

31 May 2018

Environmental Protection Agency,
Private Bag 63002
Wellington 6140

Via email: submissions@epa.govt.nz

Re: Submission on Application Number APP203336.

Application to seek pre-approval to release *Trissolcus japonicus* (the Samurai wasp) as a biocontrol agent for brown marmorated stink bug should it arrive and establish in New Zealand

I do not wish to keep my contact details confidential.

We wish for the EPA to **approve** the application.

About TomatoesNZ

Tomatoes New Zealand represents New Zealand's 130 commercial fresh tomato growers. The industry had a farm gate value of \$131m in the year ended 31 March 2018. Around 8-10% of that by value is exported to approximately 20 different countries.

Most (>90%) of the commercial fresh tomatoes grown in New Zealand are produced in about 120 hectares of greenhouses. These are predominantly located in the Auckland and Waikato area, with a couple of large facilities each in the central North Island and the top of the South Island, a cluster in Canterbury, and a number of others spread throughout other regions of NZ.

TomatoesNZ is a member of the Brown Marmorated Stink Bug Council and has been closely involved in the development of this application, because we believe BMSB poses a serious threat to the fresh tomato and wider horticultural industry, to the New Zealand natural environment, and to the social values of New Zealanders; and because our members prefer to use biocontrol agents to control pests, where possible. Biocontrol agents for pests such as whitefly are already widely used by our members.

We have had previous experience with the process of applying to EPA application to import an organism for release, having been involved in two applications to date: *Macrolophus Pygmeaus*, a generalist predator in 2014 (not approved); and *Tamarixia Triozae* a tomato/potato psyllid parasitoid, in 2016 (approved).

BMSB potential impact on the fresh tomato industry

Our research suggests that BMSB has a high preference for tomatoes as a host, and that tomato plants can support BMSB reproductive development. There are reports of significant impact on outdoor tomato crops overseas.

In field tomato crops, both nymphs and adults use their piercing-sucking mouthparts to puncture the epidermis and extract plant juices. On green tomatoes, the damage may appear as whitish spots with indistinct borders. On ripe tomatoes, the damage appears as hazy golden yellow spots. Stink bug damage may be superficial with little impact on the tomato flesh; however, heavy feeding may produce areas with whitish, spongy tissue. While damaged tomatoes are still edible, their unsightly appearance reduces their marketability, and they would likely be graded out, particularly from export lines.

Personal reports from those involved in the USA greenhouse vegetable industry, where BMSB is present, are that it does not seem to have posed a problem for indoor vegetable crops. The reason for this is unclear. There is no reason that the bugs could not enter greenhouses in New Zealand, as the greenhouses are not “closed” systems. They have unprotected vents and doors, and bugs and other insects regularly enter. It is also reported from overseas that BMSB like to overwinter in farm structures, which could make greenhouses a target for overwintering bugs. We have had personal reports that another Stink Bug species has caused problems in capsicum greenhouses in South Korea. There was a report published August 4th 2011 in the magazine Greenhouse Management “[Controlling the Brown Marmorated Stink Bug](#)” (Suzanne Wainwright-Evans and Christi Palmer) that reports a problem in ornamental greenhouse crops in the USA. So we are cautious not to interpret the lack of literature of impact on indoor vegetables as a signal that indoor fresh tomatoes would not be affected in New Zealand.

Samurai wasp as a preferred control option

TomatoesNZ believes that *Trissolcus japonicus*, the Samurai Wasp, is the best option available for future BMSB control should it be required. The reasons are:

- Our members and their customers prefer non-chemical pest control methods;
- It would be the option that would be the least disruptive to current production and pest control practises;
- Greenhouse tomato growers are already experienced in using biocontrol agents. *Encarsia Formosa*, a whitefly biocontrol agent, is one widely adopted example of a biocontrol agent that has been successfully employed by our members for many years.
- It would likely be the most cost-effective long term option.

Alternative control measures - mesh

There has been some research done to show that using mesh, particularly very fine mesh (1.02mm), on outdoor capsicum crops reduces BMSB damage, (“[Exclusion of Brown Marmorated Stink Bug with Selective Screening for Organic Production](#)”, March 2016).

While it may seem theoretically possible to exclude BMSB from greenhouses by applying mesh to vents etc., this approach has significant limitations. Applying mesh is difficult because the vents and doors are in regular motion (many movements per day) which could lead to

damage to the mesh making it ineffective at preventing BMSB infestation; or to the vents & doors not operating properly.

Modern growing techniques require adjustments to nutrition, hydration, heating and ventilation based upon the joules of energy in measured periods during different times of the day. Meshing the vents creates difficulties in controlling humidity and airflow which would significantly increase fungal and disease risk and, negatively impact upon ventilation, fruit quality and production volumes. The finer the mesh, the worse this effect is, but any potential meshing would need to be fine enough to exclude all stages of the BMSB life cycle. Finally, mesh would be a much more expensive option than an effective biocontrol agent, especially a biocontrol agent that reduces the ambient population of the pest, thus reducing the likelihood of an infestation in the glasshouse.

Alternative control measures - insecticides

Chemical control is not a preferred option. It may be possible to manage BMSB populations in greenhouse crops with pyrethroid insecticides. However these are broad spectrum chemicals that are harmful to biocontrol agents, so would disrupt their use in the greenhouse.

It is also unclear whether it will be possible to control any BMSB populations overwintering in greenhouse structures using currently available insecticides at rates acceptable for food production. Because greenhouse tomato crops are in continual production for 10-11 months throughout winter and summer, the use of high application rates or products designed for addressing overwintering BMSB may not be able to be possible.

In summary

TomatoesNZ supports the application by the Brown Marmorated Stink Bug Council to import and release the samurai wasp (*Trissolcus japonicus*) in the event of an incursion of Brown Marmorated Stink Bug (BMSB, *Halyomorpha halys*) being detected in New Zealand.

TomatoesNZ wishes to be heard in support of this submission.

Yours sincerely,



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