ATTACHMENT 1

City of Santa Barbara
Integrated Pest Management Strategy

DRAFT 2014 Annual Report

Prepared April 2015

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I. BACKGROUND

In January 2004, the City of Santa Barbara (City) adopted a City–wide Integrated Pest Management (IPM) Strategy to reduce pesticide hazards on City property and promote effective pest management.

The IPM Strategy contains the mission and purpose, assigns responsibilities, and outlines pest management processes, among other things. In addition, The Strategy requires an annual report be prepared that addresses the following:

- Types of pest problems encountered by each Department
- Types and quantities of pesticides used by each Department
- Exemptions in place and granted during the past year
- Alternatives used for phased out pesticides
- Alternatives proposed for use within the next 12 months
- Effectiveness of any changes in practices implemented
- Planned changes to pest management practices

PHAER Zone System

The IPM Strategy required the development of a "Zone System" tied to the IPM Approved Materials List to limit pesticide use based on potential human exposure. In February 2006, the City Council approved the PHAER Zone system to be incorporated into the IPM Strategy.

The PHAER Zone system assigns a Green, Yellow, or Special Circumstance/Red Zone designation to each site, or portions of sites, based upon the potential for exposure by humans and sensitive habitat to hazardous pesticides, and allows the use of carefully screened materials by zone designation. For example, Green Zones are areas of high exposure potential, and only pesticides designated as "Green", which show very limited human and environmental impacts, may be used. Yellow Zones are areas with less potential for harm from exposure, and a broader range of "Yellow" materials are permitted under the PHAER Zone system.

Citizen and Staff IPM Advisory Committees

The City Council established the 5 member Citizen IPM Advisory Committee by Resolution No. 06-008. The members of the Committee are appointed by the Parks and Recreation Commission to serve two-year terms. The purpose of the Committee is to review and advise on the implementation of the City's Integrated Pest Management Strategy. The 2014 Citizen IPM Advisory Committee included the following representatives:

- Greg Chittick, Community at large
- Larry Saltzman, Pesticide Awareness and Alternative Coalition
- Kristen LaBonte, Community at large

The Citizen IPM Advisory Committee has had two positions that have remained unfilled for the past year due to a lack of applicants.

Department IPM Coordinators are representatives appointed by Department Directors to serve on the Staff IPM Committee. Department representatives include: Jeff McKee from the Airport, Sue Gray from Community Development, Joe Poire from Fire, James Dewey from Public Works, Judd Conley from the Waterfront, and Santos Escobar from Parks and Recreation. The Staff IPM Committee continued to work effectively with the Citizen IPM Advisory Committee to

administer the IPM Strategy and oversee pest management practices. The Parks and Recreation Department coordinates both the Citizen and Staff IPM Committees and oversees the implementation of the City's IPM Program.

II. IPM 2014 STRATEGY RESULTS

1. Citizen IPM Advisory Committee Actions

The Citizen IPM Advisory Committee met three (3) times in 2014 to review 26 requests for exemptions, consult with staff on current pest issues and applicable IPM practices, and approve the 2013 IPM Report. The Committee approved all 26 requests and denied zero (0).

2. Pests Encountered

A variety of pests were encountered on City properties in 2014 as outlined in Table 1. Departments ranked their top three pest problems with the numbers 1, 2 and 3. Other pest problems encountered are asterisked (*). Footnote annotations reference additional information including names of plant diseases, weeds, grasses, and specific insects. Due to the low rainfall, the overall abundance of these pests was down as compared to other years.

Table 1. Pest Problems Encountered by Department/Division

Pest Category	Specific Pest	Airport	Creeks	Golf	Parks	Parking	Public Works	Waterfront
Plant pests	Giant whitefly	*			*	*	*	
	Misc. plant insects			*	*[3]	3	*	
	Disease	*		1[1]	*[4]	*		
Tree Pests	Oak Worm				*	2	*	
	Psyllids				*			
	Various Pine Bark Beetle sp.				*			
Weeds	Invasives	*	*	3[2]	1[5]			
	General weeds	3	*	*	1	1	*	3
	Perennial grasses	*	*	*	1[6]		*	*
Vertebrates	Gopher	2	*	1	2		*	*
	Ground Squirrel	*	*	1	*			*
	Gulls/ nuisance birds	*			*	*		2
	Moles			1	*			
	Raccoons	*		2				
	Skunks	*		2				
Human Health	Poison Oak	*			*			
	Bees, yellow jackets, etc.	*		*	3	*	2	
	Rats/ mice	*		*	*	*	3	1
	Mosquitoes	1		*	*		1	
Other	Termites	*					*	
	Roaches						*	
	Ants	*				*	*	

1. Golf reported these plant diseases (fungus): Dollar Spot, Pink Snow Mold, Anthracnose, Rhizoctonia Patch, Waitea patch, Take-All patch, and Rapid blight
2. Golf reported these invasive weeds: Clover, Creeping Woodsorrell, English Daisy, and Dandelion.
3. Parks reported these plant insects: Lerp Psyllids, Mites, Oak Moths, Thrips, Aphids, Snails, Slugs, and Ants.
4. Parks reported these plant diseases: Leaf Spot, Mildew, Blight, Pink Bud Rot, Sooty Mold, Pythium, Armillaria, and Phytothora.
5. Parks reported these invasive weeds: Arrundo, Nutgrass, Kikuyu Grass, Clover, Oxalis, Malva, Foxtail, Spurge, Dandelion, Milkweed, Sow Thistle, Poa annua, Puncture Vine, Johnson Grass, and Poison Oak.
6. Parks reported the following perennial grasses: Crab, and Bermuda.

3. City-wide Pesticide Use

City Departments that applied pesticides, or contracted with pesticide applicators, also prepared monthly pesticide and alternative use reports, and participated in the preparation of this Annual Report. The monthly reports form the basis of the Annual Report and are available at the main offices of each Department.

Table 2 below provides a summary of total pesticide use (gallons and pounds) for 2014, including any increase or decrease in use from 2013. City-wide pesticide use overall decreased 21% in 2014, primarily due to another low water year that has resulted in fewer pests. The use of Green materials decreased 63% from 2,339 units to 867 units, while use of Yellow material increased 63% from 1,159 units to 1,896 units. Use of Red materials decreased 69% from 28 units in 2013 to 8.5 units in 2014. The control of mosquitoes accounted for 69% of all the pesticide use in 2014.

