

Pre-Harvest Intervals to Comply with the Maximum Residue Limits (MRLs) of Selected Export Markets for Thirteen Insecticides Registered for Use in Blueberries for the 2022 Growing Season - March 14, 2022

Actara (thiamethoxam)							
Intended Market	Days After Treatment						
	1 day	3 days	5 days	7 days	14 days	21 days	
USA	Red	Green	Green	Green	Green	Green	Green
Australia	Red	Green	Green	Green	Green	Green	Green
Canada	Red	Green	Green	Green	Green	Green	Green
EU	Red	Red	Red	Red	Red	Red	Red
Hong Kong	Red	Green	Green	Green	Green	Green	Green
Japan	Red	Green	Green	Green	Green	Green	Green
Korea	Red	Green	Green	Green	Green	Green	Green
Philippines	Red	Green	Green	Green	Green	Green	Green
Singapore	Red	Green	Green	Green	Green	Green	Green
Taiwan	Red	Green	Green	Green	Green	Green	Green
Vietnam	Red	Green	Green	Green	Green	Green	Green

Asana (esfenvalerate)							
Intended Market	Days After Treatment						
	1 day	3 days	5 days	7 days	14 days	21 days	
USA	Red	Red	Red	Red	Red	Red	Red
Australia	Red	Red	Red	Red	Red	Red	Red
Canada	Red	Red	Red	Red	Red	Red	Red
EU	Red	Red	Red	Red	Red	Red	Red
Hong Kong	Red	Red	Red	Red	Red	Red	Red
Japan	Red	Red	Red	Red	Red	Red	Red
Korea	Red	Red	Red	Red	Red	Red	Red
Philippines	Red	Red	Red	Red	Red	Red	Red
Singapore	Red	Red	Red	Red	Red	Red	Red
Taiwan	Red	Red	Red	Red	Red	Red	Red
Vietnam	Red	Red	Red	Red	Red	Red	Red

Brigade (bifenthrin) - single or double applications							
Intended Market	Days After Treatment						
	1 day	3 days	5 days	7 days	14 days	21 days	
USA	Green	Green	Green	Green	Green	Green	Green
Australia	Green	Green	Green	Green	Green	Green	Green
Canada	Green	Green	Green	Green	Green	Green	Green
EU	Green	Green	Green	Green	Green	Green	Green
Hong Kong	Red	Red	Red	Red	Red	Red	Red
Japan	Green	Green	Green	Green	Green	Green	Green
Korea	Green	Green	Green	Green	Green	Green	Green
Philippines	Green	Green	Green	Green	Green	Green	Green
Singapore	Green	Green	Green	Green	Green	Green	Green
Taiwan	Green	Green	Green	Green	Green	Green	Green
Vietnam	Red	Red	Red	Red	Red	Red	Red

Danitol (fenpropathrin)							
Intended Market	Days After Treatment						
	1 day	3 days	5 days	7 days	14 days	21 days	
USA	Red	Red	Red	Red	Red	Red	Red
Australia	Red	Red	Red	Red	Red	Red	Red
Canada	Red	Red	Red	Red	Red	Red	Red
EU	Red	Red	Red	Red	Red	Red	Red
Hong Kong	Red	Red	Red	Red	Red	Red	Red
Japan	Red	Red	Red	Red	Red	Red	Red
Korea	Red	Red	Red	Red	Red	Red	Red
Philippines	Red	Red	Red	Red	Red	Red	Red
Singapore	Red	Red	Red	Red	Red	Red	Red
Taiwan	Red	Red	Red	Red	Red	Red	Red
Vietnam	Red	Red	Red	Red	Red	Red	Red

Delegate (spinetoram)							
Intended Market	Days After Treatment						
	1 day	3 days	5 days	7 days	14 days	21 days	
USA	Green	Green	Green	Green	Green	Green	Green
Australia	Green	Green	Green	Green	Green	Green	Green
Canada	Green	Green	Green	Green	Green	Green	Green
EU	Green	Green	Green	Green	Green	Green	Green
Hong Kong	Red	Red	Red	Red	Red	Red	Red
Japan	Green	Green	Green	Green	Green	Green	Green
Korea	Green	Green	Green	Green	Green	Green	Green
Philippines	Green	Green	Green	Green	Green	Green	Green
Singapore	Green	Green	Green	Green	Green	Green	Green
Taiwan	Green	Green	Green	Green	Green	Green	Green
Vietnam	Green	Green	Green	Green	Green	Green	Green

