Field Trials - Spinach Anthracnose

Cultivar	Melody
Fungicide application	broadcast
Spray volume	235 l/ha (25 GPA)
Spray interval	7-d
No. of sprays	3-5
Inoculation	50 ml oats/plot
Disease assessment	30 leaves / plot 7 d after last spray
Disease incidence	diseased leaves (%)
Disease severity	diseased leaf area (%)

Efficacy of Fungicides on Spinach Anthracnose

FRAC Group	Fungicide	Trade name	2005	2006	2007	2010
1 (MBC)	thiophanate methyl	Topsin		-	-	
3 (DMI)	triflumizole	Procure		-		
	tebuconazole	Folicur			-	
	fenbuconazole	Enable			-	
7 (SDHI)	boscalid	Endura		-		-
	penthiopyrad	DPX LEM 17				+/-
9 (AP)	pyrimethanil	Scala		-	+	
	cyprodinil	Vanguard			+	
9+12 (PP)	cyprodinil + fludioxanil	Switch		-	+	+
11 (QoI)	azoxystrobin	Quadris	-	-	-	-
	pyraclostrobin	Cabrio	-	-	-	
11 + 27 (UK)	famoxadone+cymoxanil	Tanos				-
19 (polyoxin)	polyoxin D	Endorse			+	

