

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
LOCKEFORD, CALIFORNIA

NOTICE OF RELEASE OF CENTRAL SIERRA 3200 GERMPLASM CALIFORNIA BROME
SELECTED PLANT MATERIAL

The Natural Resources Conservation Service (NRCS) and the U.S. Department of Agriculture (USDA) announce the release of a selected ecotype of California brome (*Bromus californica* Hook. & Arn.) for the Sierra California ecoregion. Central Sierra 3200 Germplasm California brome was tested under the accession number 9083095.

This plant will be referred to as Central Sierra 3200 Germplasm California brome and is released as a selected plant material class of certified seed (natural track).

This alternative release procedure is justified because there are no existing commercial sources of California brome to supply the ecoregional demand. The potential for immediate use is high due to the strong interest in regionally adaptive native grass species.

Collection Site Information: Accession 9083095 was collected in 2006 from native plants located at Pike County Peak in Yuba County at 39° 29.526 N. latitude and 121° 12.916 W. longitude (MLRA 18d). It was growing in silty clay soils on a 10% slope with south exposure. Collection site elevation was 975 meters (3,200 feet) with an average annual precipitation of 147 centimeters (58 inches).

Description: Central Sierra 3200 Germplasm California brome is a native, cool-season, short-lived perennial bunchgrass. The base of this robust plant is open with hairy sheaths having erect stems (culms) growing up to 110 centimeters in height. Leaf blades are 0.5 to 1cm wide, lax, and spread out along stems. The inflorescence (seed head, open panicle) is 10-30 cm long, large, open, and erect to somewhat drooping. The spikelets are 5 to 7 flowered, 2 to 4 cm long, 5 to 7 mm wide and flattened. Lemmas are 1 to 1.5 cm long, flattened, keeled, and usually pubescent. The awns are 2 to 5 mm long. Seeds mature in May and June. The root system is fibrous, deep and widespread.

Method of Breeding and/or Selection: Central Sierra 3200 Germplasm California brome was evaluated at four different growing sites (Penn Valley, NRCS-Lockeford PMC, Morgan Hill, and Los Alamos) in California from Fall 2006 through Spring 2008. A total of 28 accessions of California brome were collected in May and June 2006 throughout the state of California and

included in the evaluation. Accessions were planted in a randomized complete block design with four replications at each test site. All accession collections were planted at the four locations to determine the range of adaptability. Field work; including seed bed preparation, seed planting and weed control, was carried out by Pacific Coast Seed, Inc. No supplemental irrigation was used for the evaluation. Performance data was collected by Pacific Coast Seed, Inc. for initial seedling vigor, % stand, foliage width and height, plant vigor, uniformity, seed amount, seed fill, seed maturity, and forage. Only data for vigor, stand, height, width, seed amount, and seed fill is presented. From these initial evaluations, accession 9083095 was determined to be a higher elevation accession with the ability to perform well at lower elevations in southern California. 9083095 was rated as having superior vigor, robust plants (height and width), and seed production at the Penn Valley site (1,500 foot elevation) in May 2007 and 2008 (Tables 1 and 2). Although 9083095 was rated as having superior performance in May 2007 at the Lockeford trial site (100 feet elevation) its performance decreased in 2008 and it was no longer among the superior performing accessions. 9083095 did not have superior performance in March 2007 and 2008 evaluation at any sites.

Ecological Considerations and Evaluations: Central Sierra 3200 Germplasm California brome is a selection of naturally occurring germplasm. An Environmental Evaluation was completed on June 18, 2008 using guidelines established by NRCS and the best available information for this species. Results of these evaluations determined that Central Sierra 3200 Germplasm California brome was suitable for release. This outcome is determined by the fact California brome is a naturally occurring species throughout California and the distribution of this seed or plant material would not constitute an introduction of an exotic species into local ecosystems. The release of this selection will be made available as a native alternative to planting exotic species within our California restoration, revegetation, erosion control and rangeland projects. This species also provides a seed source for bird and rodent populations and may provide unknown benefits by maintaining habitat that shelters beneficial insects and butterflies. Any negative impacts on other native plant species would likely be minimal.

Conservation Use: Central Sierra 3200 Germplasm California brome will provide an important regional component as a selection for habitat restoration, revegetation, erosion control, and rangeland projects within the Sierra California zone. In addition to its preferred adaptation to the higher elevation Sierra California region, the first year vigor and superior second year performance make this selection a complimentary species to numerous conservation uses.

Area of Adaptation: Central Sierra 3200 Germplasm will provide vigor and robust growth in higher elevation California climates. This local selection is potentially adapted for use in MLRA 18d, 22c and 22d.

