

**UNITED STATES DEPARTMENT OF AGRICULTURE
 NATURAL RESOURCES CONSERVATION SERVICE
 GOLDEN MEADOW PLANT MATERIALS CENTER
 GALLIANO, LOUISIANA
 AND
 EAST TEXAS PLANT MATERIALS CENTER
 NACOGDOCHES, TEXAS
 IN COOPERATION
 WITH THE
 LOUISIANA NATIVE PLANT INITIATIVE PARTNERSHIP**

**NOTICE OF RELEASE OF
 CAJUN SUNRISE GERmplasm ASHY SUNFLOWER
 SELECTED CLASS OF NATURAL GERmplasm**

The Natural Resources Conservation Service (NRCS), in Cooperation with the Louisiana Native Plant Initiative (LNPI) partnership (Attachment 1) announce the naming and release of a select ecotype of ashy sunflower (*Helianthus mollis* Lam) Germplasm was tested under the NRCS accession number 9089524.

This plant will be referred to as Cajun Sunrise Germplasm ashy sunflower and is released as a select class of plant materials (natural track).

Cajun Sunrise Germplasm ashy sunflower will provide a commercially available ecotype primarily for the use on gulf coast prairie, and other areas across the southern US where it historically persists. Cajun Sunrise Germplasm ashy sunflower is beneficial for vegetative restoration, wildlife food and cover and pollinator attraction.

Collection Site Information: Cajun Sunrise Germplasm ashy sunflower is a composite selection of 10 accessions collected from southwestern Louisiana within MLRA 151 (Table1).

Table 1 - Accession number of the original collections from southern Louisiana

9068117- Jefferson Davis Parish	9089334- Jefferson Davis Parish
9068118- Jefferson Davis Parish	9089380- Jefferson Davis Parish
9068126- Jefferson Davis Parish	9089381- Jefferson Davis Parish
9068129- Jefferson Davis Parish	9089382- Jefferson Davis Parish
9089333- Jefferson Davis Parish	9089467- Jefferson Davis Parish

Collections were made from prairie remnants on the east side of U.S. Highway 165 along the railroad right-of-way, from just north of the intersection of Interstate 10 and U.S. Highway 165 to approximately 5 miles north of the town of Fenton, LA in Jefferson Davis Parish. The primary soil types in the area is Crowley-Vidrine silt loam (60%) and Kinder-Messer silt loam (11%). Germplasm from the 10 collection sites were combined and assigned the unique accession number of 9089524. Collections were initially planted at McNeese State University Ag Farm (MSU), Coastal Plains

Conservancy Kayouchee Prairie (CPC), Nicholls State University Farm (NSU), the University of Louisiana at Lafayette's Center for Ecology and Environmental Technology (CEET), and the USDA-NRCS East Texas Plant Materials Center (ETPMC) for seed increase. Seed harvested from these locations were used to conduct seed germination testing, field emergence evaluations and phenology assessments.

Description: Ashy sunflower is a native, warm-season, perennial forb occurring naturally in grassland habitats over much of the central and eastern U.S. Ashy sunflower is a dicot of the family Asteraceae typically found growing in well-drained soils and full sun. Stems are erect, solitary or clustered, densely pubescent gray, growing from rhizomes to 1.2 m tall. Leaves are opposite, stiff, ascending, sessile and clasping with a rough-hairy grayish-green surface to 12 cm long and 8 cm wide. Leaf margins are entire to shallowly toothed with a pointed tip. Inflorescence consists of single flower heads terminating on upper stems. Flowers exhibit 15-30 yellow petals (sterile ray florets), 2.5-3 cm long encompassing fertile yellow disk florets compressed to 2.5 cm in diameter. Each disk floret has a glabrous corolla tube to 6 mm long, and 5 stamens with whitish filaments and dark-brown anthers. Fruits are achenes that are wedge shaped, dark-brown or black, and tipped by two scales with pointed tips each enclosing a small single seed 3-6 mm in length. Ashy sunflower is hardy, tolerant to fairly extreme climatic conditions in the southern US, and is a prolific seed producer.

