

**LOCKEFORD PLANT MATERIALS CENTER
AND
CALIFORNIA PLANT MATERIALS PROGRAM**

ACTIVITY REPORT

2000

FOR MORE INFORMATION CONTACT:
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INTRODUCTION

The Lockeford Plant Materials Center (PMC) is a federally owned and operated facility under the administration of the California State Office of the USDA Natural Resources Conservation service. The Lockeford PMC produces plant materials in cooperation with California Resource Conservation Districts, University of California, Foundation Seed Service, Agriculture Cooperative Extension, and the California Crop Improvement Association.

The plant materials program began February 1935 with the Soil Conservation Service Plant Materials Nursery at Santa Paula, California. In 1939 a 60-acre Plant Materials Center was established at Pleasanton, California. In September 1972 the Pleasant PMC was moved to the current site at Lockeford California.

The California plant materials program and the Lockeford PMC provide plant science support to the USDA-NRCS California Field Offices. The California Plant Materials Center in Lockeford collects promising plants and tests their performance under a variety of soil, climatic and use conditions. Over the past fifty years, 31 plants have been released for commercial seed production to solve soil and water conservation problems.

The Lockeford plant materials center is 106.7 acres of prime farmland located along the Mokelumne River near Lockeford California. Irrigation water is available to all fields at the PMC. Initial and advance evaluation of new plant materials are conducted at this site. The PMC responsible for seed increase plantings of potentially valuable plant species and for the maintenance of seed stock of California cooperative releases. Field Evaluation Plantings (FEP's) are studies conducted away from the PMC at problem sites in cooperation with federal, state, municipal agencies, and private individuals.

PERSONNEL

The following personnel were Lockeford PMC staff during 2000.

| Position | Name | Start | End |
|-----------------|-------------|--------------|------------|
| PMC Manager | David Dyer | 03/03/87 | Present |
| Farm Supt. | Celm Avitia | 04/12/76 | Present |
| Gardener | Jim Hutson | 02/01/88 | Present |

The following personnel are on the NRCS Davis Resource Technology Staff, supervised by the State Resource Conservationist, and have an office at the Lockeford PMC during 2000.

Plant Resource Specialist Tish Espinosa 06/01/98 Present

NEWLY RELEASED PLANTS FROM THE LOCKEFORD PMC

'Mariposa' Blue Wildrye Elymus glaucus 2000 PI # 613563

PLANT RELEASES FROM THE LOCKEFORD PMC

| Scientific Year | Common | Release |
|--------------------------------|---------------------|-----------|
| Arctostaphylos patula 1989 | greenleaf manzanita | Altura |
| Atriplex canescens 1979 | fourwing saltbush | Marana |
| Atriplex lentiformis 1979 | big saltbush | Casa |
| Bromus carinatus 1949 | California brome | Cucamonga |
| Bromus catharticus 1946 | rescuegrass | Prairie |
| Bromus hordeaceus ssp. 1954 | soft chess | Blando |
| Bromus rubens 1985 | red brome | Panoche |
| Ceanothus cordulatus 1989 | mountain whitethorn | Maleza |
| Ceanothus x flexilis 1991 | ceanothus | Cuesta |
| Cleome isomeris 1979 | bladderpod | Dorado |

| | | |
|-----------------------------------|----------------------|------------------|
| Dactylis glomerata 1953 | orchardgrass | Akaroa |
| Dactylis glomerata 1981 | orchardgrass | Berber |
| Ehrharta calycina 1962 | perennial veldtgrass | Mission |
| Elymus glaucus 2000 | blue wildrye | Mariposa |
| Eriogonum fasciculatum 1983 | California buckwheat | Duro |
| Eriogonum umbellatum var. 1987 | sulphur flower | Sierra |
| polyanthum | buckwheat | |
| Leymus triticoides 1991 | beardless wildrye | Rio |
| Lolium arundinaceum 1946 | tall fescue | Goar |
| Lolium rigidum 1962 | annual ryegrass | Wimmera 62 |
| Nassella cernua 1998 | foothill needlegrass | LK415f Germplasm |
| Nassella pulchra 1998 | purple needlegrass | LK115d Germplasm |
| Nassella pulchra 1998 | purple needlegrass | LK215e Germplasm |
| Nassella pulchra 1998 | purple needlegrass | LK315d Germplasm |
| Phalaris aquatica 1946 | Hardinggrass | -unnamed- |
| Phalaris aquatica 1970 | koleagrass | Perla |
| Piptatherum miliaceum 1947 | smilograss | -unnamed- |
| Purshia tridentata 1984 | bitterbrush | Lassen |
| Trifolium hirtum 1991 | rose clover | MonteFrio |

