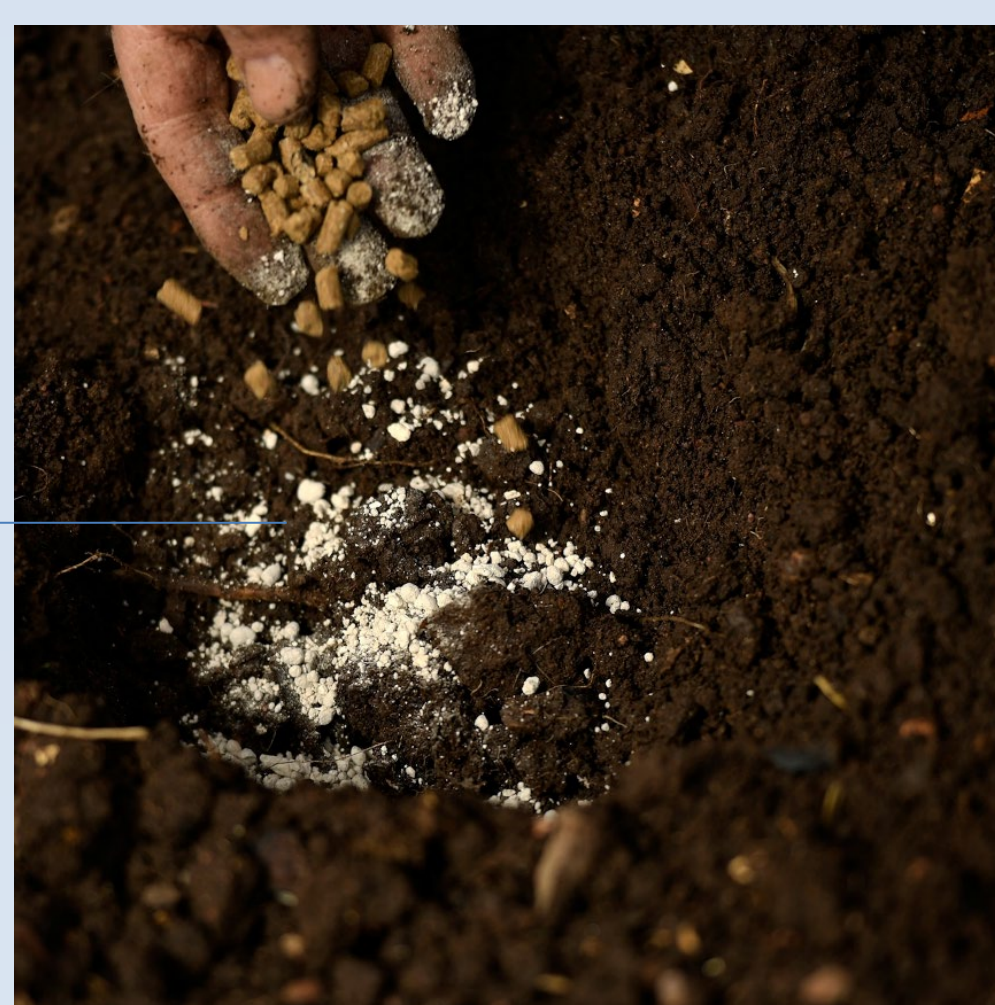
