

# Choosing Soil & Farm Fertility products...

Use this sheet to help you assess & choose any fertility products you may encounter as you try to improve your property's fertility...

## Step 1 – Determine your clear need for a product?

**A – To lift overall soil fertility – Go to Step 2**

**B – To manage a major soil constraint – Go to Step 3**

**C – To lift the level of short or mid-term fertility – Go to Step 4**

**D – To increase the level of biological organisms in the soil – Go to Step 5**

**E – To stimulate the biological processes of the soil – Go to Step 6**

## Step 2 – Lifting overall soil fertility

Overall Fertility is the total level of nutrients that a soil contains. It includes the soluble nutrients along with those in minerals and the soil's organic matter. In some cases you may want to lift the overall fertility by adding fertility inputs. The three main types of fertility inputs that are used for lifting Overall Fertility are:

1. **Mineral Fertilisers** (also known as Rock Dust, Basalt Dust or Remineralisation Products). There are a range of mineral products with a range of nutrients in them. Depending on what minerals you have added these can increase the levels of various nutrients in the soil. See the *Mineral Inputs Factsheet* for details on a wide range of products on the market.
2. **Soluble Fertilisers**. Also known as chemical fertilisers, these include a wide range of nutrient fertilisers.
3. **Compost/Manures**. These are sometimes added with the intention of lifting the overall level of nutrients in the soil.

## Step 3 – Managing Major Soil Constraints

There are a number of key soil properties which, when out of balance in a soil, may lower the function and cycling of the soil. These imbalances are known as *Soil Constraints*. Sometimes inputs can help manage these constraints. These are known as *Soil Ameliorants*. See the Table below for the various inputs that can help in dealing with the major soil constraints:

Soil Constraint	Input Options
Soil pH	Lime, Dolomite, Sulphur, Organic Matter
Exchangeable Aluminium %	Lime, Dolomite
Soil Sodicity	Gypsum, Organic Matter, Compost
Salinity	Organic Matter, Compost
Organic Matter	Organic Matter, Compost, Pastures, Manures, Cover Crops
Compaction	Organic Matter, Compost, Pastures, Manures, Cover Crops
Carbon to Nitrogen Imbalance	Nitrogen fertiliser, Legumes or Organic Matter
Nutrient Cycling Capacity	Organic Matter, Compost, Bio-Inoculants, Bio-stimulants, Pastures

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## Step 4 – Lifting nutrient fertility levels for short or mid-term plant growth

If you determine you need nutrients for short or mid-term enterprise productivity you can use a *Fertiliser* to lift soil fertility levels and improve plant growth. The main types of *Fertiliser* products are:

1. **Soluble Fertilisers** that have quick supply nutrients in them. They may have efficiency issues or cause soil health issues if not used properly.
2. **Mineral Fertilisers** that have low soluble, slow release nutrients in them. They may have responsiveness issues if not used properly.
3. **Transition Fertilisers** that are a blend of both mineral and soluble nutrients in them.
4. **Biological Fertilisers** that have a moderate rate of nutrient release that may have responsiveness issues if not used properly.

You also need to think about what *form* of fertiliser is best for your situation.

1. **Solid Prills/Granules**
2. **Solid Powders/Bulk materials**
3. **Liquids** – dissolved salts
4. **Liquids** – suspended solids

## Step 5 – Increase the level of biological organisms in the soil

If you have identified that the soil has a lower than optimal number of organisms present, usually microbes, then you can use a *Bioinoculant* product to help build levels up:

1. **Single strain** – single purpose: these products contain a single species of microbe that has a particular role.
2. **Multi-strain** – single purpose: these products contain multiple species of microbes that have a particular role.
3. **Multi-strain** – multi purpose: these products contain multiple species of microbes that have multiple roles.

Another important organism that can be applied to paddocks are Dung beetles.

## Step 6 – Stimulate the biological processes already in the soil

If you have identified that the soil has a lower than optimal level of biological process occurring then you may want to apply a *Biostimulant* to improve soil processes such as nutrient cycling, root activity and organic matter decomposition. Product choices include:

1. **Microbial food** such fish and molasses that feed the soil microbes
2. **Signal compounds** that trigger plant root activity or microbial growth. These products may include humic acids etc.

***Remember that identifying the correct soil/fertility issue will help you invest resources effectively!!***