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Assistant Administrator  
Office of Prevention, Pesticides and Toxic Substances  
US Environmental Protection Agency  
Ariel Rios Building  
1200 Pennsylvania Ave., N.W.  
Washington, DC 20460

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Subject: *Nicotine Bees*, a new film about the honeybee die-off issue

Dear Mr. Owens:

I am the Director of a new film called *Nicotine Bees*, a documentary just released on the serious worldwide, simultaneous die-offs of the honeybee. Your courtesy DVD copy of the film is attached, and I will also send courtesy copies to the other members of your staff listed below. The web address for the film is: [NicotineBees.com](http://NicotineBees.com).

For two years, we filmed across the US, in Germany, in Canada and in India, and spoke with many experts, beekeepers and farmers. We think the honeybee die-off situation is grave, worsening, and yet has very direct explanations - contrary to earlier reports.

Although the bees have been in a slow decline for years, something else started in 2005-2006: a sharp and catastrophic collapse of bee colonies in dozens of countries simultaneously - with similar unusual honeybee behaviors. This coincided with a surge in the use of neonicotinyl pesticides - especially in their use as part of systemic seed treatments.

The consequences for our food supplies and for how our regulatory system functions are considerable. We believe the situations in Europe, Canada and other nations are also grave, for reasons similar to those in the US. It is encouraging and informative that some EU-member nations have taken successful actions recently that resulted in improvements to the honeybee situation. For example, Italy has reportedly banned several uses of neonicotinoids with highly successful results for honeybees.

We think this crisis is not mysterious. The answers are relatively clear-cut, from evidence across the U.S., numerous studies in Europe and Canada. Neonicotinoid bans in Europe have allowed beekeepers to successfully restore their colonies.

In the film, we tried to systematically rule-out some of the other widely-reported possible causes of this massive die-off to find the one underlying explanation that really works: all over the world, at the same time, with the same bizarre behaviors: bees simply leave their precious honey and young bees behind. They don't come home.

As you will see in the film, the neonicotinoid class of pesticides is, we think, a major part of the problem. This is of course a film, rather than a scientific study - but the conclusions resonate with a collective public opinion and a large body of both scientific study and beekeeping wisdom.

This film is partly an extension of my prior experience. In addition to being a filmmaker, I personally worked with private companies where the USEPA was a client or an enforcer, for more than 26 years, on CERCLA, RCRA, DOD and DOE projects, on Brownfield redevelopment, and for private-sector clients.

Several considerations became apparent during our research, interviews and filming that are critical parts of the honeybee die-off story. We understand the USEPA's requirements for following Fungicide, Insecticide and Rodenticide Act (FIFRA) regulations, and suggest the following items allow the USEPA Administrator to suspend registrations under the provisions of FIFRA in "**7 USC Chapter 6 Subchapter II § 136a(c)(2)(B) Additional data**"

### **Not Considered: New Data**

**1. Worldwide, simultaneous bee dieoffs are easily explained by nicotine pesticide use.** The 'body of evidence' for problems with nicotine pesticides is substantially larger now than at the time of most of their current registrations, for most of their current uses. It is now clear that the collapse of honeybees is:

- a. Worldwide in extent;
- b. *Simultaneous* worldwide, beginning in about an 18-month range;
- c. Associated with very strange bee behaviors;

Please note that neonicotinyl pesticides seem to pass this 3-part test – unlike other explanations;

**2. Nicotine pesticides were found in high percentages of the food in USEPA tests – especially in children's lunch foods such as apple juice.** Residual neonicotinoid concentrations were found commonly in recent food testing by USEPA. Problematically, significant neonicotinoid concentrations were found in fruit juices consumed by children in school lunch programs. Dr. Charles Benbrook describes this problem in the film. It is not clear if the neonicotinoid registration process included risk from food residuals issues, child risk/exposure issues, or synergies from the multiple residual pesticides and inert ingredients found in the food samples;

**3. Widespread use of nicotine pesticides in seed treatments is a serious problem.** Seed treatments are clearly part of the problem – most seeds are now routinely coated with nicotine pesticides, *causing the entire plant to become toxic (systemic toxicity)*: plants we eat, and plants bees forage on. The surge in seed treatments coincided closely with the crash in honeybee populations;