Method of Breeding and Selection: Cajun Sunrise Germplasm ashy sunflower is a composite of 10 accessions collected from native stands in Jefferson Davis Parish (Table 1). Seed were selected from 25-40 individual plants at each collection location. Only plants exhibiting vigorous growth and abundant seed production were selected for collection. Original germplasm was established at 5 locations including; MSU, CPC, NSU, CEET and the ETPMC. Evaluations were used to determine germination potential for seed production, optimum seeding dates, planting rates, and average bloom dates.

To determine germination potential, seeds were tested in 2009 and 2010 to evaluate germination potential. At the ETPMC (USDA-NRCS, 2010a), Cajun Sunrise Germplasm was tested using non-stratified and stratified replications. Baskin (2002) noted that germination of ashy sunflower was enhanced by 60 days of stratification. Four replications of the ashy sunflower were stratified for 63 days at 38°F. Final analysis revealed that stratification did not appear to improve seed germination for this test. The average germination was 78% for tests completed in March and 86%, for tests completed in October. Seed germination tests conducted at CEET from 2008 to 2010 revealed that viable seeds had a germination potential of 94% at 28 days after planting.

To determine optimum seeding dates for Cajun Sunrise Germplasm area of adaptation, a date of planting study was conducted at MSU from 2009 to 2010. Three replications of two hundred seeds were planted in field test plots on four traditional forb planting periods (10/21, 11/18, 3/19, 4/21) from the fall of 2009 to the spring of 2010. Total seedling emergence was recorded every 4 weeks. Based on initial data, seeds planted during March (3/19) seemed to have the best overall success for seedling emergence and establishment with a peak of 18% emergence at the May evaluation. The

traditional fall planting window of October showed adequate numbers of seedling germinated with a peak of 8.67% in January where as the November (dormant month) and April (late spring) showed poor numbers of seedlings, 2.17% and 0.00% respectively (Table 2).

Table 2 - Percent emergence by planting dates of ashy sunflower at McNeese State University, 2009-2010

	Nov 2009	Dec 2009	Jan 2010	Feb 2010	Mar 2010	Apr 2010	May 2010	Jun 2010
10/21/2009	3.50%	7.83%	8.67%	6.17%	7.00%	6.17%	4.83%	4.50%
11/18/2009		0.00%	0.00%	0.67%	0.83%	2.17%	1.17%	0.83%
3/19/2010						17.75%	18.00%	16.75%
4/21/2010						0.00%	0.00%	0.00%

Literature reviews of ashy sunflower shows a vast range of 112,000 - 2.5 million seed/lb (USDA-NRCS, 2011; Steffen, 1997) projecting average seeding rates of 1.0 to 8.0 pounds of pure live seed (PLS) per acre when based on planting 20 live seed per square foot. Studies completed at MSU over a three-year period from 2009 to 2011 averaged 138,000 seed per pound. Based on these seed weights, planting rates are projected at 6.3 pounds PLS per acre when targeting 20 live seed per square foot or 9.5 pounds PLS per acre when targeting 30 live seed per square foot (Table 3).

Table 3 - Seeds per pound of Cajun Sunrise Germplasm

Sample Number	Number Seed/Sample	Seed Weight/Sample (gm)	Seed/Lb
1	100	0.22	206,364
2	100	0.33	137,576
3	100	0.33	137,576
4	100	0.35	129,714
5	100	0.35	129,714
6	100	0.36	126,111
7	100	0.36	126,111
8	100	0.34	133,529
9	100	0.34	133,529
10	100	0.34	133,529
11	100	0.35	129,714
12	100	0.31	146,452
13	100	0.34	133,529
14	100	0.31	146,452
15	100	0.33	137,576
16	100	0.32	141,875
17	100	0.35	129,714
18	100	0.35	129,714
19	100	0.35	129,714
20	100	0.32	141,875
Average Seeds Per Pound			138,018

