

ARS Scientists Develop Phosphorus Index To Control Pasture Runoff

WASHINGTON, D.C. — USDA Agricultural Research Service (ARS) scientists have developed a Phosphorus Index (PI) to help curb runoff when farmers fertilize pastures or croplands with animal manure.

The research is already improving the way farmers fertilize their fields in Arkansas and may lead to more advanced techniques across the nation. Arkansas, a leading poultry-producing state, began using the index statewide in February.

Previous studies show that poultry litter applications to pastures often result in excessive runoff into nearby water bodies, according to Philip A. Moore, Jr., a soil scientist with the ARS Poultry Production and Products Safety Research Unit, Fayetteville, Ark. Eutrophication occurs when nutrients from animal manure — especially phosphorus —

are carried by water runoff to waterways, forming blue-green algae and undesirable aquatic plants that rob water of oxygen.

One resulting problem is rising municipal water rates because of the cost of eliminating taste and odor problems caused by algae. The lack of oxygen in some bodies of water has even led to the death of fish and other aquatic life, according to Moore.

Phosphorus is a crucial nutrient in the nation's pastures, but its impact on the environment doesn't always stop there. Researchers recognize a connection between increased soluble levels of phosphorus in water and higher levels in a watershed's soil.

The index can be used to predict the risk of phosphorus runoff from pastures fertilized with animal manure or commercial fertilizers, according to Moore. Poultry litter —

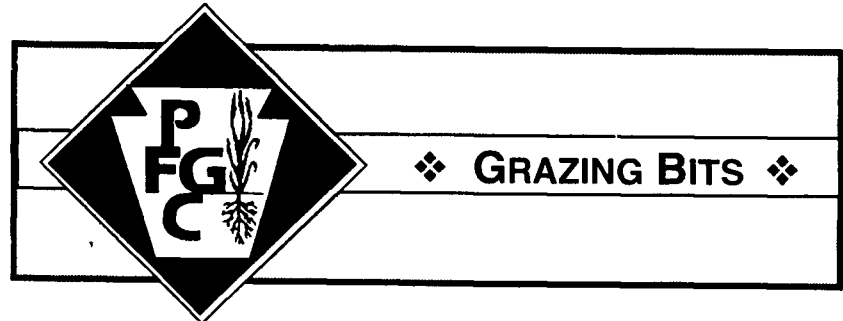
a mixture of chicken manure, feathers, spilled food, and bedding material — is an inexpensive and popular fertilizer for cropland because the manure contains nitrogen and phosphorus, two important fertilizer ingredients.

Several states use a soil test to determine the threshold levels at which animal manures may no longer be applied. However, the index developed by Moore, Paul B. DeLaune, a doctoral candidate in the Department of Crop, Soil and

Environmental Sciences at the University of Arkansas in Fayetteville, and other researchers now provides farmers with a risk-assessment tool to prevent over-fertilization and actually predict phosphorus runoff.

ARS is the chief scientific research agency of the USDA.

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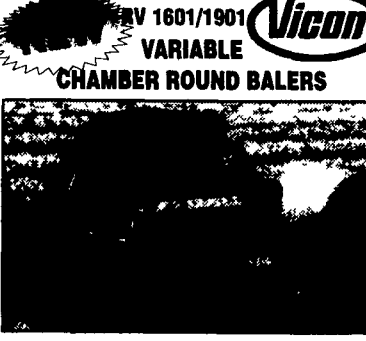
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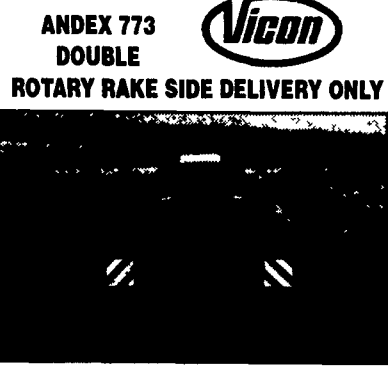
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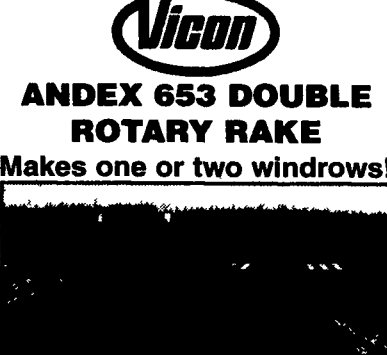
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