



# Requirements

**Keep land application records** 

Apply for nutrient management plan

Register with state

Attend OSU Extension
Poultry Waste Mgmt. Education classes







## Classes



## **Educational Resources**





## **Educational Resources**

### **Extension Fact Sheets**

OKLAHOMA COOPERATIVE EXTENSION SERVICE BAE-1521



### **Phosphorus** and Water Quality

The 2004 Integrated Water Quality Assessment Report by the Oklahoma Department of Environmental Oxiality showed 16,041 miles of Oklahoma streams and 225,421 acres of lake impaired. The pollutant of concern in many of these impairments was phosphorus, an essential plant nutrient found in fertilizer and human and animal wastes.

tertilizer and human and animal wastes.

Phosphorus is the plant nutrient most often responsible for impairment of surface water. It is essential for healthy, productive crops, and most agronomic systems call for application of commercial fertilizer or animal manure to correct acid phosphorus deficiencies. For both economic and environmental reasons, application of phosphorus is not recommended ever, where soil tests show phosphorus reserves are adequate for the intended crop.

Phosphorus is typically not considered a ground-water pollutant. Further, most soils have the capacity to retain phos-

phorus in the upper layers, protecting the ground water.

### Concerns about Phosphorus in Water

Excess phosphorus is a concern for most aquatic ecosystams. I Inder hanknowed conditions where human activities do not dominate the landscape, phosphorus is generally in short supply. Its absence limits the growth of algae and equation plants. When additional phosphorus becomes available to the aquatic system, it stimulates growth of algae and other aquatic plants. This condition of nutrient enrichment and high

aguate plants. I nis condition for numeric enformment and night plant productivity is referred to as eutrophication. Under eutrophic conditions, recreational values of lakes and streams may suffer, in the carry stages of eutrophication, fishing may improve as productivity increases the food supply. But when these algae and aquatic plants die, their decomposition consumes oxygen causing fish kills and disagreeable

of bluegreen algae. These algae gain a competitive advantage and tend to dominate the algal community where phosphorus is in excess. They are a particular concern because they release odferous and even toxic compounds. Their presence at high concentration (called *Bloom* conditions) generally results in oder and taste problems in drinking water and allergic and oven toxic effects for those who come in contact with from. In Oklahoma bluegreen algae blooms have caused cattle

Improving water quality in a take impaired by excessive osphorus is difficult because phosphorus accumulates in

Oklahoma Cooperative Extension Fact Sheets are also available on our website at: http://osufacts.okstate.edu



the sediments and biota. Consequently it may take years after phosphorus sources have been reduced or eliminated for conditions to improve. It is, therefore, important to take preventive steps to limit phosphorus movement into surface waters.

### Particulate and Dissolved Phosphorus

In the environment, phosphorus may be in dissolved or particulate forms. Dissolved phosphorus is readily available particulate forms. Lissonied priosphorous is reading available to aquatic organisms. It may exist throm leaching of feetilizer, crop residues, or human or animal wastes. A small amount of clissolved phosphorus exists naturally in soils. This may be transferred to runoff water by exchanges with the top layer of the soil. Recently applied fertilizer or manure still on the

### Eutrophication

rus, become too high, production of algae and aquatic

- Reduced water clarity
   Unpleasant odor and taste
- Low dissolved crygen
   Changes in fish populations or fish kills
   Toxins from bluegreen algae

Division of Agricultural Sciences and Natural Resources • Oklahoma State University



- The Facts About Hormones and Seef
- Poultry Littler Tax Credit Reinstated

Poultry Litter vs. Commercial Fertilizer Study Josh Payne, Ph.D., Area Animal Waste Management Specialist

Questions exist regarding whether poultry litter or commercial fertilizer result in better forage yields and soil quality. To help answer these questions, a recent study was conducted by Oklahoma State University researchers and Extension specialists comparing equal rates of broiler litter and commercial fertilizer on mixed grass plots predominately common Bermudagrass. The study was conducted at the Eastern Research Station located in Haskell, OK, from 2007-2009. The objectives were to measure potential changes in soil quality and compare forage production between the two nutrient sources.

