

Pest Management News

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Letter #4

August 31, 2017

The Turkestan Cockroach: New to Arkansas Christian Wilcox, McCauley Services and John D. Hopkins

The Turkestan cockroach, Blatta (Shelfordella) lateralis (Walker), also known as the rusty red or red runner cockroach, has become an important invasive species in the Southwestern U.S. and areas of Southern California. In those areas, it is replacing the oriental cockroach as the most important peri-domestic species. What does that have to do with us here in Arkansas? The Turkestan cockroach has been an emerging issue for Pest Management Professionals in Arkansas over the last 3 years related to proper identification and management solutions.

Turkestan cockroaches are native to a large area of the Middle East extending from Libya eastward to Central Asia including Afghanistan, Pakistan, Uzbekistan, and southern Russia. In 1978, the Turkestan cockroach was first reported at Sharpe Army Depot in Lathrope,



Recent Commercial Pest Management Encounters with **Turkestan Cockroaches in Arkansas**

CA. In 1979, a second infestation was reported at Fort Bliss, El Paso, TX and subsequently, high numbers were found in Mesa, Scottsdale, and Tucson, AZ. It was also reported at Fort McPherson, GA.

Transport of military goods and equipment from the Middle East is probably responsible for its initial introduction. However, Turkestan's are widely available for purchase on the Internet by animal breeders needing live insects as a food source. They are particularly popular among reptile breeders because they are easily maintained in the lab and unable to climb smooth surfaces. This may be the first time that an invasive urban pest species is widely distributed via Internet sales of live insects. It is very likely that this invasive cockroach could ultimately be spread throughout the rest of the U.S.

The biology and life cycle of the Turkestan cockroach is similar to the oriental cockroach and males and females differ widely in appearance. Adult males range from 1 to 1.1 inches in length and wings extend beyond the tip of the abdomen. Adult males are a brownish orange or red, are slender, and have long yellowish wings. The outer wing margins of the male's forewings are almost translucent near the wing base. Males readily fly and are attracted to light. Adult females range from 0.75 to almost 1 inch in length, are dark brown to black, and broader than males. Females have wings that are greatly reduced and their forewings are rather triangular in shape, having a cream-colored stripe along the edge.



Photo by Dr. Salvador Vitanza



Adult Female Turkestan Cockroach with Ootheca

Adult Male Turkestan Cockroach

Pest Control Technicians are facing identification challenges in the field. Oriental cockroaches are not seen routinely here in AR but technicians have been taught that a key identifying trait are the short wing pads. This has led to numerous misidentifications of actual Turkestan cockroaches



Credit Kim & Rust JEE

A. Adult Female Turkestan - B. Adult Female Oriental

While male Turkestan and male oriental cockroaches appear different, male Turkestan cockroaches closely resemble wood cockroaches

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Adult Wood Roach

Nymphs can also present identification difficulties



The Turkestan cockroach appears to have a competitive advantage over the oriental cockroach. The developmental period of the nymphs of Turkestan cockroach is shorter, and adult female Turkestan cockroaches produce considerably more eggs than do oriental cockroaches. Turkestans also have a more rapid life cycle than the oriental cockroach, allowing them to become adults after 5 molts, whereas oriental cockroaches require between 7 and 10 molts. Adult female Turkestans produce between 2 and 25 oothecae over their life span with the number of eggs per ootheca averaging around 16.7. Male and female Turkestan nymphs matured into adults in an average of 224 days with

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a range of 126 to 279 days. In the lab, many Turkestan adults lived for at least 13 months after being paired together.

Most published information on the Turkestan cockroach list outdoor locations (see photos below) as the most common places to find them.



Outdoor locations where Turkestan cockroaches have been found in Arkansas



Outdoor locations where Turkestan cockroaches have been found in Arkansas

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In addition to outdoor locations, Professional Pest Management Firms have been finding Turkestan cockroaches in high numbers indoors as well (see photos below).



Indoor locations where Turkestan cockroaches have been found in Arkansas



Indoor locations where Turkestan cockroaches have been found in Arkansas

One other observation here in Arkansas is that Pest Management Professionals have been finding many more female Turkestan cockroaches in accounts than males.