Availability of Plant Materials: Generation 0 seed, which is equivalent to breeder seed, will be maintained by the USDA-NRCS Plant Material Center in Lockeford, California and will be available in limited quantities to interested parties for increase purposes. Long-term preservation of seed will be stored at the National Plant Germplasm System (NPGS).

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References:

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Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer).

Signatures for release of:

Central Sierra 3200 Germplasm California brome (*Bromus carinatus* Hook. & Arn.)

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Table 1 . Plant Performance of Central Sierra 3200 California Bromegrass at Penn Valley, California (first evaluation, May 2007).

Accession	Vigor ¹	Std ² /	Ht ³ /	Width ⁴ /	Amt ⁵ /
3074	7.0	87.5	11.5	35.0	No data
3075	5.8	82.5	15.8	30.0	
3076	6.8	87.5	10.3	30.0	
3077	6.8	91.3	17.5	35.0	
3078	6.8	70.8	9.3	32.5	
3079	4.8	72.5	14.0	31.3	
3080	7.0	80.0	14.5	36.3	
3081	6.0	82.5	17.1	33.8	
3082	4.3	68.0	17.3	33.5	
3083	4.8	83.8	13.3	31.3	
3084	5.8	78.8	12.8	35.0	
3085	3.3	61.3	11.0	35.0	
3086	4.3	75.0	12.3	33.8	
3087	8.3	86.4	14.0	31.2	
3088	5.0	77.5	9.0	32.5	
3089	6.5	87.5	12.0	35.0	
3090	7.5	89.5	10.9	35.0	
3091	8.2	93.0	10.4	35.6	
3092	7.3	83.8	7.5	33.8	
3093	5.1	61.2	8.3	34.4	
3094	4.0	67.5	9.0	28.8	
3095	7.5	77.5	9.3	35.0	
3096	7.0	61.3	9.8	35.2	

3097	7.3	77.5	6.8	37.5
3098	5.4	81.5	8.5	29.7
3099	6.3	90.0	21.3	33.8
30100	5.8	85.0	10.9	32.5
30101	4.5	75.0	11.3	32.5
Mean	6.0	79.1	12.0	33.4
LSD _(0.05)	1.4	8.7	5.5	6.7

1-Vigor plant (vigor) (9 =best - 1 =worst); 2-Std (stand) - Estimate of percent stand; 3-Ht (height) - average plant height (in); 4-width - average plant width (in.); 5-Amt (amt. of seed) (9=most-1=least)

Table 2 . Plant Performance of Central Sierra 3200 California Bromegrass at Penn Valley, California (first evaluation, May 2008).

Accession	Vigor ¹	Std ^{2/}	Ht ^{3/}	Width ^{4/}	Amt ^{5/}
3074	6.3	63.8	82.0	28.8	5.3
3075	5.5	62.1	65.3	32.1	4.7
3076	5.8	52.5	70.5	30.0	5.0
3077	6.0	83.8	74.3	32.5	6.5
3078	4.0	55.0	71.3	26.3	4.5
3079	6.3	83.8	75.0	33.8	6.5
3080	5.5	82.5	64.3	27.5	6.0
3081	4.5	62.5	65.5	25.0	4.8
3082	5.0	73.7	66.6	27.8	4.1
3083	6.0	67.5	80.3	32.5	5.8
3084	4.5	72.5	61.3	28.8	4.8
3085	4.3	60.0	57.5	30.0	4.3
3086	4.5	80.0	52.5	30.0	5.0
3087	6.0	77.1	78.3	29.5	5.1

3088	4.5	66.3	70.0	27.5	4.5
3089	7.3	76.3	83.5	32.3	6.5
3090	5.0	62.5	71.3	28.8	5.0
3091	3.8	52.1	61.3	25.1	3.7
3092	5.0	71.3	75.5	30.0	4.8
3093	4.2	53.7	61.7	30.6	3.7
3094	5.5	66.3	80.5	30.0	5.0
3095	6.0	61.3	67.5	28.8	5.8
3096	4.7	72.1	66.6	24.5	4.8
3097	4.4	58.8	72.6	29.5	4.4
3098	5.3	70.0	60.8	30.0	4.8
3099	5.3	87.5	65.3	28.8	6.3
30100	5.0	65.0	65.3	28.8	4.5
30101	6.0	72.5	82.5	31.3	4.3
Mean	5.2	68.3	69.6	29.4	5.0
LSD _(0.05)	1.9	20.3	17.4	5.7	2.0

1-Vigor plant (vigor) (9 =best - 1 =worst); 2-Std (stand) - Estimate of percent stand; 3-Ht (height) - average plant height (in); 4-width - average plant width (in.); 5-Amt (amt. of seed) (9=most-1=least)