Lawn Management for Master Gardeners

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Maine Board of Pesticides Control

Some Benefits of a quality Lawn

- Reduce noise
- Reduce glare
- Reduce surface runoff
- Reduce injury from falls
- Reduce “nuisance” pests and airborne allergens

Essential Components of Lawn Management

- Grass seed selection - different for lawns, golf courses, sport fields & right-of-ways.
- Establishment - soil preparation, sod or seed.
- Maintenance - fertilizer, water, mowing, pest control - weeds, insects & diseases.

Starting from scratch

- Where do you need a lawn?
  - Keep the lawn area as small as possible
- Proper grading and drainage
  - Remove topsoil before making grade changes
  - Should be around a 1 – 2 % grade away from the home, avoid steep grades
  - Avoid wet areas, if a lawn must be planted in wet areas, install drainage tiles

When's the best time?

- If water is available, sod can be installed anytime
- Seeding is best done from August 15 – September 30
  - High soil temps, less weed emergence
- Seeding in May or June is less desirable
  - Low soil temps, large weed flush at same time grass emerges

Harvest Moon = best seeding time

Soil, Soil, Soil

- At Least 6 – 12 inches of sandy loam topsoil is preferable!
- Do a soil test
  - Take 10 – 15 samples/1000 sq ft
  - Take samples about 6 inches deep
  - Mix samples together in bucket and send about a 2 cup composite sample to soil lab

Adjust the soil

- Adjust soil nutrients, pH and organic matter conditions as indicated by a soil test
  - Slow release N fertilizer
  - 1LB/1000 sq ft or less of N,
  - If needed, 1LB/1000 sq ft of P,
  - K only needed if deficient
  - 50LB/1000 sq ft of lime
  - 1 – 2 inches of finished compost as needed to get soil Organic Matter level to 3 – 5%

Soil Test Results

Soil Nutrient	Low	Medium	Optimum	Excessive
Phosphorus	xxxxxxxxxxxxxxxx			
Potassium	xxxxxxxx			
Calcium	xxxxxx			
Magnesium	xxxxxxxxx			
Soil pH	xxxxxxxxxxx			
Org. Matter	xxxxxxxx			

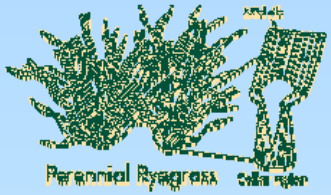
Site preparation before planting

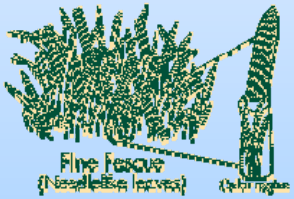
- Minimize soil disturbance as much as possible
- Use solarization or layers of cardboard and compost
- Use pre-emergent herbicide
- Kill existing turf and slit seed through the dead turf

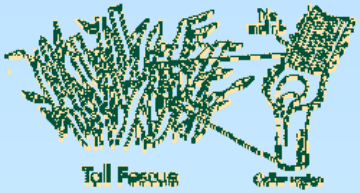
Turf Selection

- AVOID “Contractor’s Blend”!!!!
- Use blend of at least three different grass cultivars or three different species!
- Fine or tall fescues are well adapted to Maine and create low maintenance lawns!
- Ryegrasses establish fast, but are disease and drought prone!
- Kentucky bluegrass establishes slow, requires extensive fertilizer & water!
- Bentgrass for golf greens and tees only

Choose the right grass varieties for Maine







Sunny, medium to high maintenance	
65% Kentucky bluegrass blend 15% perennial ryegrasses 20% fine fescues	3 to 4 lbs. per 1,000 sq. ft.
Sunny, low maintenance	
65% fine fescue blend 15% perennial ryegrasses 20% Kentucky bluegrass blend	4 to 5 lbs. per 1,000 sq. ft.
or 100% tal fescue blend	7 to 10 lbs. per 1,000 sq. ft.
Shady	
100% fine fescue blend	4 to 5 lbs. per 1,000 sq. ft.

	Kentucky Bluegrass	*Perennial Ryegrasses*	*Tall Fescue*	*Fine Fescue*
Growth habit	Rhizotamous	Bunch	Bunch	Bunch
Leaf texture (blade width)	Medium–Fine	Medium	Coarse	Very Fine
Establishment from seed	Slow (approx. 30–90 days)	Fast (approx. 14–21 days)	Fast to Average (21–30 days)	Average (21–50 days)
Seeding rate	1 to 2 lb./1,000 $ft.^2$	5 to 9 lb./1,000 $ft.^2$	5 to 9 lb. /1,000 $ft.^2$	3 to 5 lb./1,000 $ft.^2$
Annual nitrogen fertilizer	3 to 4 lb./1,000 $ft.^2$	2 to 6 lb./1,000 $ft.^2$	2 to 4 lb./1,000 $ft.^2$	1 to 2 lb./1,000 $ft.^2$
Drought tolerance	Poor	Poor	Some	Some
Shade tolerance (min. 4 hr. of direct sun)	Poor	Poor	Good	Excellent
Wear tolerance (traffic)	Good	Good	Good	Poor
Insect tolerance	Some	Some	Excellent	Good
Disease tolerance	Some	Some	Good	Good

Plant or over-seed with low maintenance grass types

- Fine Fescues 40 - 50%
  - Creeping Red Fescue
  - Hard Fescue
  - Chewings Fescue
- Tall Fescue
- Common Kentucky Bluegrass
- Endophyte enhanced fescues or perennial rye
- Plant grass seed in late summer/early fall
- Avoid sod

Example Mix

40% Endophyte Enhanced Creeping Red Fescue

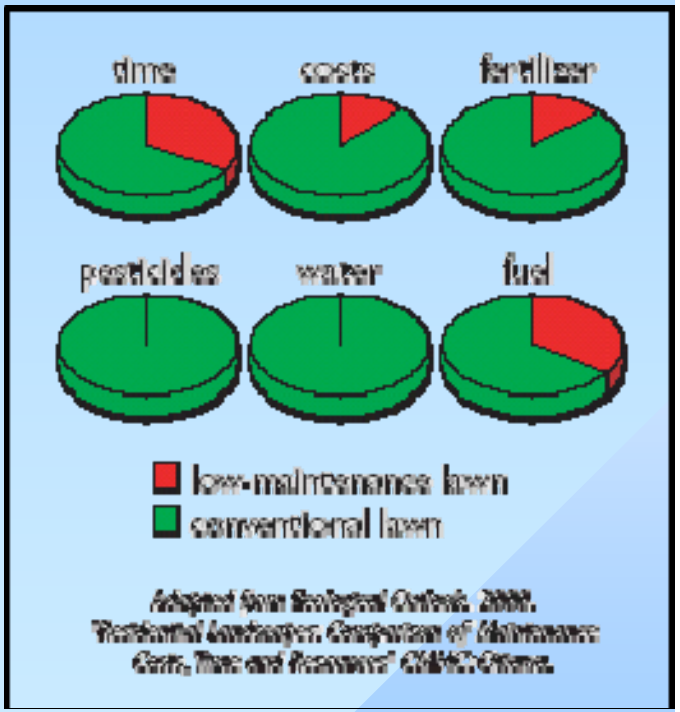
10% Southport Chewings Fescue

30% Endophyte Enhanced Perennial Ryegrass

20% Kenblue KBG

Low Maintenance Lawn Benefits – *2000 CMHC study of 30 residences*

- Residents with low-maintenance lawns spent
  - 50 per cent less time,
  - 85 per cent less money, and
- used
  - 50 per cent less fuel,
  - 85 per cent less fertilizer,
  - 100 per cent less water and
  - 100 per cent less pesticides per year



http://www.cmhc-schl.gc.ca/en/burema/gesein/abhose/abhose_076.cfm

How about ***low/no*** mow grass? How about adding clover?

No Mow Mix

Low Input Lawn Demonstration Sites

- 14 Varieties in Trials
  - Rogers Farm, University of Maine, Orono

YardScaping Mix

Seed or sod?

- Sod is generally high input KBG
  - Needs lots of H_20 & N
  - Not shade tolerant
  - Good for slopes, But?
- Seed is more flexible
  - Can adjust for shade
  - Less inputs, etc

Water is essential at this stage

- Seed or sod must be watered until it is established

- Keep seed moist throughout the day
  - –May have to water 2 – 3 times/day
  - –Keep top ½ inch of soil moist
  - –Takes about 3 weeks for KBG & Fescues to fully germinate

Mow after grass is established

- Once grass reaches 2 inches it is time to cut it
- Mowing at this stage reduces weeds
- Cut to 1½ inches for the first 3 mowings
- Then mow at 3 – 3$^{1/2}$ inches

Maintenance of established lawns

- Mowing
- Watering
- Aeration & Dethatching
- Soil Amendments
- Pest Management

“High Input” Lawn Maintenance Program

- Fertilize 4 to 6 times per year (4 to 5 pounds of Nitrogen per 1000 ft.sq./year!)
- Preemergence herbicide annually (crab grass and other annual weeds)!
- Broadleaf herbicide annually (dandelions and other broadleaf weeds)!
- Mow once to twice per week!
- Irrigate during drought!
- Grub or surface insecticide when needed!

“Low Input” Lawn Maintenance Program

- Select or introduce lower maintenance turf species. (Tall or Fine Fescues)
- Use slow release fertilizers, no more that 2 pounds of Nitrogen per 1000 sq.ft./year.
- Mow high.
- Don’t irrigate, let go dormant.
- Use pesticides (herbicides and insecticides) only when needed (monitor/ sample pest populations before applying).

