TECHNICAL NOTES

U S Department of Agriculture Natural Resources Conservation Service

TN - PLANT MATERIALS - 45 June 1997

FIELD PLANTING SUMMARY - 'MARANA' FOUR-WING SALTBUSH

Attached is a brief summary of field planting results of 'Marana' Four-wing Saltbush from 1974 to 1985. This was compiled from annual evaluation data from field plantings in over 30 field offices. It is readily apparent that shrubs like 'Marana' can be established under California conditions, but adequate environmental and cultural techniques are needed to assure success. This information can be used in conjunction with evaluation results complied earlier in the cooperative work with the California Department of Fish and Game.

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Introduction

‘Marana’ fourwing saltbush, Atriplex canescens is a native, erect, evergreen shrub. It was originally collected from native plants near El Cajon, San Diego County in November 1961. ‘Marana is on of three upland game shrubs released in 1979 and trested cooperatively with the California Department of Fish and Game. It has been used and tested on critical erosion areas, for uplant game cover and for environmental enhancement.

Performance

‘Marana’ fourwing satlbush has been planted on 54 field plantings in California since 1974 (see Appendix 1). Plantings were in the following MLRAs:

MLRA	Number	Success	Failure
14	4	2	2
15	12	3	9
17	18	7	11
18	6	3	3
19	2	2	0
20	1	0	1
21	10	7	3
30	1	1	0
Totals	**54**	**25**	**29**

Results were about 46% successful. About 1/3 of the failures were due to drought, which caused most of the new plantings to fail. The remainder of the failures were primarily caused by improper establishment techniques. Plants were readily grazed by grasshoppers, rodents and domestic livestock. Adequate initial protection is essential for optimum establishment, especially with seeding. Only three field plantings failed due to soils.

Seeding of ‘Marana’ could be very successful, but adequate moisture, low weed competition and proper seeding methods were essential. Later seeding dates, after March 1, were most successful, but moisture was a critical factor. ‘Marana’ can be planted successfully from bareroot stock with proper care and handling.

‘Marana’ grew best on well-drained soils from sandy to clay loams that are slightly acidic to strongly alkaline. It failed on the Redding, Rincon and Bieber/Tournquist soils.

Conclusion

‘Marana’ fourwing saltbush is the best native strain of this species for use in California. It does best at elevations up to 4000 feet and where annual precipitation exceeds at least 10 inches. This release has been succussfully planted from bareroot and container plants. ‘Marana’ prefers well drained soils and does not like “wet feet”. It is adapted to MLRAs 14, 15, 16, 17, 18,19, 20, 30 and the warmer parts of 21. The major uses of ‘Marana’ are for upland game habitat, erosion control and environmental enhancement.

