

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

NOTICE OF RELEASE OF SOUTHERN CAL 1000 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 south California ecoregion. Southern Cal 1000 Germplasm California brome was tested under the accession number 9083077.

This plant will be referred to as Southern Cal 1000 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 9083077 was collected in 2006 from native plants located at Irvine Ranch in Orange County at 33° 45.117 N. latitude and 117° 43.417 W. longitude (MLRA 19d). It was growing in silty clay soils on a 40% slope with east exposure. Collection site elevation was 303 meters (994 feet) with an average annual precipitation of 33 centimeters (13 inches).

**Description:** Southern Cal 1000 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:** Southern Cal 1000 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

throughout the natural range of distribution below 3500 feet. 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. From these initial evaluations, Southern Cal 1000 was determined to be the superior accession within the southern California region. This accession has superior performance at Penn Valley, Lockeford PMC, and Los Alamos test sites for vigor, and robust plants (height and width). Performance at Morgan Hill was average. (See Tables)

In addition and in support of the above presentation, a complete set of data and Statistix8 analysis is available on CD.

**Ecological Considerations and Evaluations:** Southern Cal 1000 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 Southern Cal 1000 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:** Southern Cal 1000 Germplasm California brome will provide an important regional component as a selection for habitat restoration, revegetation, erosion control, and rangeland projects within the southern California zone. In addition to its preferred adaptation to the dry southern California region, the first year vigor and superior second year performance make this selection a complimentary species to numerous conservation uses.

**Area of Adaptation:** Southern Cal 1000 Germplasm will provide vigor and robust growth in drier southern California climates. This local selection is potentially adapted for use in MLRA 14d, 15d, 19, and 20.

**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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Dave Dyer

**References:**

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**Signatures for release of:**

**Southern Cal 1000 Germplasm California brome (*Bromus carinatus* Hook. & Arn.)**

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**LINCOLN E. BURTON**

**State Conservationist**

**United States Department of Agriculture**

**National Resources Conservation Service**

**Davis, California**

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**DATE**

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**MIKE HUBBS**

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**National Resources Conservation Service**

**Washington, D. C.**

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**DATE**

**Table 1. March 2007 Vigor, Stand, Height, and Width, Seed culms, and Seed Amt data for Southern Cal 1000 Germplasm California Brome (*Bromus carinatus*) at Penn Valley, California. .**

Accession	Vigor <sup>1</sup>	Std <sup>2/</sup>	Ht <sup>3/</sup>	Width <sup>4/</sup>	Seed Amt <sup>5/</sup>
3074	5.8	61.3	16.0	17.5	No data
3075	5.5	62.5	18.0	15.5	
3076	4.5	65.0	12.3	13.5	
<b>3077</b>	<b>5.0</b>	<b>57.5</b>	<b>18.0</b>	<b>17.8</b>	
3078	4.0	75.0	9.8	15.8	
3079	6.0	63.8	19.8	15.8	
3080	3.8	47.5	16.8	15.5	
3081	7.0	65.0	23.0	21.8	
3082	6.0	47.5	19.3	15.5	
3083	5.0	46.3	16.5	16.5	
3084	4.8	36.3	18.0	17.0	
3085	4.0	51.3	10.5	15.5	
3086	4.3	41.3	12.5	17.5	
3087	4.3	38.8	16.8	15.8	
3088	3.5	52.5	8.5	16.0	
3089	5.5	75.0	14.3	15.8	
3090	5.3	67.5	15.5	19.5	
3091	4.8	65.0	15.0	18.8	
3092	4.0	60.0	10.0	14.5	
3093	3.0	57.5	11.8	14.8	
3094	3.0	36.3	10.0	12.3	
3095	4.5	48.3	14.5	18.3	

3096	3.0	37.5	11.0	14.0
3097	4.3	52.5	11.0	18.0
3098	3.3	42.5	10.8	14.8
3099	7.8	63.8	24.0	21.0
30100	3.8	40.0	16.5	16.8
30101	3.5	43.8	13.5	13.8
Mean	4.6	53.6	14.8	16.4
LSD <sub>(0.05)</sub>	1.3	20.1	3.4	3.9

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-Seed Amt (amt. of seed) (9=most-1=least)

**Table 2. May 2007 Vigor, Stand, Height, and Width, Seed culms, and Seed Amt data for Southern Cal 1000 Germplasm California Brome (*Bromus carinatus*) at Penn Valley, California.**