Entrust (spinosad) - single or double applications							
Intended Market	Days After Treatment						
	1 day	3 days	5 days	7 days	14 days	21 days	
USA	Red	Red	Red	Red	Red	Red	Red
Australia	Red	Red	Red	Red	Red	Red	Red
Canada	Red	Red	Red	Red	Red	Red	Red
EU	Red	Red	Red	Red	Red	Red	Red
Hong Kong	Red	Red	Red	Red	Red	Red	Red
Japan	Red	Red	Red	Red	Red	Red	Red
Korea	Red	Red	Red	Red	Red	Red	Red
Philippines	Red	Red	Red	Red	Red	Red	Red
Singapore	Red	Red	Red	Red	Red	Red	Red
Taiwan	Red	Red	Red	Red	Red	Red	Red
Vietnam	Red	Red	Red	Red	Red	Red	Red

Exirel (cyantraniliprole)							
Intended Market	Days After Treatment						
	1 day	3 days	5 days	7 days	14 days	21 days	
USA	Red	Red	Red	Red	Red	Red	Red
Australia	Red	Red	Red	Red	Red	Red	Red
Canada	Red	Red	Red	Red	Red	Red	Red
EU	Red	Red	Red	Red	Red	Red	Red
Hong Kong	Red	Red	Red	Red	Red	Red	Red
Japan	Red	Red	Red	Red	Red	Red	Red
Korea	Red	Red	Red	Red	Red	Red	Red
Philippines	Red	Red	Red	Red	Red	Red	Red
Singapore	Red	Red	Red	Red	Red	Red	Red
Taiwan	Red	Red	Red	Red	Red	Red	Red
Vietnam	Red	Red	Red	Red	Red	Red	Red

Imidan (phosmet)							
Intended Market	Days After Treatment						
	1 day	3 days	5 days	7 days	14 days	21 days	
USA	Red	Red	Red	Red	Red	Red	Red
Australia	Red	Red	Red	Red	Red	Red	Red
Canada	Red	Yellow	Green	Green	Green	Green	Green
EU	Red	Red	Red	Red	Red	Red	Red
Hong Kong	Red	Red	Red	Red	Red	Red	Red
Japan	Red	Red	Red	Red	Red	Red	Red
Korea	Red	Red	Red	Red	Red	Red	Red
Philippines	Red	Red	Red	Red	Red	Red	Red
Singapore	Red	Red	Red	Red	Red	Red	Red
Taiwan	Red	Red	Red	Red	Yellow	Yellow	Yellow
Vietnam	Red	Red	Red	Red	Red	Red	Red

Lannate (methomyl) - single or double applications							
Intended Market	Days After Treatment						
	1 day	3 days	5 days	7 days	14 days	21 days	
USA	Red	Red	Red	Red	Red	Red	Red
Australia	Red	Red	Red	Red	Yellow	Green	Green
Canada	Red	Red	Red	Red	Red	Red	Red
EU	Red	Red	Red	Red	Red	Red	Red
Hong Kong	Red	Red	Red	Red	Red	Red	Red
Japan	Red	Red	Red	Red	Yellow	Green	Green
Korea	Red	Red	Red	Red	Red	Red	Red
Philippines	Red	Red	Red	Red	Red	Red	Red
Singapore	Red	Red	Red	Red	Red	Red	Red
Taiwan	Red	Red	Red	Red	Yellow	Green	Green
Vietnam	Red	Red	Red	Red	Red	Red	Red



Key to colors used in charts:
RED means that the product *should not be used during this time* either because of EPA label restrictions or due to a high risk of exceeding MRLs for a given market.
YELLOW means that the product *should be used with caution during this time* given all the variables (e.g. tank mixes, application method and calibration, use of adjuvants, environmental conditions, and post-harvest handling) that can impact the time it takes for a residue to degrade in order to meet the MRL for a given market.
GREEN means that the product is likely to be safe for use at this time with low risk of residue remaining at harvest that would exceed MRLs for a given market.

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Malathion - single or double applications							
Intended Market	Days After Treatment						
	1 day	3 days	5 days	7 days	14 days	21 days	
USA	Green	Green	Green	Green	Green	Green	
Australia	Green	Green	Green	Green	Green	Green	
Canada	Green	Green	Green	Green	Green	Green	
EU	Red	Red	Red	Red	Red	Red	
Hong Kong	Green	Green	Green	Green	Green	Green	
Japan	Green	Green	Green	Green	Green	Green	
Korea	Green	Green	Green	Green	Green	Green	
Philippines	Green	Green	Green	Green	Green	Green	
Singapore	Green	Green	Green	Green	Green	Green	
Taiwan	Red	Red	Red	Red	Red	Red	
Vietnam	Green	Green	Green	Green	Green	Green	

