

Texas Agricultural Extension Service



Environmentally Safe Practices

PROTECTING THE LAWN

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The care of home lawns in Texas is primarily achieved through preventing deficiencies of moisture and nutrients. However, lawns must also be protected from insects, diseases, weeds and other pests in order to have a healthy, thick grass cover. No lawn is maintenance free. With conscientious care, however, a lawn can be an aesthetically, economically and environmentally wise investment for your property.

Lawn chemicals such as fertilizers and pesticides are often advertised to consumers as cures for unhealthy lawns. These chemicals often cure specific problems when applied correctly. The consumer must, however, understand how to determine whether chemicals are actually needed before applying them to a lawn.

FERTILIZER

The most commonly applied lawn chemical is fertilizer. Improper fertilization practices can damage your lawn, increase maintenance needs and contribute to water pollution. If, for example, too much fertilizer is applied at once or if it is applied in the wrong season, grass roots can't use it and the nutrients in the fertilizer may leach through the soil. Although the nitrogen and phosphorus in fertilizer are potential water pollutants, using proper techniques can reduce the risk of pollution.

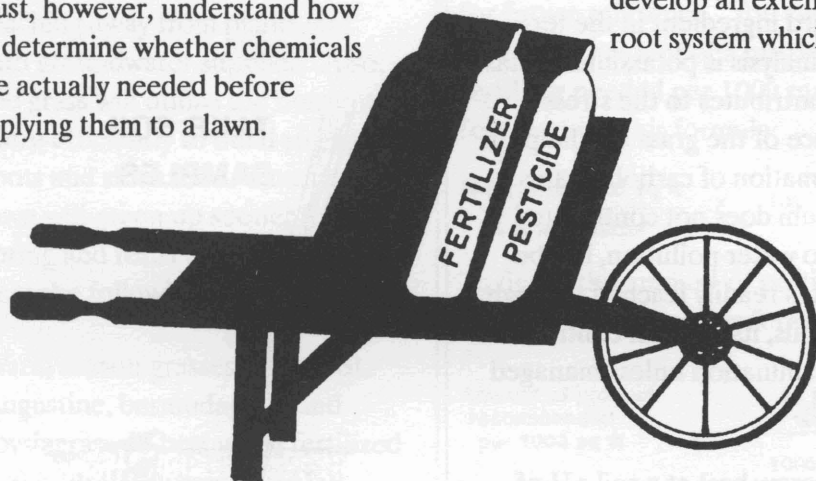
One goal of lawn care is to develop an extensive root system which

will hold nutrients in place and prevent them from leaching into water supplies. A strong root system also will make the lawn resistant to summer drought.

"No lawn is maintenance free."

Fertilizers are identified by their analysis---the three bold numbers printed on the bag. These numbers refer to the percentages of nitrogen, phosphorus and potassium contained in the product. For example, a 50-pound bag of 20-10-10 fertilizer will contain 10 pounds (50 pounds x 20 percent = 50 x .20 = 10 pounds) of total nitrogen, 5 pounds of phosphorus and 5 pounds of potash.

Nitrogen added to a lawn can immediately green up the grass. Unfortunately, if improperly applied, it can also green up a nearby lake or river.



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Some forms of nitrogen are highly mobile and can leach through the soil. The ammonium form of nitrogen attaches to soil particles and will move with erosion. The nitrate form does not attach to soil particles and can move with water through the soil into water supplies. A dense lawn with a deep root system prevents both types of nitrogen losses.

Lawns vary in their need for nitrogen. An existing lawn requires less nitrogen than a new lawn. And remember, a healthy root system will absorb most of the nutrients and reduce leaching.

There is a form of nitrogen, however, that is resistant to leaching. It is called water insoluble nitrogen (WIN or slow release nitrogen) and the fertilizer bag indicates what portion of the total

nitrogen content is in this form. Water insoluble nitrogen is more slowly available to plants and consequently stays near the roots longer.

New lawns benefit from a higher relative level of phosphorus, the second number on the bag. A plentiful supply of phosphorus increases the early development and growth of grass seedlings and gets young roots off to a good start.

