

Road Dust

If you live on or near a gravel road, the dust generated from traffic is more than just annoying. Reduced driver visibility, breathing problems and eye irritation to humans, pets and livestock, reduced life to car parts and machinery, and increased cleaning costs are just a few of the many problems associated with road dust. The amount of traffic, the weight of the vehicles, and the traffic speed determine the amount of dust generated. According to the Environmental Protection Agency (epa.gov), road dust accounts for the largest source of particulate air pollution in the country. Besides dust suppressants applied to gravel road surfaces, plants can be a part of the solution, with windbreaks providing filtration by slowing wind speed and allowing dust particles to settle.

Planting a windbreak to protect people and structures from road dust is an important management technique. Dust is not specific to summers only, so trees and shrubs that are evergreen or keep their leaves through the winter are good choices. Where space allows, two rows of vegetation (one of trees and another of shrubs), at a minimum, will provide better dust filtration than one row alone. Where space allows, planting more rows provides increased dust filtration. Regardless, if the windbreak is for winter protection or road dust filtration, the principles for establishing a windbreak are the same (nfs.unl.edu).

Plants provide other benefits to gravel roads. Road surfaces shaded by nearby plants lose water much more slowly than their full-sun counterparts, resulting in less road dust. The roots of roadside vegetation stabilize ditch banks and prevent erosion.

While plants are good at providing air filtration, road dust does pose health problems to plants too. Depending on the rock used on roadbeds, dust generated can accumulate in gardens, changing soil pH. This may or may not pose a problem for plants, depending on the existing soil pH and whether the rock material is acidic or basic. Where dust blankets vegetation, leaves are shaded, and sunlight is unable to penetrate. With the process of photosynthesis hampered, plant growth becomes stunted. Dust also clogs the plant's breathing structures, the stomates (in leaves) and lenticels (in wood stems and branches). Clogged breathing structures mean plants are unable to efficiently take in carbon dioxide and exhale oxygen. Reduced intake of carbon dioxide interferes with the process of photosynthesis, negatively impacting nearby trees, shrubs, and other plants by reducing their growth.

Dust readily washes off plants and buildings with rainfall, but the particles become part of the sediment load as water carries particulates into creeks and ponds, reducing water quality. This will also negatively impact what plant and animal species grow there—a whole other issue in itself.