Humans, animals and plants all need nutrients to survive. Nutrients can be 'macronutrients' - because these are needed in greater quantities - such as nitrogen (N), phosphorus (P), potassium (K), calcium (Ca), sulphur (S) and magnesium (Mg) or 'micronutrients' such as zinc (Zn), copper (Cu), iron (Fe), boron (B), and molybdenum (Mo) because they are needed in lesser quantities.

Humans consume crop and animal products for nourishment while crops get most of their nutrient requirements from the soil. However, many soils do not provide all the nutrients in quantities needed by the crops. Soil nutrients removed by continuous cropping must be replaced through the addition of nutrient sources, such as fertilizers.

Fertilizers are any solid, liquid or gaseous substances containing one or more plant nutrients in known amount, that is applied to the soil, directly on the plant (foliage) or added to aqueous solutions (as in fertigation) to maintain soil fertility, improve crop development, yield and/or crop quality.

The purpose of fertilizer use, especially for higher yields, is identical in temperate and tropical climates:

- to supplement the natural soil nutrient supply and build up soil fertility in order to satisfy the demand of crops with a high yield potential;
- to compensate for the nutrients exported by the harvested products or lost by unavoidable leakages to the environment in order to maintain good soil conditions for cropping.
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Fertilizers are classified into two major forms:

- organic,
- mineral/manufactured.

Manufactured fertilizers are classified according to different criteria as follows:

- Number of nutrients
  - **single-nutrient** or **straight fertilizers** (whether for macro or micronutrients)
    - examples:
      - urea (46-0-0),
      - triple superphosphate (0-46-0), muriate of potash (0-0-60), zinc/iron chelates, boric acid, etc.
  - **multi-nutrient/compound** (multiple nutrients) fertilizers, with 2, 3 or more nutrients
    - examples: compound fertilizers (15-15-15), diammonium phosphate (18-46-0), monopotassium phosphate (0-47-31), etc.

- Type of combination
  - **mixed fertilizers** or ‘bulk-blends’ are physical mixtures of two or more single-nutrient or multi-nutrient fertilizers;
  - **complex fertilizers** are products in which two or more of the nutrients are chemically combined (e.g. nitrophosphates, ammonium phosphates).

- Physical condition
- **solid** (crystalline, powdered, prilled or granular) of various size ranges;
- **liquid** (solutions and suspensions);
- **gaseous** (liquid under pressure, e.g. ammonia).

Nutrient release
- **quick-acting** (water-soluble and immediately available);
- **slow-acting** (transformation into soluble form required, e.g. direct application of phosphate rock);
- **controlled-release** by coating;
- **stabilized** by inhibitors.

The principles of the right use of nutrient source, rate, time and place form the minimum basis of any local nutrient stewardship system. Best management practices must be applied to all of these areas to achieve local economic, social and environmental goals.