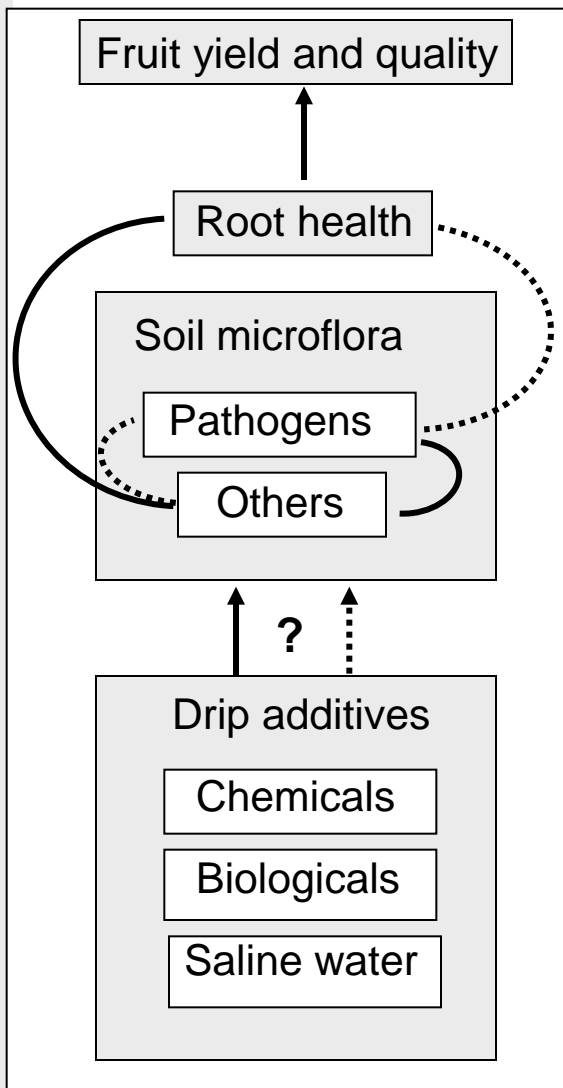


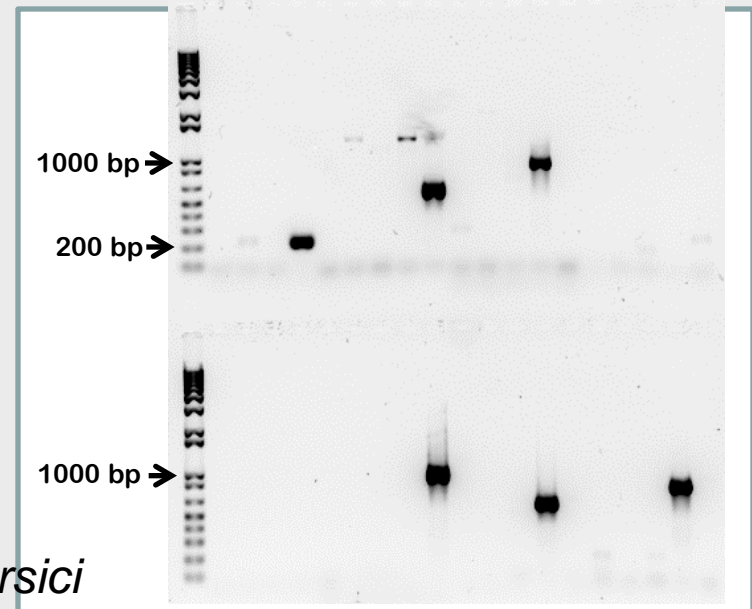
Influence of Drip Irrigation on Tomato Root Health

Mike Davis and Johan Leveau, Dept. of Plant Pathology, UCD
Gene Miyao, Cooperative Extension, Yolo Co.



Justification:

- Buried drip irrigation continues to increase
- Rotations to tomato are more concentrated
- Incidence of soilborne pathogens is increasing
- Adds to our knowledge of the impact of drip irrigation on the microflora of tomato roots, root health, and fruit yield.



