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February 12, 2013

Office of Pesticide Programs (OPP)
Regulatory Public Docket (28221T),
Environmental Protection Agency,
1200 Pennsylvania Ave., NW.,
Washington, DC 20460-0001

Re: Proposed Conditional Registration of the New Insecticide Sulfoxaflor.
Docket Number: EPA-HQ-OPP-2010-0889

Dear Sir/Madam,

We are writing to urge the U.S. Environmental Protection Agency (EPA)* not to proceed with the proposed conditional registration of the new pesticide active ingredient, sulfoxaflor, its formulated technical product, and two end-use products for use in production agriculture. Sulfoxaflor is a new insecticide of the sulfoximine class and its proposed uses are for various vegetables, fruits, soybeans, wheat, and turfgrass, among other crops. The agency believes this decision to be in the public interest because "the registration of this pesticide for use on these crops will provide growers with a new pest management tool to kill a broad spectrum of piercing/sucking insects, including species that are difficult to control." However, there are many aspects of EPA's risk assessment for sulfoxaflor that we find troubling and which we believe should disqualify this chemical from being granted conditional registration.

Sulfoxaflor is highly toxic to honey bees according to EPA's ecological assessment, and there are still unanswered toxicological data gaps regarding honey bees, including field studies for assessing colony health and crop residues. Given the global phenomenon of bee decline and the recent precautions taken in the European Union regarding bee health with the suspension of certain neonicotinoid pesticides known to elicit adverse reactions in bees, it is irresponsible that the agency would allow yet another chemical with a high potential to be hazardous to bee health into the environment. It is also counterintuitive to current agency and interagency work to protect pollinators. We believe that the agency at this time should deny the registration of sulfoxaflor to avoid repeating past oversights and worsen current problems with bee decline.

Burgeoning Problems with the Conditional Registration Process

*See Appendix 1 Attached

Once again EPA is proposing to repeat missteps of the past by registering a pesticide known to be toxic to non-target organisms without all required data to ensure its safety. As already seen with the neonicotinoid, clothianidin, and the herbicide aminocyclopyrachlor (Imprelis®), conditional registration without relevant ecological data can be detrimental to non-target species. It was pointed out to the agency in previous communications, risks to honey bees far outweigh any economic, social or environmental benefit of conditional registration, given that the honey bee has a $15 billion impact on the agriculture sector and that millions of dollars are at stake for commercial beekeepers, not to mention the economic and environmental costs to native, wild pollinators.

Like clothianidin, we believe any conditional registration of sulfoxaflor is a violation of the terms set out in Section 3(c)(7)(A), in that registration will pose "unreasonable adverse effects on the environment." The *Federal Insecticide Fungicide and Rodenticide Act* (FIFRA) defines the term ''unreasonable adverse effects on the environment'' as ‘‘(1) any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide….” EPA has determined that estimated sulfoxaflor residues in pollen and nectar will exceed levels of concern (LOC) for acute risks, but the effects on honey bee colonies are not yet fully understood. Initial tests on brood development were inconclusive. Information on residues and colony health are still outstanding. Given the high uncertainties that remain and initial results that point to high acute hazards, sulfoxaflor presents "unreasonable adverse effects" to bee species, and does not meet statutory standards for registration.

EPA has a long history of registering pesticides without adequately understanding and underestimating human and environmental health impacts. We urge EPA to take a more precautionary approach.

Sulfoxaflor Poses Ecological Threats to Bee Populations

Neonicotinoids affect the nervous system of insects, causing irreversible blockage of the postsynaptic nicotinergic acetylcholine receptors (nAChRs) (via a selective agonistic mechanism).[1] Chemicals that disrupt the nAChRs - which play roles in many cognitive processes - lead to disruptions in the nervous system. In honey bees this includes disruptions in mobility, navigation, and feeding behavior.[2] Lethal and sublethal exposures have been shown to decrease foraging activity, along with olfactory learning performance and decreased hive activity.[3] Sulfoxaflor also disrupts the functioning of the nAChRs and symptoms in honey bees will be the same as seen with neonicotinoids, i.e. disruption in mobility, feeding and learning behavior.