| | | |
|----------------------------------|-----------------|--------|
| Trifolium hirtum 1967 | rose clover | Wilton |
| Vicia villosa ssp. varia 1956 | woollypod vetch | Lana |
| Vulpia myuros 1977 | annual fescue | Zorro |

CURRENT STUDIES

Study Number and 0610003M Vetch evaluations

Study Release a vetch which is higher yielding than Lana vetch. After evaluating 15 lines in a replicated study, three times over three years, none of the 15 lines were higher yielding than Lana vetch. The same study was done at Tucson PMC and one of the lines had a higher yield than Lana; Moreover, it will be released for desert use.

Study Number and 0610008B Nesella pulchra genetic analysis

Study Confirm diversity of Nesella pulchra with ARS and San Francisco urban office. A paper titled Nucleotide Sequence Variation Among Natural Populations and Commercial Germplasm Sources of Purple Needlegrass was developed and will be sent out as a technical note.

Study Number and 0619301L Evaluation of bromes

Study Document performance of different brome species. Data analysis needs to be performed before results can be given.

Study Number and 06C0001A Evaluation of mulch types and amounts to suppress weeds

Study Select best straw/hay mulch types and amounts to suppress weeds. Different types of straw were applied at 4 and 8 tons per acre. Overall, both rates and all straw types had good suppression of bull thistle and the growth of vetch was encouraged.

Study Number and 06C0003A Vegetative control of Medusahead

Study Evaluate Lana vetch broadcast seeding rates with P application for control of Medusahead. 200 pounds per acre of 0-45-0 was applied to all plots. At the Jackson site, Lana vetch seed at a rate of 20 pounds PLS per acre had a 88 percent stand cover, 16 pounds PLS per acre had a 83 percent stand cover and 12 pounds PLS per acre had a 45 percent stand cover with some Medusahead showing. The 16 and 20 pounds PLS per acre application rates with the P application did suppress Medusahead.

Study Number and 06C0004Z Evaluation of African American basket weaving plant materials

Study Determine adaptability to CA, could not get plant establishment at pmc.

Study Number and 06C0005Z Evaluation of native American basket weaving species

Study Develop germination, propagation and establishment methods. Seeking additional bear grass seed collections. Assist with sedge root collections at PMC.

Study Number and 06C0007G Evaluation of selected plant materials for uptake of N and P after manure applications in pastures.

Study Select best species for manure N and P uptake. Will be evaluated during the summer of 2001.

Study Number and 06C0009H Templeton range seeding trail

Study Select best cultivar. Field office and extension staff has the lead on this study. PMC and state range conservationist is helping with the evaluations. No trends yet. Some of the plants being used are blue wildrye, hard fescue, harding grass, Perla grass, slender wheat grass, orchard grass, and bur and barrel medics, sub. and Persian clovers.

Study Number and 06C0010Z Soil quality improvement using worm castings and its effects on propagation of conservation plants

Study Evaluate different rates of worm castings. The trend is this works. More data analysis is needed and a technical note will be developed.

Study Number and 06C0011Z Soil quality improvement using mycorrhiza inoculation and its effects on the propagation of conservation plants

Study Evaluate mycorrhiza rates. The trend is this works. More

data analysis is needed and a technical note will be developed.

Study Number and 06C0012Z Evaluation of Perla grass for carbon levels and potential for biomass-to-ethanol and global climate change

Study Determine Perla carbon levels. Data collection will start spring 2001.

Study Number and Euc-Clone Bio-mass eucalyptus clone selections

Study Select best clone for bio-mass use. Eucalyptus Improvement association will make final selections.

