

Field Planting Summary for
PERLA Koleagrass
in
CALIFORNIA
1963-1984

Introduction

'Perla' koleagrass, (*Phalaris tuberosa hirtiglumis*, *P. aquatica*) is a tall, robust, rapid-developing perennial bunchgrass. It was introduced from Morocco and has been evaluated in the Plant Materials program in California since 1956. 'Perla' resembles hardinggrass, but has slightly larger seed, more vigorous seedlings and establishes more rapidly. 'Perla' has proven superior to hardinggrass for range forage improvement in California. In 1970, 'Perla' was accepted for certification and cooperatively released by the California Agricultural Experiment Station and the Soil Conservation Service.

Performance

'Perla' has been tested in 86 field plantings in California since 1963 (see appendix 1). Plantings have been made in Major Land Resource Areas (MLRA) 14, 15, 17, 18, 19, 20, and 22 as shown in the following table:

MLRA	No. of Plantings	Success	Failure
14	5	4	1
15	41	25	16
17	16	9	7
18	15	11	4
19	3	2	1
20	5	3	2
22	1	1	0
Totals (%)	86 (100)	55 (64)	31 (36)

About one-third of the plantings failed. This was due primarily to the management of these plantings during the establishment year. Established stands endured poor management, but production was less. Plantings made during the 1976-78 years, experienced failures due to the drought in California. Several plantings were failures when the land changed to another primary use as building site or cropland.

Thirty-eight soils were identified in the field plots with another 35 plantings having no soils data available at the time of initial planting. Many of the soils had only one planting (see appendix 2), but can give a general idea of performance if all other aspects of the site and management are favorable. In general, soils with a higher water-holding capacity and profile development (clay layer) produced better results.

Sixty-nine of the field plantings were made for improved range forage, twelve for wildlife habitat (nesting and hiding), four for critical area (roadbanks, erosion areas) and one for a grassed waterway. Most of the wildlife plantings have been successful and 'Perla' has proven to be an excellent, cover plant for waterfowl and upland game birds.

Conclusions

'Perla' koleagrass is superior to most strains of hardinggrass that have been introduced to California. Besides exhibiting a strong summer dormacy, it has shown superior seedling vigor and initial stand establishment. These abilities are needed to properly establish this perennial plant in a mainly annual grass community.

'Perla' seems to be best adapted on the better soils where there is at least 16 inches of rainfall and soil profile development (clay layer). It performs best at elevations below 2,000 feet where frost heaving is not a problem and in MLRA's 14, 15, 17, 18, 19, and 20.

The key to the success of 'Perla' field plantings was the proper preparation, care and management of initial stands. The reduction of competition during the first year was essential for success. Established plantings survived poor management and overgrazing, but did not reach optimum production. Little production data was gathered from field plantings.

'Perla' is primarily used for improved range forage and extending the green feed period, but it also provided good nesting and escape cover for waterfowl and upland game birds.