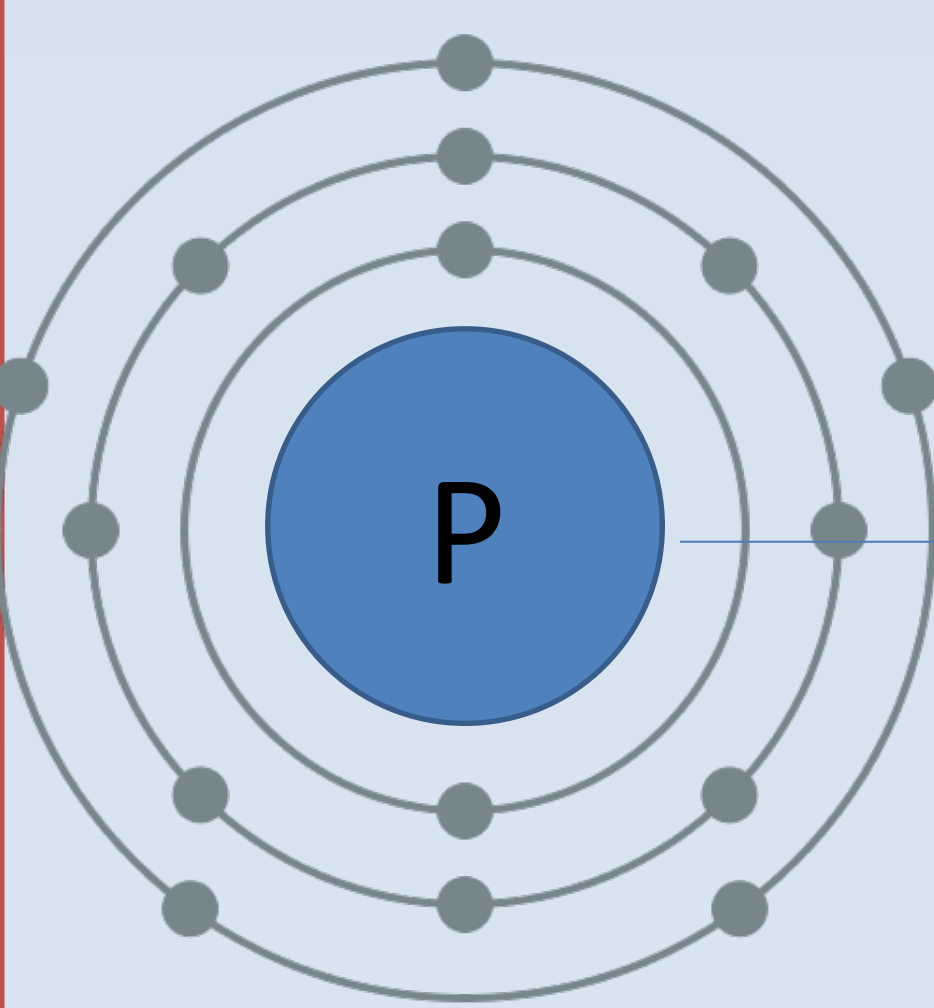


