

# Unlocking N and P from calcareous soils of the Baghdad agro-ecological zone using low-cost S

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The limited availability of phosphorus (P) and high loss of nitrogen (N) in the calcareous soils of the Abu Ghraib region near Baghdad, Iraq are major constraints to Corn (*Zea Mays L.*) productivity. The present study evaluated the effects of locally-sourced, low-cost agricultural Sulphur (S) on increasing P availability and decreasing N losses in soil to improve the growth of Corn by conducting a 60-day greenhouse pot experiment. S was applied to locally-acquired calcareous soils at three levels (0, 500, 1000 kgS.Ha<sup>-1</sup>). The experimental soils were sampled at 15, 30 and 60 days from S application. Results showed that S had significant impacts on increasing the availability of N and P. At 1000 kgS.Ha<sup>-1</sup> application rate, soil N (30.81 mg.kg<sup>-1</sup>), plant N (1.52%), soil P (7.68 mg.kg<sup>-1</sup>), plant P (0.22%) and dry matter weight (76.42 g/plant) were higher than the figures for 0 and 500 kgS.Ha<sup>-1</sup> application rates. From this study, we conclude that the application of locally-derived agricultural S successfully unlocked N and P availability in soil for plant uptake by Corn (*Zea Mays L.*) plants without any fertilizer addition. Thus, widespread elemental S application is a viable and cost-effective option for producers in this region to achieve increased crop productivity by unlocking N and P without additional fertilizer inputs.