

Merit Analysis for top 45 Global Minor Use Priorities Summer 2020

Use 1 form per crop/pest priority

(To be conducted by a committee of global proponents for the priority)

Temperate Crops				
Dry Bulb Onion Downy Mildew (Field) 53 (sum of 2 forms)				
Kathryn Homa, USA, homa@njaes.rutgers.edu Merit Analysis Team Lead				
Criteria*	Points			
Is the crop-pest combination a situation with no available products? 2 points	0			
	Solution 1	Solution 2	Solution 3	Solution 4
Are there potential solutions?	flouxapiprolin	3% thyme oil Guarda (Aka. Forticept EP # 1)	Theia – <i>Bacillus subtilis</i> strain AFS032321	Howler Fungicide® (AB747)
Company name	Bayer CropScience	BioSafe Systems, LLC	AgBiome Innovations	AgBiome Innovations
Company contact name and e-mail	Jessica Fernandez jessica.fernandez@bayer.com	Vijay K. Choppakatla; vijayc@biosafesystems.com	Scott Walker swalker@agbiome.com	Jim Spadafora jspadafora@agbiome.com
Level of registrant support globally – list of countries registrant is willing to supply GLP test substance, standards and pursue a label (A)	Registrant supports Dry Bulb Onion: Portugal, United Kingdom, Germany , Sweden, Switzerland, Latvia, Slovenia, Sweden, Canada, Austria, Denmark, Lithuania, Slovakia, Estonia	Registrant supports Portugal, United Kingdom, Germany , Switzerland, Latvia, Slovenia , Sweden, Canada , Austria, Denmark, Lithuania, Slovakia, Estonia	Registrant Supports United States, Canada, Sweden, Spain, Estonia, Slovenia, Austria, Poland, Norway, Belgium, United Kingdom and Germany	Registrant Supports Portugal, United Kingdom, Germany , Sweden, Switzerland, Latvia, Slovenia, Sweden, Canada, Austria, Denmark, Lithuania, Slovakia, Estonia, USA
List of countries having field and analytical ability and willing to conduct trials (B)	UK Germany	Canada Slovenia UK Germany	UK Germany	UK Germany

<i>Insert 1 point for each match between countries that registrant supports, and countries willing (A + B)</i>	2	Canada (1) Slovenia (1) UK (1) Germany (1)	2	2
Is efficacy already established against the target pest or can it be bridged via rationale from other labeled uses? <i>Insert 1point</i>	129 trials total, 3 US and 3 CAN For Canada- need to determine if there is enough existing efficacy data for the Part 10; IR-4/minor use stakeholders may have to develop more efficacy data (1)	Yes for onion; Can also be bridged via rationale from other labeled uses (1)	Yes for onion (1)	1 (Related downy mildews)
Are there any residue data already available for the crop/pest combination and if so, from where?	Bayer will be pursuing registration of onion in North America and New Zealand.	Exempt from tolerance Product is US EPA approved. Any residual information submitted/reviewed as part of EPA registration process may be shared as needed	Exempt from tolerance	Exempt from tolerance
Are project champions identified?(Insert names) <i>Insert 1point</i>	Kathryn Homa (1)	Kathryn Homa (1)	Kathryn Homa (1)	Kathryn Homa (1)
Will a uniform GAP (rate, application pattern, PHI, formulation, premix be able to be	US use pattern: 3 X 20 g ai/ha (1 day PHI). Not sure if uniform GAP will be established across all countries (0)	Yes (1) Already registered in US for onion downy mildew; not registered in Canada	??? Not registered in US yet (0)	1

