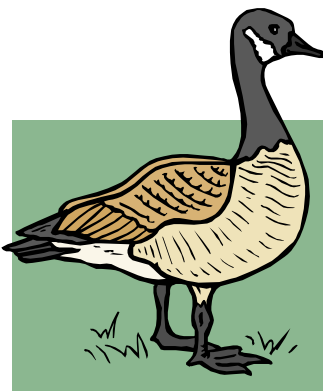


PLANT & PEST ADVISORY

LANDSCAPE, NURSERY & TURF EDITION \$1.50

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Canada Geese Management

Disrupting Fertility through Proven Oiling, Addling and Replacing Eggs

Bill Sciarappa, Agriculture Agent, Rutgers Cooperative Research and Extension of Monmouth County

Resident Canada geese populations continue to increase, as well as the number of citizen complaints and conflicts in our communities. These “lovely nuisances” destroy crops on farms and landscaped grasslands in parks and athletic fields, which increases soil erosion. Their flight is an aircraft hazard and their feces degrade soil and water quality. In response, we have border collies chasing geese from the corporate center to the sod farm, from the golf course to the winter grain planting, from the town park to the soccer fields and from the coastal lakes to the homeowner. We modify habitat and use repellents, often with limited success. We try scare-tactic devices and even stop feeding the critters – all without much success. These no longer migrating resident birds are entrenched after 30 years of establishment in our Garden State because food and shelter are abundant.

Migrating Canada geese are not abundant and International Treaty regulates nuisance resident geese along with less numerous migratory geese populations. While no permit is required to harass geese with dogs or other means, please obtain the Rutgers Cooperative Research & Extension “Community-based Canada goose Management Guide” for advice contacting authorities for permits to perform practices suggested below.

There are safe and effective alternative methods that can be utilized to reduce local populations – birth control. Resident geese are reproducing at about a 15% growth rate annually (doubling their population almost every five years). In order to stop this exponential growth, birth control needs to be incorporated into an integrated community-based approach. The techniques include becoming trained and obtaining permits to disrupt goose egg fertility while encouraging birds to continue nesting infertile eggs. This reduces the reproduction rate. Steps involve working with the community and property owners, obtaining permits, training, and locating nests to oil, addle or replace the eggs in the nest. Methods may include applying corn type oil, shaking the egg when it’s in the liquid state or “stealing” the egg and replacing it with an imitation. A nest will typically contain a clutch of five or more eggs that hatch in about three weeks of incubation. The nest will often be accompanied by

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one or two angry goose parents on patrol. When one approaches, the use of an inverted umbrella or other protective devices is quite helpful in warding off an aggressive attack. This direct method is initially time intensive but unusually effective because the goose continues to sit at the nest for the next month – all in vain. Population stabilization has three objectives:

- Slow down or stop the increase in resident goose populations.
- Without goslings, mating geese and the flock have no reason to stay and flushing harassment is easier.
- Geese that have failed a nesting experience may begin a molt migration to the nesting areas in Canada where migrating birds are molting (as reported in recent studies by New York State and the Michigan Department of Natural Resources).

In our Monmouth County Watershed Partnership, towns around several coastal lakes are successfully switching to one of these anti-egg strategies. This population control concept is ethically similar to spaying or neutering a dog or cat. It may be less expensive than using border collies or having workers sweep up goose manure and certainly less controversial than netting and euthanasia. These shore towns report decreases in goose populations and fewer goslings.

A non-governmental organization named GeesePeace, based on reporting successful experiences in the northeast, advocates extending federal Canada goose permits to area-wide community efforts. Their website www.geesepeace.org reports from seven sites in New York, three in Virginia, two in Massachusetts one in Maryland, and one in Delaware.

In 2006, GeesePeace is embarking on a Tri-State regional project to locate geese nesting areas within 60 miles of New York City – which includes most of central and northern New Jersey. GeesePeace will use long proven, humane, federally permitted egg handling methods in conjunction with GPS/GIS mapping. A key component is a coordinated effort of volunteers, private industry and decision makers. Approval of community-wide permits increases effectiveness. Landscapers, farmers, animal control operators and volunteers can establish similar programs by helping coordinate community efforts. Rutgers Cooperative Research & Extension provides public education; be sure to refer to the information listed in the previous issue of this newsletter. You can get involved by contacting GeesePeace for details 703-354-1731, e-mail info@geesepeace.org. GeesePeace will support your project with community forums, training programs and educational manuals. Remember the cornerstone of this program is oiling, adding or replacing eggs for a three year time period. Hopefully you can more economically and ethically eliminate these escalating conflicts between your clients and our avian neighbors – the Canada Geese. □

All Mulches Are Not Created Equal

Steven K. Rettke, Ornamental IPM Program Associate

The beneficial effects of mulching landscape trees and shrubs are universally accepted. Mulch helps to protect plant roots against extremes in moisture and temperature; it improves general landscape appearance; and it suppresses weed growth within planting beds. Although all these benefits are important, the types of mulching materials and their impact on plants are far more complicated.

