Sample Collection and Resources for Growers

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Value of California Nursery Products

	2011-2012
A. FLORAL PRODUCTS	
1. Cut flowers	$477,185,000
2. Flower seeds	5,735,000
3. Christmas trees	4,232,500
TOTAL	**$487,152,500**
B. NURSERY PRODUCTS	
1. Potted plants & flowering foliage	$593,728,000
2. Bulbs, corms, roots & tubers	7,779,000
3. Propagative materials	42,779,000
4. Bedding plants	400,586,000
5. Rose plants	26,663,000
6. Woody deciduous & evergreen ornamentals	936,614,000
7. Herbaceous perennials	50,881,000
8. Turf & sod	39,477,000
9. Nursery stock other than ornamentals	702,981,900
TOTAL	**$2,801,488,900**
C. GRAND TOTAL	**$3,288,641,400**

CDFA Nursery Program
The contents provided by USDA-NASS
Revised 4/10/2013

Entoloma polysporum, 1997

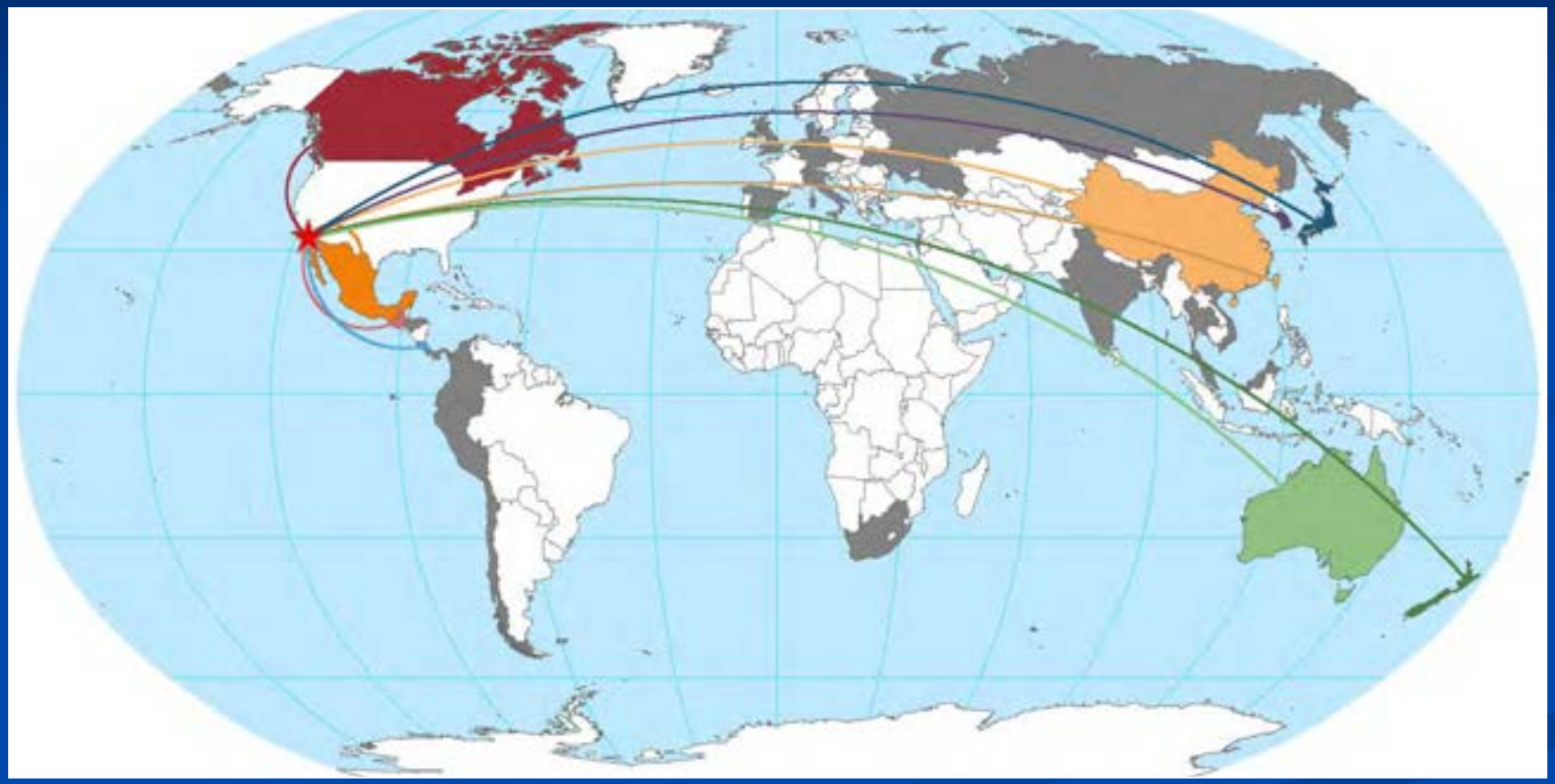
Leading Counties in 2011/12

1. SAN DIEGO	$1,092,917,000
2. MONTEREY	260,703,000
3. VENTURA	214,047,000
4. RIVERSIDE	200,057,000
5. SANTA BARBARA	185,024,000
6. SANTA CRUZ	122,598,000
7. SAN MATEO	111,083,000
8. LOS ANGELES	104,343,000
9. SAN LUIS OBISPO	96,454,000
10. STANISLAUS	95,645,000