Accession	Vigor <sup>1</sup>	Std <sup>2/</sup>	Ht <sup>3/</sup>	Width <sup>4/</sup>	Seed Amt <sup>5/</sup>
3074	7.0	87.5	118.8	35.0	No data
3075	5.8	82.5	102.0	30.0	
3076	6.8	87.5	108.8	30.0	
<b>3077</b>	<b>6.8</b>	<b>91.3</b>	<b>102.5</b>	<b>35.0</b>	
3078	6.8	70.8	118.8	32.5	
3079	4.8	72.5	85.8	31.3	
3080	7.0	80.0	110.0	36.3	
3081	6.0	82.5	102.5	33.8	
3082	4.3	68.0	108.9	33.5	
3083	4.8	83.8	87.8	31.3	
3084	5.8	78.8	98.8	35.0	
3085	3.3	61.3	66.3	35.0	

3086	4.3	75.0	82.0	33.8
3087	8.3	86.4	102.8	31.2
3088	5.0	77.5	85.0	32.5
3089	6.5	87.5	102.5	35.0
3090	7.5	89.5	103.0	35.0
3091	8.2	93.0	123.7	35.6
3092	7.3	83.8	106.5	33.8
3093	5.1	61.2	95.4	34.4
3094	4.0	67.5	88.8	28.8
3095	7.5	77.5	118.8	35.0
3096	7.0	61.3	114.9	35.2
3097	7.3	77.5	103.8	37.5
3098	5.4	81.5	91.6	29.7
3099	6.3	90.0	101.3	33.8
30100	5.8	85.0	90.8	32.5
30101	4.5	75.0	76.8	32.5
Mean	6.0	79.1	99.9	33.4
LSD <sub>(0.05)</sub>	1.4	8.7	16.8	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-Seed Amt (amt. of seed) (9=most-1=least)

**Table 3. March 2008 Vigor, Stand, Height, and Width, Seed culms, and Seed Amt data for Southern Cal 1000 Germplasm California Brome (*Bromus carinatus*) at Penn Valley, California.**

Accession	Vigor <sup>1</sup>	Std <sup>2/</sup>	Ht <sup>3/</sup>	Width <sup>4/</sup>	Seed Amt <sup>5/</sup>
3074	5.0	72.2	42.3	28.2	No data
3075	4.3	38.8	38.8	27.5	

3076	5.5	53.8	41.3	31.3
3077	5.0	60.0	40.8	28.8
3078	4.0	73.8	32.3	30.0
3079	5.5	63.8	53.0	32.5
3080	6.3	67.5	53.8	32.5
3081	6.5	66.3	53.8	27.5
3082	6.3	51.3	55.0	30.0
3083	5.8	47.5	52.5	28.8
3084	5.3	27.5	46.3	25.0
3085	6.0	36.3	47.0	27.5
3086	5.8	37.5	41.3	31.3
3087	6.0	71.3	41.3	32.5
3088	5.0	77.5	32.5	30.0
3089	6.3	71.3	51.3	31.3
3090	4.8	58.8	36.3	26.3
3091	3.8	48.8	31.3	28.8
3092	3.8	42.5	33.8	26.3
3093	6.1	47.0	51.2	36.0
3094	4.5	50.0	35.0	27.5
3095	4.5	46.3	38.8	27.5
3096	4.2	54.8	49.0	29.4
3097	4.6	51.4	39.0	31.1
3098	4.4	51.8	33.8	31.9
3099	5.5	60.0	45.8	30.0
30100	5.5	58.8	46.3	35.0
30101	4.5	37.5	35.0	32.5

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Mean	5.2	54.4	42.8	29.9
LSD <sub>(0.05)</sub>	1.9	23.6	15.6	7.5

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-Seed Amt (amt. of seed) (9=most-1=least)

**Table 4. May 2008 Vigor, Stand, Height, and Width, Seed culms, and Seed Amt data for Southern Cal 1000 Germplasm California Brome (*Bromus carinatus*) at Penn Valley, California.**

