

## **HOME GARDENS IN THE SOUTHWESTERN UNITED STATES AND NORTHWESTERN MEXICO**

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### **ABSTRACT**

People often think that home gardens are primarily a tropical agroforestry system where woody plants, agricultural crops, and livestock intermingle in diverse arrays adjacent to people's dwellings. However, the planting of home gardens also has a long tradition in the southwestern United States and northwestern Mexico. Planting schemes, products and services, and future opportunities to improve home gardens in this region are discussed in this paper.

Keywords: Home gardens, planting schemes, products and services, opportunities

### **INTRODUCTION**

Home gardens are not always considered to be an important form of agroforestry in the temperate regions. People more often think that home gardens are a tropical agroforestry system where woody plants, agricultural crops, and livestock intermingle in diverse arrays adjacent to people's dwellings (Gordon et al. 1997). However, the planting of home gardens also has a long tradition in the southwestern United States and northwestern Mexico. Home gardens in the southwestern United States are mostly privately maintained by the gardener who obtains the derived benefits, while home gardens in northwestern Mexico are more frequently planted on ejido or other forms of communal lands where people do not own their land but gain the benefits. Planting schemes, products and services, and future opportunities to improve home gardens in this region are discussed in this paper.

### **PLANTING SCHEMES**

Home gardens of trees, shrubs, vines, and herbaceous plants yield firewood, small poles and posts, forage and fodder, vegetable crops, fruits and nuts, and flowers in varying combinations for the home or sale. Trees also provide shade for people, their homes, and their livestock. Home gardens are planted in blocks, rows (alley cropping), or random arrangements on—or land adjacent to—people's homes and communities (Russo 1990; Ffolliott et al. 1996; Ffolliott 1999). Double-cropping is occasionally possible in the region because of the bimodal distribution of annual rainfall. However, water is a limiting factor in most cases, constraining the assemblages of plants to more drought-tolerant species.

More diverse species are planted than would otherwise be possible by establishing home gardens in concert with water harvesting schemes (Karpiscak et al. 1984; Fowler and Ffolliott 1986) in

which comparatively small catchments store the collected water for distribution to the crops when rainfall is insufficient. Treated wastewater obtained from municipalities' sewage treatment facilities has also been used to irrigate home gardens in periods of water shortages (Wilson 1998). Agricultural crops that are least affected by contact with the water are planted in wetlands maintained with this effluent.

## PRODUCTS AND SERVICES

The products and services of home gardens in the region are obtained from tree layers at the upper levels of the gardens, herbaceous layers near, on, or in the ground, and intermediate shrub or vine layers (Russo 1990; Ffolliott et al. 1996; Ffolliott 1999). Benefits from the tree layers depend largely on whether the trees are intentionally planted in home gardens or whether the gardener simply takes advantage of the products available from naturally occurring tree species. Apple, peach, orange, and other fruit trees are planted in random arrangements or rows in cooler environments, while mango, papaya, and banana trees can be grown in warmer climates. Various species of pine trees are occasionally planted along the perimeters of home gardens to protect the interior crops from desiccating winds and blowing dust. Poplar, willow, and other hardwoods often planted for aesthetic purposes can yield fodder for livestock when other forage is not available. Some gardeners underplant scattered oak, juniper and pinyon, mesquite, and cottonwood trees growing naturally with food crops that are able to thrive in rainfed conditions. These trees can provide firewood and fenceposts, construction poles, and fruits and nuts for mostly household use. Processing of saleable products for cottage industries also occurs. Examples of these industries include cutting juniper for furniture and book ends, lamp bases, and other novelty items; using trunks and larger branches of mesquite for cabinetry and flooring; rafting of kachinas from the roots of cottonwood trees by Hopi carvers; and carving ironwood and other hardwood species into figurines.

Cereals, legumes, forages, root crops, stem and leaf crops, and fruit and seed vegetables are grown in varying combinations in the herbaceous layers. The combinations of crops are largely dictated by the length of the growing season, the fertility and water-holding capabilities of the soil, whether the crops are rainfed or irrigated, and the personal preference of the gardener. The produce obtained is either consumed in the household or sold in a local marketplace. Other commonly obtain products are flowers for the home or sale, plants grown for the expanding herbal markets, and gourds that are carved into finished products for mail-order sale.

Intermediate layers—not always a part of the home gardens—most commonly include planted grapes or small pear- or plum-bearing trees. Grapes are varieties of table and occasionally wine grapes for mostly home consumption. Of special note as components of homes gardens of northwestern Mexico are jojoba (*Simmondsia chinensis*) and guayule (*Parthenium argentatum*) shrubs (Russo 1990). Jojoba seeds contain about 50 percent of oil similar to sperm whale oil, while guayule is a rubber-producing shrub.

Animal products of home gardens in the region include the animals themselves (goats, pigs, poultry) and products that are derived from animals (milk, cheese, eggs). These products are

either consumed in the household or sold in a marketplace. The plant and animal components of home gardens sometimes intermingle, while these components are separated elsewhere by barbed-wire or living fencing to protect the plants. This latter situation is frequently the strategy when goats or pigs are raised on the homestead.

### **FUTURE OPPORTUNITIES**

Developmental trials are needed to improve the composition and design of the home gardens to more efficiently provide food products, energy conservation, and specialty products. Further research on the potentials of home gardens should also be initiated with Native Americans who have a long history of experience with this agroforestry system (Merwin 1997). A comprehensive inventory of useful and economically valuable plants including traditional medicinal plants and a listing of more efficient cultivation practices appropriate to this dryland region would also be useful.

Small-scale irrigation systems that meet the requirements of minimal losses in applications of the water, prevention of site degradation (waterlogging), and sustained economic efficiency would likely expand the planting of home gardens in both countries. Water harvesting and water spreading techniques that provide additional irrigation water on a seasonal basis or longer periods of time represent one set of possibilities. Increased use of treated wastewater is another. However, the use of wastewater necessitates continual monitoring to prevent possible contamination of soils and plants, effluents polluting surface water systems, and wastewater percolating to groundwater aquifers.

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