<p>established across all countries? <i>Yes = Insert Ipoint ; No = 0</i></p>		<p>US Label: Foliar; 1 gal per 29-159 gal water (0.625% to 3.3% v/v dilution); apply at 15-25 GPA; apply preventatively every 7-14 days</p>		
<p>Does the product replace old technology with reduced risk technology? (<i>1 point per old product replaced with reduced risk defined as a more favorable environmental or human health risk assessment</i>)</p>	<p>Yes Mefenoxam (1) Mancozeb (1) Chlorothalonil (1) Azoxystrobin (1) Copper (1) Captan (1) Fosetyl-Al (1) Folpet (1)</p>	<p>Not sure; since efficacy cannot be compared equally to conventional products (0)</p>	<p>Not sure; since efficacy cannot be compared equally to conventional products (0)</p>	<p>Not sure; since efficacy cannot be compared equally to conventional products (0)</p>
<p>Does the potential solution fit into IPM systems, i.e. low risk to beneficials <i>Insert Ipoint</i></p>	<p>Yes (low use rate), new mode of action (1)</p>	<p>Yes; low risk to beneficials; exempt from tolerance (1) Guarda with 3.0% Thyme Oil as active ingredient is a reduced risk chemistry that is safe to human health and environment BioSafe Systems is in process of completing Honey Bee toxicity assay in order to remove Bee caution statement on the US EPA Label.</p>	<p>Yes; exempt from tolerance (1)</p>	<p>Yes; exempt from tolerance (1)</p>

<p>Does the project complement current technologies to address pesticide resistance and/or control resistant pest/disease/weed or provide an alternative mode of action? <i>Insert 1 point</i></p>	<p>Yes (allows for flexibility of tank mixing with another FRAC group) (1)</p>	<p>Yes; another mode of action; can be used in alternation with conventional chemistries (1)</p> <p>Guarda is tank mix compatible with most bactericides and fungicides and can be safely used in conjunction/rotation with other crop protection chemicals in pest resistant management programs</p>	<p>Yes; another mode of action; can be used in alternation with conventional chemistries (1)</p>	<p>1</p>
<p>Are there any crop grouping MRL opportunities? <i>(1 point per crop group)</i></p>	<p>Yes; 3-07 (1) (Dry bulb and green onion)</p>	<p>Yes; 3-07 (1) (Dry bulb and green onion)</p>	<p>Yes; 3-07 (1) (Dry bulb and green onion)</p>	<p>1</p>
<p>Comments (Please use this space to make a memo of any other information that might be points of consideration such as JMPR cycle, CODEX, EPA, EU registration/MRL status, ability of a product to</p>	<p>The product is in FRAC Group 49 with oxathiapiprolin, so care should be taken to use in a tank mix; very efficacious for control of downy mildew; need an adjuvant; not registered yet in US</p>	<p>Already on U.S. label; may be issues with registering in Canada;</p> <p>Bi-product may be problematic in Canada. Registrant would need to need to demonstrate that the bi-product is safe.</p> <p>Guarda (Aka. Forticept EP # 1) is a broad spectrum Bactericide/Fungicide registered with US EPA (Reg. No. 92144-2). Product label currently has broad list of field crops and diseases (Foliar and soil; Bacterial and Fungal diseases). All the ingredients in the product are low risk and EPA tolerance exempt</p>	<p>Product is new and not registered yet in US or other countries</p>	<p>Being biologicals exempt from tolerance, this is not applicable. So we placed 1 point where relevant. The product has broad use across crops/diseases/and use patterns</p> <p>Registered and exempt from tolerance in the USA, official efficacy trials in progress in Canada and several European countries</p>

<p>control multiple pest priorities, can be used across multiple crops, one formulation or premix combination used in one part of the world, regulatory needs, etc.</p> <p>No specific points, but useful information</p>				
TOTAL POINTS	15	10	7	8
GRAND TOTAL			40	

*if not specified otherwise in the 'criteria' box, assign 1 point per solution in gray boxes only.

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Temperate Crops		
Dry Bulb Onion Downy Mildew (Field) 53 (sum of 2 forms)		
Kathryn Homa, USA, homa@njaes.rutgers.edu Merit Analysis Team Lead		
Criteria*	Points	
Is the crop-pest combination a situation with no available products? <i>2 points</i>	0	
	Solution 5	Solution 6
Are there potential solutions?	<i>Bacillus amyloliquefaciens</i> F727 (Stargus)	Rhamnolipid Biosurfactant Source organism: <i>Pseudomonas aeruginosa</i> (Zonix)
Company name	Marrone Bio Innovations	Stepan Chemical
Company contact name and e-mail	Andre Trepanier atrepanier@marronebio.com Maryna Serdani mserdani@marronebio.com	David Allen DAllen@stepan.com
Level of registrant support globally – list of countries registrant is willing to supply GLP test substance, standards and pursue a label (A)	Registrant supports; currently registered in all 50 U.S. states, Puerto Rico, Canada and Mexico. MRL exempt in these countries, and registrant anticipates residue exemption in countries it is yet to be registered.	Registrant supports (willing to support provided sufficient efficacy seen during trials) Dry bulb onion: Portugal, United Kingdom, Germany , Sweden, Switzerland, Latvia, Slovenia, Sweden, Canada, Austria, Denmark, Lithuania, Slovakia, Estonia
List of countries having field and analytical ability and willing to conduct trials (B)	UK Germany	UK Germany