Efficacy of Fungicides on Spinach Anthracnose cont'd

FRAC Group	Fungicide	Trade name	2005	2006	2007	2010
21 (QiI)	cyazofamid	Ranman	-			
33 (phos.)	fosetyl-AL	Aliette	-			
M1	copper hydroxide	Kocide	-	-		
	copper sulfate	Cuprofix		-		
M3	maneb	Maneb		-		
M5	chlorothalonil	Bravo		-		
	hydrogen dioxide	Oxidate			-	
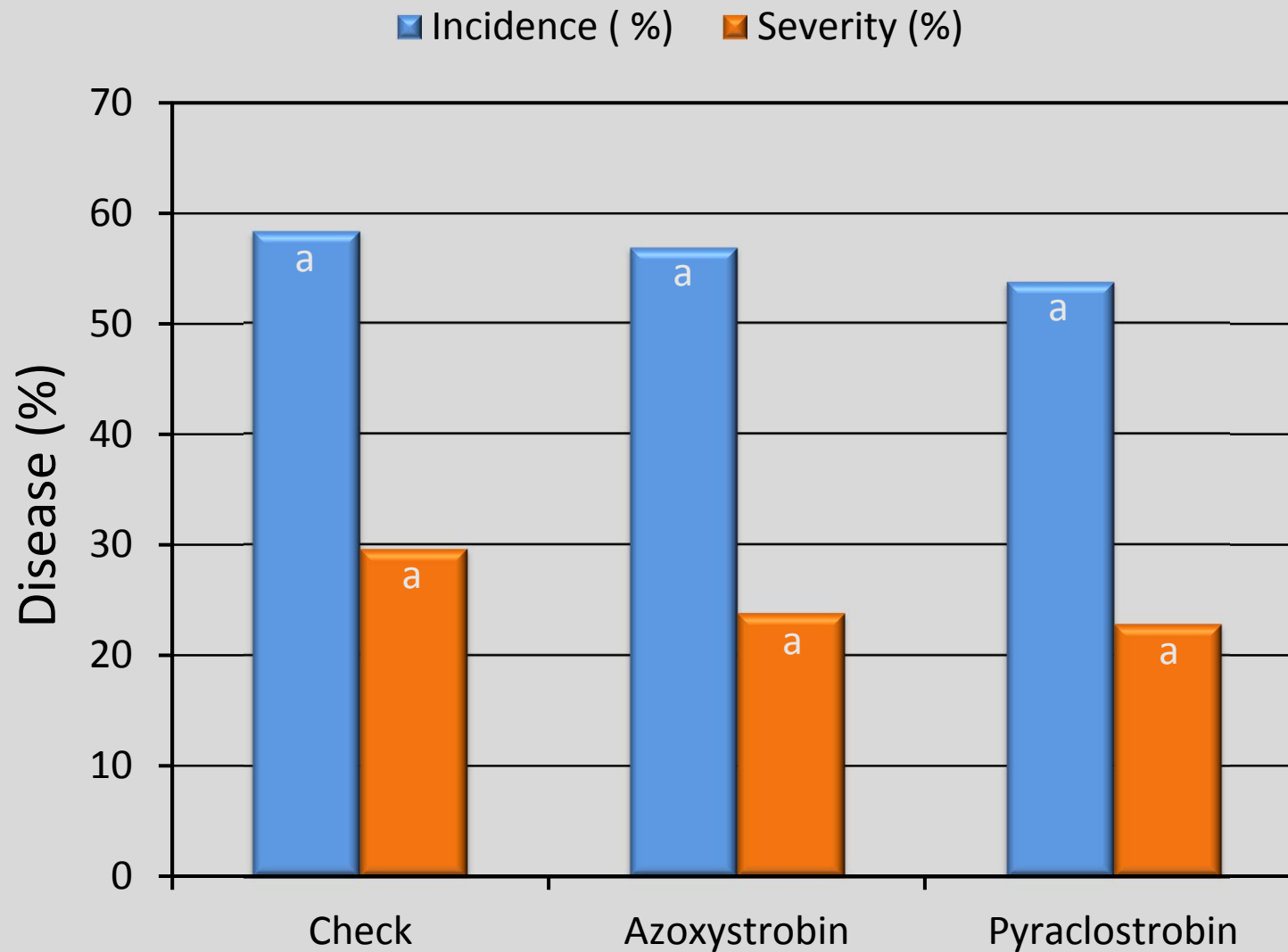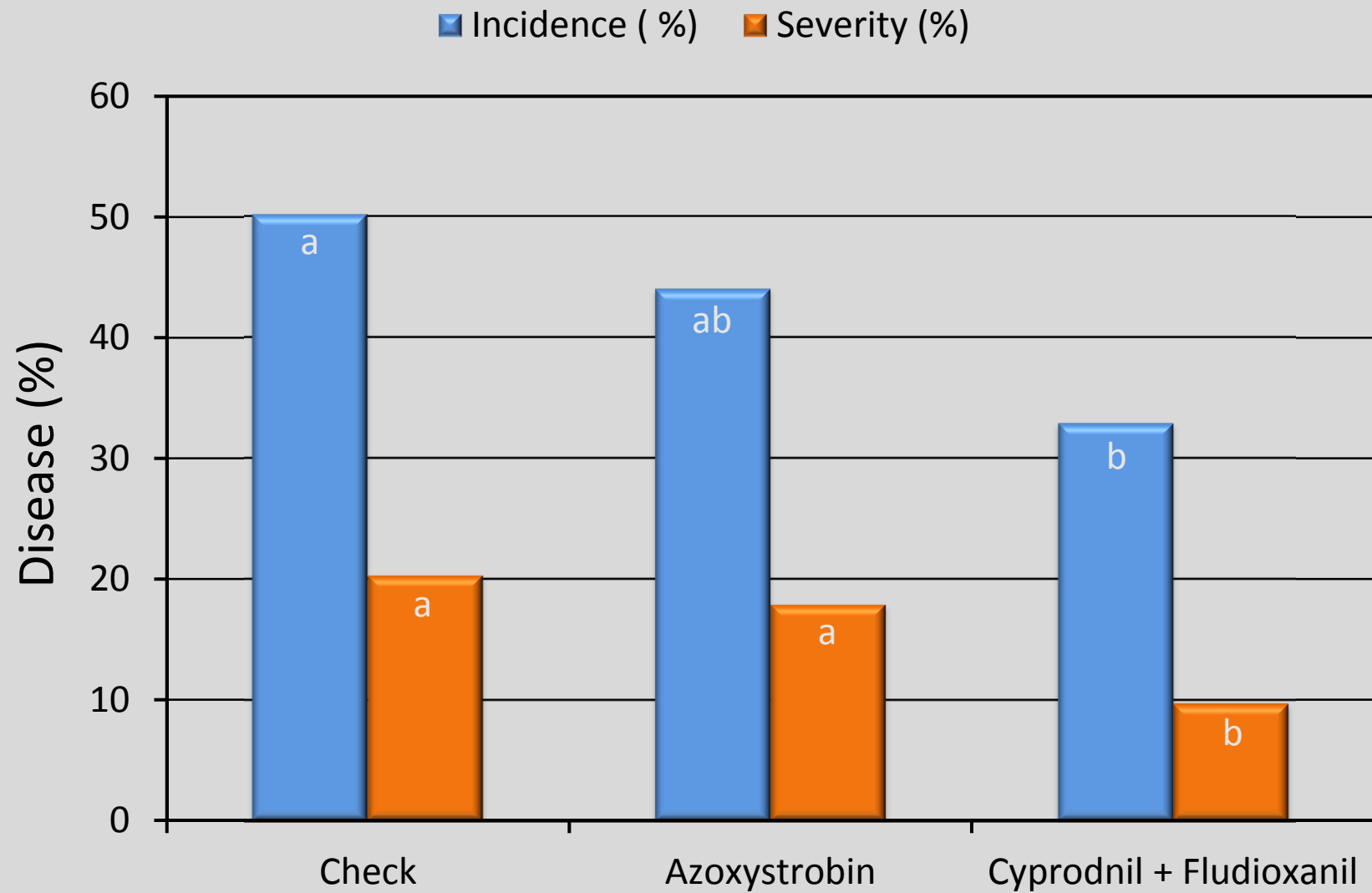
Virulence of *C. dematium* Isolates
Dew Chamber

