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TRI-CITIES

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Subject: NMFS Draft Biological Opinion: Propargite, Fenbutatin Oxide, and Diflubenzuron

I am responding to your request for comment on the National Marine Fisheries Service (NMFS) draft Biological Opinion (BiOp) for propargite, fenbutatin oxide, and diflubenzuron. This response from the Western Integrated Pest Management Center provides input from a four-state region: California, Idaho, Oregon, and Washington. The comments center on the buffer zones proposed in this document.

Overall Comments:

- It is unreasonable to expect comments within 30 days on a document that is more than 900 pages long. A 180-day comment period would be more appropriate for a document of this length and would allow a more thorough and complete review.

- Propargite, fenbutatin oxide, and diflubenzuron are labeled for use on a host of crops. Gathering information on the impacts of this BiOp in such a short amount of time is a disservice to agriculture in California, Idaho, Oregon, and Washington. What happens in this situation is that we only receive a smattering of responses to inquiries. The feedback we are able to provide only covers the crops where information is quickly available. While we can then pass this information set along, it is not a complete picture of the impact that the buffers proposed in the BiOp will have on agriculture. Without more complete information neither NMFS nor EPA will be able to make well considered decisions.

- In their BiOp NMFS must factor in both seasonal rainfall and irrigation method when proposing buffers for propargite, fenbutatin oxide, and diflubenzuron. The buffers, as currently proposed, present a one-size-fits-all approach that is unreasonable for many crops. For fenbutain oxide and propargite particularly, mite outbreaks are most severe in hot, dry, and dusty conditions; conditions that obviously exist in areas with little rainfall. Low

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seasonal rainfall means less chance of runoff carrying pesticides into salmon-bearing waters. Likewise in crops using drip irrigation there is less likelihood that over irrigation will carry pesticides off site.

- In the BiOp NMFS proposes a third option (Element 3) for buffers. With this option NMFS proposes that riparian areas might eliminate the need for buffers. No concrete information on this idea is provided nor has an example been developed to indicate how this might work or to give growers an idea of how large a riparian area might be needed to replace a buffer. While some commenters were interested in this concept, without some examples it is impossible for the agricultural community to comment on this option.

Alfalfa Seed: (Comments from Doug Walsh, Washington State IPM Coordinator)

Although Special Local Needs registrations exist, diflubenzuron is not applied on alfalfa grown for seed. Propargite is the mainstay miticide used for mite control on alfalfa grown for seed. Spider mite outbreaks are common in late summer following disruptive insecticide late spring applications of pyrethroid and organophosphate insecticides for lygus bug control. Alfalfa grown for seed is not irrigated in summer and it does not typically rain during the summer months where alfalfa is grown for seed, reducing any prospect of runoff.

Almond: (Comments from Gabriele Ludwig of the Almond Board of California)

Use Patterns: In almond production each of these compounds is used at very different times of the year.

- Diflubenzuron is typically applied delayed dormant (from late January into February, during and just after bloom). In almonds diflubenzuron is not used as a miticide. Here it is used for the control of San Jose scale and peach twig borer. Applications occur primarily during the rainy season and the rates are around 0.2 to 0.25 lbs. ai/A. According to the BiOp, application with airblast sprayers would require either a 300 ft. or 225 ft. buffer zone depending on the existence of a vegetative buffer strip.

- Propargite is used in the summer months if mites are getting out of hand. The application rate is typically 2 lbs. ai/A. Propargite is not used during the rainy season, thus it is unclear how a vegetative buffer strip would make much of a difference as far as this chemical entering a waterway without run off. The issue will be spray drift which may be mitigated by buffer zones as well as droplet size/nozzle selection, spraying inward/away from waterways, etc.

- Fenbutatin oxide is not widely used in almonds. In 2010 (latest California Pesticide Use Reporting System data) less than 0.17% of the 760,000 almond acres were treated with fenbutatin oxide (use occurs in the summer months when rainfall is minimal).

Irrigation: The Almond Board of California would like to encourage NMFS to consider the type of irrigation used when determining required buffers. It is very difficult to find an almond orchard that has irrigation return flows. The Coalition for Urban/Rural Environmental Stewardship (CURES) (a non-profit group working on best management practices for water quality) struggled to find such an almond orchard with drainage several years ago when trying to conduct some research on pesticide run off. With the move to microsprinklers and drip irrigation there just isn't any run off outside of rain events. Even flood irrigated orchards don't have run off.

Maintenance of Vegetative Buffer Strips: NMFS is proposing the use of vegetative buffer strips. In growing regions where there is low rainfall, maintaining these buffer strips would require the application of irrigation water. The Almond Board of California is concerned that this additional water requirement might not, in and of itself, be protective of salmonids. Increasing the demand for irrigation water seems counterproductive to protecting salmon populations. Pressure currently exists to reduce the amount of water used for irrigation to protect salmon populations by increasing the flows in salmon-bearing waters. While vegetative buffer strips might be relatively easily established and maintained during the winter months in the Sacramento Valley (where there is on average more than 25 inches of rainfall), irrigation would be necessary to maintain buffer strips during the summer months. The further south in the San Joaquin Valley, the less likely it is that vegetative buffer strips could be maintained as there is insufficient rainfall even in the winter months. (Bakersfield receives on average 6 inches of rain a year.)

Impact of the Buffer Zones: Depending on the exact definition of which waterways are considered connected to salmon-bearing waters, the impact of the buffer zones could be significant with respect to the ability to use these materials. Especially in the Sacramento Valley, with its plethora of irrigation canals and ditches, along with natural waterways leading to the Sacramento River, a significant portion of the almond acreage could see buffers imposed. We do seek clarification of what exactly would be impacted based on the definition of salmon-bearing waterways. For example, we have no way of knowing how many of the irrigation canals/ditches have exclusions such as screens. Is spraying without buffer zones OK during the summer months if an intermittent stream or canal or ditch is dry?

