



University plant introduction nursery, Davis.

Promising Range Forage and Wildland Cover Crops from University Plant Introduction Nurseries

BEECHER CRAMPTON

INCREASING INTEREST in wildlands and the pressures exerted on existing range indicate that greater utilization of these areas is possible by introduction of better and more highly productive plants. The University's agronomy department maintains nurseries for evaluating plant spe-

cies for use on range and wildlands at the Davis campus, Riverside campus, South Coast Field Station, West Side Field Station, and the Hopland Field Station. The Davis nursery is the largest, and promising species are planted at the field stations to determine degrees of adaptation,

production, growth characteristics, and disease resistance. A shrub nursery at Davis also allows study of the behavior and adaptability of woody range plants.

Plant materials, largely seeds, are received through the United States Department of Agriculture, from botanical gardens and research stations in the United States, Europe, Asia, North Africa, and from local field collections. Since 1959, 1,012 accessions have been tried out or are currently under observation. Some of the promising plants for use on range or wildlands, emerging from this study include:

A. Grasses valuable as range forage and erosion control

Schismus, *Schismus arabicus*: Low tufted annual, 3 to 6 inches tall, blades slender mostly basal; panicle $\frac{1}{2}$ to $1\frac{1}{2}$ inches long, dense lemmas hairy, small, notched at apex. Naturalized in California and adapted to arid and semi-arid regions of southern California.

Davis Slender Wheatgrass, *Agropyron trachycaulum* var. *majus*: Tufted perennial, stems to 36 inches high, blades flat, borne well along the stem; spikes 4 to 8 inches long, spikelets to 7-flowered, good seed producer and volunteer. Native to California, recommended for seedling in annual type range.

Big Sagebrush (*Artemisia tridentata*) in the shrub nursery at Davis.



Erect Brome, *Bromus erectus*: Tufted perennial, stems 20 to 36 inches tall, blades flat, good leafiness, remaining green into the summer; panicles with short erect branches. Introduced from Turkey. Foothill grassland and brush burn areas.

Fibrous Brome, *Bromus fibrosus*: Tufted to short rhizomatous perennial; blades flat, borne well up on the culm; panicles open with some long lower branches. Introduced from Turkey. Foothill grassland and brush burn areas.

Maire Fescue, *Festuca mairei*: Tufted perennial, stems 36 to 50 inches high; blades broad mostly basal; similar to strains of Tall Fescue (*Festuca arundinacea*) but differs in smaller florets and in adaptation to drier sites. Introduced from France.

Swiss Tall Oatgrass, *Arrhenatherum elatius*: Tufted perennial with stems 30 to 54 inches high; blades flat, borne well up on the stems. Good volunteering habit. Introduced from Switzerland. Higher foothill rangeland.

Bulbous Barley, *Hordeum bulbosum*: Tufted perennial with swollen stem bases, excellent foliage production during winter, stems 36 to 60 inches high, matures early; seedling volunteering excellent. Introduced from Israel. Semi-arid areas.

B. Legumes

Scurfy Pea, *Psoralea bituminosa*: Perennial herb with robust stems 4 to 6 ft high; foliage, well distributed and green throughout the year; flowers, blue-violet; fruit, a sharp-pointed pod. Introduced from the eastern Mediterranean. Recommended for erosion control, game shelter and food supply and as occasional domestic animal forage.

Hairy Canary Clover, *Dorycnium hirsutum*: Semi-shrub either sprawling or erect depending on density; leafage hairy, ample; flowers numerous, white, in clusters; pod brownish with an elongated bristle-like apex. Ground cover, soil binding and forage, introduced from Mediterranean area.

Shrubby Dorycnium, *Dorycnium suffruticosum*: Small semi-shrub 1 to 2 ft high; leaves small with appressed hairs; flowers small in compact clusters; pods small, roundish. Forage and soil binding. Introduced from Spain.

Sulla Clover, *Hedysarum coronarium*: Sprawling, to erect, short-lived perennial with ample and vigorous winter growth; leaves with several roundish leaflets; racemes with reddish flowers. Introduced from Italy. Useful as forage and erosion control.

Chaparral Lotus, *Lotus grandiflorus*: Perennial with nearly prostrate stems 12 to 24 inches long; slow starting but performs well by second or third year. Native to California, valuable for seeding in brush burn areas.

Spanish Alfalfa, *Medicago sativa*: Perennial, stems rather straggly or some prostrate, rather well adapted to drier soils. Introduced from Spain. Forage and erosion control.

Beecher Crampton is Lecturer, Agronomy Department, and Associate Specialist in the Experiment Station, University of California, Davis. This is a progress report of the research program, "Cytogenetics of range species, and their improvement by selection and breeding" (Hatch-1194).



Plant introduction nursery, South Coast Field Station, Orange County.

The plant introduction nursery at West Side Field Station, Fresno County. Plant in left foreground is Hairy Canary Clover (*Dorycnium hirsutum*), and at the right, Davis Slender Wheatgrass (*Agropyron trachycaulum* var. *majus*).

