UNIVERSITY OF MARYLAND EXTENSION

TPM/IPM Weekly Report

for Arborists, Landscape Managers & Nursery Managers

Commercial Horticulture **June 26, 2020**

In This Issue...

IPMnet
Integrated Pest Management for Commercial Horticulture

extension.umd.edu/ipm

If you work for a commercial horticultural business in the area, you can report insect, disease, weed or cultural plant problems **(include location and insect stage)** found in the landscape or nursery to sklick@umd.edu

Coordinator Weekly IPM Report:
Stanton Gill, Extension Specialist, IPM and Entomology for Nursery, Greenhouse and Managed Landscapes, sgill@umd.edu. 410-868-9400 (cell)

Regular Contributors:
Pest and Beneficial Insect Information: Stanton Gill and Paula Shrewsbury (Extension Specialists) and Nancy Harding, Faculty Research Assistant
Disease Information: Karen Rane (Plant Pathologist) and David Clement (Extension Specialist)
Weed of the Week: Chuck Schuster (Retired Extension Educator)
Cultural Information: Ginny Rosenkranz (Extension Educator, Wicomico/Worcester/Somerset Counties)
Fertility Management: Andrew Ristvey (Extension Specialist, Wye Research & Education Center)
Design, Layout and Editing: Suzanne Klick (Technician, CMREC)

What Are We Working on This Summer for Field Trials?

By: Stanton Gill

This week we have three projects going on. One is to look at several classes of chemistry and biological control options for control of root aphids in greenhouse and nursery plants. Brian Kunkel, University of Delaware Extension, is working as the Co-PI on this project.

Root aphids infesting *Juncus effusus*
Photo: Heather Zindash, IPM Scout

The second project involves the evaluation of two low risk materials applied to Leyland cypress to control bagworms using a drone with a sprayer.

The third project is a Southeast and Northeast joint project to look at the life cycle, damage, and control options for redheaded flea beetles. The University of Georgia is leading the project, and I am involved from University of Maryland Extension. I will be asking some of the Maryland nursery owners to fill out an online survey so our working group can see the actual extent of this problem in container nursery products.

Problems Coming Down the Lane

By: Stanton Gill

Jon Cholwek, Pogo Tree Experts, sent in a series of pictures from a new client he was called out to visit to evaluate the health of their trees in Bethesda. They had just bought a new house. The previous owners, before they put the house on the market, decided to jazz the landscape up and expand the driveway. They covered the root zone with asphalt, right up to the base of the plants. It made a lovely driveway but will be death for the plant material. Hopefully, none of your customers get into this sort of situation, but we have seen this before and will again.

These plants are not going to survive long-term with the asphalt covering their roots systems Photos: Jon Cholwek, Pogo Tree Experts

Taking the Blue Out of Plants

By: Stanton Gill

Paul Wolfe, Integrated Plant Care, called to share a hard-learned lesson. He was treating a customer's tree with a mixture of acephate and 1% horticultural oil in Northwest Washington. The customer is a hosta plant collector. The day after he sprayed, she called him up and asked him to come look at her hostas. She had several blue foliage hostas and everywhere the oil/acephate mixture drifted onto the hosta, it took out the blue color and left the plants with green foliage. Some of the blue hostas included: 'Judy Blue Eyes', 'Baby Blue Eyes', 'Water Slide', 'Silver Bar', 'Twilight Time', and 'Spilt Milk'.

Hosta 'Glorious Silver Bay' with blue color gone after a nearby acephate and oil treatment
Photo: Jill Diskan

We have known for years that horticultural oils take out the waxy layer on blue spruce turning the foliage green. The hosta damage is something new to Paul and he hoped someone else would learn from his mistake. Do not apply horticultural oil on many species of blue color foliage plants.

Hosta 'Azure' will little blue color left on foliage after an acephate and oil treatment
Photo: Jill Diskan

This hosta was farther away from the treated area than the other plants
Photo: Jill Diskan

Good Bugs for Summer

By: Stanton Gill

I spend so much of my time focusing on the bugs that kill or damage plants I sometimes lose sight of the good bugs of summer. One of the best are the native fireflies, what some call lightning bugs. My daughter reminded me one night over the weekend to slow down for a minute and watch the night sky light up with the magnificent glow. I started to expound on how they produce this cool light and how each species has its own light frequency. She wisely said just watch and enjoy. She is right. Take a moment and take in the free summertime light show one night this week. They are one excellent summertime delight of a bug.

