

## *Chlorochroa sayi* and *C. uhleri* (Hemiptera: Pentatomidae)

This short description has been prepared in the framework of the EPPO Study on Pest Risks Associated with the Import of Tomato Fruit. The whole study can be retrieved from the EPPO website.

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Africa	Asia	Oceania	North America	South-Central America and Caribbean
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### ***Chlorochroa sayi* and *C. uhleri* (Hemiptera: Pentatomidae) (respectively Say's stink bug and Uhler stink bug)**

Why	Identified in the EPPO tomato study. These two North American species were considered together here because they have a similar biology, and differ slightly in their distribution and host plants.
Where	<p><b>EPPO region:</b> absent</p> <p><b>North America:</b></p> <p><u><i>C. sayi</i>:</u> USA (throughout the Western USA; Anon., ND; UC IPM, 2011). Throughout the west, from Montana and eastern Texas west to California; found in Arkansas (although unusually east) (SimplyKitchenGarden, ND). Map in Buxton and Thomas (1983) (does not include Arkansas).</p> <p>Canada: doubtful. Several publications mention British Columbia (e.g. Anon. ND, SimplyKitchenGarden, ND). However, University of Alberta (ND) mentions that there is no record for <i>C. sayi</i> north of 46°N (map in Buxton and Thomas, 1983). Scudder and Thomas (1987) mention that <i>C. sayi</i> does not occur in Canada and that records were misidentifications of <i>C. uhleri</i>. No recent record of <i>C. sayi</i> in Canada was found.</p> <p><u><i>C. uhleri</i>:</u> USA, Canada (UC IPM, 2011, University of Alberta, ND). From Saskatchewan and the Dakotas, Nebraska and New Mexico west to the Pacific Ocean (SimplyKitchenGarden, ND). The map in Buxton and Thomas (1983) does not include Saskatchewan, only Alberta and British Columbia. Scudder and Thomas (1987) mention that records of <i>C. sayi</i> in Canada were misidentifications of <i>C. uhleri</i>.</p>
Climatic similarity	High. 9 common climates for <i>C. sayi</i> and 11 for <i>C. uhleri</i> considering the areas mentioned above.
On which plants	<p><u>For both:</u> tomato (UC IPM, 2011, Berlinger, 1987); wheat, alfalfa, <i>Salsola iberica</i>, <i>Sisymbrium altissimum</i> (Buxton and Thomas, 1983; University Alberta, ND; Anon., ND). Alfalfa, barley, oat, rye, wheat, occasionally asparagus, bean, cabbage, lettuce, pea, tomato (SimplyKitchenGarden, ND, considering <i>C. sayi</i> and <i>C. uhleri</i> together). Daane et al. (ND &amp; 2005) also mention pistachio.</p> <p><u><i>C. uhleri</i>:</u> <i>Descurainia pinnata</i> (Buxton and Thomas, 1983; University Alberta, ND). <i>Salsoa</i> spp., <i>Balsamorhiza sagittata</i> (University Alberta, ND).</p> <p><u><i>C. sayi</i>:</u> Barley, rye <i>Atriplex</i> spp., <i>Ephedra</i> spp., <i>Grayia spinosa</i>, <i>Artemisia</i> spp. (Buxton and Thomas, 1983); also red clover, grasses, weeds (Anon., ND). Regulated by New Zealand on pears from Idaho (Biosecurity NZ, 1999).</p>
Damage	Both species have a similar biology. Eggs are laid on leaves. Nymphs and adults feed on fruit and seeds, also leaves and stems (SimplyKitchenGarden, ND; UC IPM, 2011), and are mobile. UC IPM (2011) refers to green fruit, but no more information was found on whether these are preferred or whether mature fruit are also attacked. Both are mentioned amongst major pest of economic importance for tomato for North America by Berlinger (1987). In California, Hoffman et al. (1987) mention that <i>C. sayi</i> and <i>C. uhleri</i> are the less important of the stink bugs attacking tomato (compared to <i>Euschistus conspersus</i> , <i>Nezara viridula</i> , <i>Thyantha accerra</i> ); however UC IPM (2011) indicate areas where they are more prevalent than others. Both species are part of a group of bugs attacking tomato in North America (that also include <i>Thyantha accerra</i> , <i>Euschistus conspersus</i> , <i>Nezara viridula</i> ).
Dissemination	Adults fly. For tomato fruit, eggs may be associated mostly to green parts, while nymphs and adults may also be associated with fruit (but are mobile). No additional data on dissemination was found.
Pathway	Plants for planting, seeds, fruits and vegetables of host plants from countries where <i>C. sayi</i> or <i>C. uhleri</i> occurs.

