

IPM PEST UPDATE

The IPM* Newsletter for Marin County School Maintenance Directors and Their Staff

Volume 1 No. 1

Fall 2002

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Pest Update brings you IPM* Information for Marin County Schools

*IPM, or Integrated Pest Management, is an approach to pest control that is based on an understanding of the pest's life cycle and habits. IPM uses this information, combined with regular monitoring, to determine if, when, and how to intervene for optimum pest control.

IPM uses a number of different strategies, such as prevention, education, and mechanical, physical, and biological controls. Chemical controls are used only as a last resort. They are used as spot treatments and are chosen and timed to have the smallest negative impact on non-target organisms and the environment. The goal of IPM is long-term pest control; therefore, emphasis is placed on preventing pests and on making the school environment inhospitable to them.

Finding Solutions: Cleanliness and Trash Can Liners Help Turn Away Yellowjackets

Now that diazinon (e.g., Knox-Out®) has been taken off the market, and for the immediate future, there is no replacement for baiting yellowjackets, it is more important than ever to use sanitation and nest destruction to control these insects.

Trash Can Liners

Lester Lyons of the Sausalito Marin City School District has been experimenting with trash can liners impregnated with plant oils that repel insects. He thinks he is having success with keeping yellowjackets away from garbage cans during lunch.

Of course, in the ideal world, all school garbage cans would be equipped with domed-topped, spring hinged lids, and all children would throw their garbage in the can. But since we are far from that ideal world at the moment, these liners may help with the yellowjacket problem. They are called Bug AWAY® Bags and are available from California Supply at 510-429-0300.

If you decide to give them a try, please let us know if they work for you. Contact Tanya Drlik by phone at (510) 524-8404 or email at TDrlik@earthlink.net.

Sanitation and Habitat Modification

Yellowjackets are smart insects. They can learn where the best feeding sites are, and they keep coming back to them, on purpose, not just by chance. If you keep your garbage cans close to where kids are eating outside, you increase the chances of yellowjacket/



Lester Lyons shows the trash can liners that are scented with natural plant oils to repel yellowjackets and flies.

human interactions. Ed Meehan of the Marin/Sonoma Mosquito and Vector Control District suggests that garbage cans be at least 50 yds. away from eating areas.

No matter where the garbage cans are, those that are used to throw away food should be emptied immediately after lunch.

At this time of year, the yellowjackets' natural food source—other insects—is disappearing. Without much food, they get cranky and more likely to sting; therefore, fall is a time to be especially vigilant.

Continued on page 2

PEST UPDATE

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Program

We Want to Hear from You!

We need your input! We would like to know about the types of pest and administrative problems you are facing so we can help you find solutions. We also know that you have many of the answers to the problems that crop up, so we'd like to help you to share your successes with others. What are your successes and what challenges are you facing? Call (510) 524-8404 and ask for Tanya Drlik!

A Model School
IPM Project
Quarterly
Publication



www.co.marin.ca.us/schoolipm

Solutions for Dealing with Yellowjackets

Continued from page 1

Here are a few more tips:

- Use trash can liners and keep garbage cans clean.
- If all food garbage goes into the dumpster in sealed plastic bags, you won't have much of a pest problem at the dumpster.
- Keep the dumpster lid closed.
- Keep dumpsters clean. Check your contract for provisions for cleaning or supplying new dumpsters, and make sure you take advantage of those provisions.
- Limit areas where food can be eaten, both indoors and out.
- Store recycling in pest-proof containers, or make sure that cans and bottles are clean before storing.

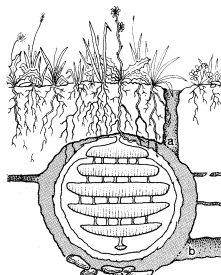
Trapping

DO NOT hang baited yellowjacket traps inside the school or outside near where children play or eat. The attractant in these traps can pull yellowjackets from 400 to 500 yards away. You will just be attracting more yellowjackets and risking more stings. If you get insistent pressure to use traps, hang the traps without attractant or bait of any kind.

We don't have any scientific evidence to suggest that you can control yellowjackets by trapping, but if you want to try it, set your traps out around the perimeter of the schoolyard. See the Products and Resources box for suggested traps.

Nest Removal

Finding and removing yellowjacket nests is going to become extremely important in the years to come.



Nests are usually in the ground

When you locate a nest, you can call the Marin/Sonoma Mosquito and Vector Control District (See Products and Resources box), and they will come and eliminate the colony. This is something that should be done only by a person experienced in the process and who has the proper protective clothing.

The majority of the yellowjacket nests you find will be underground in old gopher or ground squirrel burrows or other holes in the ground. You may also find them in bushes, in trees, and hanging from eaves.