The Ohio State University Landscape Mulch Studies

A three-year Ohio State University mulch study was designed to determine the effects of three basic options when selecting mulching materials. These included: 1) bare soils; 2) wood pallet mulch/hardwood bark; and 3) composted yard waste mulch (grass clippings, tree trimmings, and urea). All mulches were applied over the surface of the soil at a depth of 2-3 inches in order to determine the effects that the different mulch treatments (or lack of mulch) would have on the surrounding soils and plants. The plant material used in the studies included the River Birch 'Heritage' and two species of *Rhododendron* and *Taxus*.

Moisture & Temperature

Moisture level readings within each mulch type were determined by seasonal differences. Between April and June, the wood pallet mulch sites contained the highest moisture levels. As expected, the bare soil sites contained the lowest moisture. Interestingly, during the months of July and August the soil moisture levels were reversed. The highest moisture was then found within the bare soil study plots with the wood pallet mulch sites now containing the driest soils. This reversal in soil moisture levels in the wood pallet mulch was attributed to the formation of a fungal mat, which created a hydrophobic layer.

Despite the differences in soil moisture caused by the various mulch types, the researchers of this study did not believe it affected observed plant growth differences. The wood pallet and composted mulch treated areas also affected soil temperatures (i.e., they provided cooler temperatures in the spring as compared to the bare soils), but again these effects on observed differences in plant growth were not considered significant.

Soil Organic Matter & Microorganisms

How the different mulches influenced the percentage of soil organic matter over time was also evaluated. After two years, there were no significant increases in the % of soil organic matter within either the bare soils or the wood pallet mulched sites. Alternatively, and as

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expected, there were significant increases in the % of soil organic matter within the composted yard waste treated sites. The addition of nitrogen within the composted yard waste further increased the % of soil organic matter. The greater nitrogen availability enabled the microorganisms to break down carbon materials into even finer particles.

The research determined that bacteria were significantly higher in both mulched treatment sites as compared to the bare soil site, and was attributed to the availability of carbon as an energy source. It is important to note that the increased microbial rates within the wood pallet treatments were only realized when nitrogen supplements were added. The research data suggested that neither soil temperature nor moisture differences caused by the specific mulch types significantly influenced microbial growth rates.

Nitrogen Immobilization

The reduced availability of nitrogen for use by plants was most pronounced in the wood pallet mulch treatments. After each site received supplemental nitrogen, the wood pallet mulched sites actually had less nitrogen available to plants than the plants in bare soils. The microorganisms feeding within the wood pallet mulched soils were starved of nitrogen and consumed the limited nitrogen before the plants could have access. However, nitrogen immobilization was reduced as compared to existing levels prior to the nitrogen supplements.

There were no differences in the reported reduced availability of nitrogen between the fertilized and the unfertilized composted yard wastes (i.e., they both contained very low nitrogen immobilization levels). This shows that nitrogen supplements to landscape plants can be significantly reduced if landscape beds are treated with composted yard waste mulch (i.e., composted yard waste mulch treatments are already providing approximately 1# of N per 1000/sq.ft. /year).

Plant Growth

The Ohio mulch data indicated that as nitrogen availability increased, the growth rates of plants also increased. The research showed the observed plant growth within composted yard waste mulch was greater because of a nutrient effect (primarily nitrogen). **The trees growing in the composted yard waste mulched areas had between a 15% to 20% increase in trunk caliper in comparison to trees grown in bare soils!**

Disease Suppression

Providing an environment that optimizes the growth of beneficial microorganisms will enhance their ability to naturally compete with pathogenic microorganisms. The build-up of suppressive beneficial microorganisms within the soil is encouraged by composted yard waste ("Build it and they will come"). Ultimately, natural biologic controls can occur and in some instances, the actual suppression of diseases.

