

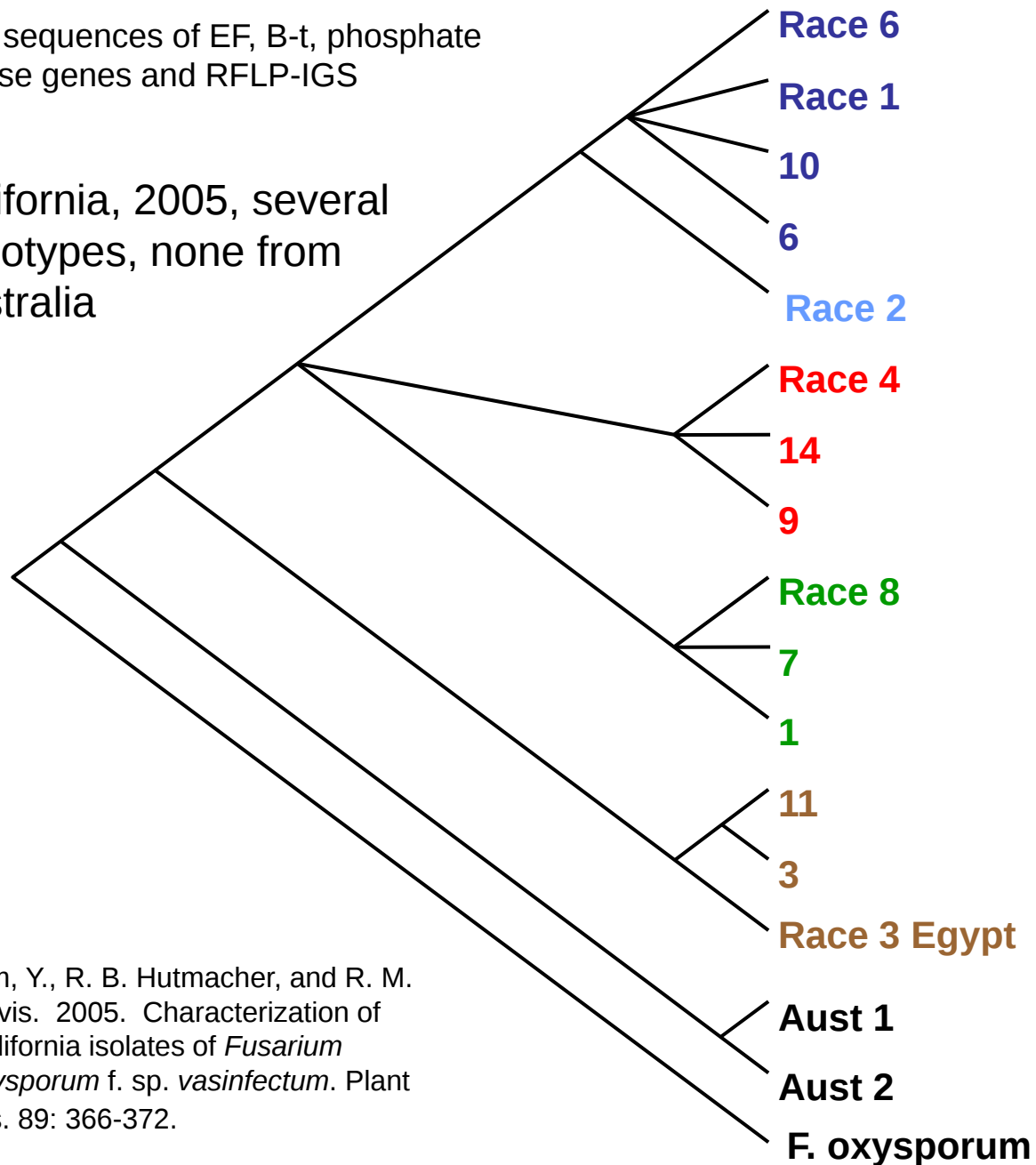
Genotypes of FOV – Virulence and Classification

