

Appendix W

SUNFLOWERS FOR WILDLIFE IN THE CROSS TIMBERS

by

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North Texas is home of two native species of sunflowers that have important value to wildlife. Where they occur, these members of the Daisy Family Compositae provide cover and food for a wide variety of wildlife species. Although there are many plant species in this large family that also provide important food and cover sources for wildlife, management of the **annual sunflower** and **Maximilian sunflower** in the **Cross Timbers & Prairies Region of Texas** offers landowners the opportunity to economically produce and sustain these plants

on an annual basis to benefit wildlife. These true sunflower species of the genus *Helianthus* are adapted to the rainfall, climatic extremes and varieties of soils found in the Cross Timbers and Prairies Region, making establishment and maintenance of these two plants a natural choice for many landowners. These species can be grown and managed on small or large tracts of land.

Native annual sunflowers are commonly found along roadside ditches and field borders, in cultivated fields and on other disturbed soil sites primarily in the western 2/3 of Texas and from Canada to Mexico. Often considered a nuisance weed in farming country and on rangelands, their overall value to wildlife is significantly beneficial. The myriad of insects found on sunflowers provide food for insectivorous species such as neotropical and native songbirds, bobwhite quail, and Rio Grande turkeys. Their high oil content also provides birds an excellent source of energy for body maintenance. Dense stands provide overhead screening cover for ground dwelling wildlife species. The late summer and early fall blooming **Maximilian sunflower** has value as a forage plant for livestock and deer and is a source of cover and seeds for many songbirds and small mammals. Both species can be propagated from seed or managed as naturally occurring plants on the landscape. The following information is provided for landowners who have an interest in producing or managing these sunflowers species or enhancing habitat for wildlife in the **Cross Timbers & Prairies Region of North Texas**.

ANNUAL SUNFLOWERS

Annual sunflower (*Helianthus annuus*) is a native, warm season, tap-rooted annual forb that was used and domesticated by pre-Columbian Indians of Central North America around 1000 B.C. and spread eastward. In 1510 the Spaniards encountered it along the Atlantic coastal areas and carried seeds back to Europe where they were grown in gardens or as curiosities. Sometime before 1800 it reached Russia where it was raised for food and later, through selective breeding, the giant one-headed, large-seeded plants were developed. Subsequent

breeding has produced a number of varieties with high oil content for commercial crop production. In 1991, 2.7 million acres were grown in the U.S. with 85% being oilseed varieties and the rest used for confectionery purposes. Sunflower seeds used as a snack food has increased in recent years.

Native annual sunflowers reproduce by seeds only and grow to variable heights from 1-14 feet, depending on soil moisture. Their leaves are sticky, dark green, and alternately arranged on the stalk. Shapes range from broad and ovate or almost triangular with rough hairs or bristles and toothed margins. The 1-5 inch flower heads have 20-25 1-2 inch long bright yellow rays that surround the central brown or reddish brown disk flowers where seeds are produced. Multiple seed heads grow from rough, branching stems. Seeds are 1/8 to 1/4 inches long, ovate to wedge-shaped, slightly four-angled and flattened. Color ranges from gray to dark brown with light stripes or spots. There are approximately 350,000 seeds per pound. Seeds may remain viable in the soil for many years until conditions are optimum for germination. Dormancy of native annual sunflower seeds is influenced by their depth in the soil, soil moisture, cold winter temperatures and their high resin content. Native annual sunflowers have a chemical inhibitor called auxin that is on the caropsis (meat) of the seed that must be broken down by cool temperatures and adequate moisture. This ability to remain dormant often results in growths of annual sunflowers in areas where soil disturbance have occurred and no seeds were planted. Native annual sunflowers are very drought tolerant.