The Ohio research data reinforced previous studies that discovered some diseases of nursery plants could be at least partially suppressed with composted mulches. For example, other studies have suggested that *Verticillium* wilt of maple trees could be suppressed with composted mulch materials. On the other hand, field studies have shown that bare soils (no mulch) will provide an even spread of the disease *Phytophthora*. A similar response has also been shown to occur with wood pallet mulches. Some studies have even indicated an increased spread of *Phytophthora* with wood pallet mulches.

Insect Influences

The Ohio research has shown that composted yard waste increases plant growth. But does plant growth necessarily equal plant health? The environment and the amount of limited resources that are available determine the allocation of energy reserves by a tree. Plants with limited nutrient resources will typically invest a larger percentage of their energy into secondary defensive compounds (e.g., leaf tannins). Conversely, plants that have a larger amount of nutrient resources will usually devote a larger percentage of available energy towards growth.

Providing an environment that optimizes the growth of beneficial microorganisms will enhance their ability to naturally compete with pathogenic microorganisms. The build-up of suppressive beneficial microorganisms within the soil is encouraged by composted yard waste.

The researchers also measured the growth of insects that fed on leaves of plants growing in the different mulch types. The trees growing within the composted yard waste mulch contained leaves with higher nitrogen levels. Insect growth rates increased when they fed on leaves containing higher nitrogen levels. The research indicated that leaf-feeding pests might not be attractive to extremely stressed trees, because the quality of the food would be too low.

Studies with white marked tussock moth caterpillars indicated that insects had less weight gain and grew slower when they fed upon trees growing in the wood pallet mulch as compared to trees growing in either the bare soils or composted yard waste mulch. The reason for this difference in insect growth was believed to be from the higher food quality. A significant correlation existed between the white marked tussock moth weight gain and leaf nitrogen levels.

Studies with Japanese beetle adults also indicated the greatest feeding occurred on plants growing in sites with composted yard waste and bare soils that were fertilized.

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The insects were therefore selectively feeding to a lesser degree on plants growing in sites having wood pallet mulch or on plants growing in bare soils that were unfertilized. It was uncertain if the adult beetles were cueing in on leaf volatiles from other beetle feedings, or if they were randomly feeding from leaf to leaf until they found a tree containing high quality food. The data from the study clearly showed that the beetles fed most heavily upon trees growing in soils with the highest nitrogen levels.

Concluding Remarks

Although the mulching of trees and shrubs is an important plant health care practice, their effects can sometimes produce unexpected consequences. Different mulching materials should influence supplemental fertilizer practices. Nitrogen fertilizers can be applied to help reduce nitrogen immobilization where wood pallet or hardwood bark is found. Alternatively, where plants are growing in composted mulches, nitrogen application rates need to be adjusted to avoid over-stimulation.

It is generally best to apply composted products. It is most important to use these products when trees are first planted. If raw or fresh mulches are used, they are best applied in the late fall or winter in order to reduce their initial negative effects on plant growth and health. As soon as the organic matter is partially decomposed and the competition for nutrients begins among soil microorganisms, then the beneficial effects can begin.

Adapted from a presentation delivered by John Lloyd @ the OARDC in Wooster, Ohio; July 2000. □

Plant Diagnostic Laboratory Highlights

Richard J. Buckley, Laboratory Coordinator

Turf

Gray leaf spot remains the primary focus for turfgrass managers at this time. Samples of the disease were submitted from several ryegrass fairways in Central and Southern New Jersey, as well as southeastern Pennsylvania, Connecticut, and Virginia. In more than one case, new ryegrass seedlings were the host. Remember, the fungus, *Pyricularia grisea*, which causes **gray leaf spot** is an excellent seedling blighter and the window for disease activity is still open. If you are seeding ryegrass, it might be prudent to protect new seedlings with appropriate fungicides. We also had a case of seedling blight on a golf green, which was caused by the fungus *Pythium*. *Pythium* species are normally considered hot, wet weather pathogens, but when seedlings are concerned, temperature does not always matter. Early-October also saw some very active **dollar spot** from golf courses in New Jersey, New York, and Pennsylvania. Last, but surely not least, a couple samples of **anthracnose** from golf courses in New York and Atlantic and Bergen Counties were diagnosed in late-September. Woops, can't forget the **chinch bugs**! Several samples of residential turf have been diagnosed with **chinch bug** damage this fall. This is an easy diagnosis – they crawl out of the box! If your turf is not recovering this fall with some rain and cooler temperatures, take a closer look. Just drop a small piece of sod in a bucket of water and the critters will float right out.