Sulfoxaflor induces high mortality among honey bees from zero to three days post application. According to EPA's Honey Bee Risk Assessment, on average the mortality rate was as high as seven to 20 times that of controls during the first three days after application (at 3-67% of US maximum application rate). Declines in flight intensity were also observed. While recognizing the high acute toxicity of

[1] USEPA. 2011. BEAD Chemical Profile for Registration Review: Clothianidin (044309). Federal Register Docket Id. No.: EPA–HQ–OPP–2011–0865

[2] Desneaux, N. et al., 2007. Sublethal Effects of Pesticides on Benefical Anthropods. Annual Review of Entomology, 52:81-106

[3] Decourtye, A. et al., 2004. Effects of imidacloprid and deltamethrin on associative learning in honeybees under semi-field and laboratory conditions. Ecotoxicology and Environmental Safety.57: 410-419

sulfoxaflor, EPA rationalizes that these effects, which include behavioral abnormalities, are "short-lived." Incredibly, it seems EPA believes that the high incidence of bee death following short-term exposure from sulfoxaflor does not factor in the long-term effects on brood and colony health. However, when all or most of foraging bees are dead within three days of sulfoxaflor exposures, a long-term threat to bee colonies becomes significant, not to mention economic impacts on beekeepers who have lost the viability of hundreds of hives within a three day period.

Similarly, EPA states that "the effect of sulfoxaflor on honey bee colony strength when applied at 3-32% of the US maximum proposed rate was not apparent in most cases." However, an evaluation of effects at higher rates, but within the U.S. maximum (e.g. 75% US max. proposed rate) does not seem to be known and presents a data gap. Additionally, many of the industry studies EPA reviewed for its honey bee risk assessment contained limitations, with some results being interpreted "with caution" due to statistical weaknesses, inconsistencies with controls and design, resulting in many results being considered "inconclusive." This is especially apparent for studies examining brood development. These inadequate, "flawed" studies that lack definitive data are the basis of EPA's decision for granting registration to sulfoxaflor. Clearly, the information from these studies cannot support a sulfoxaflor registration.

Honey bee acute oral and contact LD50 values for sulfoxaflor are 0.05 and 0.13 µg a.i./bee, respectively, as determined by the agency. In many of the industry residue studies reviewed by EPA, sulfoxaflor residues in nectar were on average less than 0.07ppm. EPA states that this is the threshold value for oral and contact exposures that would not exceed levels of concern, based on the agency's calculations. Given that there is little independent data available that measures real-world sulfoxaflor residue levels, the agency does not have meaningful data to support that residues would occur less than 0.07ppm in nectar. To address this uncertainty, EPA has proposed to reduce the application rate of sulfoxaflor from the requested 0.133lbs a.i./acre to 0.09lbs a.i./acre and increase the minimum spray interval, in order to mitigate pollinator risks. EPA believes in doing so, residues in nectar would not exceed 0.07ppm. The agency also believes applications of sulfoxaflor at this 'reduced' rate would not result in brood loses or impact long-term colony health during the time period required for the conditional studies to be performed and assessed.

The agency's attempts to mitigate risks to honey bees highlight the real deficiencies in the agency's risk assessment process. Risk assessment approaches have historically underestimated real-world risks and attempts to mitigate adverse impacts with measures that prove insufficient and impractical. These risk assessment approaches make determinations that the risks are "reasonable," while failing to take into account numerous circumstances and realities that make honey bees vulnerable to chemical exposures including user failure to adhere to application rate guidelines, and local environmental conditions that may predispose crops, and other plants, to accumulate higher chemical residues, especially in nectar and pollen. In fact, EPA is just now requesting a residue study to assess the nature and magnitude on residues in a pollinator-attractive crop, further illustrating that risk estimates considered in making conclusions in this honey bee risk assessment are unreliable, and most likely will not reflect real-world scenarios, putting bees at risk. The agency must instead utilize a *precautionary approach* and wait until

all the relevant data can be evaluated with respect to honey bees and other organisms before considering a sulfoxaflor registration and allowing this chemical into the environment.

