Message

**From**: Pracheil, Brad [brad.pracheil@nebraska.gov]
**Sent**: 5/29/2019 11:58:31 PM
**To**: Terriquez, Joe [terriquez.joe@epa.gov]; Merrill, Raymond [Merrill.Raymond@epa.gov]; R7-RO2.C-C09-6/R7-RO [R7-RO2.C-C09-6@epa.gov]
**CC**: Field, Jeff [Field.Jeff@epa.gov]; Gullett, Brian [Gullett.Brian@epa.gov]; Todd Ellis [todd.ellis@nebraska.gov]
**Subject**: Re: Test Methods for Insecticides and Fungicides

Works for us

Later
Brad

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**From:** Terriquez, Joe <terriquez.joe@epa.gov>
**Sent:** Wednesday, May 29, 2019 2:11:13 PM
**To:** Merrill, Raymond; R7-RO2.C-C09-6/R7-RO
**Cc:** Field, Jeff; Gullett, Brian; Ellis, Todd; Pracheil, Brad
**Subject:** Test Methods for Insecticides and Fungicides
**When:** Thursday, June 6, 2019 1:00 PM-2:00 PM.
**Where:** Call In 202-991-0477 Code 8281813

NDEQ folks let me know if this works for you.

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**From:** Merrill, Raymond
**Sent:** Wednesday, May 29, 2019 1:54 PM
**To:** Terriquez, Joe <terriquez.joe@epa.gov>
**Cc:** Field, Jeff <Field.Jeff@epa.gov>; Gullett, Brian <Gullett.Brian@epa.gov>; Todd Ellis <todd.ellis@nebraska.gov>; Pracheil, Brad <brad.pracheil@nebraska.gov>
**Subject:** RE: Test Methods for Insecticides and Fungicides

My outlook calendar is usually up to date if that makes things easier to schedule a meeting.
If you have a general time frame for the call, how soon you want to discuss, and what weeks work for the state agencies, then I could offer times and days when my calendar is clear.

Ray

Raymond Merrill Ph.D. (Ray)| USEPA/OAQPS/AQAD/Measurement Technology Group
109 TW Alexander Drive (E143-02) | Research Triangle Park, NC 27711
email: Merrill.Raymond@epa.gov | Phone (919)541-5225 | Fax: (919) 541-0516

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**From:** Terriquez, Joe
**Sent:** Wednesday, May 29, 2019 2:09 PM
**To:** Merrill, Raymond <Merrill.Raymond@epa.gov>
**Cc:** Field, Jeff <Field.Jeff@epa.gov>; Gullett, Brian <Gullett.Brian@epa.gov>; Todd Ellis <todd.ellis@nebraska.gov>; Pracheil, Brad <brad.pracheil@nebraska.gov>
**Subject:** RE: Test Methods for Insecticides and Fungicides

Ray,

Thank you very much. I think it would be beneficial for the NDEQ and EPA to discuss what is practical and what would be needed to make testing as successful as possible for ensuring that human health and the environment is being protected.

Please let me know if your calendars are up to date and I will arrange a call for everyone to discuss. I will also add any documents for the sampling results for constituents that have been found.

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**From:** Merrill, Raymond
**Sent:** Wednesday, May 29, 2019 12:41 PM
**To:** Terriquez, Joe <terriquez.joe@epa.gov>
**Cc:** Field, Jeff <Field.Jeff@epa.gov>; Gullett, Brian <Gullett.Brian@epa.gov>; Merrill, Raymond <Merrill.Raymond@epa.gov>
**Subject:** RE: Test Methods for Insecticides and Fungicides

Joe
This topic may require a longer discussion.
The short answer is collection of semivolatile compounds in stacks exhaust with SW-846 Method 0010, (Modified Method 5), followed by extraction (SW-846 Method 3540) of the filter and sorbent with the appropriate solvent, typically methylene chloride, concentration if necessary and analysis by any number of methods depending on the pesticide or fungicide you expect in the samples. SW-846 method 8318, 8321, 8081, 8141 come to mind. These methods typically use a GC or LC to perform separation of the complex mixture into simpler components and then a specific detection (ECD, MS, MS-MS, AED etc) that is calibrated for the target compounds of interest.

Without a specific list of targets, its hard for me to get more specific.