To meet NRCS program needs for the establishment of pollinator habitat. The bloom period for Cajun Sunrise Germplasm were evaluated to determine if the selection meets the program needs for having summer blooming plants. Literature review (Native Plants Database, 2012) reveal bloom time for ashy sunflower occurs from June to September. Field observation trials conducted at MSU and NSU from 2007 to 2011 support that Cajun Sunrise Germplasm begins blooming in early July (25% bloom), peaks from August thru September (75% to 100% bloom) and declines thru October (<20% bloom)(Table 4).

Table 4 - Evaluation of bloom dates of Cajun Sunrise Germplasm at NSU and MSU from 2007-2011

% Plants Blooming				
	July	August	September	October
2007-2010	25%	75%	100%	<20%

Ecological Considerations and Evaluation: An Environmental Evaluation of Plant Materials Releases (Attachment 2) was completed using guidelines established by NRCS (USDA-NRCS, 2010b), and the best available information for this species. Results of this evaluation determined that Cajun Sunrise Germplasm ashy sunflower was suitable for release based on the criterion contained in this document. This conclusion is mainly because ashy sunflower is a naturally occurring species in Louisiana and adjoining states and therefore, would not constitute an introduction of an exotic species into local ecosystems. Any negative impacts on other native plant species would likely be minimal to non-existent.

Conservation Use: Cajun Sunrise Germplasm ashy sunflower is being released as part of the Louisiana Native Plant Initiative (LNPI) effort to identify, collect, and release species beneficial towards the restoration and conservation of critical habitats in Louisiana. Cajun Sunrise Germplasm has the potential to address the NRCS resource concerns of soil, water, plants, human, and animals. Ashy sunflower can be used for soil erosion, prairie wetland and wildlife habitat conservation and restoration plantings, and for cropland and riparian buffers. Ashy sunflower is a great pollinator species and attracts numerous species of butterflies and bees (Hilty, 2012). Cajun Sunrise Germplasm has the potential for use on roadside planting and the ornamental plant industry. Cajun Sunrise Germplasm ashy sunflower is adapted for use when applying the following NRCS conservation practices: 327 Conservation Cover; 550 Range Planting; 386 Field Border; 393 Filter Strip; 342 Critical Area Planting; 643 Restoration and Management of Rare or Declining Habitats.

Area of Adaptation: Ashy sunflower ranges over much of the central and eastern United States. It is considered threatened in Ohio and Michigan. This selection has performed well at LNPI production locations at Lake Charles, LA, Thibodaux, LA, Carencro, LA, and Nacogdoches, TX. Cajun Sunrise Germplasm is anticipated to be adapted in southeast Texas, southern Mississippi, and southern Louisiana. Additional plantings are planned to further determine the area of adaptation in the southeastern states. Ashy sunflower is adapted to a wide range of soils coinciding with the following MLRA's: 131A Southern Mississippi River Alluvium; 131B Arkansas River Alluvium;

131C Red River Alluvium; 131D Southern Mississippi River Terraces; 133A Southern Coastal Plains; 133B Western Coastal Plains; 134 Southern Mississippi Loess; 150A Gulf Coast Prairie; 151 Gulf Coast Marsh; 152A Eastern Gulf Coast Flat Woods; 152B Western Gulf Coast Flat Woods.

Availability of Plant Materials: Generation 1 (G1) seed will be made available for commercial seed increase. Seed will be distributed through the Louisiana Native Plant Initiative partnership as a selected class of natural germplasm by contacting the Golden Meadow Plant Materials Center, 438 Airport Rd, Galliano, LA 70354. Production is limited to five generations.

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Signatures for the release of:

Cajun Sunrise Germplasm ashy sunflower
(Helianthus mollis Lam.)

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