Sulfoxaflor raises concerns for bird populations as well. In a major scientific assessment that will soon be released by American Bird Conservancy, toxicologist Pierre Mineau reviews the effects of neonicotinoid insecticides on avian species and the aquatic systems on which they depend. The report raises red flags for birds that may apply to sulfoxaflor as well. EPA needs to proceed with caution.

Sulfoxaflor Not the Solution to Rising Neonicotinoid Resistance

While surveys have shown neonicotinoid resistance to still be restricted to very few species and often very localized in extent,[4] it is predictable that the widespread use of neonicotinoid insecticides will continue to give way to increased insect resistance. There is reported imidacloprid resistance in certain aphid species, with cross-resistance to other neonicotinoids.[5] One study documented acetamiprid, clothianidin and thiamethoxam resistance at 6.4, 10, and 22-fold, respectively in cotton aphids (*Aphis gossypii).*[6] High levels of cross-resistance to thiamethoxam, imidacloprid, and acetamiprid have also been detected in silver whitefly (*B. tabaci*).[7] Insects with neonicotinoid resistance have also been shown to have varying resistance to organophosphates, carbamates, and pyrethroids.[8] Due to growing resistance among insect populations, stronger pesticides with novel mode of actions are being sought. In the case of sulfoxaflor, it is stable in the presence monooxogenase enzymes –responsible for metabolizing chemicals and known to be involved in resistance to the neonicotinoids and other insecticides[9]- making sulfoxaflor a more potent insecticide to the insect. Industry is advertising sulfoxaflor as a "critical tool for insect resistance management," due to its new mode of action and its effectiveness on insect populations resistant to neonicotinoid and other insecticides.[10]

According to some industry scientists, sulfoxaflor has a pharmacological profile (in aphids) consistent with that of imidacloprid, suggesting that sulfoxaflor be considered a neonicotinoid.[11] However, others at Dow AgroSciences laboratories argue that the very high efficacy at nAChRs, coupled with its chemical structure, lack of cross-resistance, and metabolic stability,[12] prove that sulfoxaflor is a novel insecticide. Sulfoxaflor has been demonstrated to exhibit very low resistance in some aphid species (e.g. silverleaf and greenhouse whiteflies) already resistant to imidacloprid with no evidence of cross resistance to

[4] Nauen, R and Denholm, I. 2005. Resistance of Insect Pests to Neonicotinoid Insecticides: Current Status and Future Prospects. Archives of Insect Biochemistry and Physiology 58:200–215

[5] Nauen R, Vontas J, Kaussmann M, Wölfel K. 2012. Pymetrozine is hydroxylated by CYP6CM1, a cytochrome P450 conferring neonicotinoid resistance in Bemisia tabaci. *Pest Manag Sci*. 2 doi: 10.1002/ps.3460

[6] Herron, G. A. and Wilson, L. J. 2011. Neonicotinoid resistance in *Aphis gossypii* Glover (Aphididae: Hemiptera) from Australian cotton. Australian Journal of Entomology, 50: 93–98.

[7] Nauen, R and Denholm, I. 2005. Resistance of Insect Pests to Neonicotinoid Insecticides: Current Status and Future Prospects. Archives of Insect Biochemistry and Physiology 58:200–215

[8] Nauen, R and Denholm, I. 2005. Resistance of Insect Pests to Neonicotinoid Insecticides: Current Status and Future Prospects. Archives of Insect Biochemistry and Physiology 58:200–215.

[9] Sparks, T, DeBoer, G, et al. 2012. Differential metabolism of sulfoximine and neonicotinoid insecticides by *Drosophila melanogaster* monooxygenase CYP6G1. Pest Biochem. Phys. 103 (2012) 159–165

[10] Annetts, R and Elias, N. 2012. Sulfoxaflor For Management Of Cotton Pests In Australia. Presented at the *Australian Cotton Conference,* Management of Cotton Aphids. Available at http://www.australiancottonconference.com.au/2012-presentations-papers/annetts-robert

[11] Cutler P, Slater R, Edmunds AJ et al. 2012. Investigating the mode of action of sulfoxaflor: a fourth-generation neonicotinoid. *Pest Manag Sci.* doi: 10.1002/ps.3413.