At the Department level, the Airport reduced its use of all categories of pesticides by 37%. A combination of factors influenced this decrease including the Goleta slough being open to the ocean and low rainfall leading to lower mosquito management. Both the Parks and Golf Divisions reduced their use of pesticides 49% and 54% respectively. The Public Works Water Resources Division increased use of pesticides by 149% from 2013. This increase was due to treatment of sanitary sewer mains with an herbicide that kills tree roots. Prior to use, Water Resources staff conducted small scale experiments alongside the City Arborist to confirm that larger scale use of the herbicide would not impact healthy trees. Root intrusion in sewer mains has caused sewage overflows.

Table 2. 2014 Pesticide Use by Department and Tier

Department / Division	Material Tier Category				2013 Total Pesticide Use	Percent Change
	Green	Yellow	Red	Total		
Airport Dept	720	1,282.2	0	**2,002.2**	3,172.85	-37%
Golf Division	1.55	3.32	8.51	**13.38**	29.19	-54%
Parks Division	0.27	11.961	0	**12.231**	24.20	-49%
Public Works Dept.	145.52	598.57	0	**744.09**	298.86	+149%
2014 Total	**867.34**	**1,896.1**	**8.51**	**2,771.9**	3,525.10	-21%
2013 Total	2,338.78	1,158.65	27.67	3,525.10		
Percent Change	-63%	63%	-69%	-21%	**-**	**-**

Table 3 presents a more in depth look at pesticide use by Department/Division, including: pesticide tier and name, active ingredient, class of pesticide, units and number of applications. Pesticides are reported in either pounds or gallons depending on whether they are dry or liquid. Vectobac G was the most frequently applied insecticide, at 64 times, while Altosid Xr-B was the most applied by weight (roughly 1,200 pounds). Both are for the control of mosquitoes. Other highly used materials include:

- Roundup, an herbicide used to treat weeds and grasses was applied a total of 19 times. 15 applications by the Airport Department and 2 applications by the Parks and Golf Divisions.
- Razorooter and Vaporooter, two herbicides applied by the Public Works Department 165 and 192 times respectively to kill roots within sewer systems.
- Surflan, another herbicide used by the Airport Department as weed and grass control on the runway.

Red materials, though not used in large quantities, include 4 different fungicides used by the Golf Division to control fungus on the greens. A total of 8.51 gallons were used over 13 applications.

One product, Pointer-Imidacloprid, was injected into the bark of the Historic Italian Stone Pines along East Anapamu Street to treat pine bark beetles. While this product has been shown in research to disrupt bee populations, the treatment was fully enclosed within the tree bark and is not anticipated to reach the pollen of the tree.

It is important to note that because pesticide use will vary from year to year, an increase or decrease from the previous year does not necessarily indicate a long-term trend. Many factors affect the amount of pesticides applied in any one year. This topic is further discussed in Section 7.

Table 3. Pesticide Use by Department/Division

	Pesticide Name	Active Ingredient	Class	Airport		Golf		Parks and Recreation		Public Works		Airport	Golf	Parks and Recreation	Public Works
				Amount of Pesticide Applied								Applications			
				Gallons	Pounds	Gallons	Pounds	Gallons	Pounds	Gallons	Pounds				
	Acelepryn	Chlorantraniliprole	Insecticide			0.19							1		
	Conserve	Spinosad	Larvicide					0.25						1	
	Primo Maxx	Trinexapac-ethyl	Regulator			1.36							16		
	Safer	K salts of fatty acids	Insecticide					0.02						1	
	Vectobac G	Bti	Insecticide		640						145.52	39			25
	VectoLex CG	B. sphaericus	Insecticide		80							1			
	Green Totals			0	720	1.55	0	0.27	0	0	145.52	40	17	2	25
	Advion Gel	Indoxacarb	Insecticide		0.39			0.02		0.29		9		2	18
	Altosid XR-B	Methoprene	Insecticide		1,203.20							6			
	Aquamaster	Glyphosate	Herbicide					0.97						2	
	Arilon	Indoxacarb	Insecticide	0.03				0.025		0.08		1		1	19
	Fore	Mancozeb	Fungicide				3						1		
	Pointer	Imidacloprid	Insecticide					0.41						1	
	Polaris	Imazapyr	Herbicide					1.5						14	
	Razorooter	Diquat	Herbicide								136.76				165
	Round-up Custom	Glyphosate	Herbicide	41.08		0.29		7.94				15	2	2	
	Surflan	Oryzalin	Herbicide	37.5								5			
	Termidor SC	Fipronil	Insecticide	0.04				0.006		0.04		1		1	4
	Trillogy	Neem Oil	Insecticide					1.5						2	
	Trimmit 2SC	Paclobutrazol	Regulator			0.03							1		
	Vaporooter	Metam Na / Dichlobenil	Herbicide								461.4				192
	Yellow Totals			78.65	1203.59	0.32	3	12.371	0	0.41	598.16	37	4	25	398
	Banner-maxx	Propiconazole	Fungicide			4.57							6		
	Heritage	Azoxystrobin	Fungicide			1.18							2		
	Insignia	Pyraclostrobin	Fungicide			0.83							1		
	Medallion	Fludioxonil	Fungicide			1.93							4		
	Red Totals			0	0	8.51	0	0	0	0	0	0	13	0	0
	Department Totals			**78.65**	**1923.59**	**10.38**	**3**	**12.641**	**0**	**0.41**	**743.68**	**77**	**34**	**27**	**423**

City-wide Totals: Gallons 102.081 Pounds 2,670.270 Applications 561

4. EXEMPTIONS

Under the IPM Strategy and PHAER Zone system, exemptions may be granted when a pest outbreak poses an immediate threat to public health, employee safety, or will result in significant economic or environmental damage. Exemption requests are often made in anticipation of a particular pest and may be requested for one-time application or as a programmatic exemption for a single year. The exemption process is outlined in the IPM Strategy.