- CDFA Nursery Program
- The contents provided by USDA-NASS
- Revised 4/10/2013

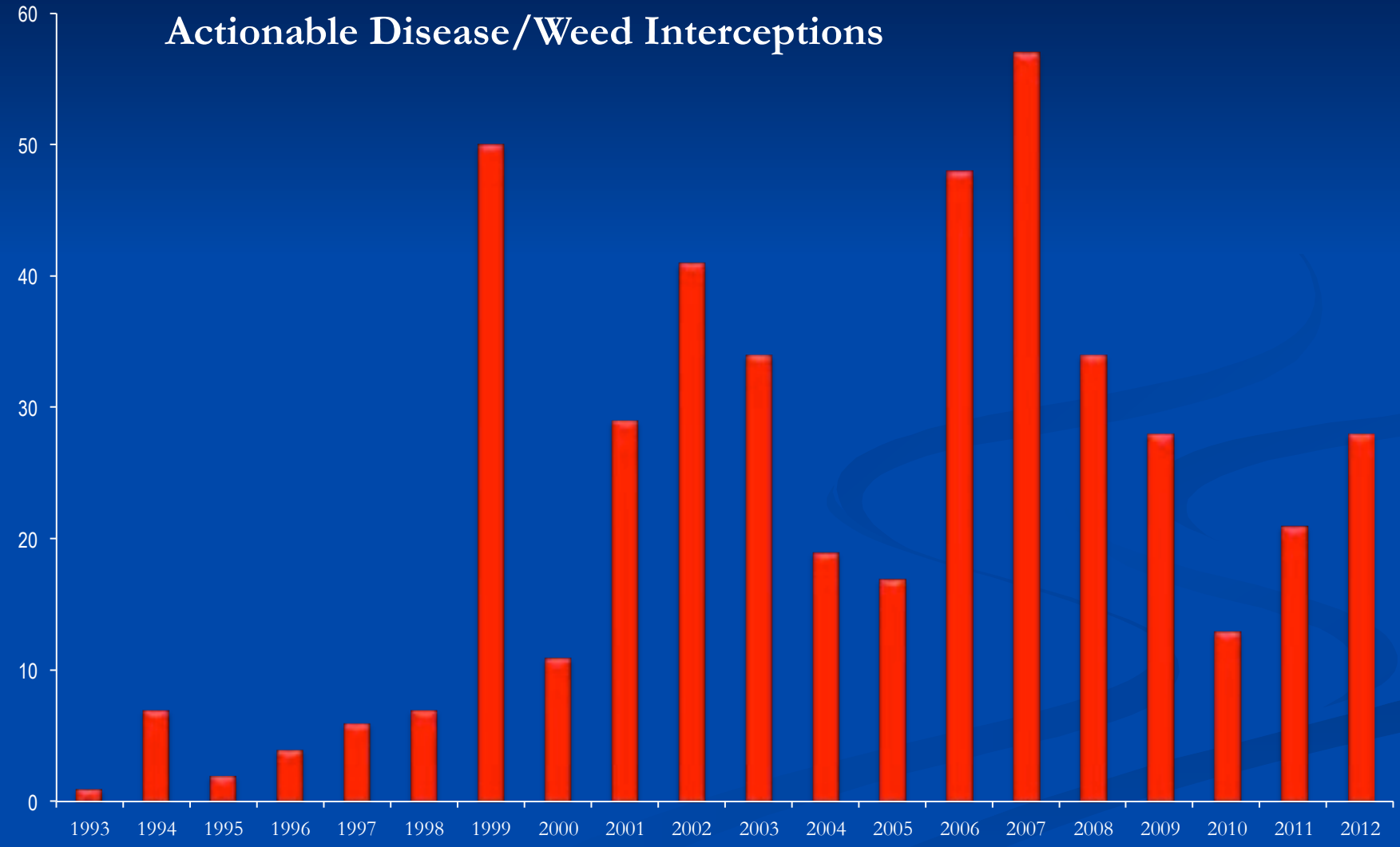
Phytophthora tropicalis on *Epipremnum*

Where do they go?



8,645 shipments to 46 countries
Source: 2012 Annual Crop Report

How many do we find?



Quarantines

Asian Citrus Psyllid Quarantine

- Includes the entire counties of: Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego, Santa Barbara, and Ventura
- Part of Tulare County

A diagnosis is only as good as the information and samples provided. **Make them count.**

- If unsure, call the lab 1st to discuss your specific situation.
- We find pests from all over the world. It is possible to have a problem not known to occur here.

Puccinia psidii on myrtle

Where to Start

Oidium aloysiae on *Aloysia triphylla (2012)*

- Other growers
- Nursery (source of the plants)
- UCCE Farm Advisors
- Private Lab such as Soil and Plant Lab of Anaheim/San Jose (soilandplantlab.com), Agdia in Elkhart, IN (agdia.com)
- Agricultural Commissioners Office: Los Angeles, Orange, Santa Barbara & San Diego Counties have labs