**4. Soil persistence from some neonicotinoid uses is extreme, reportedly beyond 500 days in some cases.** The data regarding soil persistence are so clear-cut, it is difficult to understand how approvals were made, or if the soil persistence data were considered during the approval process for the majority of neonicotinoids;

5. **The State of California (reportedly now with USEPA participation) has asked for a re-evaluation of 282 pesticides in connection with honeybee die-offs** – we support this action. Environmental persistence and accumulation were specifically cited as parts of the reason for this action;
6. **Guttation water contamination was not tested and is now understood to be a large source of honeybee losses.** The phenomenon of "guttation" is a well-known major pathway for neonicotinoids into the environment (see <http://en.wikipedia.org/wiki/Guttation>) that we currently understand was not considered during the registrations for any known neonicotinyls. Since this is a well-understood phenomenon, it is unclear how pesticide approvals were made without testing guttation water for its impact to bee and beneficial insects. Test conducted by scientists in Italy and Germany show that guttation water contains very high levels nicotine pesticide toxins. Bees collect this water in the morning hours. Concentrations found far exceed even the levels used when spraying crops with neonicotinoids, and are highly toxic to bees;

#### **Not Considered: Economic Losses from Nicotine Pesticides' Use**

7. **Economic losses to farmers from *reduced crop yields due to decreased pollinator effectiveness* or beekeepers' direct losses, were, apparently, not considered in the neonicotinoid registration process** as countervailing to the potential for crop losses from insect damage. These offsetting economic considerations clearly fall under NEPA 9-criteria review;
8. **Whoever advised farmers and beekeepers didn't do a good job warning them.** Farmers and beekeepers didn't expect sub-lethal nicotine pesticide effects to be so toxic to the bees they depended on for pollination, so they were unprepared, causing huge economic losses to farmers using pollination services, and directly to beekeepers. Since LD50 concentrations are the focus of much FIFRA evaluation, we feel strongly that USEPA pre-registration testing must be expanded to include sub-lethal effects to economically valuable beneficial insects such as honeybees and other pollinators;

#### **Problem: The Public was Restricted by Current Rules**

9. **The 'Data Quality Act' requirements appear to have adversely affected the public's ability to petition the government for evaluations of actual or perceived damages to honeybees, crop loss or human health.** Because there is no independent testing available within the means of the public, the Data Quality Act interferes with the public's abilities to fully comment on new pesticide registrations. By requiring very stringent and very expensive laboratory analysis Quality Assurance/Quality Controls (effectively the equivalent of CERCLA 'CLP' protocols), laypersons such as beekeepers and farmers are unable to provide data USEPA will officially recognize. This burden, in my view, prevents the public from *petitioning the Government for a redress of grievances*. To provide relief to legitimately interested public parties, the USEPA could alternatively provide the public with sample analysis, for example, at its Ft. Meade, Maryland laboratories. No-cost sample analysis is provided to EPA Regional offices, often via their Ombuds-person, for Superfund sites - to address public groups' concerns.

USEPA laboratories could and should be funded to analyze for pesticides/herbicides on behalf of legitimate petitioners whose means cannot hope to match those of the registrants.

10. **It is inappropriate for pesticides to be registered before the public knows how to analyze them.** Unless the public can analyze a substance, how can it know if there is a problem via independent testing? In other words, the public has no recourse to suspected impacts. Currently, almost no independent labs know how to analyze neonicotinyls, or the inevitable successor pesticides.
11. **Pesticide registrants need to provide USEPA and the public with approved analysis methods prior to registration.** Each registrant needs to provide the USEPA with approved laboratory analysis methods and laboratory reference standards for each FIFRA-regulated substance before each registration is approved. This would *prevent the registrant from being the only party capable of analyzing each new substance*. Particularly for new Active Ingredients (AIs), the pesticide registrant's lab is the only one capable of analyzing these new chemicals. Thus, when the registrant claims 'no harm,' nobody is capable of refuting that claim – delaying for many years the appropriate government response.

