



Maryland Department of Agriculture

*Office of Resource Conservation
Nutrient Management Program*

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Phosphorus - How It Is Quantified and How It Behaves (Course #2047_1 CEU)

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- 1) The two ways in which phosphorus is fixed in soil are:
 - a) Desorption and dissolution
 - b) Precipitation and dissolution
 - c) Mineralization and immobilization
 - d) Adsorption and precipitation
- 2) A fertilizer label lists the available phosphoric acid which is determined by:
 - a) Water extraction
 - b) Water extraction plus citrate extraction
 - c) Total digest
 - d) Buffered extraction
- 3) Common terms used to describe phosphorus in runoff studies include all of the following except:
 - a) Total P
 - b) Organic P
 - c) Soluble P
 - d) Particulate P
- 4) Proportion of dissolved phosphorus in soil increases significantly after the degree of phosphorus saturation
 - a) 10%
 - b) 25%
 - c) 40%
 - d) 50%
- 5) Phosphorus recommendations for soils that test in the Low soil test range are in excess of crop removal because:
 - a) We are trying to build up the soil test levels for future crops
 - b) If some is good, more must be better
 - c) Soils in this region of the country contain iron oxides which bind P and render it unavailable for immediate plant use; therefore, more is added to compensate for this process.
 - d) Phosphorus is a finite resource, and we need to add it to our soils now while it is still available domestically.

- 6) A watershed scale study in Pennsylvania demonstrated that most phosphorus leaves a field:
 - a) Immediately after application
 - b) During and immediately after a storm event
 - c) At a consistent rate throughout the year
 - d) Immediately following tillage
- 7) Based on the research study conducted at the Central Maryland Research and Education Center it was determined that:
 - a) Loss of dissolved P occurs most often very soon after an organic application
 - b) Loss of Total P is greater in a conventional tillage system than in a no-till system
 - c) Loss of dissolved P decreases in the months following litter application
 - d) Heavy losses of particulate P are consistent through the growing season when manure is incorporated.
- 8) A USDA study demonstrated that composting poultry litter has the following effect on dissolved phosphorus in runoff:
 - a) Dissolved phosphorus in runoff was greater in a compost-treated soil than in a raw poultry litter-treated soil
 - b) Dissolved phosphorus in runoff was less in a compost-treated soil than in a raw poultry litter-treated soil
 - c) There was no difference in the dissolved phosphorus in runoff between the composted and raw poultry litter-treated soils
 - d) Water-extractable phosphorus was greater in the composted poultry litter
- 9) Virginia Tech research showed that total phosphorus runoff was less for fields amended with composted poultry litter than for fields receiving commercial fertilizer P and raw poultry litter. The authors attribute the reduced losses to:
 - a) Less available P in the compost
 - b) Lower application rates for compost than for commercial fertilizer P and poultry litter
 - c) Improved soil tilth
 - d) The phosphorus fixing capacity of the soil

True (T) or False (F)

- 10) An effective BMP for reducing phosphorus content of soils is to stop applying manure for three years.

Email Tia.Randall-Murray1@maryland.gov or mail completed form to: **MDA Nutrient Management Program, 50 Truman Pkwy #201, Annapolis MD 21401**, no later than 5 business days after you view the program. Keep a copy for your records.

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