Fusarium oxysporum f. sp. *radicis-lycopersici*





Verticillium



Southern blight



Phytophthora root rot



Corky root



Crown and root rot



Fusarium wilt



2012 Treatments

Control

Quadris + Ridomil

K-pam (15 gal)

Serenade soil

Chicken manure - 10 tons

Chicken manure - 20 tons

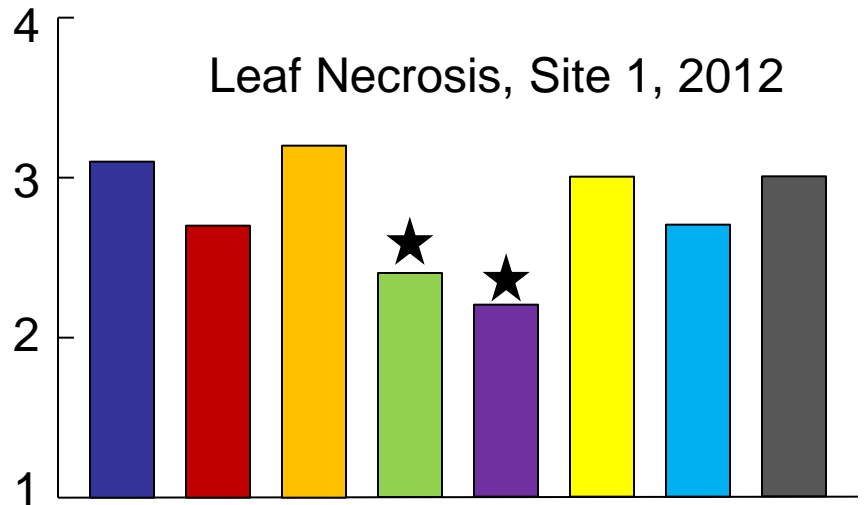
Potassium

Actinovate



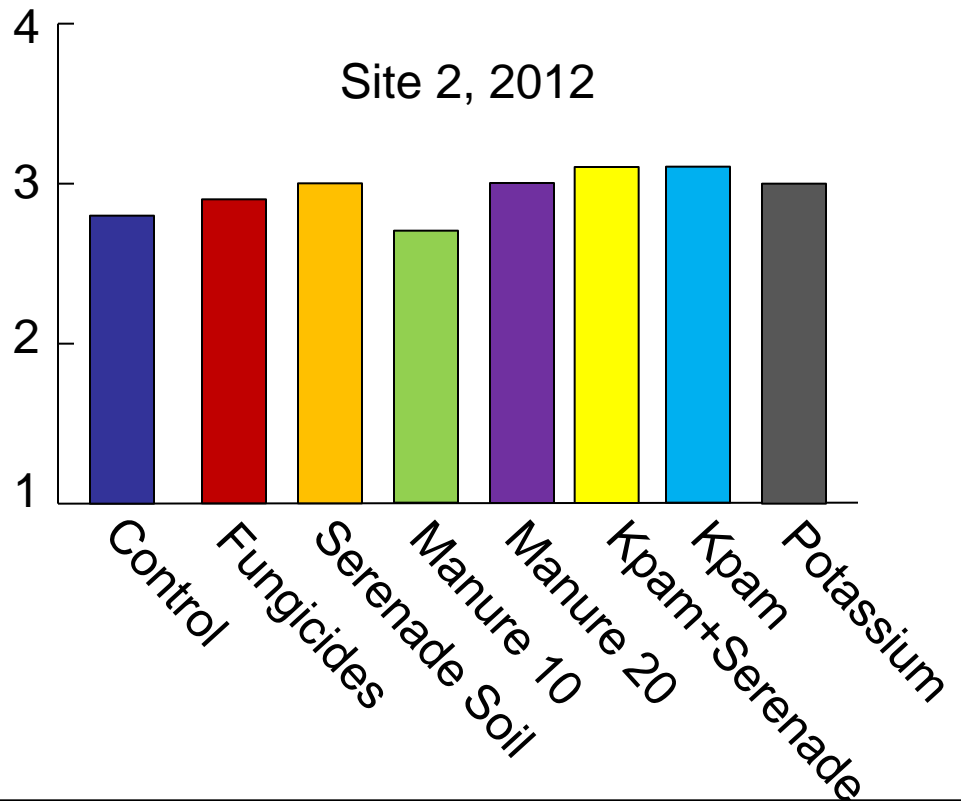


Leaf Necrosis, Site 1, 2012

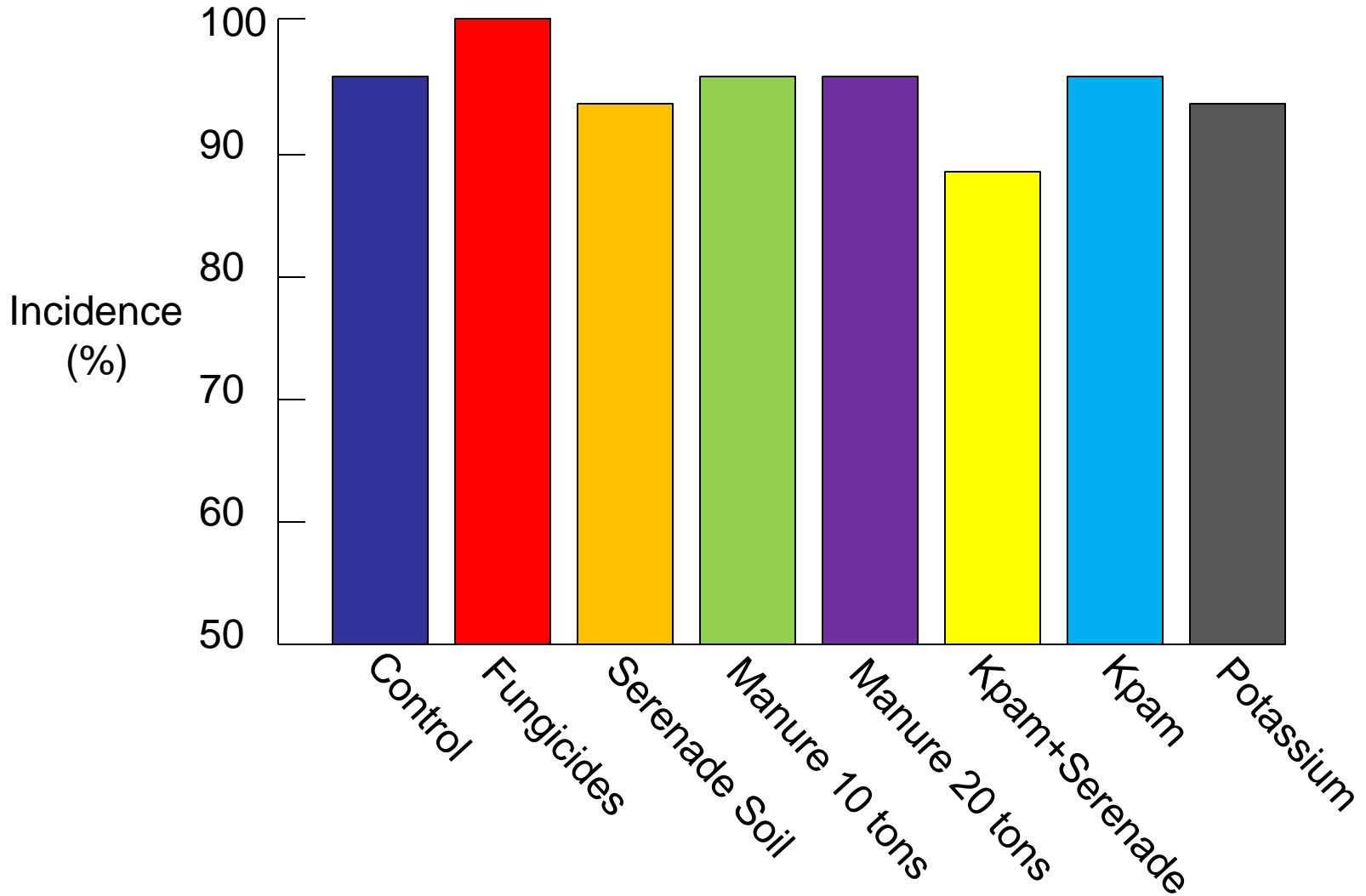


Leaf necrosis
0-4 scale

Site 2, 2012



Verticillium, Site 1





	2011-1	2011-2	2012-1	2012-2
	Yield (tons/A)			
Control	34 b	46	39 b	43
Vapam/Kpam 15 gal	35 b		44 b	40
Tenet	34 b	48		
Vapam + Tenet	34 b			
Quadris + Ridomil	33 b	47	40 b	43
Vapam + Quad + Ridomil	36 b			
Serenade Soil	38 b	45	40 b	41
Serenade + Quad + Rid		46		
Vapam + Serenade	36 b		42 b	38
Chicken manure 10 tons	45 a	52	56 a	55
Chicken manure 20 tons			61 a	40
Tenet + Serenade		46		
SoilGard		44		
Potassium			38 b	41
Actinovate			38 b	
		NS		NS

Site 1, 2012

	Yield	Color	Brix	pH	Sunburn %	Green %	Mold %
Control vs	39.4	25.5	5.25	4.28	3.0	6.0	1.9
manures	58.4	24.6	5.48	4.27	1.7	5.2	0.8
Probability	0.00	NS	0.03	NS	0.02	NS	0.05