Does this help?
You might also contact Brian Gullett in ORD's AEMD since he does considerable work on biomass burning.

Ray
Raymond Merrill Ph.D. (Ray)| USEPA/OAQPS/AQAD/Measurement Technology Group
109 TW Alexander Drive (E143-02) | Research Triangle Park, NC 27711
email: Merrill.Raymond@epa.gov | Phone (919)541-5225 | Fax: (919) 541-0516

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**From:** Terriquez, Joe
**Sent:** Tuesday, May 28, 2019 11:23 AM
**To:** Merrill, Raymond <Merrill.Raymond@epa.gov>
**Cc:** Field, Jeff <Field.Jeff@epa.gov>
**Subject:** RE: Test Methods for Insecticides and Fungicides

Ray,
I was wondering if you have any ideas or thoughts on this issue or if you have been able to give it some thought.

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**From:** Terriquez, Joe
**Sent:** Friday, May 17, 2019 8:29 AM
**To:** Merrill, Raymond <Merrill.Raymond@epa.gov>
**Subject:** FW: Test Methods for Insecticides and Fungicides

Ray,

I was talking to Cary Secrest about how to test for Pesticides and Fungicides in a unit that is running treated products through a biochar process. He said that you may have an idea on how to test the stack. The best ideas that we have kicked up was to run a Method 5 then test the impinger liquid.

Let me know if you have any ideas on this. Above are some of the test readings that came back from the lab for the product that would be used as feed for the biochar process.

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**From:** Pracheil, Brad <brad.pracheil@nebraska.gov>
**Sent:** Wednesday, May 01, 2019 7:33 AM
**To:** Terriquez, Joe <terriquez.joe@epa.gov>
**Subject:** RE: Test Methods for Insecticides and Fungicides

This is what the test results show in the wet cake that is being land applied. Our land section is working with Nebraska department of Ag on this. Would your FIFRA group have concerns? This wet cake is also going to be made into biochar that I have to figure out the test way to test.

Later
Brad

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**From:** Terriquez, Joe <terriquez.joe@epa.gov>
**Sent:** Tuesday, April 30, 2019 2:34 PM
**To:** Pracheil, Brad <brad.pracheil@nebraska.gov>
**Subject:** FW: Test Methods for Insecticides and Fungicides

Brad I cannot remember if I sent this to you.

Also for a test method could we try to look at the condensate in the impingers and test to water for the presence of pesticides and fungicides?

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**From:** Hackett, Shawn
**Sent:** Tuesday, April 02, 2019 12:49 PM
**To:** Terriquez, Joe <terriquez.joe@epa.gov>
**Subject:** FW: Test Methods for Insecticides and Fungicides

Joe,
I was able to get this piece of information from Ryan Mroz who works in the Office of Pesticide Programs, Environmental Fate and Effects Division. I hope this might be what you need to evaluate the Biochar process.


## Shawn Hackett
FIFRA Project Officer for Missouri | FIFRA Inspector
U.S. EPA - Region 7 | 11201 Renner Blvd. | Lenexa, KS 66219 | (913) 551-7774
Hackett.Shawn@epa.gov


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**From:** Mroz, Ryan
**Sent:** Tuesday, April 02, 2019 12:14 PM
**To:** Hackett, Shawn <hackett.shawn@epa.gov>
**Cc:** Housenger, Justin <Housenger.Justin@epa.gov>; Sappington, Keith <Sappington.Keith@epa.gov>
**Subject:** RE: Test Methods for Insecticides and Fungicides

Hi Shawn,

The chemist in another division said he was able to find the thermal decomposition of imidacloprid to be 200-230 degrees C.

Thanks,

Ryan

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**From:** Hackett, Shawn
**Sent:** Monday, March 25, 2019 3:40 PM
**To:** Mroz, Ryan <Mroz.Ryan@epa.gov>
**Cc:** Housenger, Justin <Housenger.Justin@epa.gov>; Sappington, Keith <Sappington.Keith@epa.gov>
**Subject:** RE: Test Methods for Insecticides and Fungicides

Thanks. I spoke last week with the staff in the air program. Their concern is whether or not the treated seed corn when put through the Biochar process will release pesticide residues into the air. I told them I don't have an idea exactly what happens during the process. Not sure if you knew the answer based on your research.


