Fertilizer and Nitrogen

⇨ 1 billion tons of artificial nitrogen fertilizer used annually.

⇨ Emissions of concern:

~Direct atmospheric effects: CO_2(from production of fertilizer using fossil fuels), NOx. (fertilizers that use nitric acid or ammonium bicarbonate result in emissions of nitrogen oxides, nitrous oxide, ammonia and carbon dioxide into the atmosphere.)

~Indirect: Phosphorus in excess causes eutrophication of lakes

⇨ Soil acidification

⇨ Issue of water runoff from crops, and leaching into groundwater..... Nitrate (NO_3^-)

~ levels of above 10ppm in groundwater can cause "blue baby syndrome"

⇨ About 70% - 80% of agricultural greenhouse-gas emissions are from the production and use of nitrogen fertilizers.

⇨ Influences on Nitrogen Cycle...

⇨ The paradox of nitrogen

~the atmosphere is 78% N, and life needs it to function, yet if there is too much of a certain form, damage can occur.

⇨ Another type of fertilizer...

~animal manure fertilizer (releases methane, nitrous oxide, ammonia, and carbon dioxide)

⇨ Some fertilizers increase numbers and vitality of non-native pests