WELL WATER AND THE HOME LANDSCAPE

Introduction
Incidences of well water (groundwater) contamination in Connecticut by fertilizers and pesticides have been reported during recent years. This information sheet is intended to help Connecticut citizens become more aware of available management practices which can be employed around the home landscape to reduce the chances of contaminating their own and, possibly, their neighbor’s water supply.

Elements of the Home Landscape
The home landscape includes the lawn area, trees and shrubs, and gardens. Fertilizers, herbicides (weed killers), insecticides and fungicides are often used to obtain a desired effect (attractive yard, quality produce, etc.). However, sometimes these materials may be overapplied or misapplied, thereby unnecessarily increasing the risk of groundwater contamination. Various management techniques can be employed that may reduce the need for use of fertilizers and/or pesticides and yet help to achieve the desired effect.

Lawns
A key objective in keeping an attractive lawn area is to maintain a green color and a minimum of weeds and insects.

a. Plant Growth — Nitrogen, which keeps the lawn green, is absorbed from the soil by the roots of the grass plant. However, if the nitrogen moves below the root zone and enters the groundwater in the form of nitrate (NO₃⁻), it becomes a health concern if present in the water at concentrations above 10 ppm of NO₃⁻N. Grass plants normally use only a certain amount of nitrogen during the growing season. Over-fertilization can increase the chances of an excessive amount of nitrate, unabsorbed by the plant, to be present and move down through the soil, into the groundwater. When applying fertilizer, consider the rate as well as the number of applications, the interval between applications and the formulation of the fertilizer. Also, the time of year should be taken into account. For further information, consult Extension fact sheet 83-29, Lawn Construction and Maintenance.

b. Weeds — A thick turf minimizes weed growth. The key is to have good soil nutrition for proper lawn plant growth. Test the soil periodically with a University of Connecticut soil test kit and apply the fertilizer as recommended. If the need for herbicides exists, correctly identify the weed and apply the proper material at the recommended rate and time of year.

c. Insects — A major insect problem for lawns is grubs, which attract moles. Adult beetles lay eggs in the lawn during mid to late summer. The eggs subsequently hatch as grubs. Once present in the soil, the grubs begin eating the roots of the grass plants. A few grubs may cause some, but not severe, damage. If excessive numbers are present and cause considerable damage, then control measures involve the use of certain soil insecticides. An alternative biological control is milky spore disease. See Extension fact sheets 84-21 and 84-22 for more information.
Trees and Shrubs

The major problems for trees and shrubs are insects and diseases. Effective management includes consideration of the following:

a. Accurate Diagnosis — Control or management decisions can not be properly made without accurate identification of the problem (this includes proper plant identification).

b. Extent of Problem — Is the problem serious enough to warrant control measures, or is the level of damage acceptable?

c. Contributing Factors — In some cases, extreme weather or site conditions, or poor soil nutrition can put excessive stress on a plant, making it more susceptible to insect and disease problems. Control of these stress factors may reduce the incidence of problems caused by insects and diseases.

Gardens

Plants grown in gardens include flowers, vegetables and fruits. Vegetables and fruits are treated with fertilizers, insecticides and fungicides more frequently than flowers. The desire to achieve early production and high-quality — attractive and blemish-free produce — may result in the application of unnecessary amounts or types of materials.

Management techniques to reduce problems and the use of fertilizers and pesticides include the following:

a. Hand Picking — The physical removal of certain insects (such as Colorado potato beetles or Japanese beetles) can keep the target plants relatively clean of those insects which can seriously damage crops under uncontrolled circumstances.

b. Garden Hygiene — Badly diseased and insect-infested plants should be removed from the garden and destroyed. Do not turn these plants back into the soil or place them in the compost pile as this may recycle the pests back to the garden soil.

c. Crop Spacing — Close plant spacing can put plants under stress because of competition for light, water, nutrients, etc. High relative humidity around the plants, and its subsequent dew, make it more favorable for diseases to develop.

d. Resistant Crops — Each year new crops are introduced which are less susceptible to certain diseases. Tomatoes are a good example.

e. Floating Row Covers — Covering crops with row covers is used to extend the growing season. In addition, such covers may help to keep some harmful insects away from the plants.

The above identified management approaches are not intended to be all-inclusive. Other management techniques are available from the Cooperative Extension System that may assist in reducing the need for the application of fertilizers and pesticides. For more information, contact your local Cooperative Extension System office.

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