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OAT CULTIVARS FOR CALIFORNIA

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The following are descriptions of oat cultivars evaluated in California from 1980 to the present. The descriptions are based on published cultivar releases and data from the UC Regional Cereal Evaluation Tests conducted each year throughout California. Yield performance data for most of the cultivars can be found in University of California, Davis Agronomy Progress Reports (No.'s 114, 118, 128, 144, 155, 168, 180, 201, 209, 217, 223, 229, 233, 236, 244, 249, 254, 259, 262, 265, 272, 276, 279, 286, 288 and 290 for 1980-2005, respectively). Reports #262 through #290 can be seen at <http://smallgrains.ucdavis.edu>.

CURRENT CULTIVARS

BATES 89

Bates 89 is a spring oat. It was released by the California AES in 1995. It was selected from the cross Pettis/Florida 500 in Missouri. Bates, CI 9211, a spring oat, was developed from that selection and was released jointly by the Missouri and Nebraska AESs in 1977. Bates 89 was received in California in 1975 and tested as entry MO 06072 in UC regional evaluation tests. During the time of evaluation and year-to-year increase in California, Bates 89 may have diverged from the cultivar Bates. It is medium-late maturing (similar to California Red), medium-tall (similar to Kanota, California Red, Sierra, and Swan), thin-stemmed with moderately weak straw (less prone to lodging than Kanota, California Red, or Montezuma). Leaves are long and relatively narrow. Panicles are lax, glumes are yellow, kernels are slender, yellow-white, and the lemma is awnless. Test weight is similar to Ogle and Kanota. It has similar forage quality (crude protein, fiber, total digestible nutrient content) to cultivars available at the time of evaluation and higher hay yield under irrigation than the other thin-stemmed cultivars (Kanota, Montezuma, and California Red). At the time of release it was resistant to moderately resistant to crown rust, stem rust, BYD, and powdery mildew. It was evaluated as Entry 89 in the UC Regional Cereal Testing program from 1984-2003 for fall planting in the Central Valley and the south-central coastal regions of California.

EVERLEAF 114

EverLeaf 114 is a spring oat. It was developed by ProGene LLC and released in California by Resource Seeds Inc. in 2004. It is a very late maturing, medium height cultivar suited for boot-stage forage. It has good straw strength. Growers can harvest boot stage silage during the more favorable weather conditions in the first two weeks of April in the San Joaquin Valley. It has very long wide leaves and excellent disease tolerance, and has been successfully grown under a wide variety of soil conditions both with and without lagoon water. The EverLeaf concept is delayed heading, improved leaf to stem ratio, high nutritional quality and high tonnage. Day-length sensitivity is present in the cultivars so they react differently according to the day length of the regions of production (i.e., different in Washington vs. California). EverLeaf 114 was evaluated as Entry 160 in 2005 in the UC Regional Cereal Testing program in forage trials by Stanislaus county farm advisor Marsha Mathews.

MONTEZUMA

Montezuma is a spring oat. It was released by the California AES and the USDA-ARS in 1969. It was selected from a group of 88 lines derived from California Composite Cross II, which involved crosses of cultivated oat (*Avena byzantina*) with wild oat (*Avena fatua* L.). Montezuma is early maturing with a semi-prostrate, early growth habit and a high tillering capacity. It averages 2-3 days earlier in heading than Kanota and Swan. Plant height is medium, averaging 46 inches, 4-6 inches shorter than California Red, Kanota, Sierra, and Swan. Montezuma is weak-stemmed and susceptible to lodging. Leaf blades are mid-wide. The panicle is short and medium wide. The rachis is mid-slender and straight. It has numerous spikelets per panicle. Branches are few and short. Glumes are red, long and coarse in texture. Florets number 2. The lemma is grayish red and mid-long. The palea is mid-wide and grayish red. Spikelet separation is

by fracture. A basal scar is present and obscure. Basal pubescence is present and medium long. Floret separation is by hetero-fracture to basi-fracture. Awns are numerous and usually straight. The rachilla is mid-long and slender; occasional short hair is present. No hairs occur on the back of the lemma. Montezuma is superior to Curt and Sierra in bushel weight and size and plumpness of kernels (bushel weight and kernel weight average 36.8 lb/bu and 35.6 mg, respectively), and has good resistance to shattering. It is fine-stemmed and leafy, producing good quality forage. At the time of release, Montezuma was susceptible to BYD, crown rust, stem rust, and powdery mildew. It was evaluated as Entry 3 in the UC Regional Cereal Testing program from 1983-2003 for fall planting in the Central Valley, coastal areas, and southern California. *Crop Science* 9:848 (1969)

SIERRA

Sierra is a spring oat. It was released by the California AES and the USDA-ARS in 1961. It is derived from a cross between a mutant monosomic of Kanota (*Avena byzantina* L.) and a rust resistant selection of wild oat (*A. fatua* L.). Sierra has medium early maturity, heading 3-4 days later than Kanota and Swan. It has an erect growth habit and large stems and leaves. It is leafy, but has thick stems that detract from its forage value for some uses. It is tall (plant height is similar to California Red, Kanota, and Swan, averaging 52 inches). It has moderate resistance to lodging. The panicles are equilateral, short and wide. The rachis is straight to somewhat flexuous. Branches are medium short and straight to raised. Glumes are reddish white, long, and coarse in texture. Florets usually number 3. The lemma is grayish red and long. The palea is mid-wide and red to grayish red. Spikelet separation is by fracture. The basal scar is obscure and basal hairs are few and short. Floret separation is by hetero-fracture. Awns are few and straight. The rachilla segment is short and slender, with occasional short pubescence. No hairs occur on the lemma. Sierra has mottled grey or white seeds. Kernels are medium slender. Sierra has good shatter resistance. Test weight is low and kernel weight intermediate compared to other cultivars, averaging 34.4 lb/bu and 32.5 mg, respectively. Sierra is susceptible to BYD, stem rust, crown rust and powdery mildew. It was evaluated as Entry 2 in the UC Regional Cereal Testing program from 1983-2003 for fall planting in the Central Valley, coastal areas, and southern California. *Crop Science* 7:168 (1967)