[12] Watson GB, Loso MR, Babcock JM, et al. 2011. Novel nicotinic action of the sulfoximine insecticide sulfoxaflor. *Insect Biochem Mol Biol.* (7):432-9.

other neonicotinoid pesticides, making it a good candidate to control pests already resistant to certain neonicotinoids.[13,14] One study investigating the efficacy of sulfoxaflor in the field, determined that sulfoxaflor proved to be more "residual and significantly more potent," even with similar speed of action when compared to neonicotinoids.[15]

The evolution of insect resistance is predictable, leading to farmers resorting to multiple chemicals, alternating insecticides with different modes of action (which would have to be either more toxic, or used in greater frequency), in order to control resistant insects. However, the risks to non-target insects in the advent of failed technologies are not seriously considered. Given that sulfoxaflor is more toxic than neonicotinoids, it is expected that it would be more toxic to honey bees, leading to disastrous consequences. We should not be introducing more potent insecticides into the environment as a solution to mitigating growing insect resistance. The solution to managing insect resistance is not to introduce more toxic chemicals, that would eventually give rise to more resistant strains, but to implement sound pest management techniques, including crop rotation, improving soil health, and shifting from a reliance on monocropping systems.

Section 18 Exemptions for Sulfoxaflor Already Put Bees at Risk

The registrant first submitted sulfoxaflor for registration in 2010. Since then several section 18 exemptions have been granted for sulfoxaflor for use in Louisiana (Dec 17, 2012), Mississippi (June 1, 2012), and Tennessee (June 1, 2012) for cotton to control for tarnished plant bugs (*Lygus lineolaris*) due to resistance issues. While FIFRA's section 18 allows for pesticides undergoing registration consideration to be candidates for exemption, it is still highly irresponsible for EPA to allow unregistered, unevaluated chemicals into the environment without fully understanding and assessing risks. Time-limited tolerances for sulfoxaflor residues were not published until September 2012. At this time, EPA issued tolerances for various cotton products, the lowest of which was 0.2ppm - in or on cotton and undelinted seed.[16] Tolerances of 6.0ppm and 0.35ppm were issued for other cotton commodities. Given that honey bees do visit cotton, mostly for nectar, and the agency has since established that residues higher than 0.07ppm will pose a risk to bees, the section 18 exemption and tolerances undoubtedly created environmental risks to honey bees that the agency did not take into account at that time. It is not apparent whether EPA conducted an ecological assessment for these Section 18 exemptions. This is clearly a regulatory failure that has plagued section 18 exemptions for many years.

Section 18 of FIFRA authorizes the agency to allow a new use of a registered pesticide or the use of a pesticide whose registration is pending (and making progress toward registration) for a limited time if the agency determines that an emergency condition exists. EPA must perform a multi-disciplinary

[13] Longhurst C, Babcock JM, Denholm I, Gorman K, Thomas JD, Sparks TC. 2012. Cross-resistance relationships of the sulfoximine insecticide sulfoxaflor with neonicotinoids and other insecticides in the whiteflies Bemisia tabaci and Trialeurodes vaporariorum. *Pest Manag Sci*. doi: 10.1002/ps.3439.

[14] Siebert, M, et al.2012. Field Evaluations of Sulfoxaflor, a Novel Insecticide, Against Tarnished Plant Bug (Hemiptera: Miridae) in Cotton . *J Cotton Science 16:129–143*

[15] Lysandrou, M, Ahmad, M and Longhurst, C. 2010. Comparative Efficacy Of Sulfoxaflor Against Cotton Leafhopper, *Amrasca Devastans* (Distant) (Cicadellidae: Homoptera) Under Field Conditions Of Punjab And Sindh. *J. Agric. Res*.48(4)

[16] USEPA. 2012. Sulfoxaflor; Pesticides Tolerances for Emergency Exemptions. EPA-HQ-OPP-2012-0493; FRL-9361-4. Federal Register/Vol 77 No. 189.

evaluation of the request including an ecological and environmental risk assessment. The agency must deny an exemption request if the pesticide does not meet safety standards, or if emergency criteria are not met. Without strict adherence to Section 18 criteria, allowance of unregistered pesticide uses and unregistered pesticides risks an environmental and public health problem. Similar to conditional registration, allowing a pesticide like sulfoxaflor into the environmental with unknown ecological hazards is a recipe for disaster.

