

Pre-Harvest Intervals to Comply with the Maximum Residue Limits (MRLs) of Selected Export Markets for Fifteen Insecticides Registered for Use in Raspberries for the 2021 Growing Season - July 6, 2021

Acramite (Bifenazate)							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	Red	Yellow	Green	Green	Green	Green	Green
Australia	Red	Green	Green	Green	Green	Green	Green
Canada	Red	Yellow	Green	Green	Green	Green	Green
China	Red	Red	Red	Red	Red	Red	Red
Codex	Red	Green	Green	Green	Green	Green	Green
EU	Red	Green	Green	Green	Green	Green	Green
Hong Kong	Red	Red	Red	Red	Red	Red	Red
Japan	Red	Green	Green	Green	Green	Green	Green
Korea	Red	Red	Red	Red	Red	Red	Yellow
Taiwan	Red	Red	Red	Red	Red	Red	Red

Actara (Thiamethoxam)							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	Red	Red	Green	Green	Green	Green	Green
Australia	Red	Green	Green	Green	Green	Green	Green
Canada	Red	Green	Green	Green	Green	Green	Green
China	Red	Red	Green	Green	Green	Green	Green
Codex	Red	Red	Green	Green	Green	Green	Green
EU	Red	Red	Red	Red	Red	Red	Red
Hong Kong	Red	Red	Green	Green	Green	Green	Green
Japan	Red	Red	Green	Green	Green	Green	Green
Korea	Red	Red	Green	Green	Green	Green	Green
Taiwan	Red	Red	Green	Green	Green	Green	Green

Admire Pro (Imidacloprid)							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	Red	Red	Green	Green	Green	Green	Green
Australia	Red	Green	Green	Green	Green	Green	Green
Canada	Red	Green	Green	Green	Green	Green	Green
China	Red	Red	Green	Green	Green	Green	Green
Codex	Red	Red	Green	Green	Green	Green	Green
EU	Red	Red	Green	Green	Green	Green	Green
Hong Kong	Red	Red	Green	Green	Green	Green	Green
Japan	Red	Red	Green	Green	Green	Green	Green
Korea	Red	Red	Green	Green	Green	Green	Green
Taiwan	Red	Red	Green	Green	Green	Green	Green

Brigade (Bifenthrin)							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	Red	Red	Green	Green	Green	Green	Green
Australia	Red	Green	Green	Green	Green	Green	Green
Canada	Red	Red	Green	Green	Green	Green	Green
China	Red	Red	Red	Red	Red	Red	Red
Codex	Red	Red	Green	Green	Green	Green	Green
EU	Red	Red	Green	Green	Green	Green	Green
Hong Kong	Red	Red	Green	Green	Green	Green	Green
Japan	Red	Red	Green	Green	Green	Green	Green
Korea	Red	Red	Red	Red	Red	Red	Green
Taiwan	Red	Red	Green	Green	Green	Green	Green

Danitol (Fenpropathrin)							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	Red	Red	Green	Green	Green	Green	Green
Australia	Red	Red	Red	Red	Red	Red	Yellow
Canada	Red	Red	Green	Green	Green	Green	Green
China	Red	Red	Green	Green	Green	Green	Green
Codex	Red	Red	Red	Red	Red	Red	Yellow
EU	Red	Red	Red	Red	Red	Red	Yellow
Hong Kong	Red	Red	Green	Green	Green	Green	Green
Japan	Red	Red	Green	Green	Green	Green	Green
Korea	Red	Red	Red	Red	Red	Red	Yellow
Taiwan	Red	Red	Yellow	Green	Green	Green	Green

Delegate (Spinetoram)							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	Red	Green	Green	Green	Green	Green	Green
Australia	Red	Green	Green	Green	Green	Green	Green
Canada	Red	Green	Green	Green	Green	Green	Green
China	Red	Red	Green	Green	Green	Green	Green
Codex	Red	Red	Green	Green	Green	Green	Green
EU	Red	Green	Green	Green	Green	Green	Green
Hong Kong	Red	Red	Red	Red	Red	Red	Red
Japan	Red	Green	Green	Green	Green	Green	Green
Korea	Red	Green	Green	Green	Green	Green	Green
Taiwan	Red	Green	Green	Green	Green	Green	Green

Exirel (Cyantraniliprole)							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	Red	Red	Green	Green	Green	Green	Green
Australia	Red	Red	Red	Red	Red	Red	Red
Canada	Red	Red	Green	Green	Green	Green	Green
China	Red	Red	Green	Green	Green	Green	Green
Codex	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	Yellow
Taiwan	Red	Red	Red	Red	Red	Red	Red

