Global Minor-Use Summit

December 2007
Rome

Current state of specialty crop programs, initiatives and challenges in Oceania

Peter Dal Santo
Oceania agricultural overview

**Australia**
- Industry: 133,000 farms (beef – 27%, mixed 13%)
- Total GDP: US$32.6 billion
- Export: US$25.5 billion (grains, wine, meat, horticulture)
- Major: livestock, cereals, pulses, oilseeds, horticulture
- Registrations: 4000+ products, mostly generics (60% herb)
- Sales: US$1.0 billion/annum
- Highly competitive, small base, few R&D companies
- New product/new uses registered: 100 applications annually
- Compounds under review: 70+
- Minor: few registrations, minor-use/emergency permits
  - 1147 MU permits (514 hort, 216, vet 417 grains & other)
  - 300 new permits, 200 renewed annually
- Regulation: 7 states, all different Control-of-Use legislation
  - 2 states have significant exemptions
  - 2 MRL codes

**New Guinea**
- Unknown
- Follow Aust uses?

**Pacific Islands**
- Unknown
- Follow NZ uses?

**New Zealand**
- Industry: 80,000 farms (1.9 m ha forestry)
- Total GDP: US$8.0 billion
- Export: US$17.5b – dairy, meat, forestry, horti
- Major: forestry, dairy, fruit, livestock, grapes
- Registrations: 2925 products, mostly generics (70% by 2010)
- Sales: US$200 million/annum
- Highly competitive, small base
- New product/new uses registered: 10+ annually
- Minor: few registrations
- Regulation: default MRL

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Agencies involved in minor-use
(no overall crop program)

GRDC
HAL
RIRDC
Other RDC
State DPI
Industry

HortNZ
Crop & Food Research
Agresearch
Industry

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Pesticide Regulation (access)

Australia

Pesticide registrations
Minor-use/emergency permits
(off-label approvals)
State exemptions

New Zealand

Pesticide registrations
Default MRL

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Australian program

Pre 2000 - all industries acted independently
2000-2003 – coordinated approach in vegetables and some grains
2004 – onwards
- all horticultural industries involved & coordinated
- all minor grains & oilseeds involved
- orphan industries

Aim:
- Consolidation of existing permits
- Emphasis on IPM (horti)
- Cost sharing
- Reduce emphasis on ‘old’ pesticides (horti)
- Increase alternatives (grains)
- Increase availability (others)

Process:
- Industry submissions – from all sources (now modified to SARP)
- Priority setting – industry & expert driven
- Data requirements – manufacturer & APVMA
- Trial costs – industry & manufacturers
- Data generation, submission and APVMA assessment
- Permit issued, convert to label
- Timelines – 2-3 years (US$15-60K + fees)

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Applicants for pesticide minor use permits
- Government: 35%
- Peak industry bodies: 45%
- Individuals: 5%

Pesticide minor use permits functionality
- Insecticide: 50%
- Herbicide: 30%
- Fungicide: 20%

Major agricultural (pesticide) sectors applying for minor use permits
- Vegetable: 27%
- Fruit & nuts: 25%
- Non-crop: 16%
- Broadacre: 12%
- Forestry: 6%
- Other: 4%

Purpose of minor use permit applications for pesticides
- New crop / situation: 71%
- Additional uses: 16%
- Varied application method: 5%
- Lower rate: 2%
- Higher rate: 1%
- State extensions: 5%

New Zealand program
- Default MRL

Change in major/minor definition (APVMA initiative)
- Aim: convert all permits to labels

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Strategic agrichemical review process – WHY?

- Industry submissions (reactive, no planning)
- Future of some chemistry – rationalisation, reviews, others

- Strategic approach (proactive, planned)
  - Industry links – existing information
  - Viability & options
  - Residues
  - IPM
  - Resistance management
  - Trade
- Market acceptance
- Sound future

Involvement – Australia & New Zealand (horticulture)
  – Australia (grains & oilseeds) – to be initiated
CROP

Current disease, insect and weed problems

List of currently registered pesticides available
List of currently permitted pesticides available

Parameters to consider

IPM

Resistance & alteration

Environment

Residues & Export

Pesticides is suitable

Reasons why pesticide is not suitable

Continued to use

List of GAPS in available control measures

Possible control options

Beneficials

Agrochemicals

Australian/NZ & overseas information

Support from manuf.