Accession	Vigor <sup>1</sup>	Std <sup>2/</sup>	Ht <sup>3/</sup>	Width <sup>4/</sup>	Seed Amt <sup>5/</sup>
3074	6.3	63.8	82.0	28.8	No Data
3075	5.5	62.1	65.3	32.1	
3076	5.8	52.5	70.5	30.0	
<b>3077</b>	<b>6.0</b>	<b>83.8</b>	<b>74.3</b>	<b>32.5</b>	
3078	4.0	55.0	71.3	26.3	
3079	6.3	83.8	75.0	33.8	
3080	5.5	82.5	64.3	27.5	
3081	4.5	62.5	65.5	25.0	
3082	5.0	73.7	66.6	27.8	
3083	6.0	67.5	80.3	32.5	
3084	4.5	72.5	61.3	28.8	
3085	4.3	60.0	57.5	30.0	
3086	4.5	80.0	52.5	30.0	
3087	6.0	77.1	78.3	29.5	
3088	4.5	66.3	70.0	27.5	
3089	7.3	76.3	83.5	32.3	
3090	5.0	62.5	71.3	28.8	

3091	3.8	52.1	61.3	25.1
3092	5.0	71.3	75.5	30.0
3093	4.2	53.7	61.7	30.6
3094	5.5	66.3	80.5	30.0
3095	6.0	61.3	67.5	28.8
3096	4.7	72.1	66.6	24.5
3097	4.4	58.8	72.6	29.5
3098	5.3	70.0	60.8	30.0
3099	5.3	87.5	65.3	28.8
30100	5.0	65.0	65.3	28.8
30101	6.0	72.5	82.5	31.3
Mean	5.2	68.3	69.6	29.4
LSD <sub>(0.05)</sub>	1.9	20.3	17.4	5.7

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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-Seed Amt (amt. of seed) (9=most-1=least)

**Table 5. March 2007 Vigor, Stand, Height, and Width, Seed culms, and Seed Amt data for Southern Cal 1000 Germplasm California Brome (*Bromus carinatus*) at Lockeford, California.**

Accession	Vigor <sup>1</sup>	Std <sup>2</sup> /	Ht <sup>3</sup> /	Width <sup>4</sup> /	Seed Amt <sup>5</sup> /
3074	5.0	29.8	11.5	13.0	No data
3075	6.5	55.0	15.8	16.5	
3076	4.5	30.5	10.3	11.0	
<b>3077</b>	<b>7.3</b>	<b>51.3</b>	<b>17.5</b>	<b>17.8</b>	
3078	4.5	45.0	9.3	12.8	
3079	6.8	61.3	14.0	18.5	
3080	6.0	33.8	14.5	14.5	
3081	6.8	46.7	17.1	17.0	
3082	5.5	27.5	17.3	14.5	
3083	5.8	40.0	13.3	14.8	
3084	5.8	22.5	12.8	14.0	
3085	5.0	33.8	11.0	13.0	
3086	4.3	26.3	12.3	16.8	
3087	6.3	62.5	14.0	18.0	
3088	4.5	33.8	9.0	10.8	
3089	4.3	25.3	12.0	12.0	
3090	5.1	60.9	10.9	13.2	
3091	4.2	23.6	10.4	10.7	
3092	4.0	40.0	7.5	8.3	
3093	3.8	23.8	8.3	11.5	
3094	3.5	27.5	9.0	9.0	
3095	3.5	32.5	9.3	11.8	

3096	3.5	29.3	9.8	14.4
3097	3.5	15.0	6.8	10.5
3098	3.5	37.5	8.5	10.8
3099	7.3	40.0	21.3	19.3
30100	4.2	10.7	10.9	12.1
30101	5.0	26.3	11.3	13.3
Mean	5.0	35.4	12.0	12.0
LSD <sub>(0.05)</sub>	1.4	22.9	5.5	5.8

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-Seed Amt (amt. of seed) (9=most-1=least)

**Table 6. May 2007 Vigor, Stand, Height, and Width, Seed culms, and Seed Amt data for Southern Cal 1000 Germplasm California Brome (*Bromus carinatus*) at Lockeford, California.**

Accession	Vigor <sup>1</sup>	Std <sup>2/</sup>	Ht <sup>3/</sup>	Width <sup>4/</sup>	Seed Amt <sup>5/</sup>
3074	6.0	55.0	60.8	32.5	No data
3075	4.5	54.6	54.6	29.1	
3076	5.5	54.6	88.9	30.7	
<b>3077</b>	<b>5.3</b>	<b>63.6</b>	<b>61.0</b>	<b>27.8</b>	
3078	6.1	74.5	56.1	31.0	
3079	6.5	71.3	79.5	27.5	
3080	5.5	43.9	62.7	30.0	
3081	5.5	71.4	70.2	27.5	
3082	6.3	66.4	65.1	27.4	
3083	6.0	78.1	72.7	27.4	
3084	5.1	39.5	72.4	26.0	

