DIVISION OF AGRICULTURE
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Pest Management News

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Insects as Food!!!

John D. Hopkins and Tamara Walkingstick

As a young boy, I remember seeing cans of chocolate covered ants and roasted grasshoppers in a local grocery store. My mom was not inclined to purchase such disgusting things just to satisfy my curiosity, and quite frankly, I was not too disappointed that those items remained on the store shelf. It was not until I was in school at the University of Arkansas in the early 1980's that Dr. Bill Yearian encouraged us to try eating bollworms. The "YUCK" factor was high but I gave it a try, and sure enough, boiled bollworms were not very good, to put it mildly. But…deep fried bollworms were something else entirely. They were delicious!!! They looked like "Cheetos" and tasted like fried pork rinds.

Entomophagy or the consumption of insects as food is a practice that can offer new forms of employment and income through gathering and farming insects and utilizing them as an almost inexhaustible animal and human food source.

Some of the benefits of raising and harvesting insects as a food source include: the fact that they require much less land than raising traditional livestock; they emit considerably fewer greenhouse gases than most livestock; and insects are very efficient in converting food into protein.

A cricket and mealworm burger: the UN has been encouraging the use of insects in food, highlighting their nutritional value and affordability. Photograph: Karen Bleier/AFP/Getty

A U.N. Food and Agriculture Organization report released in 2013 indicated that there are more than 1,900 edible insect species on Earth, hundreds of which are already part of the diet in many countries. According to the report, some two billion people eat a wide variety of insects regularly, both cooked and raw; only in Western countries does the practice retain the, before mentioned, "YUCK"

factor. This U.N FAO report listed 36 African countries that are "entomophagous", 23 countries in the Americas, 29 in Asia, and 11 in Europe.

Today, start-up businesses across the globe have been producing low-cost forms of insect protein to supplement an ever-growing global need for livestock production and human consumption alike. The science of entomology has a great role to play in helping to fill nutritional short comings in the world today.

The “Food Insects Newsletter – Chronicle of a Changing Culture”, was published by Gene DeFoliart, Florence Dunkel, and David Gracer from 1988 through 2000 and is an excellent source for articles on edible insects from all over the world, including instructions on raising insects, their nutritional properties, recipes, medicinal uses, etc. A source for obtaining “The Food Insects Newsletter 1988 - 2000” and other publications on edible insects can be found through the link below:

http://www.hollowtop.com/finl_html/finl.html

Further sources on the subject can be found through Dr. Gene DeFoliart’s “Insects as Food” Publications List.

Tamara says “there are an abundancy of recipes for insects” and offers two that were sampled during 4-H Forestry and Wildlife Camp several years ago. She says “The first one is actually not that strange: Crisp Rice Cereal treats with meal worms. All you do is toast a cup of meal worms and add them to your favorite cereal marshmallow treat recipe. The meal worms are clearly visible so I highly recommend that you use some chocolate flavored or otherwise dark colored cereal so you cannot see the creepy crawlers. A multi-color cereal would be good too although it might be too fruity.”

http://www.instructables.com/id/Rice-Crispy-Critter-Treats/

“Another recipe prepared during camp was battered and deep fried crickets served with three different topping options: powdered sugar, chocolate, or cocktail sauce. We cleaned the crickets by keeping them in sand for a couple of days. We then made our batter, dipped them, and fried them. We did not take off the legs. I discovered that legs can stick in your throat making you hack like a cat with a hairball for the rest of the day.”

“And here’s a recipe that I just can’t imagine trying: Deep Fried Green Tomato Hornworm Tacos.”

https://www.thedailymeal.com/recipes/fried-green-tomato-hornworms-recipe

“If you’ve ever snipped a hornworm in two you’ve seen the green ooze that pours out. Now imagine that deep fried. And not even battered. I’m sorry. I just can’t.”