Parameters to consider

Support from experts

IPM

Resistance & alteration

Environment

Residues & Export

INDUSTRY REVIEW / ASSESSMENT

Suitable pesticide is selected

Pesticide data generation

Apply for registration or minor-use permit (Aust)

Outcomes from existing projects

Overseas programs options

Joint international projects
## Current state of specialty crops - Oceania

### SARP - Stage 1 (pests & pesticides)

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease name</td>
<td>Importance</td>
<td>Active ingredient</td>
<td>Product</td>
<td>Chemical group</td>
<td>WHP (days)</td>
<td>Commonly used</td>
<td>CURRENT PRODUCT SUITABILITY</td>
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<td>Alternaria rot or Target spot</td>
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<td>azoxystrobin</td>
<td>Anstar</td>
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<td>or Early blight</td>
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<td>chlorothalonil</td>
<td>Bravo</td>
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<tr>
<td>Bacterial canker</td>
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<td>Copper</td>
<td>Various</td>
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<td>Copper</td>
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<td>Bacterial speck</td>
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<td>Copper</td>
<td>Various</td>
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<td>Chlorothalonil</td>
<td>Bravo</td>
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<td>Damping off or Phytophthora soil</td>
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<td>Metalaxyl</td>
<td>Apreon</td>
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<td>Fusaroal</td>
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<td>Miconazole</td>
<td>Miconazole</td>
<td>Y</td>
<td>7</td>
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<td>Grey leaf spot or Leaf mould</td>
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<td>Miconazole</td>
<td>Miconazole</td>
<td>Y</td>
<td>7</td>
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<td>Irish (Late) blight</td>
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<td>azoxystrobin</td>
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<td>Miconazole</td>
<td>Y</td>
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<td>Powdery mildew</td>
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<td>Sulphur</td>
<td>Thanevit</td>
<td>Y</td>
<td>NA</td>
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<td>Rust</td>
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<td>Sulphur</td>
<td>Thanevit</td>
<td>Y</td>
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<td>Sclerotinia rot</td>
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<td>Azoxystrobin</td>
<td>Anstar</td>
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<td>Sclerotium base rot</td>
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<td>Quinozole</td>
<td>Panacene</td>
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</table>
# Current state of specialty crops - Oceania

**SARP - Stage 2 (information gathering)**

<table>
<thead>
<tr>
<th>Disease name</th>
<th>Importance</th>
<th>Active ingredient</th>
<th>Commodity used</th>
<th>CURRENT PRODUCT SUITABILITY (availability, efficacy, IPC, residues, resistance, trade, WHIP)</th>
<th>Possible peroxide alternatives</th>
<th>PESTICIDE GROUP</th>
<th>IPC suitability</th>
<th>Residues suitability</th>
<th>Initial pesticide to pursue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternaria rot or Target spot (Early blight)</td>
<td>generally considered minor disease, problem in smaller OR at poor ventilation</td>
<td>guanzaine</td>
<td>commonly used</td>
<td>Resistance Management Strategy needed. Possible phytotox effects (temperature). SA to provide use pattern. 2 applications per season per year.</td>
<td>Acrobat (dimethomorph) - systemic; curative</td>
<td>X</td>
<td>?</td>
<td></td>
<td>Acrobat</td>
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<tr>
<td>Anthracnose</td>
<td>not a problem</td>
<td>mancozeb</td>
<td>never used</td>
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<tr>
<td>Bacterial canker</td>
<td>generally considered minor disease</td>
<td>Copper</td>
<td>commonly used</td>
<td>Management &amp; hygiene issue. Copper oxychloride used as preventative.</td>
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<td>Horticane (chlorothalonil) - in water &amp; (slurry)</td>
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<td>Bacterial speck</td>
<td>generally considered minor disease</td>
<td>Copper</td>
<td>commonly used</td>
<td>Management &amp; hygiene issue. Copper oxychloride used as preventative. Curative not effective. IR may have new options.</td>
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<td>Bacterial spot</td>
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<td>Botrytis rot or Grey mould</td>
<td>post harvest only</td>
<td>spores</td>
<td>never used</td>
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<td>Brown spot or Grey mould</td>
<td>major problem on fruit and wounds</td>
<td>mancozeb</td>
<td>commonly used</td>
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<td>Cedar blight</td>
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Current state of specialty crops - Oceania