Start from the ground up

- Minimum of 6 – 12 inches topsoil is ideal
  - May need to build topsoil by topdressing with high quality soil and/or compost
- Soil test every 1 - 3 years

Soil

a lawn's

foundation

Nutrient tips

- Soil test!!!!
- Measure carefully
- How much
  - 1 - 2 lbs N/1000 sq ft
  - 0 – 1 lb for low input grasses
- When
  - late August - mid October
  - not when ground is frozen

Soil Test Results

Soil Nutrient	Low	Medium	Optimum	Excessive
Phosphorus	xxxxxxxxxxxxxxxx			
Potassium	xxxxxxxx			
Calcium	xxxxxx			
Magnesium	xxxxxxxxx			
Soil pH	xxxxxxxxxx			
Org. Matter	xxxxxxxx			

Nutrient tips Con't

- Adjust soil pH to 5.5 – 6.5 with lime
  - Pelletized dolomitic limestone preferred unless soil test shows excess magnesium

- Unless soil test indicates deficiency, skip the phosphorous!
- Apply potassium only when a soil test indicates need

Select slow release fertilizers

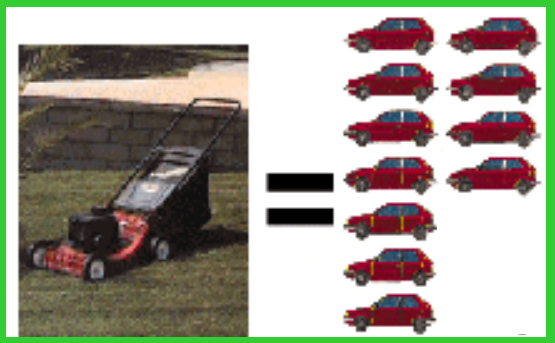
Fertilizer Name	Analysis	Source of N	Moisture Dependence	Low Temperature Response	Residual N Activity	Salt index (per N unit)	Leaching Potential
Quickly Available							
Ammonium-nitrate	33-0-0	ammonium nitrate	minimal	rapid	4-6 weeks	3.2	high
Ammonium-sulfate	21-0-0	ammonium sulfate	minimal	rapid	4-6 weeks	3.3	high
Ammonium-phosphate	18-46-0	diammonium phosphate	minimal	rapid	4-6 weeks	1.6	high
Urea	46-0-0	urea	minimal	rapid	4/6 weeks	1.6	moderate
Slow-Release							
Sulfur-coated urea	22-38% N	urea	moderate	moderately rapid	10-15 weeks	not applicable	low
ONCE	24-25% N	urea, nitrate, ammonium nitrate	moderate	moderately rapid	15-38 weeks	not applicable	low
Slowly-soluble							
IBDU	31-0-0	isobutylidine diurea	high	moderately rapid	10-16 weeks	0.2	low

Select slow release fertilizers

Fertilizer Name	Analysis	Source of N	Moisture Dependence	Low Temperature Response	Residual N Activity	Salt index (per N unit)	Leaching Potential
Ureaform reaction							
Nitroform	38-0-0	ureaformaldehyde	high	slow	10-30 weeks+	0.3	very low
FLUF	18-0-0	urea/ureaformaldehyde	moderate	medium	6-10 weeks	not applicable	low
Nutralene	40-0-0	methylene ureas	moderate	medium	7-12 weeks	not applicable	low
Methylene urea	39-0-0	methylene ureas	moderate	medium	7-9 weeks	0.7	low
Coron	28-0-0	urea/methylene ureas	minimal	moderately rapid	7-9 weeks	not applicable	moderate
N-Sure	28-0-0	triazone/urea sol.	minimal	moderately rapid	6-9 weeks	not applicable	moderate
Natural Organic fertilizers							
Ringers	6-1-3	blood, bone, seed meals	high	medium	10-12 weeks	0.7	low
Sustaine	5-2-4	composted turkey waste	high	medium	10-12 weeks	0.7	low
Milorganite	6-2-0	activated sludge	high	slow	10-12 weeks	0.7	low

Mow properly

- Mow high at 3 inches or highest setting
- Mow regularly
- Keep mower sharp
- Return clippings
- Vary mowing pattern



Mower exhaust = 11 cars' exhaust

One hour of mowing = driving 400 miles

Mowers spew 87 lbs of greenhouse gases and 40 pounds of other pollutants annually

Add organic matter

- Top dress with
  1/8 - 1/4 inch of compost
  - reduces thatch
  - improves nutrient and water holding capacity

No endorsement intended or implied

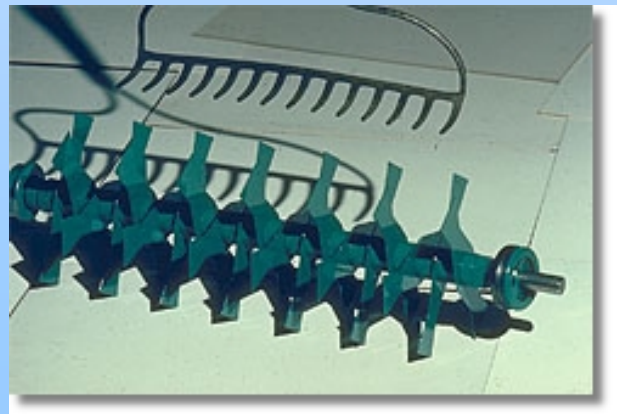
- Some composts may be high in nutrients
  - use a source that has been tested
  - test the soil after application
  - watch for development of layers and high phosphorus levels

Water only when needed

- Deepen the roots by holding off on watering in the spring until you see signs of stress (turf has a blue or purple cast)
- Water deeply 3/4 - $1^{1/2}$ inches per week
  - Don't water every day (use a rain gauge)
  - 1 - 2 times a week is best
  - Water early in the morning (to reduce disease)
- To reduce water needs allow the turf to go dormant in the summer
  - apply 1/4 - 1/2 inch water every 3 weeks

Let it breathe

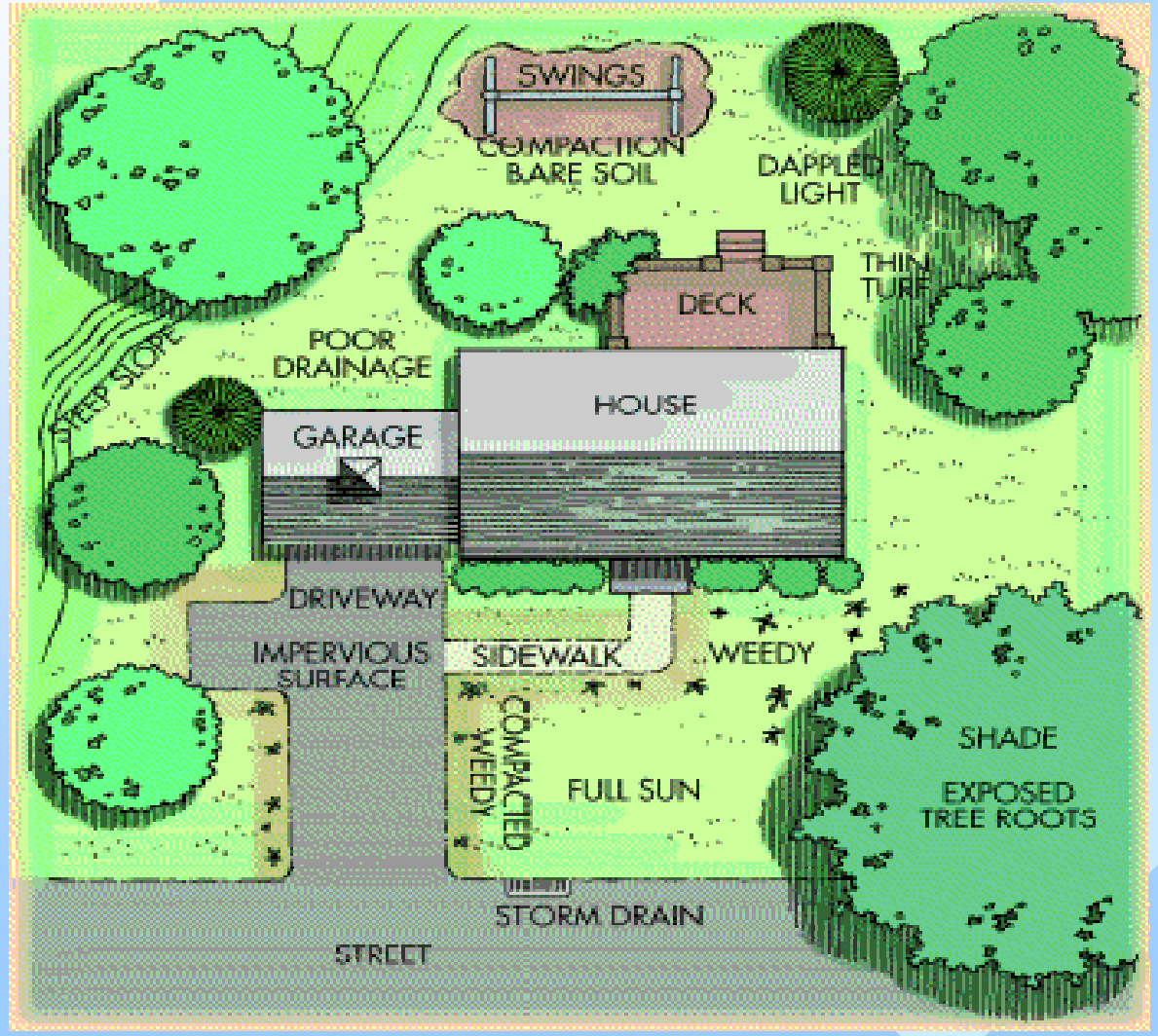
- Keep thatch under 1/2 inch
- Cut back on pesticide use
- Core aerate in the late summer or early spring



How do you use your lawn?

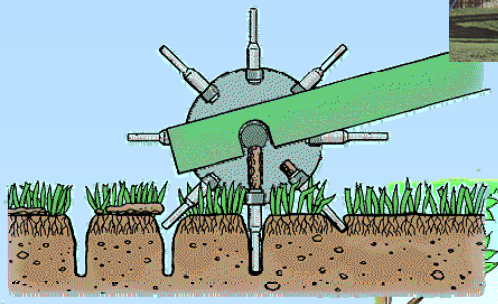
- Do you tread lightly?
  or
- Do you rough it up?
- What areas need help?