Site 2, 2012

	Yield	Color	Brix	pH	Sunburn %	Green %	Mold %
Control vs	42.5	23.3	4.9	4.37	8.8	3.2	3.8
manures	46.7	23.6	4.7	4.40	8.7	3.1	3.7
Probability	NS	NS	NS	NS	NS	NS	NS

Tissue Nitrogen Levels

Treatment	Field 1			Field 2
	Near full flower	Early ripening	Near harvest	Early ripening
Control	4.47	3.36	2.15 a	3.06
10 tons	4.67	3.36	2.28 b	3.13
20 tons	4.84	3.47	2.27 b	3.35
	NS	NS		NS

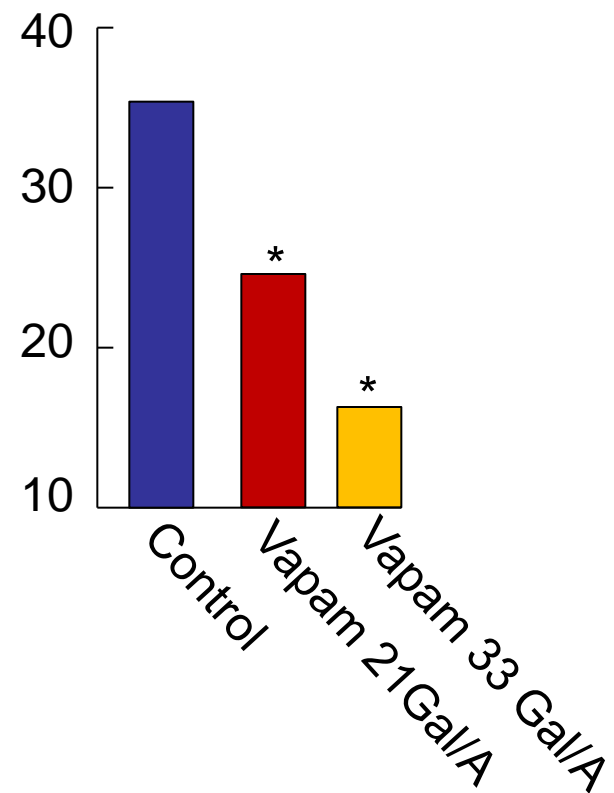
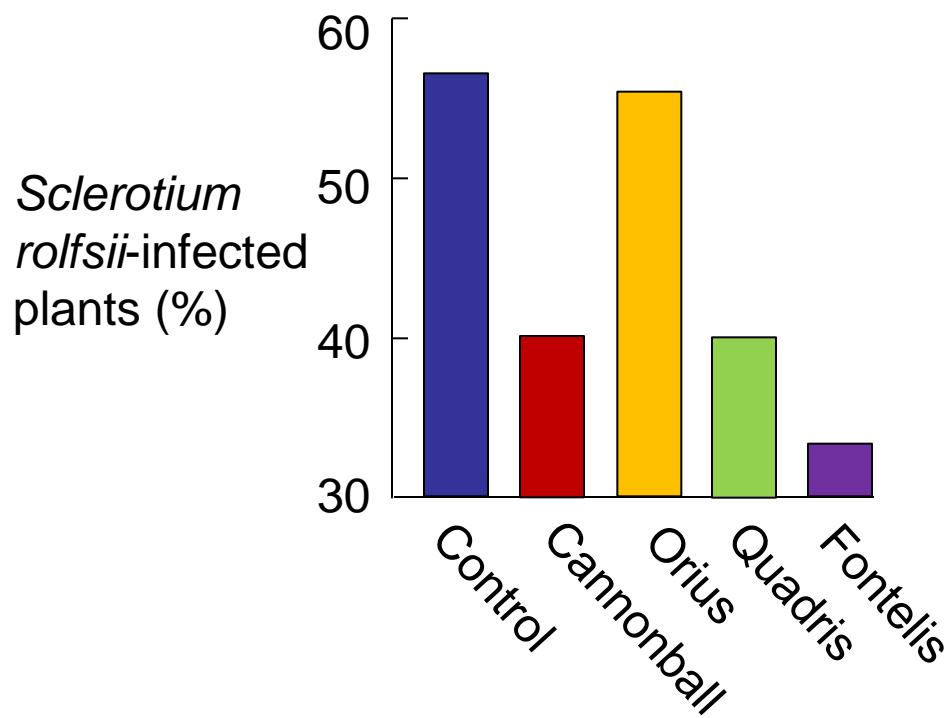
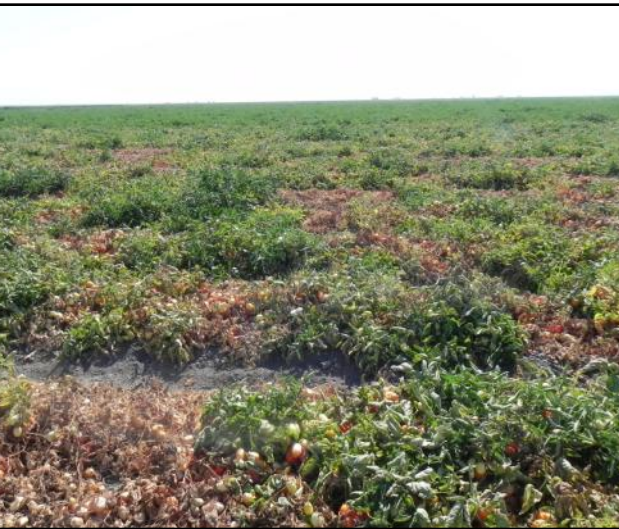
2012 Microbiota Survey