Phosphorus is fairly stable and is readily held by soil particles. Some of the phosphorus is readily available and some is held in reserve. However, where erosion occurs, phosphorus can move with the soil particles and contribute to pollution and algae blooms in bodies of water.

The third ingredient in the fertilizer analysis is potassium. Potassium contributes to the stress tolerance of the grass and helps in the formation of carbohydrates. Potassium does not contribute much to water pollution, but because it is readily leached through sandy soils, its loss can contribute to contamination unless managed properly.

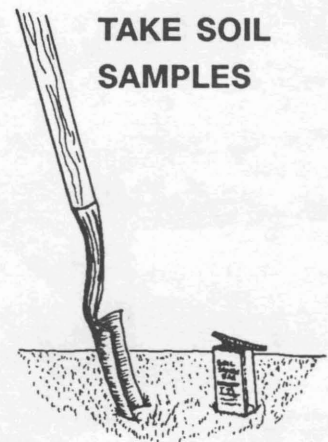
Lawns grow best at a soil pH of 6.2 to 6.5, or slightly acidic. That is, the nutrients in the soil are

most available to the grass plants when the soil pH is within this range.

In order to determine the pH of your soil and the lime and nutrients needed, it is wise to have a soil test every 2 to 3 years. The Texas Agricultural Extension Service provides soil tests which will tell you about available nitrogen, phosphorus and potassium as well as pH. Soil sample bags and information are available at your local county Extension office.

PESTICIDES

Pesticides are chemicals intended to prevent, destroy, repel or mitigate any pest. They also can be used as a plant regulator, defoliant or desiccant.



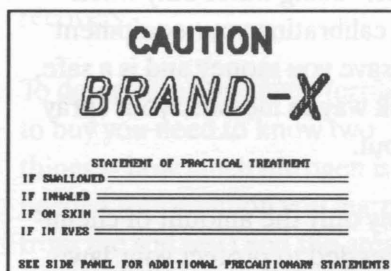
These chemicals come in many forms. They can be in a liquid formulation such as an emulsifiable concentrate (EC or E), a solution (S), a flowable (F or L), an aerosol (A) or a liquefied gas. They also can be found in dry formulations such as dusts (D), granules (G), dispersible granules (DG), wettable powders (WP or W), soluble powders (SP) or baits (B).

Dry formulations can be spread onto the soil or the lawn or mixed with water, depending on the label specifications. Some of these pesticides also can be worked into the soil with a tiller or rake.

The soluble dry formulations, as well as the liquid formulations, can be mixed with water and sprayed or sprinkled on the soil or lawn.

Pesticides are identified by their brand or product name, common chemical name, the pest they control and their toxicity.

Because pesticides by nature are toxic, they can be hazardous to people. You can determine the toxicity of a product by reading the signal word on the label.



Three signal words are prominently shown on the label to protect users.

"DANGER" means that the chemical is highly toxic. "WARNING" means that the chemical is moderately toxic. "CAUTION" means that the chemical is of low toxicity.

In order to use pesticides effectively, the applicator, whether a



professional or a homeowner, must know when pesticides are needed. The label will state which pests can be controlled by the pesticide. The applicator must make certain that he correctly identifies pest problems in order to choose an effective chemical control.

The brand name and common chemical name of each pesticide are also on the product label. The brand name is the most identifiable since it is the name the company uses for the product in all its advertisements.

The common chemical name is the general chemical activity group the product is most easily identified with. This chemical name is the active ingredient which makes the pesticide work. The amount of active ingredient, given as a percentage by weight or quantity of concentrate, can determine the toxicity of the product. A product with 1 percent active ingredient is much less toxic than a 60 percent active ingredient formulation of the same product.

Because the active ingredient percentage may vary among similar chemicals, it is important that the applicator read the label carefully for the recommended amount of chemical to apply to a lawn.



FOLLOW LABEL SUGGESTIONS



A pesticide user must consider many factors before purchasing a product. He must know what pest is to be controlled, if a chemical control can be used, what products will control the pest, the amount of pesticide needed to cover the targeted area, how to apply the product and which safety concerns are important.