UC 113

UC 113 is a spring oat. It was released by the California AES in 2007. It was selected at UC Davis from the cross (77-22 x 77-23) x 75Q036-22 made by Pamela Zwer in 1985. 75Q036-22 is a sib of Pert, a cultivar released jointly by the California AES and the Western Australia Department of Agriculture. UC 113 is late maturing (15-20 days later than Montezuma) and short (4-5 inches shorter than Montezuma). Culms are slightly thicker than those of Montezuma. Straw strength is excellent; lodging occurs only in highly productive environments. UC 113 is well-adapted for fall planting in the Central Valley, Imperial Valley, and Central Coastal areas for both grain and forage production. It performs well with April-early May plantings in northern intermountain areas, such as Tulelake. Panicles are long, lax, with long rachis and branch internodes. Glumes are light red. Lemma awns are absent. Culms and panicles are waxy compared to glossy of Montezuma. Kernels are light red, mid-long, and plump. Test weight and kernel weight are good (35-40 lb/bu, 35-40 mg/kernel), higher than Montezuma. Rachilla is shorter than Montezuma. Basal floret hairs are present and shorter than Montezuma. It has excellent shatter resistance. Grain yield averaged 145% of Montezuma in 14 location years. UC 113 forage has higher crude protein percentage and lower acid and neutral detergent fiber than Montezuma. At the time of evaluation it was resistant to stem rust, moderately susceptible to BYD, and susceptible to crown rust and powdery mildew. It was evaluated as Entry 113 in the UC Regional Cereal Testing program from 1991-2005 for fall planting in the Central Valley and the south-central coastal regions of California.

UC 125

UC 125 is a spring oat. It was released by the California AES in 2007. It was selected at UC Davis from the cross (Coker 234 x Coker 227) x 75Q036-83-1D made by Pamela Zwer in 1985. 75Q036-83-1D was later named Pert and released jointly by the California AES and the Western Australia Department of Agriculture. UC 125 is late maturing (15-20 days later than Montezuma) and short (4-5 inches shorter than Montezuma). Culms are slightly thicker than those of Montezuma. Straw strength is excellent; lodging occurs only in highly productive environments. UC 125 is well-adapted for fall planting in the Central Valley, Imperial Valley, and Central Coastal areas for both grain and forage production. It performs well with April-early May plantings in northern intermountain areas, such as Tulelake. Panicles are long, lax, with long rachis and branch internodes. Glumes are light red. Lemma awns are absent. Culms and panicles are waxy compared to glossy of Montezuma. Kernels are light red, mid-long, and plump. Test weight and kernel weight are good (35-40 lb/bu, 35-40 mg/kernel), higher than Montezuma. Rachilla is shorter than Montezuma. Basal floret hairs are present and shorter than Montezuma. It has excellent shatter resistance. Grain yield averaged 128% of Montezuma in 11 location years. UC 125 forage has higher crude protein percentage and similar acid and neutral detergent fiber compared to Montezuma. At the time of evaluation it was resistant to stem rust, moderately susceptible to BYD, and susceptible to

crown rust and powdery mildew. It was evaluated as Entry 125 in the UC Regional Cereal Testing program from 1994-2004 for fall planting in the Central Valley and the south-central coastal regions of California.

UC 128

UC 128 is a spring oat. It was released by the California AES in 2007. It was selected at UC Davis from the cross (Albion 20 x (5068 x 6975)) x Montezuma made by Pamela Zwer in 1983. Its experimental designation was UCD 94-408. UC 128 is late maturing (15-20 days later than Montezuma) and very tall (8-10 inches taller than Montezuma). Culms are thicker than those of Montezuma. Straw strength is excellent; lodging occurs only in highly productive environments. UC 128 is well-adapted for fall planting in the Central Valley, Imperial Valley, and Central Coastal areas for both grain and forage production. It performs well with April-early May plantings in northern intermountain areas, such as Tulelake. Panicles are long, lax, with long rachis and branch internodes. Glumes are white. Lemma awns are present. Culms and panicles are waxy compared to glossy of Montezuma. Kernels are yellow-white, long and slender. Test weight is good (35-40 lb/bu) and kernel weight is light (about 30 mg/kernel, lower than Montezuma). Rachilla is shorter than Montezuma. Basal floret hairs are absent or sparse. It has excellent shatter resistance. Grain yield averaged 127% of Montezuma in 11 location years. UC 128 forage has higher crude protein percentage and similar acid detergent fiber and higher neutral detergent fiber compared to Montezuma. At the time of evaluation it was moderately resistant to BYD, stem rust, crown rust and powdery mildew. It was evaluated as Entry 128 in the UC Regional Cereal Testing program from 1995-2004 for fall planting in the Central Valley and the south-central coastal regions of California.

