



Integrated Pest Management (IPM)

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INTRODUCTION

Integrated Pest Management (IPM) is a comprehensive approach to pest (including weed and disease) management. IPM stresses the prevention of pest problems through design and maintenance practices, and uses a range of pest management techniques, including biological, cultural, and mechanical, with chemical controls as a last resort. King County and the City of Seattle have undertaken a strategy to eliminate use of the most hazardous pesticides and to reduce overall pesticide use on public lands managed by the city and county. King County decreased its total use of pesticides 50 percent in the first year (2000), and achieved an additional thirty percent reduction in 2001.

STANDARDS AND GUIDELINES

King County and the City of Seattle use "Pesticide Tier Tables" developed by the [Washington Toxics Coalition](#) to prioritize the phase-out of chemicals, based on the level of threat they pose to human health and the environment.

Tier Tables with phase-out priority assignments (updated September, 2005):

- [Herbicides](#)
- [Insecticides](#)
- [Fungicides](#)
- [Other](#)

[King County Executive Order](#) on IPM requires county departments to develop specific IPM policies for landscape management activities.

[King County IPM Guidelines](#) describes how IPM practices are used in landscape management.

[Tri-County IPM Policy, Guidelines and Final Report](#) details how the coalition formed in 1999 in response to the listing of Chinook salmon and summarizes their efforts.

USAGE HISTORY AND EXPERIENCE

King County agencies strive to reduce the use of hazardous chemicals whenever they do landscape maintenance or pest control. Agency contracts also require contractors to observe the tier table guidelines.

IPM Executive Order

In King County, the 1999 [Integrated Pest Management Executive Order](#) signed by then Executive Ron Sims required all county departments to manage landscapes in accordance with the [Tri-County IPM Guidelines](#) as well as develop [agency-specific IPM policies](#) for their own operations. The King County IPM Steering Committee was established to coordinate pest and vegetation management activities across departments in a collaborative process. The [Local Hazardous Waste Management Program](#) was designated to coordinate the efforts and offer technical assistance when needed.

Natural Vegetation Management (Goats)

Goats, notoriously, will eat almost anything. While we ordinarily think of hand-pulling, herbicides, mowing, and other mechanical approaches of weed control, goats offer many advantages in weed control.

In 2007 and 2008, King County Metro Transit hired a goat herder and 270 of his goats from Eastern Washington to assist with controlling weeds. These various sites have been difficult to maintain due to steep hillsides and uneven ground. The goats are a more efficient way to control the weeds than crews of human workers, present less risk of injury to the human staff, and eliminate the need for chemical maintenance. This service is needed twice a year to deter new plant growth. King County was so pleased with the results of two sites in 2007 that they contracted for four sites in 2008. The county's use of goats has generated a lot of interest from other jurisdictions and the community.

Due to budget shortfalls, this technique has not been used since, but will be re-evaluated on an as needed basis.

BID AND CONTRACT SPECIFICATIONS

Much of the landscape maintenance work done in County parks and facilities is accomplished by private contractors. Their work is governed by their contracts with the County and this section contains excerpts of contract provisions from landscape maintenance contracts.

King County Landscape Maintenance Contract

General

Contractor shall provide Material Safety Data Sheets for each chemical being used on the premises.

At the conclusion of each month the Contractor shall complete a monthly work log describing work accomplished that month. Completed monthly logs shall be turned in to the County including all pesticide application records.

Pesticide Use

No [Tier 1 Pesticide products](#) as defined by King County Executive Order may be used. Contractor shall submit all product labels for all herbicides, and insecticides proposed for use in advance to the scheduled application(s). The Building Services Supervisor will review the labels and work with the Contractor to select substitute non-Tier 1 Pesticides where possible. No lawn fertilizers containing 2, 4-D or related phenoxy herbicide weed control additives shall be used. No shrub bed pre-emergents containing dichlobenil (Casaron, etc.) may be used. No fungicides shall be used. No Dursban shall be used.

Weed and Moss Control

All lawn and shrub beds shall be kept free of weeds and moss by chemical or mechanical (pulling) means. Prior to any herbicide application, Contractor shall submit Label(s) to the Building Services Supervisor of proposed herbicide(s) for use in turf and shrub beds, and a schedule of chemical application. All beds, tree wells, and other non-lawn areas shall be kept clean of Horsetails, Morning Glory, Blackberry and other weeds at all times. Post emergence spot spray, weed wick or brush

applications using glyphosate (Roundup) in shrub beds, tree wells, and other non-lawn areas are permissible; follow the pesticide label.

Fertilizing

Note: fertilizer/herbicide and fertilizer/insecticide combinations are not to be used.