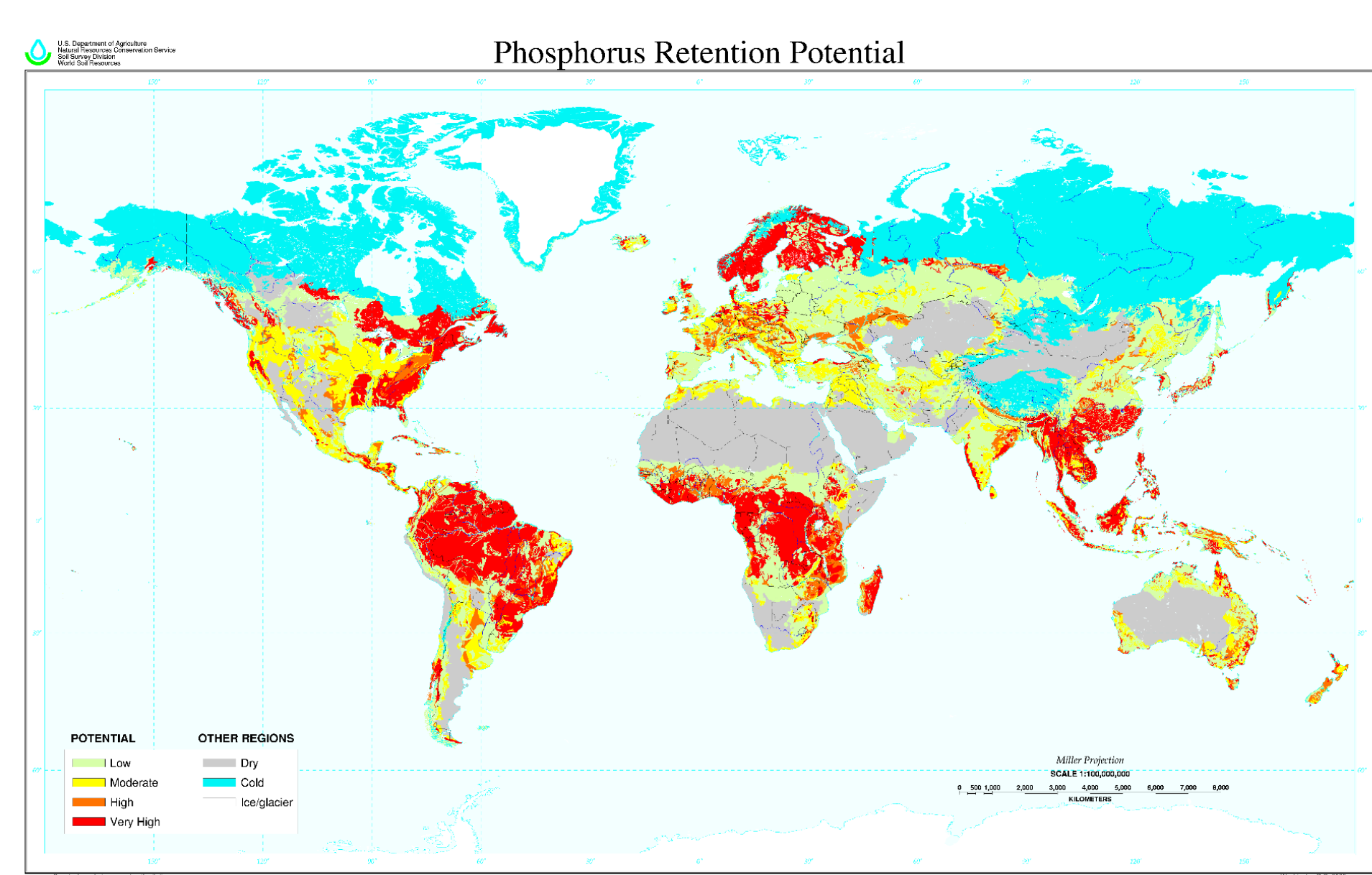
The Use of Phosphorus in Agricultural Production