Any pest management program that provides effective control of the American cockroach or other peri-domestic cockroaches should control the Turkestan cockroach. A proper Integrated Pest Management strategy following the steps of 1) Monitoring, 2) Positive Pest Identification, 3) Sanitation, 4) Exclusion through structural repair and structure lighting modification, and 5) Judicious use of Insecticides. Cockroach baits formulations (gels, granlulars, & dry flowables) and

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contact/residual products, especially dust formulations (silica gel, deltamethrin dust, and slower acting boric acid products) all have a place in Turkestan cockroach management. Even flushing materials like pyrethrins have their place but can cause quite a negative visual impact when investigating a heavy infestation.

Pest Management Professionals say that Turkestan cockroaches in Arkansas may ultimately become as significant a problem as smokybrown or American cockroaches. They are observing that Turkestan's also may be more of structural pest than initially considered. Treatment materials and methods are still being refining in an effort to achieve more consistent results for this new pest.

Forage Pest Update

Kelly M. Loftin

Due to dry conditions and a cool spring, we have not had a bumper year for hay production. Some cattle producers have already fed hay during the driest period. Some have also had to purchase hay from outside their normal hay market area. Many are hoping to make up for the loss in production with their late season hay harvests. In addition to bermudagrass, some producers are counting on johnsongrass, sorghum-sudan hybrids and pearl millet to help with the shortages. Also, now is the time of year that we start planting cool season grasses to minimize hay usage later on. Forage grasses and especially those that are newly emerging are vulnerable to insect pests this time of year.

Within the last month and longer in certain areas, fall armyworms have been well above treatment thresholds. We are still encountering worms above treatment level in south Arkansas as well as the Arkansas River Valley and some areas of north Arkansas. Many think of fall armyworms primarily as pests of bermudagrass and a few other warm season grass. However, this pest can have devastating impact on recently emerged cool season forage such as rye, annual ryegrass or wheat especially this time of year. High populations of sugarcane aphids have occurred on johnsongrass and sorghumsudan hybrids, particularly in south Arkansas. Chinch bug damage is occurring in pearl millet and corn grown in wildlife food plots. Surprisingly, we also saw chinch bug damage in bermudagrass forage this month. With the forage pest issues we currently have, forage and hay producers need to assess insect populations and take action to help prevent yield losses.

Chinch bugs

Chinch bugs can be a serious pest of pearl millet, sorghum, sorghum-sudan and corn particularly during hot, dry weather. Infestation in early growth pearl millet and sorghum-sudan can result in significant stand reduction. They can also infest small grains and summer annual forage grasses. Damaged grasses may appear tinged with purple or yellow, or turn completely brown. Chinch bug damage can causes plants to become visibly stunted. The base of the stem can become brittle, causing the plant to snap off near ground level. Chinch bugs cause damage by puncturing the plant with piercing mouth parts and sucking out plant juice. Both nymphs and adults feed on the plant. Because chinch bug populations tend to build during the summer annual



Southern chinch bugs – adult and nymphs. Photo by Blake Layton, Mississippi State University

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grass forages are more at risk. Legumes are unsuitable hosts.

In Arkansas, two to three generations of chinch bugs occur yearly. Chinch bugs survive winter as adults, and become active when warmer temperatures return in the spring. Eggs are laid in protected areas such as crevices of grass plants near the base. Eggs hatch into nymphs hatch in about two weeks and begin feeding.

Young chinch bug nymphs are yellowish to reddish brown with a white band running across the back. As nymphs molt into larger nymphs they become black and have visible wing buds. Adults are black with white wings.

Chinch bug damage tends to less damaging in rapidly growing grasses so adequate fertilization, weed management and water tend to reduce damage. Accumulation of thatch and crop residue favor chinch bug infestation because it provides areas for harborage. Plowing can reduce crop residue and provide fewer harborage sites.

