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A REVIEW ON XERISCAPING

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ABSTRACT

Xeriscaping is the process of landscaping or gardening that reduces or eliminates the need for supplemental water from irrigation. Xeriscaped landscapes can reduce water use by up to 60% or more compared to regular lawn landscapes. Our irrigated landscapes provide us with many benefits that include beautiful surroundings, natural cooling, and the cleansing of our environment. Xeriscape gardens are the perfect way to Live Green. In this review paper, the establishment and benefits of Xeriscape gardens have been discussed and trees that are suitable for Xeriscape gardens in the Indian context have been enlisted along with their landscape use. This can be achieved by the ideal usage of water by selecting suitable techniques either the irrigation system or reusing water, and by the proper management of landscape architecture and its requirements.

Keywords: Xeriscaping, Water conservation, Garden, Review, Landscaping

INTRODUCTION

The term Xeriscape comes from the Greek word xeros, meaning dry. The concept originated in Denver, Colorado, in the early 1980s. Because of severe drought conditions, Denver had rationed water and prohibited irrigation of lawns and yards. A number of terms describe water-conserving landscaping(Kishore & Anitha, 2021). Among them are “xeriscaping,” “low water use,” “drought tolerant,” water-wise,” and “desert” landscaping. Xeriscaping, a widely promoted term over the past several years, is a word of Greek origin with xeros meaning dry, combined with landscaping. Drought-tolerant indicates the ability of a plant to survive on limited water, although these plants usually look better as water is increased. With improper watering, a drought-resistant plant may become a water guzzler in the landscape.

The goal of a xeriscape is to create a visually attractive landscape that uses plants selected for their water efficiency. Properly maintained, a xeriscape can easily use less than one-half the water of a traditional landscape. Once established, a xeriscape should require less maintenance than a turf landscape. A Xeriscape-type landscape can reduce outdoor water consumption by as much as 50 percent without sacrificing the quality and beauty of your home environment. (Kohale, V. S. 2022).

Significant water savings can be realized simply by modifying your watering schedule, learning how and when to water, using the most efficient watering methods, and learning about the different water needs of plants in your landscape.

What is xeriscaping :

Xeriscaping is a landscaping that reduces or eliminates the need for Irrigation. This means xeriscaped landscapes need little or no water, and it is An alternative source to landscaping in water scare areas. Xeriscape is quality landscaping that conserves water and protects the environment. Xeriscape landscaping is based on seven basic principles that can be successfully applied anywhere. (Anderson, K. M. 2004).

The main objective of Xeriscape is to establish and maintain a healthy landscape by matching the right plants with existing site conditions so that the use of additional resources, such as water, fertilizer, pesticides, and labor, is minimized.

Principal of xeriscaping:

Xeriscape-type landscaping is a package of seven common-sense steps for making a landscape more water-efficient:

1. Planning and design
2. Soil analysis

3. Appropriate plant selection
4. Practical turf area
5. Efficient irrigation
6. Use of mulch
7. Appropriate maintenance

Components of xeriscaping:

1. Planning and Design:

The planning and design stage of landscaping provides you with the opportunity to consider and prepare for every aspect of your future landscape's use. Consider what you would like to achieve with your landscape. As you plan each area, consider several different arrangements. For example, is a fence, wall, or hedge more appropriate for screening and/or security? How much space is needed for active recreation, a vegetable garden, or patio entertaining? Only after these decisions are made should you begin thinking about what plants to use. (Kopp et al,2002).

2. Soil analysis:

Have your soil tested. The test results will tell you what kinds and amounts of fertilizer your soil needs, and whether you should add organic matter. Most soils benefit greatly from organic matter. Adding organic matter to the soil of shrub and flower bed areas makes plants healthier.

For years, we have added organic matter like peat moss, animal manure, or compost to the planting hole to enrich the soil, conserve moisture, and improve plant growth. (Kohale, V. S. 2022).

Your goal in soil analysis is to create an ideal soil environment for the expanding root system. An ideal soil has good aeration and drainage, yet holds adequate moisture and nutrients for optimum root growth. Research at the University of Florida shows that the roots of trees and shrubs grow outward approximately seven times the diameter of the root ball during the first growing season when provided with a good soil environment. (Wilson, C., & Feucht, J. R.,2007).

3. **Appropriate Plant Selection:**

Appropriate plant selection means selecting plants that not only are compatible with the design but also are well suited to the planting site and local environment.
Select the plants which are conducive to native and fit the specific purpose of the landscaping. After selection, these are grouped according to their water requirement since Xeriscape focuses mainly on minimizing the resources. Plant selection should be based on the intended use in the landscape. The use of more plants with low water needs and native plants will allow maximum water conservation (Wilson & Feucht, 2007).

