

Issues in Agriculture

The Newsletter about Integrated Pest Management for the El Paso Valley

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Announcements

- Due to ever-increasing costs of sending this newsletter using the postal mail, from this point forward, the IPM newsletter will be delivered through email only. Please provide us with your email address.
- **Vegetable Gardening Workshop and Plant Sale:** Saturday, March 29. Summer vegetable gardening short course (8:30 AM to 12:00 PM). Topics: Tomatoes 101, popular summer veggies, and herbs in containers. Program fee of \$10 includes printed materials and handouts. The proceeds of the vegetable plant sale will benefit the El Paso Master Gardener Association. Location: Ascarate Park Pavilion 6900 Delta Drive, El Paso, TX 79905. For information and to RSVP contact 915-860-2515. Denise Rodriguez.
- **Microgreens for growers and food enthusiasts.** Microgreens short course (8:30 AM to 11:00 AM); Culinary uses and recipe tasting (11:00 AM to 12:00 PM). Location: El Paso Community College Administrative Services Center, Building B, Sysco Demonstration Kitchen 9050 Viscount Blvd. Prepaid registration required by March 19. Program fee of \$15 includes printed materials. Limited to 30 participants. Contact: 915-860-2515. Denise Rodriguez.
- **Culberson County sets Ag Expo.** The Texas A&M AgriLife Extension Service office in Culberson County will conduct the Culberson County Ag Expo beginning at 9:00 A.M. on March 21. Activities start at the Van Horn Convention Center located at 1801 West Broadway, and then travel to the Jobe Ranch east of Van Horn for the remainder of the program. Individual registration is \$10 with RSVP required by March 19 by calling (432)-283-8440. Speakers will include Tiffany Dowell: Agriculture Law-What Landowners Need to Know. Dr. Alyson McDonald: Soils and Hydrogeology near Kent. Activities at the Jobe Ranch will include a tour hosted by Brooks Jobe, followed by a sponsored meal. After lunch, Dr. Bruce Carpenter will give a live low-stress cattle handling demonstration at the Jobe Ranch headquarters. Two Texas Department of Agriculture CEUs will be offered. For more information call Lainie Koch at (432)-283-8440 or email jekoch@ag.tamu.edu
- **Hudspeth County Ag Day.** March 26, 8:45 AM at the Community Building, 561 Knox, Fort Hancock, TX 79839. Program fee: \$10. Dr. David Drake: Soil sampling in alkaline soils; soil amendments and seed treatments for salinity and alkalinity in alfalfa and cotton. Dr. Soum Sanogo: effects of salinity on soil borne plant diseases. Dr. Guy Fipps: Irrigation technologies, soil salinity management and rehabilitation. Contact Cathy Klein (915)-369-2291 or Hudspeth@ag.tamu.edu
- **Texas Pecan Growers Association Annual Conference & Trade Show:** July 13-16, 2014. Embassy Suites, San Marcos, TX. Contact TPGA at 979-846-3285 or pecans@tpga.org

PECAN:

In 2013, Drs. Mark A. Muegge and Salvador Vitanza evaluated the efficacy of several insecticides for black-margined aphid (BMA) control. This study was conducted in a commercial pecan orchard near Fabens, TX. A single pecan tree constituted an experimental unit. Each experimental unit was bordered by untreated pecan trees as buffers to help reduce potential drift contamination. Experimental units were arranged in a randomized complete block design with 10 treatments replicated 4 times. Insecticide applications were made using a high pressure sprayer calibrated to deliver 100 gallons per acre (gpa) at 100 pounds per square inch (psi). From each experimental unit 3 randomly selected compound leaves were examined for BMA. Adult and nymph aphids found were counted separately and recorded. Treatments were applied on 11 Oct after pre-treatment samples had been collected. Post treatment samples were taken at 10 and 25 days after treatment. All data were subjected to analysis of variance (ANOVA). Treatment mean separation was performed using Fisher's Protected LSD (P=0.05). Although total BMA densities were moderately high they never exceeded economically damaging population densities throughout the duration of this test. Prior to treatment application, BMA adult and nymph population densities were statistically equal among untreated check and treated plots. At 10DAT the Induce, Agriflex, Agrimek, and Admire Pro treatments did not significantly reduce BMA adult population density. All treatments except Agriflex and Admire Pro significantly reduced BMA nymph population densities. At 25DAT only the Beleaf treated trees had significantly lower BMA adult

population densities relative to the untreated check trees and BMA nymph populations were not significantly lower in any of the treated trees relative to the untreated check. However, population densities of BMA nymphs were substantially lower in the Endigo, Voliam, and Beleaf treated trees relative to the untreated check trees. Interestingly, the NIS and Agriflex treated trees had significantly higher BMA nymph population densities relative to the untreated check trees. Whether this result is a real cause and effect or a result of experimental and or sampling error requires further studies.