R. M. Davis, Plant Pathology, UC Davis

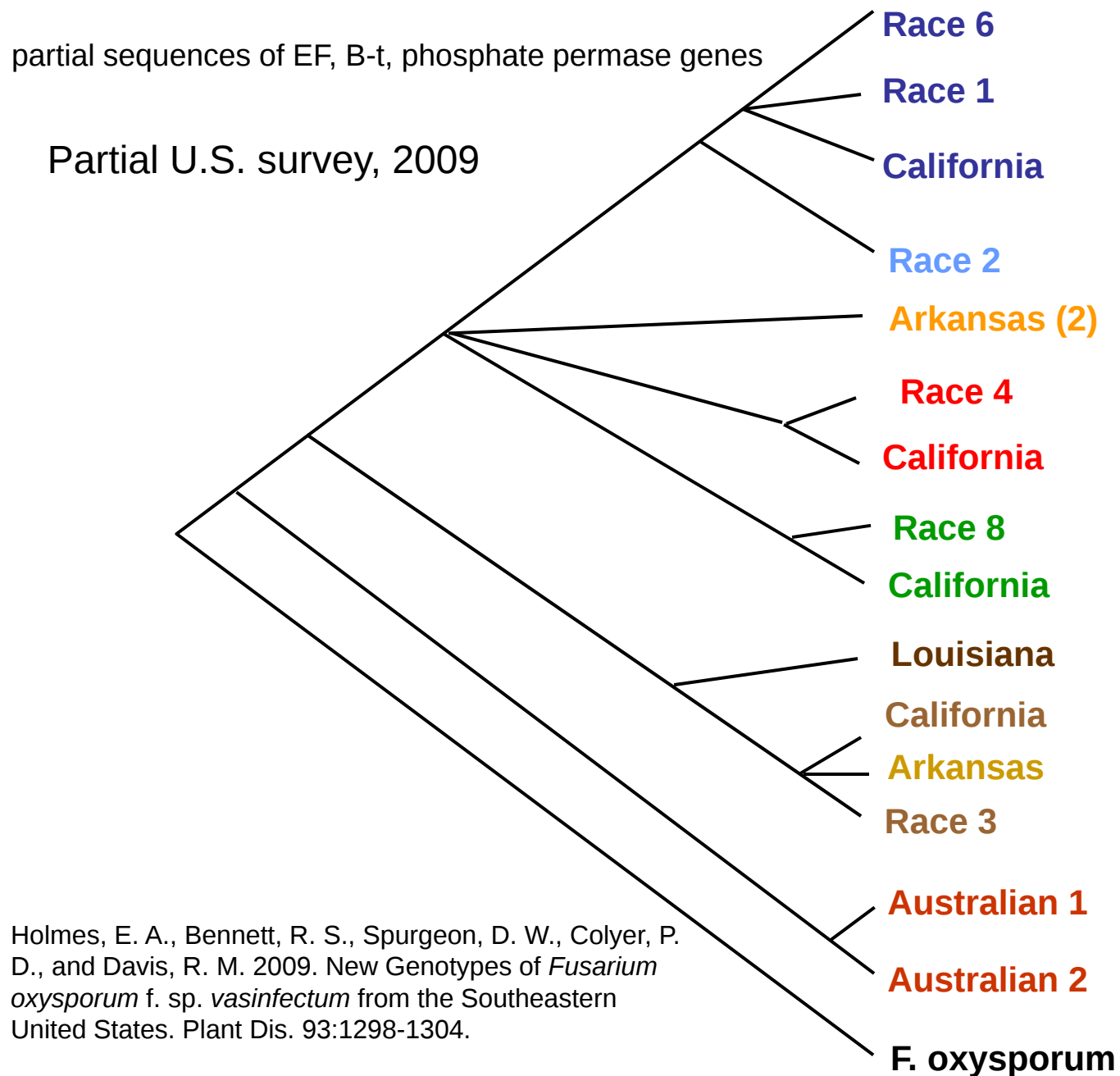


partial sequences of EF, B-t, phosphate
permease genes and RFLP-IGS

California, 2005, several
genotypes, none from
Australia



Kim, Y., R. B. Hutmacher, and R. M.
Davis. 2005. Characterization of
California isolates of *Fusarium*
oxysporum f. sp. *vasinfectum*. Plant
Dis. 89: 366-372.



