Acetamiprid is a broad-spectrum cyano-substituted neonicotinoid insecticide registered for use against a wide variety of insects including ants, termites, cockroaches, aphids, whiteflies, thrips, codling moth, aphids, and stinkbugs. It is used in both residential and agricultural, and indoor and outdoor settings. It is applied to foliage and soil or as a seed treatment, bait, stickers, or barrier treatment for termites.

Acetamiprid Risks of Concern Summary for Risk Mitigation Peer Review (Scheduled for 5/14/19)

Questions for team to keep in mind:

1. What risks are the HED and EFED most concerned about?
2. What uncertainties were addressed and what refinements were made during the development of the DRA?
3. What additional information could the public or the registrant provide that would contribute to the certainty of the assessment?
4. What is the use/usage and benefit information needed to further characterize/refine the risk and to inform the risk-benefit considerations?

Human Health Risks				
Type of Risk	**Risk Estimates**	Risk Characterization	Current Mitigation	PRD Proposed mitigation
Dietary—general population/population subgroups	No risk estimates of concern.			Deliberative Process / Ex. 5
Residential handler	No risk estimates of concern.			
Residential post-app—adults, kids	No risk estimates of concern.			
Occupational handler	**Yes**. Assuming single layer clothing and no gloves, the following scenarios result in combined dermal risk estimates of concern:	With the addition of gloves, the use of backpacks for basal bark treatment is no longer of concern (MOE = 100). With the additon of double layer clothing and gloves, MOE = 150.*	The personal protective equipment (PPE) required for agricultural handlers is single layer clothing (i.e., long sleeve shirt, long pants, and socks plus shoes) and chemical resistant gloves.	

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Human Health Risks				
Type of Risk	**Risk Estimates**	Risk Characterization	Current Mitigation	PRD Proposed mitigation
	• Mixing, loading, applying liquids and wettable powders as a basal bark treatment (greenhouse/nursery) using backpacks (MOE = 87; LOC = 100)* *MOEs based on data submitted by registrant during DRA comment period (MRID# 43623202) and covered in HED's RtC D446878.	*MOEs based on data submitted by registrant during DRA comment period (MRID# 43623202) and covered in HED's RtC D446878.	For seed treatment, PPE consists of single layer clothing, chemical resistant gloves and dust/mist respirator. There are several non-agricultural labels that do not specify PPE and were used to assess residential handler exposure. Most non-agricultural labels do not require handlers to wear any PPE, as they do not fall within the scope of the Worker Protection Standard (WPS). Agricultural labels list a restricted-entry interval (REI) of at least 12 hours, in accordance with the WPS.	Deliberative Process / Ex. 5
Occupational post-app	No risk estimates of concern.			
Bystander (drift and/or volatilization)	No risks identified.			
Aggregate risk	No risk estimates of concern.			
Tolerance revision?	**Yes.**	The residue of concern for both tolerance enforcement and risk assessment in primary crops is parent acetamiprid. The residues of concern in ruminants and poultry for both tolerance enforcement and risk assessment are parent acetamiprid and the metabolite, IM-2-1. In ruminant muscle, the metabolite IM-2-1-amide is also a residue of concern. Parent acetamiprid is the residue of concern in drinking water.	Tolerances for acetamiprid are listed in 40CFR §180.578.	

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Human Health Risks				
Type of Risk	**Risk Estimates**	Risk Characterization	Current Mitigation	PRD Proposed mitigation
Data needs	None, though submissions for five data requirements are still in review.			Deliberative Process / Ex. 5
Harmonization needs	**Yes**. There are numerous Codex MRLs for acetamiprid. When there are both U.S tolerances and Codex MRLs for the same commodity, the MRLs are generally not harmonized.	The U.S. tolerances are usually higher than the Codex MRLs. In these cases, harmonization might not be feasible because the tolerances are based on residue trials that resulted in residues that necessitated the higher residue limit. In five cases, however, the U.S. tolerances are lower than the Codex MRLs. These MRLs are the cottonseed tolerance of 0.6 ppm, green onion tolerance of 4.5 ppm, and tolerances for some of the small fruit and berry subgroups, 13-07A, 13-07B, and 13-07F, at 1.6 ppm, 1.6 ppm, and 0.35 ppm, respectively. These tolerances could potentially be raised to harmonize with the Codex MRLs for the same commodities, which are only slightly higher. Canada's Pest Management Regulatory Agency (PMRA) has also established acetamiprid MRLs for several commodities. Many of these MRLs are harmonized with the U.S. tolerances. There might be opportunities for harmonization of these MRLs; however, harmonization with Codex MRLs is higher priority. As a result, in cases where all three MRLs are different, an attempt should be made to harmonize with Codex before harmonizing with Canada.		