- 12 fields in Yolo, SJ, and Kern counties
- Estimate levels of diseases
- Soil EC, NPK, CA, B, particle size distribution, OM, pH, soil microbial community profile



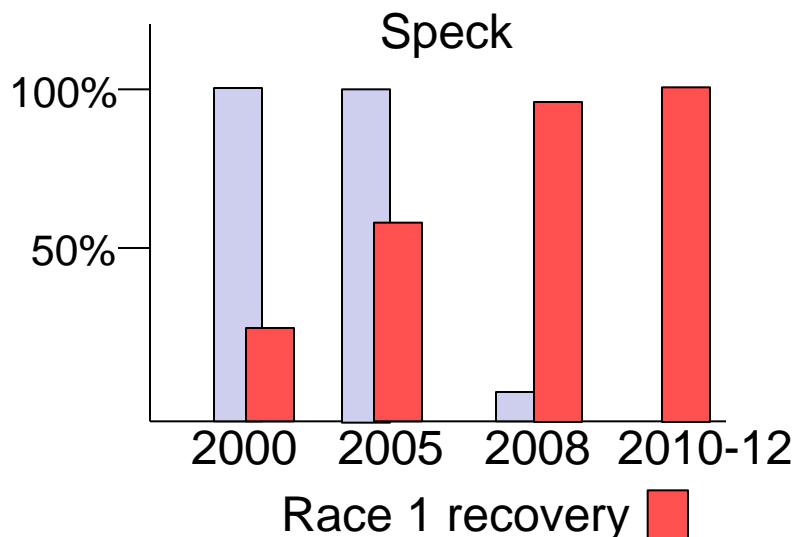


Low P = foliage necrosis
Low K = and dieback

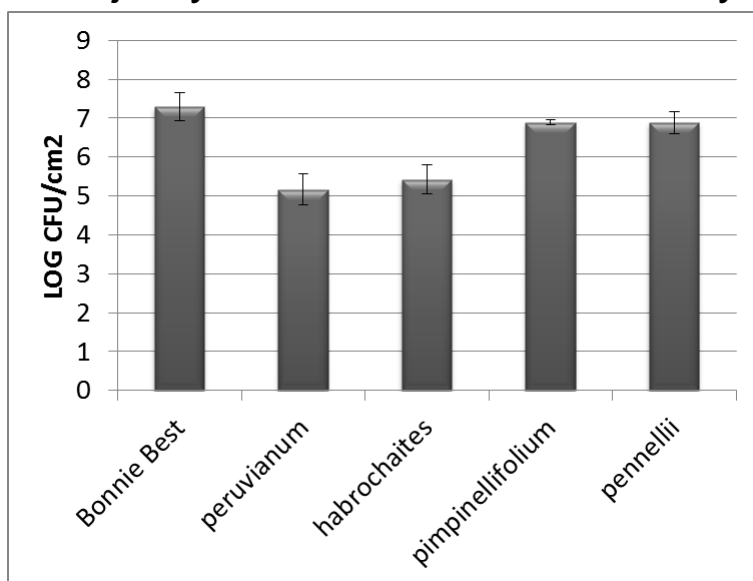




Pseudomonas syringae tomato



- Sequenced 5 *Pst* genomes in the last year, including two from California
- Developed 10 PCR-based markers to assess *Pst* phylogeny
- Majority of CA strains are closely related to one another



S. habrochaites LA1777 possesses an existing RIL population of 89 lines with mapped introgressions of wild tomato DNA

Markers are being developed that will enable rapid screening for resistance