

**Source:**

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In amino acids, RNA and DNA,  
Hard to get.

**Used in:**

- Heme
- Nucleic Acid
- [\[KBe20bio101refBacteria\]](#)
- Amino Acids

*Nitrogen Fixing*

Cannot use  $N_2$  (*nonreactive nitrogen*) in the air. We need to somehow “fix” it.

**Where it comes from**

20bio201srcWorldNitrogenSource.png

**Half from Bacteria | Biological**

- [\[KBe20bio101refBacteria\]](#)
- Diazotrophs (bacteria which have Nitrogenase)
  - Symbiotic bacteria in the soil with legumes
    - That’s why legumes have more protein, because they have more available nitrogen.
    - Nitrogenase!
  - Urine -> urea -> lots of ammonia -> good for plants / cows maybe?

**Half from industrial nitrogen fixation | Industrial**

- Haber-Bosch process
  - Invented by the same guy who invented poison gas / chemical weapons
  - Without it, we wouldn’t be able to feed around a third of the current population.