



An Overview: Environmental Science



At Environmental Science, we safeguard and strive to advance human health, hygiene and safety through high-quality, innovative and sustainable solutions that foster healthy environments where people live, work and play.

The Basics

- // **What:** At Environmental Science, we're using innovation and technology to care for the environments where we all live our lives today, and in the future – whether it's keeping your house pest free, making highways and railways safer, protecting populations from vector-borne diseases or ensuring healthy outdoor green spaces.
- // **Why:** Bayer is working to meet two of the world's most basic needs: health and nutrition. There has never been a more important time for innovation and collaboration in pursuit of that endeavor as our world faces enormous challenges from climate change, limited natural resources and a growing population. We have a vital role and responsibility as we safeguard and strive to advance the health, hygiene and safety of people all over the world, sustainably.
- // **How:** Embracing Science for a Better Life, we work collaboratively with customers and partners across vector control, pest management, forestry, vegetation management, turf and production ornamentals, and consumer lawn and garden industries to deliver innovative and sustainable solutions that help foster healthy environments where we all live, work and play.

The Background

People and communities all over the world seek to live and thrive in safe and healthy environments. Yet over half of the global population is at risk from a vector-borne disease such as malaria and dengue, while pests such as rodents and cockroaches threaten food safety and security, public hygiene and pose risks to human and animal health. Additionally, uncontrolled weeds can become a safety hazard for transportation or industrial infrastructures, causing delays or driving up costs. Environmental Science develops innovative and tailored solutions to address these challenges, along with efficient and environmentally conscious solutions for forestry management, reducing pressure on native forests and protecting biodiversity. The Environmental Science unit also sustains healthy green spaces used for leisure and sports activities – essential for the physical and emotional well-being of society, and for the environment.

The Highlights

Vector control protects people from disease.

- // Mosquitos are the world's deadliest animal. They are the vectors for diseases such as malaria, dengue, West Nile, Eastern equine encephalitis, Zika and chikungunya. Each year mosquito-borne diseases affect hundreds of millions and kill several million people worldwide.¹
- // Environmental Science provides solutions such as Indoor Residual Sprays and active ingredients for long-lasting insecticidal bed nets to control Anopheles mosquitoes that spread malaria, as well as Space Sprays to protect against Aedes mosquitoes that transmit dengue, Chikungunya or Zika.
- // In 2018, Bayer joined forces with other leading research and development-centric crop protection producers and signed the "ZERO by 40" declaration to help eradicate malaria by 2040, an effort coordinated by the Innovative Vector Control Consortium (IVCC).
- // Over 250 million lives have been protected against malaria in the last 10 years thanks to Bayer Vector Control solutions.

Healthy green spaces support physical and emotional wellbeing.

- // Well-maintained, weed and pest-free landscapes and turf offer communities a safe and enjoyable environment for leisure and sports activities that contribute to a healthy lifestyle.
- // Good management of sports facilities such as golf courses helps optimize inputs including water, labor, resources and energy consumption.
- // Bayer Turf & Ornamentals solutions contribute to improving environmental quality, biodiversity, landscapes and ecosystems in the green spaces where we live, work and play. We are active on 70 percent of the golf courses worldwide.

References

1. World Health Organization. Neglected tropical diseases.
https://www.who.int/neglected_diseases/vector_ecology/mosquito-borne-diseases/en/



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The Highlights

Pest management fosters healthy environments and ensures food safety.

- // Insects, rodents and other pests contaminate food and threaten human and animal health. Keeping private and public spaces, from agricultural or industrial sites to leisure facilities and private homes, pest free enhances quality of life by improving public health and hygiene standards.
- // Bayer professional pest management solutions protect stored food from contamination or destruction, keeping it safe to eat and affordable, and making a real contribution to fighting hunger.
- // We also help safeguard health by controlling pests that pose human health risks. Up to 60 percent of people with asthma who live in cities are allergic to cockroaches, and termite damage to buildings can cause safety risks and considerable financial losses.

Vegetation management provides weed control solutions for safe environments.

- // Weeds can compromise the integrity of structures like railroads, highways, utility lines and industrial sites, with high potential impact on safety and costs. Uncontrolled vegetation can lead to fire outbreaks or damage to railroad tracks, and invasive weeds can also lead to public health and biodiversity issues.
- // Industrial Vegetation Management solutions contribute to travel safely and ensure the delivery of goods on time.
- // The Bayer Smart Weeding System (SWS) is a novel approach to weed management. SWS significantly reduces herbicide use through integrated data-driven analytics and artificial intelligence to identify and target individual weeds in a very precise space. It helps to maintain a focus on preserving biodiversity and public safety.

Environmentally conscious forestry will help meet growing wood demand.

- // With society's need for timber projected to quadruple by 2050, industrial plantations are an essential, sustainable source of paper, pulp, timber and other wood-based products. Sustainable and efficient management of these plantations preserves native forests, prevents soil erosion and encourages greater biodiversity.
- // Without good agronomic principles, native forests can take up to 20 years to regrow. Bayer is working with universities, NGOs, private companies and landowners to develop new solutions to improve native forest restoration efforts.
- // Bayer's innovative technologies and practices protect forests from threats such as insects, diseases and non-native invasive plants. Ongoing research efforts focus on sustaining both planted and native forests, as well as other natural areas including prairies and rangelands.

Consumer lawn and garden solutions help create a healthy environment at home.

- // Noxious weeds, like poison ivy or poison oak, grow at shockingly rapid rates, and they compete with desirable plants for sunlight, water and nutrients.
- // Consumer lawn and garden solutions control homeowners' weeds and help protect the local ecosystem – including lawns, gardens, patios, driveways and more – by supporting growth of native plants.
- // Bayer works with several key business partners, including The Scotts-Miracle Gro Company and Evergreen Garden Care, to ensure our customers have the right tools at the right time.

Key Things to Remember

- // Pests and weeds threaten health, hygiene and safety in many environments, such as food storage facilities, homes, hotels, transportation and infrastructure, and green spaces.
- // Environmental Science provides holistic, sustainable and innovative solutions that advance life and help people and communities all over the world live life to its full potential.
- // Sustainable innovation and technology play an essential role in caring for the environments where people live, work and play, today and in the future.