Fertilizer Encyclopedia Article

Fertilizer

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Fertilizer

Any substance that is applied to land to encourage plant growth and produce higher crop yield. Fertilizers may be made from organic material—such as recycled waste, animal manure, compost, etc.—or chemically manufactured. Most fertilizers contain varying amounts of **nitrogen**, **phosphorus**, and potassium, inorganic nutrients that plants need to grow.

Since the 1950s crop production worldwide has increased dramatically because of the use of fertilizers. In combination with the use of pesticides and insecticides, fertilizers have vastly improved the quality and yield of such crops as corn, rice, wheat, and cotton. However overuse and improper use of fertilizers have also damaged the **environment** and affected the health of humans, animals, and plants.

In the United States, it is estimated that as much as 25% of fertilizer is carried away as **runoff**. Fertilizer runoff has contaminated **groundwater** and polluted bodies of water near and around farmlands. High and unsafe nitrate concentrations in drinking water have been reported in countries that practice intense farming, including the United States. Accumulation of nitrogen and phosphorus in waterways from chemical fertilizers has also contributed to the eutrophication of lakes and ponds. Ammonia, released from the decay of fertilizers, causes minor irritation to the respiratory system.

While very few advocate the complete eradication of chemical fertilizers, many environmentalists and scientists urge more efficient ways of using them. For example, some farmers use up to 40% more fertilizer than they need. Frugal applications—in small doses and on an as-needed-basis on specific crops—helps reduce fertilizer waste and runoff. The use of organic fertilizers, including **animal waste**, crop residues, or grass clippings, is also encouraged as an alternative to chemical fertilizers.

See Also

Cultural Eutrophication; Recycling; Sustainable Agriculture; Trace Element/Micronutrient