GROWING NATIVE ANNUAL SUNFLOWERS

Initial plantings of **native annual sunflowers** should be conducted during the **fall** or **early winter** in a well prepared seedbed for growth during the following spring and summer. Plant at the rate of **3-5 pounds per acre** for pure stands and at a **depth of 1 inch or less** using a seed drill. Native annual sunflower seeds may also be planted along with winter wheat, oats, rye or other small grains in a mix. Sunflowers will begin to germinate as these cool season small grains mature and die back during late spring and early summer. In subsequent years where a stand of sunflowers has been established, lightly plow or disk between October and January for the next year's growth. If winter small grains are to be planted during the fall or early winter where sunflowers are established, no additional sunflowers seed should be added and the cultivation associated with these plantings will also replant existing native annual sunflower seeds. Grazing small grain plantings by cattle will also help incorporate sunflower seeds into the soil. Native annual sunflowers planted during the spring will germinate at the rate of only about 2% to 5% but may germinate the following year if conditions are right. Check for locally available seed sources well in advance to determine seasonal availability and price. Be sure you ask for "native annual sunflowers". Annual sunflowers are not a preferred forage plant for cattle or white-tailed deer.

Many old fields or croplands taken out of crop production contain a diverse seed bank in the soil including annual native sunflowers. Disking or other soil disturbance operations in such areas during late fall and winter often results in vigorous growth of annual sunflowers the following spring and summer. Fallow winter disking is the most

economical method for growing native annual sunflowers and many other native annual seed producing plants used by wildlife.

HYBRID BLACK OILSEED SUNFLOWERS

Hybrid black oilseed sunflower is an improved variety of the native annual sunflower with a high oil content and grown primarily for its oil. This variety is also very nutritious for birds and provides a good source of energy. It is often used in bird feeders or mixed with other grains for feeding birds. Over 40 species of birds are known to eat black oilseed sunflowers. Hybrid black oilseed sunflowers may be planted during the **spring** at the rate of **3-5 pounds per acre** but must be replanted annually. Growth is 3-4 ft. in height with a single seed head. For wildlife plantings, it is less preferred over annual native sunflowers and requires cultivation for good growth.

MAXIMILIAN SUNFLOWERS

Maximilian sunflower (*Helianthus maximiliani*) is a native, warm season rhizomatous perennial forb found in the eastern 2/3 of Texas. It also occurs from the plains and prairies of southern Canada to South Texas and eastward. It was named for Prince Maximilian of Wied Neuwied, a naturalist who made scientific explorations in North America from 1832-1834. Depending on moisture, it grows from 2 to 10 feet tall and reproduces from seeds and short underground stems. Stout and rough annual stems rise from the perennial root crown or woody root system during late winter or early spring, often growing in clusters from moist ditches or depressions in prairies or rangelands. Leaves are characteristically long (up to 10 inches), narrow and drooping with a rough surface texture and gray-green coloration. During dry conditions, leaves fold inward toward the center. The 3-4 inch yellow flowers appear in dense clusters along the upper half of the stem on short stalks during late summer from July through October, producing numerous four-angled achenes with flat seeds inside that are approximately 1/4 inches long.

Maximilian sunflowers spread and may form dense clusters that provide habitat for insects and cover for wildlife. Its seeds are a good food source for many songbirds and small mammals. They are grazed by livestock and white-tailed deer, particularly during the early growth stages and may disappear or be severely diminished with heavy grazing pressure or high deer numbers. The presence of Maximilian sunflowers on native rangeland is indicative of good range conditions and management. It benefits from rotation grazing systems where periods of rest from grazing prevents heavy use or total elimination of individual plants.

GROWING MAXIMILIAN SUNFLOWERS

Aztec Maximilian Sunflower is a variety released from the USDA Natural Resources Conservation Service's Knox City Plant Materials Center in 1978. It may be planted in **range seeding mixtures** during the spring at approximately **¼ to ½ pound per acre** to a depth of **3/8 to ½ inches**. It should be planted on a well prepared seed bed cultivated during the previous fall to reduce weed growth. It is adapted to a variety of soil types from sands to clays in areas receiving at least 18 inches of rainfall annually. Removal of the previous year's growth by late winter mowing may increase production the following spring. Excessive grazing by livestock or deer may prevent establishment. **Pure stands** of Maximilian sunflowers planted in rows or strips benefit from light fertilization and should be planted at the rate of **1 pound per acre in 36**

inch rows or drilled or broadcast at 3 pounds per acre. On a smaller scale, individual plants may be hand dug during early spring and transplanted, being sure to include a sufficient amount of the root system. Remove old top growth from the previous year and water regularly until growth occurs.

