

Fertilizer Chooser App Help

The app requires the user to perform six steps. Entered data is stored and can be edited and converted (i.e., metric to imperial units, tree crop (mass/tree) to annual crop (mass/unit area), oxide to elemental nutrients).

Step 1. Settings

1. Touch the **measurement system** box and select *either* Metric (SI) (for hectares, tree/ha, kg/tree, kg/ha), *or* Imperial (US) for acres, tree/ac lb/tree, lb/ac).
2. Touch the **Crop type** box and select *either* Annual crop (recommendations in mass unit/unit area) *or* Tree crop (recommendations in mass unit/tree).
3. Touch the **Crop name** box and enter the crop name.
4. Touch the **Currency** box and select a currency.
5. Touch the **Select other nutrient** box and choose *either* B, Cl, Cu, Fe, Mn, Mo, S *or* Zn.
6. Touch the **Nutrient content box** and choose *either* oxide (N, P₂O₅, K₂O, MgO, B, Cl, Cu, Fe, Mn, Mo, S *or* Zn) *or* Elemental (N, P, K, Mg, Cl, Cu, Fe, Mn, Mo, S *or* Zn)

Previously entered recommendations and minimal doses will be recalculated accordingly and the optimization will use the selected units.

Step 2. Fertilizer Materials

Standard fertilizers, with a nominal price and standard nutrient contents, are included when you purchase the app.

- Make each fertilizer *either* available *or* unavailable using the switch button.
- Add a new fertilizer by touching the [Add](#) button.
- Edit each fertilizer *either* by sliding the fertilizer to the left (iOS), *or* holding and then pressing 'edit' (Android).
- Enter the **latest** fertilizer cost including freight (CIF), and the storage and application cost in currency units per ton or tonne.
- Change the nutrient content, by touching the **Nutrient box**, selecting the nutrient and entering the nutrient content.
- 'Discount' the nutrient content (e.g., for rock phosphate, dolomite and N fertilizers containing urea) by entering the relative agronomic effectiveness in the RAE (%) box. The app then uses the discounted nutrient content in all calculations.
- Add a new nutrient content by selecting the nutrient, entering the content and RAE and touching the [Add](#) button.
- Delete nutrient content by pressing the delete button (x).
- Delete the fertilizer by pressing the [Delete](#) button.

Step 3. Recommended Rates

Enter the fertilizer recommendations as either elemental or oxide mass/unit area or mass/tree, depending on your selections in [Settings](#). If 'Tree crop' has been selected in [Settings](#), enter the planting density (tree/unit area). The app immediately calculates the equivalent amount as standard fertilizers (urea, TSP, KCl, kieserite) for comparison.

Step 3. Minimum Doses

Enter up to three minimum doses by selecting a fertilizer material (all fertilizers are listed) and entering a recommendation in (mass/unit area or mass/tree).

If you recommend minimum doses such that the total nutrient supply exceeds the recommendation, the [Optimization](#) routine will return an error warning.

Step 4. Crop Performance

- Use the button to turn the fertilizer efficiency calculations 'on' or 'off'.
- Enter the expected Unfertilized crop yield, Fertilized crop yield, Unfertilized crop dry matter content, Fertilized crop dry matter content

- Enter the **latest** crop price.

Step 5. Optimization

The app determines the least costly combination of fertilizers marked as available (after allowing for minimum doses).

The app also calculates:

- Number of fertilizer materials required.
- Total fertilizer cost (Currency units/unit area).
- Total fertilizer requirement (*either* mass/tree and mass/unit area for tree crops *or* mass/unit area for annual crops).
- Total nutrient supplied (*either* mass/tree and mass/unit area for tree crops *or* mass/unit area for annual crops).
- Amount, cost and nutrient contribution of each recommended fertilizer material.

The app also calculates fertilizer efficiency indices and ratios:

- Crop response (incremental crop mass/unit area).
- Crop response value (monetary value of crop response in currency units/unit area).
- Average fertilizer cost (currency units/kg fertilizer)
- Average nutrient cost (currency units/kg oxide *or* element) depending on selections made under **Settings**).
- Output/nutrient ratio or 'agronomic efficiency' (ratio of incremental dry matter yield to nutrient element *or* oxide application (depending on selections made under **Settings**)).
- Ratio of price of **fertilizer** to price of crop product
- Ratio of price of **nutrients** (oxide or element) to price of crop product (depending on selections made under **Settings**).
- Value to cost ratio (ratio of additional value of incremental yield to cost of fertilizers).
- Break-even crop response (amount of additional crop yield (mass/unit area) required to cover the cost of fertilizer).

A comprehensive report, including all settings and assumptions can be shared by email by touching [Email result](#).

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