Crediting Existing Water Quality Programs and Protection Measures: The Almond Board of California feels that NMFS has discounted existing water quality programs. In places where water quality programs already exist and where it can be demonstrated that they are protective of salmon-bearing streams, the buffer requirements outlined in the BiOp should be lifted. One effective California water quality regulatory program is the Irrigated Lands Regulatory Program (ILRP) under the Central Valley Regional Water

Quality Control Board (part of the State Water Resources Control Board). For more than 7 years this program has included testing of surface waters for certain pesticides, for toxicity, and other measures of water quality. Where issues have been found (mainly with some organophosphates) growers have been educated and have implemented protection measures (holding ponds for run off, no-spray buffers, ensuring spray equipment is spraying away from water, etc.) that have successfully reduced the number of detections. As monitoring is part of the ILRP requirements, there is data to verify that this program is working.

The program is currently being expanded to include ground water and in the process the requirements for surface water are also being updated. For one, each Central Valley Irrigated Lands Coalition will need to test for pesticides widely used and with a higher likelihood of aquatic toxicity. That testing is to be timed to the greatest likelihood of use rather than simply monthly sampling. Secondly growers are being asked to document their measures to protect surface and ground water quality. Thus, we believe that this whole program is an alternative water quality protection measure that provides the needed protection under ESA and is site specific.

Sedimentation ponds are also used in California to protect water quality by reducing run off, especially in hilly areas. Sedimentation ponds have been effectively used to reduce both sediment and contaminants that move with water off orchards. Their efficacy has been demonstrated in data collected by CURES and by Coalitions as part of the ILRP in cases where sediment and/or pesticides have been detected in water.

The Almond Board of California is not convinced that Central Valley growers need one-size-fit-all regulations when a much more tailored (and already costly to growers) program to protect both surface and ground water currently exist.

Carrot Seed/Sugarbeet Seed: (Comments from Carrie Wohleb, WSU Extension)

It is estimated that there are about 1,500 to 2,000 acres of carrot seed and another 2,000 acres of sugarbeet seed grown each year in central Washington (mostly within the Columbia Basin Irrigation Project). Sugarbeet seed acreage has been increasing. The buffer zones are very concerning to growers of these crops. It is not usual or practical for growers to maintain vegetative buffers around irrigated fields in this semi-arid region. The vegetative zones cannot be maintained season-long without irrigation. Seed crops are often produced in small fields (50 acres or less). Buffer zones with no vegetative buffer (300 ft. for propargite) would be almost as large as the entire treated area. The buffer zones do not account for the size of fields, only the application rate. With the exception of some wastewater ways for irrigation project drainage, there aren't many lands near irrigated fields that would be considered riparian. The riparian area option (Element 3 in the BiOp) is not a realistic option. Growers feel that EPA doesn't have a very good understanding of the waterways (canals and ditches) in the Columbia Basin. These are not natural, fish-bearing waterways and NMFS should take that into consideration.

Cottonwood/Poplar Tree Farms: (Comments from Andrew Rodstrom, Greenwood Resources)

Greenwood Resources' local tree farming operations are certified by the Forest Stewardship Council (FSC). Diflubenzuron is used in their tree farms for caterpillar control under a Special Local Needs registration. While FSC certification doesn't normally allow for the use of diflubenzuron, Greenwood Resources has received a dispensation because there are a very limited number of products labeled for this use. Diflubenzuron is important in tree farming operations because it provides a different mode of action for caterpillar control. While year-old trees receive ground applications, diflubenzuron is typically applied aerially. The use rate is 4 oz. ai/A. The buffer zones proposed by NMFS would restrict where diflubenzuron could be applied. Greenwood Resources would need to switch to a different chemistry for caterpillar control; however, because alternatives are limited this is problematic. The imposition of the proposed NMFS buffer zones would impact Greenwood's tree farming operations.

Hops: (Comments from Doug Walsh, Washington State IPM Coordinator)

Propargite was recently registered on hops. Current labels carry a lengthy 14 day REI. At present propargite is used very early in the season typically immediately after hops are trained and there is very little need to enter hop yards. It is estimated that 20% of the 21,000 acres of hops produced in the PNW are treated with propargite at a rate of 1 to 2 lbs. ai/A. All hops in Washington are irrigated by drip irrigation and rainfall is inconsequential. Use is expected to increase over the next several years.

Mint: (Comments from Rocky Lundy, Mint Industry Research Council and Doug Walsh, Washington State IPM Coordinator)

The total U.S. annual mint acreage is approximately 110,000 acres. The majority of this acreage (80,000 acres) is located in the PNW states of Idaho, Oregon and Washington. These 3 states account for approximately 75% of the total U.S. mint oil production.

Recent state university pesticide surveys show that 27% of the mint grown in Oregon, Washington, and Idaho (and 18% of the total mint acres in the U.S.) are treated each year with propargite. Propargite is the predominant miticide applied to mint in high summer for two-spotted spider mite control where it is typically applied at 1 to 2 lbs. ai/A. If not controlled the two-spotted spider mite can cause yield reductions from 50-70% along with a reduction in mint oil quality. Mite damage occurs during summers with early and prolonged hot periods. Water-stressed stands are more likely to suffer mite damage.