4. **Practical Turf Areas:**

Turfgrass is one of the most versatile and functional plants in the landscape. It provides one of the best recreational surfaces for outdoor activities. Turf can help control erosion; it can contribute to temperature modification; can reduce urban glare; and can help control dust and mud. Turf is also useful for slowing runoff from landscape areas and can be of practical benefit in areas like swales.
Also, consider the ease of watering turf areas. Areas that are long and narrow, small, or oddly shaped are difficult to water efficiently. Confine grass to blocky, squarish areas that are easier to maintain.(Santo, J. M. 1991).

5. **Efficient Irrigation**:

A water-wise landscape requires a minimal amount of supplemental water from irrigation. When irrigation is used, water is applied efficiently and effectively to make every drop count. Just as we zone plants in the landscape according to their different water needs, zone the irrigation system so that plants with different water needs are irrigated separately. Water turfgrass, for instance, is separate from shrubs and flowers(Hope et al. 2002)

Water will be absorbed with less evaporation if you irrigate during the cooler parts of the day. Early morning from 6 to 8 a.m. is ideal because leaves will dry quickly. Evening watering also is efficient, but plants that are susceptible to leaf disease are more likely to be infected if leaves stay wet for too long. The best use of irrigation systems is the sprinkle and drip irrigation system.

6. **Use of Mulches**:
The use of mulches in landscape plantings is increasing. Mulches have been promoted by water conservation, green waste reduction, and other programs primarily to reduce evaporation from the soil. In addition, many of the materials used for mulching provide an improved aesthetic appearance for the landscape and provide weed control (Welsh et al, 2007).

There are many mulches available including organic mulches like bark, inorganic mulches like stone, and even some plastic and paper mulches. You can even mulch your turfgrass areas by returning the clippings when you mow. One benefit of organic mulches is that they improve the organic matter content of the soil as they decay. This may be undesirable, however, for plants that require excellent drainage and dislike wetter soil conditions.

7. **Appropriate Maintenance:**
One of the most important components of a beautiful and lasting landscape is maintenance. Proper maintenance will keep your plants healthy and will also help to conserve water. For example, by weeding regularly, your landscape plants will not have to compete with weeds for water.(Anderson, K. M. 2004)

Remember, a Xeriscape-type landscape is a low-maintenance landscape. By working smarter, not harder, in the landscape, you'll save time, energy, and water without sacrificing the beauty of the environment. Proper watering, weeding and pruning, mowing, and limited fertilization and pest control will keep your Xeriscape healthy and beautiful.

- **Future aspects:**

Increasing efficiency and encouraging conservation is often the cheapest way to decrease water demand, which has the effect of extending the water supply.
Require that all new local government-owned facilities use water-efficient landscapes and stage replacement of landscapes at existing facilities.
Public awareness in the Region is increasing through the activities of the Georgia Water Wise Council, including recent articles in the Atlanta papers and a news story on an Atlanta television station.
As mentioned earlier, the variety of ordinances examined is constrained by this study's focus. Only ordinances that encourage or require the use of water-wise plants and/or that limit the area of turf or offer incentives for reducing turf are analyzed in this report. (Wade et al, 2010). This report focuses on the ordinances and planners' and landscape architects' reactions to and insights into the ordinances. As such, I did not seek to determine the impact of water-wise landscaping ordinances on the effectiveness of reducing the volume of water applied to landscaping.

The benefit of xeriscaping: Recreational uses with various looks and designs can be created by using topiaries and hedges.

- Provides artistic interest with different Rock designs, hardscape elements, and various tree forms like conical, vase, round, drooping, etc.,
- Landscapes can offer seasonal color, buffer obnoxious noise and light, screen undesirable views, reduce erosion, improve air and water quality, provide wildlife habitat, and offer energy savings from reducing wind chilling and heat loss in the winter as well as energy savings from providing shade in the summer (Kohale, 2022).
- Plants like Ficuspumila, Vernoniaelaeagnifolia, and wisteria with thick foliage and flowering provide shade and screening to the garden and can be planted beside sitting areas.
- Attractive flowers like lavender, cestrum, Lupin, and Adenium welcome butterflies, honey bees, and birds to the gardens which predominantly helps in pollination and adds beauty to the garden.

- Hardy annual flowers, ornamental perennials, herbs, and bushy shrubs can be grown (Ixora, Salvia, water lilies, Bougainvillea"s) which provide aesthetic value to the garden. (Schrock, 1998).

CONCLUSION

Water is a valuable and scarce element that must be preserved. Even though the most essential components of cities use a large amount of water, it is possible to save water without sacrificing the beauty of cities. This can be accomplished by making optimal use of water and choosing the appropriate technique. Furthermore, proper management for landscape design and its requirements, either the irrigation system or reusing water. The literature review concludes the various methods of conserving water by implementing the xeriscaping idea, irrigation system, and management.

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