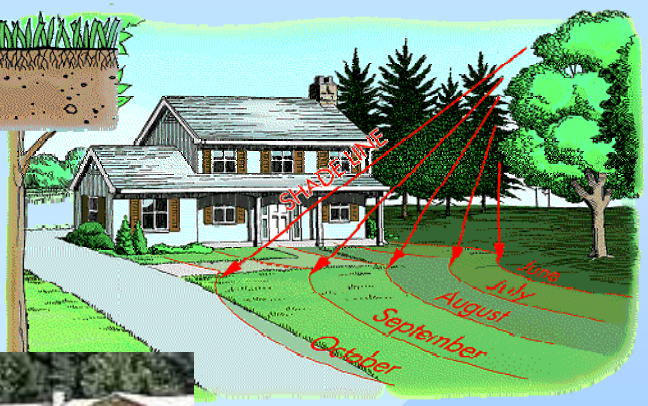
Problems are inevitable



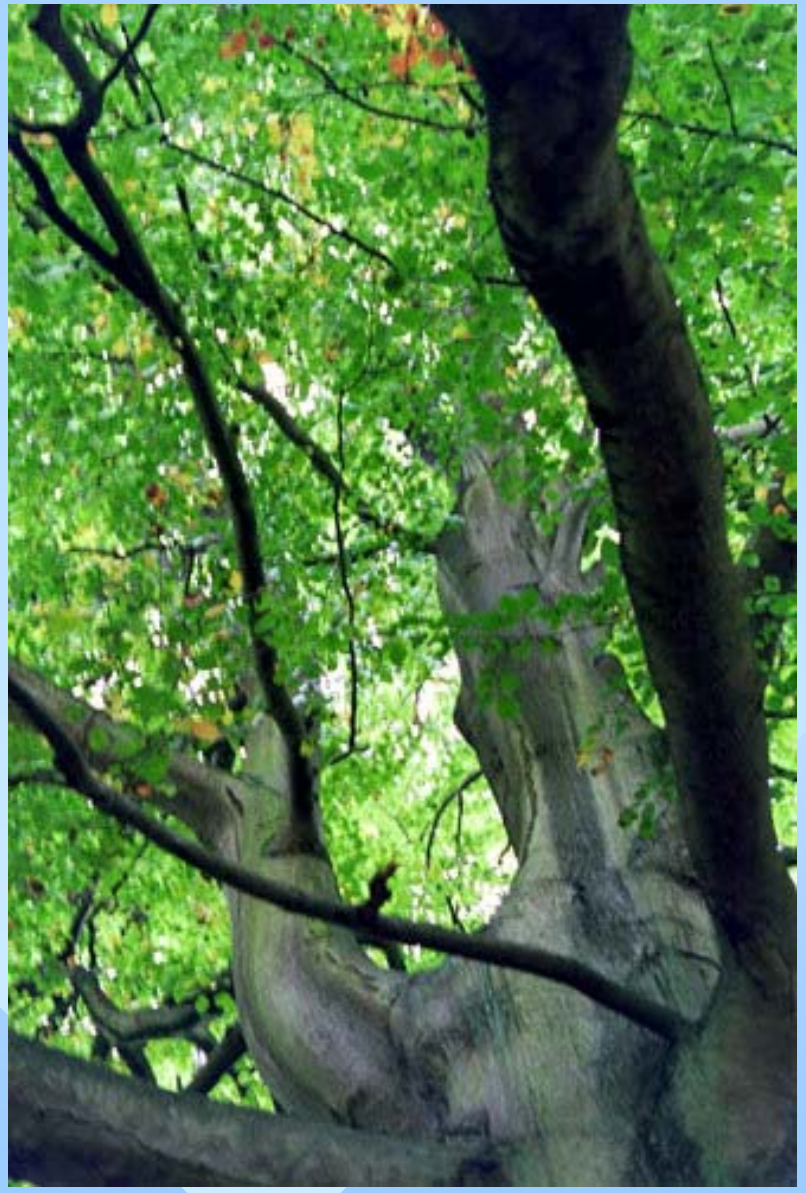
Where are the problem areas?

- High traffic
- Compaction
- Shade
- Pest problems





#1 Killer of grass



To much shade?

- Must have at least 6 hours of direct sunlight to grow lawn grasses
- Trees in shaded areas must be thinned and lower branches pruned
- Better yet leave the trees and plant shade tolerant ground cover

Ground covers

- Non-native

Periwinkle or Myrtle

May be invasive

Pachysandra

English Ivy

May be invasive

Ground Covers

- Native

Bunchberry

Wintergreen/
checkerberry

Partridgeberry

Integrated Pest Management

- Grow stress-free turf

Is this stress free turf?

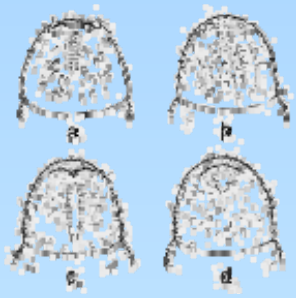
- Accept a few weeds or insects

- Keep an eye on the lawn

Integrated Pest Management

Think First... Spray Last!

- Identify the pest

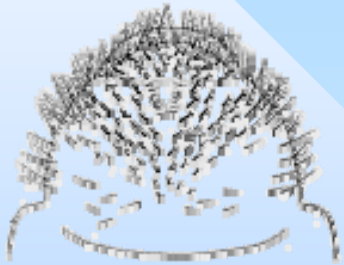


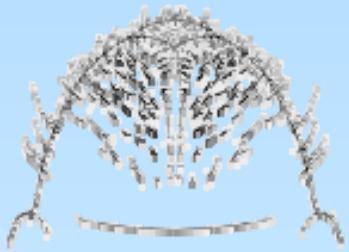
- Pull it out or mow it off

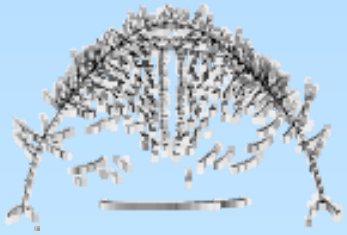
- Irrigate

Pest Identification is crucial

White grub rastral patterns







Japanese beetle

European chafer

May/June beetle

Rose chafer

Integrated Pest Management

Think First... Spray Last!

- Encourage biological controls
- Use pesticides as a last resort
- Read and follow labels carefully

No endorsement intended or implied

IPM Principles and Concepts

IPM Core Concepts

- No single pest control method will be successful.
- Monitoring (sampling) of the pest is constantly needed.
- Mere presence of a pest is no reason to justify action.

IPM Principles and Concepts

IPM is NOT:

- a biological control program
- an organic program
- a pesticide free program
- the most expensive approach
- the least expensive approach

Weed Management-

weeds are indicators of “problems”

Common broadleaf weeds

Plantain

Hawkweed

Creeping Charlie/ Ground Ivy

Common grassy weeds

Nutsedge

Crabgrass

Quackgrass

Weed Control Approach
(BASIC STRATEGY - dense, tall turf tends to reduce weed invasion)

- **Mow high, 2.5 - 3 inches MINIMUM**
- **Promote root growth – fertilize in late summer/early fall**
- **Reduce wear and compaction - encourage foot traffic away from turf; core aerify twice per year**
- **Overseed or slit-seed open areas ASAP**
- **Seed is the best weed control!**
- **Spot treatment with herbicides *only when necessary***

Are there alternatives?

- Corn gluten meal has demonstrated pre-emergent herbicide activity
  - Rather expensive and a weak herbicide
  - Most effect comes from the nitrogen released as the meal breaks down - added fertility thickens turf and reduces weed germination (9% Nitrogen!)
- Weed flamers and spikes *"Punto"*
- Hot water foam and steamers
  - Mostly used in cities where herbicides have been banned

No endorsement intended or implied

Punto

Turf Insect Pests

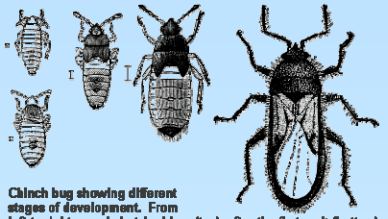
- Surface or thatch pests
- Root-feeding pests