Slime Molds

By: Karen Rane.

Day 1

Warm, wet weather is favorable for the development of slime molds, those mysterious microorganisms that grow in colonies that take many forms and colors. Slime molds are not plant pathogens, but they can grow on surfaces of leaves and stems, as well as on non-living organic matter like mulch and rotting wood. These microorganisms are fascinating – they change appearance from day to day, and even "move" across surfaces. A very common slime mold is *Fuligo septica* , also called the dog vomit slime mold. It is often found on wood mulch, logs and even low-growing plants. The first stage is bright yellow and somewhat slimy (the plasmodium stage), but after several hours the colony seems to "puff up" like a sponge, and change color to pale yellow. By the third day, the mold has a tan surface covering dark powdery spores. The spores disperse in air currents or rainfall, and the slime mold disappears. Disrupting slime molds by raking, streaming water on the colonies or removing colonized mulch does not guarantee the slime mold won't return when conditions are favorable- the spores are ubiquitous in the environment – but can be performed if waiting for the colony to run its course isn't an option. An excellent publication on slime molds and fungi in mulch from the University of Kentucky can be found at this link: https://plantpathology.ca.uky.edu/files/ppfs-gen-06.pdf

Day 2

Day 3

Transformation of the slime mold Fuligo septica over 3 days, growing on a rotting tree stump.
Photos: K. Rane, UMD

London Planetrees and Anthracnose

By: Stanton Gill

Last week, we put out a request from Phil Normandy, Brookside Gardens, for comments on whether more or less anthracnose is showing up on cultivars of London planetrees. Here is one response this week from Tim Overstreet, Howard County Recreation and Parks: "We have three cultivars of the planetree at the Gary Arthur Community Center in Glenwood. They are a part of our native tree arboretum. They are 'Bloodgood', 'Yarwood', and 'Exclamation'. None are showing anthracnose, but 'Bloodgood' and 'Exclamation' are showing powdery mildew. They were all planted at the same time, yet 'Yarwood' is noticeably larger than the other two."

Boxwood Spider Mites – Damage Showing Up Now

By: Stanton Gill

The cool spring has made for perfect conditions for boxwood spider mite activity. *Eurytetranychus buxi* is a spider mite that feeds on the undersides of leaves and is difficult to see. We had several emails with pictures of the stippling on the foliage from the mite activity. They started feeding about 8 weeks ago and reached a high level of activity in mid-late May. Generally, this mite is active in early to mid-spring with activity deceasing as it heats up in mid-summer. With the cool spring, expect higher than normal damage from this mite. The good news is Japanese boxwood is less susceptible. Every other species of boxwood is fair game.

Stippling on foliage is a sign of spider mite feeding

If still active, Sanmite is a good miticide. I recommend Hexygon (mite growth regulator) when you can catch a population with many immature stages which we are past at this point in the season. Horticultural oil will work, but use 0.5 to the most 1% rates at this time of year.

Oak Lace Bug

Heather Zindash, IPM Scout, found lace bug feeding causing stippling damage on a newly planted *Quercus bicolor* in a residential landscape. Heather noted that there were multiple stages present, as well as fecal spots on the leaves. There are several generations of this lace bug each season. Usually, these lace bugs do not cause significant damage to warrant control in the landscape. Look to see if predators such as lace wings are present.


If you see stippling damage on the top side of oak leaves, look underneath for lace bugs
Photo: Heather Zindash, IPM Scout

Solar Panels on Nursery and Farmlands

By: Stanton Gill

Researchers at the University of Maryland (UMD) were recently awarded nearly $500K by the United States Department of Agriculture's Agriculture and Food Research Initiative (AFRI) to lead a new multi-institutional investigation of solar power production on rural or agricultural land. With large-scale solar projects expanding quickly throughout the United States and new economic and policy incentives for renewable energy sources, agricultural land has become both a desirable and increasingly controversial site for solar panel installation. Leasing rural or agricultural land for solar production can provide many potential benefits to the landowner or farmer but may also represent economic losses to the agricultural sector while changing the identity and dynamics of rural communities. These costs and benefits have not been fully explored by researchers, and without this knowledge, there is confusion among landowners about how to make sense of offers to lease their land for solar power production. With this new grant, researchers will be filling in these gaps in knowledge to help lay the groundwork for larger-scale nationwide research and education programs on solar power to serve rural landowners and ensure they can make the best possible decisions.

