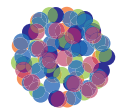


F10 FERTILISERS

GROWING SMART



**CHEMICAL
INDUSTRIES**
RESOURCE PACK

Photograph showing a soybean test plot demonstrating the improved growth obtained with the addition of potash.



Source: USGS Photograph courtesy of the Potash and Phosphate Institute.



Photograph: Elvera Viljoen



Ginger, prickly pear, sweet potato, cherries, oranges, kiwi, tomato, onion, leek and other fruits & vegetables

Technological developments

Research is constantly being conducted to improve crop yields and the efficiency of fertiliser usage. Precision agriculture uses Global Positioning System technology, intensive soil testing, and computer-controlled fertiliser application equipment to determine nutrient requirements and to apply precisely those materials as determined by the data. This reduces excess application of fertilisers and minimises nutrient deficiencies that may be neglected in a less rigorous fertiliser application plan.

Genetic research has developed crop varieties that increase yields without requiring comparable increases in fertiliser requirements. New strains of crops are also being developed that are resistant to insects and specific herbicides and have increased nutritional value for people and animals.



DID YOU KNOW?

Nitrogen is an essential element which is needed in large quantities for plant growth. It is required for the formation of proteins, chlorophyll and nucleic acids. Plants suffering from nitrogen deficiency become stunted with yellow leaves.

General suggestions for applying lime and fertiliser

Soil pH

There is a correct soil pH range for all plants. When the soil pH is either below or above this range, nutrient uptake is reduced and plant performance is hurt. Therefore apply only the recommended amounts of lime (to increase the soil pH) or sulfur (to lower the soil pH).

Nitrogen

1. Do not apply much more than is recommended. Excess N makes plants more succulent and susceptible to disease.
2. Too little N reduces plant vigour and growth, and reduces the uptake of most other nutrients.
3. Grasses (don't forget that maize is also a grass) tend to need more N than other plants. However, where possible, it is usually best to split the total N recommendation into multiple, smaller applications spaced throughout the growing season.

Potassium, magnesium, and calcium

1. These three elements tend to compete with each other for uptake by the plant. An excess of one can suppress the uptake of the others.
2. Calcium (Ca) and magnesium (Mg) are contained in lime, so most soils with a pH between 6.0 and 7.0 will have adequate amounts for plant growth. However, acid-loving plants such as rhododendrons, azaleas, some conifers, blueberries, and others may need Ca or Mg from fertiliser sources, since lime may not be an option.
3. Application rates that are significantly higher than the recommended dosage have the potential for causing salt damage to the plants. This is true especially for potassium fertilisers.

This material was obtained from the website www.spectrumanalytical.com. Learners - if you use any part of it you need to write it in your own words and include the following in your reference list: Spectrumanalytical.com. 2010. Fertiliser and lime applications. [Online]. Available: http://www.spectrumanalytical.com/support/library/ff/Fertiliser_lime_calculations.htm [1 July 2010].

DID YOU KNOW?

Foliar feeding is the spraying of a water soluble fertiliser onto the leaves of a plant and is an alternative source of nutrition for the plant.



Healthy cabbage plants



Peaches

The acidifying effect of fertilisers can be neutralised through the application of lime. Some fertilisers, such as urea, initially raise the pH of the soil, but the longer term effect is an increase in soil acidity.

Liquid vs Solid?

Liquid and solid fertilisers serve different purposes so you need to know what you want to achieve before you select your fertiliser.

The purpose of liquid fertilisers is to provide direct nourishment for your plants, not to provide the soil with micro organisms. Types of potent liquid fertilisers include fish, kelp, or seaweed emulsion and compost or manure 'tea'. Liquid fertilisers provide a quick nutrient boost and stimulate fast plant growth, but they are a temporary measure.

The purpose of solid fertilisers is to provide nourishment for the microherd, the soil organisms that drive your soil's life processes, not the plants. Consequently, solid organic fertilisers are called 'slow release' because it is the action of the microherd that breaks them down and releases the nutrients in a form the plants can use. Solid fertilisers provide slow, steady growth, which is the best kind for sturdy, healthy plants.

This material was obtained from the website www.bettergardeningtips.com. Learners - if you use any part of it you need to write it in your own words and include the following in your reference list: Rossi, C. 2009. Hydroponics gardening. [Online]. Available: <http://www.examiner.com/x-49165-SF-East-Bay-Organic-Gardening-Examiner-y2010m6d8-Fertiliser-facts-liquid-or-solid> [1 July 2010].