

# What are the differences between mineral fertilizers?



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## Words Explained

**Accidifying:** To make something acid. When something is made acid the pH is lowered.

**Acidic soils:** Soils where the pH is low

**Alkaline soils:** Soils where the pH is high

**Fertilizer:** Something added to the soil to help the plants grow

**Harvest:** Gathering the crops from the field

**Leaching:** Washing away of nutrients from the soil

**Mineral fertilizer:** NPK blends you buy at the agrovet or shop

**Nutrients:** Tiny particles in the soil that a crop needs as food

**Organic fertilizer:** Natural materials that contain nutrients like crop parts, compost or manure

**pH:** A condition of the soil that influences whether your crop can access the nutrients in the soil



Field days are a great way to get to know other farmers in your area and learn more about new products and how they work.



Now, we all know we need to add nutrients to our field, yes?

Yes! To feed our crops properly and make them grow stronger and taller.



You need to add extra nutrients to your field because when you harvest you take away nutrients that were in the soil at the beginning.





Nutrients are tiny particles in the soil that your crop needs as food. Some nutrients your crop needs a lot of, others less. Nutrients your crop needs lots of are called macro nutrients. Nutrients your crop needs less of are called micro nutrients.



So how do you know which nutrients are in which bag?

N = NITROGEN

P = PHOSPHORUS

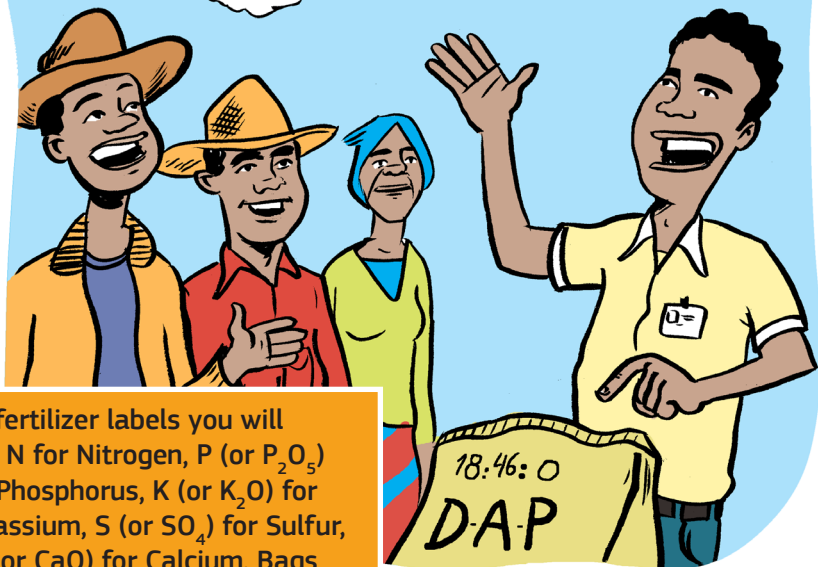
K = POTASSIUM

S = SULFUR

Ca = CALCIUM

MICRONUTRIENTS

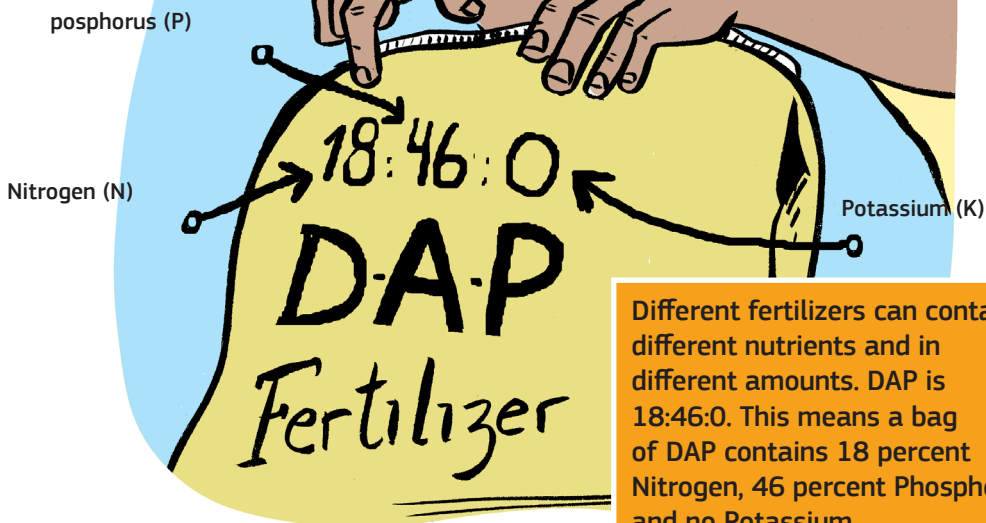
You can look at the label on the bag. All the nutrients have different letters that represent them.



On fertilizer labels you will find N for Nitrogen, P (or  $P_2O_5$ ) for Phosphorus, K (or  $K_2O$ ) for Potassium, S (or  $SO_4$ ) for Sulfur, Ca (or  $CaO$ ) for Calcium. Bags can also simply show 'micro nutrients'. For example Mavuno Planting, which contains Boron, Zinc, Manganese and Copper.



