

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 a shrub 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 compiled earlier in the cooperative work with the California Department of Fish and Game.

This Technical Note was originally issued as TN - Plant Materials - **34** in January 1986. It was displaced in March 1994 when TN - Plant Materials - **32** titled "PLS -

What is It and How Can We Use It" was reissued as TN - Plant Materials - **34**.

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Field Planting Summary for
MARANA Fourwing Saltbush
1974-1985

Introduction

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

Performance

'Marana' fourwing saltbush has been planted in **54** field plantings in California since 1974 (see Appendix 1). Plantings were made in the following MLRAs:

<u>MLRA</u>	<u>Number</u>	<u>Success</u>	<u>Failure</u>
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	<u>54</u>	<u>25</u>	<u>29</u>

Results were about 46% successful. About 1/3 of the failures were due to the drought years which caused most new plants 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' was 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' grew best on well-drained soils from sandy to clay loams that are slightly acid to strongly alkaline. It failed on the Redding, Rincon, and Bieber/Tournquist soils. With proper care and handling, 'Warana' can be planted from bareroot stock with success.

Conclusions

'Marana' fourwing saltbush is the best native strain of this species for use in California. It does best at elevations up to **4,000** feet and where annual precipitation averages at least 10 inches. This strain has been successfully seeded and planted from bareroot and container plants. 'Marana' prefers well-drained soils and does not like "wet feet." It is adapted to MLRA's 14, 15, 16, 17, 18, 19, 20, 30, and the warmer parts of 21. The major uses of 'Marana' have been for upland game habitat, erosion control and environmental enhancement.

Summary of Performance Data on MABANA Fourwing Saltbush
1974-1985

CA-454

Year	Landowner	MLBA	Co.	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. too wet.
1985-75	W. Chew	15	Morgan Hill	Los Gatos, Maymen	30	Drought. Poor mgmt. Failure.
1988-75	Ballico RCO		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- Kimberlina (FSC)	8	Good survival and growth. Some irrip.
2046-76	Hidden Valley	13	Riverside	Grangeville Arlington	12	Good stand and growth 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. Blessingame	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)	8	Planted in July. No survival.
2125-76	CAL Clark	17	Hanford	Traver- Kimberlina	6	Good growth 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. MacDonnell	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	_C.O._	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. Winje	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.
2317-79	W. Morgan	15	Concord	Dibble (SICL)	17	Failure. No weed control.
2327-79	Corps of Engineers	10	Madera	Ahwahnee (SL)	12	No survival.
2336-79	E. Rubino	17	Santa Maria	Riverwash	16	Flooded out.
2341-79	C. Kettlenan	17	Sacramento	San Joaquin (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.
2454-81	Camanche Hills	17	Jackson	Unknown	20	Some plants survived wildfire.
2472-82	USDI - Cibola	30	Slythe	Unknown	3	Some plants, but cattle grazed heavily.
2570-83	CDFG	14	Paso Robles	Hetz-Tujunga Sorrento	7	Fair survival from seed and plants.
2571-83	a. Bergquist	14	Paso Rohles	Arbuckle- Positas	5	Fair survival from plants.
2624-84	USFS	18	Visalia	Shaver (SL) Tollhouse	22	Fair initial survival of plants.
2625-34	E. Stewart	15	Corning	Meyers (C)	24	Grasshoppers destroyed all plants.
2626-34	M. Lower	15	Lo; Banos	Oroonen Quiensabe (CL)	0	Plants destroyed by rodents and livestock.
2657-84	a. Roden	15	Bakersfield	Polonio (L)	6	Seeding was failure.
2658-84	3. Roden	15	Bakersfield	Polonio (L)	6	Poor to fair stand with plants.
2701-85	Westlands Water Oist.	17	Frsno	Panache (CL)	6	Just planted.