Somervell County Master Gardeners

THE GREEN PIECE

TEXAS A&M AGRILIFE EXTENSION

March 2014

Understanding Fire Ants – How to Identify and Control Them

By Christine Morgan, ND
Master Gardener

There are six known species of fire ants in the United States. They are called fire ants because they inflict painful, venomous stings. Four species are native, and two came from South America. The**red imported fire ant** (*Solenopsis invicta)* has inhabited the southern United States since the 1930's, but in recent decades has been moving northward and across the southwest. The **black imported fire ant** (*Solenopsis richteri)* has been found in Texas, Mississippi, Alabama, and Tennessee since 1918, but its range is limited because of less tolerance to colder weather. Imported and native fire ants are similar in size and appearance. They are reddish-brown or black in color and measure up to a quarter inch long. They also exhibit basically the same behavior when threatened. Fire ants, when disturbed, swarm toward AND crawl onto an invader. Once in battle mode, fire ant workers bite with their mandibles and can sting multiple times with stingers attached under their abdomens at the same time.

I really want to talk about red imported fire ants. Two things make them of greater concern than their native cousins. First, they are more aggressive. Both types swarm…but imported ants charge straight up vertical surfaces such as walls, blades of grass, animal or human legs! You can tentatively check what kind of species you have, by sticking a pencil in a mound and seeing if they climb vertically. Second, imported ants are more numerous and their colony size is overall larger. Unlike native species, which are part of the balanced ecosystem, red imported ants have few natural predators in the United States. This has enabled then to grow, flourish and move over a wide range, sometimes displacing native fire ants.

As far as natural predators go, man is about it. There is one other that is promising…a biological control parasite called *Pseudacteon crawfofdi* (the Phorid fly). These parasites have been used in experimental capacities with some success. How do they work? They dart in long enough to lay an egg on a worker and then fly off. A larva hatches, enters the ant's body, consumes the insides, and then emerges as an adult. Fire ants are very hard, if not impossible to eradicate. Knowing about their biology may prove to help conquer these foreign invaders. Red imported fire ants create nests that look like mounds of loose soil with no central opening. They also like to build inside barns and structures, and tend to like electricity switch boxes, breaker boxes, or light housings also. When you come upon a mound in question, observe it for a few minutes. Do you see worker ants of different sizes from 1/8 to ¼ inch in size? You probably are looking at red imported fire ants; species of other ants tend to be more uniform in size. Their swarming and stinging behavior, the resulting pustule that arises and itches from being bitten, is what sets them apart from other species. The swarming activity that they exhibit, makes it very likely that an animal or human will receive multiple bites. Animals, especially horses, cows and humans can be covered in hundreds of ants before the signal is given through pheromones to sting. Ants communicate primarily via pheromones, which are similar to hormones, but are emitted through the air.

They coordinate their attacks to intensify more injury to their victims. One of those communication agents is the "alarm pheromone". A chemical warfare agent that drives the ants into a frenzy of stinging. If only one ant releases the alarm, then hundreds or thousands of ants will start stinging suddenly. Many mounds contain 100,000 ants!

There has been some recent documentation about hybridization of ants between native fire ants and some of the more rare venomous South American strains. Some species in South America can kill a human with one bite. Some incidents of fire ant bites have resulted in allergic reactions, sepsis and other severe conditions in a few individuals. There is speculation about whether these hybrid ants are here in the United States, and are able to inflict potentially harmful bites. Especially if the bite area is in direct contact via the vein and bloodstream of an animal or human.

What should we do to eradicate them? The secret is to exploit their weakness: **a colony's communal stomach**. Ants are divided into foragers, workers, and nursery workers who tend to the queen and her brood. Foraging ants do not simply bring food back to the queen and her brood. Instead, the foragers eat the food in the field and partly digest it before regurgitating it into mouths of workers. Then workers regurgitate the food and feed it to the nursery workers who swallow it and digest it further. They then feed it to the queen and her brood. This is a process called "trophylaxis" and protects the queen from poisoning through multiple layers of "testers". That's why a slow-acting poison that spreads throughout the whole colony before having any toxic effects can eliminate the entire population.
Chemical baits that works as a slow-acting poison are called Hydramethynlon (trade names Amdro, Max Force, and others). Other slow-acting poisons are Spinosad (Green Light Ant control), and Pyriproxyfen (Spectracide Fire Ant bait), Baits will not poison mammals. It can be deadly for chickens and other poultry if they eat it. It is toxic to fish also. Baits (powder of granules) are sprinkled on or around the mound. Hydramethylnon works as a metabolic inhibitor by blocking the biological process in the ant that makes ATP (adenosine Triphosplate). ATP is a compound required by most biological processes to provide energy for life. Without ATP, the ant becomes lethargic and stops eating causing death. The feeding process of the whole colony is stopped. The EPA has classified Hydramethylnon as a "group C possible human carcinogen", so use with care.
A drench or dry treatment using liquid chemicals (**mound application**) can be used also for effective quick kill applications when ants pose imminent danger to people and animals. Some products used for this include Deltamethrin (Bengal UltraDust), Permethrin (Real-Kill fire Ant killer), and Acephate (Ortho orthene fire Ant Killer).
Organic fire ant control uses these products: D-limonene (Citrex), and Pyrethrins (Organic Solutions).
Other **natural methods** include diatomaceous earth and a method of coating the mound with baking soda and then pouring 20% vinegar on it, causing a chemical reaction and quick kill.

