



# Summary of Groundwater Occurrence Data For Proposed NR 140 Pesticide Compounds

Stan Senger – ACM Bureau

WISCONSIN DEPARTMENT OF AGRICULTURE, TRADE AND CONSUMER PROTECTION

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# OVERVIEW – PESTICIDES IN CYCLE 10

- Background
- Pesticides in rulemaking scope
- DATCP groundwater results and occurrence data
- Summary
- Additional information



# BACKGROUND

## Statutory Responsibilities

Ch. 93 – Department of Agriculture, Trade and Consumer Protection

Ch. 94 – Plant Industry

Ch. 160 – Groundwater Protection Standards

Ch. 292 – Remedial Action

## Administrative Rules

Ch.ATCP 29 – Pesticide Use and Control

Ch.ATCP 30 – Pesticide Product Restrictions

Ch.ATCP 31 – Groundwater Protection Program

Ch.ATCP 33 – Fertilizer and Pesticide Bulk Storage

Ch.ATCP 35 - Agricultural Cleanup Program

Ch. NR 140 - Groundwater Quality

NR 700 Series – Env. Protection – Investigation and Remediation of Environmental Contamination



# BACKGROUND

## DATCP Groundwater Monitoring Programs (ch. 160 – Groundwater Protection Standards)

Sampling Program	Wells Sampled	Purpose	Frequency / Number
Statewide Survey	Private potable	Randomly distributed	Occasional / ≈400 per event
Targeted	Private potable	At-risk, near agricultural area	Annual / 50-120 per year
Exceedance	Private potable	Trend, environmental fate	Annual / 20-30 per year
Field Edge	Monitoring	Surveillance/early warning	Annual / 30-90 per year
Irrigation	High Capacity	Surveillance/early warning	New & evolving



# PESTICIDES AND NEWLY PROPOSED NR 140 STANDARDS

Active Ingredient	Proposed ES (µg/l)	Proposed PAL (µg/l)	Comments
Clothianidin	1,000	200	
Imidacloprid	0.2	0.02	
Thiamethoxam	100	10	
Isoxaflutole + Isoxaflutole DKN	3.0	0.3	Isoxaflutole + Diketoneitrile degradate
Isoxaflutole BA	800	160	Benzoic acid degradate of Isoxaflutole
Thiencarbazone-methyl	10	2	
Dacthal MTP + TPA degradates	70	7	Adds the MTP and TPA degradates to the existing Dacthal standard
Glyphosate	10,000	1,000	
Glyphosate AMPA	10,000	2,000	Degradate of Glyphosate
Sulfentrazone	1,000	100	

# DATCP GROUNDWATER RESULTS AND OCCURRENCE DATA

Clothianidin

Proposed NR 140 **ES** / PAL

- Neonicotinoid Insecticide
- Corn, soybean, vegetables, other

**1,000** / 200 (µg/l)

Well Type	Number of Samples Analyzed	Number of Detections			Range Detected* (ug/l)
		Total	<b>&gt;=ES</b>	<b>&gt;=PAL</b>	
Monitoring	687	256	<b>0</b>	0	0.0502 - 3.43
Irrigation	35	16	<b>0</b>	0	0.0719 - 0.602
Private Potable	1,504	74	<b>0</b>	0	0.0552 - 3.88



# DATCP GROUNDWATER RESULTS AND OCCURRENCE DATA

Imidacloprid

Proposed NR 140 **ES** / PAL

- Neonicotinoid Insecticide
- Corn, soybean, vegetables, other

**0.2** / 0.02 (µg/l)

Well Type	Number of Samples Analyzed	Number of Detections			Range Detected* (µg/l)
		Total	<b>&gt;=ES</b>	<b>&gt;=PAL</b>	
Monitoring	725	208	<b>119</b>	89	0.0512 - 6.7
Irrigation	35	20	<b>13</b>	7	0.0592 - 1.87
Private Potable	1,503	75	<b>55</b>	20	0.0521 - 2.19



# DATCP GROUNDWATER RESULTS AND OCCURRENCE DATA

Thiamethoxam

Proposed NR 140 **ES** / PAL

- Neonicotinoid Insecticide
- Corn, soybean, vegetables

**100** / 10 (µg/l)

Well Type	Number of Samples Analyzed	Number of Detections			Range Detected* (ug/l)
		Total	>=ES	>=PAL	
Monitoring	716	226	0	0	0.0561 - 8.93
Irrigation	35	15	0	0	0.0593-0.904
Private Potable	1,510	62	0	0	0.057 - 2.78





# DATCP GROUNDWATER RESULTS AND OCCURRENCE DATA

Isoxaflutole + Isoxaflutole DKN (combined)

Proposed NR 140 **ES** / PAL

- Herbicide
- Current use limited to corn in 12 counties

**3.0** / 0.3 (µg/l)

Well Type	Number of Samples Analyzed	Number of Detections			Range Detected* (ug/l)
		Total	<b>&gt;=ES</b>	<b>&gt;=PAL</b>	
Monitoring	410	0	<b>0</b>	0	
Irrigation	35	0	<b>0</b>	0	
Private Potable	895	0	<b>0</b>	0	



