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Comparison of two integrated management plans for kiwi crops against *Pseudomonas syringae* pv. *actinidiae* using a Decision Support System

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The Decision Support System (DSS)

The DSS is an evaluation tool to compare integrated pest management (IPM) plans across various performance indicators (see also Humphreys *et al.* poster).

DRPSA - Assessment Tool for IPM package measures
 Wtfs. A tool for assessing IPM packages

Commodity: If this is your selection then please proceed to Part B

Select pest:

TABLE A1: Background information for the selection of measures for IPM package

Commodity addressed by this IPM package		Species	Date (D/M/Y)	Origin/Source
Kiwi		<i>Pseudomonas syringae</i> & <i>truncata</i> (Dutka)	17/11/2017	Italy

TABLE A2: Background information for the selection of measures for IPM package

Pest species addressed by this IPM package		Producing Country/Region
Kiwi canker - Psa		Italy

The Disease: *Pseudomonas syringae* pv. *actinidiae* (Psa)

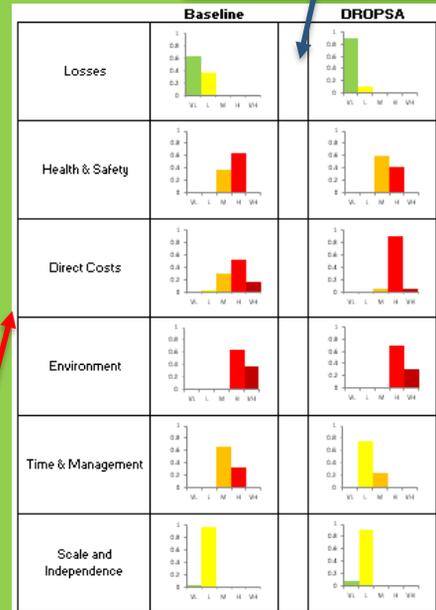
Psa is commonly known as Kiwi Canker. First detected in China and Japan in the 1980s, it spread to Europe in the 1990s and a severe outbreak occurred in Italy in 2008. It is now causing significant economic losses to kiwi farmers within the EU. For example, over €40 million was lost in revenue due to Psa damage in Italy during 2010 and 2011¹.



Top left: Map of Psa distribution in Europe²
 Above: Infected kiwi plants^{3,4}

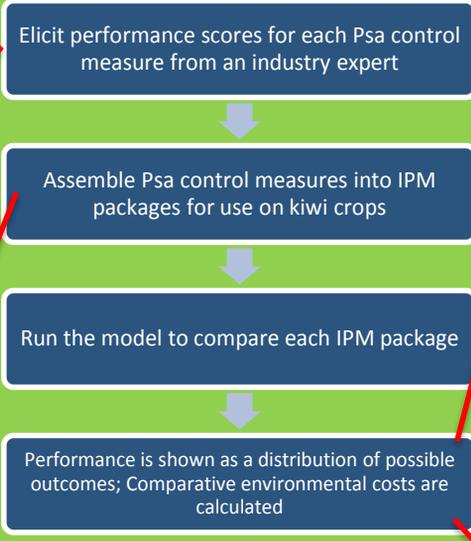
The DSS in action

IPM packages rated from very low (green) to very high (red). Green signifies a more positive outcome and red a more negative one.



All performance measures are combined to give an overall IPM package evaluation. In this example, the DRPSA package performs better.

Type-Measure/Al	Efficacy Score	Efficacy Uncertainty
Agro - Fertiliser (150kg/ha)	4	3
Agro - Fertiliser (70kg/ha)	3	3
Agro - Irrigation (standard)	3	3
Agro - Irrigation (Drip/70% field capacity)	2	3
Agro - Bioregulators (Stofex + Maxim)	3	2
Agro - Bioregulator (Stofex)	2	2
Agro - Pollination (standard)	4	4
Agro - Pollination (assisted/certified pollen)	2	1
Agro - Pruning (Summer and Winter)	3	3
Agro - Pruning (Leaf fall)	2	2
Agro - No tunnel	4	2
Chem - Acibenzolar-S-methyl	3	3
Chem - ASM - Acibenzolar-S-methyl	3	3
Chem - Copper (I) oxide	2	3
Chem - ASM - Copper (I) oxide	2	3
Chem - Copper sulphate	2	3
Chem - Acibenzolar-S-methyl + Copper (I) oxide	2	2



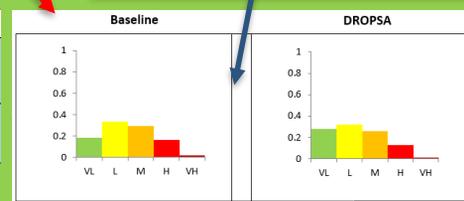
Scoring includes the control measure's performance and the uncertainty attached to that performance. Higher numbers signify a less positive outcome. All measures are scored with regard to:

- Efficacy (i.e. potential crop losses)
- Health and safety impacts
- Direct cost
- Environmental costs
- Time and management effort
- Scale and independence of use

Chemical measures are also evaluated for:

- Environmental Impact Quotient
- Pesticide Environmental Accounting

Reference name of proposed IPM package	Measure 1	Measure 2	Measure 3	Measure 4	Measure 5	Measure 6	Measure 7	Measure 8	Measure 9	Measure 10	Measure 11	Measure 12	Measure 13	Measure 14	Measure 15
BASILINE	Agro - Fertiliser (150kg/ha)	Agro - Irrigation (standard)	Agro - Bioregulators (Stofex + Maxim)	Agro - Pollination (standard)	Agro - Pruning (Summer and Winter)	Agro - No tunnel	Chem - Acibenzolar-S-methyl + Copper (I) oxide	Chem - Copper (I) oxide	Chem - Copper (I) oxide	Chem - Copper (I) oxide					
DRPSA	Agro - Fertiliser (70kg/ha)	Agro - Irrigation (Drip/70% field capacity)	Agro - Bioregulator (Stofex)	Agro - Pollination (assisted/certified pollen)	Agro - Pruning (Leaf fall)	Agro - Tunnel	Chem - Acibenzolar-S-methyl + Copper (I) oxide	Chem - Copper (I) oxide	Chem - Copper (I) oxide	Chem - Copper (I) oxide					



References

1. DRPSA. Welcome to DRPSA. <http://dropsaproject.eu/>. Updated 2015. Accessed 03/01/2018.
2. EPPO Global Database. *Pseudomonas syringae* pv. *actinidiae* (PSDMAK). <https://gd.eppo.int/taxon/PSDMAK/distribution>. Updated 2017. Accessed 12/19/2017.
3. The Kiwi Fruit Claim. About PSA. <http://thekiwifruitclaim.org/page/about>. Accessed 12/19/2017.
4. DRPSA. DRPSA brochure. <http://dropsaproject.eu/index.cfm?pageid=11>. Updated 2015. Accessed 03/01/2018.