Both poultry litter and commercial fertilizer were applied each year in May at four different fertility levels (A.B. C. and D). For each fertility level, the same amount of N.P. and K. was applied for litter and commercial fertilizer (Table 1). Soil quality characteristics and forage yields were determined annually.

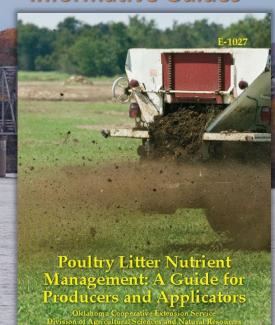
Table 1. Poultry litter and commercial fertilizer application rates.

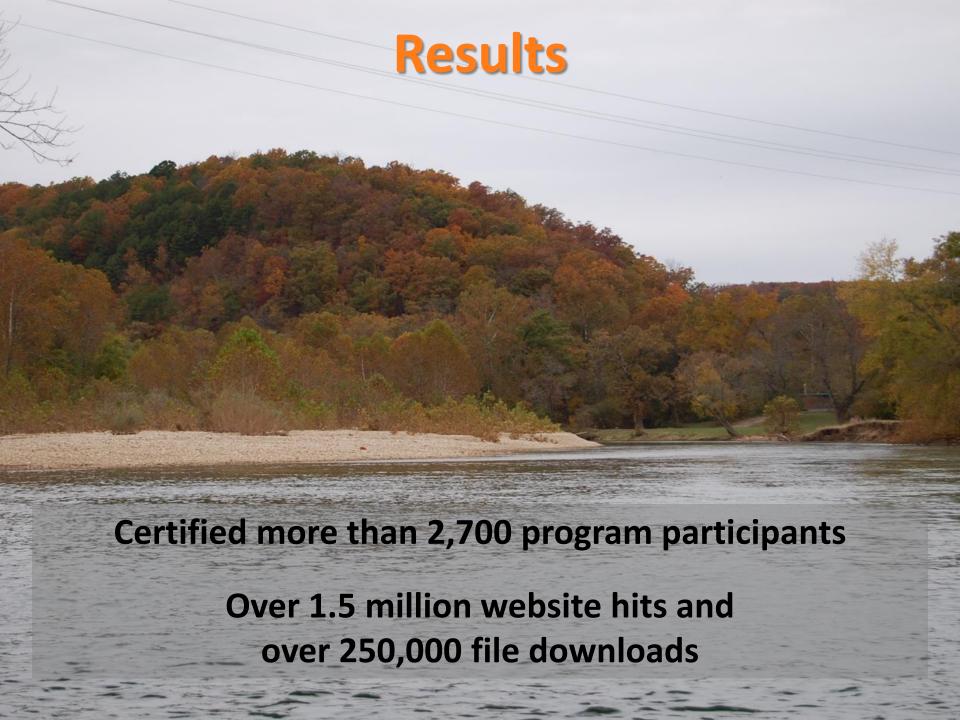
Treatment	Tons acre-1	Total N	Total P.O.	Total K <sub>z</sub> 0
		lbs. acre1		
Litter A	1	60	60	45
Litter B	2	120	120	90
LitterC	3	180	180	135
LitterD	4	240	240	180
Commercial A		60	60	45
Commercial B		120	120	90
Commercial C		180	180	135
Commercial D	-	240	240	180

Continued on page 2

### **Biannual Newsletters**

### **Informative Guides**







## **Other Activities**

Hosted national and regional conference tours of Illinois
River

### Water well testing

- Oklahom\*A\*Syst
- Oklahoma Farm& Ranch\*A\*Syst

**Other Informative Fact Sheets** 

4-H Stream trailer

**4-H Youth Water Fairs** 

Over 600 youth

4-H water camps

Waste water kit & other models