Chinch bugs are more difficult to control than traditional foliage feeding pests because they often feed at the plant bases. Insecticide treatments are more effective when applied with a high water volume (at least 20 gallon per acre). Insecticide applications aimed at fields with dying seedling are more likely to pay off by limiting further stand loss. In addition, at this point of plant growth, the canopy is less dense and less likely to interfere with the insecticide penetrating the base. Pyrethroid insecticide formulations containing lambda-cyhalothrin, zeta-cypermethrin or beta-cyfluthrin, such as Lambda Cy, Mustang Max or Baythroid XL, are effective and labeled for use in control chinch bugs in forage. Use the same rate listed for controlling fall armyworms.

Fall Armyworms

Fall armyworms are continuing to consume our limited forage in several areas across the state. Now that planting of cool season annuals is beginning, we must keep in mind that newly emerged stands are vulnerable to severe fall armyworm damage and significant losses. Now through fall, we should continue scouting bermudagrass fields and add newly emerging cool season annuals to the list. Continued diligence is critical in identifying and managing outbreaks before significant losses occur. Infestations are easily overlooked when the caterpillars are small and eating very little. Once they grow large and consume more grass, damage becomes apparent.

Clues to fall armyworm infestations include: 1) field appears "frosted" 2) presence of birds in the field or 3) the odor of



Fall Armyworms (Spodoptera frugiperda).

freshly grass. Armyworm outbreaks usually often occur in waves about 30 days apart. However, when mixed worm sizes occur, overlapping generations are present and new infestations occur more frequently than 30 days. When scouting, carefully examine grass blades, stems and organic debris at plant base for armyworms. It is best to take at least ten one-foot-square random samples across the pasture or hay meadow. Make note of the armyworm sizes as this will help make good management decisions.

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Insecticide application is recommended when three or more fall armyworms per square foot occur in a field. Per-acre insecticide cost will vary from as low as about \$2.00 up to about \$12.00. When calculating cost, always consider the cost per acre and not the cost per gallon of product. Consider residual activity of the product, especially if you are seeing overlapping generations (all sizes of fall armyworm caterpillars) and heavy armyworm pressure. Pyrethroid insecticides such as Karate® (lambda-cyhalothrin), Mustang Max® (zeta-cypermethrin) and Baythroid XL (beta-cyfluthrin) have short-duration residual activity. In contrast, products such as Prevathon® (chlorantraniliprole), Besiege® (chlorantraniliprole and lambda-cyhalothrin) and Intrepid® (methoxyfenozide)) have longer-duration residual activity and can reduce the number of applications necessary to produce a hay crop. Also remember, if the grass is ready, cutting for hay will avoid the need to make an insecticide application. For additional information on armyworms see "Managing Armyworms in Pastures and Hayfields" and is available at: http://www.uaex.edu/publications/PDF/FSA-7083.pdf and the "2018 Insecticide Recommendations for Arkansas" at: http://www.uaex.edu/publications/pdf/mp144/c-forages.pdf.

Sugarcane Aphids

In Arkansas, the sugar cane aphid (*Melanaphis sacchari*) was first confirmed in June 2014 in the southeast region; and by the end of the growing season it had been found in most grain and sorghum producing areas of the state. In Arkansas forage production, only sorghum (including sorghum-sudan hybrids) and Johnson grass is affected. Other similar forage such as pearl millet is not affected. Recently, we have observed high sugarcane aphid populations on sorghum-sudan hybrids as well as Johnson grass.

Sugarcane aphids feed by piercing the plant and sucking plant sap. As aphids feed on the sorghum plant, the plant will turn yellow to purple to black. During feeding, they also excrete sticky honeydew (a sugary substance) on the leaf surface, which is often the first sign of the aphid's presence in the field. Black sooty mold can grow on the buildup of honeydew. Buildup of black sooty mold on the plant surface can reduce plant photosynthesis and palatability of forage sorghum.



Honeydew coated sorghum leaf. Photo by Jason Kelley.



Black sooty mold on sorghum leaf. Photo by Jason Kelley.

Sugarcane aphids as well as other aphids have two forms: wingless and winged. The wingless form is pale yellow to white with dark cornicles (the "stove pipe" or "tailpipe" structures at the rear end) and darkened antennae and feet. The winged or "alate" form is darker than the wingless form and is the first to migrate into the field.