Start monitoring for nests in late May and early June. Continue monitoring regularly through the summer and into the fall. In the winter, all the yellowjacket workers die off and only the mated queens hibernate through the winter waiting to start new nests in the spring.

Ed Meehan says that the best time to find a nest is at dawn. When yellowjackets first emerge from their nests, they make an "orientation flight." They hover a few feet above their nest site taking in cues that will help them find their way home. Looking out across a field with something dark in the background makes for the best viewing. Take a cup of coffee out with you, and look for the glow the early morning sun gives to their wings.

With these techniques and some education for students, teachers, and principals on how their actions affect the yellowjacket problem, you should be able to keep those yellowjacket populations in check.

Products and Resources

Insect Repellent Trash Can Liners

Bug AWAY® Bags (call California Supply at 510-429-0300)

Nest Destruction

When you find a nest, record and mark its location and **call the Marin/Sonoma Mosquito and Vector Control District** at 800-231-3236 or 707-285-2200.

Traps (see more about trapping on this page)

Victor® Yellowjacket Traps
(bait with apple juice)

Sterling® Yellowjacket Traps
(bait w/ heptyl butyrate or octyl butyrate)

Seabright® Yellowjacket Inn
(bait with protein such as canned mackerel; not for liquid baits)

Yellowjacket Baiting Report

Knox-Out® (Diazinon) off the Market

As a result of its review of pesticides under the Food Quality Protection Act (FQPA), the EPA has canceled the registration for a number of diazinon products because of their potential risks to children. Among these products is Knox-Out 2FM®, the only pesticide that was registered for yellowjacket baiting. Baiting was a very effective and low hazard technique for controlling yellowjackets on school sites, but at this time, there are no registered products to replace Knox-Out.

We hope that soon there will be other safer and more effective materials available. Michael Baefsky of the Model School IPM Project is working with the University of California at Riverside to conduct experiments at San Marin High in Novato that will help register alternative pesticides for yellowjacket baiting.

As the first part of this study, Michael is testing four pesticides, fipronil, imidacloprid, spinosad, and thiamethoxam, to see if yellowjackets will accept small amounts of these pesticides mixed with canned mackerel.

Stay tuned. We'll keep you posted on new developments in yellowjacket baiting.

Novato Unified Baiting System Wards off Yellowjackets

In 1999, the Novato Unified School District called on Ed Meehan of the Marin-Sonoma Mosquito and Vector Control District for help with their yellowjacket problem. With Ed's assistance, Dave Goodwin developed a baiting program that the District considers a great success.

In photo, Aaron Shapter (left) and Dave Goodwin get ready to hang yellowjacket bait stations.



The following instructions are for your future reference when other pesticides become available for yellowjacket baiting and for those of you who have a stock of Knox-Out 2FM® left.

Pre-Baiting: To Bait or Not to Bait

Pre-baiting is necessary to determine the size of the yellowjacket population to assure the success of the program. If there are too few yellowjackets, the baiting program will not be successful.

Start pre-baiting in mid-June

- Place a spoonful of canned mackerel in a shallow container and set it on a flat surface.
- Place 1-2 drops of octyl butyrate on a cotton ball and set it nearby.
- Observe for 5 to 10 minutes.
- You should see 5 to 10 yellowjackets in that period before starting the program.
- If you don't see 5 to 10 yellowjackets, wait a week and try again.

NOTE: If yellowjackets won't accept mackerel, experiment with cat food tuna.

[See other side for instructions on building a yellowjacket bait station and how to set bait.](#)

Baiting Yellowjackets



NOTE: See other side for pre-baiting information. Before you actually begin your baiting, use your site maps and measuring wheel to determine where and how many bait stations will be needed. Mark trees or fences with flagging tape and/or paint. Set bait stations approximately 100'-150' apart (4 per acre).

1. Bait stations should be placed on the perimeter of the property, 6'-9' from the ground. Try to hide bait stations so they will not be disturbed or vandalized.

2. Prepare bait as follows and place in bait station:

- Open 15 oz. can of mackerel. Put into a container and with fork, break up (mash) mackerel into small pieces. Use water from mackerel can to keep the bait moist.
- GENTLY mix 1/2 teaspoon of Knox-Out 2FM[®] with 3 oz. of mackerel. (Use 2 1/2 teaspoons of Knox-Out for 15 oz. can.) Make sure that you do not over mix bait.
- Measure 2 Tablespoons (1 oz.) of bait and place into plastic cup.

3. Using dropper, place 1-2 drops of octyl butyrate on cotton ball attached to the bait station hanger.

IMPORTANT: Bait must be replaced every other day. For best results, continue baiting for 2 weeks or until bait is not being taken. Never reuse bait cups. Replace plastic cup every time bait is replenished. Bait needs to stay moist and must not dry out! Yellowjackets will not accept bait that has dried out. Remove bait stations within one week after last baiting has been done. This will prevent vandalism and unaccounted for stations.

