Improve use of fertilizer

Faced with sharply increasing prices for fertilizer, farmers can take steps to help improve efficient use of fertilizers, suggests Hugh Gardner, Oregon State University Extension soil science specialist.

Gardner said reports from the USDA show that fertilizer prices June 30 averaged 24-26 percent higher than for the same time a year ago. Farmers reacting to those higher fertilizer costs are expected to use 3 to 7 percent less fertilizer during this fertilier year.

"The farmers' response to this problem should be to conserve fertilizer and use it efficiently," said Gardner.

Gardner recommends four methods that will help improve efficient use of fertilizers. They are soil testing , timely application of fertilizers, increased use of legume crops and increased use of animal manure for fertilizer needs.

"A soil test is a good way to estimate the fertilizer needs of soil and to reduce the possibility of applying unneeded fertilizers," Gardner points out.

Gardner refers to soil testing as a sort of "refined fertilizer management. It's straight monetary thing," says Gardner. "It's just good business to know whether or not fertilizer is needed in the soil."

Timely application of fertilizer is another important conservation measure. Fertilizers should be applied when the crops can get the maximum benefit from them, Gardner notes. When fertilizers are applies prematurely, important plant nutrients may escape from the fertilized soil before crops can use them.

Nutrients such as nitrogen escape by being leached or washed out of the soil. Excessive moisture due to irrigation or rainfall can cause this. Nitrogen can also excape into the atomsphere as a gas.

"Methods of fertilizer application are also important," Gardner explains. Under some soil and climatic conditions, surface applications of certain forms of nitrogen such as urea and ammonium can result in substantial losses of gaseous nitrogen into the atmosphere. These losses are related to such things as rainfall, timing of irrigation and the acidity of the surface soil.

Other forms of fertilizer such as anhydrous ammonia, which is a gas, mjst be injected into the soil. The injection of anhydrous ammonia works best if the soil is loose and friable and the injection is made at the proper depth. If these conditions are not met, nitrogen in the fertilizer may escape into the atmosphere.

Substantial savings in the use of nitrogen fertilizer can be made through increased use and better management of legume crops, according to Gardner.

"A well managed legume crop such as alfalfa or white clover can produce high yields of protein per acre without the application of nitrogen fertilizer," says Gardner. This is possible because the root systems of legumes interact with microorganisms in the soil which convert atmospheric nitrogen into a form that the legume plants can use. This fixation of nitrogen in the soil benefits not only legumes but also any crops grown in rotation with legumes each year.

In many cases, other sources of plant nutrients, such as livestock manure, can be substituted for high cost, commercially produced fertilizers.

Livestock manure contains many plant nutrients including nitrogen, phosphorus, potassium and sulfur. Nutrients are better retained in stockpiled manure intended for field application if the manure is kept under cover.

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20	500	32,000	2,462	1,231
10	1,000	16,000	1,231	615
5	10,000	1,600	123	62
1	75,000	213	16	8
TOTALS	86,935	184	14	7

These odds are in effect until 30 days after start. Thereafter, updated odds will be posted in all participating stores and in any newspaper ads.

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