Study Number and Euc-Wind Eucalyptus evaluation for windbreak use.

Study Release improved windbreak trees. Two selections have been made and additional data analysis is needed.

Study Number and Lancaster Windbreak plantings at RCD nursery

Study Select best windbreak species, released PM TN-50

Study Number and Evaluation of blue wildrye

Study Native erosion control grass release. 'Mariposa' released in 2000.

Study Number and Mendota Evaluation of salt tol. Wheat grasses

Study Release improved wheatgrass for high salt areas. The evaluated wheatgrasses were not better than 'Jose' wheatgrass.

Study Number and Salt Grass Evaluation of saltgrass

Study Develop release. Selected three accessions for data analysis and release development.

Study Number and Somis CFT Landscaping with fire resistant plants

Study Test 10 native and introduced landscape plants for fire resistance under different irrigation levels. Chaparral-Urban interface areas in LA. . Released PM TN-57

Time Spent on Activities for Lockeford PMC

State = CA

| <u>Technology</u> | | <u>Technology</u> | | <u>Seed/Plant</u> | |
|------------------------|------|-------------------|------|--------------------|------|
| Releases | 5 % | Written: | 10 % | Foundation: | 20 % |
| Technology | 15 % | Oral: | 5 % | Field | 10 % |
| | | Other: | 5 % | Funded Production: | 0 % |
| Subtotal | 20 % | Subtotal | 20 % | Subtotal | 30 % |
| | | | | | |
| <u>Maintenance and</u> | | | | | |
| Facility or Land | 30 % | | | | |
| Other | 0 % | | | | |

Publications for Lockeford PMC

Munda, B., S. Aslan, M. Bergan, D. Dyer, M. Pater, E. Beardsley, and S. Cobb. 2000. Ten-Year Research Findings on Selected Water Efficient Ornamental Plants Using Tertiary Treated and Potable Water. Desert Water Agency, Palm Springs, CA. 33.

Dyer, D.A. 2000. Technology Activities at the Lockeford Plant Materials Center: 2000 Update. USDA-NRCS Lockeford Plant Materials Center, Lockeford, CA. Jan. 2000. 3.

Dyer, D. 2000. Global Climate Change, Soil Carbon and Biomass-to- Ethanol TN - 58. USDA-NRCS Lockeford, CA, Lockeford, CA. September 2000. 3.

Dave Dyer 2000. Landscaping With Fire Resistant Plants TN-57. Lockeford CA. January 2000. 19.

Dave Dyer 2000. Notice of Release of Mariposa Blue Wildrye. Lockeford CA. September 2000. 3.

Presentations for Lockeford PMC

Date 2/15/00

Title: PMC program review

Presenter Dave Dyer

Location Lockeford, CA

Date 2/17/00

Title: Yellow Star thistle study at Jackson

Presenter Dave Dyer

Location Jackson, CA

Date 3/20/00

Title: NRCS programs review to China group

Presenter Dave Dyer

Location Napa and Sacramento, CA

Date 3/24/00

Title: Am. Indian basket weaving plant materials

Presenter Dave Dyer

Location Lockeford, Ca

Date 4/18/00

Title: State weed meeting NRCS weed studies and programs.

Presenter Dave Dyer

Location Sacramento, CA

Date 5/10/00

Title: Open house talk

Presenter Dave Dyer

Location Lockeford, CA

Date 5/25/00

Title: NRCS plant materials that compete with weeds.

Presenter Dave Dyer

Location Concord, CA

Date 6/9/00

Title: Native plants used by NRCS

Presenter Dave Dyer

Location Lockeford, CA

Date 8/9/00

Title: Review of PM program

Presenter Dave Dyer

Location Colusa, CA

PMC Seed Production of NRCS Releases by Lockeford PMC

| | Foundation | | | Certified Seed | | | Common | |
|----------------------------|------------|---------|---------|----------------|---------|------|--------|---------|
| | lbs. | \$/lbs. | Valu | lbs. | \$/lbs. | Valu | lbs. | \$/lbs. |
| Total Value for CA: | 741 | | \$2,843 | 0 | | \$0 | 0 | |
| Grand Totals: | 741 | | \$2,843 | 0 | | \$0 | 0 | |