How To Take A Good Sample For Diagnosis

Botrytis sp. on pitahaya

Step 1: Gather Information

- What plant(s) are affected? If name of plant is unknown, provide enough of a sample to identify the plant- include branch, whole leaves, fruit, flowers, approximate age, height, growth habit (tree, shrub, herb), etc. Labs appreciate it if at least warned about spines or other painful or irritating parts.
- Check irrigation schedule and potential for chemical exposure. It's always better to take a sample before any pesticides are used.

1. Gather Information

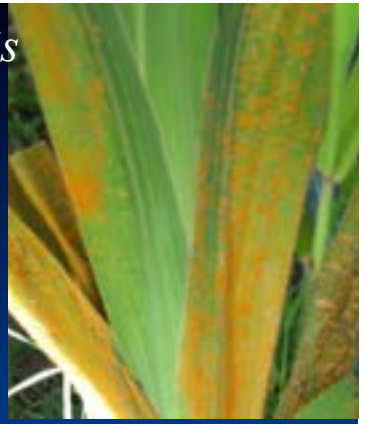
- Be specific. "Watered as needed" or "It looks funny" aren't as helpful as "Watered for 10 min. 3 times a week" or "Older leaves have been turning yellow and falling off prematurely for about a month."

Drechslera cactivora
on holiday cactus

1. Gather Information

- Look for patterns on the plant, in the location or temporal. Is only the new growth affected? Only plants on one part of a location? All the plants or only one variety? Did symptoms show up after a weather event or trauma to the plant?

