



Labeling Pesticides for vegetable production in Hydroponic Greenhouse :

the critical need for IR-4 in USA and PMC in Canada

Michael E. Bledsoe, Ph.D.

Senior Vice President Food Safety and Regulatory Affairs

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Westlands, Netherlands



Greenhouse Europe

Almeria, Spain



Greenhouses in San Augustin, near Almeria, Andalusia, Spain (36°42' N, 2°44' W).
www.yannarthusbertrand2.org



Why Large-scale Hydroponic Vegetable Greenhouse?



Type of Production	KG/M2	Lbs/Yard2 (For metric impaired)	Increase per Acre against Field Production
Average Large Scale GH (>10 Acre) 1988-2004	60-75	110-120	20x
New Semi-closed GH (>10 Acre)	80-114	147-210	30x
Field Production	3.0.-3.6 (USDA Average)	5.5-6.6	1
Small Scale GH (<10 Acres)	30-35	55-110	10X

Fresh Tomato Production
USA using USDA data.





pioneering



Greenhouse Grown



quality



sustainable



sweet



quality



greenhouse grown



fresh







Snapshot of North American Large Scale History 1989 - 1996

- 1989: Canadian Greenhouses, but new to US.
- Greenhouse Tomato **Less than 0.5% of US**
Retail sales in 1989
 - Today: Retail Groceries: **~50%**
 - Big Box: **~72%**



Why Greenhouse?

- Production
 - Year round
 - Much higher per acre (10-30X)
- Requires less water (84% less per pound)
- Food Safety (Controlled Environment)
 - Key to todays markets
- Ability to maximize use of beneficials
- Far less affect from environment on quality of produce.



Current NA Demographics

Hydroponic Vegetable

- Canada: 3600 Acres (1456 Ha) of Vegetable GH
 - 1/3 Vancouver, BC;
 - 2/3 Leamington, ON
 - Why? 49th latitude (Netherlands 52nd)
- Mexico: 5000+ acres (2000+ Ha) (mixed Technology)
 - Field, shade cloth, soil, high tech)
- USA: 1300 acres (530 Ha)
 - Small: 250 acres (100 Ha)
 - <10 acre (4 Ha)
 - Large: 1150 acres (465 Ha) Large scale GH
 - CA, TX, AZ, ME, MI, UT, VA



- Tomato: 92%



- Cucumber: 6%



- Pepper: <1%



- Eggplant: <1%



- Lettuce: 1%



US Hydroponic Vegetable %



Beyond Core US Crop Markets

USDA 2013 Statistic

- Corn: 96.4 M Acres
 - 40M Ha.
- Soybeans 76.1 M Acres
 - 31M Ha
- Wheat 56 M Acres
 - 23M Ha
- Cotton 12.6 M Acres
 - 5M Ha
- Peanut: 1.42 M Acres
 - 0.6M Ha



- Fresh Market Tomato
 - Field: ~113,000 Acres (4600 Ha)
 - Greenhouse **1300 Acres (562 Ha)**



US Regulatory Challenges for an emerging agricultural industry

- 1990: Nothing specifically registered for Greenhouse vegetable in USA.
- Canada had some products labeled
- End of Organophosphates, and carbamates
- EPA Registration Program Reorganizing
- New industry needing help

- Turned to IR-4

- USEPA (Certification and Worker Protection Branch)

– Richard Pont – USEPA

- “Based on information provided to me by Jack Neylan, Anne Lindsay and Jim Jones (Deputy Director of OPP), I confirmed that it is now "EPA's" position (and by that I mean management at OPP, OECA and OGC have apparently agreed on this) that unless use in a greenhouse is expressly prohibited on the label, then it would not be considered use inconsistent with the label to use a product in a greenhouse as long as the crop site was listed on the label.+



USEPA -Richard Pont

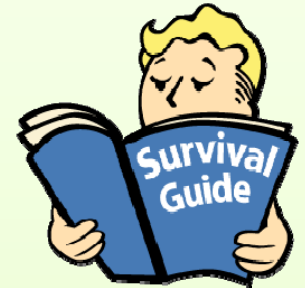
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Developed from IR-4 inquiry and support from USEPA



Survival



- This is why I say our industry would not exist today in its current form without the IR-4 and PMC programs.
- Even with the USEPA's letter permitting use of field labels in US, the labels were developed for field and were difficult to use in greenhouses.
 - Pre-Harvest Interval(PHI) Field: (7,14,21,28,32 day)
 - Needed 0-3 day PHI for GH tomato,
 - 0-1 for Cucumber.
 - Many Basic Pesticide Manufacturers
 - Concerned over greenhouse use.





IR-4 and PMC Programs



- Take up the challenge of defending and supporting Specialty and minor crops.
- Offer incentives to Basics Pesticide Manufacturers (BPM) for Minor/Specialty Crop registrations.
- Often permits minor crops to have someone to approach BPMs.
- Have helped support many smaller BPMs, especially with Biological registrations.



Thank you to

- Chemical and Biochemical Industries
- USEPA and PMRA
 - Barbara Madden, USEPA and others.
- IR-4 and USDA
 - Director: Jerry Baron and what a team.
 - IR-4 Regional Teams
 - 50+ Years
 - CLC
- Canadian Program Minor Use Program
- Pest Management Center
 - Director: Dr. Manjeet S. Sethi
 - Craig Hunter
 - Canadian National GH Vegetable Minor Use Committee
 - BC, Alberto, Ontario, Quebec BCGGA: Iris Bitterlich
 - OGVG
 - PMUC's



Who to thank?



Who to thank?



Who to thank?



Who to thank?



Who to thank?



Who to thank?

- The rest of the teams who were not pictured.
- Thank you.



Questions?

