



Rain garden: The Rain Dappled Heaven

**Subham Kumar Mallick¹,
Ankita Pradhan²,
Lopamudra Jena³**

¹M.Sc. Research Scholar,
Department of Horticulture,
Faculty of Agriculture, Sri Sri
University, Kataka-754006,
Odisha, India.

² M.Sc. Research Scholar,
Department of Horticulture,
Faculty of Agriculture, Sri Sri
University, Kataka-754006,
Odisha, India

³ Assistant Professor, Department
of Horticulture, Faculty of
Agriculture, Sri Sri University,
Kataka-754006, Odisha, India



*Corresponding Author
Subham Kumar Mallick*

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INTRODUCTION

When we talk about the survival of any living beings, water plays a significant role in each and every sector. Water is known as the fundamental of living beings. Due to rapid industrialization, diverse climatic changes, increasing global population, which affect the future scarcity of drinking water. About 70% of fresh water is needed for the agricultural practices for better irrigation to maximise the crop production and to overcome the food scarcity in today's growing population. Bringing attention on the recent situations of water scarcity, the need of water conservation plays a vital role. In this sequence, rain gardens are designed which are budget friendly, attractive and a renewable way to decrease storm water runoff and remove the water pollutants. Rain gardens look stylish, innovative, attractive and easy to care and maintain. They are also used to attract the beneficial birds and insects like butterflies, moths, bees, lady bugs, honeybees etc. Rain garden helps to decrease flooding, elevates groundwater recharge, aiding to the outer landscape. They are the best method to minimize and refining the rain water, thereby reduce the need of additional irrigation. The idea of rain garden was firstly introduced and formulized in United States in 1990s, then after it got global recognition in countries like China, Singapore, Australia, India and many more.

Suitable location for rain garden:

To enhance and protect the water quality, rain gardens are a practical and effective method. Rain gardens, may be small or large, can be developed depending on the area available. They are designed in a longer and wider way to collect more amount of rain water. However, construction of rain gardens should be done at a minimum distance of 10 feet away from the main building.

They are designed in a bowl shape which will help to collect the surface runoff. Underground pipes or channels should be designed for collecting the runoff. Basically rooftops, slopes and paved surfaces are the best sources of runoff collection.

Rain gardens comes with the idea of bioretention, it is one of the qualitative practice to filter the pollutants which are present in the stormwater. To protect and conserve water resources, rain garden emerges as the one of the best tools. Installation of rain gardens under the large trees should be avoided as it may cause damage to the deep rooting system.

Plants suited for the rain garden:

Choice of plants for rain garden is one of the important factors to consider. The plants should be chosen on the basis of their colour, texture, blooming season or time and height. Depending upon the size, dimension and height of the garden, mixed flowering types based on different colours and textures will make the garden more attractive and interesting. Several types of shrubs, small trees may be planted near to the garden depending upon the area available. Plants like Blue Flag Iris (*Iris Versicolor*) perform best for rain garden in terms of removing pollutants and attract pollinators and tolerant to waterlogging. Indian Shot (*Canna indica*) commonly known as Sarvajaya, Water Hyssop (*Bacopa monnieri*) also called Bramhi plant, Vetiver Grass or Khus grass (*Vetiveria zizanioides*), Lemongrass (*Cymbopogon citratus*), Malabar nut (*Justicia adhatoda*) also called as Vasaka etc. are some of the popular choices for rain garden. Some of the flowering plants native to India or naturalized in India are also commonly used for their beautiful colours, fragrance and adaptability like Blue Water lily (*Nymphaea nouchali*), Madasagar Periwinkle (*Catharanthus roseus*) commonly known as Sadabahar, Lotus (*Nelumbo nucifera*), Jasmine (*Jasminum* spp.), Pinwheel (*Tabernaemontana divaricata*) also known as Chandni and many more. All these plants can be grown to the surrounding of rain garden as they help to prevent erosion with their extensive deep root system. These plants are drought resistant once

they get established, aromatic, easy to maintain, sustainable and gives an attractive or aesthetic look to the rain garden. Plants should be arranged in groups according to their water requirements, placing those plants in the centre that need more moisture. Mulching can be done ensuring better moisture retention and for suppressing the weeds.

Benefits of Rain Garden:

Rain gardens are designed in shallow areas or natural depressions to absorb and capture the rain water runoff. These contribute to reduce the floodings, for filtering the pollutants like unabsorbed oils or other chemical compounds from the water surfaces and make a perfect habitat for the pollinators, birds, and other natural species. They are also useful for transforming natural land depression for filtration and storage of stormwater which helps to gather many benefits such as:

1. **Environmental benefits:** Rain gardens are useful for improving the water quality by filtering the water pollutants from the runoff of storm water. This process is known as “**Bioretention**” in which rain water is collected and subjected to filtration to be carried out jointly by the soil, sand and plants where the rain water soaks to the ground surface leaving impurities at the top. This helps in reducing the water contaminants and improves water quality.
2. **Enhancing the biodiversity:** Rain gardens are quite helpful for enhancing the biodiversity by substituting artificial lawns with the natural vegetation which will stimulate the natural ecosystem. With the availability of essential food, water and shelter, rain garden helps in creating microhabitat for local wildlife like birds, bees, butterflies etc.
3. **Low cost management:** To minimize the cost of stormwater management effectively, rain garden is one of the best alternatives as it substitutes highly expensive drainage systems with natural bioretention systems.
4. **Microclimatic benefits:** Rain gardens are helpful for improving the microclimate by

adding moisture and cooling the surrounding air through the process of evapotranspiration. They help to retain and filter water into the soil which is helpful for the establishment of native plants.

- 5. Water management:** Rain garden is useful for preventing flooding and associated erosions. As compared to the traditional lawns, it can absorb upto 30% more storm water. Therefore, it serves as an effective tool for managing and reusing the rain water properly.

Maintenance of rain Garden:

Choosing of proper location is very much important for establishment of rain garden. They should not be placed close to the buildings which may cause the damage due to water. The

location should be chosen at distance of 5 meters away from the buildings or any heavy structures. Proper calculation of the drainage area provision should be done according to size of rain garden. Soil testing must be carried out before installing rain garden and reclamation is done, if required. Selection of proper plants according to their growth habitat and water uptake potential should be duly considered before planting. Regular cleaning of rain gardens should be done for removal of sediments and debris. Plants in a rain garden are watered according to their need and depending on the available moisture status. Periodical removal of weeds or their timely trimming for better drainage should be done as and when required.



CONCLUSION

Rain garden is an attractive, cost effective, environment friendly and sustainable practice of landscaping. To enhance the outdoor beauty with sustainability and to improve landscape, rain gardens are one of the best examples to practice. It is also a renewable way to decrease storm water runoff and remove the water pollutants. Rain gardens look stylish, innovative, and easy to care and maintain. It helps to recharge groundwater, enhancing biodiversity, reducing flooding of urban areas and also helpful for enhancing the humidity and soil moisture. Rain gardens efficiently contribute in creating sustainability in urban areas with natural beauty and awareness.

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