The nutrients you will see most on bags is Nitrogen (N), Phosphorus (P) and Potassium (K). On the bag they show the percentages of each nutrient as a number.



Different fertilizers can contain different nutrients and in different amounts. DAP is 18:46:0. This means a bag of DAP contains 18 percent Nitrogen, 46 percent Phosphorus and no Potassium.

!



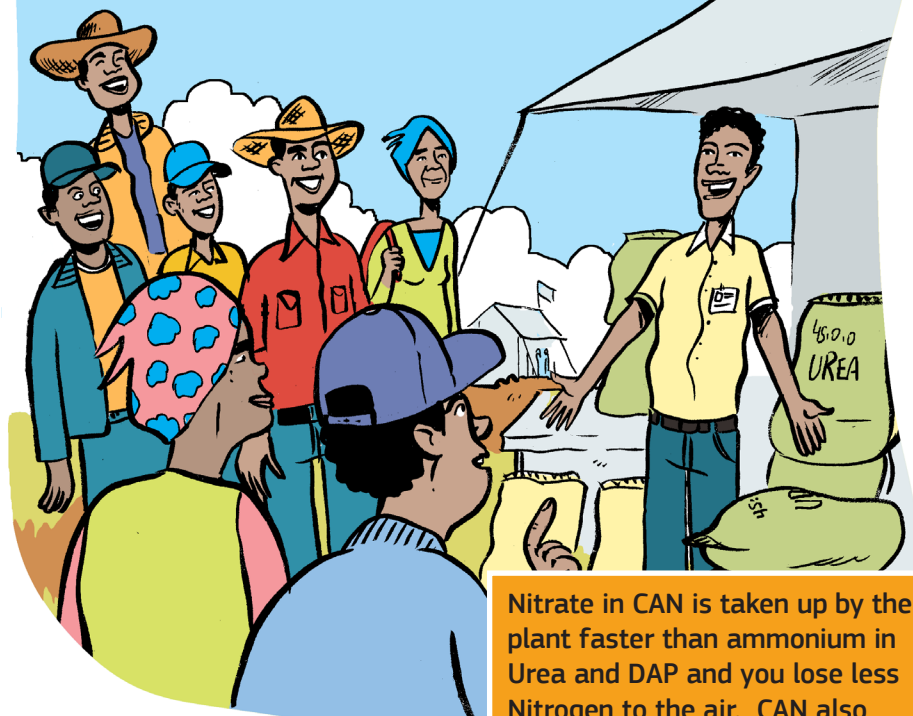
Sometimes people think NPK fertilizer is a type of fertilizer. But it is not a brand, it refers to the number you can find on the label. N (Nitrogen) : P (Phosphorus) : K (Potassium)





What is the difference between Urea, DAP and CAN?

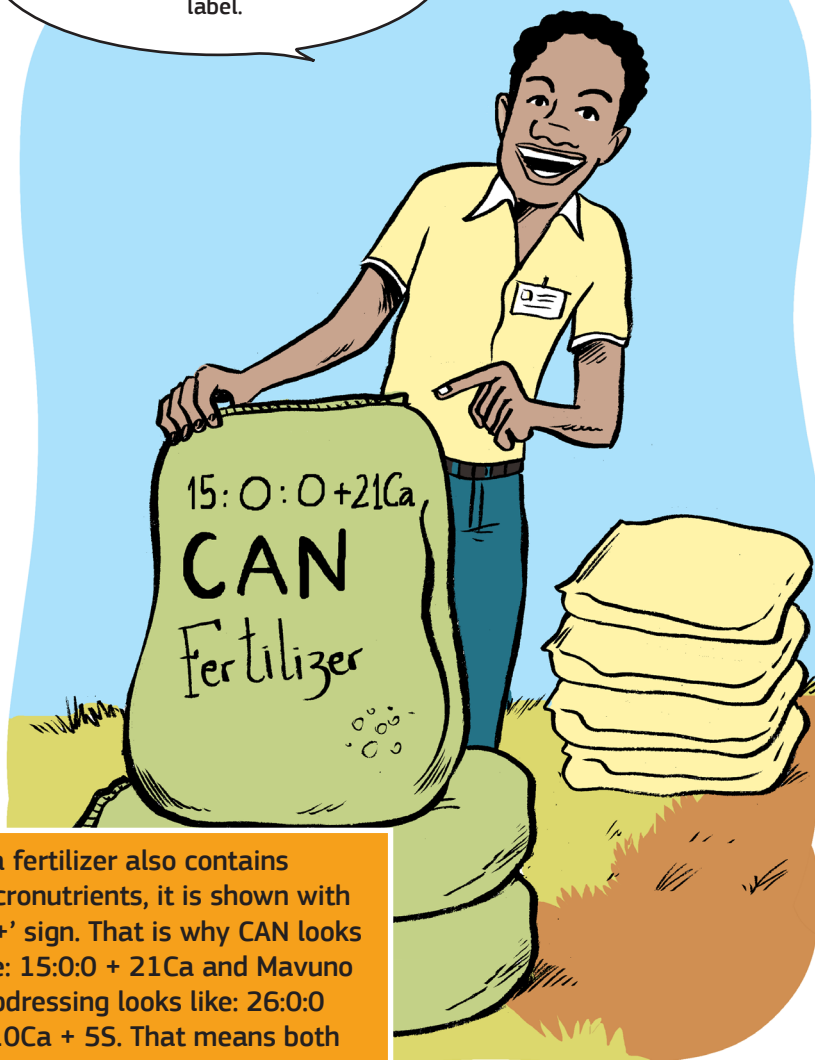
The nitrogen used in urea and DAP is in the form of ammonium while the nitrogen in CAN is in the form of nitrate.



