SCHEDULING WOODY ORNAMENTAL PLANT DISEASE MANAGEMENT

by G.W. Moorman

Abstract. Effective plant disease management practices can be selected and scheduled prior to the growing season if adequate records are maintained on the plants being maintained, the physical characteristics of the site, a history of weather conditions, and the identity of the diseases that have occurred each season on the plants. Specific disease management practices can be grouped into four different categories based on the growth stage of the plant or general weather conditions — dormant season, budbreak, summer, and cool weather. For certain diseases, management practices are performed during one of these periods while for others steps must be taken during two or more periods for effective control.

The scheduling of effective disease management measures is not a simple task nor can it be standardized because the activities of the organisms which cause plant diseases are not governed by the clock or the calendar. Their activity is influenced by temperature, relative humidity, soil moisture and other highly changeable environmental factors. Strict scheduling is made even more difficult in the landscape because usually many different species of plants are being maintained and each has its own, often unique, diseases. As a result, the timing of pesticide application as well as other disease management practices must be tailored to the plant species being grown, the diseases that are present or could pose a serious threat, and the environmental conditions at the site.

Tailoring a very effective disease management plan for a client can be done, especially if notes are taken and records are kept on the plants, planting site, weather conditions, and the diseases that occur. With such records, the plan can be adjusted and improved over the years, increasing its effectiveness and, in some cases, reducing the use of pesticides.

Important records to keep:

1. Make an inventory of the plants at the site, noting the identity and location of the plants. Mapping and numbering their location on the map will help.
2. Note the important characteristics of the site including exposure to wind, proximity to roads or walks, and drainage patterns. Record the date of any site changes such as excavation, paving, and removal of overstory trees.
3. Record the general weather conditions at the site during the year especially drought, flooding, and wind. Plant symptoms due to weather related stress may not appear until several weeks after the condition occurred.
4. a) Record the general appearance and health of each plant being maintained, especially noting any unusual characteristics such as smaller than average leaves, unusually light green leaves, or smaller than average internode length. Note any mechanical injuries. This provides baseline data so that any changes in the plants can be detected.
   b) Each year record for each species the approximate date of leaf budbreak, first flowering, and full leaf and twig expansion. NOTE THE DATE OF THE FIRST OCCURRENCE OF THE DISEASES YOU MOST WANT TO CONTROL.
5. Record the use of insecticides, fungicides, herbicides, fertilizers, or any other chemicals on or near the individual plants or near the general site. Note the chemical, formulation, rate and method of application, and weather conditions at the time of application as well as the time of day the material was applied. This information is required to determine whether certain symptoms could be due to phytotoxicity.

This history of the site and of individual plants will later allow you to accurately identify any new diseases, general declines in growth, or chemical damage. Knowing what diseases occur and when will greatly improve disease management effectiveness.

The occurrence of key diseases and the timing of important disease management activities can

be roughly grouped into four different categories according to the activity of the plant or general weather conditions. Some diseases are managed during only one of these periods while others are managed during two or more periods.