Treatment	Rate (oz/acre)	Mean BMA adults/3 Compound Leaves			Mean BMA nymphs/3 Compound Leaves		
		0 DAT	10 DAT	25 DAT	0 DAT	10 DAT	25 DAT
UTC	-	8.2	7.8ab	4.2bc	14.3	24.2a	11.3bcd
Induce	4.8	6.9	7.9a	9.2a	10.7	11.8bc	31.7a
Agriflex+NIS	5.5	4.6	5.7abc	6.4ab	11.7	15.6ab	30.6a
Agriemek+NIS	2.5	8.7	5.5abc	5.7bc	20.8	13.4b	17.9bc
Admire Pro	2	4.6	4.7bcd	4.8bc	7.6	14.7ab	15.0cb
Endigo	5	10.8	4.2cd	3.1cd	26.3	5.8bc	5.7cd
Water*	100g/a	10.1	3.9cd	4.8cb	17.8	10.7bc	19.7ab
Voliam Express	9	10.2	3.2cd	3.4cd	21.6	6.3bc	9.7bcd
Fulfill+NIS	4	8.7	2.7cd	4.7cb	9.8	2.5c	12.3bcd
Beleaf	2.8	8.4	2.4d	1.0d	21.3	2.2c	1.9d
LSD (P=0.05)		6.0	3.2	2.9	15.8	10.6	12.5
<i>P>F</i>		NS	0.0039	<0.0001	NS	0.0017	<0.0001

2014 EL PASO PESTICIDE APPLICATOR TRAINING: on February 4, 2014, Texas A&M AgriLife Extension Service along with TDA, The El Paso Pest Management Association, The Greater El Paso Pest Control Association, and the Ysleta Independent School District organized and conducted the 2014 El Paso Pesticide Applicator Training Workshop at the Ysleta Cultural Arts Center which dealt with diverse topics related to pesticides and integrated pest management (IPM). A series of seven presentations were the central part of the event. The topics presented during the training were relevant to the audience interest and needs. The subjects were covered by experts in their respective fields and included the following: pest report for urban and Ag (Dr. Salvador Vitanza - AgriLife), tree injections: application techniques for pest control (Lee Mangum - Arborjet), laws and regulations (Randy Rivera - Texas Department of Agriculture), neonicotinoid insecticides and the environment (Dr. Mike Merchant - AgriLife), integrated pest management in agriculture and urban (Dr. Mark Muegge - AgriLife), baiting for gophers (James Rodriguez - JT Eaton Co). A total of 270 people attended the event (including non-paying attendees). This is one of the largest and least expensive pesticide applicator training events in the State of Texas. Substantial savings in time and money were gained by workshop participants because the event was centrally located, provided high-quality presentations, certificates of completion, and opportunities for business contacts. The cost/benefit ratio was a great value for attendees. The evaluation survey post training resulted in very high marks and satisfaction. For the benefit of the readers of this newsletter, I would like to present a summary of some of the presentations given at this educational event.

LAWS AND REGULATIONS. Randy Rivera, Administrator for Agriculture Protection and Certification, Texas Department of Agriculture, Agriculture and Consumer Protection Division.

Agency Reorganization: The face of TDA has changed. It has lost key staff through retirement. Legislative/budget changes were implemented based on business needs and efficiencies. TDA went from 10 Divisions to 3 Program Divisions. There is new emphasis on food and nutrition, trade and business development, agriculture and consumer protection.

Legislative/Budget Update: TDA is looking for new ways to leverage resources. Risk-based inspections (focus resources on areas presenting the highest risk). Pointserve - a fleet planning and route optimization system. Computer Based Testing - new method of delivering exams to pesticide applicators. Team Work - across all areas of agriculture regulatory programs. The budget was reduced by 40%. Cost recovery is a legislative requirement. There was a reduction of approximately 140 positions. Programs were reviewed for cost savings/efficiencies. Increased fees across most programs. Lower fees in Structural Pest Control and weights and measures. The goal is to reduce fees in other program areas too.

2013 Legislative Session: TDA did not ask for reinstatement of previous budget (lost in previous

legislative session). In fact, TDA asked for 5% less. TDA asked for an adjustment to the Capital Authority to give the agency more flexibility to replace vehicles to more efficiently use resources. There are no major legislative initiatives related to pesticide programs.