Existing native Maximilian sunflowers plants may be heavily grazed by cattle with unrestricted access to growing young plants during the spring and summer months. Dense stands of this species is often found along roadside or other protected areas where fencing restricts grazing. Use of rotation grazing or fencing of areas containing Maximilian sunflowers to exclude cattle during the growing season may help promote this plant for seed production and cover. Late winter mowing of standing stems will also help stimulate regrowth during the spring.

WILDLIFE USE OF SUNFLOWERS

Mourning Doves Annual native sunflowers provide a major source of food for resident and migratory mourning doves throughout the Cross Timbers & Prairies Region. Large fields may attract concentrations of doves for short periods of time during the late summer and fall and provide excellent sport hunting opportunities. In small grain producing areas, timing of soil preparations for planting winter wheat has a significant impact on sunflower seed availability to migrating mourning doves. Cultivation of fields containing sunflowers during late August and September makes sunflower seed unavailable to doves and other seed eating wildlife species and may contribute to movement to other feeding areas. Delaying fall plowing until mid-October will greatly improve sunflower seed availability to doves. To facilitate access and feeding by mourning doves, strips should be mowed through sunflower fields during late summer to create openings and shatter mature seeds. Mowed strip widths may vary, depending on the size of the field, but generally should be twice the width of the unmowed strips (i.e. 200 ft. mowed X 100 ft. unmowed).

Bobwhite Quail Bobwhite quail eat native annual sunflower seed that shatter to the ground, providing a source of food over an extended period of time during the fall and winter months. Weed patches along fence lines, field borders, roadsides and other out areas containing stands of annual and Maximilian sunflowers provide important overhead screening cover and feeding security from predators. Young growing native annual and Maximilian sunflower plants also sustain populations of a variety of insects and other arthropods eaten by bobwhites and provide bugging area for quail chicks.

Songbirds and Small Mammals Both sunflower species provide seeds for a wide variety of seed-eating songbirds and small mammals. Some bird species will feed on the seed heads of mature standing annual and Maximilian sunflowers while other locate shattered seeds on the ground. Seed eating species such as sparrows (house, grasshopper, Harris, lark, Lincoln, savannah, tree, vesper, white-crowned and others), house and gold finches, pine siskins, blackbirds, chickadees, nuthatches, titmouse, meadowlarks, grackles, buntings and others are known to eat native sunflower seeds. Small mammals including pocket gophers, ground squirrels, and other native rat and mouse species also eat the seeds, often stashing them in caches in their dens or

burrows for later consumption.

White-tailed Deer White-tailed deer will eat the leaves of young Maximilian sunflower plants but tend to discontinue use as plants mature. Annual sunflowers are not a preferred forage plant for deer but they may consume young tender leaves and developing seed heads.

CONCLUSION

Growing or managing growth of annual native and Maximilian sunflowers contributes to the diversity of herbaceous vegetation on the land and provides seasonal food and cover for various wildlife species found in the **Cross Timbers & Prairies Region of Texas**. Whether planted and grown in food plots, added to cool season forage mixes, seeded on rangelands or stimulated from timely soil disturbance practices, these two naturally adapted native species should be considered in wildlife habitat enhancement projects. For additional information on growing sunflowers, contact Texas Parks and Wildlife Department, Natural Resources Conservation Service, Texas Agricultural Extension Service and local seed companies.

Texas Parks and Wildlife Department's Private Lands and Habitat Program has a staff of 10 regional technical guidance wildlife biologists and other district wildlife biologists who are available upon written request to help landowners develop management plans to address their long term goals and objectives for habitat enhancement and wildlife management. For more information, contact Texas Parks and Wildlife Department, 4200 Smith School Rd. Austin, TX 78744