White grubs

Sod Webworm

Integrated Pest Management – Insect Pests

- White Grubs
- Chinch Bugs
- Sod Webworms
- Billbugs

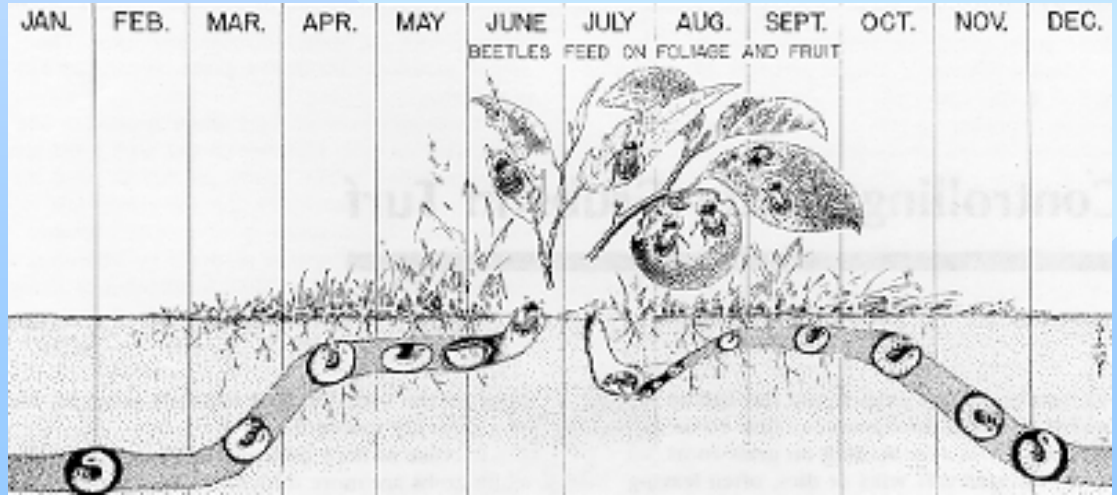


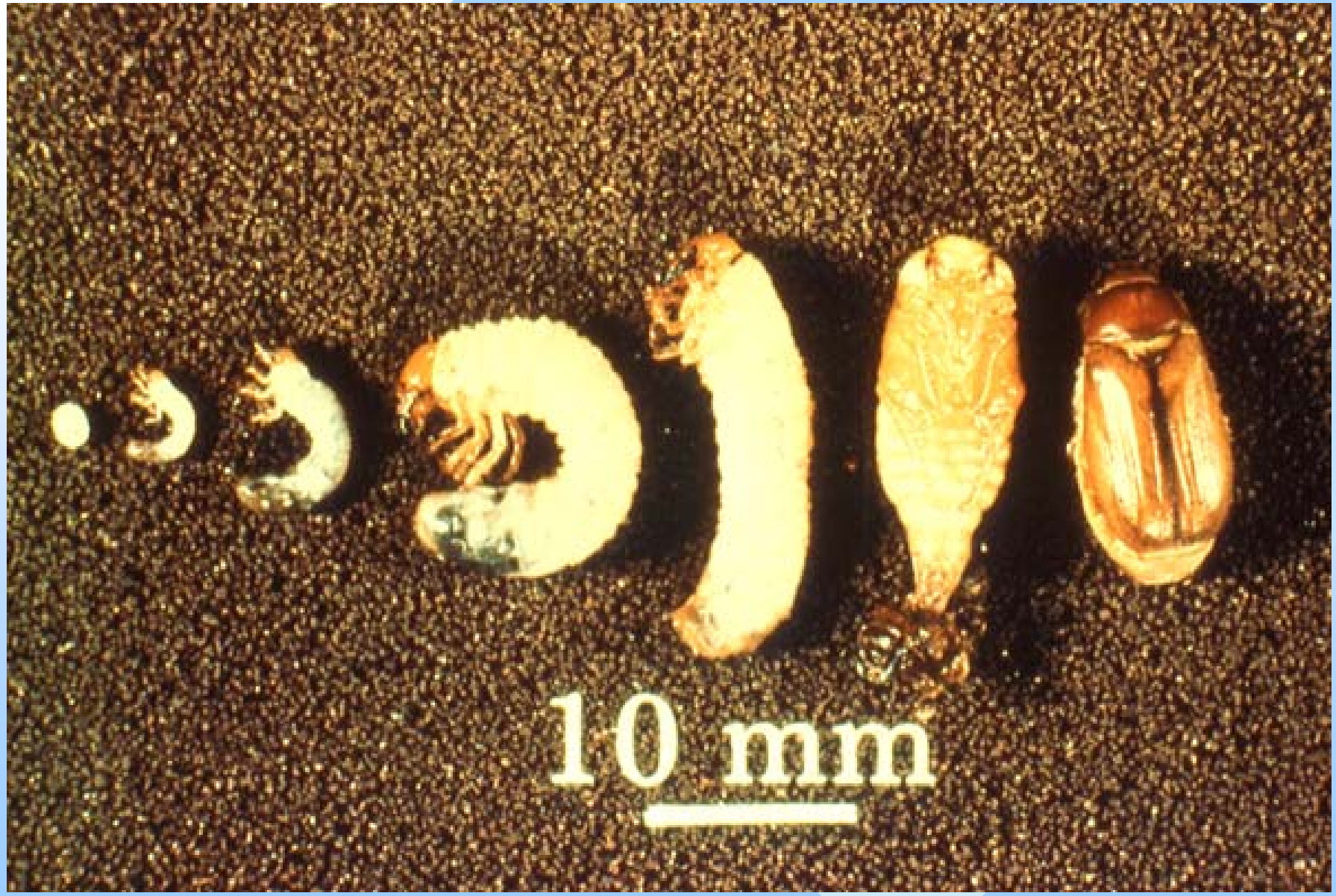
Chinch bug showing different stages of development. From left to right: newly hatched bug (top), after the first molt (bottom), second molt, third molt and adult chinch bug.

White Grubs

Grub biology

- One generation per year
- Grubs active in spring (April-May) and fall (mid August through October)
- Adults active in summer months

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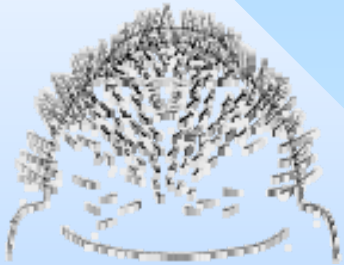
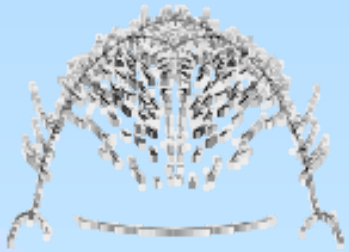
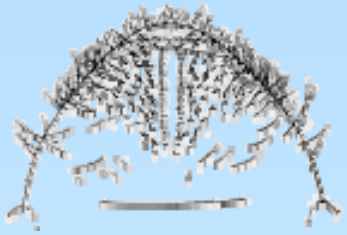
Pest Identification is crucial

White grub rastral patterns







Japanese beetle

European chafer

May/June beetle

Rose chafer

New grub species

- Asiatic garden beetle
- Grubs are slightly smaller than Japanese beetle and European chafer
- Adults are drawn to bright lights at night

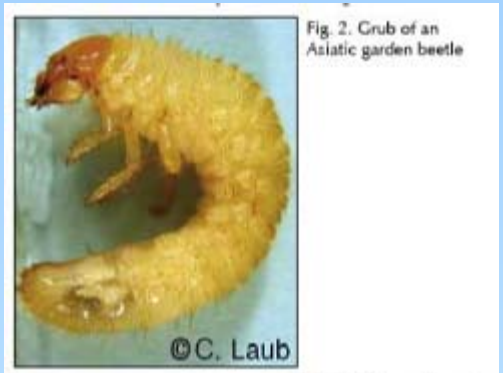


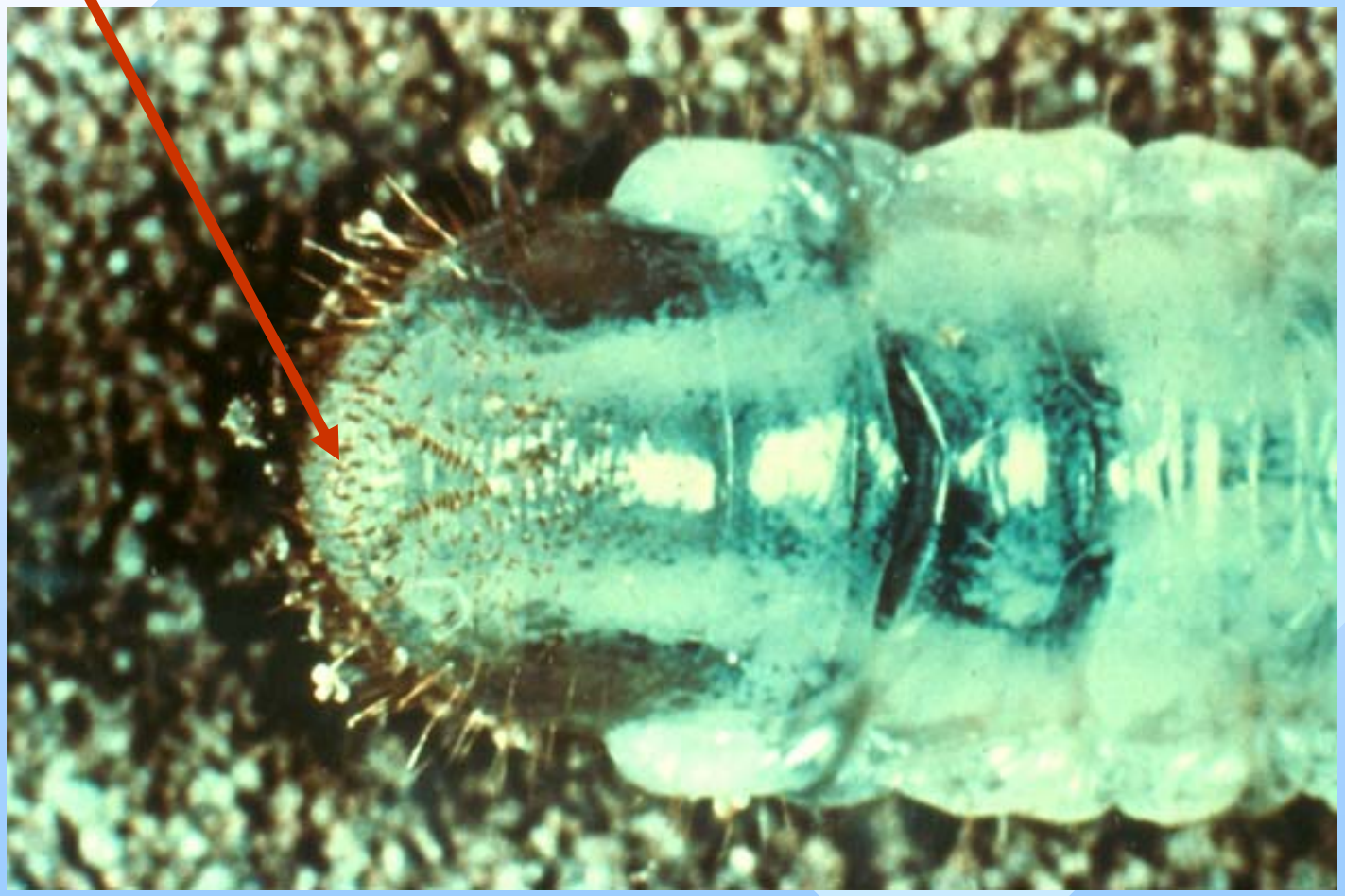
Fig. 2. Grub of an Asiatic garden beetle

Fig. 3. Raster pattern of an Asiatic garden beetle grub

Japanese beetles

- Most widely distributed species in New England
- Most are susceptible to insecticides
  - Some resistance to imidacloprid (Merit)
- Adults feed on over 300 species of ornamental plants

Look for the short “V”

