

# In Brief

## Eucalyptus Plantation in Badlands

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Eucalyptus trees extract a lot of ground water for its survival. Not only it reduces the groundwater, but uptakes more soil nutrients, and even the Eucalyptus does not allow other species to grow in and around its plantation site as evidenced on the badlands of Ausgram under Guskara forest range of Bardhaman Forest Division. In and around the Eucalyptus plantation site, other crops or vegetation are not able to produce a good harvest if the Eucalyptus exist nearby, and it is an invasive species. It is good idea to stop planting Eucalyptus trees to save ground water and support native species. But before ban for its plantation, it is necessary to observe thoroughly if it has any ecological advantages of being ecofriendly to nature for planting them. The present study area is a site of Eucalyptus plantation which was undertaken in the badlands under social forestry scheme by the Forest Department of West Bengal where no other plants grown up other than the grasses only about 10 years back. It is now the time to investigate the quality of soil at the plantation site through soil analysis.

Afforestation under the social forestry scheme has been somewhat successful since the eighties of the last century on both sides of the national and state highways, canals, and non-metal roadside areas in the rural belt of West Bengal. Such a social forest creation project of the Forest Department includes several parks, sanctuaries, and forests in different districts of the state which are well known to forest lovers and travelers at present. Social forest creation in the urban belt is usually done by planting the trees like *Chhatim*, *Jarul*, *Kath Badam*, *Krishna chura*, *Radha chura*, *Kadam*, *Palas*, *Hijal*, *Kanak chura*, *Bakul*, *Sonajhuri* or *Akashmani*, and Eucalyptus. Although some trees have been cut down by the locals, remaining trees

are still standing by the side of the road. Among these roadside trees grown under the social forestry scheme, the purpose of planting Eucalyptus is due to its rapid growth that attains marketable size within a shorter duration. It is less likely to be consumed as cattle feed because of its peculiar odor.

Eucalyptus can grow rapidly even in the barren or badlands, where the growth rate of different species of native trees is quite low. Eucalyptus is cultivated to meet the growing demand for cooking fuel and structures for house building in the rural belt of West Bengal. In a kind of extract in the leaves of all these exotic plants particularly in Eucalyptus, which cattle never want to taste. Therefore, Eucalyptus seedlings do not suffer much damage by the domestic animals in the forest creation or plantation under social forestry scheme either by the government or by the common people in their own land. To increase the areas of the green canopy by tree cover under the afforestation programme, all these exotic species are generally not so costly to purchase and are convenient for the plantation. Some observations regarding good and bad aspects of Eucalyptus are mentioned as the following —

### ***Merits of Eucalyptus trees***

- The oil of this tree produces antiseptic and cleanser.
- They are used to repel mosquitoes.
- Its leaves contain formylated phloroglucinol which has many medicinal properties.
- They are necessary in the pharmaceutical industry and paper industry.
- It grows very fast (can be 15-20 meters in 5 years in Australia).

### ***Demerits of Eucalyptus trees***

- Eucalyptus lowers groundwater levels.

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- It causes problems in irrigation.
- Absorbs water in and around 10-12 feet areas surrounding its boundary of growth.
- No other trees or crops can grow around it.
- Leaves and pollen are harmful to the human body.
- Birds cannot nest.
- In the area where this tree is located, it absorbs more water, resulting in desert shape in this area.
- The mature Eucalyptus plant absorbs about 30 liters of water in 24 hours and dries the soil.
- After 10-20 years of planting this tree, other trees cannot grow side by side.
- Excess carbon-dioxide is emitted which raises the temperature.
- The leaves do not easily rot in the soil.
- They contaminate pond water situated nearby the site of the plantation.
- The danger of creating wildfires through Eucalyptus is evident from Australia.
- It goes up to a maximum of several feet deep in the soil etc.

People are encouraged to plant more and more trees to prevent global warming and maintain the balance of nature. But that is not to say that all kinds of trees are good for humans. There are also trees that are harmful to the environment, far from being environmentally friendly. Sadly, such species of trees are being planted on a large scale in the land of Bengal. The name of such a tree is Eucalyptus. There are about 600 species of Eucalyptus trees in the world. The scientific name of this plant is *Eucalyptus obliqua*. Although the Eucalyptus plant has some medicinal properties, it has serious detrimental effects on the environment. Surprisingly, most of the people are not aware of the harmful aspects of this Eucalyptus or they are showing indifference towards it. Many are falling victim to the situation again. They are unknowingly harming themselves. Although our neighbouring Bangladesh government asked in 2008 to stop planting and marketing Eucalyptus saplings as a harmful tree, many people are planting saplings of this tree in the hope of making a profit by selling wood in a short time.

The benefits of this plant far outweigh its disadvantages. In the state of West Bengal, especially in the districts of North Bengal, its planting is very risky and harmful. In the minds of the people, this tree is also known as the giant

tree. Few science-minded people make a publicity for the protection of nature from this monster tree, and they suggest destroying this monster tree and plant a fruit tree sapling by replacing the Eucalyptus trees. But the soil scientists show that the Eucalyptus plantation has even direct influence for the improvement of soil quality.

As the Eucalyptus plantation results in the improvement of soil characteristics, a roadside Eucalyptus plantation site has been selected for stoichiometry of the soils which was once a void land looking like a desert as a badland before the Eucalyptus plantation about 10 years back. The badland selected for the Eucalyptus plantation by the forest department belongs to the recorded forest area of the government and the plantation has been monitored and managed by the Ausgram forest beat under Guskara range of Bardhaman Forest Division. The badland measures about 10989 sq m where 37 rows of Eucalyptus saplings were planted, and each row contains 29 trees. The planted trees are now mature and attain 66 feet height on average, having DBH (Diameter at Breast Height) 2.5 ft along with 1.05 ft diameter in the middle of the log, and 0.30 ft diameter on the top. Data of diameters and height are collected from the cyclonic storm-stricken uprooted trees on the floor of the plantation site. From the values of average height and diameter, the average volume of a tree is estimated to 84.88 cft. As the dry weight of 1 cft Eucalyptus tree is 8.61 kg, total weight of a tree is calculated to be about 730.86 kg, and then total weight obtained for 1073 numbers of trees (37 × 29) in the site of plantation is 784 tons resulting estimated biomass 392 tons (784 × 0.5) only for the wood logs of Eucalyptus plantation in the badlands. The quantity of estimated biomass reveals the huge sequestration of carbon dioxide from the atmosphere.

Further, research on the improvement of the soil quality due to Eucalyptus trees may infer about its plantations in the badlands in near future which is still in progress. If the quality of soil better the badlands soil substrates by the plantation of Eucalyptus trees, then it should be planted in the badland or wasteland not only because of the improvement of the soil quality in presence of the Eucalyptus plantation comparatively in a shorter duration, but also for the quick harvest and easy availability of huge wood logs within shorter duration in comparison to the other tree species.