

**Final report to the Elvenia J. Slosson Endowment Fund
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Project Title: Interactive Tools for Growing and Maintaining Healthy Lawns

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INTRODUCTION

Many home lawn problems are misdiagnosed as pest damage, resulting in the overuse of pesticides. Pesticides and fertilizers applied to the urban landscape have been detected in California rivers and streams and have contributed to the declining water quality in these waterways. In most cases, unhealthy lawns are the result of poor cultural practices such as growing the wrong turf variety or not following proper mowing, irrigation, and fertilization practices. If properly maintained, lawns can be managed with very little application of pesticides. Although some UC leaflets provide homeowners and other lawn managers with information on pest management and cultural practices, the information is sometimes vague, and none integrate all of the information together in one single source. We have spent the past year developing a comprehensive web-based resource that will take the information currently available and expand on it while filling in the gaps where necessary. It will be the first resource available from UC that integrates all aspects of growing and maintaining healthy lawns.

GOALS / OBJECTIVES

Our goal was to develop an interactive module on maintaining healthy lawns. Functioning as both a reference and an interactive tool, this interactive computer module will help users diagnose lawn problems and tailor a management program to their specific conditions. A principal component of an IPM program for lawns is prevention, so much of the information focuses on cultural practices such as choosing the right turf

species, preparing the site, irrigating, fertilizing, and general lawn care. This resource builds upon existing University of California information while filling in the gaps where information is vague or lacking. This product will improve the quality of advice UC Cooperative Extension is able to provide, improve lawn care, and reduce unnecessary use of pesticides.

DISCUSSION

Organization

We met with our cooperators to identify the needs of the intended audience, the approach and delivery of the product, and topics to be included. We identified potential reviewers, discussed available resources, and finalized our pest lists.

Development of the guide

We gathered together all of the existing University of California materials on turf selection, site preparation, fertilization, irrigation, mowing, aeration, and de-thatching. Where information was vague, inconsistent, or lacking, we searched other university web sites and publications as well as lawn care materials available to the lay person. Using all of these materials and consulting with our committee and other experts, we developed text versions for the first five sections of the lawn module.

The first section is an illustrated key to the 16 most common turfgrass species (Figure 1). Summary screens that list key qualities, identifying characteristics, recommended management tips, and tables comparing tolerance levels to various conditions are available for each turf species (Figure 2). The next section describes how to prepare the planting site and plant turf and includes screens on topics such as working the soil, adding soil amendments and starter fertilizer, designing and installing an irrigation system, and planting turf vegetatively or from seed. The third section describes repairing or completely renovating problem lawns, and the fourth section provides information on initial establishment and development of grasses. Finally, a maintenance section allows users to get recommendations on how to properly mow, irrigate, fertilize, aerate and de-thatch while taking into consideration such things as their turf species, time of year, and location. For example, in the irrigation section, users can get information on how many minutes a week they should be watering by plugging in their location, turf species, and sprinkler output (Figure 3). The fertilizing section takes users through screens on what materials should be applied, how much material should be applied, and how often and what time of year they should be applied (Figure 4).

Programming the module

We worked with the software Dreamweaver to design the layout and flow of the first five sections of the guide. Each screen highlights the main ideas as well as provides thorough information on each topic. Interactive elements were included to help users interact with the program and grasp difficult concepts. Navigation from topic to topic is simple and logical.

We searched our photo collection and incorporated photographs where appropriate. UC IPM photographer Jack Kelly Clark has taken additional photographs. We worked with an artist to develop line drawings for our illustrated key, and we have created additional illustrations for other sections of the guide.

Review and revision

The text versions of the guide went through a review and revision process before being programmed. Sample screens were presented at a turf workgroup meeting at UC Riverside in September 2001. Parts of the illustrated turf key were presented in March 2002 at the University of California Ornamental Horticulture Extension Coordinating Conference. Our committee members and other experts have reviewed the first three sections of the guide on a test web site. These sections are being revised where needed. The remaining two sections are currently being reviewed. With some final touches, the first five sections of the module will be put up on the UC IPM web site this fall.

Continuing work

We are working on the pest management section of the guide. This will include a key to help users diagnose lawn problems caused by invertebrate and vertebrate pests, diseases, or abiotic disorders. An illustrated key for identifying weeds will also be created. We anticipate that the entire guide will be available on the web next year.

Expected results

Once available, we expect that the program will be accessed on the Internet by thousands of users. We anticipate that the interactive sections in the program will help users tailor a lawn management program to their specific conditions. We are hopeful that once users go through the program, they will be able to make educated decisions about how much maintenance is appropriate for their situation while reducing unnecessary water, fertilizer, and pesticide use. This program will also improve the ability of UC Advisors, Master Gardeners, and others in UC to answer home gardener questions regarding lawn problems. This program could also be used in UC Cooperative Extension education and training programs.