Commercial Seed Production of NRCS Lockeford PMC Releases

| | Foundation | | | Certified Seed | | | Common | |
|----------------------------|------------|---------|---------|----------------|---------|----------|---------|---------|
| | lbs. | \$/lbs. | Valu | lbs. | \$/lbs. | Valu | lbs. | \$/lbs. |
| Total Value for CA: | 200 | | \$1,200 | 20065 | | \$68,250 | 417000 | \$ |
| Grand Totals: | 200 | | \$1,200 | 20,065 | | \$68,250 | 417,000 | \$ |

Lockeford PMC Vegetative Production of NRCS Releases

| | Amount | Total |
|---------------------|---------------|--------------|
| Grand Total: | 7,504 | \$23,912 |

Commercial Vegetative Production of NRCS Lockeford PMC

| | Amount | Total |
|---------------------|---------------|--------------|
| Grand Total: | 7,000 | \$22,500 |

Time Spent on Activities for CA Plant Resource Specialist

Fiscal Year 2000

State = CA

| <u>Technology</u> | | <u>Technology</u> | | <u>Seed/Plant</u> | |
|-------------------|------|-------------------|------|--------------------|------|
| Releases | 0 % | Written: | 5 % | Foundation: | 0 % |
| Technology | 10 % | Oral: | 10 % | Field | 10 % |
| | | Other: | 5 % | Funded Production: | 0 % |
| Subtotal | 10 % | Subtotal | 20 % | Subtotal | 10 % |

Maintenance and

Facility or Land 10 %

Other 50 %

Description of Acting State Agronomist &
Hispanic Emphasis Program Manager for California

Plant Resource Specialist Presentations

Fiscal Year 2000

Date 10/18/99

Title: Role of the Plant Materials Program

Presenter TishEspinosa

Location Dunnigan Hills, CA

Date 10/25/99

Title: Field Plantings

Presenter Tish.espinosa

Location Lodi,CA

Date 10/27/99

Title: Plant Materials Program

Presenter Tish Espinosa

Location Davis, CA

Date 11/2/99

Title: Tri County Weed Management Meeting

Presenter Tish Espinosa

Location Modesto, Ca

Date 12/6/99

Title: Veg Guide Updates

Presenter Tish Espinosa

Location Riverside,CA

Date 3/2/00

Title: First Line Supervisors Meeting (Buffers)

Presenter Tish Espinosa **Location** Lake Tahoe

Date 3/16/00

Title: Mokelumne River Water shed project

Presenter Tish Espinosa **Location** Murphy Creek

Date 4/10/00

Title: Native Grass workshop

Presenter Ca Native Plant Assoc & **Location** Parde Lake

Date 10/20/21

Title: Conservation Planning at the Lockeford PMC

Presenter Various RTS Staff **Location** Lockeford PMC

Field Plantings

In 1994 the California Plant Materials Specialist (PMS) retired. Unfortunately when I, (Tish Espinosa), started as a student trainee in the Plant Materials Program in 1994 I did not get to work with the PMS very much before he retired. I am now in the (PRS) Plant Resource Specialist / Agronomist position which was created to fill in behind the vacated PMS position. I will be providing plant materials assistance to field office staff. Also, I am the Plant Materials Program liaison for those areas in California, which are outside the Lockeford PMC service area.

Field Plantings are used to insure particular plants are suitable to the site and conditions. This year the California NRCS budget is allowing the Davis state office to make a large purchase of seed to add to the Lockeford PMC inventory. This seed is purchased for field office use, so please contact me to determine species availability. The Majority of seeds purchased will be California Natives. The field planting program will allow us to get a better understanding of the seeding rates, establishment and maintenance of native plants. This information will be used to update the vegetative guides.

Thirty-two field plantings were established during the past three years. The field plantings addressed many resource problems and helped field

offices determine the best plant for different practices. Seventeen of the thirty-two field plantings included native grasses. During the next year, field office staff will be contacted by the me to determine the effectiveness of different plant materials and a detailed report will be developed.