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### THE ENVIRONMENT NEEDS NUTRIENTS

**The impact of excess nutrients on the environment has evolved into a major public issue.** The focus on excesses is drowning out the truth about the role of nutrients in nature. Many people seem to have forgotten that the environment needs nutrients. Whether an ecosystem is pristine, improved, or impacted, nutrients are essential to all forms of life within it.

**When nutrient loads become excessive, problems may arise and need to be controlled.** Accelerated eutrophication results in harmful algal blooms that produce taste and odor problems in drinking water. But how is excessive defined? Some say any level above natural is excessive.

**In many waters, we do not know what the “natural” level ever was.** If we compare to waters unaffected by farming today, we have a biased sample. Because farming has flourished in the most fertile watersheds, the ones without farming are the ones with low nutrient levels. Water quality where farming predominates will never meet standards based on regions too poor in nutrients to support farming.

**The processes of nutrient transfer from farm to stream are complex.** The weather, the soil, the landscape, and the crop all exert their influence, but the processes can also be managed to a considerable degree. Experts have developed indexes—based on these influential factors—that rank a given field and its management for risk of water contamination by nutrients. The phosphorus index is one example.

**A recent survey in Maryland was conducted to rank currently farmed fields for risk of water contamination by phosphorus.** The survey applied a phosphorus index to 201 fields with only commercial fertilizer and to 445 fields on which manure was applied. It found that 19% of the manured fields fell in the high to very high risk category, compared to only 2% of those where fertilizer was applied. Even among the manured fields, fully 58% ranked as low risk.

**Two lessons stand out among the Maryland survey results. The first...manure is much more an issue than fertilizer.** The second...even among manured fields, the majority are being managed well enough to avoid major risks of water contamination.

**That’s not to conclude that the current situation is fully sustainable.** In Maryland, the state nutrient balance is in surplus of crop removal while 22% of the soils test medium or less in phosphorus. A substantial number of farms need to improve their nutrient management. They can improve by directing the surplus to the land that can benefit from being built up in soil fertility. Across North America, many more could do the same.

**The majority of the rivers draining into the Chesapeake Bay show declining trends in phosphorus levels over the past decade and a half.** The same trend prevails in many other areas. Management advances on the majority of farm fields are contributing toward these trends. Management changes for the rest can be identified through the use of nutrient indexes.

**Nutrient indexes aren’t foolproof.** Their complexity relegates much of their basis to professional scientific judgement. But ongoing validation research, and the current trends, support the premise that farming is compatible with the environment’s need for an appropriate level of nutrients.

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