About half the PNW acreage is under center pivot, 40% is on wheel line, and 10% is on rill irrigation systems. Very little agricultural runoff comes of mint that is center pivot or wheel line irrigated, and growers in collaboration with irrigation districts have made substantial efforts to reduce runoff in rill irrigated fields. In Washington State a great proportion of the rill irrigated peppermint is on the Yakama Nation. The WSDA surface water monitoring program has recently published their results http://agr.wa.gov/FP/Pubs/docs/361-SWM2010ReportAppend.pdf. The

Marion Drain is the primary wastewater drain that services the peppermint fields on the Yakama Nation. In multiple years of monitoring the peppermint fields in this drainage, propargite was not detected. The mint industry believes current regulations appear to be sufficient.

Propargite is a very important and irreplaceable production tool in PNW mint production. Its low impact on beneficial predators and parasitoids enables mint growers to use propargite in mint IPM programs. Any changes in the use patterns of propargite would be devastating to mint IPM programs and production.

The U.S. Mint Industry is the world's leading producer of both peppermint and spearmint oil. Over the last several years the United States has continued to lose world markets due to foreign competition. Any significant changes in the use pattern of propargite in mint would be economically devastating to the U.S. Mint Industry and give foreign competition further economic advantage.

Rangeland: (Comments from Charles Brown, Rangeland Grasshopper and Mormon Cricket Suppression Program Policy Manger with USDA's Animal and Plant Health Inspection Service)

The Animal and Plant Health Inspection Service's Rangeland Grasshopper and Mormon Cricket Suppression Program does use diflubenzuron to suppress grasshopper and Mormon cricket outbreaks on rangeland in California, Oregon, Washington, and Idaho. When treatments are done there are programmatic buffers of 500 feet from all water bodies for aerial applications. For everything but the highest use rate, this exceeds the buffers proposed in the BiOp.

Raspberry/Strawberry:

I believe that Henry Bierlink of the Washington Red Raspberry Commission intends to submit comments separately; however, some comments on the use of fenbutatin oxide on raspberries and strawberries are included here.

At this time there are only three miticides that are registered and effective for mite control on raspberries. One, etoxazole, has critical limitations due to the maximum residue limits imposed by many countries. The buffers proposed by NMFS would effectively make fenbutatin oxide unusable as well, leaving only bifenazate for effective mite control. Use of a single miticide will lead to resistance management problems and a need to rely on harsher or less effective chemistries.

The proposed buffer size is unacceptable. The raspberry industry would be required to use a 375 to 500 foot buffer. It makes a majority of berry acres in western Washington unavailable for treatment with fenbutatin oxide as ditches leading to salmon-bearing streams surround much of the berry acreage. Most of the berry fields in western Washington are less than 40 acres and are often adjacent waterways. Either the buffers need to be reduced or the places they are required limited. The riparian are option (Element 3 in the BiOp) is a possible alternative to the proposed buffers but with the information available in the BiOp there is no way to know if this truly is a workable alternative for the berry industry. Berry growers would like to be part of the development of a workable management plan for the continued use of these needed crop protection tools.

Tree Fruit: (Comments from Mike Willett of the Northwest Horticultural Council)

The use of propargite, fenbutatin oxide, and diflubenzuron is limited in tree fruit production in the Pacific Northwest (PNW). Only fenbutatin oxide is recommended for use in all commonly-grown tree fruits. (In 1980's fenbutatin oxide showed widespread resistance in California pears. It has not been used there in years.) Propargite is recommended for use in cherry but again use is limited. The Northwest Horticultural Council (NHC) would like to see NMFS factor use patterns into account in the buffers proposed in the BiOp. Low use equals low risk and a reduced need to create buffers. Given this lack of refinement in the BiOp the NHC believes that the proposed buffers should be rejected by EPA.

In the original court ruling, buffers were required on salmon-bearing waters. It is the opinion of the NHC that NMFS will likely attempt to have the buffer requirement applied more broadly than originally intended. For tree fruit, if the buffers proposed for fenbutatin oxide are applied to irrigation canals they are unworkable and should be rejected by EPA. In any case, if these buffers will apply to irrigation canals, all should be rejected because it is not clear (without appropriate data) how applications near non-salmon bearing water affect salmonids, especially given the possible large spatial separation between application site and the salmon-bearing water.

Finally, if this BiOp does not meet the standards set in the recent 4th circuit court decision and does not take into consideration the conclusions and recommendations provided by the National Research Council's Committee on Risk Assessment, the document should be more fully refined before EPA considers adopting restrictions.

I hope you find this information useful. Attached as a separate file please find a spreadsheet showing propargite, fenbutatin oxide, and diflubenzuron use in California for 2009 and 2010 (the most recent data available from California's Pesticide Use Reporting System). I am also including a contact sheet should you wish to follow up with anyone who supplied me with information.

Sincerely,

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NMFS BiOp: Propagite, Fenbutatin Oxide, Diflubenzuron
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carrot seed	Carrie	Wohleb	(509) 754-2011	cwohleb@wsu.edu	Washington State University	Regional Extension Specialist for Vegetable Crops
mint	Rocky	Lundy	(406) 453-7868	mirc@gorge.net	Mint Industry Research Council	Executive Director
mint	Doug	Walsh	(509) 786-9287	dwalsh@wsu.edu	Washington State University	IPM Coordinator
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rangeland	Charles	Brown	(301) 851-2119	Charles.L.Brown@aphis.usda.gov	USDA/APHIS APHIS APHIS	Rangeland Grasshopper and Mormon Cricket Suppressi
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tree fruit	Mike	Willett	(509) 453-3193	willett@nwhort.org	Northwest Horticultural Council	Vice President for Scientific Affairs
tree pulp production	Andres	Rodstrom	(971) 270-4815	Andrew.Rodstrom@gwrglobal.com	Greenwood Resources	Crop Protection and Certification Manager
tree pulp production	Doug	Walsh	(509) 786-9287	dwalsh@wsu.edu	Washington State University	IPM Coordinator