Twenty-seven (27) exemptions were requested in 2014. Table 4 provides a summary of the exemption requests by Department/Division. Of the twenty-seven (27) requests approved, twenty-six (26) were requested and approved by the IPM Committee, and one (1) was an emergency request approved by the City IPM Coordinator, Santos Escobar. This emergency request was to treat the historic Anapamu Street Stone Pines suffering from a bark beetle infestation. Of the twenty-seven (27) requests, seventeen (17) were applied and ten (10) were not implemented. A number of reasons can account for a pesticide going unused: the pest did not materialize, the product became unavailable, a green material was found, or alternative methods were utilized.

Table 4. 2014 Exemption Summary

Exemptions	Airport	Creeks	Facilities	Golf	Parks	Public Works	Totals
Emergency					1		**1**
Proposed	2	2	4	12	2	4	**26**
Passed	2	2	4	12	2	4	**26**
Denied	-	-	-	-	-	-	**-**
Applied		2	3	8	1	2	**17**
Not Applied	2		1	4	1	2	**10**

Tables 5a and b below provide a detailed look at pesticide exemption requests. Table 5a includes those that were requested and applied, while Table 5b includes exemptions that were requested and not applied. All exemptions were programmatic requests to use throughout the year. This can be due to an anticipation of a particular pest outbreak or because treatment of the pest requires multiple applications.

- The Airport Department made 2 exemption requests for the use of the rodenticide Fumitoxin and insecticide Vikane to control gophers and mosquitoes. Neither were applied.
- The Creeks Division made exemptions requests for Rodeo/Aquamaster and Polaris, both herbicides, for Arundo removal. Both were applied.
- The Facilities Division made 4 requests for insecticides and used all but 1. This was to control ants and roaches in and around buildings.
- At twelve, the Golf Division had the most requests for exemptions, but only applied 8. Requests included a number of fungicides and 2 regulators to control plant diseases on the greens (See Table 1).
- The Parks Division requested an emergency exemption for an insecticide to control the Bark Beetles infecting the Historic Italian Stone Pines on East Anapamu St. In addition, a herbicide was requested and used at Parma Park to reduce non-native invasives. A rodenticide was requested for use at several parks to control squirrels and rats, but was not applied.

- The Water Resources Division of Public Works Department made 4 requests. Two included the use of herbicides to control root intrusion within sewers. The other two were for herbicides to control weeds within medians, but were not applied.

Table 5 a. Applied Exemptions Requests

Dept. / Div.	Material	Class	Type	Site
Creeks	Round-Up Pro Max	Herbicide		Hidden Valley Open Space
Creeks	Polaris	Herbicide		Hidden Valley Open Space
Facilities	Termidor	Insecticide		Buildings
Facilities	Advion	Insecticide		Buildings
Facilities	Arilon	Insecticide		Buildings
Golf	Heritage	Fungicide		Greens
Golf	Acelepryn	Fungicide		Greens
Golf	Banner-Maxx	Fungicide		Greens
Golf	Fore	Fungicide		Greens
Golf	Insignia	Fungicide		Greens
Golf	Medallion	Fungicide		Greens
Golf	Primo Maxx	Regulator		Greens
Golf	Trimmit	Regulator		Greens
Parks	Round-Up Custom	Herbicide		Parma Park
Parks	Pointer	Insecticide		Anapamu Stone Pines
Public Works	Vaporooter	Herbicide		Sewers
Public Works	Razorooter	Herbicide		Sewers

Table 5b. Not Applied Exemption Requests

Dept. / Div.	Material	Class	Type	Site
Airport	Fumitoxin	Rodenticide		Airfield
Airport	Vikane	Insecticide		Buildings
Facilities	Timbor	Insecticide		Buildings
Golf	Affirm	Fungicide		Greens
Golf	Dacconil	Fungicide		Greens
Golf	Prostar	Fungicide		Greens
Golf	Proxy	Regulator		Greens
Parks	Diphacinone	Rodenticide		Shoreline, Leadbetter, Chase Palm, MacKenzie Parks
Public Works	Round-Up Custom	Herbicide		Medians
Public Works	Surflan	Herbicide		Medians

Roughly an equal number of exemption requests were made between 2013 and 2014 (Table 6).

Table 6. Comparison of Exemptions for 2013 and 2014

Exemptions	2013	2014
Number of Exemption Requests (total)	22	27
Number of Exemption Requests Approved	22	26
Number of Approved Exemption Requests Applied	16	17
Number of Approved Exemption Requests Not Applied	6	10

5. ALTERNATIVE PEST MANAGEMENT PRACTICES USED IN 2014

The use of non-chemical IPM alternatives are emphasized over pesticide applications. Hours reported for the total year are from the *Monthly Alternative Use Reports* prepared by each Department. Non-chemical pest management alternatives are presented in Table 7 and vary from year to year. A check (✓) indicates the alternative was used, but time was not tracked. City Departments track time using a variety of methods. Some Departments track Alternative Management Practices by issuing Work Orders, while some track time by having their staff fill out reports on their daily activities. Additionally, when time has been spent on Alternative Management Practices by contractors, they usually report the time spent to the Department that oversees the contract. Table 7 below is a combination of staff time and contractor time when reported.

Total tracked hours for City-wide alternative practices increased 45% from 10,485 hours in 2013 to 15,247 hours in 2014. Figure 1 illustrates a downward trend in hours spent using alternative practices since 2008. A number of factors influence time spent on alternative practices including the number of staff available to perform alternative methods, department priorities, and severity of pest outbreak. As has been the case since IPM tracking began, the majority of tracked time is spent hand weeding and weed whipping.

Table 7. Staff Time Using Alternative Management Practices (hours)

PEST	Alternative	Airport	Golf	Public Works	Parks	Citywide Hours
WEEDS	Mulch & wood chips	✓	82	✓	342	**424**
	Weed fabric				✓	**0**
	Propane flame weeder				✓	**0**
	Hand weeding	3,868	240	55	2,154	**6,317**
	Weed whip	411	1,628	54	4,310	**6,403**
	Habitat modification				✓	**0**
	Irrigation Mgmt.	✓	✓	✓	✓	**0**
	Host plants squeeze out					**0**
PLANT PESTS	Irrigation Mgmt.	✓	✓	✓	✓	**0**
	Compost tea/microbial in.		✓			**0**
	Enhance plant health		✓		✓	**0**
	Worm castings				✓	**0**
	Effective micro-organisms		✓			**0**
	Wash off plants				✓	**0**
	Remove plant/tree				✓	**0**
GOPHERS	Traps	69	103	✓	650	**822**
SQUIRRELS	Traps		206		121	**327**
RATS & MICE	Mechanical traps	3		800	✓	**803**
	Cat				✓	**0**
MOSQUITOES	Mosquito fish				✓	**0**
	Remove stagnant water				✓	**0**
BEES	Bee Keepers			151	✓	**151**
OTHER	Glue traps/roaches			✓		**0**
	Heat Treatment			✓		**0**
Total Hours		**4,351.0**	**2,259**	**1,060.0**	**7,577**	**15,247**