"People are very passionate about this issue of solar power on agricultural land, but it is confusing for farmers and landowners. And only a handful of attorneys in Maryland have any experience with the legalities involved," explains lead investigator Paul Goeringer, senior faculty specialist with the Department of Agricultural & Resource Economics and UMD Extension specialist. "We are looking at solar power from a legal standpoint with the help of expertise from partners at Oklahoma State University and focusing on rural development with the help of colleagues from Cornell University. What are the legal and economic implications for solar power on agricultural land? Being able to say here is what a good lease looks like for your land, here are jobs lost and created, here are the impacts to communities - we can give people a better and more well-rounded view of how solar development would impact their lives."

Japanese Beetles

By: Stanton Gill

We continue to receive reports of the start of Japanese beetle activity. This week, Angela Burke reported Japanese beetle activity in the Frederick area. Tony Lubick reported activity in the Davidsonville area of Anne Arundel County. Bob Knight reports adult Japanese beetle activity in Upper Marlboro area of Prince George's County. Todd Armstrong, Tree Expert Company, found Japanese beetles on his blueberry bush in Jarrettsville on June 20.

Japanese beetle feeding and mating activity has started throughout the area
Photo: Todd Armstrong, Davey Tree Experts

Euonymus Scale

By: Stanton Gill

I received photos followed by a sample sent into the CMREC lab this week of euonymus from Anne Arundel County. It had a an extremely heavy infestation of euonymus scale. In the photo, your eye is probably drawn to the white covers of the males. When I examined the sample, many of the males had emerged, but several were still in the pupal stage. Mating is ongoing right now and we should see the females giving birth to the 2nd generation in late June to early July.

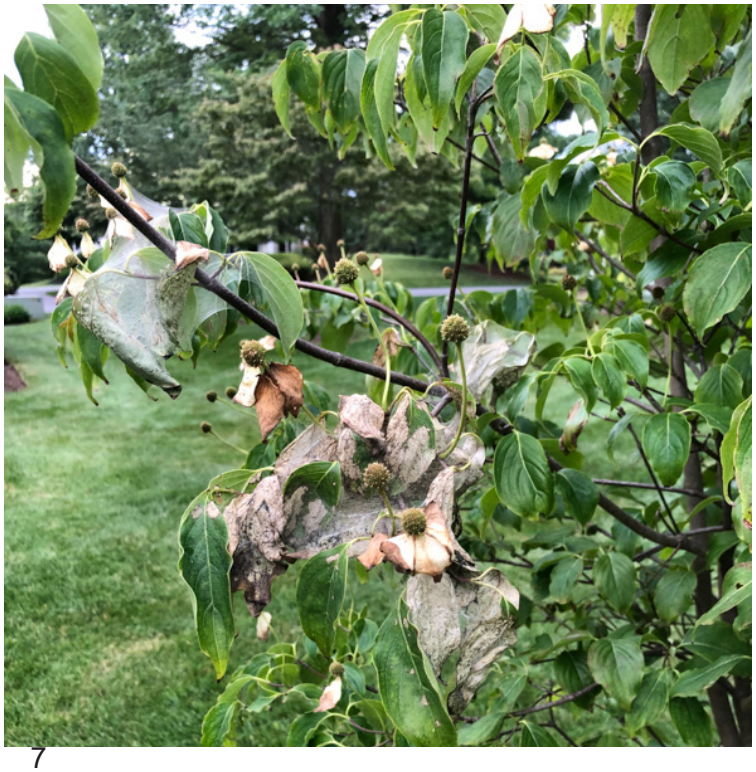
For such a heavily infested plant, I suggested that the landscaper cut back the plant severely and remove as many of the heavily infested branches now and remove them from the area. Euonymus is a continual flusher of new growth and will fill in rapidly. I suggested they concentrate on controlling the 2nd and 3rd generations, protecting the new growth.

Euonymus scale is a problem that can show up on pachysandra and boxwood. The preferred host are euonymus species, but if you have infested plant in the landscape it can easily spread to these other species of plants.