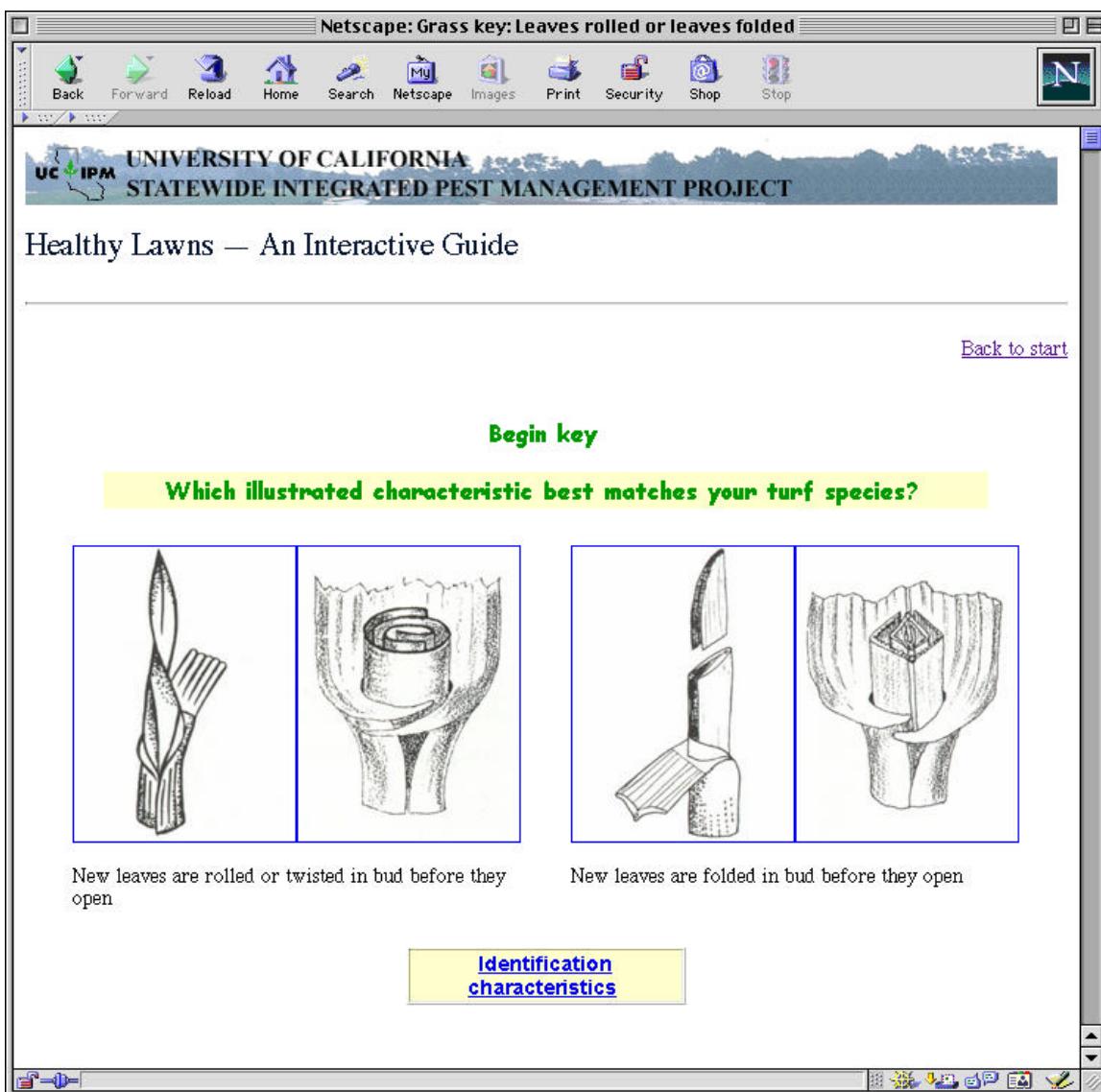


Figure 1: The illustrated key to identifying common turfgrass species in home lawns begins with determining if the new leaf is folded or rolled in the bud.

Netscape:Tall fescue

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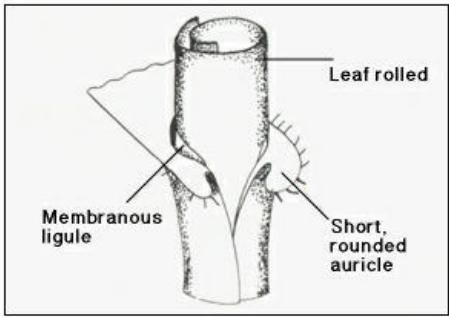
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Healthy Lawns — An Interactive Guide

[Tall fescue — *Festuca arundinacea*](#) [Back to start](#)



Tall fescue



Collar of tall fescue

Qualities

Tall fescue is a cool-season grass, well adapted to sunny or partially shady areas. When densely sown, a pure stand forms a moderate to coarse-textured lawn that is uniform in appearance with good weed and disease resistance. Tall fescue tolerates warm summer temperatures and stays green during cool, but not severe winter conditions. New varieties that are finer in texture and shorter in stature are known as turf-type tall fescues and dwarf turf-type tall fescues. Tall fescue is a good species to plant for general lawn use and is the most common lawn grass in California.

Identifying tips

A coarse-textured medium to dark-green grass with the leaves rolled in the bud. It has short, rounded auricles, a short membranous ligule, and an extensive root system. Because tall fescue has a bunch-type growth habit rather than a creeping type, open areas may develop and need to be reseeded.