UC 129 (“MAC”)

UC 129 (proposed name “Mac”) is a spring oat. It was developed by Texas A&M University and released by the California AES in 2007. It was selected from the cross Cortez5/Pendak/ME1563. Its experimental designation was UCD 94-409. UC 129 is late maturing (15-20 days later than Montezuma) and very tall (8-10 inches taller than Montezuma). Culms are thicker than those of Montezuma. Straw strength is excellent; lodging occurs only in highly productive environments. UC 129 is well-adapted for fall planting in the Central Valley, Imperial Valley, and Central Coastal areas for both grain and forage production. It performs well with April-early May plantings in northern intermountain areas, such as Tulelake. Panicles are long, lax, with long rachis and branch internodes. Glumes are white. Lemma awns are present. Culms and panicles are waxy compared to glossy of Montezuma. Kernels are yellow-white and long and slender. Test weight is good (35-38 lb/bu) and kernel weight is light (about 30 mg/kernel, lower than Montezuma). Rachilla is shorter than Montezuma. Basal floret hairs are absent or sparse. It has excellent shatter resistance. Grain yield averaged 129% of Montezuma in 11 location years. UC 129 forage has higher crude protein percentage and similar acid and neutral detergent fiber content compared to Montezuma. At the time of evaluation it was moderately resistant to stem rust, crown rust and powdery mildew and moderately susceptible to BYD. It was evaluated as Entry 129 in the UC Regional Cereal Testing program from 1995-2005 for fall planting in the Central Valley and the south-central coastal regions of California.

UC 130

UC 130 is a spring oat. It was released by the California AES in 2007. It was selected at UC Davis from the cross BYDV Resistant x Swan made by Pamela Zwer in 1983. The parentage of BYDV Resistant is unknown. The experimental designation of UC 130 was UCD 94-401. UC 130 is late maturing (15-20 days later than Montezuma) and short (4-6 inches shorter than Montezuma). Culms are thicker than those of Montezuma. Straw strength is very good. UC 130 is well-adapted for fall planting in the Central Valley, Imperial Valley, and Central Coastal areas for both grain and forage production. It performs well with April-early May plantings in northern intermountain areas, such as Tulelake. Panicles are short and dense. Glumes are white. Lemma awns are absent. Culms and panicles are glossy, similar to Montezuma. Kernels are light red, long and slender. Test weight is good, comparable to Montezuma (34 lb/bu) and kernel weight is light (about 30 mg/kernel, lower than Montezuma). Rachilla is shorter than Montezuma. Basal floret hairs are absent or sparse. It has excellent shatter resistance. Grain yield averaged 127% of Montezuma in 11 location years. UC 130 forage has higher crude protein percentage, similar acid detergent fiber content, and higher neutral detergent fiber content compared to Montezuma. At the time of evaluation it was resistant to crown rust, moderately resistant to stem rust and powdery mildew, and moderately susceptible to BYD. It was evaluated as Entry 130 in the UC Regional Cereal Testing program from 1995-2005 for fall planting in the Central Valley and the south-central coastal regions of California.

UC 132

UC 132 is a spring oat. It was released by the California AES in 2007. It was selected at UC Davis from the cross Palestine Dwarf x OT 207 made by Luiz Federizzi in 1983. Its experimental designation was UCD 94-403. UC 132 is

moderately late maturing (about 14 days later than Montezuma) and very short (5-8 inches shorter than Montezuma). Culms are moderately thick (thicker than those of Montezuma). Straw strength is excellent. UC 132 is well-adapted for fall planting in the Central Valley, Imperial Valley, and Central Coastal areas for both grain and forage production. It performs well with April-early May plantings in northern intermountain areas, such as Tulelake. Panicles are short and mid-dense. Glumes are white. Lemma awns are absent. Culms and panicles are waxy, compared to glossy of Montezuma. Kernels are white, short and plump. Test weight is very good, comparable to Montezuma (34 lb/bu) and kernel weight is relatively light (about 30 mg/kernel, lower than Montezuma). Rachilla is shorter than Montezuma. Basal floret hairs are absent or sparse. It has excellent shatter resistance. Grain yield averaged 116% of Montezuma in 11 location years. UC 132 forage has higher crude protein percentage and similar acid and neutral detergent fiber content compared to Montezuma. At the time of evaluation it was resistant to crown rust, moderately resistant to powdery mildew, moderately susceptible to BYD, and susceptible to stem rust. It was evaluated as Entry 132 in the UC Regional Cereal Testing program from 1995-2004 for fall planting in the Central Valley and the south-central coastal regions of California.

UC 142 (“HOWARD”)

UC 142 (proposed name “Howard”) is a spring oat. It was released by the California AES in 2007. It was selected from the cross Coker 75-28/Coker74-21//Coker 76-16*2//Coker 76-19/CI 9221 by Howard Harrison, oat breeder at Coker’s Pedigreed Seed Co., South Carolina. Coker’s designation of the selected line was Coker 342-1-B-2-2-1-2-1. This line was included in a collection of more than 200 lines that were donated by Northrup, King & Company to the USDA National Small Grains Collection (NSGC) after it had purchased Coker’s Pedigreed Seed Co. and had discontinued oat cultivar development and marketing breeding. The lines were distributed on request by the NSGC to breeders as public germplasm. This collection of lines was received at UC Davis in 1992. The breeder’s designation of Coker 342-1-B-2-2-1-2-1 was Coker A-99. UC 142 is moderately early maturing (10-12 days later than Montezuma) and short (about 8 inches shorter than Montezuma). Culms are thin (about 1 mm thinner than those of Montezuma). Straw strength is good; lodging occurs in thick stands in highly productive environments, but much less so than for Montezuma. Early growth is prostrate. UC 142 is well-adapted for fall planting in the Central Valley, Imperial Valley, and Central Coastal areas for both grain and forage production. Grain yield performance is comparable or higher than old California cultivars, but its thin culms are favored for hay production. It performs very well with April-early May plantings in northern intermountain areas, such as Tulelake. UC 142 is suitable as a cover and green manure crop alone or in mixtures with other species in vineyards. Panicles are short and dense. Glumes are white. Lemma awns are present. Culms and panicles are glossy, similar to Montezuma. Kernels are light red and slender. Test weight is good (36 lb/bu), greater than Montezuma, and kernel weight is light (about 26 mg/kernel), lower than Montezuma. Rachilla is shorter than Montezuma. Basal floret hairs are absent or sparse. UC 142 has excellent shatter resistance. Grain yield averaged 96% of Montezuma in 11 location years, but UC 142 performed relatively better (136%) in a 3-year large plot study at the UC Davis Agronomy Farm. UC 142 forage has higher crude protein percentage, similar acid detergent fiber content, and higher neutral detergent fiber content compared to Montezuma. The thin culms of UC 142 are desirable as a dried fodder for horses and dairy cattle. The early prostrate growth but rapid heading and maturity of UC 142 make it desirable for non-feed use as a cover crop. At the time of evaluation it was resistant to stem rust, crown rust, and powdery mildew and moderately resistant to BYD. It was evaluated as Entry 142 in the UC Regional Cereal Testing program from 1997-2005 for fall planting in the Central Valley and the south-central coastal regions of California.