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Ecological Risks				
Type of Risk	**Risk Estimates**	**Risk Characterization**	**Current Mitigation**	**PRD Proposed Mitigation**
Freshwater fish	No.	From PRA: "Chronic estuarine/marine data are not available for acetamiprid; however, based on the low RQs for other aquatic vertebrates, the likelihood of adverse effects is presumed to be low for products containing only acetamiprid."		Deliberative Process / Ex. 5
Estuarine/marine fish	No.			
Amphibians *Aquatic phase*	No.	Fish serve as surrogates for aquatic-phase amphibians.		
Freshwater invertebrates	**Yes.** Acute (mortality) RQs = 3.26-11.27* Chronic (delayed and reduced % emergence) *RQs still under review by EFED* *Updated RQs based on University of Guelph data	Most LOCs exceeded for foliar applications to agricultural use sites when evaluating exposure for one to three seasons per year and when considering residues of TTR and parent only. No LOC exceedances for residential or seed treatment uses.	Patchwork, including: -varying drift restrictions (often 2-10 mph restrictions for aerial application; boom length and height restrictions, etc…) -hazard statements warning of hazards to aquatic environs (do not apply to water, etc…)	
Estuarine/marine invertebrates	**Yes**. Acute (mortality) = RQs 0.16 - 0.57 Chronic (body weight) = RQs 4.20 - 14.56			

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Ecological Risks				
Type of Risk	Risk Estimates	Risk Characterization	Current Mitigation	PRD Proposed Mitigation
				Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

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Ecological Risks				
Type of Risk	**Risk Estimates**	**Risk Characterization**	**Current Mitigation**	**PRD Proposed Mitigation**
				Deliberative Process / Ex. 5
Birds	**Yes.** Seed treatment risks of concern: **Size** / **Dose-based acute RQs** Small / 3.27 - 167.83 Medium / 1.46 - 75.18 Large / 0.46 - 23.83 **Size** / **Area-based acute RQs** Small / 2.42 - 46.98 Medium / 0.38 - 7.38 Large / 0.03-0.52 **Size** / **Chronic RQs** Large* / 0.79 - 40.49 *only data for large birds available Foliar treatment risks of concern: **Size** / **Acute RQs** Small / 0.15 - 23.51 Medium / 0.07 - 10.53 Large / 0.02 - 3.34 **Size** / **Sub-acute RQs** Small / 0.06 - 2.14 **Size** / **Chronic RQs**	Exposure routes of concern: consumption of treated seeds, foraging in treated areas Acetamiprid is very highly toxic to passerine bird species based on acute and sub-acute dietary exposure, and moderately toxic to other birds based on acute. A small bird would need to eat 5.4 seeds (or 0.5 % of diet) to reach the LOC for acute risks. Chronic toxicity data are not available for passerines species. There is evidence for impaired growth and reproductive effects in Mallard duck due to chronic exposure to acetamiprid.		

Deliberative Process / Ex. 5

Ecological Risks				
Type of Risk	**Risk Estimates**	**Risk Characterization**	**Current Mitigation**	**PRD Proposed Mitigation**
	Large* 0.04 - 1.26 *only data for large birds available			Deliberative Process / Ex. 5
Mammals	**Yes**. Seed treatment risks of concern: **Size** / **Dose-based acute RQs** Small 0.05 - 2.65 Medium 0.04 - 2.26 Large 0.02 - 1.21 **Size** / **Area-based acute RQs** Small 0.06-1.18 Medium 0.03-0.63 **Size** / **Chronic RQs** Small 0.94 - 48.31 Medium 0.80 - 41.26 Large 0.43 - 22.12	There are both acute and chronic risks to listed and non-listed species from seed treatments for canola and mustard. The acute endpoint is LD_{50}. The chronic endpoint is based on growth effects seen in a 2 year chronic feeding study (NOAEC = 160 mg ai/kg diet) but both growth and reproductive effects were observed in a two-generation study (280 mg ai kg-diet). A small mammal must eat as few as 214 seeds (or 30% of diet) to reach the acute LOC or 107 seeds (or 15% of diet) to reach the chronic LOC. Concerns for acute risk from foliar uses are limited to listed species.		
Aquatic plants *Vascular, non-vascular*	No.			
Terrestrial plants *Monocots, dicots*	**Yes.** (Seedling emergence and vegetative vigor endpoints) **Aerial Applications** **Taxa** / **RQs** Monocots <0.1-1.24 Dicots <0.1-4.64 **Ground Applications** **Taxa** / **RQs** Monocots <0.1-1.15 Dicots <0.1-1.66	Risks to monocots growing in semi-aquatic environments only. Risks to dicots from drift and to dicots growing in semi-aquatic environments. Evaluated application scenarios: 0.015 lb a.i./A, 0.249 lb a.i/A, and 0.52 lb a.i./A.		

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Ecological Risks				
Type of Risk	**Risk Estimates**	**Risk Characterization**	**Current Mitigation**	**PRD Proposed Mitigation**
				Deliberative Process / Ex. 5
Terrestrial invertebrates (pollinators)	**Yes.** See tables below to respective acute and chronic RQs by role within colony. **Role** / **Acute RQ** Adult worker: 1.86 Adult drone: 1.50 Larval worker: 6.09 Larval drone: 6.59 **Role** / **Chronic RQ** Adult worker: 6.90 Adult drone: 5.55 Larval worker: 58.92 Larval drone: 63.68	Semi-field data indicate a low likelihood of adverse effects on *A. mellifera* colonies at application rates of 0.089 lbs ai/A (current range of maximum single application rates = 0.03-0.52 lbs ai/A).	Patchwork advisory language, such as: *This product is toxic to bees exposed to direct treatment. Do not apply this product while bees are actively visiting the treated area.*	
Bioaccumulation	No.	log Kow<3		

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