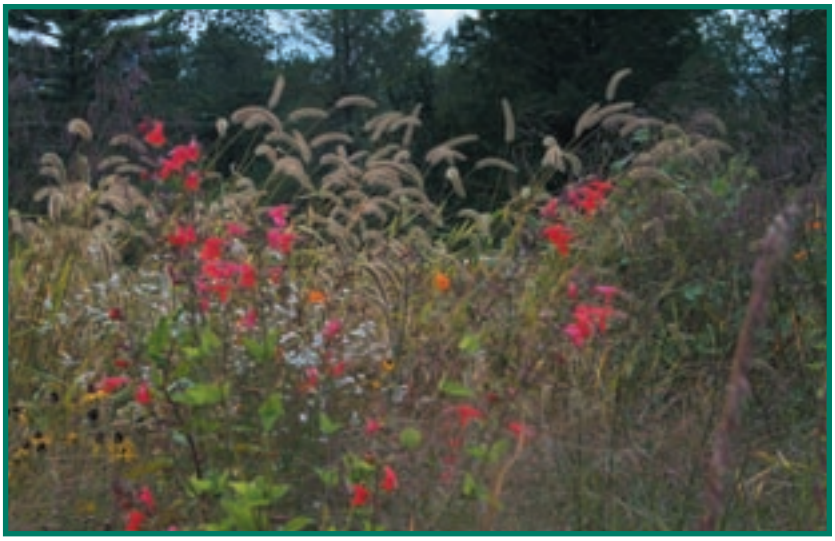

Figure 4. Wildflowers and foxtail make lively wildlife cover.

***Related *Habitat How To* references:**

- Soil Amendments
- Grazing and Haying
- Native Warm Season Grasses
- Fescue Eradication
- Prescribed Burning
- Mowing

Planning for My Property

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