Human Health Assessment is Also Troubling

Sulfoxaflor is classified as "suggestive evidence of carcinogenic potential" based on the incidence of tumors and carcinomas in mice and rats. In carcinogenicity studies, increased incidence of interstitial cell tumors was observed but EPA does not consider these to be treatment related due to a lack of dose-response. Tremors, convulsions, hind limb splaying etc were also observed, and EPA also questions the cause of these. Significant hepatocellular adenomas were observed at high doses of sulfoxaflor in rats. Carcinomas and hepatocellular adenomas were seen in mice. Perputial gland tumors, while observed, were difficult to relate to treatment, leading to the agency's classification of "suggestive evidence of carcinogenic potential." Developmental abnormalities (skeletal, neonatal death) were observed in rats, liver weight and enzyme changes, hypertrophy, tumors were also observed in sub-chronic and chronic studies.

Despite this and the need for an outstanding study, EPA believes that data are "sufficient to support reducing the interspecies uncertainty factor to 3X for the developmental effects," even though many of the studies were lacking. One industry study observed that sulfoxaflor affected the fetal, not adult, rat muscle nAChR and that prolonged exposure caused sustained striated muscle contracture resulting in concomitant reduction in muscle responsiveness to physiological nerve stimulation. According to the study, fetal effects were inducible with as little as one day of exposure at the end of gestation, but were rapidly reversible after birth.[17] While sulfoxaflor does have significant measurable neurotoxic activity in mammalian system (mice and rats), it has been concluded that these effects are not relevant to humans. A search of the literature found no other studies evaluating the effect of sulfoxaflor on mammalian systems and so, much is still unknown about this chemical's potency in humans.

However, as a chemical whose mode of action involves selective activity at nAChRs like neonicotinoids, sulfoxaflor effects must not be dismissed so easily. For neonicotinoids, excitatory effects on mammalian nAChRs (increasing anxiety behavior) at concentrations greater than 1 µM have been documented, with speculation that this class of chemicals may adversely affect human health, especially the developing brain.[18,19] One study out of Duke University Medical Center found that gestational exposure to a single, nonlethal dose of imidacloprid produces significant neurobehavioral deficits and an increased expression of pathological alterations in several brain regions of the offspring of Sprague-Dawley rats, at

[17] Rasoulpour RJ, Ellis-Hutchings RG, Terry C, et al. 2012. A novel mode-of-action mediated by the fetal muscle nicotinic acetylcholine receptor resulting in developmental toxicity in rats. *Toxicol Sci.* 127(2):522-34.
[18] Kimura-Kuroda J, Komuta Y, Kuroda Y, Hayashi M, Kawano H. 2012. Nicotine-Like Effects of the Neonicotinoid Insecticides Acetamiprid and Imidacloprid on Cerebellar Neurons from Neonatal Rats. *PLoS ONE* 7(2): e32432. doi:10.1371/journal.pone.0032432
[19] Rodrigues KJ, Santana MB, Do Nascimento JL, et al. 2010. Behavioral and biochemical effects of neonicotinoid thiamethoxam on the cholinergic system in rats. *Ecotoxicol Environ Saf*. 73(1):101-7.

an age that corresponds to early human adolescence. The authors conclude that these changes may have long-term adverse health effects in the offspring.[20]

Even though there are no residential uses at this time, the Food Quality Protection Act (FQPA) safety factor should not be reduced from 10X to 1X, nor should the interspecies uncertainty factor be reduced to 3X since much is still unknown about developmental neurotoxicity. Given the mode of action similarities between sulfoxaflor and neonicotinoids, the higher potency of sulfoxaflor, and its carcinogenic potential, an FQPA safety factor of 10X should be retained.