Please remember that they swarm, and be careful around the mounds.

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Texas Agri-Life extension services

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Hemp: the controversial plant

by Katie Hunholz, Somervell County Master Gardener Intern

Hemp is a plant you probably have heard about before, but maybe not referred to in the most positive light. So, what is the big deal with this plant? Why is the planting of hemp so strictly regulated in the United States (in case you didn't know it is actually illegal to plant or harvest hemp unless you have a permit from the government to do so)? And yet, many people strongly promote the growth of this plant and the changing of the strict laws concerning it. In fact, current research -and past history- have shown that hemp has amazing potential as a sustainable plant, being used to make numerous products with a smaller ecological footprint than plants being currently used. Hemp is an ingredient in many products produced in the United States- products which are not illegal. It is only the farming of hemp that is illegal, not its use in industry, nor its presence in products sold in the U.S. However, in order to use hemp to make a product, it needs to be imported from another country- most likely Canada or China.

Taking a brief look at the use of hemp throughout American history, illustrates the importance that this crop has had on our country. In the past, hemp was used for making paper (used for the Declaration of Independence), car parts (by Henry Ford, himself), clothing (including the first pair of jeans), and rope. After cotton became easier to harvest, the popularity of hemp in the U.S. greatly declined. However, the production and use of hemp increased from 1 million pounds per year to 150 million pounds per year during World War II, with the need for war materials made in the U.S. After the war, production of hemp decreased to only 3 million pounds; a decrease which continued until the eventual outlawing of production. But, obviously hemp was an item that was greatly valued at one time- a value that has begun to increase throughout the past few decades.

The green potential that hemp could provide in the future seems somewhat endless. If you refer to the attached diagram, you can see the many uses for hemp in the production of numerous products. Such products include food, flour, fuel, paint, cosmetics, shampoo, fabric, carpeting, and building materials. There are numerous advantages to using hemp in these materials. Paper made with hemp is resistant to mildew, while the amount of pulp produced by hemp is more per acre than that produced by timber. Hemp oil is extremely nutritious, having high amounts of essential fatty acids (which our bodies do not produce), B-vitamins, dietary fiber, and protein. In fact, only soybeans have a greater amount of protein than hemp, and hemp is more easily digested than soybeans. With only eight species known to naturally prey on hemp, hemp can be organically grown- free of pesticides, herbicides, and insecticides. It even makes an ideal rotational crop for farmers since it is a natural weed suppressor. Hemp is a very rapid grower which can be harvested only three months after being planted. The possibilities for hemp are extensive, yet despite its usefulness, there remain numerous objections to its legalization as a crop.

What are these objections, and why are hemp's adversaries so adamant against it? The issue actually lies with a different cultivar of *Cannabis sativa*- marijuana. Despite the fact that hemp contains less than 1% of the chemical delta-9 tetrahydrocannabinol (THC), which is the psychoactive element that marijuana is known for, and that it has an entirely different genetic make-up, both varieties are able to cross-pollinate, and they are the same species. There are several distinct characteristics- beyond the presence of THC- that set hemp apart from its close relative. Hemp is grown as a tall, single stalk, with the plants being grown close together. Marijuana is a much shorter plant, in which bushy leaves and branches are encouraged, and the spacing between plants is less dense than hemp. Therefore, it is the fear of marijuana, hemp's 'brother', that deters the planting of hemp and its legalization.

With the United States being the only industrialized nation that does not permit the production of hemp, and several states within the U.S. already making hemp's production legal within their state, it seems inevitable that industrial hemp may soon become a common crop within our nation. In fact, recent regulations have passed through Congress that permit the production of hemp for strictly research/educational purposes within higher education institutions. Whether the legalization of hemp is a positive or negative direction for our nation, is a question that soon will be answered.

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- Holleman, J. (2/2014). Industrial hemp farming wins first approval in S.C. Senate. Herald online. (online). Available: http://www.heraldonline.com/2014/02/20/5698639/industrial-hemp-farming-wins-first.html.

YARB DOCTORS AND GRANNY WOMEN

By Sheryl Kleinschmidt, Master Gardener

"The song came to me from the singing of a yarb doctor named Mayberry Thomas, a resident of Knoxville, Tennessee. When I first knew him in 1929, he had a little stand in the unused end of the Knoxville public market where he sold roots, herbs, a liquid made from wild cherry bark, dried mullein leaves, sassafras and dozens of similar items." — The Ballad Book of John Jacob Niles

Yarb Doctors and Granny Women primarily treated their patients with herbs. "Yarb" was the colloquialism of "herb" used by most in the Ozark regions of Arkansas and Missouri as well as others places like Tennessee. There are reputed to have been many more Granny Women than Yarb Doctors. One possibility for that is that these healers were seldom paid for their services.