## Shawn Hackett

FIFRA Project Officer for Missouri | FIFRA Inspector
U.S. EPA - Region 7 | 11201 Renner Blvd. | Lenexa, KS 66219 | (913) 551-7774
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**From:** Mroz, Ryan
**Sent:** Monday, March 25, 2019 2:35 PM
**To:** Hackett, Shawn <hackett.shawn@epa.gov>
**Cc:** Housenger, Justin <Housenger.Justin@epa.gov>; Sappington, Keith <Sappington.Keith@epa.gov>
**Subject:** RE: Test Methods for Insecticides and Fungicides

Hi Shawn,

I just wanted to you to know we haven't forgotten about you, and are still looking for some information. We may have pyrolysis studies for use on tobacco if there are likely to be quantifiable residues on cured tobacco.

Some of the searching if found were articles of sorption of imidacloprid to biochar as a soil amendment, but nothing directly on contaminated things being turned into biochar material.

Thanks,

Ryan

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**From:** Hackett, Shawn
**Sent:** Wednesday, March 20, 2019 9:54 AM
**To:** Mroz, Ryan <Mroz.Ryan@epa.gov>
**Cc:** Housenger, Justin <Housenger.Justin@epa.gov>; Sappington, Keith <Sappington.Keith@epa.gov>
**Subject:** RE: Test Methods for Insecticides and Fungicides

Ryan,

Thanks for this information. I have a slightly different take on what they may be wanting to do. From the beginning of the second paragraph of the article you forwarded to me.

*"Biochar is a charcoal-like substance that's made by burning organic material from agricultural and forestry wastes (also called biomass) in a controlled process called pyrolysis."*

I believe they will want to take the distillers grain (an organic material) that contains pesticide residues, run it through the Biochar process (pyrolysis) and then apply it to the farm fields. There is still one question that will have to be answered. What happens to the pesticide residues during and upon completion of the Biochar process? If the Biochar is sampled will it still contain detectable pesticide residues? If so, I believe based on the pesticide/seed labels it still will not be able to be land applied.

**Shawn Hackett**
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Hackett.Shawn@epa.gov

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**From:** Mroz, Ryan
**Sent:** Wednesday, March 20, 2019 8:00 AM
**To:** Hackett, Shawn <hackett.shawn@epa.gov>
**Cc:** Housenger, Justin <Housenger.Justin@epa.gov>; Sappington, Keith <Sappington.Keith@epa.gov>
**Subject:** RE: Test Methods for Insecticides and Fungicides

Hi Shawn,

I emailed a few contacts to see if they have any information.

IT looks like Biochar is a charcoal like substance that may be added back to the land, so it seems like a question would be does it get sequestered with the carbon, or break down.

https://regenerationinternational.org/2018/05/16/what-is-biochar/

I'll let you know if we get any information back.

Thanks,

Ryan

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**From:** Hackett, Shawn
**Sent:** Tuesday, March 19, 2019 3:37 PM
**To:** Mroz, Ryan <Mroz.Ryan@epa.gov>
**Cc:** Housenger, Justin <Housenger.Justin@epa.gov>; Sappington, Keith <Sappington.Keith@epa.gov>
**Subject:** RE: Test Methods for Insecticides and Fungicides

Ryan,
These are individual seeds that have been treated with pesticides (e.g. a bag of imidacloprid treated coated seeds). Generally these seeds are treated with both an insecticide (imidacloprid) and a fungicide (various active ingredients).

The labels of the pesticides applied to the seeds and the seed bag labels state that the treated seed can be used for ethanol production but the resulting distillers grain **CAN'T** be used for animal feed.

The distillers grain has to be analyzed for pesticide residues. If not detected the distillers grain can be land applied. If residues are detected it **CAN'T** be land applied. The detection limits vary from lab to lab but generally should be in the low ppb.

That leaves burning as a possible method of disposal. The Nebraska Dept. of Environmental Quality is looking for information concerning any research or studies that have been conducted on what happens to these pesticides when they are burned?

**Shawn Hackett**
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**From:** Mroz, Ryan
**Sent:** Tuesday, March 19, 2019 2:01 PM
**To:** Hackett, Shawn <hackett.shawn@epa.gov>
**Cc:** Housenger, Justin <Housenger.Justin@epa.gov>; Sappington, Keith <Sappington.Keith@epa.gov>
**Subject:** RE: Test Methods for Insecticides and Fungicides

Hi Shawn,

I apologize for the continued follow up. Are these individual seeds that have been treated with pesticides (e.g. a bag of imidacloprid treated coated seeds) or the resulting product, (i.e. the corn/seeds grown from these treated seeds after they were planted).

