

## CHAPTER OVERVIEW

### 12: The Biosphere and the Role of Green Chemistry in Feeding a Hungry World

“From the 1990s, genetically engineered crops resistant to glyphosate herbicide that can be sprayed directly for weed control resulted in a revolution in the production of corn, soybeans, and cotton. Unfortunately, weeds are now emerging that are resistant to glyphosate. Pigweed has been an especially bad actor that can grow 7 or 8 centimeters in a day, reach heights of 2 meters, and with stalks so thick and strong that they can damage harvesting machinery.”

[12.1: Pigweed's Revenge](#)

[12.2: The Biosphere](#)

[12.3: Cells - Basic Units of Life](#)

[12.4: Metabolism and Control in Organisms](#)

[12.5: Reproduction and Inherited Traits](#)

[12.6: Stability and Equilibrium of the Biosphere](#)

[12.7: DNA and the Human Genome](#)

[12.8: Genetic Engineering](#)

[12.9: Biological Interaction with Environmental Chemicals](#)

[12.10: Biodegradation](#)

[12.11: Production of Food and Fiber by the Biosphere - Agriculture](#)

[12.12: Agricultural Applications of Genetically Modified Organisms](#)

[12.13: The Anthrosphere in Support of the Biosphere](#)

[12.14: Livestock and their Wastes](#)

[Questions and Problems](#)

[Supplementary References](#)

---

This page titled [12: The Biosphere and the Role of Green Chemistry in Feeding a Hungry World](#) is shared under a [CC BY-NC-SA 4.0](#) license and was authored, remixed, and/or curated by [Stanley E. Manahan](#).