Department of Pesticide Regulation

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VIA: Reevaluation Program
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FROM: Ecotoxicology Program
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SUBJECT: IDENTIFICATION OF CROP RESIDUE STUDIES FOR DEVELOPMENT OF DRAFT PROPOSED POLLINATOR PROTECTION REGULATIONS IN RESPONSE TO THE NEONICOTINOID REEVALUATION

As a part of DPR's neonicotinoid reevaluation, the Director imposed several data requirements including the collection of residue data on representative commodities grown in California. Companies submitted data to fulfill those data requirements. In addition, DPR received data required by U.S. Environmental Protection Agency (U.S. EPA) and voluntary studies submitted by companies. DPR has assessed the data as a whole and has developed draft proposed regulations, dated April 8, 2020, in response to the neonicotinoid reevaluation with the intent to protect pollinator health. This document identifies (1) crop residue studies DPR is currently using to support the application rates and timing restrictions contained in the draft proposed regulations, and (2) all the neonicotinoid crop residue studies DPR received for purposes of the neonicotinoid reevaluation.

Identification of Residue Studies by Crop Group:

For the crop groups for which DPR had acceptable data on file, **Tables 1-10** identify the crop residue studies that DPR is currently relying upon to support the application rate and timing restrictions in the proposed regulations. **Table 11** lists all of the neonicotinoid crop residue studies DPR received for purposes of the neonicotinoid reevaluation.

DPR does not have data on file for the following crop groups and miscellaneous crops: bulb vegetable crop group, herb and spices crop group, vegetables including brassica (cole) crop group, tropical and subtropical fruit (edible and inedible peel) crop groups, coffee, peanuts, globe artichoke, hops, mint, or tobacco. In addition, DPR has no supporting data on file for residue trials on legume vegetables for purposes of developing the draft regulations.

Table 1. Identification of studies to support proposed application rate and timing restriction for grapes, within the berries and small fruits crop groups.

Active Ingredient	Soil Application		Foliar Application	
	Application Rate/Timing	Report Number	Application Rate/Timing	Report Number
Clothianidin	0.2 lbs. ai/A/season Apply up until bud break	Clothianidin VP-38992	0.1 lbs. ai/A/season Apply between post-bloom (all flower hoods fallen) and harvest	Clothianidin VP-38992
Dinotefuran	0.2 lbs. ai/A/season Apply up until bud break	Bridged to VP-38992	0.1 lbs. ai/A/season Apply between post-bloom (all flower hoods fallen) and harvest	Bridged to VP-38992
Imidacloprid	Prohibited	Bridged to VP-38992	0.1 lbs. ai/A/season Apply between post-bloom (all flower hoods fallen) and harvest	Bridged to VP-38992
Thiamethoxam	0.2 lbs. ai/A/season Apply up until bud break	Bridged to VP-38992	0.1 lbs. ai/A/season Apply between post-bloom (all flower hoods fallen) and harvest	Bridged to VP-38992

The specified application rates are in units of pounds of active ingredient (ai) per acre (A) per growing season.

Table 2. Identification of studies to support proposed application rate and timing restriction for the **Cereal Grains** Crop Groups**.**

Active Ingredient	Soil Application		Foliar Application	
	Application Rate/Timing	Report Number	Application Rate/Timing	Report Number
Clothianidin	0.18 lbs. ai/A/season	Clothianidin VP-39071, VP-39234, VP-39240, VP-39442	0.126 lbs. ai/A/season	Bridged to TK0258214
	Apply at seed planting		Apply up until heading (inflorescence or tassel emergence)	
Dinotefuran	0.18 lbs. ai/A/season	Bridged to VP-39071, VP-39234, VP-39240, VP-39442	0.126 lbs. ai/A/season	Bridged to TK0258214
	Apply at seed planting		Apply up until heading (inflorescence or tassel emergence)	
Imidacloprid	0.18 lbs. ai/A/season	Bridged to VP-39071, VP-39234, VP-39240, VP-39442	0.126 lbs. ai/A/season	Bridged to TK0258214
	Apply at seed planting		Apply up until heading (inflorescence or tassel emergence)	
Thiamethoxam	0.18 lbs. ai/A/season	Bridged to VP-39071, VP-39234, VP-39240, VP-39442	0.126 lbs. ai/A/season	Thiamethoxam TK0258214
	Apply at seed planting		Apply up until heading (inflorescence or tassel emergence)	

The specified application rates are in units of pounds of active ingredient (ai) per acre (A) per growing season.

Table 3. Identification of studies to support proposed application rate and timing restriction for the **Citrus Fruit** Crop Groups.

