Q: I'm in the lawn care business, applying fertilizers, herbicides, pesticides, etc., to commercial and residential lawns. In researching and attempting to improve one-application response to lawns that have a normal six-to-seven month growing period, is it best to have three or four applications during the year? Also, what are maximum levels of nitrogen, phosphorus and potassium per 1000 square feet? What trace elements show the best response?

A: Fertilizer requirements can be supplied in any number of applications by varying the soluble:insoluble nitrogen ratio. Thus, the required number of applications is dictated primarily by the proper timing for the pests you are programmed to control. Most lawn care companies in the northern states have found that four applications provide the most effective pest management.

The optimal level of nitrogen will vary with the grass type, soil conditions, etc., but, in general, 3.5 to 4 pounds per 1000 square feet is sufficient. Phosphorus and potassium levels are more variable and should be determined by soil testing and turf response.

Micronutrient deficiencies may occur, particularly in alkaline or sandy soils. Iron is more often deficient than any of the other trace elements, but this should be determined by foliar analysis and confirmed with test plots.

Q: Last year our company stripped 10,000 square feet of lawn and replaced it with bark mulch two inches deep and a planting of rhododendrons (Rhododendron maximum) and red pines (Pinus resinosa). We are now being plagued with tremendous grass and weed growth. We have applied weed and grass killers to no avail. Do you have any suggestions?

A: A black plastic film laid down before the organic mulch is applied will significantly reduce the potential for weeds.

For pre-emergence control of annual grasses and broadleaf weeds in mixed red pine and rhododendron plantings, you might try Dymid or Enide. If the ornamentals are not interplanted, you could apply Simazine to the soil around the red pines, and apply Casoron to the soil around rhododendrons.

For post-emergent control, you can't beat Roundup for non-selective control.