UC 148

UC 148 is a spring oat. It was released by the California AES in 2007. It was selected at UC Davis from the cross BYDV Resistant x Swan made by Pamela Zwer in 1983. The parentage of BYDV Resistant is unknown. The experimental designation of UC 148 was UCD 96-412. UC 148 is moderately late maturing (10-12 days later than Montezuma) and tall (about 3 inches taller than Montezuma). Culms are thick (about 1 mm thicker than those of Montezuma). Straw strength is good; lodging occurs in thick stands in highly productive environments, but much less so than for Montezuma. UC 148 is well-adapted for fall planting in the Central Valley, Imperial Valley, and Central Coastal areas for both grain and forage production. It performs well with April-early May plantings in northern intermountain areas, such as Tulelake. Panicles are short and dense. Glumes are white. Lemma awns are absent. Culms and panicles are glossy, similar to Montezuma. Kernels are light red and plump. Test weight is very good (38 lb/bu), greater than Montezuma, and kernel weight (about 36 mg/kernel) is similar to Montezuma. Rachilla is shorter than Montezuma. Basal floret hairs are absent or sparse. It has excellent shatter resistance. Grain yield averaged 114% of Montezuma in 11 location years. UC 148 forage has higher crude protein percentage, similar acid detergent fiber content, and higher neutral detergent fiber content compared to Montezuma. At the time of evaluation it was resistant to crown rust,

moderately susceptible to BYD and powdery mildew, and susceptible to stem rust. It was evaluated as Entry 148 in the UC Regional Cereal Testing program from 1997-2005 for fall planting in the Central Valley and the south-central coastal regions of California.

CULTIVAR ARCHIVES (Cultivars previously evaluated by UC Small Grains Program)

APPALOOSA

Appaloosa is a spring oat. It was released by the Washington AES in 1978. It was selected from the cross Min II-22-220/Cayuse. It was selected for BYD tolerance at Davis, California. It has midseason maturity and is similar to Cayuse in general appearance, but slightly shorter and has good lodging resistance. Panicles are mid-sized and of intermediate openness. The lemma color of individual grains may vary from light to dark yellow, with or without grey to brown areas, or may be completely brownish-yellow. The kernels are slender, mid-long and glabrous. Awns are common, twisted, and sub-geniculate. At the time of release it was moderately resistant to BYD. It was evaluated as Entry 88 in the UC Regional Cereal Testing program from 1984-91 for spring planting in the intermountain region of northern California and for fall planting in the Central Valley and the south-central coastal regions of California.

BAY

Bay is a spring oat. It was released by the Wisconsin AES in 1995. It was selected from the cross Hazel/6/Holden/Irr.4/Garland/2/6x amphiploid/2*6936/3/Garland/5/Noble. Its experimental designation was Wisc. X5445-4. It is a late maturing (5 days later than Ogle), medium height (2-3 cm shorter than Ogle), high yielding oat cultivar that can be utilized for both grain and forage. Juvenile plants are erect. It has stiff straw, broad leaves. Panicles are equilateral and mid-long, with spreading branches. The rachis is erect to slightly flexuous. Spikelets separate from their pedicels by fracture, and florets separate by disarticulation of their rachilla segments, which are hairless. Glumes are glabrous. Lemmas are glabrous, and awns are infrequent. Bay has yellow, non-fluorescent, broad kernels. At the time of release it was resistant to crown rust (races CR13, CR20, CR36, CR50, CR152, CR169, Pc58, Pc59, Pc62, and Pc2648) and stem rust (race NA16), and moderately resistant to loose smut and BYD. It was evaluated as Entry 150 in the UC Regional Cereal Testing program from 1997-98 for fall planting in the Central Valley and the south-central coastal regions of California. *Crop Science* 39:878 (1999)

BELLE

Belle is a spring oat. It was released by the Wisconsin AES in 1995. It was selected from the cross Dan/7/Ascensao/Fayette/4/Clintfield/3/Garry/2/Hawkeye/Victoria/5/Goodfield/Simons 58-241-26/6/Holden/Irr. 4/Garland/2/6x amphiploid/2* C.I. 6936/3/Garland/5/Froker. It is late maturing (3-4 days later than Ogle), tall (7-8 cm taller than Ogle) and high yielding. Lodging resistance is greater than Ogle. Juvenile plants are erect. Panicles are equilateral and mid-long, with spreading branches. The rachis is erect to slightly flexuous. Spikelets separate from their pedicels by fracture, and florets separate by disarticulation of their rachilla segments, which are hairless. Glumes are glabrous. Lemmas are glabrous, and awns are infrequent. Kernels are yellow, non-fluorescent, and well-filled. It has high test weight and great percentage, and low groat protein percentage. At the time of release it was resistant to crown rust (races CR13, CR20, CR36, CR52, CR152, CR169, Pc58, Pc59, Pc62, and Pc264B), stem rust (races NA8 and NA16), and loose smut, and had intermediate tolerance to BYD. It was evaluated as Entry 152 in the UC Regional Cereal Testing program in 1997 for fall planting in the Central Valley and the south-central coastal regions of California. *Crop Science* 39:878-879 (1999)