3085	6.6	71.7	61.1	23.4
3086	6.3	71.8	71.3	32.5
3087	4.7	36.4	57.5	32.2
3088	6.4	74.5	79.4	29.3
3089	5.6	53.1	61.4	29.1
3090	5.1	44.5	74.0	30.9
3091	4.3	32.5	58.5	22.5
3092	4.3	47.7	58.4	29.1
3093	6.0	66.3	78.5	32.5
3094	6.8	67.9	85.3	37.6
3095	6.8	77.5	79.5	32.5
3096	3.0	31.2	58.6	24.3
3097	4.8	41.2	44.1	29.3
3098	5.3	51.7	57.7	27.4
3099	6.1	62.9	64.1	31.0
30100	6.7	68.9	77.5	24.7
30101	6.0	50.0	70.5	33.8
Mean	5.6	58.1	67.2	29.2
LSD <sub>(0.05)</sub>	2.3	29.1	31.6	8.2

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-Seed Amt (amt. of seed) (9=most-1=least)

**Table 7. March 2008 Vigor, Stand, Height, and Width, Seed culms, and Seed Amt data for Southern Cal 1000 Germplasm California Brome (*Bromus carinatus*) at Lockeford, California.**

Accession	Vigor <sup>1</sup>	Std <sup>2/</sup>	Ht <sup>3/</sup>	Width <sup>4/</sup>	Seed Amt <sup>5/</sup>
3074	5.0	53.8	25.3	21.3	No data
3075	6.7	65.8	38.3	25.5	
3076	4.7	37.5	26.6	25.5	
<b>3077</b>	<b>7.7</b>	<b>82.0</b>	<b>45.1</b>	<b>31.7</b>	
3078	5.6	67.5	26.7	32.3	
3079	8.0	90.0	52.0	44.0	
3080	5.8	41.3	35.8	33.5	
3081	7.3	80.9	46.1	32.3	
3082	5.8	51.2	37.1	25.7	
3083	7.0	60.0	41.3	32.3	
3084	4.5	46.3	23.0	25.3	
3085	6.3	47.5	31.8	35.0	
3086	5.8	56.3	29.8	30.0	
3087	7.3	58.0	39.4	45.3	
3088	6.0	50.9	20.7	32.3	
3089	4.8	57.5	26.3	22.8	
3090	4.9	20.5	19.3	26.8	
3091	5.3	55.9	32.7	22.3	
3092	5.0	36.3	24.8	23.0	
3093	5.5	73.8	27.8	29.0	
3094	4.5	50.0	21.8	19.8	
3095	4.5	51.3	21.3	19.8	

3096	4.5	40.5	21.7	25.5
3097	4.3	44.2	22.1	26.0
3098	3.0	32.5	13.3	16.3
3099	4.2	63.8	24.7	12.2
30100	5.0	39.1	26.6	25.8
30101	6.5	60.0	39.5	32.3
Mean	5.5	54.1	30.0	27.6
LSD <sub>(0.05)</sub>	1.7	30.8	12.0	10.3

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-Seed Amt (amt. of seed) (9=most-1=least)

**Table 8. May 2008 Vigor, Stand, Height, and Width, Seed culms, and Seed Amt data for Southern Cal 1000 Germplasm California Brome (*Bromus carinatus*) at Lockeford, California.**

Accession	Vigor <sup>1</sup>	Std <sup>2/</sup>	Ht <sup>3/</sup>	Width <sup>4/</sup>	Seed Amt <sup>5/</sup>
3074	5.3	66.3	82.8	30.0	No data
3075	6.3	63.8	95.0	35.0	
3076	5.5	45.0	90.0	33.8	
<b>3077</b>	<b>7.5</b>	<b>62.8</b>	<b>101.5</b>	<b>42.2</b>	
3078	7.0	82.4	105.2	39.4	
3079	7.8	92.5	106.3	47.8	
3080	5.5	65.0	80.0	35.0	
3081	8.0	85.8	106.8	41.0	
3082	5.8	53.8	86.3	35.0	
3083	5.0	83.8	102.5	40.0	
3084	4.3	65.0	70.0	30.0	
3085	5.0	60.0	71.3	37.5	