Gladiolus rust caused by *Uromyces transversalis*



2. Take the Sample

- When possible, be generous. A few whole plants with roots and soil intact are the ideal. Looking for a pest is destructive and samples may go to >1 lab or have >1 test done.
- Sample should be fresh, not completely dead, or dehydrated.
- Pictures are helpful when entire plant cannot be brought in. They also show the area around the plant that can't be transported.

2. Take The Sample

- Isolation of a pathogen is done from the healthy-diseased margin in the plant tissue, so include healthy and diseased portions. There is less of a chance of finding a pathogen when the sample is in the advanced stages of decay.
- Keep it cool until it gets to the lab.

Possible sunscald

What Happens In The Lab

1. Visual Exam

- What is the plant?
- Any insects or insect damage?
- What signs or symptoms are present?

Apple scab caused by *Venturia inaequalis*

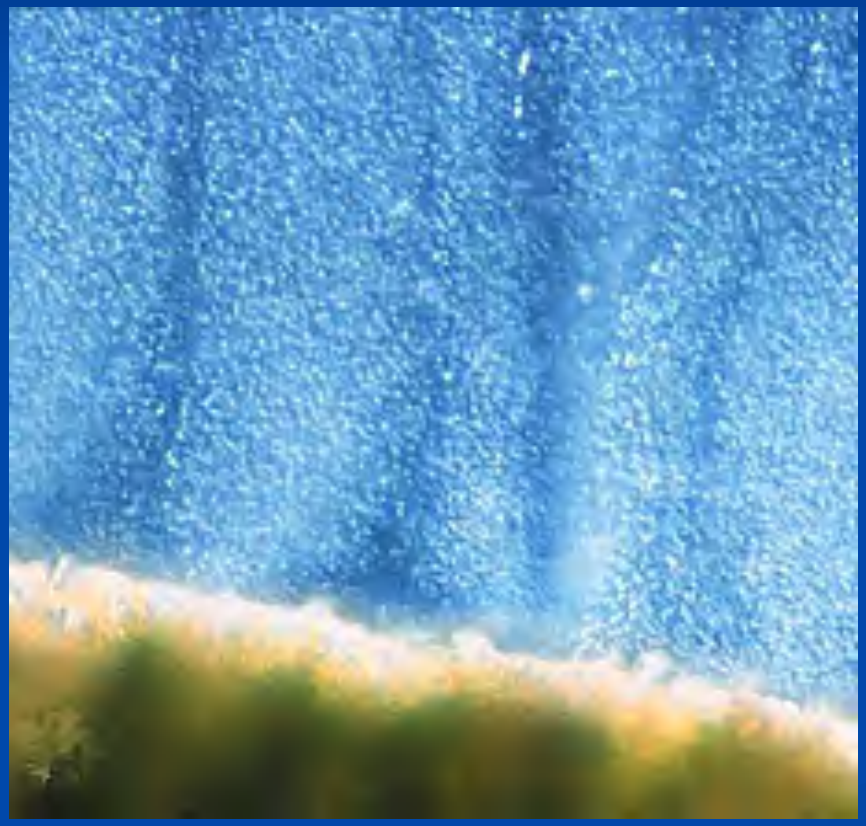
2. Microscopic Exam
Dissecting Microscope

- Check for fungal growth, insects, mites, etc.

Oedema on geranium

3. Microscopic Exam
Compound Microscope

- Used to see pathogens



Bacterial streaming

Teliospores of *Puccinia horiana* which causes white rust of chrysanthemum

4. Other Tests

- Cultures
- Moist chamber
- Nematode extraction

5. Specialized Tests-Send To Another Lab

- Sudden Oak Death
- Pierce's Disease
- Virus Testing
- Confirmation of pest of quarantine significance

New Disease : Impatiens Downy Mildew Caused by *Plasmopara obducens*

Disease Management

- Weights

  Sanitation

  Water

  Soil Texture

  Soil Salinity

  Mineral Nutrition

  Humidity

  Sunlight

  Soil Solarization

  Crop Rotation

  Resistant Plants

  Chemical Controls