Male euonymus scale are coating this euonymus plant
Photo: Anne Arundel County resident

Fall Webworms

The first generation of fall webworms continues to be active this week. Mark Schlossberg, ProLawn Plus, Inc., found them on Kousa dogwood on June 25. **Control:** If possible, prune out webbed terminals. Bt, horticultural oil, or insecticidal soap can be used for early instars. There are many predators and parasites that help keep this native pest below damaging levels.



The first generation of fall webworms are active now
Photo: Mark Schlossberg, ProLawn Plus, Inc.

Home Fruit Growing

By: Stanton Gill

Several landscapers who maintain their customers' fruit trees are sending in a lot of pictures of fruit with various damage on the fruit itself. We had one sent in with most of the fruit on the customer's peach tree laying on the ground with half chewed fruit. This is squirrel feeding damage. Unless you have a large, hungry cat or a dog that likes to chase squirrels, you are out of luck.

Hopefully, you thinned the fruit of the peaches as I recommended last month. If so, the peaches should be swelling in size as we move through June into July. We had a couple of pictures submitted of peaches with a gelatinous ooze coming out of the peach. This is damage from the oriental fruit moth. The larvae are inside the fruit at this stage and not a lot you can do. Spinosad applied with a spreader sticker back in mid-May to late May would have help prevent this damage.

Several caterpillars will be active feeding on the skin of young apples, causing a scarring of the fruit as we move into July and August. Applications of spinosad sold under the name or Delegate or Spinocor) will help keep the caterpillar damage limited.

Squirrels have been feeding on these peaches
Photo: Stanton Gill

Tiered leaf roller damage on apples
Photo: Stanton Gill

Oriental fruit moth damage on peaches
Photo: Stanton Gill

Aphid Activity

Bill Miller, The Azalea Works, found a high population of oleander aphids on milkweed this week. These aphids are very difficult to control. Predators and parasitoids feed on them, but they seldom seem to be in high enough numbers to decrease these oleander aphid populations. Connie Bowers, Garden Makeover Company, found a different species of aphids on hellebores in two different landscapes this week. Aphids on hellebores have been very active this spring.

Oleander aphids are a constant problem on milkweed plants
Photo: Bill Miller, The Azalea Works

Beneficial of the Week

By: Paula Shrewsbury

This predator has a snappy defense against its predators

If you spend some time at night looking at plants and the bugs moving around on them you are likely to come across a click beetle. I saw my first of the season the other night on the flower head of my monarda plant. **Click beetles** are in the Elateridae family and there are over 9,000 species worldwide, and almost 1,000 of those species occur in North America. Other common names are elaters, snapping beetles, spring beetles, and skipjacks. These names come from an unusual and sometimes startling defensive behavior these beetles have when threatened by predators. Click beetle adults have tough bodies (hard exoskeletons) and they have a "clicking mechanism". Click beetles have an amazing "spine" on the underside of their body (the prosternum which is the first section of the thorax) that snaps or fits into a matching "notch" on the mesosternum (the second section of the thorax on the underside). When the beetle snaps these two sections it makes a loud clicking noise and sends the beetle up into the air, sometimes up to several inches. This is almost like a self-catapulting mechanism. This behavior can be quite startling if you do not expect it. This mechanism is usually used as a defense when the beetle is threatened but it also helps the beetle right itself if for some reason it ends up on its back. If it does not land right side up be ready for this jumping act to happen

A click beetle adult demonstrating the typical shape of these beetles.
Photo: J. Berger; Bugwood.org

again. Some of the most beautiful and larger click beetles are the eyed click beetles or eyed elaters (see image). These beetles are named so because of the false eye spots on the top of their bodies on the pronotum which is the section just behind the head. These large "eyes" likely make the beetle appear larger and more intimidating to potential predators. False eye spots are another defensive mechanism these beetles, and numerous other insects, have evolved.