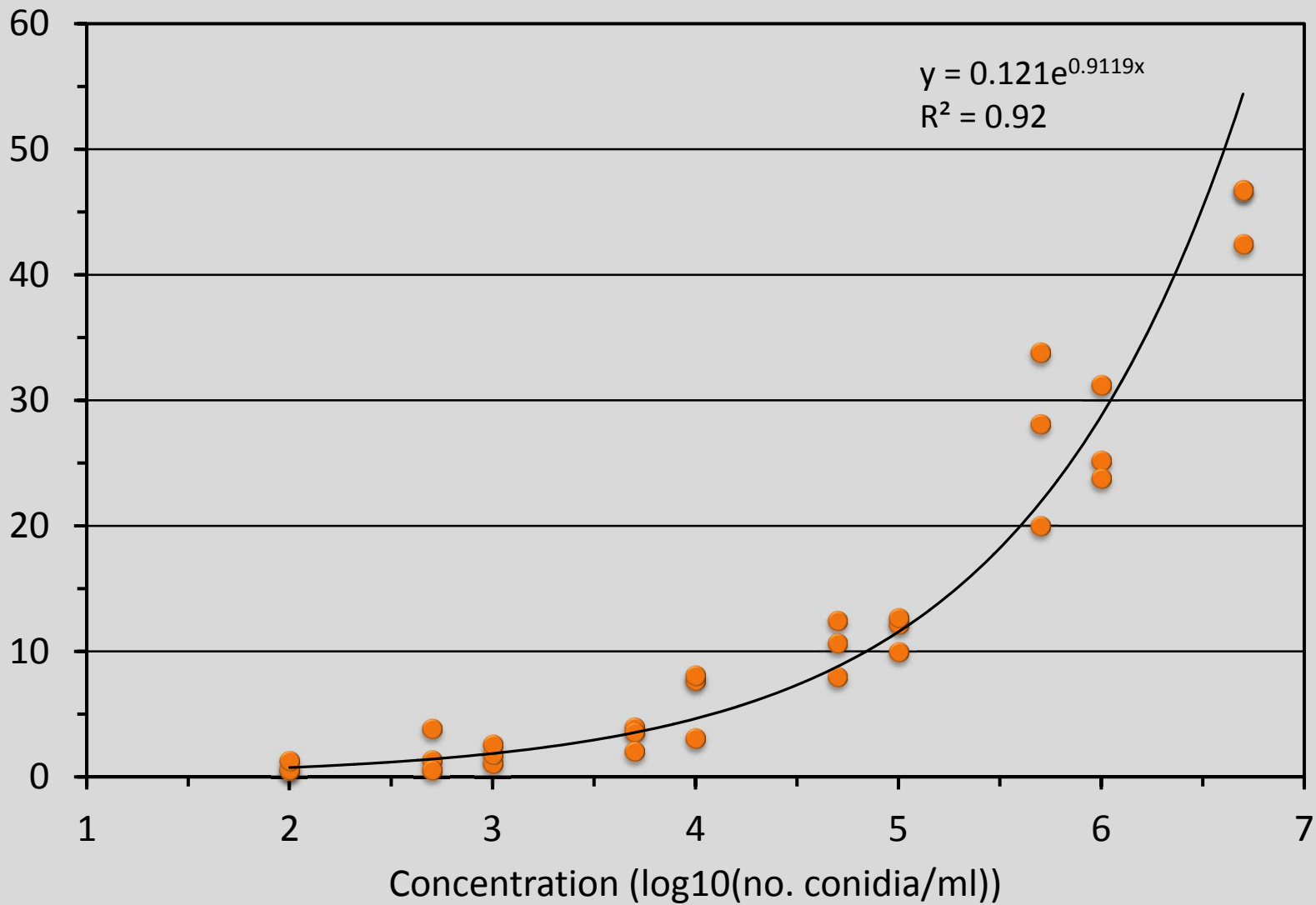| Cultivar	Melody
Inoculation	1 x 10^6 spores/ml
Temperature	21.1C (70F)
Wetness periods	48 hr continuous
Reps (pots)	4
Disease assessment	14-d later
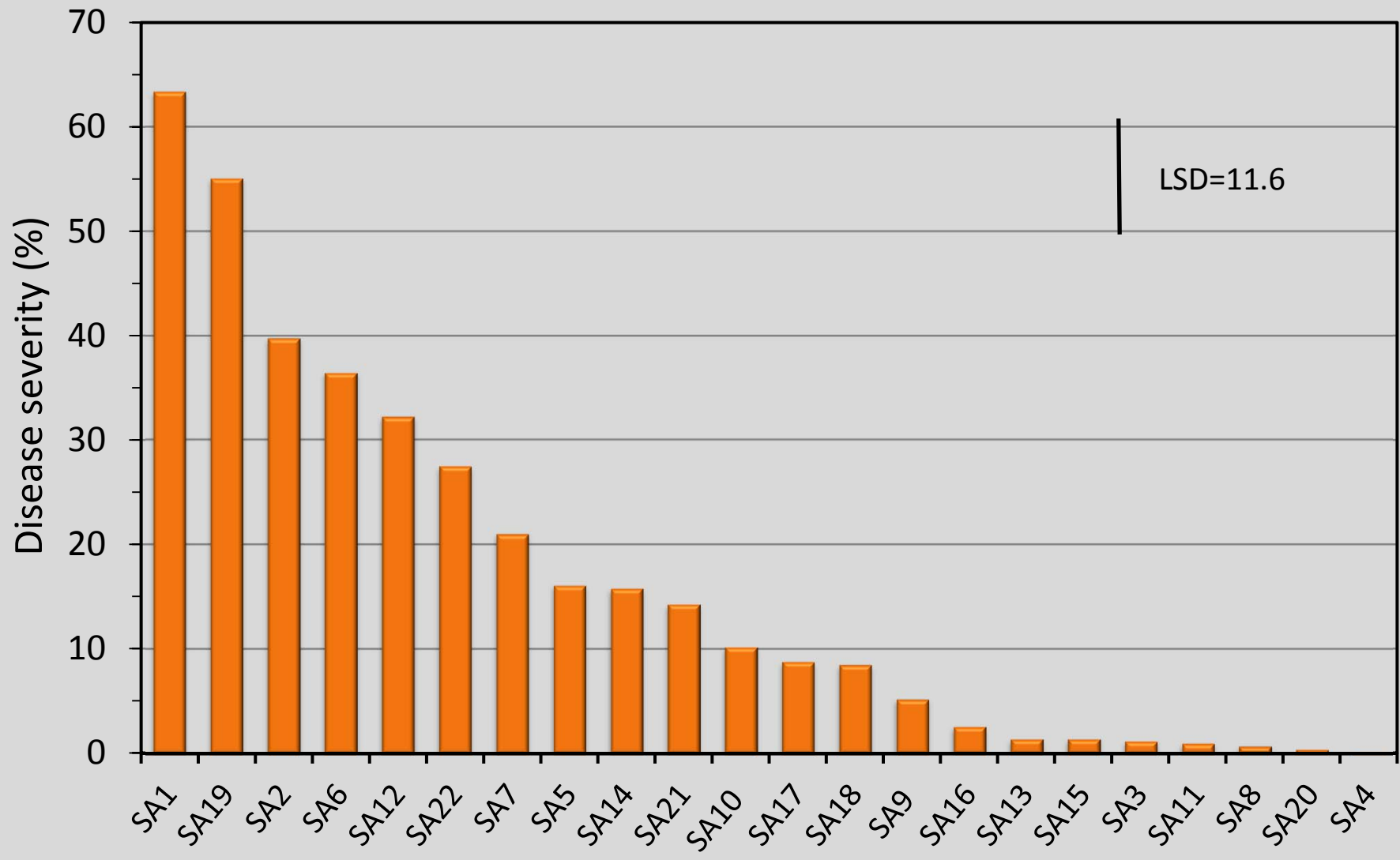
Effect of Inoculum Concentration
Dew Chamber