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APPENDIX 1

PERLA KOL-agrass Field Planting Performance
1963-1974 - California

YEAR	COOPERATOR	EQA	MLBA	SOILS	USE	PERFORMANCE
1963	J. Feigel	EI Cajon	20	Unknown	Range	Fair stand, poor mgmt.
1963	R. Moore	Redding	15	Unknown	Range	Poor stand
1963	E. Futsch	Merced	17	Unknown	Range	Failure
1964	USFS	Willows	15	Unknown	Range	Good establishment, poor mgmt.
1964	A. Farla	Concord	15	Unknown	Range	Failure
1966	D. Wood	Concord	15	Unknown	Range	Good stand. Housing dev.
1966	G. Wilds	Lakeport	15	Cortina	Range	Excellent stand
1966	H. Rutherford	Redding	15	Hyers	Range	Superior to harding
1966	R. Holmes	Willows	15	Unknown	Range	Good stand
1967	J. Rogers	Redding	18	Aiken	Range	Failure
1967	E. Blodgett	Redding	18	Unknown	Range	fair stand, overgrazed.
1967	Catalina Rock & Ranch	Lancaster	20	Unknown L	Range	Fair stand, overgrazed.
1967	Sac. Nat. Wildlife Refuge	Willows	17	Unknown	Range	Good stand
1967	Hathaway & Son	Redding	17	Los Robles	Wildlife	Failure
1965	W. Gerst	Paso Robles	15	Unknown	Range	Excellent stand
1968	R.C. Johnson Co.	Corning	15	Hyers	Range	Failure, poor mgmt.
1968	J. McGrath	Paso Robles	15	Yolo	Range	Fair stand, poor mgmt.
1968	D. Galvi	Santa Rosa	15	Unknown	Range	plowed up, survived
1968	P. Westmoreland	Livermore	15	Unknown	Range	overgrazing.
1968	M. Machado	Livermore	15	Danville	Range	Failure, poor mgmt.
1968	H. Rosecrans	Willows	15	Unknown	Range	Failure
1968	E. Blodgett	Redding	18	Unknown	Range	Excellent planting, hay.
1968	L. Turpin	Merced	19	Unknown	Range	Poor stand and mgmt.
1968	C.C. Guntly	Ukiah	15	Zamora	Range	Failure
1968	C. Bettencourt	Half Moon Bay	15	Unknown	Range	Fair stand, overgrazed.
1968	Hunt Estate	Redding	17	Los Robles	Range	Failure
1968	R. Marble	Salinas	15	Santa Lucia	Range	Good stand, hay.
1969	J. Cahoon	Salinas	15	Los Osos	Range	Good stand, superior to harding
1969	R. Marble	Salinas	15	Santa Lucia	Range	Good planting, superior to harding.
1969	W. Gerst	Paso Robles	15	Unknown	Range	Good, plowed up.
1969	G & D Wood	Willows	15	Unknown	Range	Failure, poor mant.
1969	Camanche N. Shore	Jackson	15	Unknown	Range	Failure
1969	Bear Creek Ranch	Merced	17	Unknown	Range	Fair stand, burned.
1969	B. Wilson	Salinas	15	Unknown	Range	Failure
1969	Laurence Lab	Livermore	14	Rincon	Range	poor mgmt.
1969	D. Wood	Concord	15	Clearlake	Control	Good stand, now parking lot.
1970	Camanche N. Shore	Jackson	13	Pentz	Range	Fair stand, overgrazed.
1970	Sac. Nat. Wildlife Refuge	Willows	17	Willows	Wildlife	Good stand, survived hot burn.
1970	J. Campbell	Willows	15	Unknown	Range	Excellent cover, some irrigation.
1970	M. Bartow	Ukiah	15	Unknown	Range	Fair stand, overgrazed.
1971	UCD	Yuba City	18	Unknown	Range	Failure
1971	J. Kelley	Willows	15	Unknown	Range	Fair stand
						poor stand, overgrazed.