Figure 1. Trend in Alternative Management Practices (in hours)

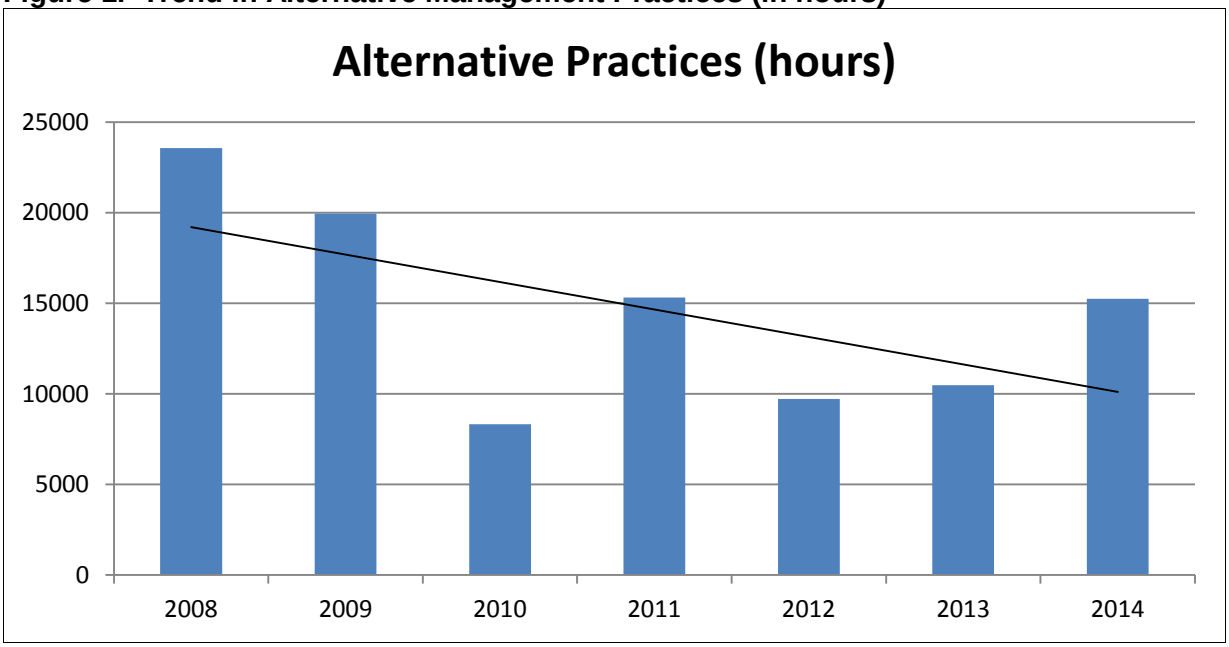


Figure 2 compares the level of effort (in hours) between the 6 alternative methods tracked in 2014. As a whole, maintaining weeds through mulching, hand weeding and weed whipping accounts for 13,144 hours (86%) of the total time tracked. While mulch is one method of weed and grass control, the use of mulch has dropped significantly since 2012. This is primarily due to past years of over-mulching sites and the problems associated with over-mulching (mounding, rot, fungus). The use of mechanical traps for gopher, squirrels, rats and mice control accounted for nearly 13% of total tracked time, or 1,952 hours. Time spent for bee control accounted for 151 hours or 1% of total time tracked using IPM alternative methods. Much of the City's rodent trapping and bee control are done by contractor.