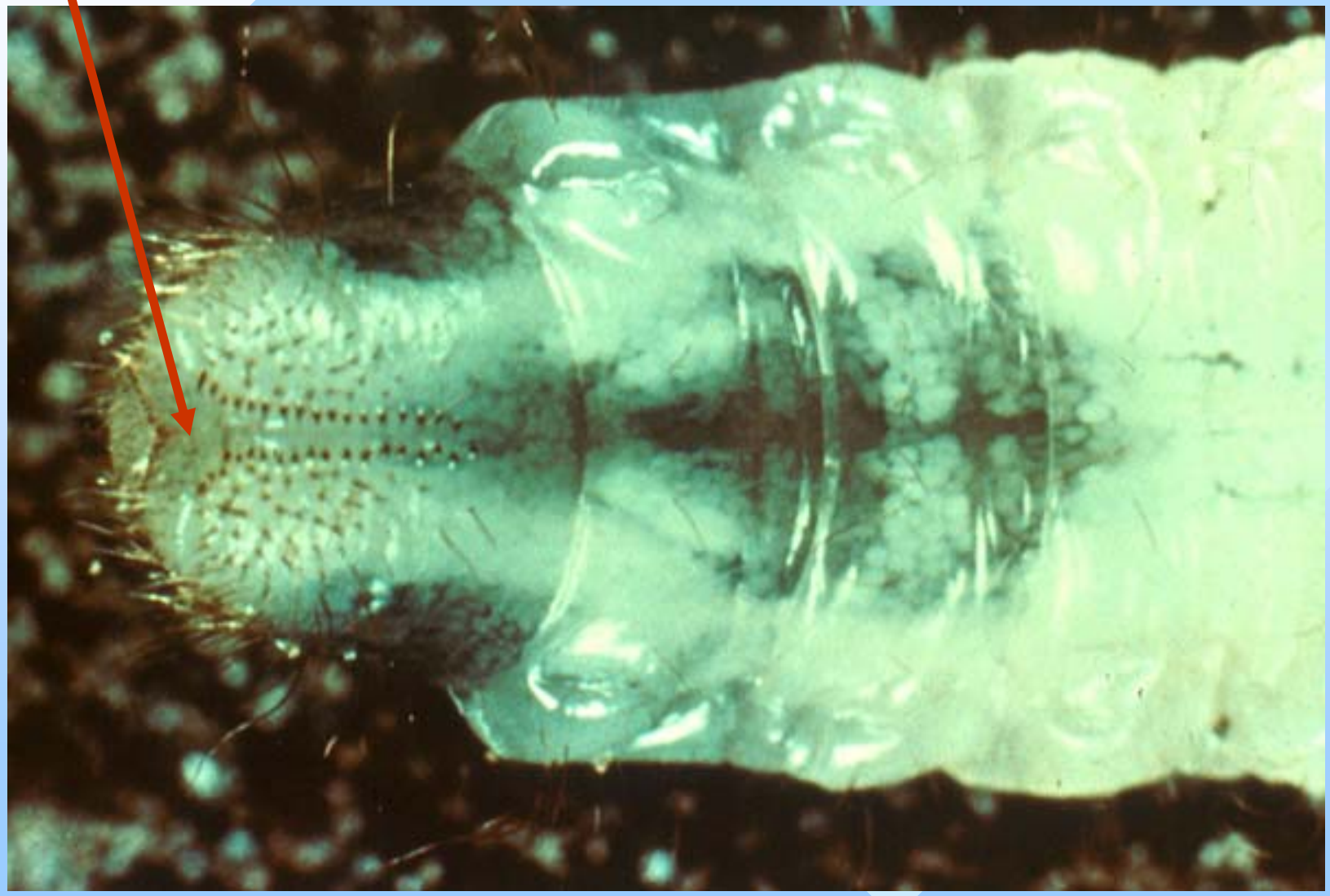


European chafers

- Active in southern and mid coast Maine
- Life cycle two weeks EARLIER than JB's
- Least sensitive to cold temperatures
  - Feeds all winter under snow covered grass
- Most damaging species (grub for grub)

European chafer adults

Look for the extended “V”



Monitoring Grubs

- Most grub damage happens in September - October or April - May
- Turn over 1 sq. ft patch of turf, count grubs or Cup cutter plug (0.1 sq. ft.)
- Threshold:
  - Japanese beetles 8 - 15 / sq. ft.
  - European chafers 4 - 10 / sq. ft.
  - May / June beetles 3 - 8 / sq. ft.
  - **These levels are doubled on irrigated turf**

Cultural controls for grubs

- Avoid use of bluegrass
- Let turf go dormant in July/August
- ¾ - 1 ½ inches of water every 5-7 days
- High pressure water injection

Water reduces grub damage

- Water deeply ¾ - 1 1/2 inches per week
  - Don't water every day (use a rain gauge)
  - 1 - 2 times a week is best
  - Water early in the morning (to reduce disease)
- Light watering (Syringing) on very hot afternoons is also acceptable
- Avoid irrigation 24 hours prior to sporting events

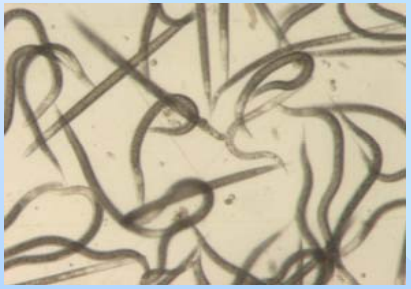
Nematodes for grub control

- *Heterorhabditis bacteriophora*
- *Heterorhabditis zealandica*
  - **These work on white grubs**

- *Steinernema carpocapsae* - Do NOT use for grubs under any circumstances!!!

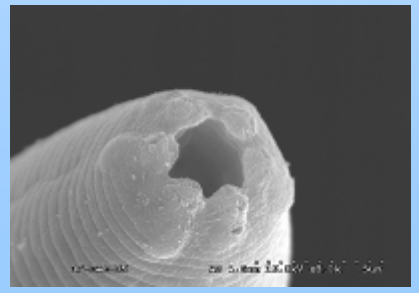
Entomopathogenic nematodes

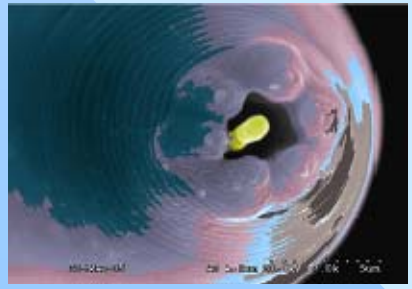
- “living hypodermic needles”
- Very sensitive to high temperatures and sunlight
- MUST be watered in immediately



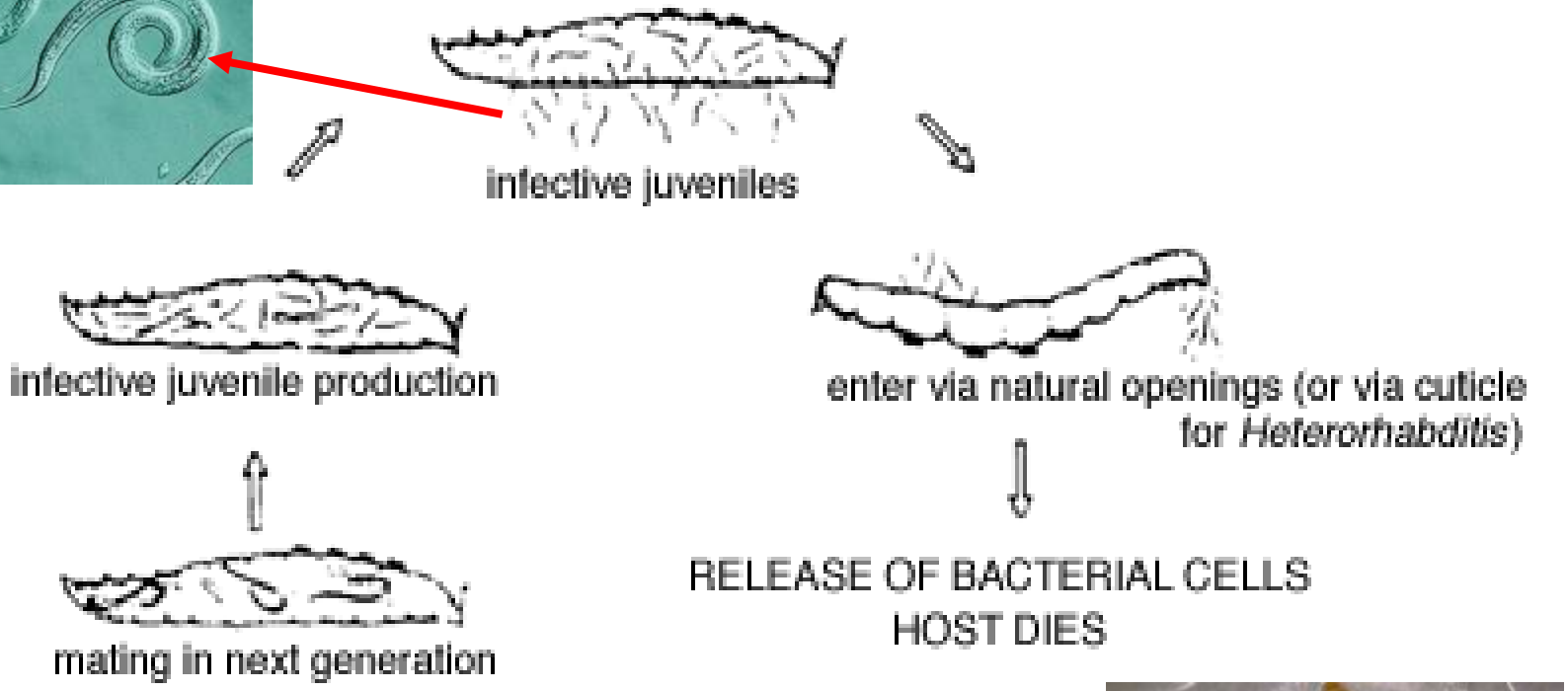
Infective juveniles

Female





Life Cycle of Entomopathogenic Nematodes

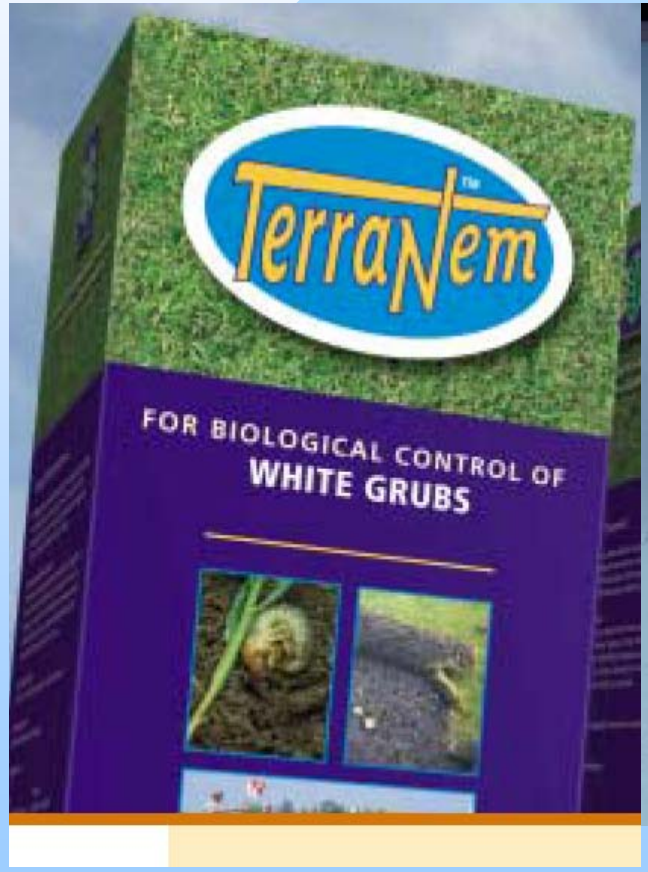


Wax worms infected with ---

Heterorhabditis sp

Steinernema sp

Beneficial nematode products



No endorsement intended or implied

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raulic nozzles
type) are
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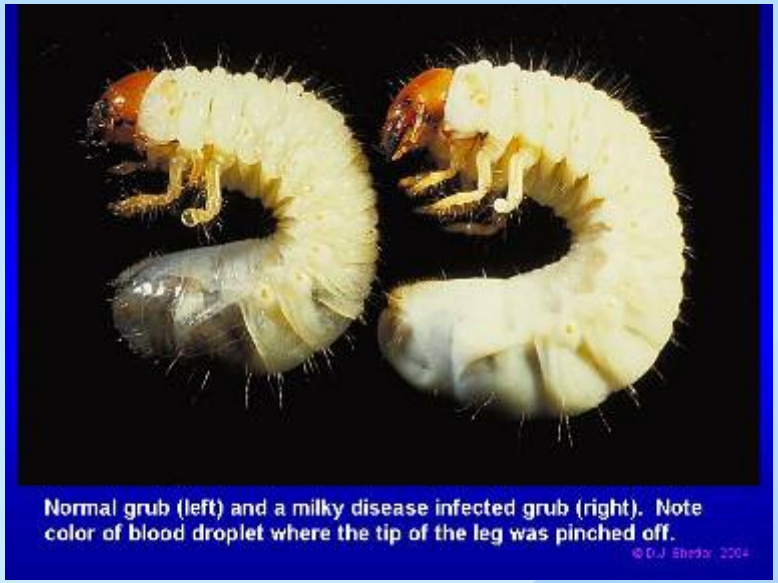
Bacteria

- *Bacillus popilliae* (milky disease)
  - Inconsistent in Maine
  - When it works - only effective against Japanese Beetles
  - Most researchers say it just does not work!