YEAR 2010							Lbs AI/ acre treated				Num. Applications per treated field						
Crop or Site	AI	Num. of Fields	% Base Acres Treated	Base Acres Treated	Cum. Acres Treated	Total Lbs AI	Med rate	Min rate	Max rate	Num. apps	Med apps/ field	Min apps/ field	Max apps/ field	Num. WFE apps	Med WFE/ field	Min WFE/ field	Max WFE/ field
ALFALFA	PROPARGITE	60	0.55	4,412	4,487	8,365	1.74	1.56	2.48	61	1.00	1.00	1.00	60.22	1.00	0.86	1.00
ALMOND	PROPARGITE	307	2.52	22,548	24,161	50,919	2.16	0.38	3.08	329	1.00	1.00	2.00	275.92	1.00	0.08	2.00
APRICOT	PROPARGITE	1	0.08	7	7	8	1.28	1.28	1.28	1	1.00	1.00	1.00	1.00	1.00	1.00	1.00
BEAN, DRIED	PROPARGITE	47	3.12	2,065	2,065	3,556	1.66	0.83	2.48	47	1.00	1.00	1.00	40.59	1.00	0.43	1.00
BEAN, SUCCULENT	PROPARGITE	12	1.84	657	657	1,165	1.45	1.24	2.07	12	1.00	1.00	1.00	12.00	1.00	1.00	1.00
BEAN, UNSPECIFIED	PROPARGITE	7	4.68	452	452	1,019	2.50	2.29	2.50	7	1.00	1.00	1.00	6.76	1.00	0.96	1.00
CHERRY	PROPARGITE	88	6.85	2,381	2,484	4,449	1.92	0.64	1.92	96	1.00	1.00	2.00	86.31	1.00	0.26	2.00
CORN (FORAGE - FODDER)	PROPARGITE	1,546	15.85	71,224	72,755	160,573	2.09	1.53	2.51	1,601	1.00	1.00	2.00	1,406.64	1.00	0.07	2.00
CORN, GRAIN	PROPARGITE	22	3.18	789	789	1,838	2.48	1.64	2.50	22	1.00	1.00	1.00	20.68	1.00	0.61	1.00
CORN, HUMAN CONSUMPTION	PROPARGITE	115	7.73	4,041	4,255	8,627	2.06	1.64	2.50	127	1.00	1.00	2.00	105.18	1.00	0.16	2.00
COTTON	PROPARGITE	65	0.55	1,907	1,916	3,082	1.67	0.83	1.67	66	1.00	1.00	1.00	38.36	0.47	0.04	1.00
GRAPE	PROPARGITE	54	0.59	1,827	2,213	4,050	1.92	0.24	2.88	60	1.00	1.00	2.00	52.27	1.00	0.12	2.00
GRAPE, WINE	PROPARGITE	53	0.34	2,060	2,060	4,009	1.84	0.80	2.56	56	1.00	1.00	2.00	39.4	0.95	0.08	1.00
MELON	PROPARGITE	1	0.12	25	25	52	2.07	2.07	2.07	1	1.00	1.00	1.00	1.0	1.00	1.00	1.00
NECTARINE	PROPARGITE	163	8.71	2,324	2,325	4,968	2.24	1.12	2.74	168	1.00	1.00	1.00	152.21	1.00	0.30	1.00
N-OUTDR PLANTS IN CONTAINERS	PROPARGITE	18	1.78	497	668	982	1.60	1.60	1.60	22	1.00	1.00	2.00	16.63	1.00	0.15	2.00
PEACH	PROPARGITE	26	0.47	314	314	616	1.92	1.28	1.92	26	1.00	1.00	1.00	22.73	1.00	0.13	1.00
PEANUT	PROPARGITE	1	66.67	1	2	1	0.32	0.32	0.32	2	2.00	2.00	2.00	2.0	2.00	2.00	2.00
PLUM	PROPARGITE	6	0.20	54	54	100	1.92	1.92	1.92	6	1.00	1.00	1.00	6.00	1.00	1.00	1.00
UNKNOWN	PROPARGITE	1	0.08	15	15	38	2.50	2.50	2.50	1	1.00	1.00	1.00	0.43	0.43	0.43	0.43