Figure 2. 2014 Citywide Tracked Alternative Methods

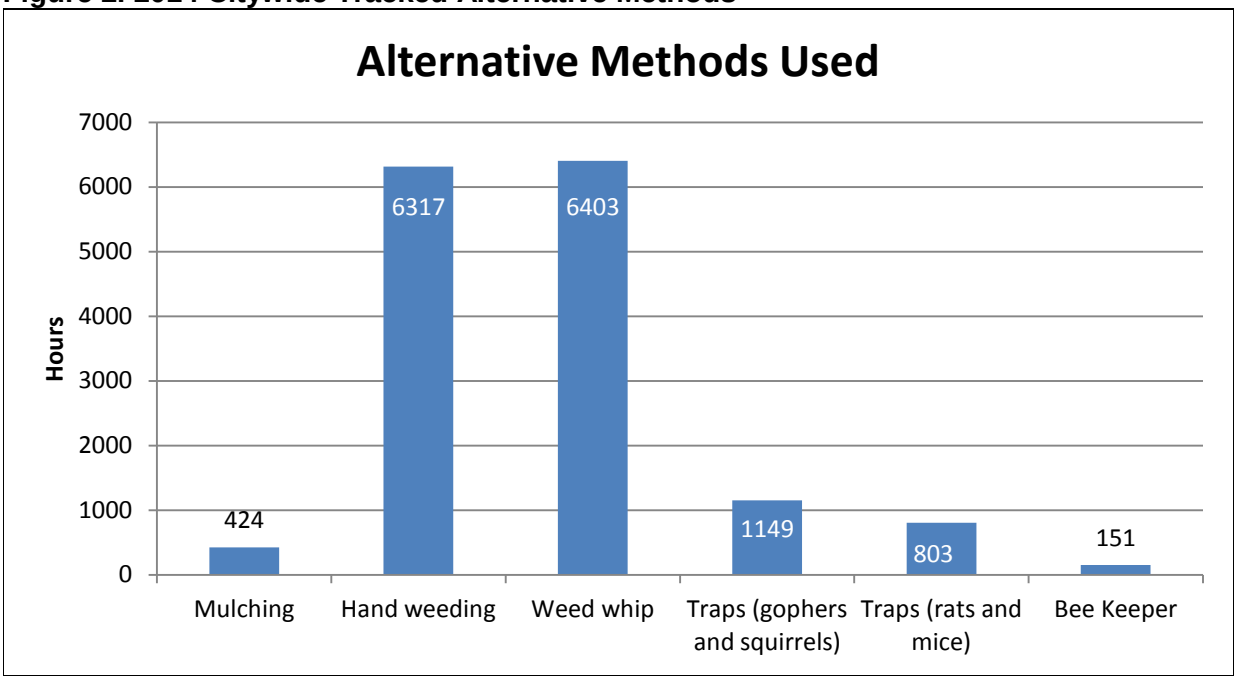
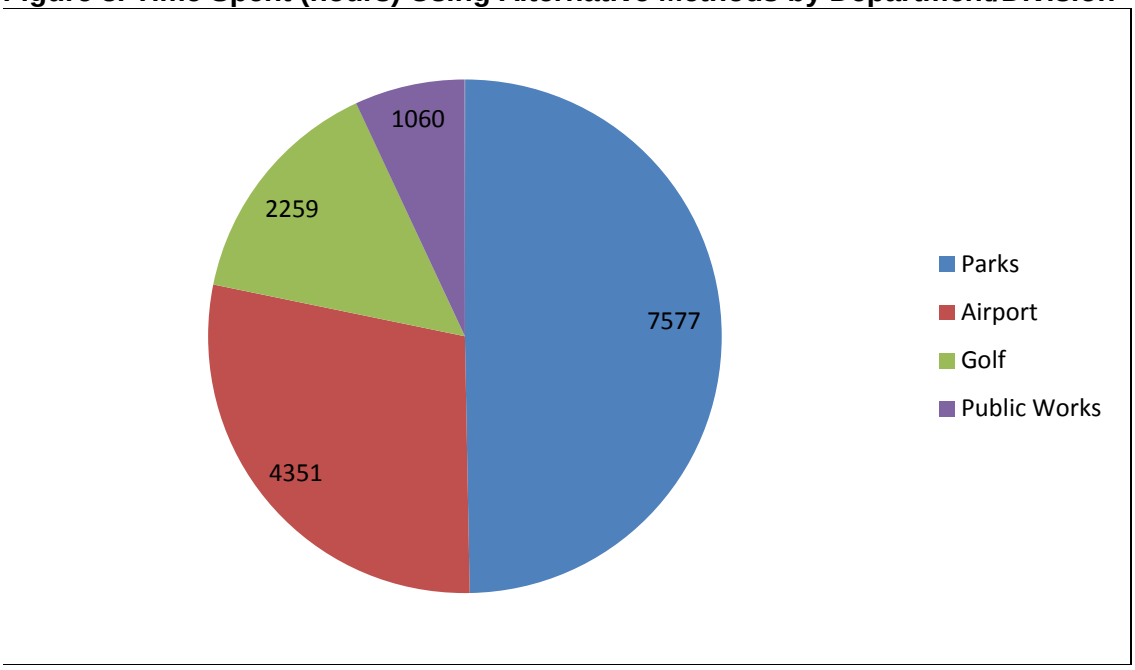


Figure 3 below compares the use of alternative methods (in hours) by Department/Division. Of the total 15,247 hours spent using alternative methods, the Parks Division accounted for 7,577 hours, or 50% of total time, the Airport accounted for 4,351 hours, or 29% of total time, Public Works accounted for 1060 hours, or 7% of total time, and the Golf Division accounted for 2259 hours, or 15%.

Figure 3. Time Spent (hours) Using Alternative Methods by Department/Division



6. EFFECTIVENESS OF ALTERNATIVE PRACTICES IMPLEMENTED

In general, most alternative pest management practices are more labor intensive and costly, and not as effective as the use of Yellow and Red classified pesticides. While most Green materials and practices provide only moderate control of pest populations, there have been some successes.

As the program completed its eleventh year, the impact of reduced reliance on pesticides, particularly herbicides, is becoming noticeable in areas, such as the weed population at Alice Keck Park Memorial Garden and other landscape areas throughout the City. The effectiveness of alternatives for the biggest pest problems encountered in an average year is reviewed below.