Nitrate in CAN is taken up by the plant faster than ammonium in Urea and DAP and you lose less Nitrogen to the air. CAN also does not lower the pH of the soil as DAP and Urea do.


!

Another difference is that CAN also contains calcium. You can also see this on the label.



If a fertilizer also contains micronutrients, it is shown with a '+' sign. That is why CAN looks like: 15:0:0 + 21Ca and Mavuno Topdressing looks like: 26:0:0 + 10Ca + 5S. That means both contain Nitrogen and Calcium and Mavuno Topdressing also contains Sulfur.





Won't mineral fertilizer poison my soil?

Mineral fertilizer will not poison your soil if applied correctly. it supplies your crop with needed nutrients. Accidifying fertilizers can be a problem. That is because they lower pH.

pH is a condition of the soil that influences whether your crop can access the nutrients in the soil. In acidic soils the pH is low. In alkaline soils the pH is high. When the pH is low it becomes harder for your crop to take up nutrients from the soil.



Fertilizers like DAP and Urea contain ammonium which is acidifying. This might be good on alkaline soils with a high pH. But on acidic soils with a low pH it means it is harder for the crop to take up nutrients from the soil.

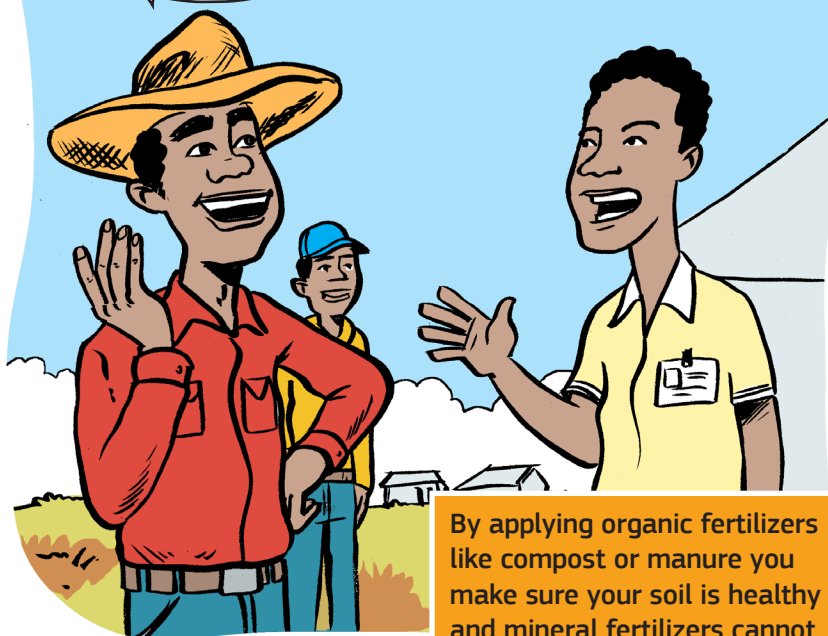


If you only apply mineral fertilizers like DAP and Urea, your soil in the end might become so acidic your crop would no longer be able to take up nutrients. Monitoring the pH of your soil is very important.



If acidity is a problem in your soil, you should use non-acidifying fertilizers like CAN and apply lime to raise your soil's pH. Regular applications of organic fertilizer like manure or compost also help to balance the soil's pH.

So how do we make sure the mineral fertilizer won't acidify our soils?



By applying organic fertilizers like compost or manure you make sure your soil is healthy and mineral fertilizers cannot easily make the soil acidic when you add them.



Perfect! My SoilCares report tells me what I need. Can I have 2 bags of CAN and 1 bag of Mavuno 25:5:5+5S please?

Of course! here you go. Good luck with your farm!



New fertilizer blends, like Mavuno, better meet the actual need of soils and crops by providing the right balance of nutrients and micro nutrients.



# Colophon

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This booklet explains the differences between mineral fertilizers by explaining what nutrients are present in different types of fertilizer and how you can read the labels on the bag.

Through these training booklets SoilCares Foundation wants to show you how to take care of your soil – so the soil can take care of you.

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4. How and why should I apply fertilizer?
5. What are the differences between mineral fertilizers?

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