Either way the resulting byproduct has (presumably) residues in it and they want to properly dispose of it is what I gather. Do you have a sense of what detection limits they're basing their findings on?

As an aside, although maybe not relevant to your question, do you have a sense of how the distillers grain would be land applied? Cursory reading suggests it's a food source for livestock.

Thanks,

Ryan

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**From:** Hackett, Shawn
**Sent:** Tuesday, March 19, 2019 2:08 PM
**To:** Mroz, Ryan <Mroz.Ryan@epa.gov>
**Cc:** Housenger, Justin <Housenger.Justin@epa.gov>; Sappington, Keith <Sappington.Keith@epa.gov>
**Subject:** RE: Test Methods for Insecticides and Fungicides

This is seed corn treated that has been treated with pesticides but did not end up being sold by the seed dealers. It was then sold to an ethanol plant that made ethanol from it. The ethanol plant must have lab results showing detectable pesticides in the distillers grain so it can't be land applied so they are looking to burn (biochar) it. I am not familiar with biochar. Yes, they are looking for information of what happens to these pesticides once burned.

**Shawn Hackett**
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U.S. EPA - Region 7 | 11201 Renner Blvd. | Lenexa, KS 66219 | (913) 551-7774

Hackett.Shawn@epa.gov

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**From:** Mroz, Ryan
**Sent:** Tuesday, March 19, 2019 12:20 PM
**To:** Hackett, Shawn <hackett.shawn@epa.gov>
**Cc:** Housenger, Justin <Housenger.Justin@epa.gov>; Sappington, Keith <Sappington.Keith@epa.gov>
**Subject:** FW: Test Methods for Insecticides and Fungicides

Hi Shawn,

I'm an acting team leader for the environmental risk branch that has imidacloprid in it. I just wanted to confirm the process in regards to your question. Is this in regard to corn that has been grown (for seed), used to produce ethanol, then the resulting waste corn products (presumably in some sort of pulp) get burned?

And you're looking for information on impacts, or residues, or anything resulting from the burning? Is there anything I have missed?

Let me know and we can get you a better answer.

Thanks,

Ryan Mroz, Acting RAPL
Ecological Risk Branch 5
Environmental Fate and Effects Division (7507P)
Office of Pesticides Programs
US Environmental Protection Agency
T: 703.347.0428

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**From:** Sappington, Keith
**Sent:** Monday, March 18, 2019 2:50 PM
**To:** Housenger, Justin <Housenger.Justin@epa.gov>
**Cc:** Mroz, Ryan <Mroz.Ryan@epa.gov>
**Subject:** FW: Test Methods for Insecticides and Fungicides

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**From:** Hackett, Shawn
**Sent:** Monday, March 18, 2019 12:53 PM
**To:** Ruhman, Mohammed <Ruhman.Mohammed@epa.gov>; Sappington, Keith <Sappington.Keith@epa.gov>; Niesen, Meghann <Niesen.Meghann@epa.gov>; Yingling, Hannah <Yingling.Hannah@epa.gov>
**Subject:** Test Methods for Insecticides and Fungicides

Hello everyone,
I had a question come up from a state in Region 7 and was not sure who to ask so I am addressing my email to all of you.

In Nebraska an ethanol plant is using left over seed corn that has been treated with pesticides to make ethanol. Imidacloprid is one of the pesticides that have been applied to the seed corn. The operators of the ethanol plant that uses the seed corn understand that the label specifically states that they are not to land apply the "distillers grain" if pesticides are above Non-Detectable limits. The facility receiving the wet cake from the ethanol plant is planning to put it in a biochar machine, which brings the real question does anyone know of any research or studies that have been conducted on what happens to these pesticides, when they are burned?

The Nebraska Dept. of Agriculture and Nebraska Dept. of Environmental Quality is requesting any information we have and can provide to them. Thanks.

**Shawn Hackett**
FIFRA Project Officer for Missouri | FIFRA Inspector
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Hackett.Shawn@epa.gov