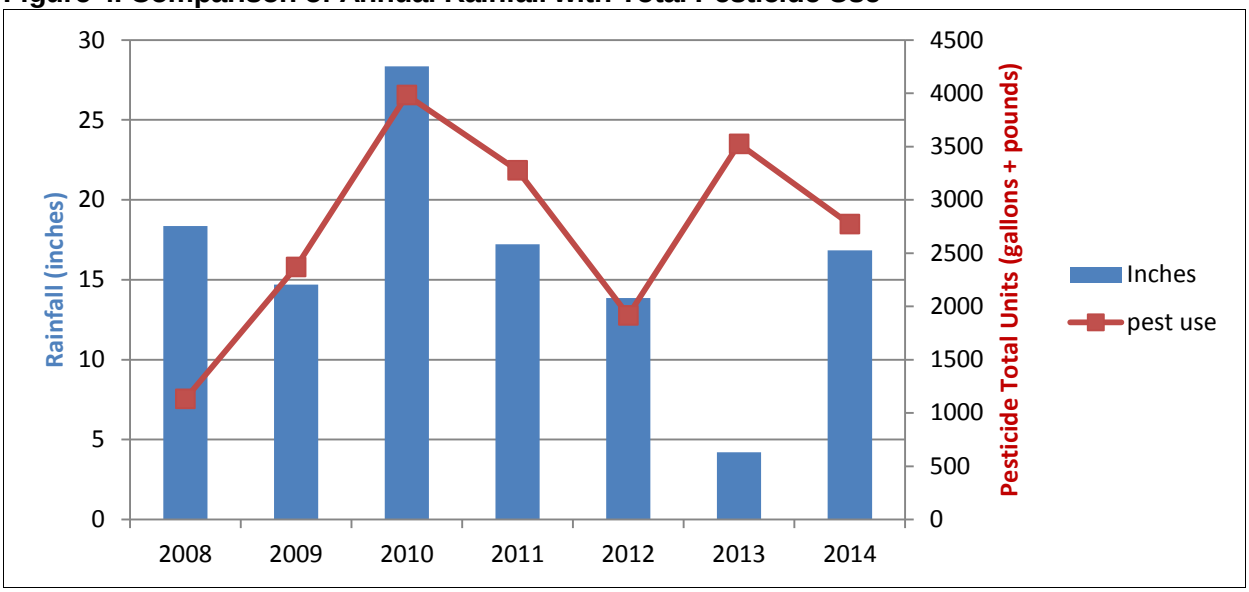
- **Weeds**: A variety of alternatives provide moderate effectiveness and control including: weeding, weed whipping, mulching, mowing, and a flame torch in designated safe areas. These alternatives are significantly more labor and cost intensive and not as effective as Yellow materials such as Glyphosate. Alternative chemicals, such as clove oil or acid based herbicides, have not proven effective. This has resulted in a notable increase in weed populations, predominantly on parkland, that continues to have a negative effect on aesthetics and landscape health.
- **Insects / Mollusks:** Results are mixed for combating insects and mollusks. For some insects, there are no known effective alternatives. Some alternatives can be very effective but expensive, such as removing non-resistant plants and replacing them with resistant varieties. However, the following alternatives have proven successful against insects and mollusks:
    - Sluggo for snails and slugs
    - Worm castings for white fly
    - Insecticidal soap for aphids
    - Neem oil as a dormant spray
    - Bti for mosquitoes
    - Acelepryn for beetles
- **Disease:** No effective alternative has been found for most diseases. Where possible, staff focuses on preventative treatments to enhance plant health. Once disease strikes, a plant may be removed and replaced with a less susceptible plant. If a plant cannot be removed, pesticides are generally required to combat the disease.
- **Gophers:** For the most part, mechanical traps are being used City-wide. Traps have been found to be moderately effective and are more expensive than rodenticides due to higher costs of purchasing, installing, monitoring, and cleaning out traps.
- **Ground Squirrels:** Mechanical trapping, using snap traps, is the primary method of control at this time. This method is moderately effective at controlling populations. Both trapping and baiting have proven very labor intensive.
- **Mice / Rats:** At this time, traps are the primary way of controlling this population. Traps have been found to be effective depending on population size and location and available food sources. Positive public perception seems to far outweigh the costs of using traps. Traps are very effective in controlling rodents on downtown State Street and at Coast Village Road.
- **Termites:** Building Maintenance uses heat treatments to control drywood termites where appropriate. Heat was found to be equally effective as pesticides on smaller buildings with drywood termites. However, costs are 50% higher at this time, and heat is not effective on large structures or with subterranean termites.

7. CONCLUSION

Many factors contribute to the use of pesticides as well as the tier of pesticides used. These include weather patterns (unseasonably dry or wet weather), introduction of new, or changes to existing pest populations, effectiveness of alternative methods as well as the effectiveness and availability of certain pesticide materials. Such variances are, and will continue to be, a normal occurrence.

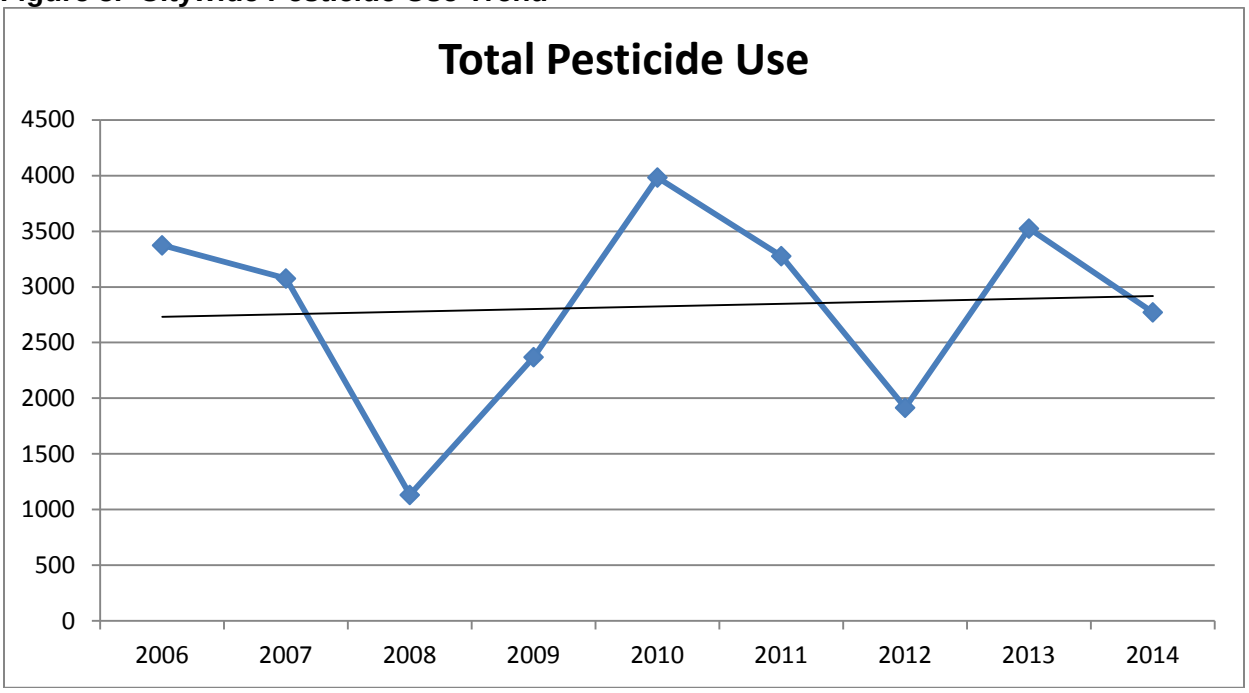
One of the main factors that determine pest populations is rainfall. More rain generally amounts to a greater population of insects and weeds, thus more pesticide use. Figure 4 compares annual rainfall with total pesticide use. With the exception of 2013, the data indicates a greater use of pesticides during wetter years. 2013 pesticide use was influenced by the Goleta Slough being closed leading to an increased mosquito population in Airport creeks.

Figure 4. Comparison of Annual Rainfall with Total Pesticide Use



Because the number of factors that affect pesticide use can vary greatly from year to year, it is difficult to look at past pest management practices to predict future pesticide use. In addition, prior to implementing IPM and the PHAER Zone, pesticide use was not analyzed, and thought to be used at higher frequencies and in larger quantities[1]. That said, the general trend of the City since 2006 appears to be less hours spent on alternative practices (Figure 1) and a level trend in pesticide use (Figure 5).