Precautions the applicator must observe are also important. If a product label specifies that a user wear protective equipment or clothing when spraying, the suggestions should be followed. If the label suggests watering the lawn immediately after application, apply the chemical and irrigate as recommended. If a chemical is not labeled for a specific grass, do not apply that

product. Be sure to read the label instructions on mixing, applying and cleaning up before using a pesticide.

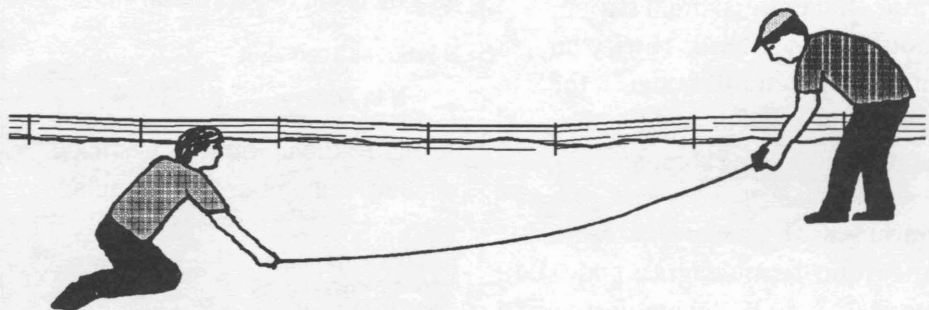
The safety of the product to the environment is also important. Do not apply chemicals when climatic conditions may cause the chemical to move from the targeted area. Spraying or dusting during high winds will move the chemical away from the target area. Heavy rainfall or excessive irrigation also will move the chemical outside the target area. Leaching of pesticides below plant root zones moves the chemical away from the target pests. Chemical run-off and leaching losses can contaminate nearby streams and rivers.

Because of contamination risks both to the user and to the environment, use pesticides only according to label instructions. These chemicals should be used only when a pest problem is evident, is identified as a controllable pest, and alternative measures are not effective. Pesticide applications should be timed so that effective control can be obtained with the least amount of chemical. Pests should be at the stage of development when chemical control is suggested, as printed on the label.

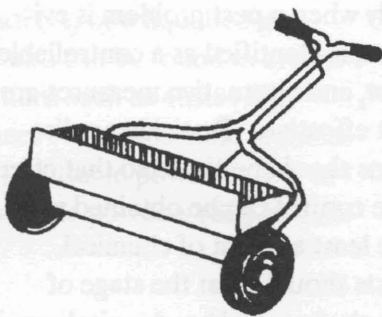
SUMMARY

In areas of Texas where cool season grasses are grown, fertilizers should be applied in the fall and spring. The cool season

MEASURE AREA TO BE TREATED



DROP OR GRAVITY FLOW SPREADER



grasses include Kentucky bluegrass and tall fescue. It is a good idea to split the fall application between September and October or November and make a spring application in April. This split application technique minimizes the possibility of nutrients leaching away from plants and into groundwater supplies. Also, the grass will utilize the nutrients more efficiently to build strong roots and store food. Thus, your lawn will green up sooner in the spring and resist drought and heat the following summer.

Warm season grasses such as St. Augustine, bermudagrass and zoysiagrass do best when fertilized in the spring, summer and fall. The fall application maintains fall

color and promotes early spring recovery.

To determine how much fertilizer to buy you need to know two things -- how much nitrogen is needed (information you learn from the soil test) and the area of your lawn in square feet. Application rates for both fertilizers and pesticides are measured most conveniently in terms of the amount needed per thousand square feet. Walk off or measure the length and width of your lawn and multiply length times width for total square feet. You need to subtract the square footage of your house, driveway, walks and other non-grass areas. If you have several separate small areas simply add up their square footage for a total. This number is important for accurate applications, so record it for future reference. You can calculate the amount of a nitrogen fertilizer needed per 1000 square feet by using this formula:

$$\frac{\text{N required/1000 sq ft}}{\% \text{ N in fertilizer}} \times 100$$

To figure the amount of pesticide needed, remember this formula:

$$\frac{\text{Amount of product recommended per 1000 sq ft}}{\text{sq ft in lawn}} \times 1000 \text{ sq ft}$$

Two types of fertilizer spreader are used on the home lawn. These also may be used for application of granular pesticides. The drop type vertically drops a steady flow of dry product. The amount of fertilizer or pesticide spread depends upon the opening setting, the formulation of the product used and the speed at which you push the spreader. The broadcast type, also called the rotary or cyclone spreader, has a rotating disk that throws out a circular pattern of granular material as it is pushed. Both types of spreaders have opening settings for different fertilizers or granular pesticides. The settings are only approximate at best. It is important to calibrate your spreader to be sure you are spreading the proper amount.