WALNUT	PROPARGITE	397	5.47	14,380	14,661	35,443	2.40	0.91	3.08	418	1.00	1.00	2.00	358.72	1.00	0.13	2.00
ALMOND	FENBUTATIN-OXIDE	23	0.14	1,286	1,299	955	1.00	0.25	1.05	24	1.00	1.00	1.00	14.5	0.75	0.08	1.00
APPLE	FENBUTATIN-OXIDE	3	0.19	18	40	16	0.25	0.25	1.00	6	1.00	1.00	1.00	5.20	1.00	1.00	1.00
CHERRY	FENBUTATIN-OXIDE	6	0.35	123	123	24	0.25	0.25	0.50	6	1.00	1.00	1.00	5.27	1.00	1.00	1.00
EGGPLANT	FENBUTATIN-OXIDE	2	0.64	5	8	3	0.30	0.30	0.30	3	1.50	1.00	2.00	3.00	1.50	1.00	2.00
GRAPE	FENBUTATIN-OXIDE	2	0.04	125	125	78	0.62	0.62	0.62	2	1.00	1.00	1.00	2.00	1.00	1.00	1.00
GRAPE, WINE	FENBUTATIN-OXIDE	1	0.00	4	4	4	1.00	1.00	1.00	1	1.00	1.00	1.00	1.00	1.00	1.00	1.00
NECTARINE	FENBUTATIN-OXIDE	1	0.03	7	7	7	1.00	1.00	1.00	1	1.00	1.00	1.00	1.00	1.00	1.00	1.00
N-GRNHS FLOWER	FENBUTATIN-OXIDE	1	0.42	5	20	14	0.13	0.10	0.15	4	4.00	4.00	4.00	4.0	4.00	4.00	4.00
N-GRNHS PLANTS IN CONTAINERS	FENBUTATIN-OXIDE	2	0.13	12	12	8	0.63	0.26	1.00	3	1.50	1.00	2.00	1.64	0.82	0.75	0.89
N-OUTDR PLANTS IN CONTAINERS	FENBUTATIN-OXIDE	6	0.09	25	45	35	0.00	0.00	1.50	17	2.00	1.00	5.00	13.06	0.52	0.03	5.00
N-OUTDR TRANSPLANTS	FENBUTATIN-OXIDE	3	0.18	15	15	13	0.88	0.73	1.00	3	1.00	1.00	1.00	1.98	0.78	0.78	0.78
PEACH	FENBUTATIN-OXIDE	11	0.29	194	212	183	1.00	0.50	1.00	13	1.00	1.00	1.00	6.73	0.38	0.15	1.00
PEAR	FENBUTATIN-OXIDE	1	0.00	0	0	1	3.33	3.33	3.33	1	1.00	1.00	1.00	0.50	0.50	0.50	0.50
PLUM	FENBUTATIN-OXIDE	1	0.15	40	40	120	3.00	3.00	3.00	1	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PRUNE	FENBUTATIN-OXIDE	4	0.13	81	81	41	0.50	0.50	0.50	4	1.00	1.00	1.00	4.00	1.00	1.00	1.00
TANGERINE	FENBUTATIN-OXIDE	1	0.51	220	220	165	0.75	0.75	0.75	1	1.00	1.00	1.00	1.00	1.00	1.00	1.00
WALNUT	FENBUTATIN-OXIDE	5	0.11	291	291	446	0.50	0.50	1.00	5	1.00	1.00	1.00	4.9	1.00	1.00	1.00
ALMOND	DIFLUBENZURON	1,496	11.25	100,743	104,984	22,641	0.20	0.10	0.25	1,650	1.00	1.00	2.00	1,467.72	1.00	0.26	2.00
APRICOT	DIFLUBENZURON	72	25.07	1,917	2,056	336	0.19	0.02	0.25	73	1.00	1.00	1.00	76.33	1.00	0.84	2.00
ARTICHOKE, GLOBE	DIFLUBENZURON	166	33.46	10,205	25,125	5,140	0.19	0.13	0.25	597	3.00	1.00	9.00	406.81	2.00	0.04	10.00
CITRUS	DIFLUBENZURON	1	0.59	11	11	2	0.16	0.16	0.16	1	1.00	1.00	1.00	0.42	0.42	0.42	0.42
COTTON	DIFLUBENZURON	1	0.04	130	130	8	0.06	0.06	0.06	1	1.00	1.00	1.00	1.00	1.00	1.00	1.00

