

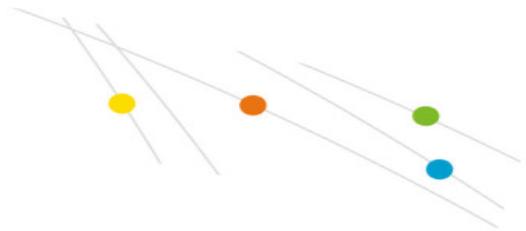
Benefits of KNO₃-based nutrition in Apple crops

Potassium nitrate: the right source for apple production



Potassium Nitrate helps to achieve this desired ratio for a balanced and efficient nutrition, increasing yield

- Improves shoot length and number of leaves
- Uptake of all-important cations K⁺, Ca⁺⁺ and Mg⁺⁺ are enhanced with nitrogen in nitrate form
- Promotes photosynthesis
- Intensifies the transport and storage of assimilates
- Improves fresh weight and dry weight



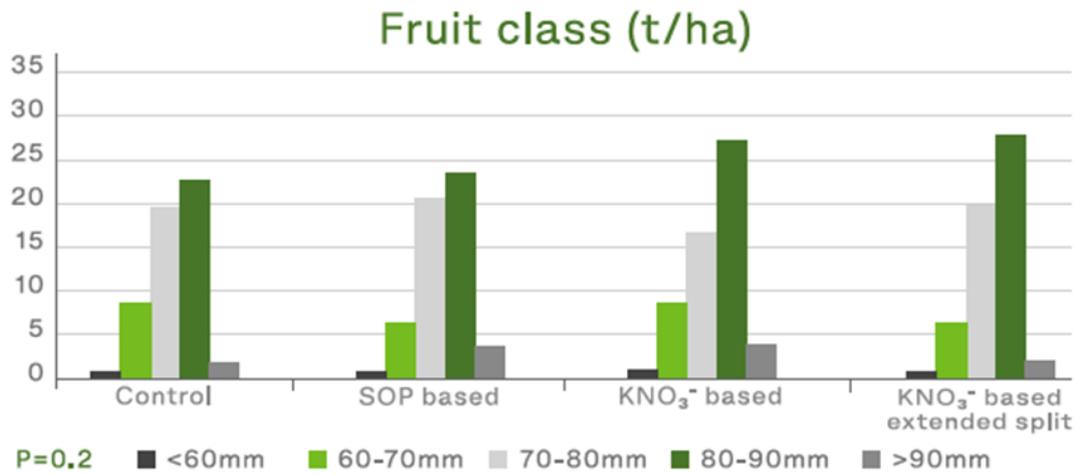
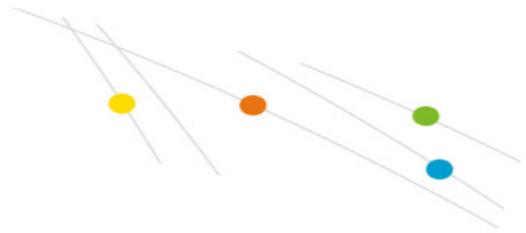
Research clearly indicates a benefit of using KNO_3 -based nutrition ($\text{NH}_4^+/\text{NO}_3^-$ ratio 0,2) as opposed to KCl or K_2SO_4 (both $\text{NH}_4^+/\text{NO}_3^-$ ratio 3,7) in supplying apple fruit trees with potassium.

K Source	$\text{NH}_4^+/\text{NO}_3^-$ ratio	New shoot length	Number of leaves	Fresh weight (g)	Dry weight (g)
KCl	3,7	35.1 ^a	27.2 ^a	6.8 ^a	2.0 ^a
K_2SO_4	3,7	37.5 ^a	25.3 ^a	6.5 ^a	1.9 ^a
KNO_3	0,2	48.6 ^a	33.1 ^b	9.9 ^a	2.7 ^b
Treat. Sig. Level		0.1333	0.0019	0.0055	0.0523

S.A. Oosthuysen, D.R. Napier and H.T. Holwerda, 2013-2014, Effect of the potassium source, either KNO_3 , K_2SO_4 or KCl , in nutrient solutions on the growth of sand-potted peach or apple nursery trees, SA Fruit Journal 13(4): 49-52.

Research in high yielding apple orchards in Poland additionally shows the possibility to manage fruit size with KNO_3 -based fertilizers. Extended split application of KNO_3 -based fertilizers in apple.

Experience showed that split application management with KNO_3 -based fertilizers allows to adapt the fertilizers schedule after unpredictable circumstances like drought, diseases or spring frost, leading to better control of the economical size of apples.

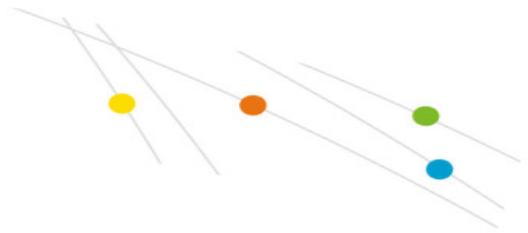


SQM research commissioned by Fertico Research Agency, 2018.