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Winged and wingless forms of the sugarcane aphid. Photo by Nick Seiter.

Early harvest or grazing is a good option especially when canopy is too dense for good insecticide coverage and the yield is sufficient for harvest. After the crop has been cut or grazed, the field should be scouted at least weekly to determine if the sugarcane aphids have re-infested the field.

Forage sorghum should be scouted at least weekly to determine their presence. Once detected or reported in the area, scouting should be intensified (at least twice weekly) to make the best treatment decision. Examine a least 15 plants within fifty feet of row, then repeat in four different locations of the field. Examine the underside of the leaves for aphids. Also, observe the plants for honeydew, and if honeydew is observed, examine the underside of leaves above the honeydew-covered leaves. In **grain sorghum**, insecticide control is recommended 25% or more of the plants have 50 or more aphids per leaf. A specific action threshold specific to forage sorghum is unavailable.

Effective application of insecticide is dependent on good coverage of the canopy. Sufficient water volume is important for good canopy coverage. Use at least five gallons water per acre for aerial application and at



Comparison of aphids found on sorghum.



Sugarcane aphids on sorghum leaf.

least ten gallons (preferably fifteen gallons) of water per acre for ground application. In addition, insecticide choice for management of sugarcane aphids and other pests is critical. Broad spectrum insecticides such as the pyrethroids will cause sugarcane aphid populations to flare and should be avoided unless absolutely necessary for other pest issues. Insecticides labeled for use against other

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aphid pests in sorghum are largely ineffective against the sugarcane aphid. Sivanto prime (fluyradifuron) applied at four to seven ounces per acre is effective against sugarcane aphids and approved for forage sorghum. A 24(c) Sivanto registration allows a reduced pre-harvest interval of seven days for forage.

The sugarcane aphid we have in Arkansas is exclusively an economic pest of forage, grain and sweet sorghum (*Sorghum* spp.). Alternative forage crops such as pearl millet (*Pennisetum glaucum*) are poor hosts for sugarcane aphids.

Encountering Black Bears

Becky McPeake

Encountering black bears (*Ursus americanus*) isn't common, but occurs more often today than 100 years ago. During most of the nineteen century, Arkansas was known as the "Bear State" for its abundance of black bears. But by 1850, black bears had become rare due to over-harvesting and habitat changes. By the 1930s, less than 50 bears were thought to remain in the bottomlands of south Arkansas. Between 1958 and 1968, the Arkansas Game and Fish Commission reintroduced 254 black bears from Minnesota and Manitoba, Canada to the Ozarks and Ouachita Mountain ranges. The black bear population rebounded so successfully that Arkansas opened a hunting season in 1980. Arguably this restoration effort of a carnivore was the most successful ever done in the country, if not the world. An estimated 5,000 black bears inhabit Arkansas today.

Nationally the number of human – bear conflicts is increasing. Occasionally news reports highlight bears appearing in urban neighborhoods in Arkansas. These encounters end with either the bear leaving by its own volition or being darted and removed by the Arkansas Game and Fish Commission. The number of reported human – bear conflicts can change dramatically from year to

year. Many human - bear conflicts coincide with dispersal of young males, but others may be associated with a lack of available natural foods. With less natural foods, black bears may consume human food from garbage cans, grain from deer and bird feeders, and other sources. An emboldened black bear which becomes unafraid of humans presents an increased risk of attack. State wildlife agencies address increasing numbers of human - bear conflicts in four ways: (1) increase hunting opportunity to reduce the bear population, (2) trap and relocate problem animals, (3) trap and euthanize those animals having serious or repeated conflicts with people, and (4) reduce intentional and unintentional feeding by encouraging the use of bear-proof garbage storage, discontinue wildlife feeding, and other



Never feed or intentionally approach black bears. This young black bear is learning to associate people with food, increasing the risk of an attack. Photo by Charles T. Bryson, USDA Agricultural Research Service, Bugwood.org.

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practices which reduce food availability to black bears. A recent study from Colorado suggests if only half the homes in high-risk neighborhoods commit to using bear proof trash cans consistently, the number of human – bear conflicts is diminished dramatically.