Normal grub (left) and a milky disease infected grub (right). Note color of blood droplet where the tip of the leg was pinched off.

Have you seen this?

Tachinid fly (the so-called "winsome fly") laying an egg on a Japanese beetle adult

Istocheta* (=*Hyperecteina*) *aldrichi

Introduced into US from Japan in 1922

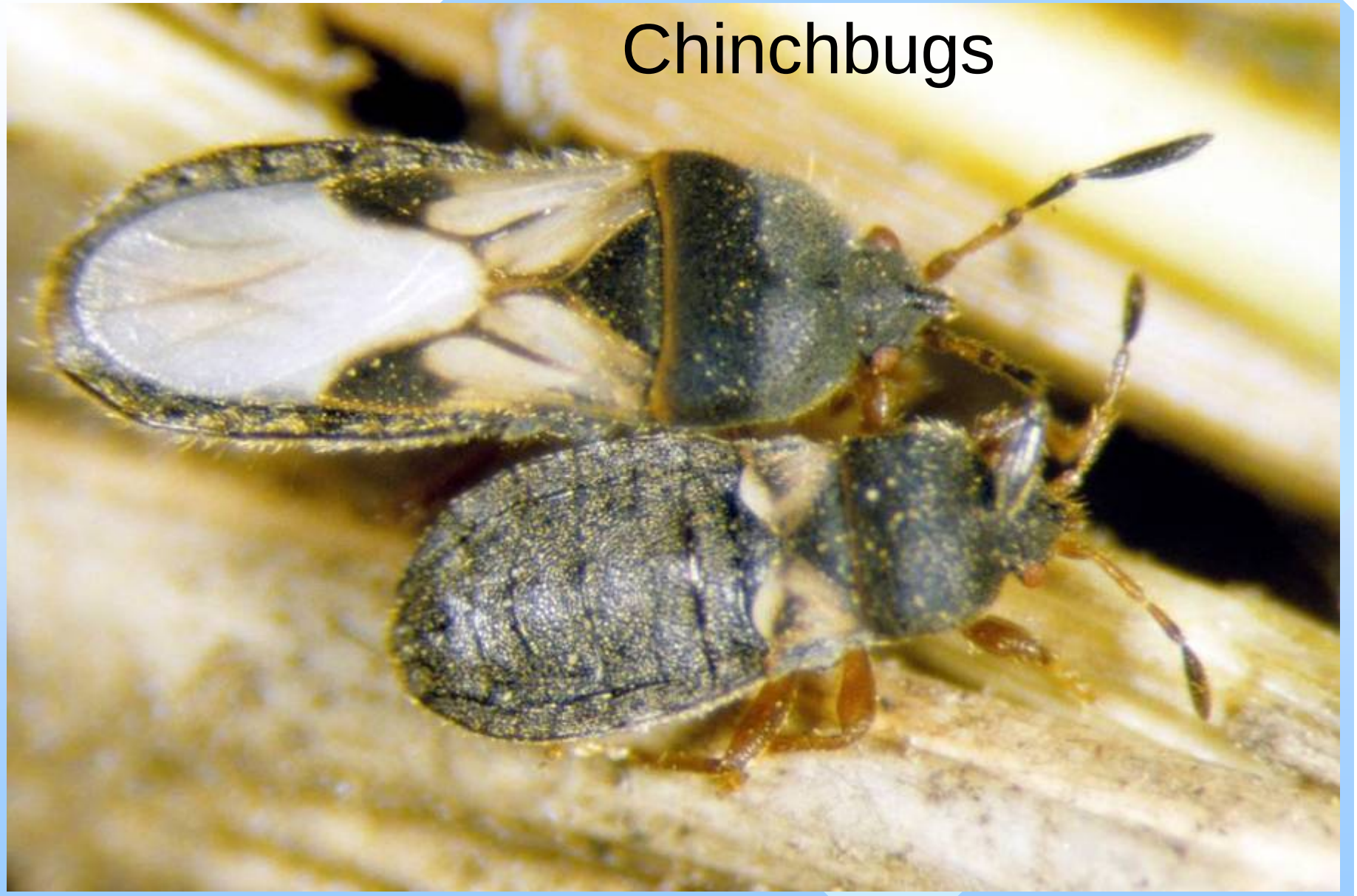
Adults emerge Late June/July, feed on honeydew, nectar

- **Lay up 100 eggs in two weeks**
- **Eggs hatch 1 day later, dig into beetle**
- **Kills beetle in 5-6 days**
- **Just before death, beetle digs into ground where fly spend winter as pupa**

Hairy chinch bugs in thatch

Hairy chinch bug adults -
long wing & short wing forms

Chinchbugs



Hairy Chinch Bug

- Small (<1/4” long) red to black, white wings
- Adults and nymphs suck grass sap causing injury
- 1-2 gens/yr. Overwinters as adult in protected areas near turf.
- Damage: irreg. Yellow patches 2-3’ diam. Usu. During hot dry weather in mid-summer & early fall (S. ME) or July (C. and N. ME). Looks like draught damage.

Chinch Bug Prevention and Monitoring

- Prevention: Irrigate regularly during hot, dry months
- Monitoring:
  - insert bottomless coffee can into turf, fill with water, poke turf w/stick.
  - Visual inspection - esp. when turf seems to be under drought stress
- Threshold: 15 bugs/6” diam. can

Biological Control -Chinchbugs

- Endophytes
- Protect big-eyed bugs
- *Beauveria bassiana???*

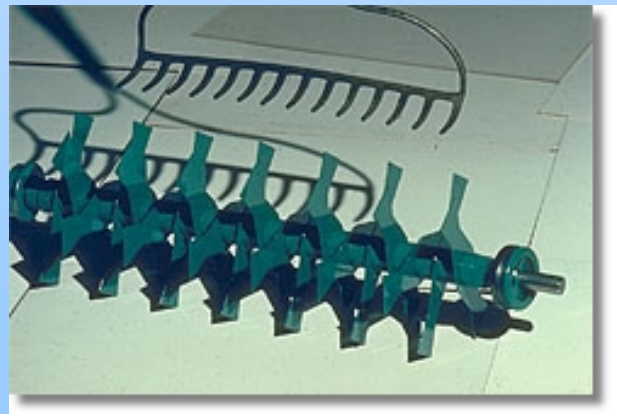
Big-eyed bug

Cultural Control - Chinchbugs

- Use endophytic grass cultivars (fescues and ryegrasses)
- Minimize thatch – Core aeration
- Avoid drought stress

Let it breathe

- Keep thatch under 1/2 inch
- Cut back on pesticide use
- Core aerate in the late summer or early spring



Core Aeration Guidelines

- Do not aerate during the heat of the summer
- Aerate when the soil is moist but not wet
- Leave cores on the ground and drag them in
- Seed bare areas at the same time as coring
- Irrigate after coring & dragging to facilitate recovery

Insect Control Approach

(BASIC STRATEGY - use resistant turf species and create deep root systems)

- Fescues and Ryegrasses with endophytes are resistant to surface feeding insects.

- Endophytes also make grasses more disease resistant and help exclude weed competition

Morning Star

- **High Endophyte level for natural insect resistance (+90%)**
- **Excellent disease resistance**
- **Beautiful, dark green color**
- **Fine leaf texture**
- **Superb summer and fall density**
- **Excellent drought tolerance**
- **Seeding rate: 6-8 lbs./ 1,000 sq. ft.**

No endorsement intended or implied

Simple slit seeding of endophytic grasses into an existing lawn resulted in a 30 to 50% stand of endophytic grasses - enough to control surface insects!

Sod Webworms

Spring damage

Adult bluegrass webworm

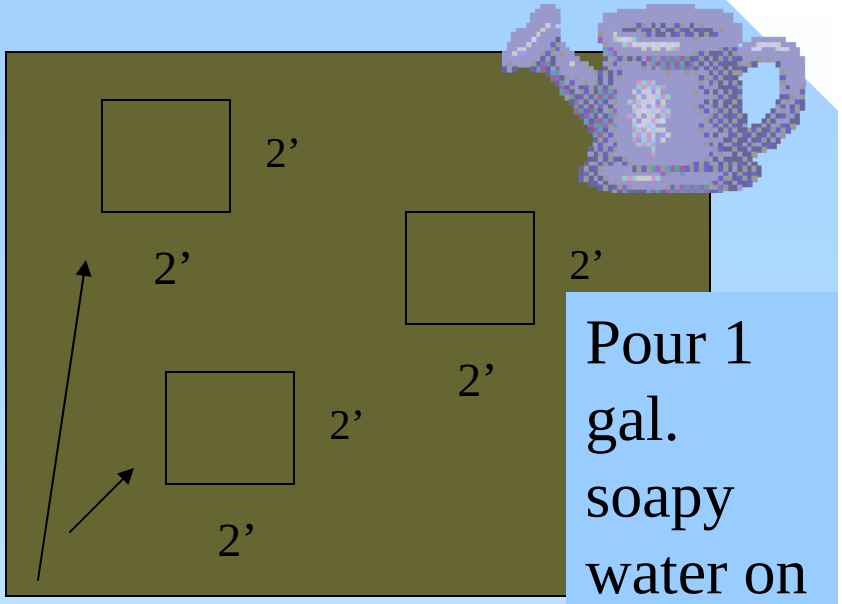
Larva and frass

Sod Webworms

- Adults: moth. No damage.
- Larvae: up to 1” long whitish worm w/ rows of sm. black spots. Make silk-lined tunnels in thatch, feed on grass blades.
- 2 generations/yr. Overwinters in soil as a caterpillar
- Damage: turf thinning or irregular dead patches mostly mid-late August.
- Seldom cause damage that warrants treatment

Sod Webworm Monitoring

- Mark 2 or 3 damaged and undamaged areas (2'x2') of turf. Drench each area with soapy water (1 oz/gal water). Wait 5 mins, then count larvae.