Agriculture Protection and Certification Programs: agriculture commodity programs, grain warehouse, seed quality, organic certification, aquaculture, handling and marketing of perishable commodities (HMPC), environmental and biosecurity programs, pesticide certification and compliance, biosecurity and agriculture resource management (plant quality and quarantines).

Computer Based Testing (CBT): Exams for ag pesticide certification will no longer be administered by TDA personnel. Exams will soon be administered by computer only at various non-TDA locations throughout the state. There will be 20 exam sites from Monday to Friday with an unlimited number of exam sessions. This will allow for agency resources to be focused in other areas. There will be no immediate exam fee changes. There will be fees for 2nd attempts (for failing exam at 1st attempt) for all license types. There will be a testing center in all of the major metropolitan areas. It is anticipated to begin in April or May 2014. This will apply to all license types. Private applicators will still need to contact Texas A&M AgriLife Extension for PAT. TDA is working with AgriLife to make PAT available on-line at a future date. **Recertification Update:** CEU audit of applicators that renewed their licenses in March 2013 showed that there were multiple issues concerning the process including: electronic roster process was directed to validate CEUs prior to license renewal. Electronic rosters go into use on November 18 for all courses (Ag and SPCS). The recertification guide was sent to sponsors/AgriLife. It will be provided to each sponsor upon CEU approval. It is a GUIDE and more information is needed to accurately accredit courses. Titles are not enough in most cases! We need to have a more defensible CEU process to justify recertification.

Possible Concerns with use of Regulated Herbicides in Cotton and Soybean Texas Pesticide Regulations. Will Changes be needed? Potential Concerns: Increase use of REGULATED herbicides may increase incidents of damage complaints to conventional cotton, minor use/specialty crops (e.g. grapes), organic crops or other desired vegetation.

Known and Unknowns? Conventional cotton, grapes, ornamentals and other plants are extremely sensitive to regulated herbicides. TDA investigates numerous incidents of alleged damage to crops/sites due to regulated herbicides each year. Planting of auxin herbicide-resistant cotton MAY result in significant increase in applications of regulated herbicides by ground and by air. An increase in regulated herbicide applications will increase the probability of off-target movement and damaged vegetation. Applications will most likely take place when the weather hot, dry and windy. All of these weather factors contribute to an increase in off-target movement. For auxin-resistant varieties, will there be requirements for specific label use of the various auxin herbicides?

Regulatory Issues: How to address concerns of “potential problems”? Regulated Herbicide permit program may expand to additional counties. Counties will need to request TDA to change Administrative Rule to add counties. The permit program may need revision to ensure adequate mitigation measures are available. TDA will work with stakeholders to strengthen the permit program or develop an alternative. Will additional resources be needed to address an increase in permit requests and pesticide investigations?

NEONICOTINOID INSECTICIDES AND THE ENVIRONMENT: What you need to know. Michael Merchant, Ph.D., Professor and Extension Urban Entomologist, Texas A&M AgriLife Research and Extension Center, Dallas.

Pesticides are part of a well-balanced IPM program. Advantages of insecticides: provide control of many pests that are not controllable with other means, many are fast acting, can be selective for target organisms, relatively inexpensive and easy to use. Neonicotinoids: new nicotine-like insecticides that act at the nicotinic receptor in the insect nerve (more active in insects). First registered for use in 1990s (imidacloprid). They are the most widely used insecticides in the world today, less toxic to birds and mammals than earlier classes of insecticides, and are systemic in plants. They are used as seed coatings, soil drenches, foliar sprays, granules, direct injection into plants, chemigation, and baits. Current Neonicotinoids: Imidacloprid (Merit, Marathon, Premise, Advantage), Dinotefuran (Safari, Transect, Zylam), Acetamiprid (Transport, Tristar), Thiacloprid (not yet registered for non-ag use), Clothianidin (Arena, Aloft), and Thiamethoxam (Flagship, Meridian, Optigard). Neonicotinoids are relatively long lasting in the soil. For instance, the distribution of imidacloprid in red maple trees following soil and tree injections results in highest levels in leaves (suggests xylem transport). However, it results in low levels in pollen and none in nectar. The highest level is found in soil. Advantages: systemic, mix easily with water, avoids direct contact with beneficial insects, and can reach cryptic insects. There are no good alternatives for some pests such as: armored scales, leaf rolling caterpillars, borers, and bark beetles.

