Sulphate of Potash and Cereals
Cereals are one of the world’s most important staple crops and can be grown under various conditions.

Potash fertilization has traditionally been assured by using potassium chloride (MOP) but in semi-arid regions, such as those in Northern Africa and the Middle East, it is essential to consider the risk of soil salinization and use alternative sources of potassium. Field experiments from research centres in the area show that potassium sulphate (SOP) is well suited to cereals production.

**SOP for yield and quality**

Production of 6-7 tons of wheat per hectare requires 150-175 kg nitrogen (N), 55-75 kg phosphorus (P₂O₅) and 100-125 kg potassium (K₂O). Demand for N is constant from early spring to mid-summer while demand for K₂O is highest at the end of spring. Other nutrients such as calcium (50 kg CaO/ha), magnesium (25 kg MgO/ha) and sulphur (50 kg SO₃/ha) are also required.

Under semi-arid conditions, sustained high yields are only achievable through balanced fertilization and control of soil salinity. An experiment conducted in Algeria under desert conditions in cooperation with the Ouargla University shows that, to be most effective, any increase in the nitrogen application rate needs to be accompanied by a corresponding increase in that of potassium.

![Potassium deficiency in wheat](image1)

![Sulphur deficiency in wheat](image2)

**Effect of N and K on wheat production**

![Graph showing the effect of N and K on wheat production](image3)

Source: Ouargla University, Algeria 2004

**Effect of the form of potash on wheat production**

![Graph showing the effect of the form of potash on wheat production](image4)

Source: ARC, Egypt 2009

Another experiment from Egypt illustrates the effect of potash on yield with two different sources of potassium (SOP and MOP at 57 kg K₂O/ha). The three treatments received the same NP dressing. The accumulation of chloride as a result of the
application of MOP has a detrimental effect on yield, whereas application of SOP safeguards the yield potential.

The benefits of foliar application of SOP

Foliar spraying of soluble SOP, such as K-Leaf® from Tessenderlo Group, can be very effective when applied during the critical stages of plant development. For cereals, the highest requirement for potassium is at the grain-filling stage. This critical stage is very short, lasting just 7 to 12 days.

Foliar application of soluble SOP such as K-Leaf® is becoming very popular to complement classical mineral nutrition in intensive production systems. In the case of potassium, it stimulates the plant’s metabolism and allows better transport of assimilates to the grains. Consequently, the number of grains per head and their specific weight are improved.

In addition, foliar application of K-Leaf® can improve gluten content. It needs to be applied just before flowering and, if two applications are used, the second should be a week later.

A field experiment, carried out recently in Egypt, shows the benefit of foliar spraying of SOP on wheat production. 16 kg/ha of soluble SOP was applied in two applications to three areas with different soil conditions.

In three experiments in Argentina, foliar application of soluble SOP at 5, 7.5 and 10 kg/ha also significantly improved wheat yield in three soils rich in potassium.

Under these conditions, foliar application of SOP also improves absorption of potassium through the crop roots during the critical grain-filling stage.
Different forms of sulphate of potash available from Tessenderlo Group

Standard SOP: for direct application or for use in the manufacture of compound fertilizers.

GranuPotasse®: a granular grade ideal for bulk blending or for direct application with an even distribution on the soil.

SoluPotasse®: a highly soluble grade for fertigation.

K-Leaf®: a new fast-dissolving grade specially developed for foliar application.

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Tessenderlo Group SOP Plant Nutrition giving nature a helping hand

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