Click beetle adults are elongate in shape and usually less than 2 centimeters in length (see image). Most have dull colors and patterns and can fly. Adult click beetles can be found on plants, on the ground, in decaying wood, and on or under the bark of trees. Most adults are nocturnal (often seen at lights near buildings) and are plant feeders, feeding on nectar, pollen, and flowers, although they seldom cause damage to plants. Some species, however, are predacious as adults and feed on aphids and other soft-bodied insects. The adults and larvae of some species are luminescent (they glow). The larvae of click beetles are called wireworms and are found in soil. The larvae are slender, elongate (~1-1.5"), and have somewhat hard exoskeletons and 3 pairs of legs on their thorax (see image). Many species are saprophytes feeding on dead insects and organisms in the soil, while other species of wireworms are serious agricultural pests of potatoes and strawberries. There are however, click beetle species such as the eyed elater where the larvae are predacious and actively hunt in the soil for insects, insect eggs, and small invertebrates to consume.

Click beetle larvae are also known as a wireworms and are active in the soil.
Photo: D. Cappaert, MSU; Bugwood.org

Eyed click beetles, also known as eyed elaters, are named so because of the false eye spots. They are one of the larger click beetles, which are almost 2" as adults. These "eyes" likely make the beetle appear larger and more intimidating to potential predators.
Photo: P. Shrewsbury, UMD

When you see a click beetle, pick it up and examine it closely. But be ready for it to "click" and jump suddenly in its attempt to scare off a potential threat. Catching click beetles and watching them click is a great activity to use to teach kids about biology and ecology.

Weed of the Week

By: Chuck Schuster

Temperatures have finally warmed up and seem to be staying warm. The soil was dry, but with several recent rains amounting to more than 2 inches certain undesirable plants seem to be really thriving.

What is this plant forming a mat of green over my flower beds and inching its way over the sidewalk? It seems like it catches on my jeans or socks. Catchweed bedstraw, *Galium aparine L.*, is a winter or sometimes summer annual that can be found throughout the United States. Catchweed bedstraw will produce an almost flat mat that will climb over other vegetation (photo 4), and inches our over solid surfaces like concrete or asphalt. It has square stems, with a backwards facing prickle on the four corners of the stem and on leaves (photo 3) which is one of its methods of spreading. These prickles allow this plant to cling to other plants for support. The leaves have hairs on the upper surface, are lanceolate in shape and sessile (attached directly to the stem) in

whorls of six to eight and found at nodes with a rough margin (photo 3). The plant reproduces primarily by seed, which germinate over a long period of time as moisture and temperatures permit. Flowers are produced starting in late May, on a stalk with 4 petals, white in color (photo 2). The flowers are small, about .125 to .25 of an inch across.

Photo 1

There are no known biological control methods for this plant. It seems to prefer all types of growing conditions, including out of asphalt (photo 1). In landscape settings, it is an easy to pull weed, but consideration should be given to do so prior to it going to seed. In turf, it will thrive in taller mowed settings. This plant when found in an undesired setting can be controlled using the following options. Many post emergent broadleaf product will work including oxyfluorfen (Goal), Quinclorac, carfentrazone (Quicksilver) with good results and Dicamba, and Three-way selective providing fair results. Remember to use a surfactant to get the best results. Use caution with using post emergent broadleaf products in landscapes as some of these products can move downward in the soil and be absorbed by plant roots of desired species, or can volatilize and move causing damage to desirable species of plants. In landscape and nursery settings, the use of oxyfluorfen (Goal) will be effective as a pre-emergent/ early post emergent product. Non –selective products used in landscapes will include products can include Prizefighter, which contains Ammonium Nonanoate, and is registered as organic. This product works well on annual weeds but not perennial weeds. Fiesta, also labeled organic, can be used in turf setting to suppress and control this weed but will take more than one application. Other products include glyphosate based products but caution should be considered with these products to avoid contact with any roots or suckers of desired plant species.

