

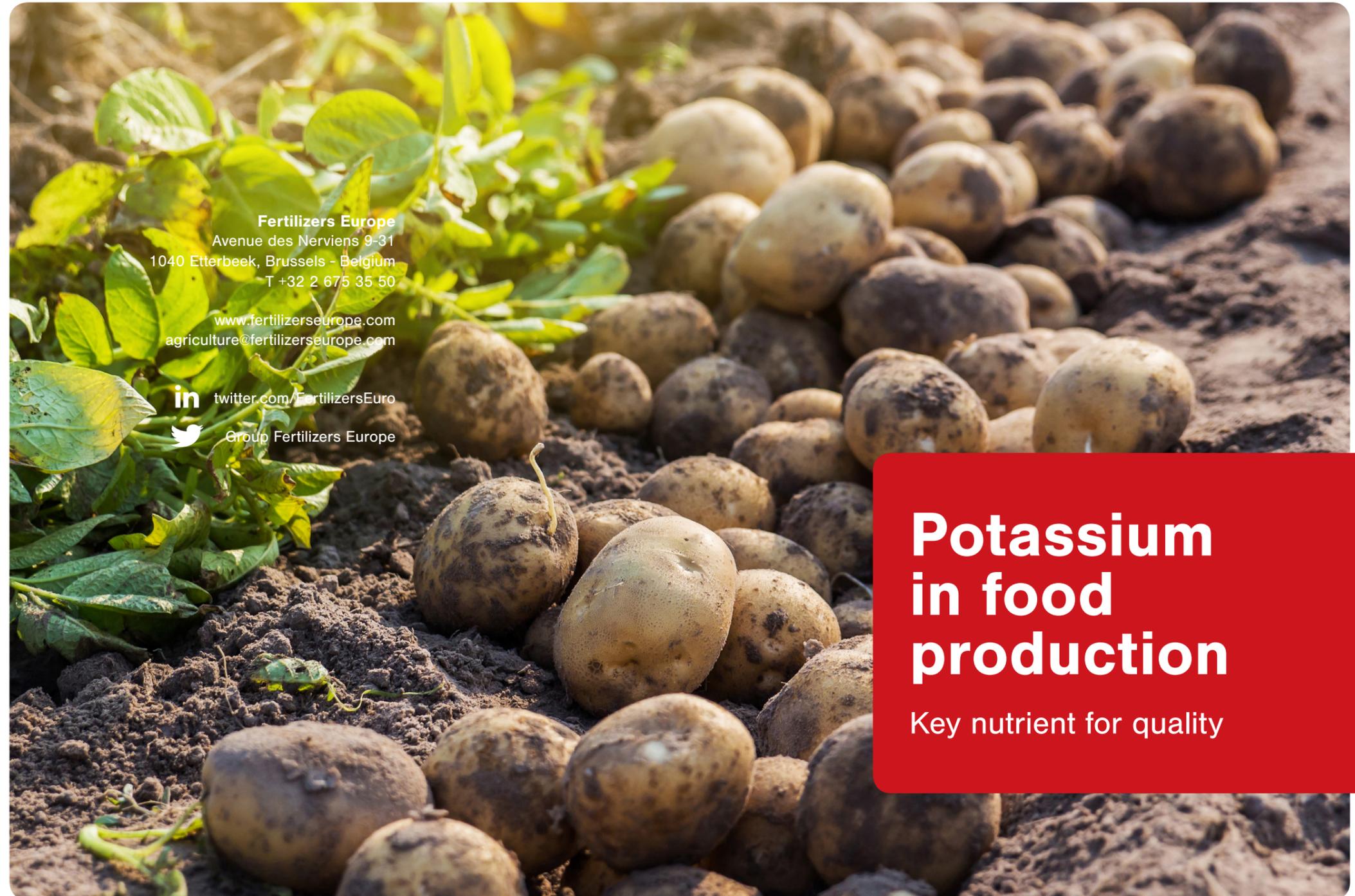
Balancing crop nutrition for healthy crops and fertile soils.

A good crop feeding strategy at farm level can be achieved with a balanced supply of the main nutrients needed. Balanced nutrition is essential to help crops reaching high yields and quality, moving towards a crop's maximum genetic potential.

Balanced plant nutrition is a vital element of sustainable crop and soil management.

The importance of balanced nutrition is clearly evident with potassium, due to its close interactions with nitrogen, both in uptake through the roots and utilisation within the plant. A shortage of potassium will not only result in lower nitrogen use efficiency, but will also lead to greater drought susceptibility, increased lodging, a reduction in photosynthesis and restricted movement of water, nutrients and sugars within the plant. So the use of potassium at a correct rate is good both for farm economics and the environment.

A fertile soil has the capacity to retain a reserve of essential nutrients for the crops, including potassium. This nutrient retention capacity of the soil depends from the presence of clay particles and from the soil organic content. In particular, potassium is retained in soil by being held between clay particles; light soils usually contain only little potassium. It is therefore important to adapt the fertilization practices to the soil type.



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Potassium in food production

Key nutrient for quality

Did you know?

Is present in all crops grown for food and helps plants **resist lodging**. This is due to its impact on cell wall stability, osmosis and turgor pressure.

K

K

Promotes a high concentration of sugars in cells making fruits sweeter. It is crucial for **high yielding crops**.

K

Acts as an antifreeze agent, and results in **improved frost tolerance**. This is particularly helpful for winter crops.

K

Helps **balance crop growth** with nitrogen, ensuring healthier crops.

K

Is instrumental in regulating the amount of water within crops and therefore enabling them to be **drought resistant**.

Potassium **K**

Potassium sources available to farmers

Farmers cannot profitably grow food without potassium.

Unlike other nutrients which first need to be transformed by the soil, potassium is readily available for uptake by plants. If managed well, livestock manures can be a valuable source of potassium. The nutrient content has also to be evaluated so that slurry can be spread at the correct rate to cover crop's needs. Today, as farms are more specialised in crop or livestock production, many farmers have no animals and therefore they must consider the use of potassium fertilizers.

To ensure sufficient potassium sources, a good management of crop residues is necessary. The remaining potassium in the crop residues, which are not harvested (e.g. straw), is generally being taken up from the soil by the growing crop and is returned when the residues are incorporated. Potassium will then be available for use by the following crop.

Beyond these sources, potassium is also available in a range of mineral fertilizers, which are now and again combined with other nutrients. Potassium chloride, known as muriate of potash, accounts for about 95% of all mineral potassium fertilizers used in agriculture.

Mineral fertilizers containing Potassium have several advantages:

- Guaranteed content and availability
- Easy spreading for greater application precision
- Choice of single nutrient potassium fertilizers or often used in mixtures of NPK fertilizers balanced to meet crop needs

“Potassium can play an important role in improving nitrogen use efficiency (NUE) bringing environmental benefits in addition to yield, plant vigour and lodging resistance benefits” PDA, 2019¹



Plants can use up to 500 kg of potassium per hectare in peak growth, of which only 300 kg/ha are removed with edible and usable plant parts during harvest.²

¹ Potash Development Association (PDA), Potassium for the soil and crop: the importance of getting it right, Potash news May 2019, written by Patrick J. Forrestal, Mark Plunkett, Cathal Redmond and Martin Bourke

² Potash Development Association (PDA), The role of potash in plants, Potash news May 2015, written by Ian Matts