SARP - Stage 3 (industry report)

Tomatoes (processing)

Introduction
An assessment of the current chemicals used for the major pests in greenhouse tomatoes was conducted. Registration was divided into 'registered specifically for greenhouse tomatoes' and 'registered specifically for field tomatoes' and 'registered for tomatoes but doesn't distinguish between field or greenhouse'.

Diseases of Tomato
The major disease of tomato include:

<table>
<thead>
<tr>
<th>Common name</th>
<th>Scientific name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botrytis</td>
<td>Botrytis cinerea</td>
</tr>
<tr>
<td>Powdery Mildew</td>
<td>Powdery mildew</td>
</tr>
</tbody>
</table>

HIGH PRIORITY
Late blight
Leptosphaeria pyrospora

MODERATE PRIORITY
Leaf spot
 Fusarium oxysporum
 Pythium root rot

LOW PRIORITY
Pythium root rot
Gummy stem blight

Botrytis (High priority disease)
- Chemicals registered specifically for field tomatoes include:
  - Chlorothalonil (Corval)
  - Tebuconazole (Prontosil)
  - Bifenazate (Pebane)

Now not all chlorothalonil products are registered for tomatoes.

Products with activity against Botrytis currently available in Australia
- Switch (cyprodinil + fludioxonil)
- Scala (pyraclostrobin)
- Baythion (carboxin)
- Teldor (thiamethoxam)
- Compass (buprofezin)
- Farm (bifenthrin)
- Sixin (sulphur)
- Sumitro (carbendazim)
- Ecobest (R oxadiazole)
- Inجل (baytril)

Activites with activity data available
- Switch (cyprodinil + fludioxonil) - Syngenta, USA released, use pattern same, MRL Codes, US EPA @ 1.0 - 0.5 ppm
- Teldor (thiamethoxam) - Bayer, USA released, use pattern same, MRL Codes, US EPA @ 0.5 ppm
- Compass (buprofezin) - registration in US, biological
- Scala (pyraclostrobin) - Bayer, no data available
- Bantol (carbendazim) - Bayer, no data available
- Sumitro (carbendazim) - Bayer, no data available
- Resistent (carbendazim) - Bayer, no data available
- Compass (buprofezin) - Bayer, no data available
- Inجل (baytril) - Bayer, no data available

Apologies for omissions
- Epros (thiophanate) - Bayer, no data available

Apologies for omissions
- Epros (thiophanate) - Bayer, no data available

Active EPM fit

<table>
<thead>
<tr>
<th>Active</th>
<th>Learning</th>
<th>Lodging</th>
<th>Phytoxicity</th>
<th>Preyability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyprodinil (S)</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>Buprophis (S)</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
<td>Excellent</td>
</tr>
<tr>
<td>Pyraclostrobin (S)</td>
<td>Excellent</td>
<td>Excellent</td>
<td>Excellent</td>
<td>Excellent</td>
</tr>
<tr>
<td>Baythion (S)</td>
<td>Fair</td>
<td>Poor</td>
<td>Poor</td>
<td>Poor</td>
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<tr>
<td>Sumitro (S)</td>
<td>Poor</td>
<td>Poor</td>
<td>Poor</td>
<td>Poor</td>
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<tr>
<td>Ecobest (S)</td>
<td>Excellent</td>
<td>Excellent</td>
<td>Excellent</td>
<td>Excellent</td>
</tr>
</tbody>
</table>

Initial products to pursue
- Switch (cyprodinil + fludioxonil)
- Teldor (thiamethoxam)
- Compass (buprofezin)
- Farm (bifenthrin)
- Sixin (sulphur)
- Sumitro (carbendazim)
- Ecobest (R oxadiazole)
- Inجل (baytril)