Maintenance

Low maintenance. Tall fescue has excellent tolerance for heat stress and drought. It will tolerate moderate traffic and infrequent mowing. This species is not well adapted to high altitudes.

Figure 2: A summary screen for tall fescue includes key qualities, identification tips, and maintenance information as well as links to specific management information and comparison tables.

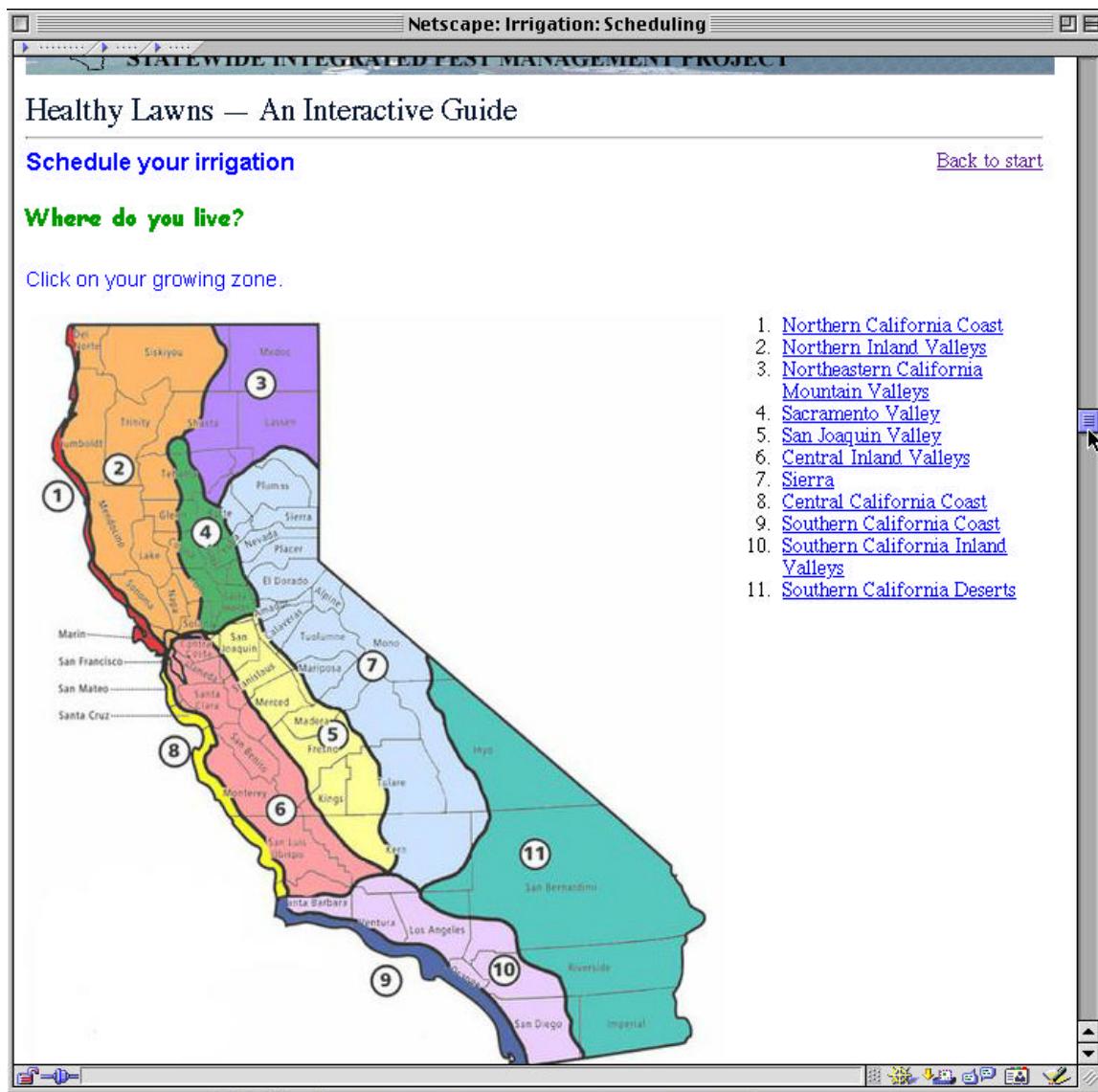


Figure 3: An interactive irrigation scheduling program allows users to find out how many times a week to water based on time of year, sprinkler output, turf species, and location.

Netscape: Fertilization: Zone 5 - Warm season grasses

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Healthy Lawns — An Interactive Guide

Zone 5 - Warm season grasses

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Warm season grasses are fertilized for the first time when the lawn has fully greened up in the spring and they should be fertilized in the summer into fall. Warm season grasses retain better color in cool weather if fertilized during the fall.

Recommended months to fertilize			
Jan	Feb	Mar	Apr
May*	Jun*	Jul	Aug
Sep	Oct	Nov	Dec

*Use a [complete fertilizer](#) for one of these months if necessary.

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Figure 4: The best times of year to fertilize for warm season grasses in the San Joaquin Valley.