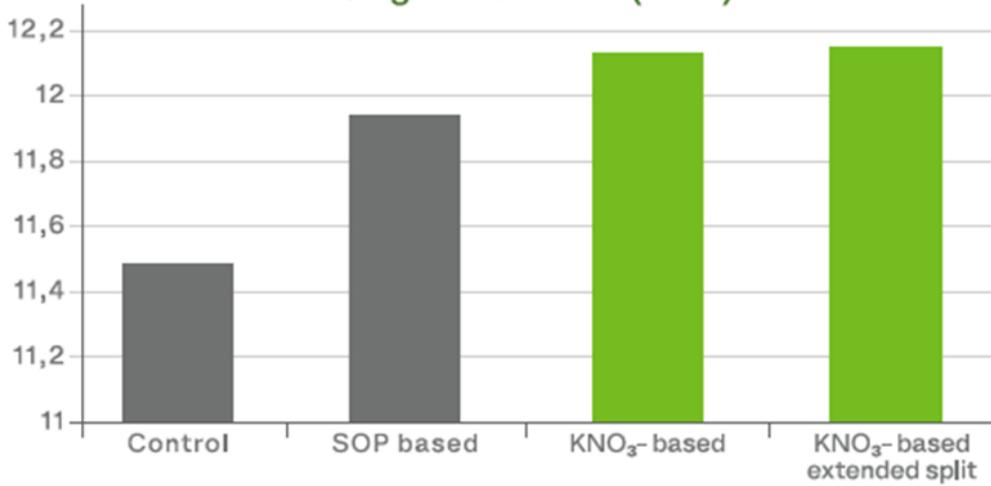
Potassium nitrate-based programs show better color, sugar content and firmness

- Improved homogeneity
- Increases firmness
- Improves skin color and visual appearance
- Improves sugar content

Use of KNO₃ as a preferred potassium source results in a more efficient uptake of potassium leading to better sugar transport to the fruit, and anthocyanin synthesis improving fruit coloration. Increased firmness can probably be related to the synergetic uptake of nitrate with both potassium as calcium.

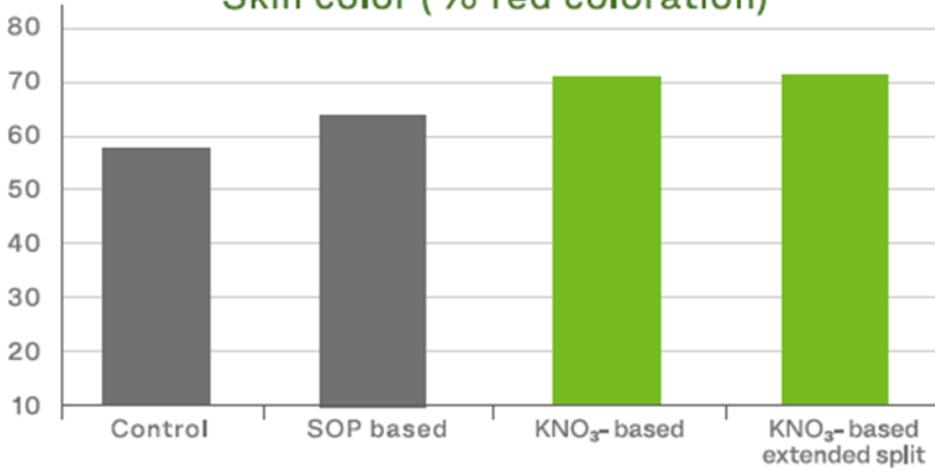


Sugar content (Brix)

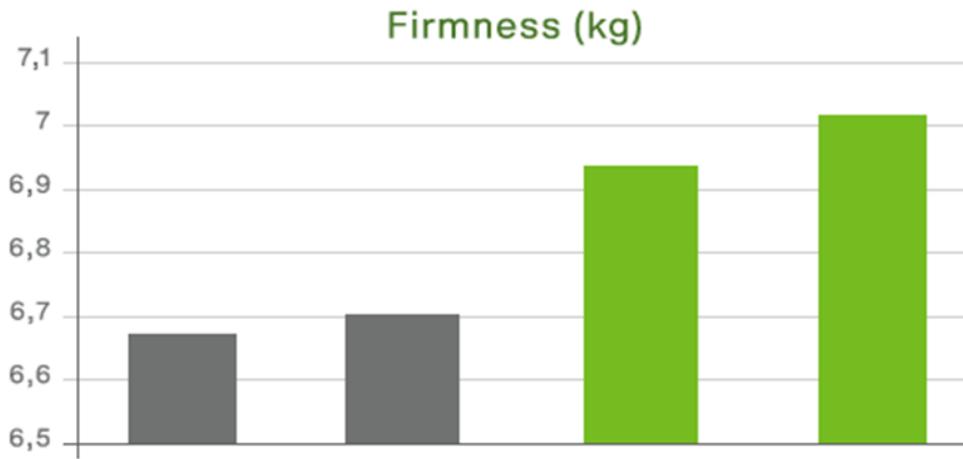
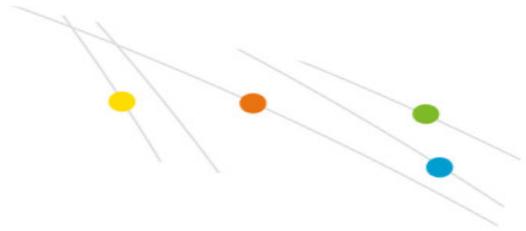


SQM research commissioned by Fertico Research Agency, 2018.

Skin color (% red coloration)



SQM research commissioned by Fertico Research Agency, 2018.



SQM research commissioned by Fertico Research Agency, 2018.
For more information consult your local SQM agronomist.