Active Ingredient	Soil Application		Foliar Application	
	Application Rate/Timing	Report Number	Application Rate/Timing	Report Number
Clothianidin	0.172 lbs. ai/A/season	Bridged to TK0124743, TK0124745	0.172 lbs. ai/A/season	Bridged to TK0250069
	Apply between petal fall and December 15		Apply after petal fall with the second application no later than December 1	
Dinotefuran	0.172 lbs. ai/A/season	Bridged to TK0124743, TK0124745, TK0177221	0.172 lbs. ai/A/season	Bridged to TK0250069
	Apply between petal fall and January 31		Apply after petal fall with the second application no later than December 1	
Imidacloprid	0.086 lbs. ai/A/season	Bridged to TK0124743, TK0124745	0.172 lbs. ai/A/season	Bridged to TK0250069
	Apply between petal fall and January 31		Apply after petal fall with the second application no later than December 1	
Thiamethoxam	0.172 lbs. ai/A/season	Thiamethoxam TK0124743, TK0124745, TK0177221	0.172 lbs. ai/A/season	Thiamethoxam TK0250069
	Apply between petal fall and January 31		Apply after petal fall with the second application no later than December 1	

The specified application rates are in units of pounds of active ingredient (ai) per acre (A) per growing season.

Table 4. Identification of studies to support proposed application rate and timing restriction for the **Cucurbit Vegetables** Crop Group

Active Ingredient	Soil Application		Foliar Application	
	Application Rate/Timing	Report Number	Application Rate/Timing	Report Number
Clothianidin	0.2 lbs. ai/A/season	Clothianidin VP-38263, VP-38938, VP-38971	0.2 lbs. ai/A/season	Clothianidin VP-38313
	Apply up until primary side shoot formation		Apply up until bloom	
Dinotefuran	0.536 lbs. ai/A/season	Dinotefuran 10934.4104	0.172 lbs. ai/A/season	Bridged to TK0222532, TK0242074
	Apply up until first flower open on main stem		Apply up until bloom	
Imidacloprid	0.2 lbs. ai/A/season	Bridged to VP-38263, VP-38938, VP-38971	0.172 lbs. ai/A/season	Bridged to TK0222532, TK0242074
	Apply up until primary side shoot formation		Apply up until bloom	
Thiamethoxam	0.172 lbs. ai/A/season	Thiamethoxam TK0222530, TK0024668	0.172 lbs. ai/A/season	Thiamethoxam TK0222532, TK0242074
	Apply up until fifth true leaf on main stem unfolded		Apply up until bloom	

The specified application rates are in units of pounds of active ingredient (ai) per acre (A) per growing season.

Table 5. Identification of studies to support proposed application rate and timing restriction for the **Fruiting Vegetables** Crop Groups

Active Ingredient	Soil Application		Foliar Application	
	Application Rate/Timing	Report Number	Application Rate/Timing	Report Number
Clothianidin	0.172 lbs. ai/A/season Apply up until third leaf on main shoot unfolded	Bridged to TK0236306, TK0242072	Prohibited	No supporting data
Dinotefuran	0.172 lbs. ai/A/season Apply up until third leaf on main shoot unfolded	Bridged to TK0236306, TK0242072	Prohibited	No supporting data
Imidacloprid	Prohibited	Bridged to TK0236306, TK0242072	Prohibited	No supporting data
Thiamethoxam	0.172 lbs. ai/A/season Apply up until third leaf on main shoot unfolded	Thiamethoxam TK0236306, TK0242072	Prohibited	No supporting data

The specified application rates are in units of pounds of active ingredient (ai) per acre (A) per growing season.

Table 6. Identification of studies to support proposed application rate and timing restriction for the **Oilseed** Crop Group

Active Ingredient	Soil Application		Foliar Application	
	Application Rate/Timing	Report Number	Application Rate/Timing	Report Number
Clothianidin	Prohibited	No data	Prohibited	Clothianidin VP-38259, VP-39066
Dinotefuran	Prohibited	No data	Prohibited	Dinotefuran 43411B104
Imidacloprid	Prohibited	No data	0.25 lbs. ai/A/season Apply before the beginning of main stem elongation	Imidacloprid EBNTY010
Thiamethoxam	Prohibited	No data	Prohibited	Thiamethoxam TK0177223

The specified application rates are in units of pounds of active ingredient (ai) per acre (A) per growing season.