Introduction

Phosphorus (P) is a naturally occurring element that can be found in the earth's crust, water, and all living organisms. P is one of 16 elements that are essential for plant growth. Typically, soils are naturally low in P, and most cropping systems on these soils require supplemental P to maximize their yield potential. Research has documented that applying fertilizer P increases crop growth and yields on soils that are naturally low in P and in soils that have been depleted through crop removal. Crop fertilization represents the greatest use of P in agriculture today.



Although the economic benefits of P fertilization on crop production are well documented, too much of a good thing can be detrimental. Excessive soil P is a potential threat to water quality.



Global distribution of Phosphorus

Phosphorus in Agriculture

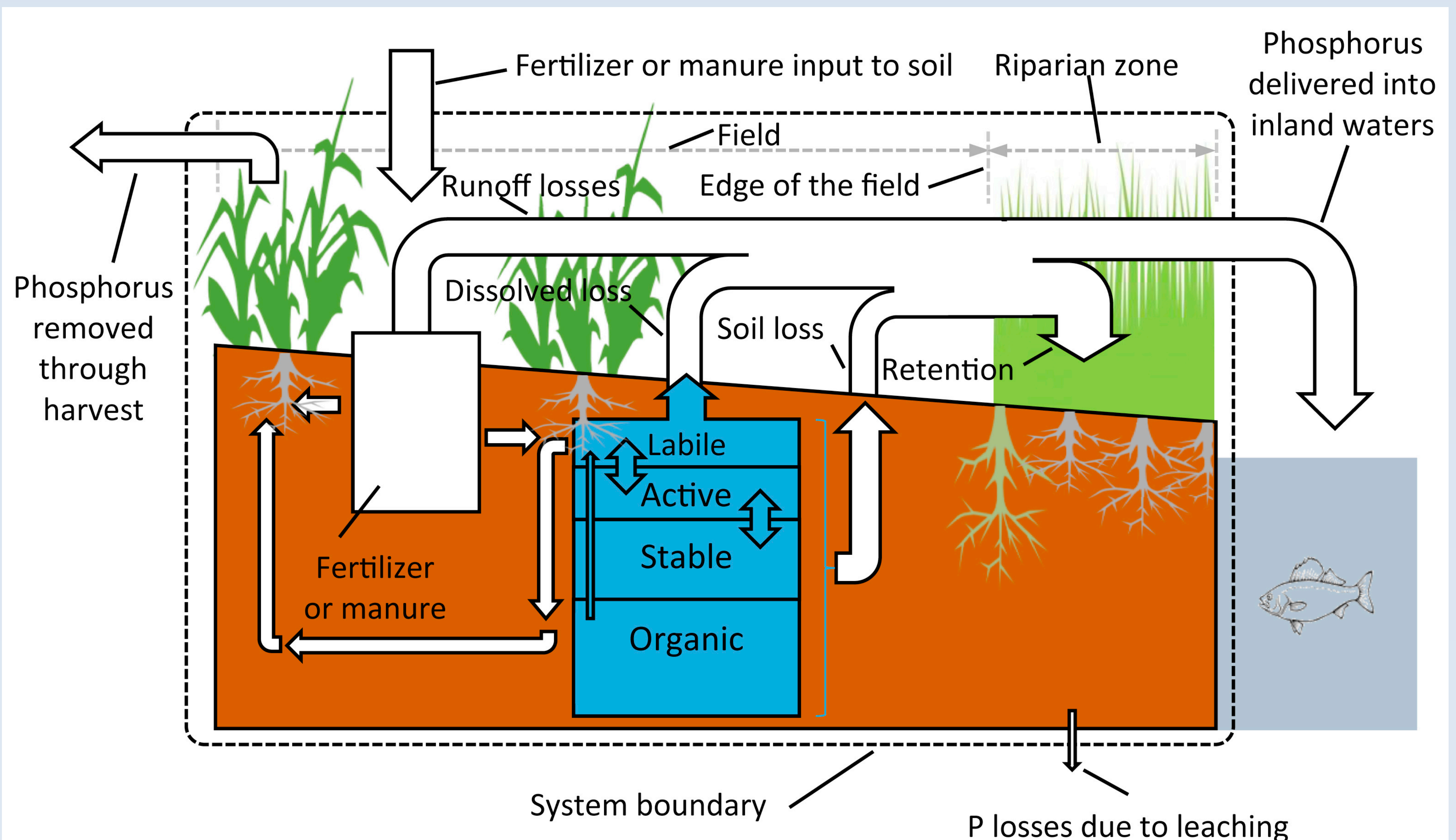


Adequate phosphorus is needed for the promotion of early root formation and growth. It also improves crop quality and seed formation.



Phosphorus is an essential component of bones and teeth. Animals derive their phosphorus needs from plant products and feed supplements.

Life Cycle of Phosphorus from Agricultural Production to Fresh Water



Potential Environmental Impacts of Phosphorus



Plants may suffer from too much Phosphorus



Phosphorus pollution causes algae masses in Lake Erie



Sediment collection in ditch for Phosphorus analysis

Reference

Ortiz-Reyes E, Anex RP. A life cycle impact assessment method for freshwater eutrophication due to the transport of phosphorus from agricultural production. Journal of cleaner production. 2018 Mar 10;177:474-82.
Mullins GL. Phosphorus, agriculture & the environment.2009.