

Drought-Tolerating Ornamentals

natives and introductions from like climates require little water or maintenance and are adaptable to rural landscape

Robert B. Deering

Drought-tolerating plants are useful for landscaping areas which do not normally receive irrigation water. They are especially adaptable to the rural home landscape because there is usually sufficient space for them to grow in areas which will not receive summer water. They can be valuable as windbreaks and screens for buildings and machinery.

Native woody plants—often colorful and useful as ornamentals—have not been fully appreciated as landscape plants. Frequently, of course, because they have adapted themselves to extreme drought conditions—and are consequently susceptible to fungus diseases when the soil is warm and moist—they are incompatible with other garden plants. Under natural conditions, however, diseases of this kind are less likely since the plant receives little or no water during the warm season, and conditions for their spread are less favorable in the cold rainy season.

Drought-tolerating plants are either drought resistant or drought evading, de-

pending upon the climatic conditions and what percentage of available soil moisture is present. A plant which grows well in a coastal habitat, for example, may not survive in the hot-dry interior valley. Heat and desiccation by frequent hot-dry winds discourage all but the toughest and hardiest of plants grown with little or no water. The tender and succulent foliage types rapidly dehydrate under these conditions and have considerable difficulty in surviving.

A number of factors—such as depth of water table, salts and alkalinity, soil types, maximum and minimum night and day temperatures, precipitation, evaporation rate—determine the adaptability of a plant to an area. Plants come through the drought period either by resisting the adverse conditions or by evading them. Many plants commonly considered drought resistant may actually be drought evading. Actually most annual plants are drought evading but these are of little importance in permanent landscape plantings.

Many ornamentals—both native and those which have been introduced from similar climatic regions—are drought resistant. These plants differ physiologically, in many respects, through the manner in which they survive the drought period.

A true drought resistant plant is a perennial—either woody or herbaceous—which remains green or in a vegetative state during the dry season. Such plants generally have small, thickened, leathery or waxy leaves, such as the native California lilac—*Ceanothus* species. Large broad-leaved types are uncommon. Drought-resistant plants usually have deep penetrating root systems, low rates of transpiration, and perhaps a greater capacity to use dew for additional moisture. Experiments have shown that drought-resistant plants also have special genetic characteristics which enable them to survive under adverse conditions. The *Eucalypti*—introduced from Australia—are good examples of foreign plants well adapted to California conditions.

Drought evading plants may have few—if any—leaves which they may retain only during the wet season or when there is sufficient soil moisture. Those with few leaves—or none—often carry the chlorophyll in other parts as well. The cacti, for instance, carry the chlorophyll primarily in the stems and trunk; and the Jerusalem thorn—*Parkinsonia aculeata*—carries it in the rachis of the leaf and in the bark of branches and trunk.

Also in the drought-evading group are broad, thin-leaved plants, such as the California Buckeye—*Aesculus californica*—which have developed special methods for survival. The large handsome leaves of the Buckeye are produced in early spring and remain only until midsummer when soil moisture is not sufficient to support this type of foliage. The plant then goes into an early dormant condition until the following spring.

The water requirements for both drought-resistant and drought-evading plants are small relative to the climatic area in which they grow. Perhaps their greatest virtue—aside from the saving of much valuable water—is that they require little in the way of maintenance.

Robert Deering is Assistant Professor of Landscape Management, University of California, Davis.

Drought-tolerating ornamentals are effective in integrating the surrounding natural dry-type landscape.