Isolate	Cultivar					
	Ph72	DP744	Ph800	445	480	4357
LA 108	+++	++	+	+++	+++	++
LA 112	--	--	+	--	--	--
LA 140	++	+	--	+	++	+
Race 1	++	++	+	+++	+++	+++
Race 3	+	--	--	--	--	--
Race 4	++	+++	--	+	++	+
Race 8	++	+	+	++	++	++

Holmes, E. A., Bennett, R. S., Spurgeon, D. W., Colyer, P. D., and Davis, R. M. 2009. New Genotypes of *Fusarium oxysporum* f. sp. *vasinfectum* from the Southeastern United States. Plant Dis. 93:1298-1304.



Phytogen 72

Pima 744

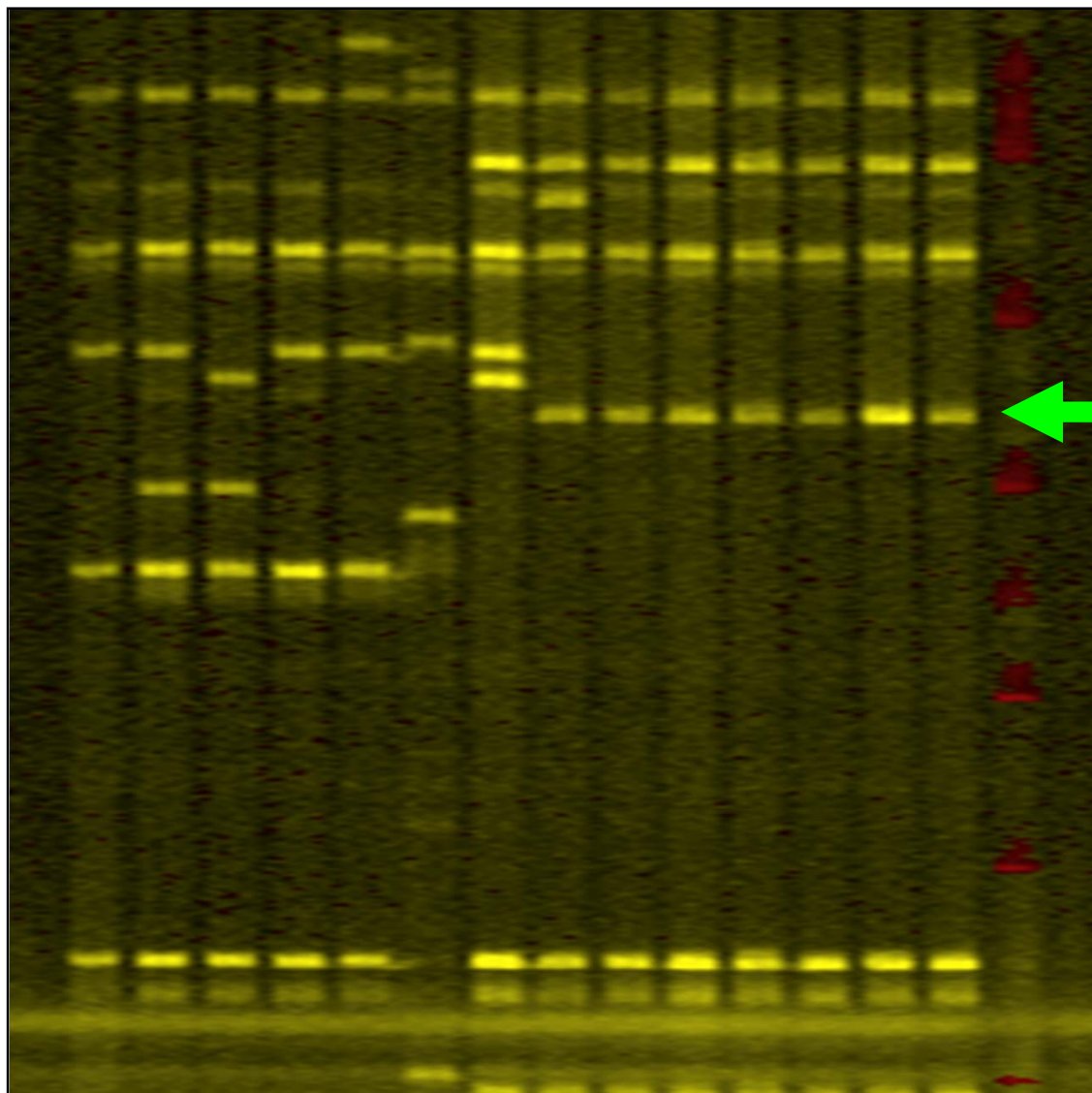


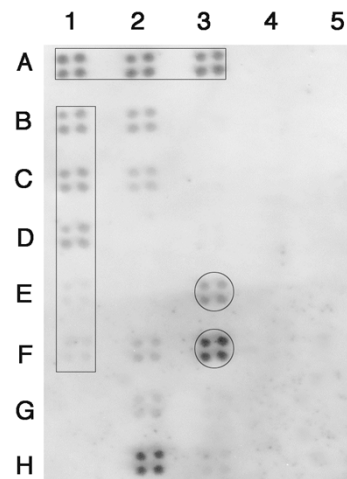