CUCUMBER	DIFLUBENZURON	1	0.00	0	0	0	0.07	0.04	0.11	2	2.00	2.00	2.00	2.00	2.00	2.00	2.00
FOREST, TIMBERLAND	DIFLUBENZURON	1	0.00	10	10	0	0.01	0.01	0.01	2	2.00	2.00	2.00	0.50	0.50	0.50	0.50
GRAPEFRUIT	DIFLUBENZURON	46	10.25	803	1,064	274	0.16	0.13	0.47	61	1.00	1.00	2.00	58.04	1.00	0.09	3.00
NECTARINE	DIFLUBENZURON	292	16.89	4,506	4,603	3,223	0.25	0.00	9.65	297	1.00	1.00	1.00	294.36	1.00	0.80	2.00
N-GRNHS FLOWER	DIFLUBENZURON	9	3.68	44	80	5	0.13	0.03	1.56	19	2.00	1.00	3.00	4.09	0.17	0.04	0.83
N-GRNHS PLANTS IN CONTAINERS	DIFLUBENZURON	18	0.81	76	90	27	0.46	0.06	6.19	150	3.50	1.00	35.00	5.96	0.07	0.00	1.39
N-GRNHS TRANSPLANTS	DIFLUBENZURON	2	0.29	2	4	0	0.03	0.03	0.03	11	5.50	2.00	9.00	9.00	4.50	0.40	8.60
N-OUTDR FLOWER	DIFLUBENZURON	7	0.10	13	13	1	0.07	0.03	0.19	19	2.00	2.00	4.00	1.82	0.10	0.04	0.32
N-OUTDR PLANTS IN CONTAINERS	DIFLUBENZURON	3	0.11	32	32	6	0.25	0.14	0.25	7	1.00	1.00	1.00	0.84	0.24	0.24	0.24
N-OUTDR TRANSPLANTS	DIFLUBENZURON	3	0.23	20	20	4	0.22	0.20	0.52	4	1.00	1.00	1.00	1.55	0.43	0.43	0.43
ORANGE	DIFLUBENZURON	185	4.58	8,359	8,580	1,383	0.16	0.08	0.31	195	1.00	1.00	2.00	147.48	0.99	0.14	1.50
PASTURELAND	DIFLUBENZURON	2	0.09	45	45	1	0.03	0.03	0.03	2	1.00	1.00	1.00	1.11	0.56	0.16	0.95
PEACH	DIFLUBENZURON	462	12.70	8,477	8,676	3,450	0.20	0.00	5.06	468	1.00	1.00	1.00	458.43	1.00	0.43	1.70
PEAR	DIFLUBENZURON	8	7.90	975	975	45	0.03	0.03	0.13	12	1.00	1.00	3.00	7.42	1.00	0.83	1.00
PEPPER, FRUITING	DIFLUBENZURON	22	3.24	1,422	2,234	275	0.13	0.08	0.13	49	2.00	1.00	3.00	32.07	1.47	0.11	2.90
PEPPER, SPICE	DIFLUBENZURON	1	0.00	0	0	0	0.04	0.04	0.04	1	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PISTACHIO	DIFLUBENZURON	3	0.44	918	1,024	20	0.02	0.02	0.03	7	3.00	3.00	3.00	3.24	1.06	1.06	1.06
PLUM	DIFLUBENZURON	257	20.81	5,529	5,538	1,644	0.21	0.03	3.94	258	1.00	1.00	1.00	254.92	1.00	0.72	1.03
PLUOT	DIFLUBENZURON	7	59.51	170	170	33	0.20	0.20	0.20	7	1.00	1.00	1.00	7.0	1.00	1.00	1.00
POMELO	DIFLUBENZURON	12	24.14	131	204	34	0.16	0.16	0.31	19	2.00	1.00	2.00	17.67	1.50	1.00	2.00
PRUNE	DIFLUBENZURON	6	0.21	137	137	186	0.25	0.20	2.90	6	1.00	1.00	1.00	5.86	1.00	1.00	1.00
RESEARCH COMMODITY	DIFLUBENZURON	1	0.02	0	1	0	0.06	0.04	0.09	4	4.00	4.00	4.00	3.71	3.71	3.71	3.71
RICE	DIFLUBENZURON	45	0.27	1,434	1,463	637	0.19	0.09	3.04	47	1.00	1.00	1.00	23.23	0.36	0.10	1.18
TANGELO	DIFLUBENZURON	6	3.20	156	156	24	0.16	0.16	0.16	6	1.00	1.00	1.00	5.86	1.00	0.98	1.00
TANGERINE	DIFLUBENZURON	22	0.93	404	410	310	0.16	0.08	0.31	22	1.00	1.00	1.00	22.43	1.00	0.94	1.00
UNKNOWN	DIFLUBENZURON	1	0.05	10	10	0	0.01	0.01	0.01	2	2.00	2.00	2.00	0.50	0.50	0.50	0.50
WALNUT	DIFLUBENZURON	63	0.89	2,329	2,681	609	0.25	0.13	0.25	76	1.00	1.00	2.00	60.1	1.00	0.27	2.00
WATER AREA	DIFLUBENZURON	1	0.59	12	12	1	0.08	0.03	0.13	2	2.00	2.00	2.00	0.15	0.15	0.15	0.15