BORDER

Border is a spring oat. It was released by USDA-ARS and the Wyoming and Idaho AESs in 1982. It was selected from the cross Otana/Coker X848-1-1-2/Cayuse. Its experimental designation was 74Ab2300. It is mid-to-late season in maturity and heads about 4 days later than Cayuse. It is slightly taller than Cayuse. Lodging resistance is good. Kernels are white. It averaged 182.2 bu/acre in 9 station-yrs of irrigated tests at Aberdeen and Twin Falls, ID and exceeded all named cultivars in yield in dryland trials at Tetonia, ID in 1977-80. It is adapted for spring planting in the intermountain region of northern California. *Crop Science* 26:1257 (1986)

BYRD

Byrd is a spring oat. It was received for testing from Lohse Mills in California. Its experimental designation was M122-1 ASB. It is late maturing, medium-tall, coarse stemmed with fair straw strength. At the time of evaluation it was moderately resistant to stem rust, crown rust, and powdery mildew and moderately susceptible to BYD. It was evaluated as Entry 115 in the UC Regional Cereal Testing program in 1992 for fall planting in the Central Valley and the south-central coastal regions of California.

CALIFORNIA RED

California Red is a spring oat. It was developed from commercial stocks of Red Rustproof oat (*Avena byzantina*). No authentic records are available on its introduction into California where it may have been first grown, but it was first released as foundation seed by the University of California in 1937. Red Rustproof probably originated as a selection from Red Algerian, a closely allied cultivar that had been introduced into the southern states directly from the Mediterranean region of Europe or from Mexico into California. It was released by Georgia or South Carolina as Red Mexican Rust Proof in about 1848. Both wild and cultivated red oat types were found in adobe bricks used in the walls of the Spanish missions San Jose de Guadalupe and Rancho Vallejo in California, erected about 1811 and 1834, respectively, indicating that the cultivar may have been grown in this country at a much earlier date than is indicated in available records. California Red is late maturing with moderately weak stems. It is about a week earlier in heading than Cayuse. Plant height is similar to Sierra, Swan and Kanota (averaging about 52 inches) and several inches shorter than Cayuse and Ogle. California Red is susceptible to lodging, but less so than Kanota or Montezuma. Kernel weight is low compared to other cultivars in California (averaging 27.2 mg). Panicles are equilateral, mid-long, and widespread. The rachis is slender, usually straight to re-curved. Branches are slender, medium long and drooping. Glumes are red, very long, and coarse in texture. Florets number 2-3 and have red lemmas that are mid-long. The palea is mid-wide, and red or gray-flecked. Spikelet separation is by abscission or semi-abscission. The basal scar is prominent, and numerous long basal hairs are present. Awns are numerous and straight. The rachilla segment is medium long and medium wide; occasional long hair is present. It is an excellent hay oat when diseases are not present due to its fine stems and leafiness. Grain and forage yields generally are lower than those of other California cultivars. California Red is very susceptible to BYD, susceptible to stem rust, moderately susceptible to crown rust, and moderately resistant to powdery mildew. It was evaluated as Entry 4 in the UC Regional Cereal Testing program from 1983-94 and from 2001-03 for fall planting in the Central Valley, coastal areas, and southern California.

CAYUSE

Cayuse is a spring oat. It was jointly released by Washington and Idaho AESs in 1966. It was selected from the cross Craig/Alamo made in 1952 at Cornell University. Cayuse is late maturing, heading about one week later than California Red. It is several inches taller (averaging 55 inches) than California Red, Sierra, and Swan, with straw strength similar to Sierra and moderate resistance to lodging. The panicles are open, spreading, and equilateral. The rachis is mid-stout and straight to slightly flexuous. Branches are mid-long and straight to raised to drooping. Glumes are light red, mid-long, and coarse in texture. Florets number two. The lemma is grayish red and mid-long. The palea is mid-wide and gray. Spikelet separation is by fracture, and the basal scar is slight to obscure. Basal pubescence is few to numerous and medium long. Floret separation is by fracture, usually distal. Awns are numerous, usually twisted and geniculate. The rachilla segment is long, mid-wide, and non-pubescent. Kernels are light yellow. Kernel weight is low (similar to California Red), averaging 27.5 mg. Cayuse produces high forage and grain yields, but coarse stems reduce forage quality for some uses. Cayuse is resistant to stem rust (it carries the AB genes for stem rust resistance), powdery mildew, and *Helminthosporium* blight, and moderately susceptible to crown rust and BYD. It was evaluated as Entry 22 in the UC Regional Cereal Testing program from 1983-91, in 1995, from 1997-99, and in 2005 for fall-sowing in the Central Valley, coastal areas and southern California and for spring planting in the intermountain area on northern California. *Crop Science* 8:399 (1968)