Davis, R. M., P. D. Colyer, C. S. Rothrock, and J. K. Kochman. 2006. Fusarium Wilt of Cotton: Population Diversity and Implications for Management. Plant Disease 90: 692-703.



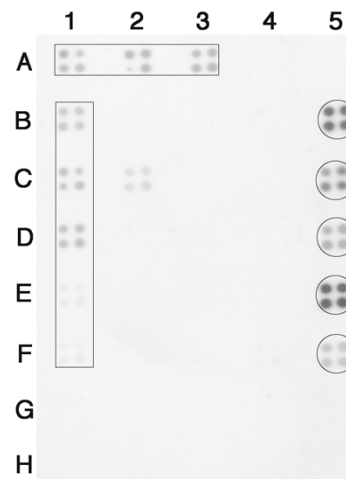
Phytogen 72

Race 1 1 1 2 3 6 8 4 4 4 4 4 4 4

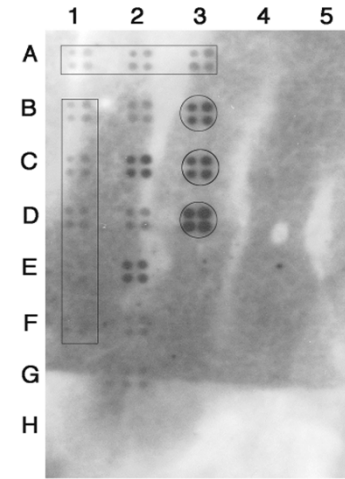




Australian race

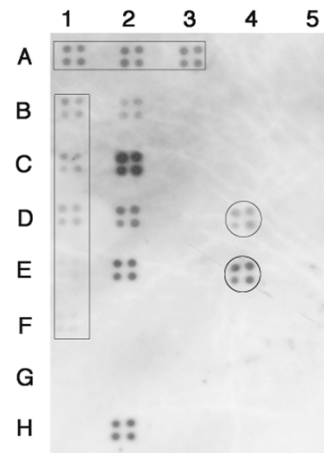


Race 1

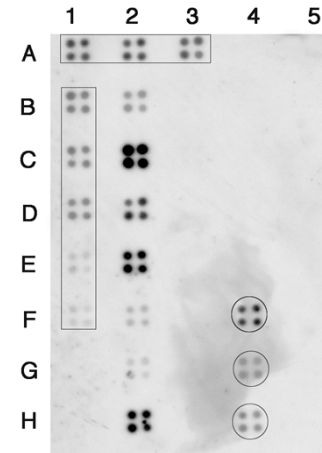


Race 3

FOV macroarray.
Positive controls in
rectangles; race-
specific probes in
circles



