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BOARD OF PESTICIDES CONTROL
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Memorandum

To: Board of Pesticides Control

From: Pamela J. Bryer, Ph.D. | Pesticides Toxicologist | Maine Board of Pesticides Control

Subject: Pesticide Sales and Use Reporting Update

Date: December 2, 2022

This update memo is intended to provide the status of ongoing data entry of pesticide use and sales data. Perpetual interest in pesticide use and sales data prompted the BPC to hire a temporary worker to manually enter annual use summary data submitted by licensed commercial applicators. The intention of this work is to compile as many sales and use records as possible, with the goal of entering at least five years of data.

Sales Data Entry-
To date, sales data have only been partially entered.

Use Data Entry-
Three years of application data (2018, 2019, & 2020) have been entered into the Maine BPC on-line portal database (Maine Pesticide Enforcement, Registration and Licensing System or MePERLS).

Despite continual interest from the public, fewer than ten states publish pesticide use data. This lack of data is largely because of the huge effort required to collect and process these records. Pesticide application records data entry requires advanced knowledge of the material and comfort with chemistry basics. In Maine, there are roughly 13,000 unique product labels that can be used which means that it is difficult to become familiar with the entries. The data entry is time-consuming for several reasons. Annual use summaries are submitted as paper documents and as such, each entry must be entered into the database by hand. As data are entered omissions, poor handwriting, and mistakes become obvious and the applicator must be contacted to clarify the issue. The first year's worth of data took roughly five to six months at 20 hours per week to be entered into MePERLS. Subsequent years have taken less time.

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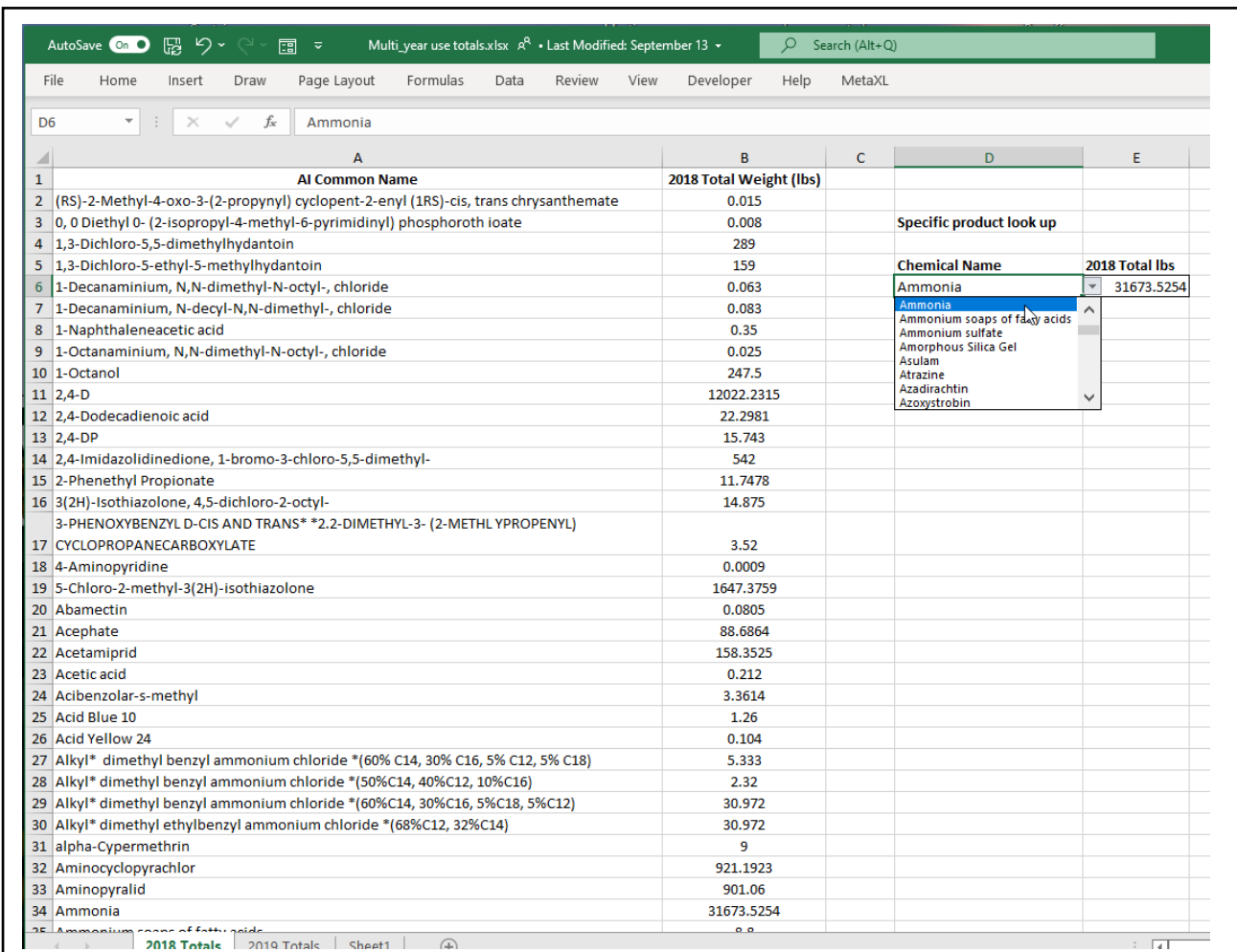**Agriculture**
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Use Statistics-

The data entered into the MePERLS database are not serviceable data and require significant 'clean-up'. Significant chemistry typographical errors in the reported chemical names occur frequently. Different names for the same compound also create confusion. When this happens, active ingredient synonyms must be sought and the entry re-labeled prior to compiling lists. Additionally, active ingredients with multiple forms are categorized together, for instance, glyphosate isopropylamine salt and glyphosate ammonium salt are both reported simply as glyphosate. Each year's list clean-up and re-organization can take days. This summer, we developed formulas for use in Excel spreadsheets that greatly reduces the amount of time dataset clean-up takes. Currently, a year's worth of use summaries takes about an afternoon for clean-up to go from the database entries to a presentable table tallying the entire year.