Intrepid (Methoxyfenozide)							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	Red	Red	Green	Green	Green	Green	Green
Australia	Red	Red	Red	Red	Red	Red	Red
Canada	Red	Red	Green	Green	Green	Green	Green
China	Red	Red	Red	Red	Red	Red	Red
Codex	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	Green	Green	Green	Green	Green
Korea	Red	Red	Red	Red	Red	Green	Green
Taiwan	Red	Red	Red	Red	Red	Red	Red

Kanemite (Acequinocyl)							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	Red	Green	Green	Green	Green	Green	Green
Australia	Red	Red	Red	Red	Red	Yellow	Yellow
Canada	Red	Green	Green	Green	Green	Green	Green
China	Red	Red	Red	Red	Red	Yellow	Yellow
Codex	Red	Red	Red	Red	Red	Yellow	Yellow
EU	Red	Red	Red	Red	Red	Yellow	Yellow
Hong Kong	Red	Red	Red	Red	Red	Yellow	Yellow
Japan	Red	Red	Red	Red	Red	Yellow	Yellow
Korea	Red	Yellow	Yellow	Yellow	Green	Green	Green
Taiwan	Red	Red	Red	Red	Red	Yellow	Yellow

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.

Pre-Harvest Intervals to Comply with the Maximum Residue Limits (MRLs) of Selected Export Markets for Fifteen Insecticides Registered for Use in Raspberries for the 2021 Growing Season - July 6, 2021

Malathion							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	Red	Green	Green	Green	Green	Green	Green
Australia	Red	Green	Green	Green	Green	Green	Green
Canada	Red	Green	Green	Green	Green	Green	Green
China	Red	Red	Red	Yellow	Yellow	Green	Green
Codex	Red	Red	Red	Yellow	Yellow	Green	Green
EU	Red	Red	Red	Yellow	Yellow	Green	Green
Hong Kong	Red	Green	Green	Green	Green	Green	Green
Japan	Red	Green	Green	Green	Green	Green	Green
Korea	Red	Red	Yellow	Green	Green	Green	Green
Taiwan	Red	Red	Red	Yellow	Yellow	Green	Green

Mustang Maxx (zeta-Cypermethrin)							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	Red	Green	Green	Green	Green	Green	Green
Australia	Red	Red	Yellow	Green	Green	Green	Green
Canada	Red	Green	Green	Green	Green	Green	Green
China	Red	Red	Red	Red	Red	Red	Red
Codex	Red	Red	Red	Red	Red	Red	Red
EU	Red	Red	Yellow	Green	Green	Green	Green
Hong Kong	Red	Red	Red	Red	Red	Red	Red
Japan	Red	Red	Yellow	Green	Green	Green	Green
Korea	Red	Red	Red	Red	Red	Red	Red
Taiwan	Red	Green	Green	Green	Green	Green	Green

Onager (Hexythiazox)							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	Red	Red	Green	Green	Green	Green	Green
Australia	Red	Red	Red	Red	Yellow	Green	Green
Canada	Red	Red	Yellow	Yellow	Green	Green	Green
China	Red	Red	Red	Red	Red	Red	Red
Codex	Red	Red	Red	Red	Red	Red	Red
EU	Red	Red	Red	Red	Red	Green	Green
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
Taiwan	Red	Red	Red	Red	Yellow	Green	Green

Sivanto Prime (Flupyradifurone)							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	Green	Green	Green	Green	Green	Green	Green
Australia	Red	Red	Red	Red	Red	Red	Red
Canada	Green	Green	Green	Green	Green	Green	Green
China	Red	Red	Red	Red	Red	Red	Red
Codex	Red	Red	Red	Red	Red	Red	Red
EU	Red	Red	Yellow	Yellow	Green	Green	Green
Hong Kong	Red	Red	Red	Red	Red	Red	Red
Japan	Red	Red	Red	Red	Red	Red	Red
Korea	Red	Red	Red	Yellow	Green	Green	Green
Taiwan	Red	Red	Red	Red	Red	Red	Red

Success (Spinosad)							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	Red	Green	Green	Green	Green	Green	Green
Australia	Red	Yellow	Green	Green	Green	Green	Green
Canada	Red	Yellow	Green	Green	Green	Green	Green
China	Red	Red	Red	Red	Red	Yellow	Yellow
Codex	Red	Red	Red	Red	Red	Yellow	Yellow
EU	Red	Green	Green	Green	Green	Green	Green
Hong Kong	Red	Red	Red	Red	Red	Yellow	Yellow
Japan	Red	Green	Green	Green	Green	Green	Green
Korea	Red	Yellow	Green	Green	Green	Green	Green
Taiwan	Red	Green	Green	Green	Green	Green	Green

