

CONTROL OF SEPTORIA LEAFSPOT OF CELERY

A. O. PAULUS · H. OTTO · J. NELSON · F. SHIBUYA

Benlate at 0.5 and 1.0 lb, Dyrene, Bravo and RH 3928 at 1.0 lb and Mertect were significantly better than all other treatments in these tests for the control of Septoria leafspot of celery. Topsin M and Dithane M-45 provided intermediate control. RH 3928, Mertect, and Topsin M are not registered for use on celery at the present time and therefore cannot be recommended.

SEPTORIA LEAFSPOT of celery caused by the fungus, *Septoria apicola* Speg., is a serious disease of celery in California during periods of heavy rainfall. Increased sprinkler irrigation in recent years has also favored development of the disease. Experiments conducted in 1967-69 showed Bravo, Dyrene, Benlate, and Mertect on a 14-day schedule gave excellent control, provided applications began as soon as the disease was first noted in celery fields. During the spring of 1973 an experiment was initiated to further evaluate new and old materials for effectiveness in controlling Septoria and their persistence under sprinkler irrigation.

1973 spring trial

Celery transplants (Ferry Morse variety 5270H), obtained from Marsh-

CONTROL OF SEPTORIA LEAFSPOT OF CELERY BY CHEMICALS, SPRING APPLICATIONS, 1973, SANTA ANA

Treatments	Disease Rating*
	July 2
Benlate 50W 1 lb.	0.3 a
Dyrene 50W 3 lb.	0.4 a
Bravo 75W 1.5 lb.	0.5 a
Benlate 50W 0.5 lb.	0.7 a
RH 3928 50W 1 lb.	0.8 a
Mertect F 8 fl. oz.	1.1 ab
Topsin M 70W 0.7 lb.	1.7 bc
Dithane M-45 80W 3 lb.	2.3 bc
RH 3928 50W 0.5 lb.	2.4 c
Check or no treatment	3.5 d

* Disease rating, 0 = no symptoms, 4 = lesions completely covering petiole and many lesions on leaves. Duncan's Multiple Range test (significant at 1% level). Treatments with same letter are not significantly different.

burn's in Orange County, were planted at the University of California South Coast Field Station near Santa Ana in January. Plots consisted of single celery rows, 25 ft long, with plants spaced 8 inches apart in the rows. Plants were sprinkler irrigated at least two times per week to stimulate development of late blight.

Plants were repeatedly inoculated with a suspension of Septoria spores during the experiment. The inoculum was prepared by grinding 40 severely affected dried celery leaves in a blender (1 minute) and straining through cheesecloth. The resulting spore suspension was then sprayed over the plants. Sprinklers were activated to completely wet the foliage after inoculation.

The treatments used are shown in the table. Rates of materials are per 100 gallons of water. Four ounces of B-1956 spreader-sticker were applied with the Dyrene, Dithane M-45 and Bravo treatments. Fifty gallons of each fungicidal mixture was applied per acre when the plants were small, but as plants matured 125-150 gallons of the fungicidal mixture was applied per acre.

Sprays were applied on April 10 and 24, May 8 and 21, June 4 and 18. Disease symptoms were rated July 2, 1973, (see table) on a scale of 0 to 4, with 0 indicating no disease symptoms, and 4 indicating lesions completely covering the petiole and numerous lesions on the leaves.

Albert O. Paulus is Plant Pathologist; Jerry Nelson and Fujio Shibuya are Staff Research Associates, Cooperative Extension, University of California, Riverside. Harry Otto is Farm Advisor (Orange County).

SU

... a new

BA

C. W. SCHALLER

LATE MATURITY AND DISEASE resistance are combined in Sutter, a new barley available to California producers. Named for the northern California county where its potential was first observed in field trials, the variety is highly tolerant to barley yellow dwarf and is moderately tolerant to the foliar diseases, net blotch, powdery mildew and scald.

Sutter is later in maturity than any barley now commonly grown in the major production areas of the state. As such, it should prove of most value in early plantings where its late maturity will minimize danger of loss from spring frost. Sutter's multiple disease tolerance adds to its value for early plantings since these plantings frequently suffer heavy disease losses.

Coastal areas

Developed by the Department of Agronomy and Range Science, U.C. Davis, Sutter is expected to find its greatest use in the Sacramento Valley, and in the coastal production areas. Sutter (CI 15479) is a six-rowed, spring-type feed barley developed by selection through the F₆ generation from the backcross CI 1237 × Winter Tennessee².

Barley has not performed as well as wheat on heavy soils, which frequently are saturated for long periods during the winter. However, Sutter has shown better growth under these conditions than

SUTTER

late-maturing

BARLEY

J. D. PRATO J. I. CHIM

any previously evaluated barley. Its apparent tolerance to soil saturation may be related to its near dormant condition during the winter months.