The **colony collapse disorder** is a puzzling bee colony loss (30-90% of dead bees); which began in 2006. The average loss was 33% of overwintering colonies between 2006 and 2011. If 33% losses continue, some warn of possible threat to economic viability of the pollination industry, and rising food costs. Honey bees losses are not new: there have been at least 20 major bee colony losses since the 1860s in the US. In the mid-eighties, parasitic varroa mite and tracheal mite were introduced in the US. Other recent diseases include foulbrood and Nosema.

Political fallout: the European Union sharply restricted neonicotinoid use during a two-year moratorium beginning May 2013. Bayer and Syngenta sued in August arguing that the studies were flawed. U.S.

situation: beekeepers and environmental groups sued EPA in March, 2013 to ban two neonics. After a bee kill in Wilsonville, OR in June, 2013, Oregon banned products with dinotefuran for 180 days in July, then issued new label requirements in November. Some environmental groups are calling for home improvement stores to stop selling neonicotinoids in the US. Currently, there are federal and state bans being introduced into bills. There are some valid concerns being voiced by Xerces Society and others such as the need of consumer use / labels that mention pollinators, other pollinators, and higher rates of insecticides in urban landscapes.

Trees in urban areas fall into two categories from a bee's viewpoint: **entomophilous** (insect pollinated) and **anemophilous** (wind pollinated). Entomophilous trees generally include the Rosaceae and Fabaceae as well as lindens and citrus. Bees harvest both nectar and pollen from the flowers of entomophilous trees. But bees only harvest pollen from anemophilous trees as they do not produce nectar. Some pollinators may still harvest pollen from anemophilous plants such as: oaks, elms, ash, beeches, maples, pines, and grasses. It should be noted that these wind pollinated trees produce vast amounts of pollen and some of that abundant pollen is readily collected by bees. However, bees will preferentially collect pollen from the entomophilous plants. There are times, especially early in the year, when bees are extremely hungry for pollen and there is not enough out there for them from their favored plants. In some instances, bees have been observed to collect 75 to 80% anemophilous tree pollen in early May.

Approximately 4000 species of bees are found north of Mexico with an estimate of around 400 species unnamed. Many bee species are currently in decline and some are extinct. The National Academy of Sciences noted that declines in many pollinator groups are associated with habitat loss, fragmentation, and deterioration, diseases and pathogens, and pesticides. The resulting impact on pollinator-dependent flowering plants could be devastating. In fact, the World Conservation Union predicts that 20,000 flowering plant species will disappear in the next few decades. While pollinator declines are not the sole cause of these plant extinctions, and few plant-pollinator systems are absolutely obligate between two species. Large-scale losses of either flowering plants or pollinators are likely to result in cascading declines within both groups. Animal species dependent upon fruit and seeds for forage may be negatively impacted as well.

Should we be using neonicotinoids in urban pest control such as: indoor applications, landscape ornamental pests, outdoor ant control, outdoor mosquito control, and termite control? Reasons to use neonicotinoids: relatively low in hazard to people and wildlife; there is no scientific consensus on true impact of neonicotinoids in field when used properly. The EPA recently reviewed neonics registrations and concluded that the benefits outweigh the risks. The greatest concern for bees is in agricultural settings, but there are no good alternatives for some pests.

Warnings: read and follow all label directions, avoid application and drift on to blooming plants, or entomophilic plants close to bloom, consider using other alternatives when available for outdoor landscapes, and remember that pyrethroid insecticides also pose risks to pollinators.

TREATING TREES THROUGH TRUNK INJECTION. Lee Mangum, Southwest Regional Technical Manager, Arborjet Inc. **Why Trunk Injection?** Tall-tree spraying is less accepted by the public due to drift concerns, waste of product, exposure, and liability. Soil drenching/injection has mixed results, regulations are reducing where they can be used; street trees, many insects cannot be effectively reached or controlled by spraying. Trunk injection greatly reduces exposure to consumers, soil, water, air and applicators. Visible evidence that full dose is delivered to pest; longest residuals, no microbial or solar degradation, wider treatment-window, no impact of wind and rain. It allows better treatment results, planning, and time management.

Trunk Injection History: increase in product offerings with additional research, success, and innovation. Cutting edge technology now offered with university research showing excellent results. Additional product offerings will be available in the future with continued research and rise of popularity of using these environmentally-friendly applications. Arabs plugged trees with solids to alter trees in the 12th Century (perfumes, fruit flavors, colors). This method was recorded by Leonardo DaVinci (about 1500 A.D.) injecting medicaments into apple trees to maintain disease resistance. Systemic fungicides were developed in the 1970s to control Dutch elm disease. Types of trunk injection: micro-injection, micro-infusion, cambial injection, and macro-infusion.