Manufacturer support
- Switch (cyprodinil + fludioxonil) - Syngenta 222
- Teldor (thiamethoxam) - Bayer 222
- Compass (buprofezin) - Dixon 222
- Farm (bifenthrin) - Bayer 222
- Sixin (sulphur) - Bayer 222
- Sumitro (carbendazim) - Bayer 222
- Ecobest (R oxadiazole) - Bayer 222
- Inجل (baytril) - Bayer 222

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Current state of specialty crops - Oceania

Conducted & Future SARP

- artichoke
- bean
- beetroot
- berries (Rubus/Ribes)
- blueberries
- brassicas leafy vegetables
- broccoli
- Brussels sprout
- cabbage
- capsicum, chilli, paprika (GH & field)
- carrot
- cauliflower
- celery
- cucumber (GH & field)
- eggplant
- endive
- fennel
- leek
- lettuce (GH & field)
- lychee
- mango
- melon & bitter melon
- oilseeds – safflower, mustard
- onion
- papaya
- parsley
- parsnip
- pea
- potato (fresh & processing)
- pulses – adzuki beans, chick peas, faba beans, field peas, lentils, lupins, mung beans
- pumpkin
- radish
- rhubarb
- silverbeet
- snow pea & sugar snap pea
- spinach
- spring onion / shallots
- strawberry
- sweet corn
- sweet potato
- tomato (GH, processing & field)
- turf
- vegetable seedling nurseries
- zucchini

Proposed crops – canola, pome fruit, stone fruit, nuts, production nursery, table grapes
Possible pesticide initiatives

**Insecticide**
Aim: Reduced risk
(horticulture)
: Provide some options
(grains & other)

**Fungicide**
Aim: Reduced risk
(horticulture)
: Provide some options
(grains & other)

**Herbicides**
Aim: Reduced risk
(horticulture)
: Increase alternatives
(grains)
: Provide some options
(other)

Future pesticides - 100% control ???
Biopesticides – access, reliability, registration ???
Biologicals – access, reliability, registration ???
Current state of specialty crops - Oceania

Current issues

- Orphan industries – new government initiative (A$6.0 m)
- Domestic & export residue compliance
- Secondary standards by retailers
- New pesticide /management alternatives for:
  - Insects - Fruit fly, thrips, whitefly
  - Diseases – Mildews, Sclerotinia
  - Weeds - Herbicide resistant
- Management options for emerging pests:
  - Nematodes
  - Soil diseases
  - Viruses
- Pest management for greenhouse crops (horticulture)
- Impact of pesticides on beneficials (integrated approach)
- Reliable technical information
- Introduction of ‘effective’ biologicals and biopesticides
- ‘Pathways to Registration’ (grains initiative)
- Access to new technologies
- Incentive to register (permits, dMRL)

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Links with IR4 (USA) & PMC (Canada)

- Collaborative development of ‘needed’ RR pesticides
  - Australian vegetables committed, other horti to follow
  - Australian grains – looking for opportunities
  - New Zealand very interested and could form part of Oceania collaboration (horticulture)

- Maximise Australian investment
  - Collaborative projects – on-going association
  - Residues and efficacy trials
  - Support of Aust manufacturer to register use (essential)
  - International initiative with APVMA association - registration

Some of these products / uses many not be available to Australian / New Zealand agriculture without this cooperation.
Current state of specialty crops - Oceania

Challenges

1. Australia – drought, manufacturer support, regulators, development costs
2. New Zealand – market size, manufacturer support, regulators, development costs
3. Communication network
4. Orphan industries
5. Timeliness from proposal to permit/registration
6. Motivation of all industries to become involved
7. Options for major crops – MUP (Australia)?
8. Contractors capacity
9. Data generation/requirements & APVMA/ACVM assessment timeframes
10. Residue compliance – domestic & export
11. Varying state Control-of-Use legislations (Australia)
12. Involvement of retail network
13. Involvement of manufacturers (registration & new chemistry)
Current state of specialty crops - Oceania

Industry outcomes

- Solve management problems by protecting growers' crops from diseases, insects and weeds
- Provide crop protection options
- Manage resistance, IPM, safety, residue, trade, chemical reviews
- Meet legal requirements regarding chemical use & residues
- Address food residue issues
- Meet the requirements of quality assurance systems and export markets
Contact details

HORTICULTURE

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GRAINS

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