1. Dormant season (late autumn-winter)
   a) Conduct inventories and map the location of key plants.
   b) Run soil tests to check pH and fertilizer status.
   c) Mulch to protect roots.
   d) Protect evergreens from drying winds, salt sprays, and ice damage.
   e) Prune out dead or cankered twigs and branches.
   f) Rake and destroy fallen leaves around trees and shrubs that had leaf spotting diseases, especially rose black spot, apple scab, and anthracnose.
   g) Examine the plants for galls such as those caused by cedar-apple rust (on juniper), white pine blister rust, pine-pine gall rust, black knot on plum and cherry, and crown gall. Remove infected branches or remove severely affected plants entirely.
   h) Late in the dormant season at or near the time of bud swell, spray for black knot of plum and cherry, oak leaf blister, peach leaf curl, and fire blight as just one phase of controlling these diseases.
2. Budbreak (spring-early summer)
   a) Spray to protect emerging leaves of plants that have a history of severe anthracnose, leaf spots, needlecasts, or twig blights, or are at high risk to these diseases.
      Diseases of primary concern include:
      Diplodia tip blight
      Juniper twig blight
      Apple scab
      Rose black spot
      Dogwood anthracnose
      Ovulinia petal blight
      Phytophthora dieback
      Volutella on pachysandra
      Douglas-fir needlecasts
      Cedar-apple rust
      Pine-pine gall rust
      Fire blight
   b) Pick off and destroy any gall or gall-like tissue such as cedar-apple rust galls from junipers and leaf and flower galls from azaleas.
   c) Apply soil drench fungicides to azaleas and rhododendrons which are at risk to Phytophthora root rot.
3. Summer
   a) Apply fungicides between wet weather periods, or if using sprinkler irrigation, to prevent the further spread of diseases including:
      Apple scab
      Rose black spot
      Volutella on pachysandra
      Anthracnose
   b) Apply soil drench fungicides to continue the *Phytophthora* protection. Do this at the recommended interval noted on the product label.
   c) Apply fungicides to control pine and spruce needlecasts.
   d) Irrigate to prevent drought stress.
4. Cool weather (late summer-autumn)
   a) Spray to control powdery mildew on highly susceptible plants such as roses, particularly during cool night-warm day periods. Broad leaf evergreens susceptible to powdery mildews should also be protected. It is not necessary to control powdery mildew on deciduous trees such as oaks.
   b) Spray to protect the new autumn growth on plants such as junipers from twig blight infection.
   c) Prepare new planting sites that should be fumigated and treat them while soil temperatures remain above 55°F and soil moisture is 50-85% of field capacity. Allow the site to aerate several weeks before planting or cover the treated area with a plastic tarp and plant in the spring.
   d) Update the site inventory and *be certain you have recorded all the diseases that developed on each plant.*

In addition to these four key periods of disease control, times during which plants are under stress (such as drought or defoliation) should be shortened as much as possible through watering and insect control. Stresses weaken plant vigor rendering them more susceptible to weak plant

parasites that can cause cankers and root rots.

By keeping accurate records each year on the planting site, plants, weather, and the diseases that develop, you gain knowledge of where, when, and what diseases occur. Armed with this information a disease management schedule can be refined so that the best control method is used at the most effective time on the plants at greatest risk to disease.

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SHOULD URBAN FORESTRY BE DEFINED?

by Bailey Hudson

Abstract. The complexity of an urban forest varies from city to city. This diversity in urban profiles and politics complicates the development of any acceptable definition. A consensus definition has proven to be extremely elusive and raises the question, is one necessary? Urban forestry managers must ask themselves, would a definition open new doors of opportunity? Opinions are many and diverse as to what urban forestry is, and what it encompasses. This paper attempts to clarify some of these questions and assumes the all-inclusive aspect of the urban forest concept.

Men imagine that their reason governs words, while in fact words react upon the mind, wherefore the solemn disputes of learned men often terminate in controversies about words; and even definitions cannot remedy this evil since definitions themselves consist of words and these engender others endlessly. From "The Idols of the Cave and the Market Place, by Francis Bacon, 1561-1626.

Unfortunately, this philosophy of Francis Bacon's is probably true. However, in today's world of rapid communication, definitions are commonplace and often provide a means of settling heated controversies. It is not within the scope of this paper to review all the negative or positive aspects of an urban forest definition. The purpose here is to examine some of the problems and attempt to answer the threshold question — is a consensus definition necessary?

The designations of urban forests and urban forestry are often taken out of context. In this paper, urban forest is a complex entity that is people and experience oriented. Urban forestry is synthesis management and is process and activity oriented. This distinction suggests that urban forestry is all-encompassing of various parts and elements. The components of the urban forest must be brought together with a synthesis management approach to effectively sustain the forest benefits for people.

Universal interest in the urban forestry field and its adaptability to a variety of professional disciplines seem to defy hope for a consensus