Race 4

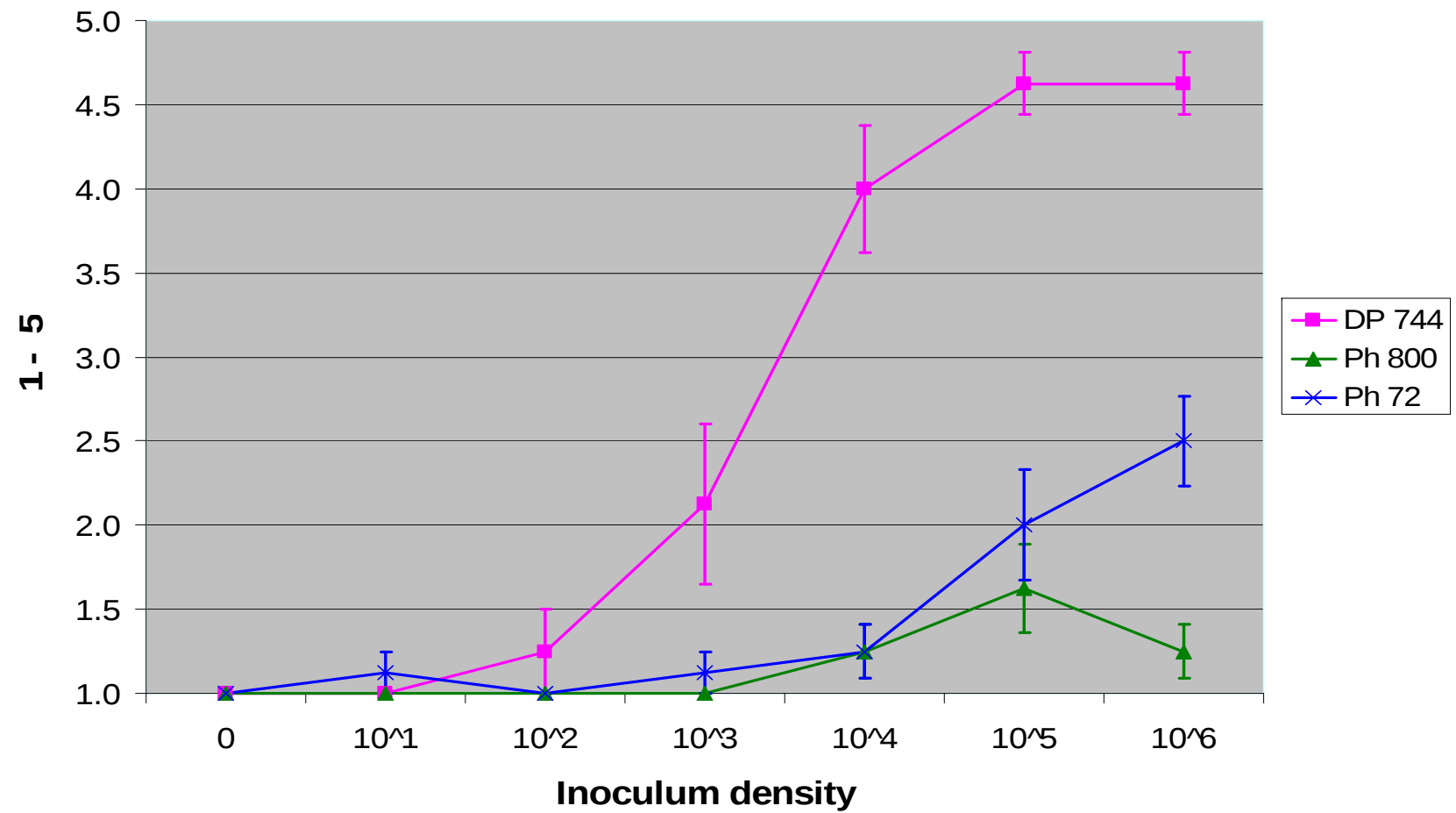


Race 8

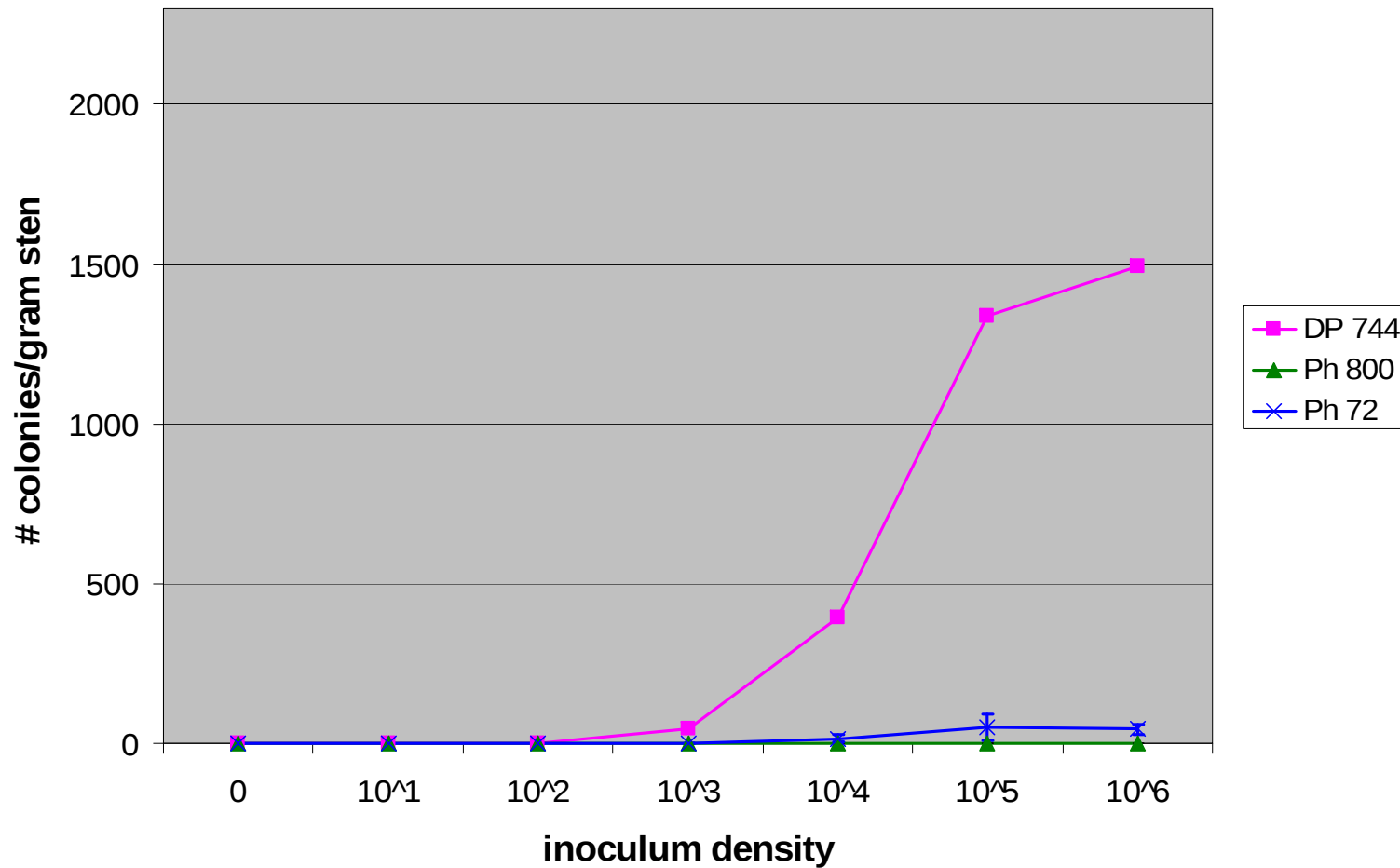
Gilbert, C. A., Zhang, N.,
Hutmacher, R. B., Davis, R.
M., and Smart, C. D. 2008.
Development of a DNA-based
macroarray for the detection