<i>Insert 1 point for each match between countries that registrant supports, and countries willing (A + B)</i>	2	2
Is efficacy already established against the target pest or can it be bridged via rationale from other labeled uses? <i>Insert 1point</i>	Yes (1) Michigan State University. 2012 study, disease severity (from downy mildew, bacterial blight, Stemphylium and Colletotrichum grouped together) was significantly less for Stargus (2 qt/acre) compared to the untreated control. There is also data for Stargus showing good efficacy against downy mildew on other crops, e.g. leafy greens, cucurbits and grapes (US data).	Specific data for downy mildew of onion not available (0)
Are there any residue data already available for the crop/pest combination and if so, from where?	Exempt from tolerance	Exempt from tolerance
Are project champions identified?(Insert names) <i>Insert 1point</i>	David Courcelles (1)	Kathryn Homa (1)
Will a uniform GAP (rate, application pattern, PHI, formulation, premix be able to be	??? (0) US Label: 1 - 4 quarts per 100 gallons of water (0.25 – 1.0% v/v dilution). When tank mixed with another fungicide, the	??? (0) Use for onions already on Zonix label in US (previously owned by another registrant) US label: Apply at a concentration of 300 to 500 ppm. Make applications in the early stages of plant growth for initial control. Reapply at 5-day

<p>established across all countries? <i>Yes = Insert Ipoint ; No = 0</i></p>	<p>use rate for STARGUS® BIOFUNGICIDE is 0.5 – 4 quarts in 100 gallons of water; 0 day PHI CANADA LABEL DOES NOT LIST ONIONS</p> <p>Canada would try to use comparable rates as what is registered in the US CG</p>	<p>intervals or as needed throughout the growing season for preventative control. Early treatment prevents diseases from developing. ZONIX Biofungicide is a contact biofungicide that controls disease upon contact with zoospores</p>
<p>Does the product replace old technology with reduced risk technology? <i>(1 point per old product replaced with reduced risk defined as a more favorable environmental or human health risk assessment)</i></p>	<p>(0) Not sure; since efficacy cannot be compared equally to conventional products</p>	<p>(0) Not sure; since efficacy cannot be compared equally to conventional products</p>
<p>Does the potential solution fit into IPM systems, i.e. low risk to beneficials <i>Insert Ipoint</i></p>	<p>Yes; low risk to beneficials; exempt from tolerance; minimal PPE; 4 hour REI; OMRI; 0-day PHI (1)</p>	<p>Yes; biodegradable, all-natural (1)</p>

<p>Does the project complement current technologies to address pesticide resistance and/or control resistant pest/disease/weed or provide an alternative mode of action? <i>Insert 1 point</i></p>	<p>Yes; another mode of action; can be used in alternation with conventional chemistries (1)</p>	<p>Yes; another mode of action; can be used in alternation with conventional chemistries (1)</p>
<p>Are there any crop grouping MRL opportunities? <i>(1 point per crop group)</i></p>	<p>Yes; 3-07 (1) (Dry bulb and green onion)</p>	<p>Yes; 3-07 (1) (Dry bulb and green onion)</p>
<p>Comments (Please use this space to make a memo of any other information that might be points of consideration such as JMPR cycle, CODEX, EPA, EU registration/MRL status, ability of a product to</p>	<p>Would only need efficacy work</p>	<p>Would only need efficacy work; already on US label but need more efficacy data to support Registration in Canada may be problematic. It is unclear if the data requirements would be met for registration in Canada. The registrant would need to request a PSCR with PMRA.</p>

<p>control multiple pest priorities, can be used across multiple crops, one formulation or premix combination used in one part of the world, regulatory needs, etc.</p> <p>No specific points, but useful information</p>		
TOTAL POINTS	7	6
GRAND TOTAL		13
		40+13= 53