CURT

Curt is a spring oat. It was released by the California AES in 1959. It was selected from the cross Victoria (nullisomic)/Richland/2/Red Rustproof/Palistine/Kanota. Curt is an early maturing (similar to Kanota), short stature oat. It is several inches shorter than Kanota (averaging 41 inches). Despite its short stature, it is susceptible to lodging. Panicles are equilateral, short to mid-long, and intermediate in width. The rachis is straight to flexuous. Branches are short, slender, raised, and straight to drooping. Glumes are red to yellowish red, long, and coarse in texture. Florets number 2 to 3, and lemmas are red to grayish red and long. The palea is mid-wide, and gray or grayish red. Spikelet separation is by abscission. There is a prominent basal scar, and basal pubescence is few to numerous, and long. Floret separation is mostly by basi-fracture. Awns are numerous, and usually straight. Kernels are mid-plump to plump (kernel

weight averages 34.9 mg). The rachilla segment is medium long and medium wide, with pubescence few to numerous, short to medium long. There is an occasional long hair on the back of the lemma. Forage quality is good, as Curt has fine stems and is very leafy. Grain and forage yields are relatively low. Curt is moderately resistant to stem rust and powdery mildew, and susceptible to BYD and crown rust. It was evaluated as Entry 1 in the UC Regional Cereal Testing program from 1983-86 and from 2001-03 for fall planting in the Central Valley, coastal areas and southern California. *Agronomy Journal* 52:663 (1960)

DON

Don is a spring oat. It was released by the Illinois AES in cooperation with the USDA-ARS in 1985. It was selected from the cross Coker 234/2/Orbit/CI 8168. Its experimental designation was IL 75-5860. It is medium early maturing and has tall plants with coarse straw when fall-sown in the Central Valley. Lodging resistance is less than Ogle and Lang. It has equilateral panicles with ascending branches. Spikelet separation occurs by fracture and floret separation by hetero-fracture. The mid-long lemmas are glabrous, and basal hairs are absent. The second floret rachilla segments are glabrous and mid-long. The kernels are dull white in color, medium to large, mid-plump, and primarily fluorescent. Awns are absent. At the time of release it was resistant to crown rust and smut, moderately resistant to BYD, and susceptible to stem rust. It was evaluated as Entry 114 in the UC Regional Cereal Testing program in 1989 and from 1991-93 for fall planting in the Central Valley and the south-central coastal regions of California. *Crop Science* 29:1572 (1989)

ECHIDNA

Echidna is a spring oat. It was released in Australia and received for testing in California from Farmers Marketing Corporation. It was selected from the cross West/OT 207. It is late maturing and short with fair straw strength. At the time of evaluation it was resistant to stem rust, moderately resistant to powdery mildew, moderately susceptible to crown rust and susceptible to BYD. It was evaluated as Entry 117 in the UC Regional Cereal Testing program from 1993-96 for fall planting in the Central Valley and the south-central coastal regions of California.

ELAN

Elan is a spring oat. It was released by the Georgia AES in 1970. It was selected from the cross Suregrain/LMHJA/2/Coker 57-11/3/Florida 500. Its experimental designation was T-6161. It is a short oat with strong straw and medium early maturity. It has good hardiness and is adapted to the Coastal Plain and Piedmont areas of Georgia. It is a dual purpose oat. At the time of release it was resistant to crown rust, stem rust, and Victoria blight, and susceptible to BYD and soil-borne mosaic virus. It was evaluated as Entry 97 in the UC Regional Cereal Testing program in 1985 for fall planting in the Central Valley and the south-central coastal regions of California. *Crop Science* 12:127 (1972)

ENSILER

Ensiler is a spring oat. It was released by the Wisconsin AES. It is intended for forage. It is late maturing and medium height with fair straw strength. It was evaluated as Entry 153 in the UC Regional Cereal Testing program from 1997-99 for fall planting in the Central Valley and the south-central coastal regions of California.

HARRISON

Harrison is a spring oat. It was developed Arkansas County Seed Co and released in California by Kellogg Seeds. It has medium maturity and is tall with excellent lodging resistance. It has wide leaves and excellent forage potential. At the time of release it was resistant to stem rust and crown rust, and moderately resistant to BYD and powdery mildew. It was evaluated as Entry 156 in the UC Regional Cereal Testing program from 2001-03 for fall planting in the Central Valley and the south-central coastal regions of California.

JAYCEE

Jaycee is a spring oat. It was released by the Illinois AES in cooperation with the USDA-ARS in 1967. It was selected from the cross Clintland/3/Garry/2/Hawkeye/Victoria/4/Putnam. Its experimental designation was Illinois 30840. Jaycee is medium-late maturing, several days later than California Red. It is tall (similar in height to Cayuse, averaging 54 inches) and has very good lodging resistance. The panicles are equilateral, mid-long, and mid-wide. The rachis is straight to slightly flexuous. Branches are long and usually raised in attitude. Glumes are very light red, medium long, and medium coarse in texture. Florets usually number 2. Lemmas are very light red and very short. The palea is wide and light red. Spikelet separation is by fracture. The basal scar is absent to obscure, with few long basal hairs. Floret separation is by fracture, hetero-fracture or distal. Awns are straight to sub-geniculate. Kernels are very short and very

plump; kernel weight is low, averaging 27.9 mg, similar to California Red and Cayuse. The rachilla segment is long and slender, and non-pubescent. There are no hairs on the lemma. Jaycee has coarse stems that detract from its forage quality for some uses. It is high yielding, earlier and shorter than other cultivars in Illinois. At the time of release, Jaycee was resistant to stem rust, powdery mildew, and smut, and moderately susceptible to BYD and crown rust. It was evaluated as Entry 35 in the UC Regional Cereal Testing program from 1983-87 for fall planting in the Central Valley and the south-central coastal regions of California. *Crop Science* 7:402 (1967)