YEAR 2009							Lbs AI/ acre treated				Num. Applications per treated field						
Crop or Site	AI	Num. of Fields	% Base Acres Treated	Base Acres Treated	Cum. Acres Treated	Total Lbs AI	Med rate	Min rate	Max rate	Num. apps	Med apps/ field	Min apps/ field	Max apps/ field	Num. WFE apps	Med WFE/ field	Min WFE/ field	Max WFE/ field
ALMOND	DIFLUBENZURON	1,604	11.89	104,093	105,975	22,230	0.20	0.10	0.26	1,721	1.00	1.00	2.00	1,500.43	1.00	0.21	2.00
APRICOT	DIFLUBENZURON	36	17.06	1,391	1,391	276	0.19	0.02	0.25	36	1.00	1.00	1.00	35.9	1.00	1.00	1.00
ARTICHOKE, GLOBE	DIFLUBENZURON	182	47.58	15,241	40,534	8,180	0.19	0.13	0.25	824	4.00	1.00	10.00	529.85	2.00	0.05	9.00
GRAPE	DIFLUBENZURON	1	0.00	10	10	3	0.30	0.30	0.30	1	1.00	1.00	1.00	0.83	0.83	0.83	0.83
GRAPEFRUIT	DIFLUBENZURON	39	9.80	827	935	204	0.16	0.11	0.33	49	1.00	1.00	3.00	42.21	1.00	0.57	2.00
MUSHROOM	DIFLUBENZURON	1	0.05	0	0	1	4.36	4.36	4.36	1	1.00	1.00	1.00	0.52	0.52	0.52	0.52
NECTARINE	DIFLUBENZURON	228	13.53	3,798	4,008	980	0.25	0.02	0.25	234	1.00	1.00	1.00	234.0	1.00	1.00	2.00
N-GRNHS FLOWER	DIFLUBENZURON	8	1.42	25	25	8	1.58	0.03	1.63	46	2.00	1.00	3.00	2.99	0.30	0.18	0.55
N-GRNHS PLANTS IN CONTAINERS	DIFLUBENZURON	28	3.60	104	104	29	0.46	0.04	2.72	166	2.00	1.00	29.00	11.54	0.25	0.04	0.97
N-GRNHS TRANSPLANTS	DIFLUBENZURON	2	0.02	0	0	0	0.14	0.06	0.23	2	1.00	1.00	1.00	0.94	0.47	0.14	0.80
N-OUTDR FLOWER	DIFLUBENZURON	5	0.05	5	5	2	0.13	0.11	1.58	11	1.00	1.00	3.00	0.25	0.03	0.02	0.05
N-OUTDR PLANTS IN CONTAINERS	DIFLUBENZURON	9	0.12	35	38	7	0.20	0.06	0.78	17	1.00	1.00	2.00	5.51	0.17	0.01	1.69
N-OUTDR TRANSPLANTS	DIFLUBENZURON	2	0.03	3	4	1	0.31	0.22	0.69	6	3.00	1.00	5.00	2.52	1.26	0.21	2.31
ORANGE	DIFLUBENZURON	287	6.78	12,446	12,538	2,333	0.16	0.06	0.33	305	1.00	1.00	2.00	233.06	1.00	0.13	1.78
PASTURELAND	DIFLUBENZURON	6	0.46	198	198	6	0.03	0.03	0.03	7	1.00	1.00	1.00	3.57	0.63	0.45	0.80
PEACH	DIFLUBENZURON	287	7.10	4,844	4,892	977	0.25	0.02	0.25	289	1.00	1.00	1.00	283.88	1.00	0.51	1.21
PEAR	DIFLUBENZURON	12	2.24	285	286	58	0.19	0.19	0.25	18	1.00	1.00	2.00	9.7	1.00	0.50	1.00
PEPPER, FRUITING	DIFLUBENZURON	24	2.21	1,067	1,711	258	0.13	0.12	0.13	55	2.00	1.00	8.00	40.08	1.05	0.21	5.12
PEPPER, SPICE	DIFLUBENZURON	1	0.00	0	0	0	0.14	0.14	0.14	1	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PLUM	DIFLUBENZURON	144	11.73	3,368	3,368	699	0.25	0.03	0.25	144	1.00	1.00	1.00	143.07	1.00	0.99	1.00
PLUOT	DIFLUBENZURON	7	62.95	163	163	33	0.20	0.20	0.20	7	1.00	1.00	1.00	6.65	1.00	1.00	1.00
POMELO	DIFLUBENZURON	9	24.67	122	198	39	0.16	0.16	0.30	15	2.00	1.00	2.00	14.53	1.82	1.00	2.00
PRUNE	DIFLUBENZURON	10	0.51	333	333	61	0.20	0.16	0.22	10	1.00	1.00	1.00	10.0	1.00	1.00	1.00
RICE	DIFLUBENZURON	33	0.17	871	871	158	0.19	0.01	0.19	33	1.00	1.00	1.00	17.86	0.35	0.04	1.00
TANGELO	DIFLUBENZURON	9	3.18	150	150	27	0.16	0.10	0.30	9	1.00	1.00	1.00	9.0	1.00	1.00	1.00
TANGERINE	DIFLUBENZURON	20	1.24	437	437	81	0.16	0.10	0.36	21	1.00	1.00	1.00	18.66	1.00	0.60	1.00
TOMATO	DIFLUBENZURON	1	0.00	0	1	0	0.14	0.14	0.14	2	2.00	2.00	2.00	2.00	2.00	2.00	2.00
UNCULTIVATED NON-AG	DIFLUBENZURON	1	0.30	80	80	5	0.06	0.06	0.06	1	1.00	1.00	1.00	1.00	1.00	1.00	1.00
UNKNOWN	DIFLUBENZURON	1	0.36	37	37	5	0.13	0.13	0.13	1	1.00	1.00	1.00	1.0	0.99	0.99	0.99
WALNUT	DIFLUBENZURON	77	1.26	3,100	3,655	919	0.25	0.25	0.25	95	1.00	1.00	2.00	83.4	1.00	0.26	2.00
WATER AREA	DIFLUBENZURON	1	2.25	80	120	5	0.05	0.03	0.06	2	2.00	2.00	2.00	1.50	1.50	1.50	1.50
ALMOND	FENBUTATIN-OXIDE	82	0.51	4,462	4,600	3,434	0.75	0.14	1.00	86	1.00	1.00	2.00	42.26	0.48	0.03	1.50
APPLE	FENBUTATIN-OXIDE	1	0.00	0	0	0	1.25	1.25	1.25	1	1.00	1.00	1.00	1.00	1.00	1.00	1.00
CHERRY	FENBUTATIN-OXIDE	7	0.65	210	210	313	1.50	1.50	1.50	7	1.00	1.00	1.00	7.00	1.00	1.00	1.00
GRAPE	FENBUTATIN-OXIDE	10	0.28	855	855	488	0.63	0.25	0.95	10	1.00	1.00	1.00	8.24	1.00	0.19	1.00
GRAPE, WINE	FENBUTATIN-OXIDE	1	0.01	37	37	37	1.00	1.00	1.00	1	1.00	1.00	1.00	0.93	0.93	0.93	0.93
LEMON	FENBUTATIN-OXIDE	1	0.20	80	80	120	1.50	1.50	1.50	1	1.00	1.00	1.00	1.00	1.00	1.00	1.00

