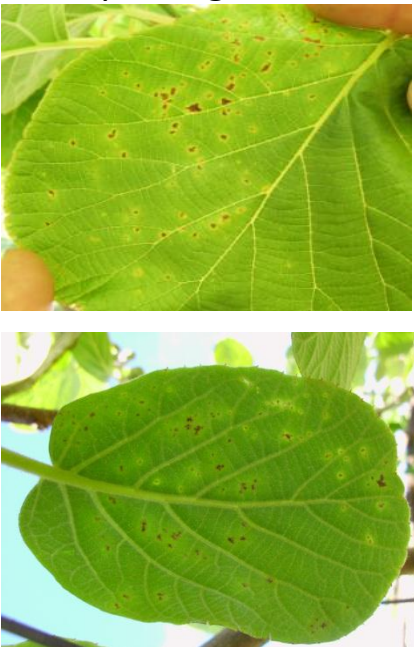






Psa-V symptoms guide for ZESPRI varieties

Symptoms	Hort16A	Gold9	Gold3	Hayward	Green14	Sampling method (refer KVH factsheet <i>Psa-V Sampling</i>)
<p>Leaf spotting</p> 	<ul style="list-style-type: none"> • Dark, irregular spots filling intervein areas—sometimes with a halo. • Check male vines. Particularly look at younger leaves and those on strings or on top of the canopy. • This may be the first sign of infection. • Spring is the best time to look. It becomes difficult from late summer/early Autumn when leaves begin to break down. 	<ul style="list-style-type: none"> • Not commonly seen in this variety. • Often the first signs are shoot/cane dieback. • Look at Bruno suckers at base of vines for signs of leaf spotting. 		<ul style="list-style-type: none"> • Similar spotting to Hort16A but harder to determine from late summer/early autumn. • Check younger leaves and those on top of canopy and in more exposed areas. • Look in areas where prevailing wind enters the orchard. 		<ul style="list-style-type: none"> • Collect spotted leaves –make sure the leaves are in good condition and preferably not spray damaged. • If there are signs of leaf breakdown (eg, Autumn) choose the freshest spotted leaves you can find. If the leaves are in poor condition it may pay to take a cane sample from the same vine (nearest to the spotted leaves).
<p>Shoot dieback</p> 	<ul style="list-style-type: none"> • Dead leaves at the end of a shoot indicate the shoot is blackened and dying from the tip. • Check this symptom is not the result of wind/frost damage. 			<p>Not common, but if present, symptoms are similar to Hort16A.</p>	<p>Not commonly seen.</p>	<ul style="list-style-type: none"> • See below for cane samples.

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Cane leader dieback 	<ul style="list-style-type: none"> • Look for areas where leaves are dying and/or fruit is shrivelling. The affected cane may be dark, withered and dehydrated. It can be just the middle of the cane affected or it could be the end. • If these symptoms are seen, check it is not the result of wind damage. • If it is Psa, the affected cane will still be firmly attached to the vine. 	<ul style="list-style-type: none"> • As for Hort16A. • Particularly look for canes which may be exposed to wind damage and those rubbing on wires. These areas can often be pathways for infection. • Red ooze may also be seen on canes dying back. 		Not commonly seen, but if present, signs are similar to Hort16A.	Not commonly seen.	<ul style="list-style-type: none"> • When taking a cane sample, ensure you have a piece no longer than 20cm which contains some of the unaffected cane as well as the dead, or shrivelled, piece. • Use clean, sanitised secateurs and ensure the cut is sealed. Try not to handle the cane sample. Place each cane in a separate, clearly labelled, sealed bag. Seal samples again in a larger bag clearly labelled with KPIN.
Red exudate 	<ul style="list-style-type: none"> • Often seen on leaders and trunks. Usually accompanied by cane dieback. 		<ul style="list-style-type: none"> • Typically associated with wounds. 	If a result of Psa infection, it would be accompanied by other symptoms.	Not seen in this variety as yet.	If the exudate is very fresh and runny, it may be collected in a test tube (Contact either Hill Laboratories or VLS for a suitable test tube to use.) Do not touch the exudate. Use a toothpick or scalpel to put it in the test tube.
	<ul style="list-style-type: none"> • Red exudate is not a reliable indicator of Psa infection on its own. Testing will confirm if it is a result of Psa-V. 			Red exudate is not a reliable indicator of Psa infection on its own. –Testing will confirm if it is a result of Psa-V.		It may be easier to collect the piece of cane with the exudate in it –bag as normal.

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White exudate 	<ul style="list-style-type: none"> White exudate indicates pure inoculum. Only common in areas with extremely high levels of Psa. Expect to see other symptoms in conjunction with this. Red exudate is also likely to be present. 			Uncommon	Uncommon	Not seen in this variety as yet.	If the exudate is very fresh and runny, it may be collected in a test tube (Contact either Hill Laboratories or VLS for a suitable test tube to use.) Do not touch the exudate. Use a toothpick or scalpel to put it in the test tube. It may be easier to collect the piece of cane with the exudate in it. Bag as normal.

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