One Man’s view of looking at weeds

A HOLISTIC VIEW OF PLANT GROWTH
Gardeners and homeowners have been programmed and marketed to by chemical companies.
EXTEND OPEN SEASON ON HARD-TO-KILL WEEDS.

For a cool-weather assault on hard-to-control weeds, arm yourself with the powerful arsenal of Super Trimec or Turf Ester. You can stretch your weed-control season with extra applications in the fall or get an early jump on weeds in the spring. So if you have pesky dandelions, black medick, ground ivy or clover in your sights, take ‘em out now with Super Trimec or Turf Ester. You don’t get better cool-weather performance.

1-800-328-0957 FOR ANY WEED PROBLEM, TRIMEC® HAS THE SOLUTION.
Six new ways to grow

greener

thicker

weedless

grubless

bugless

healthier
turf

The Scotts Advantage® keeps on spreading with the introduction of new combination fertilizers from Scotts® Landscaper PRO™. Each offers three to four months of proven Poly-3® nutrition. Five save you time and labor by adding pest-control ingredients; one offers additional micronutrients for better results in deficient soils. Feed turf, trees and ornamentals the advanced nutrition of Scotts Landscaper PRO: four original granular turf and ornamental fertilizers, and now six new combination products.

Contact your Scotts Territory Manager or Distributor, call 1-800-492-8255 or visit www.scottspроhort.com.
Pesticides Detected in Urban Streams During Rainstorms and Relations to Retail Sales of Pesticides in King County, Washington

According to studies conducted in the Puget Sound Basin from 1985 to 1995 and summarized by Bottleson and Davison (1997), more types of pesticides were detected in urban streams than in agricultural streams. As well, in the Puget Sound Basin, more pounds of pesticides were applied in urban than in agricultural areas (Lyned-Cross Incorporated, 1988). To provide some insight about sources of pesticides found in urban streams, the U.S. Geological Survey (USGS), the Washington State Department of Ecology, and King County collaborated to study and compare types of pesticides found in urban stream water with pesticide sales information from large home and garden stores.

**Findings**

Twenty-three pesticides were detected in water from urban streams during rainstorms, and the concentrations of five of these exceeded limits set to protect aquatic life.

During rains, 23 of 58 pesticides sampled were detected in water samples from 12 study sites in 13 urban watersheds. Concentrations of five compounds exceeded recommended maximum concentrations set by the National Academy of Sciences and National Academy of Engineering (NAS/NAE) (1973). In a few samples, concentrations of Dimethyl, alachlor, and Lindane exceeded USEPA Environmental Protection Agency's (EPA) and other chronic aquatic life criteria.

Pesticides used on lawns and gardens contribute to the occurrence of several pesticides in urban streams.

According to 1997 sales data from home and garden stores, the pesticide sampled for Dimethyl, 2,4-D, and MCP are the least frequently purchased pesticides by residents of King County. MCP and 2,4-D are also among the pesticides used by professionals for pest control in commercial, institutional, and residential areas. The presence of these pesticides in water samples from all of the 12 study sites shows that these widespread applications impact water quality and urban streams. This evidence suggests that sales data may be a key to understanding the occurrence and fate of these pesticides in urban streams.

Many pesticides found in urban streams might be the result of nonresidential applications.

Almost half of the 23 pesticides detected in stream water had no retail sales found in a 1997 survey of pesticide sales from home and garden stores in King County. Past these pesticides, carnitine, and simazine were found in more than 40% of the study sites. This indicates that these pesticides are being applied to nonresidential areas such as rights-of-way, parks, and recreational areas.

**Figure 1.** Location of sampling sites within watersheds.

**Figure 2.** Percentage of retail sales in each pesticide class contributed by each pesticide and percentage of sites where pesticide was detected. Sites data for pesticides not analyzed are not included.