Figure 5. Citywide Pesticide Use Trend

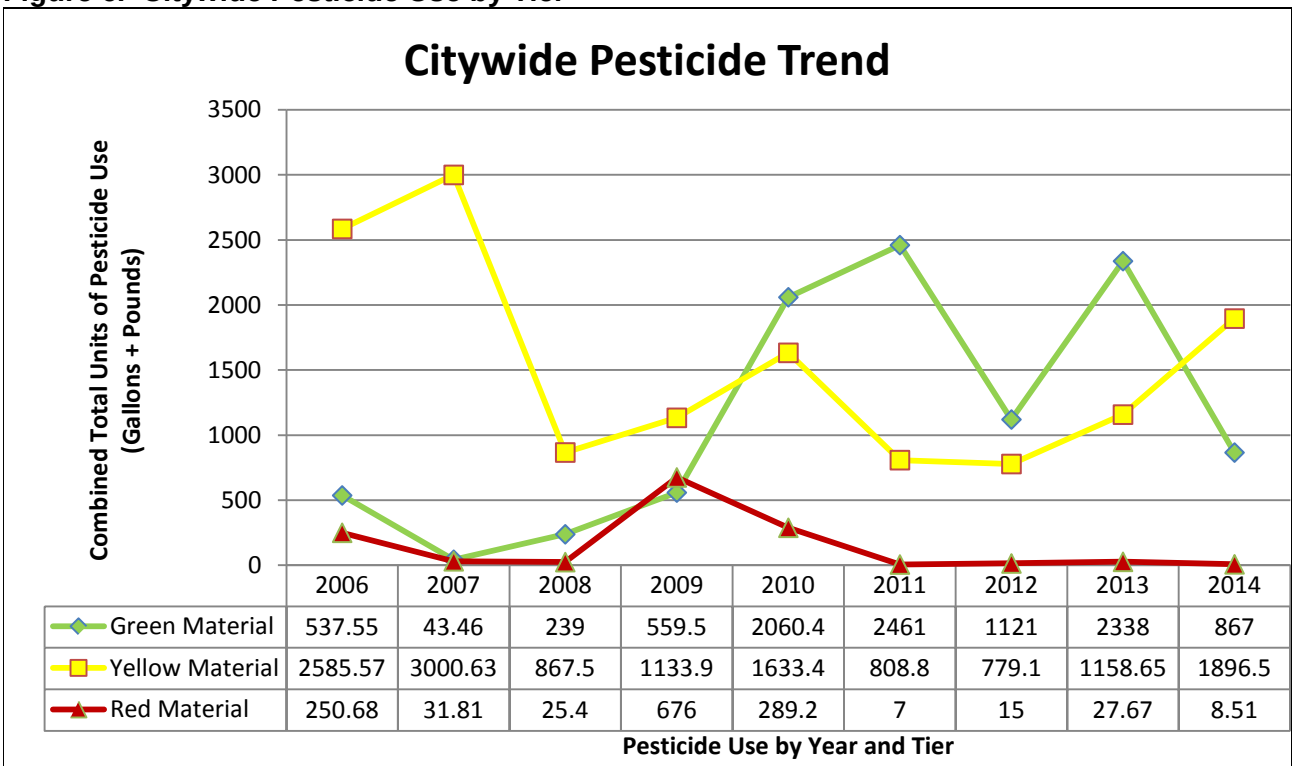


In addition, it should be noted that the amount of pesticides used and the number of applications are not necessarily accurate indicators of the extent of pesticide use or, conversely, the extent of use of reduced-risk pest management methods and alternative practices. For example, staff may apply several hundred small-scale "spot" applications targeted at problem areas rather than a few treatments of a large area. Further, staff may replace a more toxic pesticide used at a smaller quantity with a less hazardous compound that must be applied at a much larger quantity.

[1] Information based on staff and IPM Advisory Committee knowledge.

Figure 6 looks at the City's pesticide use by tier since 2006. The data indicates that an increase in Yellow and Red materials generally amounts to less Green material, though this is not always the case. 2010, for example, saw a higher than average use of both Red and Yellow material, while still using a significant amount of Green material. The *2010 Annual Report* indicates that 80% of all pesticide use in 2010 was for mosquito control. In fact, mosquito control accounts for the majority of pesticide use in any given year.

Figure 6. Citywide Pesticide Use by Tier



	2006	2007	2008	2009	2010	2011	2012	2013	2014
Green Material	537.55	43.46	239	559.5	2060.4	2461	1121	2338	867
Yellow Material	2585.57	3000.63	867.5	1133.9	1633.4	808.8	779.1	1158.65	1896.5
Red Material	250.68	31.81	25.4	676	289.2	7	15	27.67	8.51

In order to have a more informed discussion on City pesticide use, as well as to better understand and/or compare year to year data, the following can be considered:

- Continue to track hours spent applying pesticides.
- Assess the overall asset by Department/Division to determine the extent of pesticides actually being applied
- Discuss cultural practices used that reduce pesticide use.
- Improve reporting contractor hours related to pesticide use and alternative practices.

The above considerations must be weighed against the resource needs to acquire the information. In addition, tools and staff training may be required in order to help facilitate data gathering.

It is always important for City staff to find cost effective, low risk, viable alternatives to reduce pesticide hazards and to increase the overall efficiency of IPM practices. Additionally, changes in maintenance standards and expectations may be necessary if more Green materials are employed.

Also critical to reducing pesticide hazards in the City of Santa Barbara is the continuation of community outreach and public education. It is anticipated that with greater community outreach, the public will become more aware of low risk alternatives that they can employ at home, thus adding to the overall health of the community.

III. PLAN FOR 2015

The Parks and Recreation Department will continue to administrate and refine the IPM Strategy and proposes to address the following items:

- Increase the data collected by contractors engaged in IPM alternative practices; and
- Expand park inspections to better determine labor requirements or any necessary changes to the IPM Policy.

All Departments will continue to test any promising new materials or methods of integrated pest management as they are introduced. Departments will also continue to monitor pest populations and adjust priorities as needed. Staff and the IPM Advisory Committee will continue to monitor research regarding impacts of pesticides on humans, wildlife and native habitats as well as begin a discussion on funding and staffing options for community education and outreach to reduce pesticide use on private property.

