

Article title	Evaluation of dissolution of nonconventional phosphate fertilizers in Zimbabwe soils: effects of soil properties
Authors	Ephraim Govere, S.H Chien & R.H Fox
Abstract	<p>Dissolution of phosphate rock (PR) depends on inherent chemical and physical properties of the rock and on external factors such as soils and plants. The objective of this study was to investigate, with a soil incubation experiment, the relationship between selected soil factors and extractable phosphorus (P) in order to assess the potential of using nonconventional phosphate fertilizers derived from unreactive Dorowa (Zimbabwe) PR on Zimbabwe soils. Three phosphate fertilizer materials: finely ground (0.150-mm screen) Dorowa PR (DPR); DPR partially acidulated with 50 % of the sulfuric acid required for complete acidulation (PADPR); and a compacted mixture of DPR + triple superphosphate (TSP) + urea + potassium chloride (DTUK) with half of the P from DPR and half from TSP, were made from Dorowa rock. Their relative effectiveness in supplying P was compared with that of single superphosphate on soils that varied in properties thought to influence PR dissolution and P availability. The effectiveness of the P sources in supplying Bray-I P after a 40-day and Pi P after a 90-day soil incubation period followed the order of SSP>DTUK>PADPR>DPR=Check. Soils high in clay, soil organic matter, and iron oxides content yielded significantly less extractable P than soils with low content.</p>
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