Factors Affecting Tree Uptake: Physical problems: girdling root, injured bark, compression wood, and old branch site. Weather extremes: cold soil temperature, air too cold or too hot, leaf senescence in fall, and excess wind. Moisture extremes: drought, excess rainfall, soil type, and high humidity. Vascular characteristics: ring porous, diffuse porous, or tracheid. Applicator skill. The injection technique has proven effective in controlling the following pests: adelgids, aphids, black vine weevil, buprestid borers, bronze birch, two-line chestnut, emerald ash borer, caterpillars, flathead borers, gall wasps, hemlock wooly adelgid, Japanese beetle, leaf beetles, lace bugs, gypsy moths, leaf hoppers, leaf miners, long horned borers, mealy bugs, pine tip moth larvae, plant bugs, psyllids, sawfly larvae, soft scale insects, thrips, white pine weevil, and whiteflies. This technique can also be used to improve health of chlorotic trees by injecting a micronutrient mix. The best time for injecting a tree is in the fall. The spring season is a second choice. TREE-age is the next generation in injection chemistry. It provides long-lasting control (up to two years). Small doses are very effective and it is labeled for 25 insect pests.

BAITING FOR GOPHERS. James Rodriguez, ACE, Territory Manager at JT Eaton Company.

A gopher is a Rodent from 6 to 10 inches in length. The “pocket” gopher is named for its external fur-lined cheek pockets or pouches. It leads an almost total subterranean life except to push dirt out, to seek new territory, or to graze. Gophers reach sexual maturity at about 1 year of age and can live up to 3 years. They feed on roots they encounter while digging and will surface to feed around body length or so from their tunnel opening. It is a non-social animal except during breeding season. Intruding gophers are violently repelled. Their burrows extend 6 inches to 6 feet in depth depending on climate and are 2.5 to 3.5 inches in diameter. Their burrows are generally plugged to keep temperature and humidity even and their predators out. Their territories range from 200 square feet for a young gopher to 2,200 square feet for an old established one. Gophers do not hibernate and are active year-round, though fresh mounding may not be seen. They can also be active at all hours of the day. They may occur in densities of up to 16 to 20 individuals per acre. In irrigated areas, a female can have up to 3 litters per year. Litter size may be as high as 10 individuals. In non-irrigated areas, breeding usually occurs in late winter and early spring, resulting in 1 litter per year. Each gopher can push up one to three mounds per day. The mounds give an indication of areas with the greatest feeding or nesting activity.

Damage: Injuries to people or livestock (by stepping on burrows), turf, plants roots, mowing equipment, slopes, structural foundations, garden crops, ornamental plants, gnaw plastic water lines, lawn sprinkler systems, and yard lights. Additionally, their tunnels can divert and carry off irrigation water and lead to soil erosion. Mounds on lawns interfere with mowing equipment and ruin the aesthetics of well-kept turf grass; especially in golf courses.

Control: Death by road flare! Trapping, shovels, and probes. Probe 12 inches out from the mound. Feel for the “slip or give” of the probe as it hits a main run. Block bait can be good for months in the ground. Gopher bait is a first generation anticoagulant similar to what is used in some rat and mouse baits. **Bait placement:** after locating the main gopher burrow with a probe, enlarge the opening by rotating the probe. Open the runway with a spade or shovel. Place bait carefully in the run. Cover the opening to exclude light. A 4-inch hole or less is needed to place the bait. Although generally less effective than strychnine baits, anticoagulant baits are preferred in areas where children and pets may have access.



Mario Saavedra (TDA) receiving an award from Jaime Lagos (Univar) in the name of the Greater El Paso Pest Control Association for 25 consecutive years of helping organize the El Paso Pesticide Applicator Training.



2014 El Paso Pesticide Applicator Training during lunch, February 4, at the Ysleta ISD Cultural Arts Center.

The Texas AgriLife El Paso IPM Program is partially supported by the following organizations:

- West Texas Pecan Association**
- Ag Market Resources**
- El Paso Pest Management Association**
- Texas Pest Management Association**
- Valley Gin Company, Tornillo**

Extension programs serve people of all ages regardless of socioeconomic level, race, color, sex, religion, disability, or national origin. The Texas A&M University System, U.S. Department of Agriculture, and the County Commissioners Courts of Texas Cooperating.