**Figure 3.** Concentrations of pesticides detected in water and aquatic-life criteria.

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1. Use of trade names or commercial sources is for identification purposes only and does not imply endorsement by the U.S. Environmental Protection Agency.
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In Harmony Philosophy

• We chose to focus on residential clients for a reason
• We felt it was easier to develop a relationship with a client one-on-one
• We were hoping that we could open the dialog about organic landscape care
• We understood that weeds were the most difficult ‘pest’ to control in any landscape, not just organic gardens
• We wanted to help the client understand weed control options and solutions
WEEDS!!!!

- They drive us nuts!!
- They survive in poor situations and thrive in good conditions
- They are very successful plants!!!

If we understand Mother Nature’s methods we will appreciate her approach
A weed possesses certain definable characteristics that set it apart from other plants:

- Abundant seed production
- Rapid population establishment
- Seed dormancy
- Long term survival of buried seeds
- Adaptations for spreading
- Presence of vegetative reproduction structures
- The ability to occupy areas disturbed by human activities
Plant Succession

• Ecosystems mature and change with time
• Always determined by the physical parameters of the environment
• Initial stages—high rate of replacement, unstable (prone to erosion and wind damage)
• Later stages—low rate of community change, more stable
Principals of Plant Succession

Living plants alter their environment, making room and creating proper soil conditions for other plants, which in turn make changes allowing for still other plants to take hold.
A simple path of succession

- Primary succession occurs when plants become established on land completely devoid of soil and vegetation.
- Lichens (pioneer species)
- Mosses & ferns
- Grasses
- Shrubs
- Trees
- As succession proceeds, soil is formed and thickens—the result of decomposition.
- As the succession progresses, the soil biology, flora and fauna become more diversified and complex.
Is this how Mother Nature works?
Areas disturbed by human activity
Plant succession at its finest
Climax Communities

- The relative stable community at the end of succession is called a **climax community**
- A climax community is thought to be in equilibrium with the environment
- Permanent until there is some type of environmental change (flood, fire, wind or climate change)
8 major types of climax communities

- Tundra
- Taiga
- Scrub forest (called chaparral in California)
- Desert
- Grassland
- Temperate Deciduous Forest
- Tropical Rain Forest
- Temperate Rain Forest
Which one do we live in?

Temperate Rain Forest
Our Environment

• Our environment eventually wants to get to a temperate rain forest biome
• Upper canopy trees include: Fir, Hemlock, Cedar and Spruce
• Understory trees include: Vine maples and dogwoods
• Forest floor—Ferns, Mosses and shrubs
Why is this important to know?

- Because our environment is perfect for lots of plant growth—we literally live in a 12 months a year plant living period
- Our environment allows for quick succession of plant material
- Plants will always be trying to establish themselves
- Any bare ground is ripe of plant growth
How can we work with Mother Nature?

• We must understand that natural systems can maintain themselves, disturbed systems can not

• Generally, humans knock out the climax community

• A turf grass lawn is not a climax community—other plants will always try to establish themselves
Integrated Pest Management

Principals and Methods
IPM or better yet:
Plant Health Care (PHC)

Insect and disease problems usually are associated with a poor cultural situation; i.e.
• Poor soils
• Wrong plant in the wrong place
• Improper watering
• Too much or too little sun

These situations create unhealthy situations for plants, leading to insect and disease infestations

Fix the cultural problem and usually the pest problem will be lowered to a tolerable level or the pest problem may even go away
Weeds are a different kind of Pest

It takes a different mindset for this type of management system
Integrated Weed Management (IWM)

A successful WMP is based on long term solutions while setting realistic goals, timetables and expectations.

Regardless of the number and species of weeds, it is not realistic to attempt to eradicate all weeds. The goal should be to reduce weeds to acceptable levels – A Threshold Level.
Establishing Thresholds and Expectations

Usually based entirely on the client’s point of view
The client’s point of view is usually based on unrealistic expectations. It is our jobs as professionals to educate and inform the client-leading the client to an informed and realistic decision.
Successful IWM Programs

Successful plans will embrace these major factors that are in all successful IWM programs:

1. Persistence
2. Diligence
3. Tolerance
All IPM or IWM Programs consist of the following steps:

- Pest identification
- Prevention
- Physical or Mechanical Management
- Cultural Management
- Biological Management
- Chemical Management
- Review and recommendations
Look for reasons why the weed species is successful

Why is the plant dominating?