Table 7. Identification of studies to support proposed application rate and timing restriction for the **Pome Fruits** Crop Groups

Active Ingredient	Soil Application		Foliar Application	
	Application Rate/Timing	Report Number	Application Rate/Timing	Report Number
Clothianidin	0.38 lbs. ai/A/season	Bridged to EBNTN014	0.2 lbs. ai/A/season	Clothianidin VP-38552
	Between post bloom and harvest		Between post-bloom and harvest	
Dinotefuran	0.38 lbs. ai/A/season	Bridged to EBNTN014	0.2 lbs. ai/A/season	Bridged to VP-38552
	Between post-bloom and harvest		Between post-bloom and harvest	
Imidacloprid	0.38 lbs. ai/A/season	Imidacloprid EBNTN014	0.2 lbs. ai/A/season	Bridged to VP-38552
	Between post-bloom and harvest		Between post-bloom and harvest	
Thiamethoxam	0.38 lbs. ai/A/season	Bridged to EBNTN014	0.2 lbs. ai/A/season	Bridged to VP-38552
	Between post-bloom and harvest		Between post-bloom and harvest	

The specified application rates are in units of pounds of active ingredient (ai) per acre (A) per growing season.

Table 8. Identification of studies to support proposed application rate and timing restriction for the **Root and Tuber Vegetables** Crop Groups

Active Ingredient	Soil Application		Foliar Application	
	Application Rate/Timing	Report Number	Application Rate/Timing	Report Number
Clothianidin	0.2 lbs. ai/A/season	Clothianidin VP-38985	0.05 lbs. ai/A/season	Clothianidin VP-38985
	One application at seed or tuber planting		One application before the beginning of main stem elongation or crop cover	
Dinotefuran	0.2 lbs. ai/A/season	Bridged to VP-38985	0.05 lbs. ai/A/season	Bridged to VP-38985
	One application at seed or tuber planting		One application before the beginning of main stem elongation or crop cover	
Imidacloprid	Prohibited	Bridged to VP-38985	0.05 lbs. ai/A/season	Bridged to VP-38985
			One application before the beginning of main stem elongation or crop cover	
Thiamethoxam	0.2 lbs. ai/A/season	Bridged to VP-38985	0.05 lbs. ai/A/season	Bridged to VP-38985
	One application at seed or tuber planting		One application before the beginning of main stem elongation or crop cover	

The specified application rates are in units of pounds of active ingredient (ai) per acre (A) per growing season.

Table 9. Identification of studies to support proposed application rate and timing restriction for the **Stone Fruits** Crop Groups

Active Ingredient	Soil Application		Foliar Application	
	Application Rate/Timing	Report Number	Application Rate/Timing	Report Number
Clothianidin	0.38 lbs. ai/A/season	Bridged to EBNTN013	0.2 lbs. ai/A/season	Clothianidin VP-38563
	Between post-bloom and harvest		Between post-bloom and harvest	
Dinotefuran	0.38 lbs. ai/A/season	Bridged to EBNTN013	0.54 lbs. ai/A/season	Dinotefuran 10934.4105
	Between post-bloom and harvest		Between post-bloom and harvest	
Imidacloprid	0.38 lbs. ai/A/season	Imidacloprid EBNTN013	0.5 lbs. ai/A/season	Imidacloprid EBNTY008
	Between post-bloom and harvest		Between post-bloom and harvest	
Thiamethoxam	0.38 lbs. ai/A/season	Bridged to EBNTN013	0.172 lbs. ai/A/season	Thiamethoxam TK0177222
	Between post-bloom and harvest		Between post-bloom and harvest	

The specified application rates are in units of pounds of active ingredient (ai) per acre (A) per growing season.

Table 10. Identification of studies to support proposed application rate and timing restriction for the **Tree Nuts** Crop Groups

Active Ingredient	Soil Application		Foliar Application	
	Application Rate/Timing	Report Number	Application Rate/Timing	Report Number
Clothianidin	Prohibited	No data	0.2 lbs. ai/A/season Apply between post-bloom and harvest	Clothianidin VP-38473
Dinotefuran	Prohibited	No data	0.2 lbs. ai/A/season Apply between post-bloom and harvest	Bridged to VP-38473
Imidacloprid	Prohibited	No data	0.2 lbs. ai/A/season Apply between post-bloom and harvest	Bridged to VP-38473
Thiamethoxam	Prohibited	No data	0.2 lbs. ai/A/season Apply between post-bloom and harvest	Bridged to VP-38473

The specified application rates are in units of pounds of active ingredient (ai) per acre (A) per growing season.

Table 11. List of all neonicotinoid crop residues studies that were submitted during the neonicotinoid reevaluation.

