

*Problem:* 25,000 sq. ft. of turf needs a 3:1:2 fertilizer, applied at 2 lbs. actual N per 1,000 sq. ft.

From Table 2, we find that fertilizer "A" will require 33.3 lbs. of material to provide 2 lbs. of nitrogen. Multiply 33.3 lbs. by 25 (thousand square feet to be covered). This gives 832.5 for the total pounds of "A" required. Thus, 17 50-lb. bags of "A" would be needed at a cost of \$127.50.

Fertilizer "B" will require 9.5 lbs. of material

to yield 2 lbs. of nitrogen. Multiply 9.5 by 25, which gives 237.5 for the total pounds of "B" required. Only five 50-lb. bags of "B" would be needed at a cost of \$39.75, a savings of \$87.75 over fertilizer "A", not including the additional savings in labor from handling 600 lbs. less material.

Also, if "A" had been selected, an excessive buildup in phosphate and potash reserves would have resulted. Cutting the quantity would only have caused a shortage of nitrogen.

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## Do You Consider These Factors Before Buying Fertilizers?

1. Fertilizers vary greatly in price because of *nutrient content, ingredients, form, added materials, and package size*. Are the more expensive products worth the additional cost? After considering these factors, you may decide they are. Or, you may decide that the least expensive fertilizer is satisfactory for your needs.
2. *Nutrient content*. Products containing a high percentage of plant nutrients cost more per pound than those containing a smaller percentage of nutrients. For example, 1 lb. of 10-20-10 contains the same amount of nutrients as 2 lbs. of 5-10-5. But, an 80-lb. bag of 10-20-10 may cost only one-third more than an 80-lb. bag of 5-10-5. For greatest economy, buy fertilizer for its weight of nutrients, not its total weight.
3. *Ingredients*. Products containing slowly available forms of nitrogen (as ureaform and other organic sources) cost more per pound than those containing quickly available forms. Before plants can make use of the nitrogen in a fertilizer mixture, the nitrogen source material must break down into soluble forms, nitrates or, in some cases, ammonia. More expensive forms of nitrogen break down slowly and release nitrogen to plants over a long period of time. Less expensive nitrogen fertilizers are already in available form; they can be used by plants immediately.
4. *Form*. Pelleted or granular fertilizers, and soluble fertilizer concentrates cost more than powdered materials. However, they may be a lot more convenient to use. Powdered fertilizers can be objectionable because they are too dusty, particularly on windy days. They may become damp, and cake, and fail to feed evenly through fertilizer spreaders. And they may

stick to plant foliage, causing fertilizer burn. On the other hand, pelleted materials spread readily and roll off plant foliage, reducing burn hazard. Fertilizer concentrates, mixed with water, are readily available to plants, and some nutrients are absorbed by plant leaves. Because materials are considerably diluted in application, there is little danger of damaging foliage.

5. *Added materials*. Adding trace elements, insecticides, or weed killers to fertilizers increases their cost. Usually, these added components cost more when bought in combination products than when bought separately. Combinations may be more convenient to use since only one application is necessary. However, their misuse can kill desirable plants or make soil unproductive.

Trace elements (more properly, micronutrients) are essential to plant growth, but are needed only in very small amounts. Known micronutrients are iron, manganese, zinc, copper, molybdenum, boron, and chlorine. There may be others. Do not apply trace elements routinely; an overabundance may be toxic to plants.

Combinations of fertilizer with insecticides or herbicides are generally designed for lawn use. They may be satisfactory if the proper season for applying both fertilizer and pesticide is the same, and if nutrient content and pesticide concentration are so adjusted in combination that both are applied at the proper rate.

6. *Package size*. Fertilizer in small containers costs more per pound than the same product in larger containers. Packaging costs account for much of the expense of fertilizer merchandising. Paying the higher rate for smaller containers is justified if only a small amount is needed, if the ease and time saving of handling smaller packages is enough of an advantage, or if storage of large packages is a problem.

Based on material prepared by Soil and Water Conservation Research Division, Agricultural Research Service, U. S. Department of Agriculture, as abstracted from Massachusetts Turf Bulletin.