Or turn it around, why are our desirable plants not dominating
A Successful IWM Program

- Pest identification
- Prevention
- Physical or Mechanical Management
  - Cultural Management
  - Biological Management
  - Chemical Management
- Review and recommendations
Weed Prevention

• Easier said than done
• Weed management is much simpler if weeds do not become established
• Do not introduce weeds from contaminated soils—know your soil sources
• Don’t plant ornamental species that are potentially weedy unless labor is available to control them
Physical or Mechanical Management

• **Hand weeding**-Most annual and biennial weed plants can be easily managed by hand weeding

• **Hoeing**-Hoeing is intended to cut weeds off at or just below the soil line with minimal soil disturbance

• **Heat and Flame**-Torches, hot water, radiant heat

• **Cultivation**-rototilling and similar methods, while effective for annual and biennial weeds, can contribute to the spread of perennial weeds

• **Mowing**-Mowing may provide adequate management of tall weeds by reducing seed population
Labor is the #1 factor for weed management success

- Seattle Times article:
- Lake Washington School District
- 40 sites
- 600 acres

- 9 People
The best physical control: Mulching

• Mulching prevents weed growth
• Mulches work by preventing sunlight from getting to plants
• Dormant weed seeds will never get a chance to germinate
• Mulches aid in soil building
My Favorite Mulches

- Compost or composted bark-Needs to be replaced periodically due to natural decay-a good thing!

- Leaves-Nature’s Gold. They are free! Leave them in flower and shrub beds to replenish nutrients and protect soil
Until your neighbors figure it out, they will usually rake them up and give them to you

- Use cardboard and leaves for quick and easy sheet mulching

- The thicker the better! Come back in spring or summer for planting
Sheet Mulching for bigger jobs
Using free arborist chips

- Work was completed in 8 labor hours—a 15 X 120 sq.ft. area
- No hauling off of any weed debris
- The cardboard was purchased through KOR recycled packaging—www.recycled-packaging.com
- The burlap sacks were free
Torches

- Heat is very effective in killing top growth
- Properly outfitted, this unit has water and a fire extinguisher for backups

www.flameengineering.com
Radiant Heat

- Not as dangerous because there is no flame
- Heat destruction is quicker
- This unit has a backpack for the propane tank
  - www.chemfree-weedcontol.com
Hot water is very effective

- Hot water can be a great weed control in the right situations
- Concrete, pavers, and even gravel areas are great areas to use hot water treatments
Even Cisco Morris likes using hot water!
Watch out for your toes Cisco!
Cultural Management

Methods may include:

• Drip irrigation to minimize water availability to weeds
• Selective fertilizer applications (rather than broadcast)
• In Lawns, a healthy stand of grass will help weeds from getting established
• Best cultural management technique is:

  Plant Competition
A healthy, thick lawn is the best weed defense

• By providing good soil, roots can grow deep and thick
• Direct result is a turf grass that is thick, lush and a tough competitor for weed plants
Great groundcover plants
Other Successful Plantings
Chemical Weed Management

• Use the least toxic products
• 25b pesticides are the first choices:
• Most are contact sprays, they will not kill the root
• Nature’s glory weed and grass killer (25% acetic acid)
• Blackberry and Brush Blocker (20% citric acid)
• Burnout Herbicide –clove oil and vinegar
• Safer’s soaps-fatty acids
If you decide to use traditional herbicides

• In an integrated weed management program, these products are only used as a last resort option
• Select the proper product for the job
• Read the label, Read the label, **READ THE LABEL**
• Make sure you will have proper timing
• Spray with care
• Always wear proper protective clothing
In Harmony’s approach to Lawns
In Harmony’s approach to bed weed care
Constant flow of information
Canada does not allow herbicide use for aesthetic purposes
In Harmony
sustainable landscapes