# DATCP GROUNDWATER RESULTS AND OCCURRENCE DATA

## Isoxaflutole BA

- BA = Benzoic acid metabolite of parent Isoxaflutole herbicide
- DATCP does not currently analyze for the BA metabolite of Isoxaflutole
- Registrant studies have detected Isoxaflutole and its degradates in tile drain water, surface water and groundwater

Proposed NR 140 **ES** / PAL

**680** / 160 (µg/l)



# DATCP GROUNDWATER RESULTS AND OCCURRENCE DATA

Thiencarbazone-methyl

Proposed NR 140 **ES** / PAL

- Low use-rate herbicide
- Uses include agricultural, residential, ROW

**10,000** / 2,000 (µg/l)

Well Type	Number of Samples Analyzed	Number of Detections			Range Detected* (ug/l)
		Total	<b>&gt;=ES</b>	<b>&gt;=PAL</b>	
Monitoring	412	1	<b>0</b>	0	0.0667
Irrigation	35	0	<b>0</b>	0	0
Private Potable	996	0	<b>0</b>	0	0



# DATCP GROUNDWATER RESULTS AND OCCURRENCE DATA

Dacthal + MTP and TPA (combined w/Dacthal)

- Degradates of Dacthal Herbicide
- Ornamentals, turf, strawberries, vegetables

Proposed NR 140 **ES** / PAL  
**70** / 7.0 (µg/l)

Well Type	Number of Samples Analyzed	Number of Detections			Range Detected* (ug/l)
		Total	<b>&gt;=ES</b>	<b>&gt;=PAL</b>	
Monitoring	586	60	<b>23</b>	25	0.7 - 445
Irrigation	35	0	<b>0</b>	0	0
Private Potable	973	4	<b>0</b>	1	0.221 - 8.53



# DATCP GROUNDWATER RESULTS AND OCCURRENCE DATA

## Glyphosate

- Herbicide...most-used herbicide in WI
- Uses in agriculture, residential, ROW

Proposed NR 140 **ES** / PAL  
**10,000** / 1,000 ( $\mu\text{g/l}$ )

## Glyphosate-AMPA

- Metabolite of herbicide Glyphosate

Proposed NR 140 **ES** / PAL  
**10,000** / 2,000 ( $\mu\text{g/l}$ )

## Occurrence data

- No detections in 45 field-edge monitoring well samples collected 2019-2020



# DATCP GROUNDWATER RESULTS AND OCCURRENCE DATA

Sulfentrazone

Proposed NR 140 **ES** / PAL

- Herbicide
- Agricultural (soybean), residential, ROW

**1,000** / 100 (µg/l)

Well Type	Number of Samples Analyzed	Number of Detections			Range Detected* (ug/l)
		Total	>=ES	>=PAL	
Monitoring	412	2	0	0	0.0661 - 0.0969
Irrigation	35	0	0	0	0
Private Potable	996	1	0	0	0.288



# SUMMARY

Six proposed NR 140 pesticides were detected in DATCP groundwater monitoring programs:

- Clothianidin
- Imidacloprid
- Thiamethoxam
- Dacthal MTP and TPA
- Thiencarbazone-methyl
- Sulfentrazone

Four proposed NR 140 pesticides were not detected in DATCP groundwater monitoring programs:

- Isoxaflutole + DKN
- Isoxaflutole BA
- Glyphosate
- Glyphosate AMPA



# SUMMARY

- Imidacloprid: detected in private well samples at concentrations exceeding the proposed ES (55 times)
- Dacthal MTP + TPA detected in monitoring well samples at concentrations exceeding the proposed ES (23 times)
- All listed pesticides are used in Wisconsin agricultural settings: many in residential and industrial settings. Greater use increases risk of environmental contamination from use or accidental spills.
- With the exception of Glyphosate and its AMPA degradate, all pesticides on the list exhibit characteristics of high mobility in soil and groundwater





## MORE INFORMATION

Additional information is available on the web:

For pesticide fact sheets visit DATCP at:

[https://datcp.wi.gov/Pages/Programs\\_Services/GroundwaterStdPesticides.aspx](https://datcp.wi.gov/Pages/Programs_Services/GroundwaterStdPesticides.aspx)

For NR 140 standards and the rule making process visit DNR at:

<https://dnr.wi.gov/topic/Groundwater/NR140.html>

For public health and standards information visit DHS at:

<https://www.dhs.wisconsin.gov/water/gws.htm>



# Thank You!



Stan Senger

Hydrogeologist

[stan.senger@wisconsin.gov](mailto:stan.senger@wisconsin.gov)

WISCONSIN DEPARTMENT OF AGRICULTURE, TRADE AND CONSUMER PROTECTION (DATCP)

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