YEAR	COOPERATOR	E.O.#	BLBA	SOILS	USE	PERFORMANCE
1972	Santa Barbara Co.	Santa Barbara	14	Lodo	Roadbank	Good on shallow site.
1972	C. Morris	Hillows	15	Myers	Range	Good stand
1973	Santa Barbara Co.	Santa Barbara	19	Ballard,	Roadbank	poor to good at bottom.
1973	Calif. Fish & Game	Willows	17	Zucca	Wildlife	Good stand and cover.
1974	W. Lane	Jackson	18	Hillgater,	Wildlife	Good cover
1974	Ballico RCD	Merced	17	Myers	Wildlife	Fair stand, construction.
1975	R. Hurner	Auburn	17	Pentz	Range	Good stand, superior to harding.
1975	W. Dirks	Colusa	17	Rocklin	Wildlife	Failure, 2 drought years.
1975	Calif. Fish & Game	Cornling	17	San Joaquin-	Wildlife	Excellent stand and cover.
1975	F. Oneto	Jackson	22	Cometa	Range	Excellent planting
1976	O. Sage	Somis	19	Contra Costa	Range	Failure, poor mgmt.
1976	J. Woodward	Gilroy	15	Hayman	Range	Failure, poor mgmt.
1976	B. Steidlmeier	Yuba City	18	Unknown	Range	Failure, poor mgmt.
1976	L. Smith	Yuba City	13	Gaviota-	Range	
1976	Calif. Fish & Game	Yuba City	18	Los Gatos	Range	Failure
1976	Calif. Fish & Game	Yuba City	18	Chualar-Placentia	Range	Fair stand
1976	Calif. Fish & Game	Yuba City	18	Chualar-Placentia	Wildlife	Fair stand
1976	Calif. Fish & Game	Yuba City	18	Argonaut	Wildlife	Failure, drought
1977	C. Huffman	Ukiah	15	Auburn	Wildlife	Failure, drought
1977	K. Dencor	Livermore	15	Argonaut	Wildlife	Good stand
1977	R. Murphy	Patterson	15	Fluvaguents	Range	Plowed up
1977	Spencer	El Cajon	20	Clearlake	Range	Fair stand, good mgmt.
1977	Spencer	El Cajon	20	Sobranite	Range	Fair stand
1978	Sobeck	Cornling	15	Crouch	Range	Failure
1978	A. Smith	Yuba City	17	Bancas	Range	Failure
1978	B. Steidlmeier	Yuba City	17	Arbuckle, Tehama	Range	Superior to Hardinggrass.
1978	R. Hunz	Santa Maria	14	Chualar-Placentia	Range	Failure, drought
1978	J. Swift	Santa Maria	15	Tierra	Range	Failure, drought
1979	O. Smith	Ukiah	15	Selinas	Grassed	Failure, poor mgmt.
1979	J. Smythe	Ukiah	14	Yorkville	Range	poor stand & poor mgmt.
1979	Corps of Engineers	Cornling	17	Unknown	Range	Fair stand
1979	E. Rubino	Gilroy	15	Zamora	Range	Fair to good stand
1980	J. Haino	Santa Maria	14	Gilroy	Critical	Failure, poor mgmt.
1980	D. Best	Yuba City	17	Harlem	Range	Fair stand
1981	E. Schaefer	Tehachal	19	Capay	Range	Failure
1981	F. Drapht	Patterson	15	Steuher	Range	Failure
1981	W. McDonald	Pataluma	15	Unknown	Range	Good stand and mgmt.
1982	J. Honk	Ramona	19	Unknown	Range	Fair stand
1982	J. Stonier	San Jose	15	Fallbrook	Range	Failure
1983	J. Roddy	Concord	15	Unknown	Range	Failure
1983	Mattiliga Wildlife Refuge	Somis	20	Rincon	Wildlife	Good stands, horses
1983	D. Bismell	Cornling	17	Unknown	Range	Good stands, burned
1983	O. Vieux	Livermore	14	Riverwash	Range	Fair stands, streambank
1983	T. King	Petaluma	15	Lobitos	Range	Fair stand
1983	J. Richert	Cornling	15	Unknown	Range	Failure, poor mgmt.
1983	A. Rezd	Red Bluff	15	Unknown	Range	Fair to good stands, good mgmt.
1984	T. Cooper	Pass Robles	15	Still	Range	Good initial stand fair stand, will replant

APPENDIX 2

PERLA_Koleagras_Performance_by_Soils

SOIL	TEXTURE	NO. PLANTINGS	SUCCESS	FAILURE
Aiken	Loam	1	1	0
Arbuckle	Loam	1	1	0
Argonaut	Loam	2	1	1
Auburn	Loam	1	0	1
Ballard-Zucca	Gravelly loam	1	1	0
Bancas	Stoney loam	1	0	1
Capay	Clay	1	0	1
Chualar-Placentia	Gravelly loam	4	1	3
Clearlake	Clay	2	0	2
Cometa	Sandy loam	1	1	0
Contra Costa	Clay loam	1	0	1
Cortina	Loam	1	1	0
Crouch	Coarse sandy loam	1	0	1
Janville	Loam	1	1	0
Fallbrook	Sandy loam	1	1	0
Saviota-Los Gatos	Loam	1	0	1
Gilroy	Clay loam	1	0	1
Hillgate-Myers	Loam	1	1	0
Lobitos	Shaly loam	1	1	0
Lodo	Loam	1	1	0
Los Osos	Clay loam	1	1	0
Los Robles	Loam	2	2	0
Marimel	Sandy loam	1	1	0
Maymen	Gravelly loam	1	1	0
Myers	Clay loam	3	3	0
Pentz	Sandy loam	2	2	0
Rincon	Loam	2	2	0
Rocklin	Loam	1	1	0
Santa Lucia	Clay loam	2	2	0
Salinas	Silty clay loam	1	0	1
Sobrante	Clay loam	1	1	0
Steuber	Sandy loam	1	1	0
Still	Clay loam	1	1	0
Tierra	Sandy loam	1	0	1
Willows	Clay	1	1	0
Yolo	Sandy loam	1	1	0
Yorkville	Loam	1	1	0
Zamora	Clay	2	2	0
Unknown		35	21	14
Total		86	55	31