All lawn areas will be fertilized three (3) times each year, in the spring, summer and fall. Fertilizer used in the early and late summer applications shall be 28-7-14 analysis, Shur Crop Slow Release, Cascade Green, or approved equal. The rate of fertilizer application will be 1.0# actual Nitrogen (N) per 1,000 square feet. Contractor shall coordinate application of fertilizers with Facilities Maintenance personnel to insure adequate irrigation follows the use. One (1) application of Pacific Calcium Cal-Pril lime, or approved equal, shall be made to all lawn areas in the spring. 8# per 1,000 square feet will be the application rate. Contractor shall exercise care that the lime does not get applied to acid loving ornamental shrubs. Contractor shall submit product labels and labeling to the Building Services Supervisor for all fertilizers and lime products proposed for use. (SEE ATTACHED FERTILIZER SPECIFICATION (ATTACHMENT "A") BELOW)

Aeration

All lawn areas shall be aerated by mechanical plugging annually, during the spring. Contractor shall notify the Building Services Supervisor prior to aerating. Care shall be exercised not to damage irrigation systems during aeration. Fertilizer application and over seeding shall be scheduled to occur at the same time as aeration. The seed mixture shall be perennial rye/fescue mix that is designed for the Pacific Northwest Conditions.

Insect and Disease Control

Any insect or disease problems must be documented by monitoring reports prior to treatment. Contractor shall provide documentation of insect or disease problems to Building Services Supervisor. If required, chemical treatments shall be chosen based on least non-target toxicity and hazard. Building Services Supervisor can provide a copy of the [King County Pesticide Tier list](#) to assist with the choice of a low-toxicity pesticide. Chemical treatments should be avoided if alternative maintenance activities can reduce pest populations.

Material Safety Data Sheets

Contractor shall provide copies of Material Safety Data Sheets for each chemical that is being used on the premises.

Attachment A: Fertilizer Specifications

A. Shur Crop

28-7-14 or approved equal	
GUARANTEED ANALYSIS	
TOTAL NITROGEN (N).....	28.0%
2.75% Ammoniacal N	
14.18% Urea N	
11.10% Sulfur Coated N	
Available Phosphoric Acid (P205)	7.0%
Soluble Potash (K20)	14.0%
Sulfur (S).....	4.5%
Iron (Fe)	25%

Ingredients: Urea, Sulfur Coated Urea, Diammonium phosphate, Sulfate of Potash, Iron Sulfate and Fritted trace elements.

- 1 - early summer &
- 1 - late summer application

Rate: 1.0# actual Nitrogen (N) per 1,000 sq. ft. or approximately 3-2/3# fertilizer/1,000 sq. ft.

B. 15-5-25 with 50% SCU N

2-3 Month Turf Fertilizer with High Potash

GUARANTEED ANALYSIS

TOTAL NITROGEN (N).....	15.0%
2.0% Ammoniacal N	
5.5% Urea N	
7.5% Sulfur Coated N	
Available Phosphoric Acid (P205)	5.0%
Soluble Potash (K20)	25.0%
Sulfur (S).....	2.8%

Primary Ingredients: Urea, Sulfur Coated Urea, Diammonium phosphate, Muriate of Potash

Other: Grit

Advantages:

- 50% of the nitrogen (N) is slow release from Sulfur Coated Urea (SCU)
 - At least 90% of the N from SCU is released within 3-1/2 months (unlike Urcaform and some natural organics, which can take years to release their N, especially in cooler climates like Western Washington.)
 - The sulfur from SCU helps suppress Fusarium nivale.
- Cascade Green 15-5-25 contains a 3.5 ratio of N to Potash. Potash is crucial for disease resistance, drought tolerance and winter hardiness and has been found limiting in over 80% of soils in Western Washington.

Application Rates and Timing:

Standard Rage: 1 lb. N/1000 ft2 (6-2/3 lbs. Fertilizer/1000 ft2 or 7,5000 ft2/50 lbs).

Fall Applications: 1 lb. N/1000 ft2 in Mid to Late November (or within 2 weeks after last moving).
One fall application.

C. Calpril

Cal. Carbonate, NLT	90.0%
Mag. Carbonate, NLT.....	1.0%
Neutralizing power in	
Terms of Cal. Carbonate	91.0%
(Before Priling)	
Amt. Passing 10 mesh sieve	100.0%
Amt. Passing 20 mesh sieve	99.0%
Amt. Passing 40 mesh sieve	98.0%
Amt. Passing 60 mesh sieve	89.0%

Amt. Passing 100 mesh sieve80.0%
Score (Oregon)91.0%
Lime application or approved equal.
Rate of application: 8#/1,000 sq. ft.
Spring

City of Seattle IPM Contract

In 2008, the City of Seattle established a contract for Integrated Pest Management Services for pest and rodent control for all city buildings. This directs the contractor to use chemicals only as a last resort.

[RFP for Integrated Pest Management Services \(#01855\)](#)

FOR MORE INFORMATION

- King County [Integrated Pest Management \(IPM\) Program](#)
- King County [IPM Policy](#)
- [Pesticide "tier tables"](#)
- [King County EP Bulletin: Natural Vegetation Management \(goats\)](#)
- [Goats make quick work of weeds \(Seattle PI\)](#)
- [Washington Toxics Coalition](#)

VENDOR INFORMATION

King County has used the following contractor for natural vegetation management

[Healing Hooves LLC](#)

Contact: [Craig Madsen](#)

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