Active	Report	DPR Data	U.S. EPA
Berries			
Clothianidin	VP-38992	52884-0282	50154305
Dinotefuran	10934.4101	52911-0458	49841002
Dinotefuran	10934.4107	52911-0486	50145707
Imidacloprid	EBNTL056-04	51950-0812	49090502
Imidacloprid	EBNTY006	51950-0881	49511701
Thiamethoxam	TK0177224	52691-0574	50265502
Thiamethoxam	TK0236307	52691-0536	49804102
Thiamethoxam	TK0250068	52691-0582	50266001
Thiamethoxam	TK0250072	52691-0586	50425901
Cereal Grains			
Clothianidin	VP-39071	52884-0278	50154301
Clothianidin	VP-39234	52884-0291	50312701
Clothianidin	VP-39240	52884-0315	49372102
Clothianidin	VP-39442	52884-0292	50312702
Imidacloprid	EBNTY009*	51950-0871	49511701
Thiamethoxam	TK0258214	52691-0579	50265505
Citrus Fruit			
Clothianidin	VP-38685	52884-0247	49317901
Clothianidin	VP-38980	52884-0298	50478201
Clothianidin	VP-39259	52884-0273	49944702
Imidacloprid	EBNTL056-07	51950-0798	49090504
Imidacloprid	EBNTY007	51950-0874	49521301
Thiamethoxam	TK0124743	52691-0546	49881001
Thiamethoxam	TK0124745	52691-0545	49881002
Thiamethoxam	TK0177221	52691-0571	50131102
Thiamethoxam	TK0250069	52691-0587	50425902
Cucurbit Vegetables			
Clothianidin	VP-38263	52884-0245	49602801
Clothianidin	VP-38313	52884-0244	49602802
Clothianidin	VP-38938	52884-0263	49705901
Clothianidin	VP-38971	52884-0266	49910601
Clothianidin	VP-39242	52884-0283	50154306

Active Ingredient	Report Number	DPR Data Processing Number	U.S. EPA MRID No.
Dinotefuran	10934.4102	52911-0459	49841003
Dinotefuran	10934.4104	52911-0461	49852701
Dinotefuran	S16-01165	52911-0479	50145701
Dinotefuran	S16-02008	52911-0481	50145703
Dinotefuran	S16-02009	52911-0482	50145704
Imidacloprid	EBNTL056-02	51950-0811	49090501
Thiamethoxam	TK0024668	52691-0466	49550801
Thiamethoxam	TK0222530	52691-0576	50265501
Thiamethoxam	TK0222532	52691-0534	49804105
Thiamethoxam	TK0242074	52691-0580	50265506
Fruiting Vegetables			
Dinotefuran	10934.4103	52911-0460	49841004
Dinotefuran	S16-01167	52911-0480	50145702
Imidacloprid	EBNTN012	51950-0918	49894502
Imidacloprid	EBNTL056-05	51950-0786	49090503
Thiamethoxam	TK0222531	52691-0533	49804101
Thiamethoxam	TK0236306	52691-0535	49804103
Thiamethoxam	TK0242072	52691-0581	50265507
Legume Vegetables			
Clothianidin	EBTIP060* SG-OT-18-03	52884-0302	49803701
Thiamethoxam	TK0222529*	52691-0532	49804104
Thiamethoxam	TK0250070	52691-0577	50265503
Oilseed			
Clothianidin	VP-38259	52884-0251	49733302
Clothianidin	VP-39066 EBTIN115	52884-0264	49904901
Dinotefuran	43411B104	52911-0490	50198501
Imidacloprid	EBNTL011	51950-0917	49894501
Imidacloprid	EBNTY010	51950-0872	49511702
Imidacloprid	EBNTL056-01	51950-0785	49103301
Thiamethoxam	TK0177223	52691-0590	49686801
Pome Fruits			
Clothianidin	VP-38552	52884-0281	50154304
Imidacloprid	EBNTN014	51950-0903	49662101
Thiamethoxam	TK0250071	52691-0578	50265504

Active Ingredient	Report Number	DPR Data Processing Number	U.S. EPA MRID No.
Root and Tuber Vegetables			
Clothianidin	VP-38985	52884-0262	49705902
Dinotefuran	10934.4100	52911-0457	49841001
Stone Fruits			
Clothianidin	VP-38563	52884-0280	50154303
Dinotefuran	10934.4105	52911-0485	50145706
Dinotefuran	10934.4109	52911-0491	50456901
Imidacloprid	EBNTN013	51950-0904	49819401
Imidacloprid	EBNTY008	51950-0882	49535601
Thiamethoxam	TK0177222	52691-0531	50096606
Tree Nuts			
Clothianidin	VP-38473	52884-0279	50154302

*Report Number consists of seed-treatment trial only. While these are residue studies, they do not pertain to current draft regulations, which are focused on soil and foliar applications, only.

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