Future functionality to our data presentation is to provide a list of the 'sites' as entered by the applicators for each active ingredient using the dropdown feature, e.g., after dazomet and its weight would be a listing as follows: "paper machine", "pigment tanks", "pigment tank".

	A	B	C	D	E
1	AI Common Name	2018 Total Weight (lbs)			
2	(RS)-2-Methyl-4-oxo-3-(2-propynyl) cyclopent-2-enyl (1RS)-cis, trans chrysanthemate	0.015			
3	0, 0 Diethyl 0- (2-isopropyl-4-methyl-6-pyrimidinyl) phosphoroth ioate	0.008		Specific product look up	
4	1,3-Dichloro-5,5-dimethylhydantoin	289			
5	1,3-Dichloro-5-ethyl-5-methylhydantoin	159		Chemical Name	2018 Total lbs
6	1-Decanaminium, N,N-dimethyl-N-octyl-, chloride	0.063		Ammonia	31673.5254
7	1-Decanaminium, N-decyl-N,N-dimethyl-, chloride	0.083		Ammonia / Ammonium soaps of fatty acids / Ammonium sulfate / Amorphous Silica Gel / Asulam / Atrazine / Azadirachtin / Azoxystrobin	
8	1-Naphthaleneacetic acid	0.35			
9	1-Octanaminium, N,N-dimethyl-N-octyl-, chloride	0.025			
10	1-Octanol	247.5			
11	2,4-D	12022.2315			
12	2,4-Dodecadienoic acid	22.2981			
13	2,4-DP	15.743			
14	2,4-Imidazolidinedione, 1-bromo-3-chloro-5,5-dimethyl-	542			
15	2-Phenethyl Propionate	11.7478			
16	3(2H)-Isothiazolone, 4,5-dichloro-2-octyl-	14.875			
17	3-PHENOXYBENZYL D-CIS AND TRANS* *2.2-DIMETHYL-3- (2-METHL YPROPENYL) CYCLOPROPANECARBOXYLATE	3.52			
18	4-Aminopyridine	0.0009			
19	5-Chloro-2-methyl-3(2H)-isothiazolone	1647.3759			
20	Abamectin	0.0805			
21	Acephate	88.6864			
22	Acetamiprid	158.3525			
23	Acetic acid	0.212			
24	Acibenzolar-s-methyl	3.3614			
25	Acid Blue 10	1.26			
26	Acid Yellow 24	0.104			
27	Alkyl* dimethyl benzyl ammonium chloride *(60% C14, 30% C16, 5% C12, 5% C18)	5.333			
28	Alkyl* dimethyl benzyl ammonium chloride *(50%C14, 40%C12, 10%C16)	2.32			
29	Alkyl* dimethyl benzyl ammonium chloride *(60%C14, 30%C16, 5%C18, 5%C12)	30.972			
30	Alkyl* dimethyl ethylbenzyl ammonium chloride *(68%C12, 32%C14)	30.972			
31	alpha-Cypermethrin	9			
32	Aminocyclopyrachlor	921.1923			
33	Aminopyralid	901.06			
34	Ammonia	31673.5254			

Screenshot of 2018 pesticide use summary table. These data and this drop-down search tool are planned for inclusion on the BPC website.

Examples of difficulties summarizing data-
Staff have determined that reliably designating site of use will not be possible without some change in the record-keeping/ reporting process. [As a reminder, 'site' is a term of art in pesticides which very specifically links the label language to the pesticide use, where it describes the intended target. It identifies where the product will be used, i.e., which crop or structure, it is not a physical location where the pesticide was applied.] Additional applicator education on how to fill out the form or a change in the form's design are likely needed and ideally both would occur. Some of the entries are entered wrong, but the larger issue is that the data we need to summarize isn't being asked for in a manner that results in consistent submission. For example, for the purposes of data summarization, it would be appropriate to separate residential turf from school turf from commercial lot turf. It is not possible to scrutinize each row of data and determine, based on the application company and the active ingredient, which use is most likely.

Synonyms of -turf-
Lawn
Rough
Field
Yard
Athletic Facilities
Greens

Data originating from commercial use summary reports tells a portion of the story but summarizing use for any of the important commodity groups is not possible. Due to growers relying on a mixture of commercial and private licenses our records will always only represent a very small portion of actual use patterns. In previous years, BPC inspectors implemented an anonymous Ag Use Survey during inspections that allowed staff a mechanism to understand how pest pressures were being resolved.

The current reported data summarizes the types of pesticides used, the total volume used, and the site. These data do not connect the pesticide used with the intended purpose. Requiring these records of use to be tied to the license category would improve the ability to understand use patterns more clearly.

Currently, the data are frequently used in-house to do specific research and can answer questions like: what companies with X licensure are using this active ingredient? or how often does active ingredient Y appear in our records. The issues mentioned above concern combining all the data into a larger dataset to answer bigger trend questions and that is the current difficulty. The return on investment for the effort put into organizing a useful database is a consideration. If the tallied data do not have a policy purpose additional time and money may not be warranted.

Example of entered use summary data-
The current data aid in understanding the volume of each active ingredient used in the state annually. In the treemap graphic below the size of the rectangle represents the proportion of the total pesticide use that belongs to each specific active ingredient. This representation combines liquid and dry reporting.

2019 Top 20 Active Ingredients Used in Commercial Pesticide Applications