KANOTA

Kanota is a spring oat. It was released by the Kansas AES in 1919. It is a strain of Fulghum, a selection from Nicholson's New Extra Early Improved Red Rustproof (*Avena byzantina*). Certified seed of Kanota was released in California in 1928. Kanota is early maturing (about 3 days later than Montezuma) and tall, with a plant height similar to California Red, Sierra, and Swan (averaging 50 inches). Kanota is weak-stemmed and susceptible to lodging. Panicles are equilateral, mid-long, and medium wide. The rachis is straight to slightly flexuous. Branches are medium short, raised, and straight to drooping. Glumes are red, mid-long, and medium coarse in texture. Florets number 2-3. The lemma is red to grayish red and mid-long. The palea is mid-wide and gray to gray flecked red. Spikelet separation is by abscission or fracture. The basal scar is obscure to prominent and an occasional few long basal hairs are present. Floret separation is by fracture, usually basal and occasionally distal or hetero-fracture. Awns are occasional and straight. The rachilla segment is short to medium long, medium wide and non-pubescent. No hairs occur on the lemma. Kernels are medium to plump. Kanota has high bushel weight and low kernel weight (averaging 38.3 lb/bu and 28.0 mg, respectively). Fine stems and leafiness provide good quality hay. Kanota is susceptible to BYD, crown rust, stem rust, and powdery mildew. It was evaluated as Entry 6 in the UC Regional Cereal Testing program from 1983-2003 and in 2005 for fall planting in the Central Valley, coastal areas, and southern California. *Journal American Society of Agronomy* 19:1031 (1927)

MAGNUM

Magnum is a spring oat. It was received for testing in California from Oregon in 1987. It is late maturing and tall, with coarse stems and fair straw strength. At the time of evaluation it was resistant to stem rust. It was evaluated as Entry 105 in the UC Regional Cereal Testing program in 1987 for fall planting in the Central Valley and the south-central coastal regions of California.

MAGNUM II

Magnum II is a spring oat. It was developed for California by Lohse Mills. Its experimental designation was M122-1 ASM2. It is late maturing and medium tall, with coarse stems and good straw strength. At the time of evaluation it was resistant to stem rust and crown rust, moderately susceptible to powdery mildew, and susceptible to BYD. It was evaluated as Entry 116 in the UC Regional Cereal Testing program in 1992 and 1998 for fall planting in the Central Valley and the south-central coastal regions of California.

MONIDA

Monida is a spring oat. It was released by the USDA-ARS and Idaho, Montana, Oregon, and Washington AESs in 1985. It was selected from the cross Cayuse/Otana. Monida is a white-hulled, mid-season, relatively tall oat with blue-green foliage and equilateral panicles. It is late maturing when planted in the spring at Tulelake (heading is about 10 days later than Cayuse at Tulelake). Monida is taller than Cayuse but shorter than Otana. It is similar to Cayuse and Otana in lodging resistance. Kernels are plump, creamy white in color, and similar in appearance to Otana. Monida is similar to Otana in groat content and averages about 1 percentage point lower than Cayuse and Otana in groat protein. Monida is adapted for spring planting in the intermountain area of northern California. *Crop Science* 28:374 (1988)

MORTLOCK

Mortlock is a spring oat. It was developed in Australia. It is early maturing and medium height, with fair straw strength. It was evaluated as a forage oat as Entry 155 in the UC Regional Cereal Testing program from 1997-99 for fall planting in the Central Valley and the south-central coastal regions of California.

NEWDAK

Newdak is a spring oat. It was released by the North Dakota AES in cooperation with USDA-ARS and Cornell AES in 1990. It was selected from the cross RL3038/Goodland//Ogle. Its experimental designation was ND 810104. It has midseason maturity, medium height and moderate lodging resistance. It has equilateral panicles with ascending branches. Spikelet separation occurs by fracture and floret separation by hetero-fracture. Lemmas are glabrous and basal hairs are

absent. Kernels are white, fluorescent, medium to large, and mid-plump. Awns are absent. Grain yield is equal or higher than other cultivar carrying Pg-13. It has wide adaptation and performed well in South Dakota, Minnesota, Wisconsin and New York. At the time of release it was resistant to stem rust and crown rust and had greater tolerance to BYD than any other cultivar adapted to North Dakota. It was evaluated as Entry 149 in the UC Regional Cereal Testing program in 1995 and 1997 for fall planting in the Central Valley and the south-central coastal regions of California and for spring planting in the intermountain area of northern California. *Crop Science 31:1384 (1991)*

OGLE

Ogle is a spring oat. It was released by the Illinois AES and USDA-ARS in cooperation with Nebraska, Ohio, Pennsylvania, and New York AESs in 1980. It originated from the cross Brave//Tyler/Egdolon 23. Its experimental designation was Illinois 73-2664. Ogle was received for testing at the University of California in 1986, and was approved for certification in California in the fall, 1988. Ogle is medium-late maturing. Heading date averages about 5 days earlier than California Red, 14 days earlier than Cayuse, and 17 days later than Montezuma. Ogle is tall (5-8 inches taller than Swan, Cayuse, Kanota, California Red, and Sierra). Average height under irrigated production is 60 inches. Ogle has lodging resistance better than the cultivars mentioned above. Stem coarseness of Ogle is similar to that of Cayuse and Sierra, and coarser than Montezuma, California Red, and Kanota. Kernels of Ogle are yellow, non-fluorescent, slender and finely tapered at the tips. The primary kernel often contains a prominent, 1-3 cm long awn that usually separates from the kernel during threshing. Ogle has a low kernel weight (averaging 28.4 mg, similar to California Red but much lower than Sierra, Montezuma, and Swan which average 34.4 to 37.0 mg) and a bushel weight similar to other cultivars mentioned (averaging 35.2 lb/bu). At the time of release Ogle had a good combination of disease resistances to the most important diseases of oat that occur in California, including BYD, crown rust and stem rust. With high grain and forage yields, Ogle is a good dual purpose (hay and grain) cultivar. It was evaluated as Entry 96 in the UC Regional Cereal Testing program from 1985-99 for fall planting in the Central Valley, coastal areas, and southern California and for spring planting in the intermountain area of northern California. *Crop Science 23:1012 (1983)*

