

# Benefits of Terracing

**Topsoil**, the layer of soil closest to the surface, contains essential nutrients for crops. It takes at least 100 years to form a mere inch of topsoil. **Soil erosion** occurs when water or wind carries soil away to a new location. While erosion is a natural process, human activity has significantly increased the rate at which it occurs. When topsoil is eroded faster than it is replenished, soil fertility decreases and crop yields suffer. Plowing on hills or mountains is particularly problematic—plowing loosens up the soil, and the force of gravity on the sloped surface causes the soil to erode at a rapid rate.



As the world population continues to increase, it is essential that we reduce erosion in order to maintain fertile agricultural land. Thankfully, there are practices, such as **terracing**, that farmers can use to prevent erosion on sloped fields. Terracing was first used in Southeast Asia approximately 5,000 years ago. This farming technique involves cutting a series of flat sections into the side of a hill or mountain and building vertical walls or risers in between, resulting in increased surface area of land available for farming. The flat sections are typically used for growing crops such as rice, wheat, and barley.

Compared to other agricultural methods on sloped fields, terracing has a number of ecological benefits. Terraced fields reduce **runoff**, which is water that flows over land

from precipitation or melting snow or ice. Runoff can cause erosion and topsoil loss, especially on sloped surfaces. Reducing runoff also increases the amount of available water for the soil to absorb. The moist, fertile soil of terraced fields provides ideal conditions for both the growth of crops and the growth of other plant species. This results in both increased crop yields and increased **biodiversity**. For example, in Toho village, Japan, 189 plant species from 81 different plant families were observed in terraced fields.

Since its inception thousands of years ago, terracing has spread throughout the world. Today, many countries have extensively terraced farmland. It's easy to understand why a farming practice that benefits both farmers and the ecosystem is so popular!

**Show what you know!** Using what you learned from the reading, answer the questions below.

1. What is soil erosion? Why is too much soil erosion a problem? Soil erosion is when water or wind carries soil away to a different location. When topsoil is eroded more quickly than it is replenished, soil fertility decreases and crop yields suffer.
2. What is terracing? Terracing is a farming technique that involves cutting a series of flat sections into the side of a hill or mountain and building vertical walls or risers in between.
3. How does terracing increase crop yields on sloped fields? Terracing increases the surface area of land available for farming and reduces runoff on sloped fields, which prevents the erosion of fertile topsoil. Runoff reduction also increases the amount of available water for the soil to absorb. Moist, fertile soil provides ideal conditions for plant growth.
4. The third paragraph states that terracing results in increased biodiversity. Write your own definition of biodiversity using context clues from the reading.  
Biodiversity is the variety of life in a particular ecosystem.