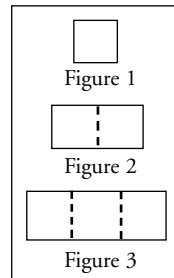


Instructions for Assembling a Yellow-jacket Bait Station

NOTE: The checklist for the supplies needed to build and use your bait station is at the right. One bait station takes approximately 5 minutes to make (10 to 11 stations per hour). Cost is about \$0.36 per station.

1. Cut hardware cloth into 2 1/2" x 2" strips. Each strip will make 1 plus bait stations.
2. When all desired strips are cut, start cutting strips into three different sizes. Remember you will lose 1/2" square every time wire is cut. See the figures below right—the dashed lines indicate where to bend the wire for instructions #3 and #4.

- 2 1/2" x 2 1/2" (Figure 1)
- 2 1/2" x 5" (Figure 2)
- 2 1/2" x 7 1/2" (Figure 3)



Or, remember 5, 10, 15—the number of squares in the hardware cloth to count for each length.

3. Bend 5" strip in half making two sides 2 1/2" x 2 1/2"
4. Bend 7 1/2" strip into thirds making three sides 2 1/2" x 2 1/2" x 2 1/2"
5. Put the 5" and 7 1/2" strips together to form cage. Place one cage clip at each of the 4 corners to secure cage. Use 2 more clips and the remaining 2 1/2" x 2 1/2" strip for the door.
6. While holding the cage, have the door hanging down, and attach fence tie to the top of the cage. Leave a 1" x 1" hook at the top of the wire for hanging the bait station.
7. With a nylon cable tie, secure a cotton ball to the top of the fence tie.
8. Attach a laminated pesticide label to the bottom of the cage.

Your bait station is now complete.

N.U.S.D. YELLOWJACKET BAITING CHECKLIST

BAIT STATION CONSTRUCTION

SUPPLIES (for building 500 bait stations)

- Hardware cloth** (1/2" x 1/2" mesh sold in 2' x 100' rolls; roughly 500 traps per 100' of wire)
- Jumbo paper clips**
- Country cage clips** (1 lb. will make 80 traps; 6 1/4 lbs. needed for 500 traps)
- Country cage pliers**
- 8" Aluminum cyclone fence ties**
- Lineman pliers** (for bending fence ties)
- Laminated pesticide labels with nylon cable ties** (Target Specialty Products 1-800-767-0719)
- Dikes** (cutting tool for cable ties)
- Wire cutters** (Weiss # A-10)
- Nylon cable ties** 1/16" x 4"
- Cotton balls**

BAIT SUPPLIES

- 2oz. Dixie** (Souffle) plastic portion cups (Costco)
- Disposable droppers** (Lab Safety Supply)
- Latex gloves**
- Canned mackerel**
- Octyl butyrate** (Available in vials from Marin-Sonoma Mosquito and Vector Control. Each vial will do 12 traps. For one quart or more call Aldrich Chemical:1-800-227-4563, product # W28070-4)
- Knox-Out 2FM[®]** insecticide (63 oz. bottle, shelf life 3 yrs.) Note: Remember to carry the specimen label and the MSDS when you are hanging bait stations.
- Container** for mixing bait
- Can opener**
- Measuring spoons**
- Fork** for mixing

BAIT STATION PLACEMENT SUPPLIES

- Site maps** with bait station placements marked
- Flagging tape** and **spray paint** (PINK)
- Stick with hook** for hanging traps
- Measuring wheel** (lg. wheel)

Landscape IPM Monitoring: Quarterly Summary

April 10 to July 31, 2002

Michael Baefsky of Baefsky & Associates in Orinda began monitoring the grounds of San Marin High School (Novato Unified School District), beginning on April 10, 2002. Every two weeks since, he has examined outdoor pest populations and has written a report after each field visit. The quarterly summary is as follows:

Yellowjackets

- Yellowjacket populations were monitored early in the season using sticky traps, baited with heptyl butyrate, but yellowjackets escaped from the traps.
- Victor Yellowjacket Traps baited with apple juice and #1 Yellowjacket Bait were used for most of the season to monitor population levels.
- Low populations were detected. (See Figure 1.)
- The school district carried out their poison baiting program using microencapsulated diazinon on 6/24 and 6/26.

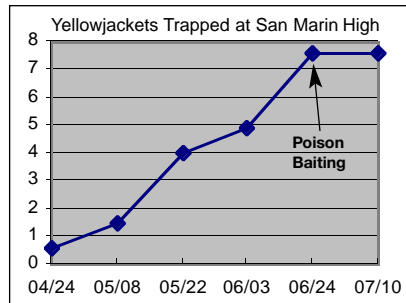


Figure 1. Average # of Yellowjackets/Trap/Week at San Marin High from 4/02-7/02.