Vendex (Fenbutatin oxide)							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	Red	Red	Green	Green	Green	Green	Green
Australia	Red	Red	Red	Red	Red	Red	Yellow
Canada	Red	Red	Red	Red	Red	Red	Red
China	Red	Red	Red	Red	Red	Red	Red
Codex	Red	Red	Red	Red	Red	Red	Red
EU	Red	Red	Red	Red	Red	Red	Red
Hong Kong	Red	Red	Green	Green	Green	Green	Green
Japan	Red	Red	Green	Green	Green	Green	Green
Korea	Red	Red	Red	Red	Red	Red	Red
Taiwan	Red	Red	Red	Red	Red	Red	Red

Acknowledgements: This work was made possible with funding by the Washington Red Raspberry Commission (WRRRC), Oregon Raspberry and Blackberry Commission (ORBC), and USDA Technical Assistance for Specialty Crops (TASC). Field collaborators include: Joe DeFrancesco, Dani Lightle, Peter Sturman, and Gina Koskela (OSU NWREC); Beverly S. Gerdeman and G. Hollis Spitler (WSU Mount Vernon NWREC). Sample analysis and generation of these charts was done by Camille Holladay and Keith Crosby (Synergistic Pesticide Lab in Portland, OR).

Purpose & Methods: This tool was developed to aid raspberry 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 July 6, 2021. 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 made near the legal US max rate for each material tested in replicated trials conducted at one location each in Oregon and Washington over three years, unless otherwise noted. All samples were extracted by the QuEChERS method and analyzed by GC/MS/MS and LC/MS/MS.

Disclaimer: These charts are just a guide. The authors of this tool cannot guarantee that any of these MRLs have not changed since July 6, 2021; therefore, the user assumes all responsibility for its use subsequently. We also cannot guarantee that a material listed for use in 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.

Pre-Harvest Intervals to Comply with the Maximum Residue Limits (MRLs) of Selected Export Markets for Twelve Fungicides Registered for Use in Raspberries for the 2021 Growing Season - July 6, 2021

Abound (Azoxystrobin)							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	Green	Green	Green	Green	Green	Green	Green
Australia	Green	Green	Green	Green	Green	Green	Green
Canada	Green	Green	Green	Green	Green	Green	Green
China	Green	Green	Green	Green	Green	Green	Green
Codex	Green	Green	Green	Green	Green	Green	Green
EU	Green	Green	Green	Green	Green	Green	Green
Hong Kong	Green	Green	Green	Green	Green	Green	Green
Japan	Green	Green	Green	Green	Green	Green	Green
Korea	Red	Red	Yellow	Green	Green	Green	Green
Taiwan	Green	Green	Green	Green	Green	Green	Green

Captan							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	Red	Red	Green	Green	Green	Green	Green
Australia	Red	Red	Green	Green	Green	Green	Green
Canada	Red	Red	Red	Red	Red	Red	Yellow
China	Red	Red	Red	Red	Red	Red	Red
Codex	Red	Red	Yellow	Yellow	Green	Green	Green
EU	Red	Red	Yellow	Yellow	Green	Green	Green
Hong Kong	Red	Red	Yellow	Yellow	Green	Green	Green
Japan	Red	Red	Yellow	Yellow	Green	Green	Green
Korea	Red	Red	Red	Red	Red	Red	Yellow
Taiwan	Red	Red	Yellow	Yellow	Green	Green	Green

Elevate (Fenhexamid)							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	Green	Green	Green	Green	Green	Green	Green
Australia	Green	Green	Green	Green	Green	Green	Green
Canada	Green	Green	Green	Green	Green	Green	Green
China	Red	Red	Red	Red	Green	Green	Green
Codex	Green	Green	Green	Green	Green	Green	Green
EU	Green	Green	Green	Green	Green	Green	Green
Hong Kong	Green	Green	Green	Green	Green	Green	Green
Japan	Green	Green	Green	Green	Green	Green	Green
Korea	Red	Red	Red	Red	Green	Green	Green
Taiwan	Red	Red	Red	Red	Red	Red	Red