3 plots, ea. 4 ft sq.

Pour 1 gal. soapy water on each plot

Threshold

- If unacceptable damage seen and 4-6 larvae/4 ft^2

Bluegrass Billbug

Adult and larva

Larva in crown

Cultural management for other surface feeders

- Use endophytic cultivars (fescues and perennial ryegrasses) - for some webworms?
- Manage thatch
- Minimize drought stress (!)

Entomopathogenic Fungi

Beauveria spp. "White" Fungus

Naturalis-T®

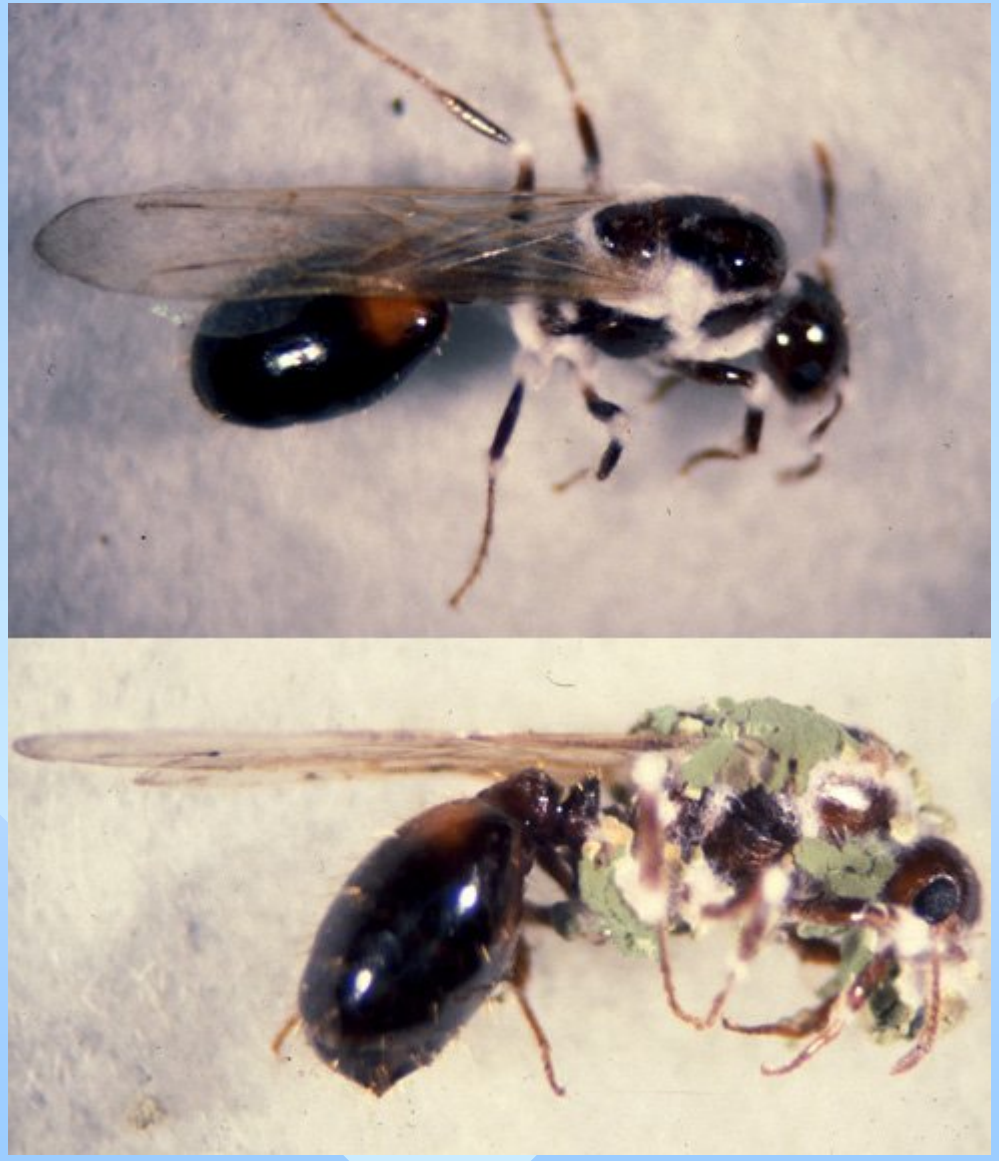
Metarhizium spp. "Green" Fungus

(Met-52 not registered in US yet)

One drawback to the fungal controls is that they are not selective and will harm beneficial insects and pollinators

A bluegrass billbug adult (above) and Japanese beetle larva (right) infected with *Beauveria*.

Fire ant queen with *Metarhizium anisopliae* fungus.



Other biorationals

- ***Bacillus thuringiensis*** **- δ-endotoxin**

- ***Saccharopolyspora spinosa*** **-**

  spinosyns (=Conserve)

No endorsement intended or implied

Lawn disease management

- Avoid sod
- Improve air circulation
- Water in early morning only
- Reduce thatch with aeration
- Plant resistant varieties
- Convert shady areas to ground covers
- Apply nitrogen

Dollar Spot

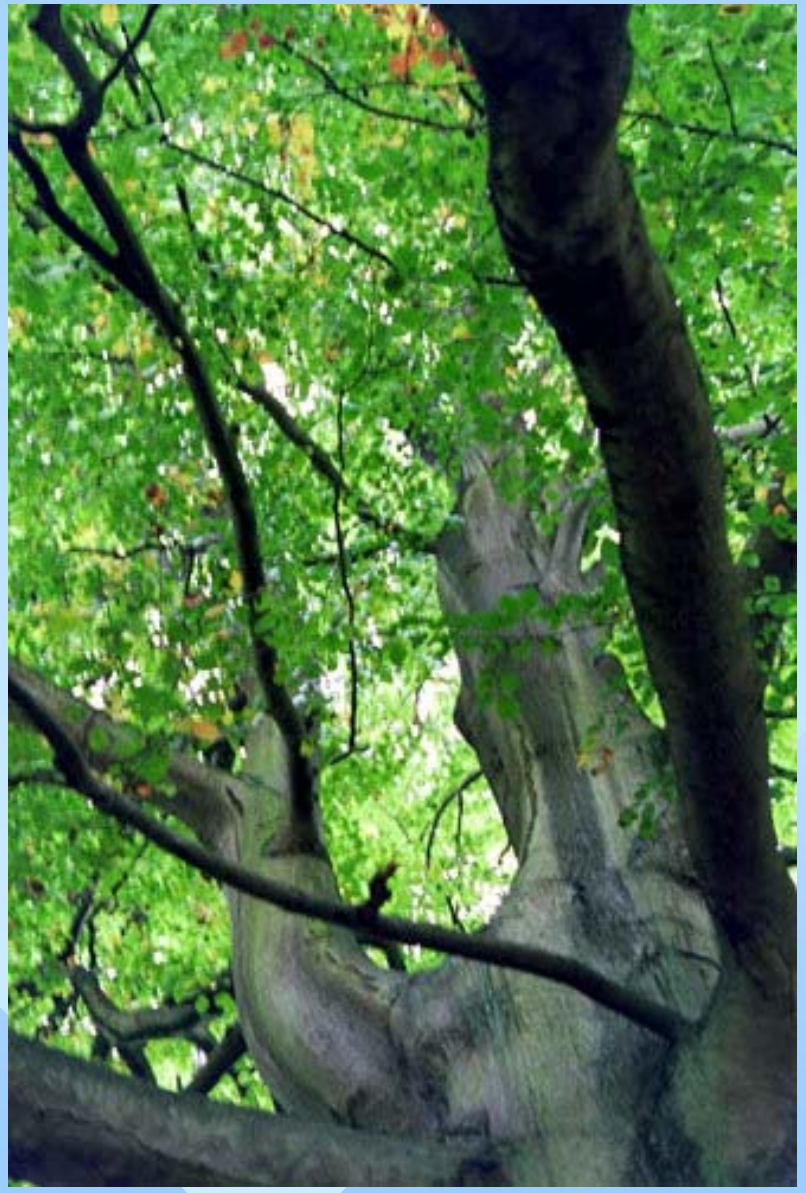
Red Thread

Brown Patch

Other disease-like problems

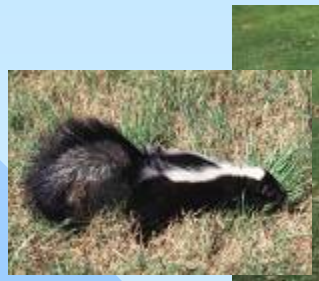
- Mushrooms
  - Buried wood
  - Infected soil
- Moss
  - Too wet
  - Too shady
  - Too acid
  - Too compacted
  - Low fertility
  - Scalping

#1 Killer of grass



Vertebrate problems

- Birds
  - Starlings, crows, grackles
- Moles
  - Eastern or star-nosed
- Skunks, squirrels, raccoons



If you must apply pesticides apply properly & be cautious

- Only treat infested areas

- Spot treatments conserve beneficial organisms

Prevent Environmental Contamination

- Avoid misapplication to impervious surfaces
  - Use drop spreaders
  - Sweep up misapplications
  - Pervious surfaces become impervious when frozen!

Prevent Environmental Contamination

- Do not apply to saturated soils or when 0.5 inch or more rainfall expected
- Don’t put pesticides and fertilizers onto sidewalks, driveways, etc.
- Reduce urban runoff – install more pervious surfaces (turf, prairie, woodlots, turf pavers, etc.)

Prevent Environmental Contamination

- **Choose pesticides and nutrients with low runoff potential based on their physical and chemical properties**
- **Use slow release N fertilizers**
  - **Water insoluble N, Composts, sulfur coated**
- **Use wettable powder pesticides, pesticides with lower water solubilities and stronger soil adsorption properties**

Prevent runoff

- Does it puddle up?
- Does it runoff fast?
- Do you have vegetative buffers?

The beauty of buffers

- No buffer – High runoff & high pollution potential. Lots of mowing!

- Good buffer – Reduced runoff, less pollution, cleaner water and lower maintenance too!