When grown in areas and seasons of low rainfall, Sutter's performance improves with irrigation. Heavy soils with large water holding capacities also favor the variety. Sutter's performance has not been favorable in non-irrigated production areas where soils have a low to medium water holding capacity.

Tall growth

Although Sutter has moderately strong straw, its relatively tall growth makes lodging a risk when grown under highly fertile conditions. In windy areas Sutter's spikes tend to snap off before harvest, resulting in yield losses. Under such conditions the variety should be tried with caution. Yellow dwarf tolerance is desirable in varieties for late winter and early spring plantings. However, Sutter's late maturity makes it less desirable than other yellow dwarf tolerant varieties for these planting dates.

A summary of yield comparisons between Sutter and other varieties is given in table 1. The trials in Yolo County and Colusa County were grown in non-irrigated areas. The others were grown either with irrigation or in rotation with irrigated crops. The characteristics of Sutter and several of the varieties with

which it is expected to compete are given in table 2.

Following its approval as a certified variety, Sutter was first released to growers for the 1972 crop season. Seed is available through several dealers and for seed producers through the University of California Foundation Seed Program.

C. W. Schaller is Professor and J. I. Chim is Staff Research Associate, Department of Agronomy and Range Science, University of California, Davis.

TABLE 1. YIELD OF SUTTER BARLEY

Location	Planting date	Yield	Yield as a per cent of			
			Winter Tenn.	Atlas 68	Briggs	Grande
U.C. Davis		lbs/acre	%	%	%	%
1970	12/3/69	6260	159	166	139	—
1971	1/20/71	4090	155	177	122	194
1972	12/14/71	3840	—	99	86	—
1973	1/5/73	4520	150	101	110	130
Sutter Co.						
1969	12/3/68	6410	—	123	129	134
1970	11/13/69	5830	125	135	129	127
1971	1/8/71	3660	131	—	92	103
1973	12/11/72	5010	—	—	129	126
Yolo Co.*						
1969	12/5/68	2410	88	93	101	91
1970	11/18/69	950	111	130	134	—
1971	11/20/70	3010	113	121	82	109
1971†	11/20/70	3090	91	99	125	—
1972	11/30/71	1750	124	87	88	107
1972†	11/1/71	1390	79	—	56	—
1972†	10/29/71	1390	112	—	90	—
1973†	11/4/72	1370	75	—	95	—
1973†	10/28/72	2090	96	—	164	—
Colusa Co.*						
1969	12/4/68	2720	103	120	111	100
Butte Co.						
1972	10/14/71	4610	131	—	127	—
1972†	—	3310	—	—	89	98
U.C. Riverside						
1972 (irr.)	1/12/72	5740	137	124	130	142
1972 (dry)	1/12/72	540	117	70	87	76
1973	12/18/72	3260	168	121	90	118

* Data obtained from strip trials.

† Trials located in nonirrigated production areas.

J. D. Prato is Agronomist, Cooperative Extension, U.C. Davis. Cooperating in the study were M. J. Smith and W. H. Isom of Cooperative Extension at U.C. Riverside, and Farm Advisors J. F. Williams (Sutter County), T. E. Kearney (Yolo County), J. D. Smith (Butte County), and D. M. Brandon (Colusa County). The breeding and evaluation programs for Sutter barley were supported in part by grants from the California Crop Improvement Association, and through the cooperation of growers who provided testing sites.

TABLE 2. CHARACTERISTICS OF SUTTER AND SELECTED CALIFORNIA BARLEY VARIETIES

Characteristics	Sutter	Briggs	Grande	Atlas 68	Winter Tenn.	Rojo	CM 67
Height	Moderately tall	Moderately short	Moderately tall	Moderately tall	Moderately tall	Moderately tall	Short
Straw strength	Moderately strong	Moderately strong	Moderate	Moderate	Moderately weak	Moderate	Weak
Disease resistance:							
Barley yellow dwarf virus	Highly tolerant	Susceptible	Susceptible	Highly tolerant	Susceptible	Moderately tolerant	Highly tolerant
Net blotch	Moderately tolerant	Susceptible	Moderately tolerant	Susceptible	Moderately tolerant	Tolerant	Moderately tolerant
Scald	Moderately tolerant	Moderately tolerant	Moderately susceptible	Resistant*	Moderately susceptible	Moderately tolerant	Susceptible
Powdery mildew	Moderately tolerant	Moderately susceptible	Moderately tolerant	Resistant	Moderately tolerant	Tolerant	Susceptible
Grain color	White	White	Blue	White	Blue	White	White
Maturity	Very late	Moderately early	Moderately late	Mid-season	Late	Mid-season	Early
Spike type	Lax	Moderately compact	Lax	Lax	Lax	Compact	Lax
Tolerance to preharvest loss	Fair	Very good	Fair	Fair	Good	Very good	Good

* Resistant to some races.