3086	5.0	67.5	81.3	35.0
3087	6.4	79.6	87.0	47.7
3088	5.5	60.0	90.0	37.5
3089	4.3	63.8	75.0	28.8
3090	5.8	32.8	92.5	33.8
3091	4.9	80.8	88.5	32.7
3092	5.5	53.8	78.8	33.8
3093	7.0	86.3	97.5	38.8
3094	4.5	61.3	67.5	32.5
3095	4.8	60.0	72.5	31.3
3096	6.2	64.5	95.9	37.2
3097	4.0	52.5	80.0	31.3
3098	4.0	46.3	73.0	38.8
3099	4.8	56.3	72.5	30.0
30100	6.0	57.2	96.0	36.5
30101	6.7	83.8	85.5	37.5
Mean	5.7	65.4	86.8	35.7
LSD <sub>(0.05)</sub>	1.1	17.5	25.8	25.8

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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-Seed Amt (amt. of seed) (9=most-1=least)).

**Table 9. March 2007 Vigor, Stand, Height, and Width, Seed culms, and Seed Amt data for Southern Cal 1000 Germplasm California Brome (*Bromus carinatus*) at Los Alamos, California.**

Accession	Vigor <sup>1</sup>	Std <sup>2</sup> /	Ht <sup>3</sup> /	Width <sup>4</sup> /	Seed Amt <sup>5</sup> /
3074	6.0	82.5	39.5	33.3	No data
3075	7.3	73.8	54.3	32.5	
3076	6.0	71.3	45.8	32.3	
<b>3077</b>	<b>7.0</b>	<b>77.5</b>	<b>43.5</b>	<b>33.3</b>	
3078	4.5	68.8	22.3	30.8	
3079	6.8	71.3	46.5	32.5	
3080	6.5	72.5	39.8	29.8	
3081	7.3	67.5	48.3	35.0	
3082	7.3	63.8	63.5	43.8	
3083	7.3	70.0	55.3	36.3	
3084	6.3	37.5	53.0	39.5	
3085	5.8	72.5	35.8	41.5	
3086	5.0	55.0	30.0	31.8	
3087	6.3	78.8	36.5	35.8	
3088	4.0	76.3	17.8	26.3	
3089	7.5	76.3	54.3	42.5	
3090	4.3	76.3	16.8	28.8	
3091	4.5	81.3	29.0	30.0	
3092	4.0	68.8	17.0	25.3	
3093	4.3	58.8	20.0	26.8	
3094	3.3	47.5	10.3	26.0	
3095	4.8	65.0	22.5	29.3	

3096	4.3	51.3	18.3	34.0
3097	3.3	51.3	12.8	27.0
3098	3.8	82.5	17.3	31.3
3099	8.8	87.5	60.8	34.3
30100	6.0	60.0	47.8	32.3
30101	6.3	73.8	39.0	32.0
Mean	5.6	68.1	35.6	32.6
LSD <sub>(0.05)</sub>	.9	14.9	10.9	7.3

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-Seed Amt (amt. of seed) (9=most-1=least)t).

**Table 10. May 2007 Vigor, Stand, Height, and Width, Seed culms, and Seed Amt data for Southern Cal 1000 Germplasm California Brome (*Bromus carinatus*) at Los Alamos, California.**

Accession	Vigor <sup>1</sup>	Std <sup>2/</sup>	Ht <sup>3/</sup>	Width <sup>4/</sup>	Seed Amt <sup>5/</sup>
3074	6.5	83.8	66.3	31.5	No data
3075	7.8	83.8	70.0	48.0	
3076	6.0	82.5	50.3	35.5	
<b>3077</b>	<b>7.3</b>	<b>85.0</b>	<b>50.5</b>	<b>42.5</b>	
3078	5.5	82.5	51.5	29.0	
3079	6.0	86.3	56.8	33.3	
3080	6.3	76.3	52.5	28.3	
3081	7.0	71.3	58.0	50.0	
3082	7.0	73.8	64.3	44.5	
3083	6.8	77.5	56.8	39.0	
3084	6.0	47.5	45.5	38.0	
3085	6.3	78.8	41.5	42.5	

3086	5.3	73.8	41.3	33.3
3087	7.0	85.0	54.3	46.8
3088	3.8	78.8	38.8	22.0
3089	7.3	92.5	67.5	36.0
3090	6.0	85.0	54.5	25.5
3091	5.3	76.3	52.5	22.5
3092	3.5	90.0	32.3	23.8
3093	3.3	75.0	51.0	20.5
3094	3.0	68.8	16.8	26.5
3095	4.5	82.5	46.5	26.0
3096	4.3	72.5	48.3	26.5
3097	2.5	62.5	50.3	24.5
3098	4.3	90.0	46.0	25.3
3099	8.3	73.8	62.5	23.5
30100	6.8	75.0	51.3	40.5
30101	6.0	80.0	49.3	34.3
Mean	5.7	78.2	51.0	32.8
LSD <sub>(0.05)</sub>	1.5	12.9	12.9	12.1

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-Seed Amt (amt. of seed) (9=most-1=least)).