Impacts to Commercial Beekeepers Must be Considered

Commercial beekeepers from across the U.S. have been reporting honey bee kills that coincide with the planting of neonicotinoid-treated corn. Beekeepers, Beyond Pesticides, the Center for Food Safety, Pesticide Action Network, and others have already voiced concern to the agency over its continued lack of definitive action on the prevalence of bee-toxic pesticides in the environment. To that end, a petition requesting the agency to suspend the neonicotinoid, clothianidin, was submitted to the agency in 2012 and was supported by over one million signatures. Commercial beekeeping adds between $15 and $20 billion in economic value to agriculture each year. Without the yield increases made possible by commercial pollination services, food prices would rise, our farm sector would become less competitive globally, and the security and variety of our food supply would diminish.

Beekeepers across the U.S. are still losing hundreds of thousands of hives, and this is only expected to continue with spring plantings. The agency has not considered the synergistic impacts honey bees may experience with aggregate exposures to neonicotinoids and sulfoxaflor. Beekeepers have routinely identified multiple chemicals in their hives, most of which were encountered by their bees foraging on treated crops. Given that both sulfoxaflor and neonicotinoids share a similar mode of action, with sulfoxaflor being more potent in toxicity, would honey bees experience an enhanced, additive toxicological response? Would sub-lethal and chronic impacts to honey bee be more devastating? Even though sulfoxaflor is not currently registered for corn, it is to be used on other bee-attractive crops that are also currently treated with neonicotinoids. Would honey bee losses increase when using both neonicotinoids and sulfoxaflor? These questions have not been considered by the agency, but are being asked by concerned beekeepers.

On a related note, EPA does not have an effective system in place for beekeepers to report bee incidents or have claims investigated. While much of the investigative actions belongs to states, beekeepers are frustrated that the federal agency has not played a major role in investigating incidents. Beekeepers believe that sulfoxaflor will compound their problems with bee losses, and find the agency irresponsible for proposing the registration of another chemical toxic to bees before sufficiently addressing the issues surrounding already registered chemicals that have an undeniable link to current bee losses. To that

[20] Abou-Donia MB, Goldstein LB, et al. 2008. Imidacloprid induces neurobehavioral deficits and increases expression of glial fibrillary acidic protein in the motor cortex and hippocampus in offspring rats following in utero exposure. *J Toxicol Environ Health A.* 71(2):119-30.

end, EPA must carefully consider the impact that registering sulfoxaflor would have on the livelihoods of commercial beekeepers.

Efficacy and Enforcement of Product Label

Sulfoxaflor's proposed label statements attempt to warn the user of the risks to bees. However, these labels seem to be unrealistic in the real world and unenforceable. Statements advising users to make applications before 7.00am or after 7.00pm ignore EPA's own data that the product is still highly toxic up to three days after application. While spraying before and after bees are active in fields may minimize direct contact exposures, residual exposures, at least up to three days, are still highly toxic and do not solve the problem of minimizing risks.

Other label statements that are currently in use include: "Do not apply during bloom"; "Do not apply three days prior to bloom…"; "Do not make more than one application...three days prior to bloom" etc. These have not been practical or enforceable. The agency is aware that label directions such as these are not adhered to in the real-world. Many beekeepers can attest to this. Addressing lack of compliance has been an area the agency has not sufficiently addressed throughout the years. These labels are also unenforceable. Moreover, instructions to minimize pesticide drift continue to be a challenge especially for aerial applications.

Meanwhile, EPA and state enforcement capabilities seem to be almost non-existent. Many states do not have the resources or manpower to enforce product labels, collect incident data, or conduct necessary inspections. Given the challenges that exist with product label compliance, and the declines in bee populations in the U.S., the agency must reconsider granting registration to a product with such high risks to bees without the proper safeguards in place.

