



Polysulphate
Trial

Cocoa
(*Theobroma cacao* L.)
at 4 locations in Ghana

Polysulphate fertilizer is a soluble, easily-absorbed, cost-effective answer to crop nutrition, containing four key plant nutrients: sulphur, potassium, magnesium and calcium.

S 48% SO₃
(19.2% S)

K 14% K₂O
(11.6% K)

Mg 6% MgO
(3.6% Mg)

Ca 17% CaO
(12.2% Ca)



When

2020/21 and 2021/22 cocoa seasons



Where

Four locations in Ghana



Crop

Cocoa
(*Theobroma cacao L.*)





Measurements


Dry cocoa bean yield


Mined in the UK, ICL is the first – and only – producer in the world to mine polyhalite, marketed as Polysulphate.

Polysulphate 

 fertilizers.sales@icl-group.com

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Polysulphate is a registered trademark of ICL.

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Objective

To investigate the effect Polysulphate has on the yield of mature cocoa trees and to compare it with a comparable granular NPK fertilizer which also contains calcium, magnesium, and sulfur.

Treatments

The study was conducted by the Cocoa Research Institute of Ghana (CRIG) in 2020/21 and 2021/22 cocoa seasons on farms at 4 locations: Assin Nkukuasa (Central Region), Bechem (Ahafo Region), and Konongo and New Edubiase (Ashanti Region). The trial utilized a randomized complete block design, incorporating 3 treatments and 2 replicates per location. The ages of the mixed hybrid cocoa variety trees ranged from 10 to 15 years.

Treatment 1 was the unfertilized control, treatment 2 was the reference granular fertilizer (NPK 0-22-18+9CaO+9MgO+7S) applied at 375 kg/ha per year, treatment 3 was Polysulphate granular fertilizer applied at 375 kg/ha per year. All recommended agronomic practices were followed.

Results

- Polysulphate significantly increased the two-year cumulative dry cocoa bean yield at 3 of the 4 locations.
- On average, Polysulphate increased the dry bean yield by 13.6% compared with the reference granular fertilizer and by 70.8% compared with the unfertilized control.
- Based on these results, Polysulphate is considered suitable for mature cocoa plantations at the application rate of 375 kg/ha.