Gophers

- Populations were very low in playing fields, resulting in low tripping hazards.
- Trapping was the only method used for gopher population control at this school.
- Naturally occurring biological control was observed: a great blue heron feeding.

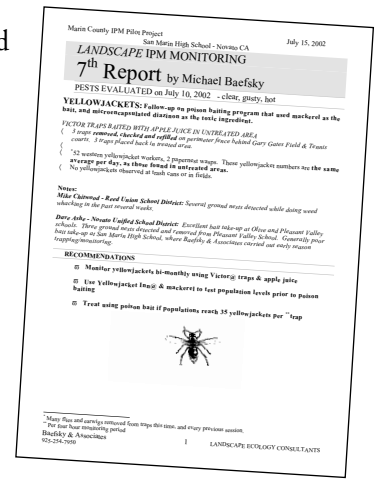
Turfgrass Weeds

- Dandelion, plantain and English daisy were the 3 main invasive plants observed.
- In the football field and some lawns, bare soil provides opportunities for weed invasion.
- Soil quality of interior lawns is very poor - dry, rocky, compacted soil.
- Soil quality of fields is poor and variable.
- Recommendations made to reduce weed problems in turfgrass included aeration, fertilization, irrigation, renovation, manual removal of small populations, and cultivation for certain species.

Non-turf Weeds

- Yellow starthistle, bristly ox tongue, wild oats, and blessed milk thistle were the 4 key weeds.

- Recommendations included mowing, cultivation, mulching, spot treatment with clove oil or herbicidal soap, and overseeding with beneficial plants.
- Beneficial species found on site include purple needlegrass and common spikeweed.
- Recommendations to enhance these species included mowing and allowing beneficials to live—identify & conserve them.



Above: Michael Baefsky's Landscape IPM Monitoring Report

Ground Squirrels

- California ground squirrel populations caused aesthetic damage and tripping hazards in the central quad.
- Pervious concrete is being tested in place of gravel, to reduce the burrowing activity.
- Additional use of this product, trapping and poison baiting were recommended.

Reports are sent by email and U.S. Mail to school maintenance directors in Marin County. If you would like to be on the mailing list, please contact Tanya Drlik by email: tdrlik@earthlink.net. or by phone: 510-524-8404. Baefsky & Associates' phone number is (925) 254-7950.

Maintenance Directors' Quarterly Seminar



Although managing small mammals was the IPM topic at the September Quarterly Seminar, the meeting “buzz” was about dealing with yellowjackets. Practical solutions for skunk, opossum, and raccoon problems were provided by the guest speaker, Mike English of Hitmen Termite Co., (Ph: 415-456-6777). In the midst of discussion are, seated from left to right, Mike Chitwood and Bob Reynolds of Reed Union and standing, Paul Miller of Kentfield and Dave Ashe of Novato Unified.

Visit our new school IPM web site!
www.co.marin.ca.us/schoolipm
 Pest management fact sheets for maintenance
 directors and parents as well as inspection
 checklists, great links, and more!



IPM PEST UPDATE NEWS
 School IPM News for Marin County
 Model School IPM Project
 Marin County Department of Agriculture
 1682 Novato Blvd., Suite 150-A
 Novato, CA, 94947

IPM PEST UPDATE News

The IPM Newsletter for Marin County School
 Maintenance Directors and Their Staff

In this issue:

YELLOWJACKETS



Yellowjacket

Yellowjackets are a type of predatory wasp, but they are often mistaken for bees or confused with other less aggressive predatory wasps, such as paper wasps.



Paper Wasp

Yellowjackets are short and stout, while paper wasps are slender, with long, dangling legs. Bees, in general, are more hairy and do not have an obvious, narrow 'wasp waist.'

IPM Events Calendar

December 13, 2002 – San Rafael

Maintenance Directors' Quarterly Seminar. Topic: Gophers.
 Info: 510-524-8404

January 8, 15, 22, 29, 2003 – Alameda County. Landscape IPM for Schools.
 Info: 510-524-8404

January 16, 2003 – Alameda Co. Structural IPM for Schools.
 Info: 510-524-8404

January 24, 2003 – Walnut Creek
February 5, 2003 – Oakland
 Sustainable Landscape Practices
 Workshop for Landscape Management
 Professional. Info: 925-906-1801

January 28, 2003 – San Francisco

7th Annual S.F. IPM Conference.
 Info: 415-355-3707

February 5, 2003 – Oakland

Healthy Landscapes for Clean Water:
 Using IPM to Improve Water Quality.
 Info: 510-832-2852 x 106

February 20, 2003 – Santa Clara

Northern California Turf and Land-
 scape Council Expo, Santa Clara
 Convention Center.
 To register: 510-505-9600

MODEL SCHOOL IPM PROJECT

Sponsored by the Marin County Department of Agriculture, Weights and Measures
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