Possible risks	Several hosts are major crops in the EPPO region. The climatic similarity according to the EPPO Study between the area where it occurs and the EPPO region is high.
Categorization	<u>C. sayi</u> : quarantine pest for Korea Rep. 2011 (from IPP) <u>C. uhleri</u> : none found
Sources	Anon. ND. Stink bugs <i>Chlorochroa sayi</i> and <i>Euschistus conspersus</i> . <a href="http://insects.ippc.orst.edu/pdf/reb73.pdf">http://insects.ippc.orst.edu/pdf/reb73.pdf</a> (Accessed January 2014) Berlinger MJ. 1987. Pests. pp 391-441 In <i>The Tomato Crop, A scientific basis for improvement</i> (eds Atherton JG and Rudich J). Chapman and Hall, London - New York. Biosecurity NZ. 1999. Import Health Standard Commodity Sub-class: Fresh Fruit/Vegetables Pear, <i>Pyrus communis</i> from the United States of America - State of Idaho. Date Issued: 4 November 1999. <a href="http://www.biosecurity.govt.nz/files/lhs/pear-us-id.pdf">http://www.biosecurity.govt.nz/files/lhs/pear-us-id.pdf</a> Buxton GM, Thomas DB, Froeschner RC. 1983. Revision of the species of the Sayi-group of <i>Chlorochroa</i> Stål (Hemiptera: Pentatomidae). Occasional papers in Entomology No. 29. State of California, Dept. of Food and Agriculture, Division of Plant Industry, Laboratory Services. Daane KM, Millar JG, Rice RE, da Silva PG, Bentley WJ, Beede RH, Weinberger G. ND. Stink bugs and leafhoppers. Unidentified publication, University of California, pp. 186-196. <a href="http://fruitsandnuts.ucdavis.edu/files/73703.pdf">http://fruitsandnuts.ucdavis.edu/files/73703.pdf</a> (Accessed January 2014) Daane KM, Yokota GY, Krugner R, Steffan SA, da Silva PG, Beede RH, Bentley WJ, Weinberger GB. 2005. Large bugs damage pistachio nuts most severely during midseason. <i>California Agriculture</i> , Volume 59, no. 2, 95-102 Hoffmann MP, Wilson LT, Zalom FG. 1987. Control of stink bugs in tomatoes. <i>California Agriculture</i> , May-June 1987, . <a href="http://ucce.ucdavis.edu/files/repositoryfiles/ca4105p4-63016.pdf">http://ucce.ucdavis.edu/files/repositoryfiles/ca4105p4-63016.pdf</a> Quarantine list for Korea Rep 2011 (from IPP) Scudder GGE, Thomas DB. 1987. The Green Stink Bug Genus <i>Chlorochroa</i> Stål (Hemiptera: Pentatomidae) In Canada. <i>The Canadian Entomologist</i> / Volume 119 / Issue 01 / January 1987, pp 83-93 SimplyKitchenGarden. ND. Say stink bug <i>Chlorochroa sayi</i> (Stål) and Uhler Stink Bug <i>Chlorochroa uhleri</i> (Stål) (Hemiptera: Pentatomidae). <a href="http://www.simplykitchengarden.com/vegetablepests/117.html">http://www.simplykitchengarden.com/vegetablepests/117.html</a> (Accessed January 2014) UC IPM. 2011. Pest Management Guidelines: tomato. University of California. University Alberta. NDb. <i>Chlorochroa uhleri</i> . Entomology collections. <a href="http://www.entomology.ualberta.ca/searching_species_details.php?b=Hemiptera&amp;c=7&amp;PHPSESSID=955f26cdf7d893f5d5dc161b6d53f0e8&amp;s=4755">http://www.entomology.ualberta.ca/searching_species_details.php?b=Hemiptera&amp;c=7&amp;PHPSESSID=955f26cdf7d893f5d5dc161b6d53f0e8&amp;s=4755</a> (Accessed August 2013)