NECTARINE	FENBUTATIN-OXIDE	4	0.56	156	156	138	0.88	0.75	1.00	4	1.00	1.00	1.00	4.0	1.00	1.00	1.00
N-GRNHS FLOWER	FENBUTATIN-OXIDE	2	0.34	6	7	5	0.77	0.50	0.91	5	2.50	1.00	4.00	3.01	1.51	1.01	2.00
N-GRNHS PLANTS IN CONTAINERS	FENBUTATIN-OXIDE	4	0.69	20	20	8	0.41	0.08	0.83	11	2.50	2.00	3.00	2.23	0.55	0.34	0.75
N-OUTDR FLOWER	FENBUTATIN-OXIDE	1	0.04	4	4	8	1.83	1.72	1.93	1	1.00	1.00	1.00	0.01	0.01	0.01	0.01
N-OUTDR PLANTS IN CONTAINERS	FENBUTATIN-OXIDE	13	0.42	127	127	123	0.68	0.05	2.00	27	1.00	1.00	5.00	9.22	1.00	0.22	1.00
ORANGE	FENBUTATIN-OXIDE	11	0.35	645	645	1,026	1.50	1.00	1.84	11	1.00	1.00	1.00	8.58	1.00	0.35	1.00
PEACH	FENBUTATIN-OXIDE	48	1.55	1,055	1,314	916	0.50	0.25	1.00	63	1.00	1.00	3.00	44.95	0.95	0.13	2.00
PEAR	FENBUTATIN-OXIDE	1	0.00	0	0	1	2.92	0.83	5.00	2	2.00	2.00	2.00	1.3	1.33	1.33	1.33
PLUM	FENBUTATIN-OXIDE	3	0.19	54	54	40	0.50	0.50	0.50	3	1.00	1.00	1.00	2.58	1.00	1.00	1.00
PRUNE	FENBUTATIN-OXIDE	8	0.25	162	162	115	0.85	0.50	1.00	8	1.00	1.00	1.00	7.4	1.00	1.00	1.00
STRAWBERRY	FENBUTATIN-OXIDE	1	0.05	52	52	39	0.75	0.75	0.75	1	1.00	1.00	1.00	0.36	0.36	0.36	0.36
TANGELO	FENBUTATIN-OXIDE	1	0.28	13	13	13	1.00	1.00	1.00	1	1.00	1.00	1.00	1.0	1.00	1.00	1.00
TANGERINE	FENBUTATIN-OXIDE	2	0.23	80	80	150	1.88	1.88	1.88	2	1.00	1.00	1.00	2.00	1.00	1.00	1.00
WALNUT	FENBUTATIN-OXIDE	18	0.13	311	311	244	1.00	0.50	1.00	21	1.00	1.00	2.00	13.30	1.00	0.12	1.00
ALFALFA	PROPARGITE	42	0.32	2,713	2,884	5,983	2.28	1.28	2.48	44	1.00	1.00	1.00	42.20	1.00	0.53	1.79
ALMOND	PROPARGITE	476	3.44	30,138	31,165	72,040	2.29	0.32	3.08	499	1.00	1.00	2.00	409.7	1.00	0.06	2.00
BEAN, DRIED	PROPARGITE	102	8.20	6,120	6,531	10,357	1.66	0.83	2.48	115	1.00	1.00	2.00	99.22	1.00	0.15	2.00
BEAN, SUCCULENT	PROPARGITE	33	5.01	1,510	1,684	2,319	1.38	0.82	1.73	37	1.00	1.00	2.00	34.24	1.00	0.50	2.00
BEAN, UNSPECIFIED	PROPARGITE	9	2.33	414	414	838	1.66	1.64	2.48	9	1.00	1.00	1.00	8.15	1.00	0.87	1.00
CHERRY	PROPARGITE	179	16.00	5,133	5,698	10,717	1.92	1.60	2.16	195	1.00	1.00	2.00	177.48	1.00	0.33	2.00
CORN (FORAGE - FODDER)	PROPARGITE	1,465	16.06	71,052	72,480	167,094	2.48	1.23	2.50	1,529	1.00	1.00	2.00	1,332.93	1.00	0.07	1.80
CORN, GRAIN	PROPARGITE	22	5.05	933	963	2,086	2.48	0.07	2.48	23	1.00	1.00	1.00	21.61	1.00	0.34	1.00
CORN, HUMAN CONSUMPTION	PROPARGITE	160	21.67	9,112	10,149	23,632	2.48	1.64	2.50	215	1.00	1.00	4.00	160.19	1.00	0.18	2.00
COTTON	PROPARGITE	32	0.67	1,419	1,437	2,319	1.66	0.83	1.67	33	1.00	1.00	1.00	23.01	1.00	0.08	1.00
GRAPE	PROPARGITE	58	0.59	1,829	1,924	3,433	1.60	0.64	2.56	61	1.00	1.00	2.00	53.10	1.00	0.11	2.00
GRAPE, WINE	PROPARGITE	103	0.89	5,470	5,596	11,521	1.60	0.66	2.68	106	1.00	1.00	1.00	88.66	1.00	0.23	2.00
MINT	PROPARGITE	46	50.71	2,469	3,582	5,910	1.89	0.04	1.98	65	1.00	1.00	2.00	56.61	1.00	0.17	2.53
NECTARINE	PROPARGITE	122	8.24	2,314	2,378	4,664	2.24	0.48	2.60	133	1.00	1.00	2.00	112.4	1.00	0.21	2.00
N-OUTDR PLANTS IN CONTAINERS	PROPARGITE	17	1.37	412	468	733	1.60	1.60	1.60	24	1.00	1.00	2.00	21.38	1.00	0.26	2.00
N-OUTDR TRANSPLANTS	PROPARGITE	1	0.74	60	60	154	2.56	2.56	2.56	1	1.00	1.00	1.00	0.43	0.43	0.43	0.43
ORANGE	PROPARGITE	3	0.05	95	95	136	2.88	2.88	2.88	3	1.00	1.00	1.00	1.71	0.50	0.50	0.50
PEACH	PROPARGITE	21	0.44	303	303	578	1.92	1.60	1.92	21	1.00	1.00	1.00	19.59	1.00	0.49	1.00
PEANUT	PROPARGITE	1	100.00	1	1	1	0.96	0.96	0.96	1	1.00	1.00	1.00	1.0	1.00	1.00	1.00
PLUM	PROPARGITE	5	0.25	72	72	129	1.92	1.60	1.92	5	1.00	1.00	1.00	5.00	1.00	1.00	1.00
PRUNE	PROPARGITE	1	0.01	10	10	15	1.60	1.60	1.60	1	1.00	1.00	1.00	0.4	0.41	0.41	0.41
TANGERINE	PROPARGITE	1	0.04	15	15	29	1.92	1.92	1.92	1	1.00	1.00	1.00	1.00	1.00	1.00	1.00

WALNUT	PROPARGITE	625	9.54	23,386	25,532	54,835	2.29	0.76	3.20	698	1.00	1.00	2.00	573.26	1.00	0.09	2.00