Fontelis (Penthiopyrad)							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	Green	Green	Green	Green	Green	Green	Green
Australia	Red	Red	Red	Red	Red	Red	Red
Canada	Green	Green	Green	Green	Green	Green	Green
China	Red	Red	Red	Red	Red	Red	Red
Codex	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	Yellow	Green
Taiwan	Red	Red	Red	Red	Red	Red	Red

Kenja (Isfetamid)							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	Red	Red	Red	Red	Yellow	Green	Green
Australia	Red	Red	Red	Red	Yellow	Green	Green
Canada	Red	Red	Red	Red	Yellow	Green	Green
China	Red	Red	Red	Red	Red	Red	Red
Codex	Red	Red	Red	Red	Yellow	Green	Green
EU	Red	Red	Red	Red	Yellow	Green	Green
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
Taiwan	Red	Red	Red	Red	Red	Red	Red

Luna Tranquility (Fluopyram+Pyrimethanil)							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	Green	Green	Green	Green	Green	Green	Green
Australia	Green	Green	Green	Green	Green	Green	Green
Canada	Green	Green	Green	Green	Green	Green	Green
China	Red	Red	Red	Red	Yellow	Green	Green
Codex	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	Red	Red	Red	Red	Red	Red	Red
Taiwan	Red	Red	Red	Red	Red	Red	Red

Pristine (Boscalid+Pyraclostrobin)							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	Green	Green	Green	Green	Green	Green	Green
Australia	Green	Green	Green	Green	Green	Green	Green
Canada	Yellow	Green	Green	Green	Green	Green	Green
China	Red	Red	Red	Red	Red	Red	Red
Codex	Yellow	Green	Green	Green	Green	Green	Green
EU	Yellow	Green	Green	Green	Green	Green	Green
Hong Kong	Red	Yellow	Yellow	Green	Green	Green	Green
Japan	Yellow	Green	Green	Green	Green	Green	Green
Korea	Yellow	Green	Green	Green	Green	Green	Green
Taiwan	Yellow	Green	Green	Green	Green	Green	Green

Prolivio (Pyriofenone)							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	Red	Yellow	Yellow	Green	Green	Green	Green
Australia	Red	Red	Red	Red	Red	Red	Red
Canada	Red	Yellow	Yellow	Green	Green	Green	Green
China	Red	Red	Red	Red	Red	Red	Red
Codex	Red	Yellow	Yellow	Green	Green	Green	Green
EU	Red	Yellow	Yellow	Green	Green	Green	Green
Hong Kong	Red	Red	Red	Red	Red	Red	Red
Japan	Red	Yellow	Yellow	Green	Green	Green	Green
Korea	Red	Red	Red	Red	Red	Red	Red
Taiwan	Red	Red	Red	Red	Red	Red	Red

Rally (Myclobutanil)							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	Green	Green	Green	Green	Green	Green	Green
Australia	Green	Green	Green	Green	Green	Green	Green
Canada	Green	Green	Green	Green	Green	Green	Green
China	Red	Red	Red	Red	Red	Red	Red
Codex	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	Green	Green	Green	Green	Green	Green	Green
Korea	Red	Red	Red	Red	Red	Red	Red
Taiwan	Red	Red	Yellow	Yellow	Green	Green	Green

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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Rovral (Iprodione)							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	RED	YELLOW	YELLOW	GREEN	GREEN	GREEN	GREEN
Australia	RED	YELLOW	YELLOW	YELLOW	GREEN	GREEN	GREEN
Canada	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN
China	RED	RED	RED	RED	RED	RED	RED
Codex	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN
EU	RED	RED	RED	RED	RED	RED	RED
Hong Kong	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN
Japan	RED	RED	RED	RED	RED	YELLOW	GREEN
Korea	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN
Taiwan	RED	RED	RED	RED	RED	YELLOW	GREEN

Switch (Cyprodinil+Fludioxonil)							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN
Australia	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN
Canada	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN
China	RED	RED	RED	RED	RED	RED	RED
Codex	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN
EU	RED	RED	YELLOW	YELLOW	GREEN	GREEN	GREEN
Hong Kong	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN
Japan	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN
Korea	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN
Taiwan	RED	RED	YELLOW	YELLOW	GREEN	GREEN	GREEN

Tanos (Cymoxanil+Famoxadone)							
Intended Market	Time before harvest (days)						
	0	1	3	5	7	14	21
USA	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN
Australia	RED	RED	RED	RED	RED	RED	RED
Canada	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN
China	RED	RED	RED	RED	RED	RED	RED
Codex	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	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN
Korea	RED	RED	RED	RED	RED	RED	RED
Taiwan	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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