APPENDIX 1

Summary of Performance data of ‘Marana’ Fourwing Saltbush

1974 - 1985

Summary of Performance Data on MABANA Fourwing Saltbush
1974-1985

No.	Landowner	MLRA	E.O.	Soils	Rainfall	Performance
1976-74	Hunter Liggett	15	King City	Sheridan	20	Several plants surviving, heavy grazing.
1380-75	4. Foad	17	Placerville	Redding	16	No survival of plants.
1982-75	D. Sias	17	Sacramento	Redding	16	Poor survival from cuttings.
1983-75	3. Butler	17	Woodland	Rincon	16	Poor survival. loo wet.
1985-75	W. Chew	15	Morgan Hill	Los Gatos, Maymen	30	Drought. Poor mgmt. Failure.
1988-75	Ballico RCD		Yerced	Rocklin	12	Direct seeded, fair to good stand.
2026-75	P. Schifano	17	Patterson	Cinuba	10	Flooded. Plants washed out.
2045-76	CAL Clark	17	Hanford	Traver-Kimperlina (FSC)	a	Good survival and growth. Some irrip.
2046-76	Hidden Valley	13	Riverside	Grangeville Arlinqton	12	Good stand and gromth from seed.
2053-76	City of Cupertino	14	Morgan Hill	Garretson	18	Did not survive drought.
2059-76	J. Beck	21	Yreka	Unnamed	19	Few plants survived heavy grazing.
2062-76	C. Mort	21	Yreka	Kuck (CL)	16	Good survival and growth.
2065-76	J. Thompson	21	Yreka	Salisbury (CL)	14	Fair to good survival and growth.
2066-76	K. Whipple	21	Yreka	Dayville (L)	20	Good survival from bareroot.
2067-75	M. Blassingame	10	Fresno	Unknown	18	Fair stand from seed, some irrigation.
2068-76	W. Chew	15	Morgan Hill	Los Gatos, Maymen	30	Drought. No plants survived.
2119-76	Honterey Reg. Park	14	Salinas	Junipero-Sur	16	Drought, no survival.
2124-76	Lemore Sportsman	17	Hanford	Nord (FSC)	a	Planted in July. No survival.
2125-76	C4L Clark	17	Hanford	Traver-Kimberlina	6	Good gromth from seed. Irrigated.
2129-76	J. Fell	15	Morgan Hill	Caviota/ Los Gatos	20	Failed. Due to drought and poor care.
2131-76	Code Fisheries	18	Auburn	San Joasuin	18	No survival from seeding.
2153-77	SMUD	17	Sacramento	Redding (L)	16	Poor survival on these soils.
2159-77	D. Routh	21	Loyalton	Bieber, Tournquist	16	Failure, not adapted to soils.
2194-78	J. Peters Babcock	18	Mariposa	Auberry (SL)	30	Drought. No survival.
2198-78	C. Faure	17	Visalia	San Joaquin L)	10	Heavily grazed. Failure.
2200-78	J. MacOonnell	21	Alturas	Barnyard (L) Lakeview (CL	12	Fair survival. Poor mgt.
2203-78	D. Routh	21	Fall River Mills	Bieber	16	Fair establishment, then grazed out.
2212-78	U.S.F.W.S.	17	Cornino	Uillows (CL	18	No survival. Heavy competition.
2223-78	Colusa NWR	17	Colusa	Uillows – Capay (C)	16	Good survival of plants.
2238-78	R. Noel	20	Santa Maria	Santa Lucia (CL)	22	Drought. No survival.
2250-73	CAL Clark	17	Hanford	Kimberlina-Garces (FSL	8	Fair survival. Dryland, weed control.

No.	Landowner	MLBA	Eco.	Soils	Rainfall	Performance
2257-78	M. Blassingame	13	Fresno	Tivy (L)	18	Fair to good stand. Some irrigation.
2262-79	J. Woodward	15	Gilroy	Gaviota/ Los Gatos (L)	20	Failure. Severe grazing.
2281-79	G. Winja	21	Yreka	Lassen, Hontaque	12	Poor survival. Poor mgt.
2283-79	J. Fell	15	San Jose	Los Gatos/ Gaviota (GRL)	20	Drought. Failure due to mgt.
2290-79	Loyalton	21	Loyalton	James Canyon (SIL)	12	Good survival and growth. City rebuilt road.
2291-79	Honolulu Ranch	17	Yuba City	Pleasanton	15	No survival. Poor mgt.
2312-79	W. Morgan	15	Concord	Dibble	17	Failure. No weed control.
2327-79	Corps of Engineers	10	Madera	Ahwahnee (SL)	12	No survivsl.
2336-79	E. Rubino	17	Santa Maria	Riverwash	16	Flooded out.
2341-79	C. Kettlenan	17	Sacramento	San Joaouin (SL)	18	No survival.
2393-80	Santa Barbara Co.	19	Santa Oarbara	Gaviota	18	Fair survival of plants.
2397-80	J. O'Connell	15	Corning	Eamora (CL)	22	Poor survival.
2412-81	Winema Lodge	21	Tulelake	Eastable (L)	12	Poor initial stand. No survival.
	Camanche Hills	17	Jackson	Unknown	20	Some plants survived wildfire.
	USDI - Cibola	30	Blythe	Unknown	3	Some plants, but cattle grazed heavily.
2624-84	CDFG	14	Paso Robles	Hetz-Tujunga	7	Fair survival from seed and plants.
	a. Bergguist	14	Paso Rohles	Sorrento Arbuckle-Positas	5	Fair survival from plants.
2626-84	USFS	18	Visalia	Shaver (SL)	22	Fair initial survival of plants.
2625-84 2657-84 2658-84	E. Stewart	15	Corning	Tollhouse Meyers (C)	24	Grasshoppars destroyed all plants.
2701-85	M. Lower	15	Lo; Banos	Oroonen Quiensabe (CL)	0	Plants destroyed by rodents andl ivestock.
	a. Roden	15	Bakersfield	Polonio (L)	6	Seeding was failure.
	3. Roden	15	Bakersfield	Polonio (L)	6	Poor to fair stand with plants.
	Westlands Water Oist.	17	Frssno	Panache (CL)	6	Just planted.

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