### **Problems: Testing was Incapable of Finding Some Major Problems**

#### **12. Independent USEPA labs (both EPA-internal and CLP-labs) need:**

- The equipment and reference standards needed to perform independent analyses of environmental samples containing neonicotinyls;
- Analysis must be routinely done for important but difficult-to-analyze media such as honey, wax, nectar, pollen and guttation water – this required methods and standards be developed and made widely available to the public;
- Sampling methods and analysis protocols need to be finalized so that other private labs can use USEPA-approved methods;
- “As-applied testing” of fully-blended pesticide products must be added prior to registration, as studies repeatedly show that the combination of ‘Inerts’ with Active Ingredients are clearly far more toxic than Active Ingredients alone;
- Sub-Lethal Effects Testing of beneficial insects’ response to as-applied pesticides must be incorporated into testing prior to registration;

13. **Industry's own-product data cannot serve as a template to justify good-conduct waivers of subsequent products or uses.** We found during our research for the film that independent testing almost ubiquitously found neonicotinoids to be far more toxic than industry's tests of its own products.

14. **Testing methodologies capable of evaluating this problem were not required as a part of neonicotinyl pesticide registration**, including testing on beneficial insects.
15. **Innovative testing proposed by legitimate interested parties should be allowed for the many groups with special knowledge of problematic conditions.** Beekeepers suspected the current issue long before it became catastrophic – but were prohibited from submitting their own analysis results. To assist these responsible groups, *testing services should be offered by USEPA labs*. Innovative test methods must be specifically permitted. Cutting-edge test methodologies are usually ‘higher quality’ than conventional test methods that were unable to quantify actual observations. It took such innovative testing by Professor Dr. Jürgen Tautz to quantify what beekeepers’ observations had already noted about strange bee behavior near seed-treated fields;
16. **Major crop losses from reduced honeybee pollination services can clearly exist at sub-lethal neonicotinoid concentrations** – please see the well-known work of Professor Dr. Jürgen Tautz in Germany. As we understand it, sub-lethal effects’ testing of currently registered pesticides was not generally performed for beneficial insects.

#### **Problem: Major Risks were Not Evaluated**

17. **There is insufficient ‘independent laboratory’ testing of pesticides.** Registrants’ data so often undershoots the risk findings from 3rd-party risk assessors, that industry’s own-product data cannot be accepted at face value. USEPA data or CLP contract lab data should be a far larger part of evaluations;
18. **Numerous neonicotinoid registrations were apparently issued without the required follow-up or complete testing** – as emergency approvals, without follow-up testing;
19. **There has been no comprehensive overview by the USEPA of the many, many studies of risk from neonicotinoids we are aware of, especially for imidacloprid, the most evaluated Active Ingredient.** The sheer number of studies we found is now so large that one might logically ask ‘Why didn’t we already know about this problem?’;
20. **So-Called ‘Inert ingredients’ can make a farm field a hazardous-waste site.** When ‘Inerts’ are blended with the pesticides, the resulting ‘as-applied’ mixtures are routinely not tested as part of the pesticides’ registration process – but scientific findings suggest Active Ingredients are more toxic by far, in combination with the ‘inert’ ingredients. The registrants’ claims of ‘proprietary’ inert blends appear spurious: a single GS/MS run will tell anyone what these are – so competitors are unlikely to be unaware.

**We think the pesticides’ as-applied mixtures must be tested.** When we compared RCRA hazardous-waste listing concentrations to pesticides’ allowable ‘inert ingredients’ concentrations, we found that dozens of pesticide ‘inert ingredients’ can be applied at concentrations that would effectively render a farm field a hazardous-waste site. *This could present a risk to farmers and their*

*families*, and to honeybees and other environmental receptors. It appears to be allowable under FIFRA for USEPA to require testing of as-applied mixtures. Ad-hoc blends of pesticides and other products must be prohibited on product labels; farmers are not currently warned of the risks to themselves or to beneficial insects from so-called “Tank Mixes” that blend many products into one, prior to application;

We therefore propose a 2-year suspension of most neonicotinoid uses in an appropriate ‘test region’ of the U.S., such as Florida or California, that was both hard-hit by the honeybee dieoffs – and depends on honeybees/pollinators for the success for many of its crops.

This will allow the USEPA to determine if a ban can produce the rebounding honeybee populations such as Italy found from a similar ban.

In conclusion, we think a relatively strong law like FIFRA can be better enforced with straightforward action on the above measures – without any new laws - just action on existing statutes.

Respectfully,

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Cc: Lisa Jackson, USEPA Administrator  
Nancy Sutley, Chair, White House Council on Environmental Quality  
Tom Vilsack, Secretary of Department of Agriculture  
Jim Jones, USEPA, Director of Pesticides Programs  
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