A number of strategies can be used to reduce the risk of a bear attack.

- Never intentionally feed bears. Such bears become less fearful of people, which increases the risk of an attack.
- If walking or camping where bears roam, leave your pet at home.
- Hikers should make noises such as talking, whistling, or singing, and wear bells, cans, or other noisemakers to alert bears.
- When camping, keep food outside your tent, preferably in a bag hanging from a tree at least 10 feet off the ground.
- Although they look cute, do not approach bear cubs; likely the sow is nearby and will attack to protect her cubs.
- If surprised by a bear, do not turn and run, as this may trigger the chase instinct. Instead, slowly back away from the bear and leave.
- Always face the bear but do not make eye contact.
- If the bear stands up or walks around you, help the bear figure out what you are by talking in a normal voice and waving your arms slowly above your head. Bears have poor eyesight, and might answer by huffing, snorting, or popping their teeth.

The vast majority of black bears flee from people unless they become habituated or feel threatened. For more information about black bears, two University of Arkansas fact sheets are available: Arkansas Black Bears: Biology and Habits (FSA9086); and Encountering Black Bears (FSA9087).

Bacterial Leaf spot of Begonia

Sherrie Smith

Begonias are one of our most beloved annual flowering plants. They are used for bedding plants, in planters, and as houseplants. Most species require bright shade (filtered sunlight); few will tolerate full sun, especially in warmer climates. In general, begonias require a well-drained soil or potting mix that is neither constantly wet nor allowed to dry out completely. Many species of begonias will grow and flower year-round except for tuberous begonias, which usually have a dormant period. One of the most difficult diseases of begonia is Bacterial Leaf spot, caused by Xanthomonas axonopodis pv. begonia. Symptoms begin as tiny, scattered, and circular to angular, glassy, blister-like lesions on the underside of older leaves close to the margins or the main veins. As the spots enlarge they become roughly circular and brown. The lesions tend to run together and dry, forming large, irregular, brown papery blotches with narrow, yellow, translucent margins which are visible on both leaf surfaces. Large lesions usually become V-shaped and often tear with



Bacterial Leaf Spot of Begonia. Photo by Sherrie Smith

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age, giving a tattered appearance to the leaves. During periods of leaf wetness, yellowish bacterial oozing may be observed on the lesions. This dries into a glossy film. Badly affected leaves will wilt, dry up, and drop prematurely. Stems and petioles may develop dark green to brown water-soaked streaks which enlarge and turn brown with a central longitudinal crack or split. In severe cases entire plants may wilt, collapse, and die when infections become systemic within the plant. Susceptibility to systemic infection depends on begonia species, with Rex begonias being very resistant to systemic infection and Rieger-types very susceptible.

Controlling bacterial diseases is always difficult. Avoid buying plants with symptoms. Practice ruthless culling of infected plants; particularly Rieger-types which can become systemically infected. Remove infected leaves from Rex and tuberous types because they are not systemically infected. Do not wet leaves when watering. Do not propagate from infected plants. Destroy crop debris.

Name That Weed

Bob Scott

Although this weed is sometimes planted and valued as an ornamental it can be weedy! The leaves are simple (i.e., lobed or unlobed but not separated into leaflets). The weedy biotypes tend to be more deeply lobed as shown in the picture.

It is probably native to tropical America, but has been introduced to many other regions, including North America, where its range may still be expanding. It is cultivated for its rapid climbing ability and bright red flowers that strongly attract hummingbirds, but it can be highly invasive. This type of distribution is called



"Anthropogenic" (it prefers man-made or disturbed habitats).

Be the first to email me (<u>bscottt@uaex.edu</u>) with the correct common name to this unique member of this glorious vine family of weeds and win a prize!

To The Readers

Please offer any suggestions for Urban or Livestock Integrated Pest Management topics (insect pests, plant diseases, weed problems, wildlife control problems) that you would like to see – <u>OR</u> – feel free to submit an article that you have prepared. Kelly and I will be glad to include it (subject to editing). Send feedback to <u>ihopkins@uaex.edu</u> or <u>kloftin@uaex.edu</u>.

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