OTANA

Otana is a spring oat. It was developed cooperatively by the USDA-ARS and Idaho and Montana AESs and released in 1976. Otana was selected from the cross CI5345/Zanster. CI5345 is a selection from a Clinton/Overland cross, while Zanster is a cultivar that originated in Holland. Its experimental designation was 63Ab5280-7. Otana is late maturing (2 days earlier than Cayuse). It is tall (about 5 inches taller than Cayuse), and moderately resistant to lodging. Otana has dark blue-green foliage. The panicles are equilateral, producing short, plump, white kernels that are free of awns. The protein content has averaged higher than for Cayuse (in Montana). Its test weight is heavier than Cayuse. At the time of release, Otana was resistant to Victoria blight (*Helminthosporium* blight), but susceptible to crown rust and stem rust. It is adapted for spring planting in the intermountain region of northern California. *Crop Science 18:693 (1978)*

PARK

Park is a spring oat. It was released by the Montana AES in 1953. It was selected from the cross Clinton/Overland*2. Park has late season maturity, heading at later dates than Cayuse in some seasons at Tulelake and at similar dates in other seasons. It is tall (plant height is 2-8 inches taller than Cayuse at Tulelake, averaging about 47 inches). Park is susceptible to lodging. Panicles are equilateral, mid-long, and mid-wide. The rachis is stout and straight to flexuous. Branches are mid-long, stout, and straight to raised. Glumes are white, mid-long, and fine to medium in texture. Florets number 2-3. The lemma is white and short. The palea is wide and white to yellowish white. Spikelet separation is by fracture. The basal scar is obscure. Occasional short basal pubescence is present. Floret separation is by fracture, distal or hetero-fracture. Awns are occasional and straight to sub-geniculate. The rachilla segment is short, wide, and non-pubescent. No hairs occur on the lemma. Park is generally superior to Cayuse in test weight and groat percentage. It is taller than Cayuse and preferred by some growers for green-chop, silage or hay. It was evaluated as Entry 30 in the UC Regional Cereal Testing program from 1986-90 and in 1995 for spring planting in the intermountain area of northern California. *Agronomy Journal 50:701 (1958)*

PERT

Pert is a spring oat. It was released by the California AES in 1994. It was selected from the cross OT207/ Swan made at the Department of Agriculture, Perth, Western Australia. Its experimental designation was 75Q036-83-1D. Pert has spring growth habit, late maturity, short stature, and is highly resistant to lodging. Leaves are larger than Swan, Kanota, California Red, and Montezuma. Culms are relatively thick (similar to Ogle, thicker than Swan, Kanota, California Red, and Montezuma). Panicles are lax with long rachis and branch internodes. Lemma awns are absent. Kernels are mid-long

and plump. The grain is light red in color; test weight is good (heavier than Sierra, California Red, and Montezuma). Pert has high grain and forage yield potential. At the time of release, Pert had good tolerance to BYD and crown and stem rust, and moderate tolerance to powdery mildew. It subsequently became moderately susceptible to BYD and crown rust, and susceptible to powdery mildew. It was evaluated as Entry 95 in the UC Regional Cereal Testing program from 1985-2003 for fall planting in the Central Valley, coastal areas, and southern California.

POTOROO

Potoroo is a spring oat. It was released in Australia and received for testing in California from Farmers Marketing Corporation. It was selected from the cross OX79 119-200*/OX80 266-2H**/Echidna. It is medium maturing and short with fair straw strength. At the time of evaluation it was resistant to stem rust, moderately resistant to powdery mildew, moderately susceptible to crown rust and susceptible to BYD. It was evaluated as Entry 118 in the UC Regional Cereal Testing program from 1993-97 for fall planting in the Central Valley and the south-central coastal regions of California.

RANDOM

Random is a spring oat. It was developed by Alberta, Canada and released in 1971. It was selected from the cross Glen/Pendek. Its experimental designation was O.T. 716. It is medium-late maturing (3 days later than Ogle) and is 1-3 inches taller than Cayuse. It has white kernels. At the time of release it was resistant to gray speck and susceptible to crown rust and smut. It was evaluated as Entry 39 in the UC Regional Cereal Testing program in 1986 for spring planting in the intermountain area of northern California. *Crop Science 15:98 (1975)*

SWAN

Swan is a spring oat. It was released by the California AES in 1981. It is a sister line to the cultivar Irwin and was obtained from the cross Kent/Ballidu. Swan was developed by the Western Australian Department of Agriculture and first introduced into California for testing in 1970. Swan is medium early maturing (heading about 2-3 days later than Montezuma) and tall (plant height is similar to Sierra and California Red, averaging about 52 inches). Plants are leafy with medium diameter stems. Swan has good resistance to lodging. It makes vigorous early season growth and tillers moderately. Grain is lightly awned and mid-brown in color. Bushel weight and kernel weight are excellent, averaging 38.8 lb/bu and 38 mg, respectively. It is useful as a dual-purpose oat, with high grain yield as well as high forage yield. Swan is moderately susceptible to BYD and susceptible to stem rust, crown rust and powdery mildew. It was evaluated as Entry 10 in the UC Regional Cereal Testing program from 1983-2003 and in 2005 for fall planting in the Central Valley, coastal areas, and southern California.

WALLAROO

Wallaroo is a spring oat. It was released in Australia and received for testing in California from Farmers Marketing Corporation. It was selected from the cross (West*(West*NZ Cape/5))/11/7. It is early maturing and short with fair straw strength. At the time of evaluation it was resistant to stem rust, moderately resistant to powdery mildew, and moderately susceptible to crown rust. It was evaluated as Entry 119 in the UC Regional Cereal Testing program from 1993-95 for fall planting in the Central Valley and the south-central coastal regions of California.