One well-known Granny Doctor (same as Granny Woman) who practiced her medicine in the Ozarks was Ella Dunn. She took care of her neighbors in Taney County most of her adult life. For two decades she practiced as a Granny Woman before studying more conventional medicine in the mid-twentieth century.

The herbs used by these early-day healers were quite varied and certainly had been proven by lots of trial and error. "Recipes" were handed down from mother to daughter as they were sometimes the only treatment received by these back-woods folks. Children were taught to self-diagnose and to recognize the appropriate herb or plant for healing—sometimes with disastrous results, however.

There were a number of ways that plants and herbs could be prepared for medicinal use. One method was by boiling and is called decocted. If an herb was steeped but not boiled, it was said to be infused. Demulsified meant the herbs were used in an ointment. Another method of preparation was the making of a poultice. A poultice would be made of herbs in a mixture of cornmeal or lard and heated. The warm poultice (heat brings blood to area for healing) would then be applied to wounds or to the chest for congestion.

Today there has been a revival in the medicinal use of herbs as people seek out alternatives to traditional medicine. Generally speaking, the herbal approach to healing may take longer, but many find it preferable to sitting in a roomful of sick people at the doctor's office. Besides, healing, herbs are quite effective in the prevention of sickness and disease.

One herb certainly used by many of the early healers is Feverfew (Tanacetum parthenium) which tolerates many soil-types, is a perennial, and easy to grow. A patient would be required to chew the leaves of the Feverfew plant to alleviate fever, headache, cramps and arthritis. Old-timers planted it around their houses to "purify the atmosphere and ward off disease".

Lemon Balm (Melissa officinallis) is one of my personal favorites because of its aroma. I was given a pot of it when I lived near Little Rock, Arkansas, and put it on my patio. It was prolific and spewed seeds as far as six feet out into the yard. Every time I mowed the grass I was rewarded with the heavenly scent of Lemon Balm.

Lemon Balm likes to grow in a rich, moist soil and is loved by bees. Its crushed leaves actually resemble the pheromones given off by the bees. Medicinally, the leaves were boiled (decocted) and made into a tea which reduced anxiety, helped reduce colic and aided digestion. In ointment form, it relieved fever blisters.

Mullein (Verbascum thapsus) is a biennial and considered a naturalized weed in the eastern states. In the Middle Ages the plants were called hag tapers because the stalks could be dipped in melted fat and lighted as a torch. They were thought to either be used by witches or used to drive them away.

As a medicine, the whole Mullein plant seems to possess slightly sedative and narcotic properties—another reason why the Yarb Doctors and Granny Women needed to be very careful in the preparation of and administration of herbal remedies. Mullein was often used in the treatment of ear infections, colds and bronchitis.

Echinacea (Echinacea purpurea) was also a staple in the healer's arsenal against disease/sickness and if it wasn't needed, made a beautiful addition to the flower garden. Its one-inch purple petals are strikingly attractive. Echinacea can chase off or help speed recovery from an acute bacterial or viral infection—especially in the respiratory tract. It is available in capsule form in today's health food stores.

The use/knowledge of Echinacea was wide-spread before the use of modern medicine and even the Plains Indians used it topically and internally. Because of its antiseptic and anti-inflammatory qualities, it was also used to treat wounds.

These are just a few of the herbs used by our ancestors as medicine or tonics. For those interested in learning more about medicinal, culinary, or other uses of herbs you may want to check out a couple of these resources.

HERB SOCIETY OF AMERICAN-PIONEER UNIT www.herbsocietypioneer.org/
NORTH TEXAS UNIT OF THE HERB SOCIETY OF AMERICA www.herbsociety.org
THE OZARK FOLK CENTER in Mountain View, Arkansas www.ozarkfolkcenter.com

The Ozark Folk Center has one of the most diverse herb gardens in the United States (I have personally visited there several times). Since it is also a state park, they offer nice, clean cabins at affordable prices with an awesome restaurant that features many herbs in their food choices. There are two upcoming herb workshops in which you may be interested:

1) Culinary Herbs—March 17-19, 2014

2) Medicinal Herbs—April 4-5, 2014

Community Horticulture Education Series

Somervell County Master Gardeners
Community Horticulture Education Series (CHES)
Monday, March 10, 6:30 pm
Somervell County Senior Citizens Center
209 SW Barnard, Glen Rose
Free and Open to the Public

This month's community horticulture educational program (CHES) will be entitled "Understanding Fire Ants: How to Identify and Control Them". The program will be presented by Master Gardener, Christine Morgan, ND. Identifying and understanding fire ant behavior will help us understand whether or not we have a problem and the extent of said problem. Imported fire ants disrupt our native ecological system which greatly impacts our landscape and pasture land.