and identification of *Fusarium*
oxysporum f. sp. *vasinfectum*
in cotton tissue. J. Cotton Sci
12:165-170.



Symptoms



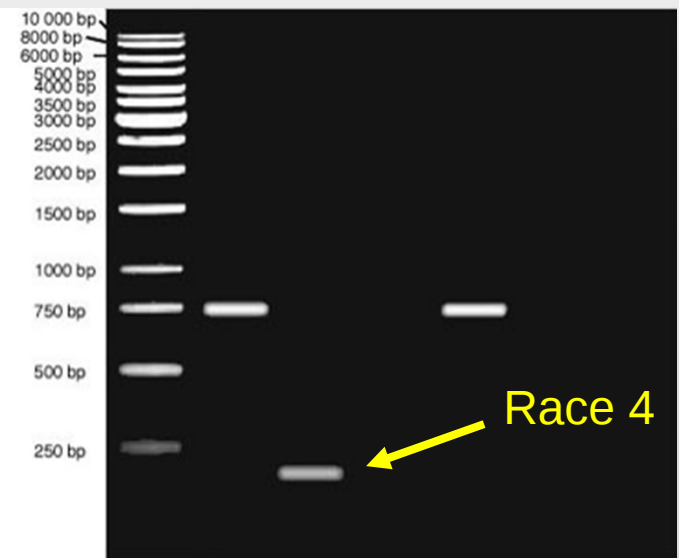
Colonies recovered per gram of stem tissue