Landscape

Late-September brought several samples of deciduous shade trees with leaf diseases into the Plant Diagnostic Laboratory. Samples of oak with **oak leaf blister** and **actinopelte leaf spot** were common. Samples with these diseases were submitted from Atlantic, Burlington, and Mercer Counties. Red oak and pin oak with **bacterial leaf scorch** continue to be submitted to the laboratory. Positive tests were recorded on trees from Mercer, Middlesex, Somerset, and Warren Counties. In woody ornamentals from landscape beds, we had a pair of samples with **Phytophthora crown and root rot**. A juniper from a Morris County landscape had the disease, as well as a camellia from a Somerset County site. Last but never least, **pythium crown and root rot** caused the failure of a large crop of poinsettia in a Monmouth County nursery and was also diagnosed on chrysanthemums that were submitted from a Mercer County grower. □

Editor's Note: The biweekly issues of the Landscape, Nursery & Turf edition have ended. The final monthly issue for the 2005 season will be November 3rd.

Calendar of Events

November 5, 2005, 1:00 p.m. – If Plants Could Talk, New Jersey Network television stations. Rutgers Cooperative Research & Extension's seasonal television series covers gardening topics around the state. This episode will feature experts talking about techniques to exclude wildlife from gardens and plants proven to be distasteful to deer. Visit the If Plants Could Talk website at: www.ifplantscouldtalk.rutgers.edu.

December 1, 2005, 8:00 a.m. – 4:00 p.m. – South Jersey Landscape Conference and Trade Show, Masso's Crystal Manor, 1200 South Delsea Drive, Glassboro, NJ. All Day Educational Landscape Conference for Professionals with 25 Exhibitors. New Jersey Pesticide Applicator Units will be given at conclusion of program along with Certified Nursery and Landscape Professional Credits. Cost: \$30.00 includes buffet lunch and refreshments. Sponsored by New Jersey Nursery and Landscape Association in cooperation with Rutgers Cooperative Research and Extension. Contact: Jerry Frecon or Carl Nordstrom, 856-307-6450 x1 or 1-800-314-4836 or visit: www.events.rutgers.edu/pdfs/2005-1201-sjlc.pdf.

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged above normal, averaging 60 degrees north, 62 degrees central and 63 degrees south. Extremes were 86 degrees at Hammonton on the 27th, and 38 degrees at Flemington on the 8th. Weekly rainfall averaged 0.33 inches north, 0.29 inches central, and 0.20 inches south. The heaviest 24 hour total reported was 0.34 inches at New Brunswick on the 26th to 27th. Estimated soil moisture, in percent of field capacity, this past week averaged 76 percent north, 61 percent central and 42 percent south. Four inch soil temperatures averaged 55 degrees north, 64 degrees central and 65 degrees south.

Weather Summary for the Week Ending 8 am Monday 10/ 3/ 5

WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON %FC
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	
BELVIDERE BRIDGE	missing									
CANOE BROOK	.34	22.73	-7.55	82	41	61.	3	3336	691	82
CHARLOTTEBURG	.46	24.10	-6.51	79	39	58.	3	2873	784	67
FLEMINGTON	.18	25.37	-3.50	82	38	60.	2	3260	549	67
NEWTON	missing									
FREEHOLD	.33	24.55	-3.48	84	40	62.	2	3311	416	69
LONG BRANCH*	.21	22.93	-5.44	80	43	63.	3	3304	464	49
NEW BRUNSWICK	.45	25.69	-2.82	81	40	62.	2	3460	434	74
TOMS RIVER	.15	24.09	-4.95	81	39	61.	2	3238	399	43
TRENTON	.33	27.14	.19	81	40	64.	3	3517	366	50
CAPE MAY COURT HOUSE	.16	25.84	.66	80	43	62.	-1	3110	203	39
DOWNSTOWN	.16	20.36	-5.99	84	39	62.	0	3346	173	40
HAMMONTON	.19	22.01	-5.72	86	39	63.	2	3447	308	30
POMONA	.25	21.05	-3.92	81	40	63.	3	3366	451	39
SEABROOK	.25	23.84	-1.62	84	45	64.	2	3727	533	41
SOUTH HARRISON	.14	25.12	-2.05	82	43	64	NA	3454	NA	NA

*SOME CUMULATIVE VALUES ESTIMATED DUE TO MISSING PAST DATA
 WES KLINE — GDD BASE 40 PINEY HOLLOW Last Week 219 (Ending 9/26/05) This Week 156 (Ending 10/3/05)

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