ATTACHMENTS

ATTACHMENT A: APPROVED MATERIALS LIST

The pesticides listed on the Approved Materials List are categorized according to the pesticide screening protocol in the PHAER Zone system.

Product Name	Active Ingredient	ZONE	Type
Acelepryn	Chlorantraniliprole	Green	Insecticide
Advance Ant Bait	Orthoboric Acid	Green	Insecticide
Advion Roach Stations (enclosed)	Indoxacarb	Green*	Insecticide
AllDown	citric acid, acetic acid, garlic	Green	Herbicide
Any brand name	Orthoboric Acid ant bait station	Green	Insecticide
Avert Cockroach Bait Station	Abamectin B1 0.05%	Green*	Insecticide
Avert Cockroach Gel Bait	Abamectin B1 0.05%	Green	Insecticide
Bactimos Pellets	Bt	Green	Insecticide
Bactimos Wettable	Bt	Green	Insecticide
Bio-Weed	corn gluten	Green	Herbicide
Borid Turbo	Orthoboric Acid	Green	Insecticide
BurnOut 2	clove oil	Green	Herbicide
Cease Biofungicide	B. subtilis	Green	Fungicide
Cinnamite	cinnamaldehyde	Green	Insect/Fung
Conserve	spinosad	Green	Insecticide
Dipel Flowable	Bt	Green	Insecticide
Drax Ant Kill PF	Orthoboric Acid	Green	Insecticide
EcoExempt	Wintergreen Oil	Green	Herbicide
EcoExempt D	2-Phenethyl propionate / Euginol	Green	Insecticide
Embark	mefluidide	Green	Growth Regulator
GreenErgy	Citric, Acetic Acid	Green	Herbicide
Kaligreen	potassium bicarbonate	Green	Fungicide
Matran (EPA Registration Exempt)	clove oil	Green	Herbicide
Natura Weed-A-Tak	clove oil	Green	Herbicide
Niban	Isoboric Acid 5%	Green	Insecticide
Primo-Maxx	Trinexapac-Ethyl	Green	Growth Regulator
Proxy	Ethephon	Green	Growth Regulator
Safer Soap	potassium salts of fatty acids	Green	Insecticide
Sluggo	iron phosphate	Green	Other
Summit BTI Briquets	Bt	Green	Insecticide
Teknar HP-D	Bti	Green	Insecticide
Terro II	Orthoboric Acid	Green	Insecticide
Vectobac G	Btk	Green	Insecticide
VectoLex CG	bacillus sphaericus	Green	Insecticide

Product Name	Active Ingredient	ZONE	Type
Victor Wasp and Hornet Killer	Mint Oil 8% & Sodium Lauryl Sulfate 1%	Green	Insecticide
Advion Ant Arena	Indoxacarb	Yellow	Insecticide
Advion Roach Gel	Indoxacarb	Yellow	Insecticide
Advion Insect Granules	Indoxacarb	Yellow	Insecticide
Affirm	Polyoxin D zinc salt	Yellow	Fungicide
Agnique MMF	POE Isoocatadecanol	Yellow	Insecticide
Aliette	fosetyl aluminum	Yellow	Fungicide
Altosid Briquettes	methoprene	Yellow	Other
Altosid Liquid	methoprene	Yellow	Other
Altosid Pellets	methoprene	Yellow	Other
Altosid XR-B	methoprene	Yellow	Other
Aquamaster-Rodeo	glyphosate	Yellow	Herbicide
Avid	abamectin	Yellow	Miticide/Insecticide
Ditrac	Diphacinone	Yellow	Rodenticide
Dormant	petroleum oil	Yellow	Insecticide
Green Light	Neem oil	Yellow	Insecticide/Fungicide
Kop-R-Spray	Copper Oil	Yellow	Fungicide
M-PEDE	potassium salts of fatty acids	Yellow	Insecticide
Omni Oil	Mineral Oil	Yellow	Fungicide
Polaris	Imazapyr	Yellow	Herbicide
Prostar 70 WP	flutolanil	Yellow	Fungicide
Rose Defense	Neem oil	Yellow	Insect/Fung
Roundup Pro	glyphosate	Yellow	Herbicide
Roundup PROMAX	glyphosate	Yellow	Herbicide
Safticide Oil	petroluem oil	Yellow	Insecticide
Stylet Oil	Petroleum distillates	Yellow	Insecticide
Sulf-R-Spray	Parafin oil, sulfur	Yellow	Fungicide
Razorooter	Diquat	Yellow	Herbicide
Superior Spray Oil	petroleum distillates	Yellow	Insecticide
Surflan	oryzalin	Yellow	Herbicide
Surflan AS	oryzalin	Yellow	Herbicide
Termidor SC	Fipronil	Yellow	Insecticide
Triact	Neem oil	Yellow	Insecticide/Fungicide
Trilogy	Neem oil	Yellow	Insecticide/Fungicide
Trimmit 2SC	Paclobutrazol	Yellow	Growth Regulator
Wasp-Freeze	allethrin	Yellow	Insecticide
Wilco Ground Squirrel Bait	diphacinone	Yellow	Other
XL 2G	benefin; oryzalin	Yellow	Herbicide
Banner-maxx	Propiconazole	S.C.	Fungicide
Bayleton	triadimafon triazole	S. C.	Fungicide

Product Name	Active Ingredient	ZONE	Type
Daconil	Chlorothalonil	S.C.	Fungicide
Fumitoxin	Aluminum phosphide	S. C.	Rodenticide
Insignia	Pyraclostrobin	S.C.	Fungicide
Heritage	Azoxystrobin	S.C.	Fungicide
Manage	halosulfuron methyl	S. C.	Herbicide
Medallion	fludioxonil	S. C.	Fungicide
Quick Pro	glyphosate/diquat	S. C.	Herbicide
Reward	diquat dibromide	S. C.	Herbicide
Rubigan	fenarimol	S. C.	Fungicide
Rubigan EC	fenarimol	S. C.	Fungicide
Subdue	metalaxyl	S. C.	Fungicide
Turflon	Triclopyr	S.C.	Herbicide
Zp Rode	zinc phosphide	S. C.	Rodenticide

* By decision of the Citizen IPM Advisory Committee, chemicals that may be classified normally as Yellow materials may be classified as Green materials if they are entirely enclosed in factory sealed bait stations.