**Table 11. March 2008 Vigor, Stand, Height, and Width, Seed culms, and Seed Amt data for Southern Cal 1000 Germplasm California Brome (*Bromus carinatus*) at Los Alamos, California.**

Accession	Vigor <sup>1</sup>	Std <sup>2/</sup>	Ht <sup>3/</sup>	Width <sup>4/</sup>	Seed Amt <sup>5/</sup>
3074	5.5	70.0	13.3	13.5	No data
3075	5.8	86.3	18.8	17.3	

3076	3.5	66.3	12.0	10.5
3077	7.3	73.8	26.3	21.3
3078	5.0	65.0	13.5	13.0
3079	5.8	72.5	18.8	17.0
3080	6.8	77.5	20.8	16.3
3081	5.8	66.3	19.3	15.0
3082	5.8	56.3	17.8	15.8
3083	6.3	61.3	20.0	19.5
3084	5.5	53.8	15.0	12.0
3085	5.8	66.3	17.8	20.3
3086	4.0	48.8	11.8	12.0
3087	8.0	70.0	25.8	24.0
3088	4.3	43.8	15.5	17.3
3089	6.0	88.8	17.8	15.0
3090	3.2	58.8	11.9	10.4
3091	4.0	48.8	9.8	9.5
3092	3.3	57.5	9.0	8.8
3093	4.0	57.5	11.0	10.0
3094	4.3	48.8	11.3	9.3
3095	4.0	55.0	13.3	10.8
3096	4.0	53.8	12.0	9.8
3097	3.8	40.0	11.3	12.0
3098	3.8	48.8	11.5	14.3
3099	6.8	72.5	25.3	15.5
30100	6.3	61.3	21.5	19.8
30101	6.5	58.8	18.5	17.8

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Mean	5.2	61.7	16.1	14.5
LSD <sub>(0.05)</sub>	1.5	26.8	6.1	6.3

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-Seed Amt (amt. of seed) (9=most-1=least).

**Table 12. May 2008 Vigor, Stand, Height, and Width, Seed culms, and Seed Amt data for Southern Cal 1000 Germplasm California Brome (*Bromus carinatus*) at Los Alamos, California.**

Accession	Vigor <sup>1</sup>	Std <sup>2/</sup>	Ht <sup>3/</sup>	Width <sup>4/</sup>	Seed Amt <sup>5/</sup>
3074	5.5	86.3	49.3	18.3	No data
3075	6.5	87.5	54.8	27.5	
3076	3.3	67.5	33.3	14.8	
<b>3077</b>	<b>6.8</b>	<b>87.5</b>	<b>55.0</b>	<b>29.3</b>	
3078	5.5	76.3	54.5	20.0	
3079	5.5	81.3	54.8	20.0	
3080	6.5	83.8	53.5	24.5	
3081	6.3	76.3	58.8	25.8	
3082	5.5	80.0	45.8	24.3	
3083	5.5	77.5	44.8	21.0	
3084	5.8	73.8	37.3	20.5	
3085	5.5	83.8	33.5	23.5	
3086	4.5	60.7	38.9	20.9	
3087	7.8	87.5	60.3	49.8	
3088	5.0	67.5	48.3	27.8	
3089	6.5	88.9	57.8	25.4	
3090	3.8	58.8	36.0	15.8	
3091	3.8	58.8	47.5	14.3	

3092	3.3	57.5	34.0	15.0
3093	4.3	71.3	49.5	17.0
3094	5.0	70.0	50.8	18.3
3095	4.3	67.5	43.8	16.5
3096	4.0	70.0	39.5	12.8
3097	3.5	55.0	42.0	16.5
3098	4.0	68.8	41.5	20.3
3099	5.5	83.8	46.0	19.0
30100	7.0	83.8	54.5	22.8
30101	5.8	66.3	45.8	24.8
Mean	5.2	74.2	46.8	21.4
LSD <sub>(0.05)</sub>	2.2	13.5	8.8	12.5

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-Seed Amt (amt. of seed) (9=most-1=least)