Mustang (zeta-Cypermethrin) - single or double applications							
Intended Market	Days After Treatment						
	1 day	3 days	5 days	7 days	14 days	21 days	
USA	Green	Green	Green	Green	Green	Green	
Australia	Green	Green	Green	Green	Green	Green	
Canada	Green	Green	Green	Green	Green	Green	
EU	Red	Red	Red	Red	Red	Red	
Hong Kong	Red	Red	Red	Red	Red	Red	
Japan	Green	Green	Green	Green	Green	Green	
Korea	Green	Green	Green	Green	Green	Green	
Philippines	Red	Red	Red	Red	Red	Red	
Singapore	Red	Yellow	Yellow	Green	Green	Green	
Taiwan	Green	Green	Green	Green	Green	Green	
Vietnam	Red	Red	Red	Red	Red	Red	

Provado (imidacloprid) - single or double applications							
Intended Market	Days After Treatment						
	1 day	3 days	5 days	7 days	14 days	21 days	
USA	Red	Red	Red	Red	Red	Red	
Australia	Red	Red	Red	Red	Red	Red	
Canada	Red	Red	Red	Red	Red	Red	
EU	Red	Red	Red	Red	Red	Red	
Hong Kong	Red	Red	Red	Red	Red	Red	
Japan	Red	Red	Red	Red	Red	Red	
Korea	Red	Red	Red	Red	Red	Red	
Philippines	Red	Red	Red	Red	Red	Red	
Singapore	Red	Red	Red	Red	Red	Red	
Taiwan	Red	Red	Red	Red	Red	Red	
Vietnam	Red	Red	Red	Red	Red	Red	

Sevin (carbaryl)							
Intended Market	Days After Treatment						
	1 day	3 days	5 days	7 days	14 days	21 days	
USA	Red	Red	Red	Red	Red	Red	
Australia	Red	Red	Red	Red	Red	Red	
Canada	Red	Red	Red	Red	Green	Green	
EU	Red	Red	Red	Red	Red	Red	
Hong Kong	Red	Red	Red	Red	Red	Red	
Japan	Red	Red	Red	Red	Green	Green	
Korea	Red	Red	Red	Red	Red	Red	
Philippines	Red	Red	Red	Red	Red	Red	
Singapore	Red	Red	Red	Red	Green	Green	
Taiwan	Red	Red	Red	Red	Yellow	Yellow	
Vietnam	Red	Red	Red	Red	Red	Red	

Purpose & Methods: This tool was developed to aid blueberry growers in selecting materials to manage key pests close to harvest with a particular export market in mind. Selected markets have been included, some of which have more restricted maximum residue limits (MRLs) or tolerances than required by the US for particular materials. The MRLs used to develop this tool come from those published by www.bryantchristie.com as of March 14, 2022. Please check the database as MRLs are dynamic. The data used to determine whether a longer pre-harvest interval would be necessary for a given market and its published MRL, are based on a single application, unless noted otherwise, made near the legal U.S. PHI for each material tested, in replicated trials conducted at one location in Michigan over two years, one location in Oregon over three years, and three locations in Washington over three years. For those treatments that received two applications ("one or two applications"), the second application was made 7 days after the initial application. All samples were extracted by the QuEChERS method and analyzed by GC/MS/MS and LC/MS/MS.

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Disclaimer: These charts are just a guide. The authors of this tool cannot guarantee that any of these MRLs have not changed since March 14, 2022, therefore, the user assumes all responsibility for its use subsequently. We also cannot guarantee that a material listed for use in Michigan, Oregon, or Washington is registered for use outside those states (pesticide registration status is determined by the US EPA and State Governments where 'special uses' are concerned). Users outside these states are cautioned to consult with their local extension service to determine what is allowable. We also make no guarantees that any of the products listed will be effective against a particular pest. Finally, given all of the variables that can affect degradation rates - in particular the use of adjuvants and tank mixes, environmental post-application conditions, and post-harvest handling - we cannot guarantee that if a product is used according to this tool it will not leave residues that exceed MRLs for the selected market.



Key to colors used in charts:

RED means that the product *should not be used during this time* either because of EPA label restrictions or due to a high risk of exceeding MRLs for a given market.

YELLOW means that the product *should be used with caution during this time* given all the variables (e.g. tank mixes, application method and calibration, environmental conditions, and post-harvest handling) that can impact the time it takes for a residue to degrade in order to meet the MRL for a given market.

GREEN means that the product is likely to be safe for use at this time with low risk of residue remaining at harvest that would exceed MRLs for a given market.