“The most amazing article I found while searching was actually on a foodie site: Epicurious. Seriously. One of the highest rated foodie websites and they want me to eat deep fried tarantulas.”

https://www.epicurious.com/recipes/food/views/deep-fried-tarantula-spider-51184810

“The reviewer says that it tasted like chicken and you could even feel the crunch of the legs like it’s a good thing. Nope. I’m gonna stick to my plants.”

With all of the first hand experiences and links mentioned above, maybe you will be tempted to explore your adventurous side and try something very new or maybe you have already been eating insects and did not even realize it.

https://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/SanitationTransportation/ucm056174.htm#intro

Remember Your Repellents on Fall Hunts

Kelly M. Loftin

Many people associate summertime as the period we are most vulnerable for bites from mosquitoes and ticks. Ticks and mosquitoes are abundant during the summer, however, both are present in the fall and often encountered by hunters and others simply enjoying our pleasant fall temperatures.

Common skin and clothing repellents.

Although DEET has and continues to be the repellent of choice for many people, some are reluctant to use it. Over the last few years, other effective repellent active ingredients have become widely available. With a variety of repellent options to choose from, questions arise. Which repellent active ingredient should I use? What concentration should I use? When and how should I use repellents?

In general, repellents containing between 10 and 50% active ingredient provide an acceptable level of repellency and duration. For most repellents, concentrations less than 10% last only about one to two hours and concentrations greater than 50% do not show a great increase in protection time. Among the most common and effective skin repellents for ticks and mosquitoes are those containing DEET,

Ticks on a deer. After harvest some ticks will drop off the host.

picaridin, IR 3535 or oil of lemon eucalyptus. For mosquitoes and depending upon concentration, DEET provides 2-8 hours protection, picaridin – 2-8 hours protection, IR 3535 – 4-8 hours protection and oil of lemon eucalyptus up to 6 hours protection. Oil of lemon eucalyptus should not be used on children under three years of age.

When and how should you use a repellent? The answer is obvious, when you notice mosquitoes flying around or you are in tick infested areas. Remember, more does not mean better when applying repellents. Thorough coverage is important but that does not mean drenching yourself, so follow application directions. Repellents should be reapplied according to label and/or when mosquitoes begin trying to bite again. The label usually provides a good guide as to when reapplication is necessary. Environmental conditions (moisture or rain) and sweating may reduce the effective protection period of some repellents. Always follow the label directions found on the repellent.

Although many of the skin repellent formulations can be used on clothing, adding clothing-only repellents usually provide better protection when in areas with an abundance of ticks and mosquitoes. In fact, ticks that linger on permethrin-treated clothing often quickly die. The most common clothing-only repellents contain permethrin as the active ingredient. Repel Permanone® and Sawyer® Permethrin Clothing, Gear and Tent repellents are among the common clothing repellents. When properly applied most clothing repellents remain effective after multiple washings. Some clothing, such as that available from Insect Shield®, already has permethrin impregnated into the fabric. Always follow label directions when applying clothing-only repellents. For the lucky hunters that harvest a deer, be sure and use both skin and clothing-only repellents because soon after death, ticks will drop off the host and may make their way to you.

Chronic Wasting Disease Update

Becky McPeake

Chronic Wasting Disease (CWD) was first discovered in Arkansas in February 2016 resulting in changes in deer management and hunting practices for that region. Two recent studies have raised additional concerns about this disease in which fairly little is known. Neither study is intended to raise alarm, but both studies reinforce the need for hunters to take precautions when harvesting deer and elk especially in the CWD Zone.

In April, the Bureau of Microbial Hazards in Canada issued a "Risk Advisory Opinion" about the potential of human health risks from CWD. The release states that although there is no direct evidence that CWD is transmitted from animals to humans, initial findings from a laboratory research project indicate that CWD was transmitted to a non-human primate. They recommend in the absence of definitive information related to the transmissibility of CWD to humans, given evidence that bovine spongiform encephalopathy (BSE) in cattle can be transmitted to humans, that no tissue from animals which show signs of CWD should enter the human or animal food chain.