Conclusions of 1995 – 96 Oklahoma study

- **Buffers can significantly reduce pesticide and nutrient runoff**
- **Untreated (no fertilizer or pesticides) turf buffers as little as 8 feet wide can significantly reduce nutrient and pesticide losses to surface waters**

Where to learn more

- Web sources

- Many resources are available free of charge

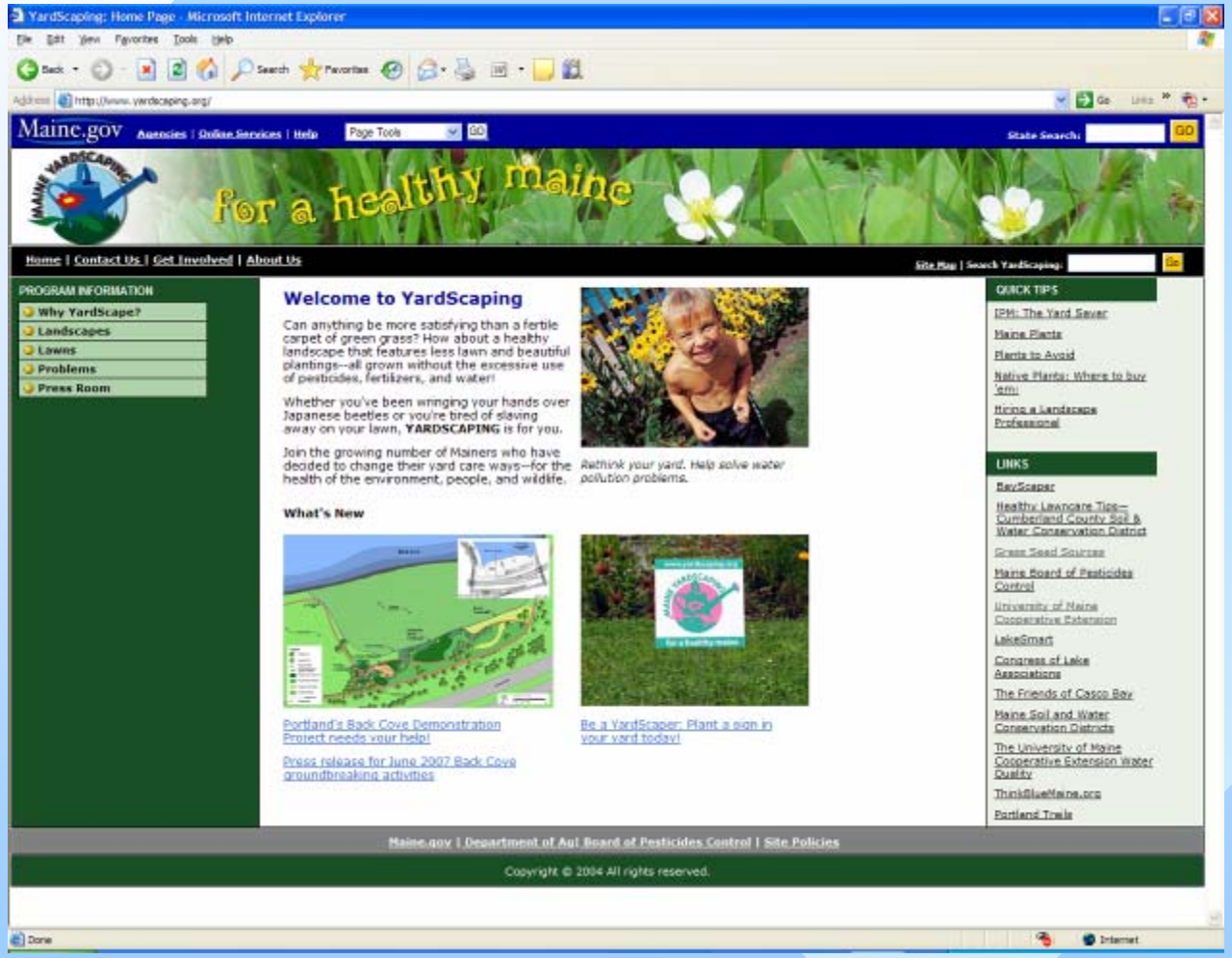
THE UNIVERSITY OF MAINE Cooperative Extension

- See BPC list of low input lawn resources
  On the web
  http://www.thinkfirstspraylast.org/lilac.htm

Use common sense pest management

- Integrated pest management
  - Know your pest
  - Pick it, trap it or exclude it
  - Know the good bugs
  - Mow, prune or water
  - Use pesticides as last resort

Where to learn more

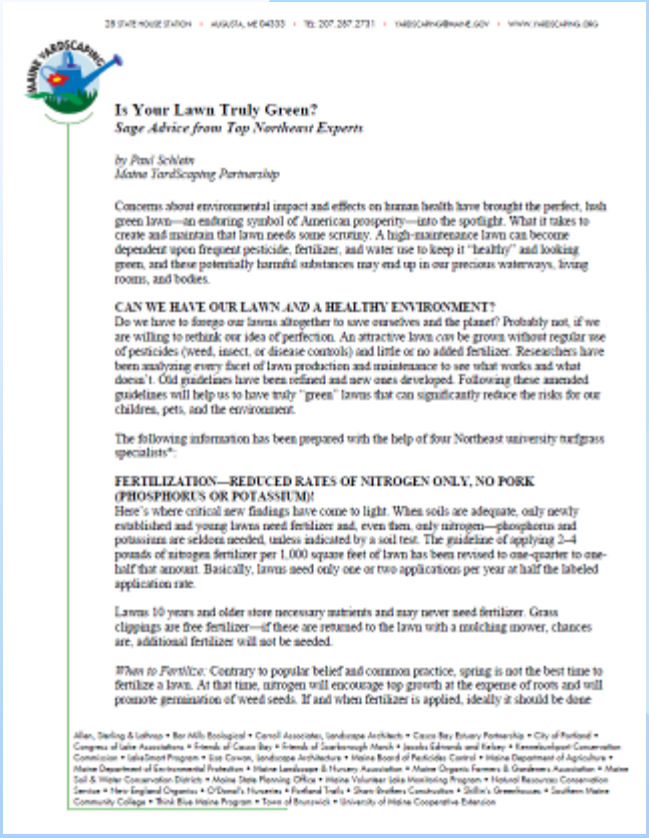


http://www.yardscaping.org

Where to learn more

http://www.gotpests.org

Other resources



Is Your Lawn Truly Green?
Sage Advice from Top Northeast Experts

by Paul Schlatt
Maine YardScaping Partnership

Concerns about environmental impact and effects on human health have brought the perfect, lush green lawn—an enduring symbol of American prosperity—into the spotlight. What it takes to create and maintain that lawn needs some scrutiny. A high-maintenance lawn can become dependent upon frequent pesticide, fertilizer, and water use to keep it "healthy" and looking green, and these potentially harmful substances may end up in our precious waterways, living rooms, and bodies.

CAN WE HAVE OUR LAWN *AND* A HEALTHY ENVIRONMENT?
Do we have to forego our lawns altogether to save ourselves and the planet? Probably not, if we are willing to rethink our idea of perfection. An attractive lawn *can* be grown without regular use of pesticides (weed, insect, or disease controls) and little or no added fertilizer. Researchers have been analyzing every facet of lawn production and maintenance to see what works and what doesn't. Old guidelines have been refined and new ones developed. Following these amended guidelines will help us to have truly "green" lawns that can significantly reduce the risks for our children, pets, and the environment.

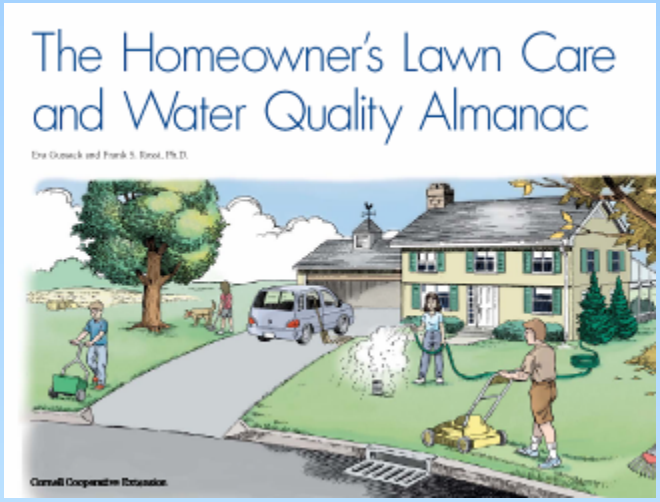
The following information has been prepared with the help of four Northeast university turfgrass specialists*:

FERTILIZATION—REDUCED RATES OF NITROGEN ONLY, NO PORK (PHOSPHORUS OR POTASSIUM)!
Here's where critical new findings have come to light. When soils are adequate, only newly established and young lawns need fertilizer and, even then, only nitrogen—phosphorus and potassium are seldom needed, unless indicated by a soil test. The guideline of applying 2–4 pounds of nitrogen fertilizer per 1,000 square feet of lawn has been revised to one-quarter to one-half that amount. Basically, lawns need only one or two applications per year at half the labeled application rate.

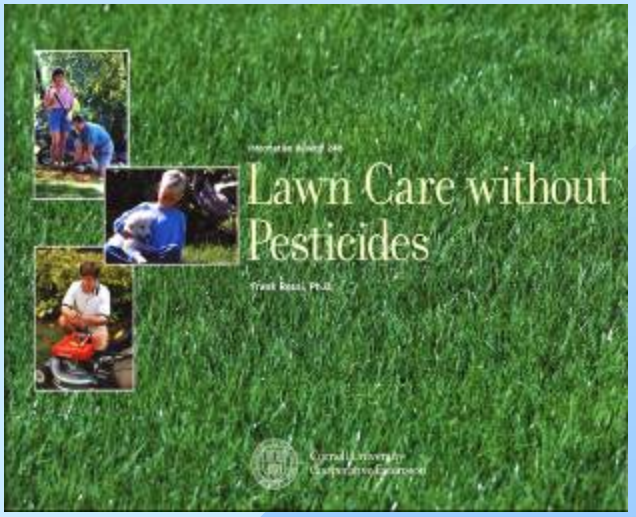
Lawns 10 years and older store necessary nutrients and may never need fertilizer. Grass clippings are free fertilizer—if these are returned to the lawn with a mulching mower, chances are, additional fertilizer will not be needed.

When to Fertilize: Contrary to popular belief and common practice, spring is not the best time to fertilize a lawn. At that time, nitrogen will encourage top growth at the expense of roots and will promote germination of weed seeds. If and when fertilizer is applied, ideally it should be done

http://www.thinkfirstspraylast.org/ppt/Master Gardener/index.htm



http://www.gardening.cornell.edu/lawn/almanac



http://ecommons.cornell.edu/handle/1813/3574

YardScaping...
Protecting the beauty of Maine