The cultivated almond originated in central and southwest Asia, and spread into the Mediterranean countries and North Africa, and eventually to California, Australia, and South Africa. Each country and production area has evolved unique and characteristic germplasm materials representing separate evolutionary lines including both seedlings and local cultivars.

Endemic materials are being surveyed and evaluated in France, Spain, Italy, Greece, Bulgaria, Russia, Tunisia, Turkey, Iran, and Israel. Selections have been made for hardy types that produce well under adverse growing conditions; late blooming types have been developed in Russia and Bulgaria; self-fertile cultivars have been discovered in Spain and Italy.

The foreign collection at UCD is incomplete, but source material may be available by exchange with various Mediterranean countries.

- Species and species hybrids. The cultivated almond is believed to have originated from three wild species—Prunus bucharica, P. fenzliana, and P. ulmifolia. Other species or subspecies growing from Yugoslavia and across southern Russia to Afghanistan and Iran, and extending into Israel, contain a range of tree and fruit characteristics. These species usually cross readily with almond.

- Prunus webbi, P. argentea, P. bucharica, P. mira, P. fenzliana, P. scoparia, as well as some unidentified species, are currently growing in the UCD collection. Hybrids have been produced between some of these species and almond.

The peach crosses readily with almond and has provided a genetic source of self-fertility which has been incorporated into almond through backcrossing. The peach-almond hybrid produces a potentially promising rootstock for almond, peach, and plum. Immunity to nematodes can also be transferred from peach to this hybrid. Easy-to-root hybrid clones have been selected and are being tested for possible commercial use.

The collection also contains some species of the almond-like American Prunus from the deserts in the southwestern United States.

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Cut flowers are a sizeable commodity in California. Last year, according to the U.S. Department of Agriculture Crop Reporting Board, the three major greenhouse species alone—carnations, chrysanthemums, and roses—were valued in excess of $83 million at the nursery. In addition, about 50 other species, including field-grown, accounted for perhaps another $50 million. It appears that most of these flowers were initially selected for commercial culture for reasons other than flower productivity.

Color, “showiness,” ease of culture, stem length, ability to survive the rigors of marketing—these are the kinds of things breeders have been looking for. And, although there have been some yield improvements, it is likely that most of these have been fortuitous. Now, however, growers are taking a closer look at flower productivity as fuel, shipping, and labor costs escalate. They are also looking for less labor-intensive crops. Gerbera jamesonii hybrids (Transvaal daisy) shows promise of filling the bill on both accounts.

Many crops have been selected for yield to the extent that their genetic variance for this character has been greatly diminished. Further selection for productivity, therefore, might not be expected to be readily effective. But this may not be the case for flower crops that have been selected primarily for their decorative value.

Gerberas were selected for night openness and other desirable commercial cut-flower traits at the University of California at Los Angeles beginning in 1960. Commercial producers, however, have made no serious attempts as yet to develop marketable clones. A major obstacle may be the low productivity of certain selections that have shown promise in other respects. Assuming that low productivity is an underlying reason for propagator and grower resistance, and assuming further that gerberas have not had a long history of selection for this character, it follows that mass selection might be an approach to overcoming the problem.

A study was begun, therefore, to determine how genetic resources could be readily assessed and whether flower yields can be increased appreciably through selection without an accompanying genetic deterioration in flower or stem acceptability and vase life. We also wanted to develop production data for selected genetic types grown under quasi commercial conditions in California.

Our genetic “pool” originated

Greenhouse gerbers

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several years ago from seeds obtained from commercial sources in the Netherlands, Germany, and the U.S., and from the Hebrew University in Israel. Plantings typically were being grown from seed and reportedly exhibited a high degree of variability. Average flower production was low and losses from diseases were often high. However, seedlings from this “pool” appeared to exhibit all of the characters deemed necessary for a California-grown crop. One, later designated G-1, produced large numbers of long-stemmed yellow flowers that stayed open at night and kept well in the vase, and whose semi-quilled petals were resistant to bruising, tangling, and shattering during post-harvest handling operations. Other desirable seedlings were subsequently selected and crossed to this plant. More recently, 21 highly diverse progeny were selected to serve as parents of our experimental population.

Cultivated alfalfa and its closely related wild relatives are probably native to the Middle East, particularly what is now Iran. It is said to be the only forage crop cultivated before recorded history.

From its original home in Iran, alfalfa spread westward to Greece, Italy, and North Africa, and then to Spain, probably carried by conquering armies as feed for their horses. The Spaniards brought it with them in their conquests in the New World, where it became an established crop in Chile and Peru.

Except for the humid tropics, alfalfa is now distributed world-wide, indicating considerable variability in its germplasm. This variation can be attributed to the fact that it is cross-pollinated and is a tetraploid plant; that is, it has four sets of chromosomes rather than the usual two.

Alfalfa may have been used at some of the southern missions in California; it was established in northern California during the Gold Rush days. There is a record of a planting made at Benicia in 1851. Alfalfa is now grown in nearly every county in California, and ranks high in both acreage occupied and cash value. It is particularly important to the poultry and dairy industries, and as a soil improving crop.

Although the alfalfa introduced into California was well adapted to this climate due to its Mediterranean origins, by the 1920s growers began to notice that the life of their alfalfa stands was becoming shorter. Efforts to control bacterial wilt disease, identified as a major cause of stand decline, were responsible for the initiation of several alfalfa breeding programs, in California as well as other states. Alfalfa introduced from Turkistan in 1898 and from Ladak province in India in 1900 contained plants with a high level of resistance to the disease. This resistance was transferred to the California-adapted variety California Common by a backcross program. The new variety, named Caliverde, was the