BROADCAST OR ROTARY SPREADER





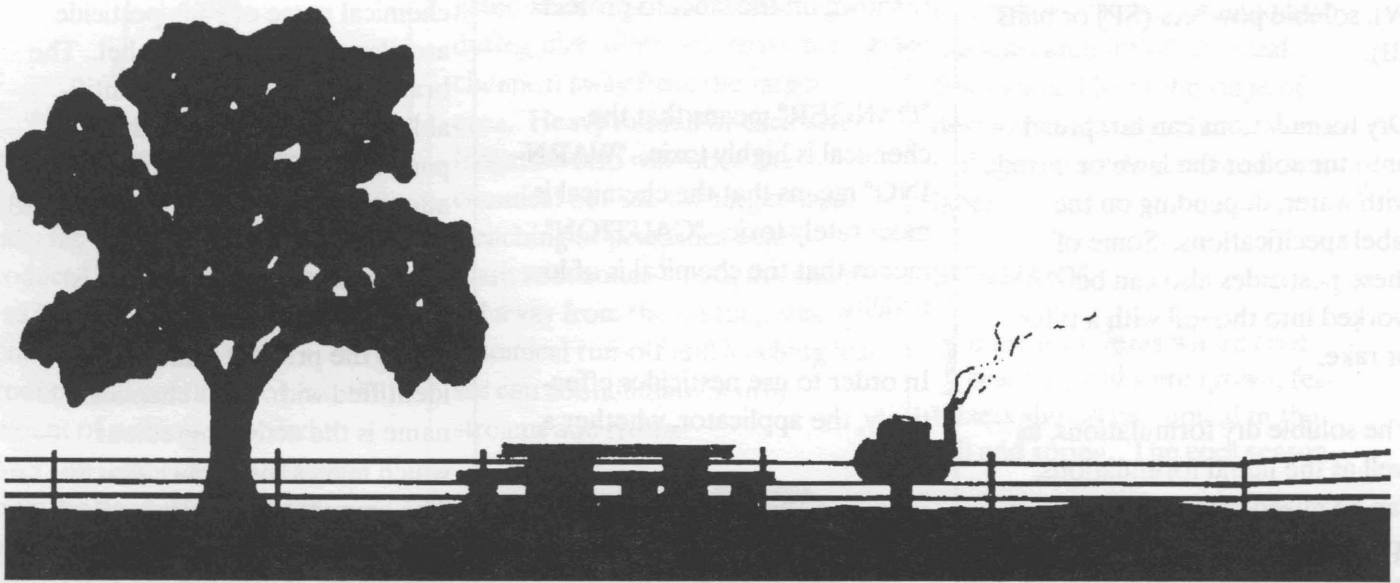
The Texas Agricultural Extension Service has publications that will help you with further information on the proper way to fertilize your lawn.

When using liquid fertilizers or pesticides, be sure to read label instructions for correct mixing,

calibrating and applying procedures. Using water only when first calibrating your equipment can save you money and is a safe, quick way to measure your spray output.

Apply only the amount of chemical needed to protect your lawn.

Responsible use of fertilizers and pesticides can be rewarding by providing you with a healthy, beautiful lawn and by ensuring that these chemicals don't cause pollution. Follow label instructions on all lawn chemicals so that you can enjoy the landscape you help create.



ESP, Environmentally Safe Practices, is a Texas Agricultural Extension Service program designed to promote the use of safe practices around the home and landscape. Whether one is working in household activities, home landscaping and gardening or in production agriculture, environmentally sound practices should be used. It is the responsibility of our generation to make wise use of environmental resources and to extend the use to future generations.



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