Conclusion

Sulfoxaflor's pending registration is worrisome. The agency is aware of the problems related to honey bee populations in the U.S. and has even convened a Scientific Advisory Panel to discuss pollinator protection. EPA is also a part of other interagency activities investigating the bee decline phenomenon. Yet the agency finds it appropriate at this time to register a chemical that is "very highly toxic" to honey bees. This seems to be counterintuitive to the agency's work this past year. The agency believes that reducing the application rate and increasing application intervals is sufficient to protect these pollinators, but the many uncertainties and the lack of real-world data do not support a sulfoxaflor registration. Additionally, sulfoxaflor has been observed to induce developmental abnormalities in rodent species, as well as benign and malignant tumors. These risks cannot be underestimated. Honey bees and other pollinators are facing a crisis right now to which EPA is failing to adequately respond. Recent developments in Europe to protect essential pollinators from chemical assault are underway, while EPA continues to stagnate.

A conditional registration of sulfoxaflor is a violation of the terms set out in Section 3(c)(7)(A), in that registration will pose "unreasonable adverse effects on the environment." This is even more evident

knowing sulfoxaflor's highly toxic nature and given that pollinator populations in the U.S. are already at crisis levels. We therefore urge the agency not to approve sulfoxaflor's registration.

Respectfully,

Nichelle Harriott
Beyond Pesticides

George Hansen
American Beekeeping Federation

Cynthia Palmer
American Bird Conservancy

Richard Andrews
Boulder Innovative Technologies, Inc.

Jeff Anderson
California Minnesota Honey Farms

Tom Theobold
Beekeeper

Appendix 1

The following individuals also support these comments:

Name		**State**
Marilyn	Waltasti	AZ
Lorayne	Robertson	AZ
Cynthia	Roseborough	CA
Jeannie	Mckenzie	CA
Nancy	Black	CA
Sharon	McCarthy	CA
Christina	Roe	CA
Patsy	Lowe	CA
Kleomichele	Leeds	CA
Gail	Camhi	CA
Judith	Smith	CA
Diaa	Bohn	CA
Julie	Ostoich	CA
Cindy	Zimmermann	CA
Laura	Collins	CA
Susan	Eschbach	CA
Don	O	CA
Karan	Zopatti	CA
Chris	Nigro	CO
Peter	Fenstermacher	CT
Anne	Halvey	CT
Beth	Boyer	CT
Edith	Coleman	DE
Douglas	Heise	FL
Lisa	Jacobson	FL
donna	curcio	FL
Andre	Stellingsma	FL
J	Beverly	IL
Jill	Murtagh	IL
Renee	Richards	KY
John	Whyman	LA
Lu	Haner	MA
Marina	Vrouvlianis	MA
Alan	Papscun	MA
David	Bibo	MD
Catherine	Lowry	MD

Margaret	Gallagher	MD
Theresa	Hage	MD
Natalie	Dandekar	MD
Sharon	Dolleman	ME
Anthony	Glaza	MI
Aldon	Maleckas	MI
Brenda	Jellies	MI
rick	weller	MI
Anne	Swanson	MI
Don	Booker	MS
Judith	Foran	NE
sylvia	dwyer	NH
elizabeth	nelson	NJ
Lydia	Morken	NY
Adrienne	Kahn	NY
Lori-Ann	Kohler	NY
Joan	Grishman	NY
d	oper	NY
Floss	Shahbegian	NY
José	Colón	NY
Thomas	Goodhart	NY
Andrea	Sreiber	NY
Neil	Miller	NY
Bob	Klein	NY
Kathleen	Morris	OH
Patricia	Norman	OH
Erik	Van Anglen	OK
Karuna	Gatton	OR
Olga	S	ot
Jan Marinus	Prins	ot
Antonello	Imborgia	ot
Christopher	Evans	ot
Beth	Allen	PA
Sue	Pashko	RI
Robert	Peel	TN
Linda	McDowell	TX
Chris	Reeves	TX
Nancy	Widman	TX
Jerry	Watson	VA
Judith	Bartley	VA

Theodore	Karch	VA
Marie	Luisa	VA
Arielle	Wildman	VA
Amy	Todisco	VT
liz	frey	WA
Kathleen	Beavin	WA
Maria	Kusel	WI
Adria	Cannon	WI
Pamela	Gallegos	WI
Nancy	Hayden	WI