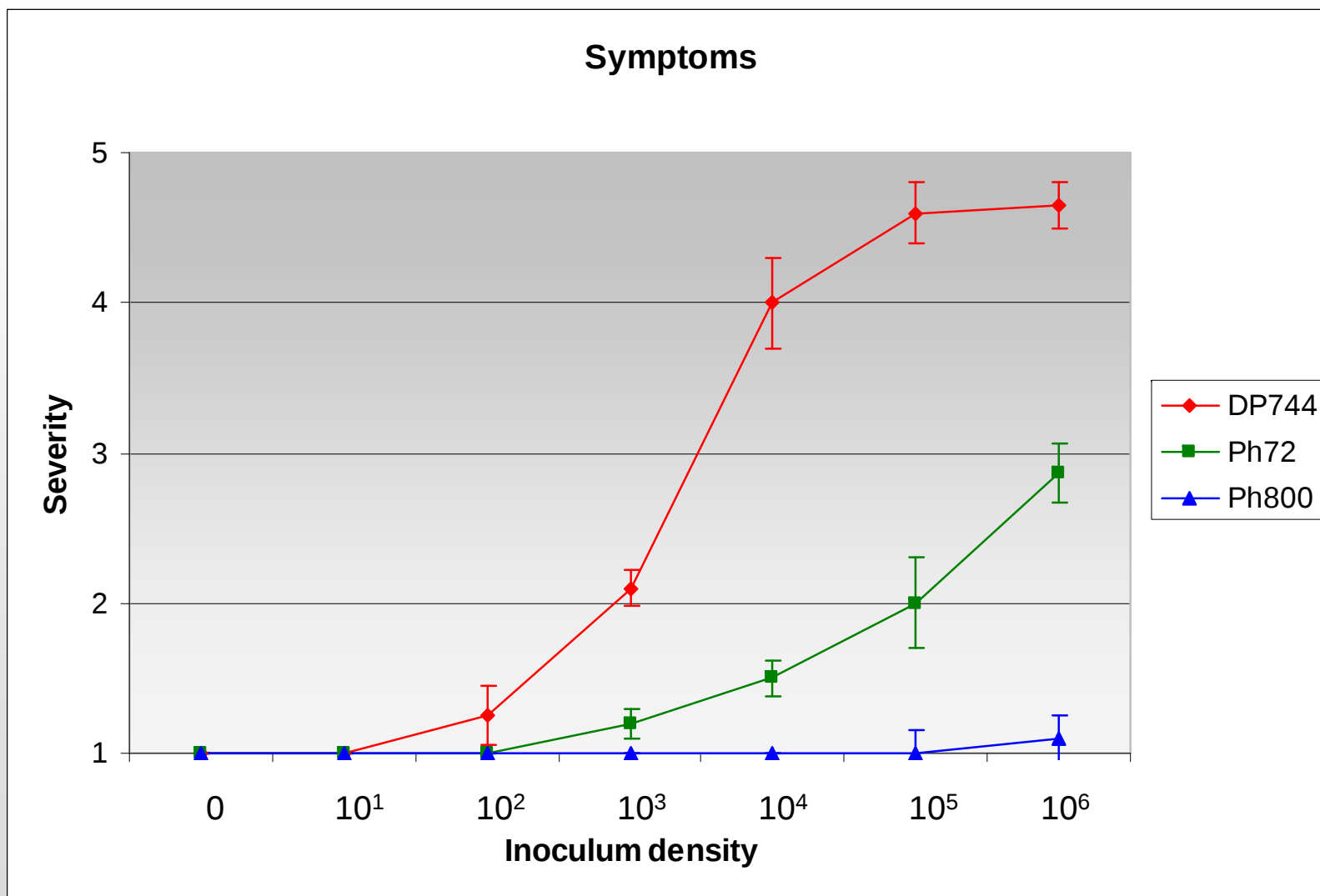
Bennett, R. S., Hutmacher, R. B., and Davis, R. M.
2008. Seed Transmission of *Fusarium oxysporum* f. sp.
vasinfectum Race 4 in California. J. Cotton Sci. 12:160-
164.