Photo 2

Photo 3

Photo 4

Photos: Chuck Schuster, UME-Retired

Plant of the Week

By: Ginny Rosenkranz

Hydrangeas come in many colors but the new *Hydrangea macrophylla* Double Delights™ 'Wedding Gown' brings a pure white double petal flower to the landscape. This plant is also known as 'Dancing Snow' and is plant patented. Double Delights™ 'Wedding Gown' is a compact grower, reaching 2-3 feet tall and 3-5 feet wide with deep green foliage. The lace cap style bouquet has large double, pure white sterile flowers all along the edge, while the inside fertile flowers start off as green buds that open to fully double pristine white small flowers. The larger flowers can be as large as ½ inch across to a full inch across, and the small flowers can be up to ½ inch. The stems are very sturdy and hold the flower bouquet upright. The flowers are formed on the former year's growth, and if the plants are dead-headed, will continue to bloom on current growth till fall. Don't always wait to dead-head the flowers as they make excellent cut flowers. Plants are hardy in USDA zones 6-9 and thrive in morning sun, afternoon shade, and consistently moist, well drained soils. Double Delights™ 'Wedding Gown' flowers bloom pure white in color no matter what the soil pH is, allowing plants to bloom with blue or pink flowering hydrangeas. A layer of mulch will control weeds and help maintain cool roots and moist soil. Plants can enhance the landscape as a mass shrub border, within a foundation planting, in a cottage garden or even in containers. They exhibit some susceptibility to bud blight, bacterial wilt, leaf spot and mildew. Occasionally aphids will visit the plants.

***Hydrangea macrophylla* Double Delights™ 'Wedding Gown' produces pure white, double flowers**
Photos: Ginny Rosenkranz, UME

Pest Predictive Calendar "Predictions"

By: Nancy Harding and Paula Shrewsbury

In the Maryland area, the accumulated growing degree days (DD) this week range from about **939** (Cumberland) to **1402 DD** (Reagan National). The Pest Predictive Calendar tells us when susceptible stages of pest insects are active based on their DD. Therefore, this week you should be monitoring for the following pests. The estimated start degree days of the targeted life stage are in parentheses.

- Japanese maple scale – egg hatch/settled crawlers 1st gen (829 DD)
- European elm scale – settled crawlers (831DD)
- European fruit lecanium scale – egg hatch/settled crawlers (940 DD)
- Mimosa webworm – egg hatch 1st gen (1002 DD)
- Japanese beetle – adult emergence (1056 DD)
- Fletcher scale – egg hatch (1105 DD)

- Indian wax scale – egg hatch (1145 DD)
- Cryptomeria scale – egg hatch 1st gen (1190 DD)
- Cottony maple scale – egg hatch (1194 DD)
- Fall webworm – egg hatch/active caterpillar tents 1st gen (1530 DD)
- Pine needle scale – egg hatch 2nd gen (1537 DD)

See the Pest Predictive Calendar for more information on DD and plant phenological indicators (PPI) to help you better monitor and manage pests.

Degree Days (as of June 24)

Aberdeen (KAPG)	961
Annapolis Naval Academy (KNAK)	1135
Baltimore, MD (KBWI)	1219
Bowie, MD	1279
College Park (KCGS)	1152
Dulles Airport (KIAD)	1157
Frederick (KFDK)	1140
Ft. Belvoir, VA (KDA)	1244
Gaithersburg (KGAI)	1081
Greater Cumberland Reg (KCBE)	939
Martinsburg, WV (KMRB)	995
Natl Arboretum/Reagan Natl (KDCA)	1402
Salisbury/Ocean City (KSBY)	1229
St. Mary's City (Patuxent NRB KNHK)	1345
Westminster (KDMW)	1181

Important Note: We are using the Online Phenology and Degree-Day Models site. Use the following information to calculate GDD for your site: Select your location from the map Model Category: All models Select Degree-day calculatorThresholds in: Fahrenheit °F Lower: 50 Upper: 95 Calculation type: simple average/growing dds Start: Jan 1

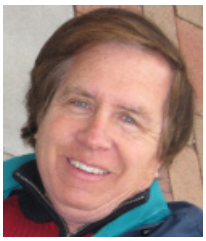
Climate and Sustainability Webinars, 2020

Dr. Sara Via, Professor & Climate Extension Specialist, University of Maryland, College Park
Every other Wednesday, June 17 – Aug. 26, 3:30pm

June 17, 2020 Healthy soil: What is it and why is it the basis of regenerative agriculture, gardening and landscaping?
July 1, 2020 Regenerative gardening: Successful and sustainable climate victory gardens
July 15, 2020 Regenerative landscaping
July 29, 2020 What can the pandemic teach us about being (un)prepared for climate change and other global disasters?
Aug. 12, 2020 The power of individual choice: what can individuals do to combat climate change and how much difference will it make?
Aug. 26, 2020 Climate change is bad for your health

See the brochure for more information and a link to register.

CONTRIBUTORS:



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Photos are by Suzanne Klick or Stanton Gill unless stated otherwise.