Recommendations for safe practices can be found in the fact sheet Chronic Wasting Disease in Deer and Elk in Arkansas (FSA9110) as follows:

- Do not harvest animals exhibiting clinical signs of CWD or any other disease.

- When processing harvested game, hunters should wear gloves and eye protection and should avoid contact with tissues of the nervous system, especially the brain and spinal cord.
- Do not consume brain or organ meats, especially lymph nodes from the head.
- Bone out the meat carefully minimizing contact with the brain and spinal cord, as they constitute the bulk of the nervous system where PrP^{CWD} accumulate.
- Soak knives and other processing implements in a 40 percent household bleach solution (1/2 cup of bleach in 3/4 cup of water) for one hour. Be aware that bleach will degrade metal surfaces.
- Given the limited health risks to humans, cleaning hands and arms with hot, soapy water is sufficient.
- Using a clean cloth, wipe down processing surfaces with bleach solution followed by hot, soapy water.

Remains from harvested carcasses should be disposed in a manner to reduce scavenging. Scavengers such as feral hogs may serve as a reservoir for CWD according to a July 2017 study published in the Journal of Virology. More information can be found in their article Experimental transmission of chronic wasting disease agent to swine after oral or intracranial inoculation. Two-month-old pigs were inoculated with CWD and subsequently CWD was detected in brain and lymphoid tissues at 8 months of age. These laboratory findings may or may not translate to feral hogs acquiring CWD from ingesting infected meat. However, consideration should be taken when disposing of remains. Recommendations include placement in a legal landfill disposal site with a liner, or burying at least six feet deep. The least preferable option is leaving in place close to where the deer or elk was harvested. Burning, composting, or rendering the carcass is not recommended, as prions will remain despite these treatments.

Pumpkin Bacterial Spot of Pumpkin

Sherrie E. Smith

Pumpkin Bacterial Spot of pumpkin, caused by the bacterium *Xanthomonas campestris pv. cucurbitae*, can be a serious disease of pumpkins, cucumbers, gourds, and squash. Yield losses in excess of 50% have been recorded in severely infested fields. Leaf symptoms appear as small, dark, angular lesions, with the centers of the lesions becoming translucent with age. However, the most damaging symptoms appear on the fruit. Fruit lesions begin as small, slightly sunken, circular spots, 1/16 to 1/18 inch in diameter. As the lesions enlarge the cuticle and epidermis crack. Larger lesions may have a scabby appearance with tan, raised blisters. Saprophytic fungi often colonize the older lesions, giving them a pinkish-white or green color depending on the species of saprophyte involved. The unsightliness of the lesions diminishes the marketability of the fruit as well as leading to significant rot in the field and in storage. The pathogen is seedborne and can also survive in crop residue. Bacterial spot is more of a problem during high temperatures coupled with rainy weather or overhead irrigation. Inoculum is splashed onto young fruit before it develops its protective waxy cuticle. Good sanitation and crop rotation with non-cucurbit crops helps limit inoculum in the field. Only clean seed should be used. Therefore it is advisable to not save seed from a previous crop. Copper fungicides may be applied during early formation and fruit expansion to protect developing fruit. Once bacterial lesions are observed on mature fruit there is nothing to be done except to practice ruthless culling of diseased fruit.

Pumpkin Bacterial Spot Symptoms on Pumpkin

Photos by Richard Klerk

Photos by Sherrie Smith

Name That Weed

Bob Scott

This week's plant is not a weed most of the time, but instead a very desirable native plant. A perennial, it has a bundle of seed pods and multi foliate compound leaves putting it in the legume family. Associated with pastures and roadsides more than crops for the most part. Its common name includes a state, not Arkansas. However, I took these pics near I55 at Keiser.

Be the first to identify this plant and win a prize! Email me the common name at bscott@uaex.edu.

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 – *OR* – 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 jhopkins@uaex.edu or kloftin@uaex.edu

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