Detection of FOV race 4 in soil and seed
Nutrient enrichment in a semi-selective medium

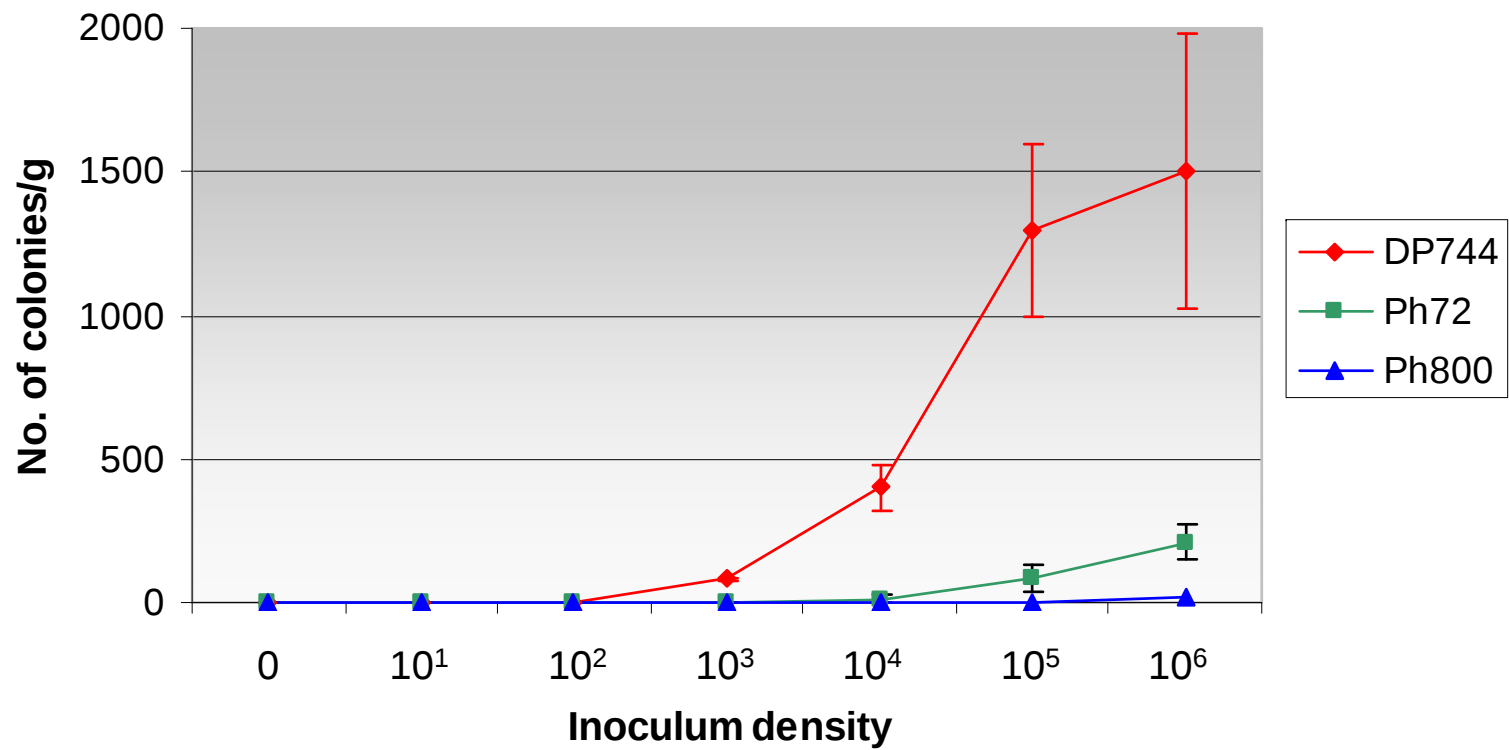






Hao, J. J., Yang, M. E., and Davis, R. M. 2009. Effect of soil inoculum density of *Fusarium oxysporum* f. sp. *vasinfectum* race 4 on disease development in cotton. Plant Dis. 93:1324-1328.

Propagules of FOV in Stem Tissue



Cultivar	Disease index (0-4 where 0 is no disease and 4= plant death)				
	None	1×10^4	1×10^5	1×10^6	1×10^7
Bayer Colbalt	0	1	4	4	4
Acala 725	0	3	3	3	4
Phy 805	0	0	0	0.5	4
Phy 800	0	0	0	0	0.5

FOV is an inoculum-dependent disease!

- Determine why cotton hosts many genotypes of *F. o.*
- Develop resistant cotton cultivars
- Help growers reduce soil inoculum density
- Track movement and maintain database of new genotypes