Cultivar	Melody
Inoculation	$10^2 - 5 \times 10^6$ spores/ml on ≈ 0.5 log increments
Temperature	21.1C (70F)
Wetness periods	48 hr continuous
Reps (pots)	4
Disease assessment	14-d later

Effects of Inoculum Concentration

$y = 0.121e^{0.9119x}$
$R^2 = 0.92$

Concentration (log10(no. conidia/ml))

Temperature and Wetness Duration
Dew Chamber

|	
Cultivar	Melody
Inoculation	1 x 10^6 spores/ml
Temperature	10-32C at 2.8C intervals (50-90F at 5F intervals)
Wetness periods	12-hr/d
	0,3,6,9,12,24,48,72,96 hr
Reps (pots)	4
Disease assessment	14-d later

Temperature x Wetness Effects
Analysis of Variance

Source	df	MS
T	8	29**
error a	27	1
W	8	634**
T*W	64	3**
error b	216	13

** = P<0.01

Main Effects of Temp and Wetness

Disease severity (%)

Wet period (hr)

Temp (C)
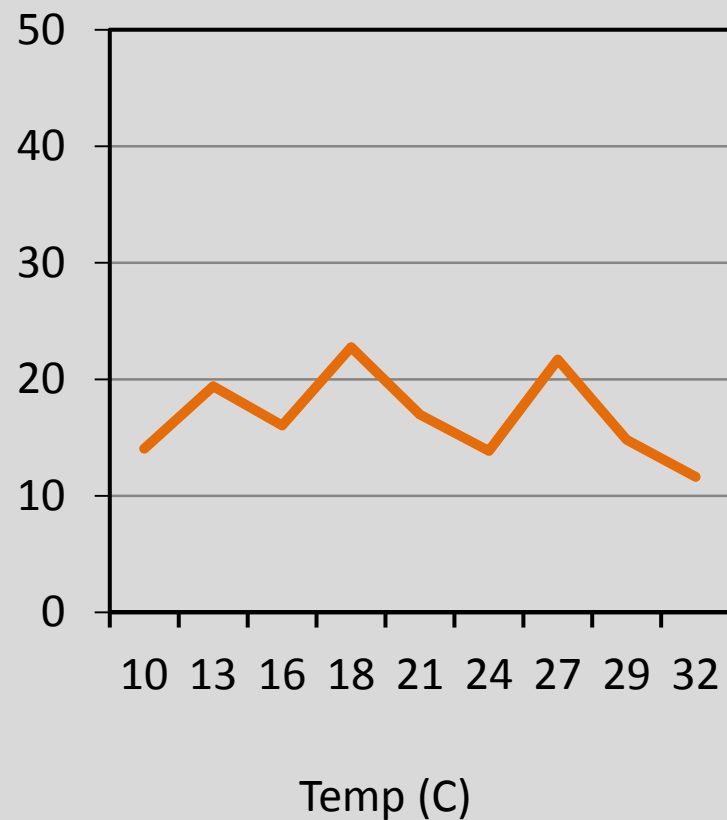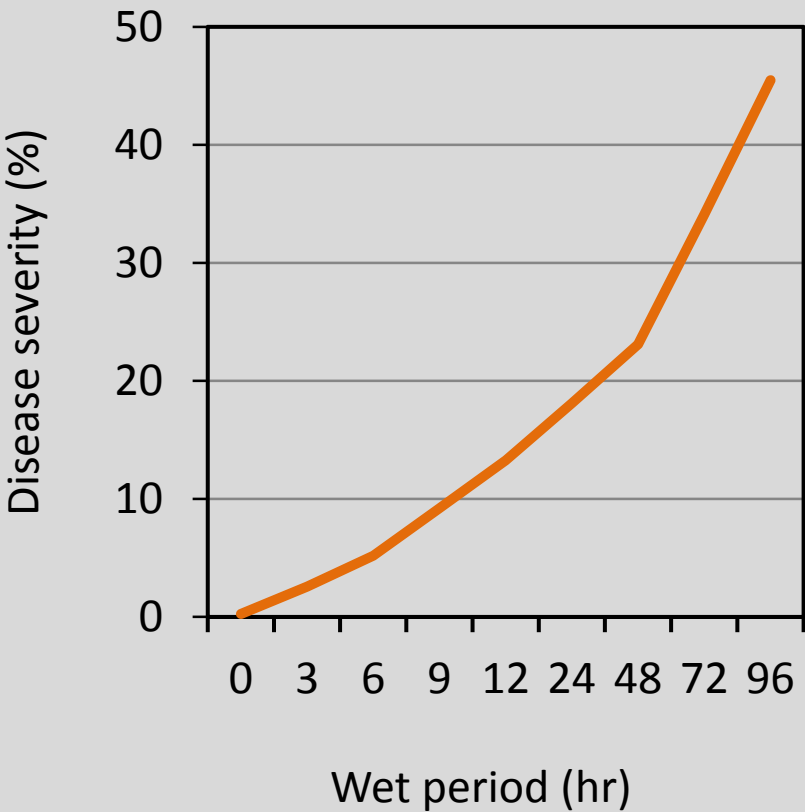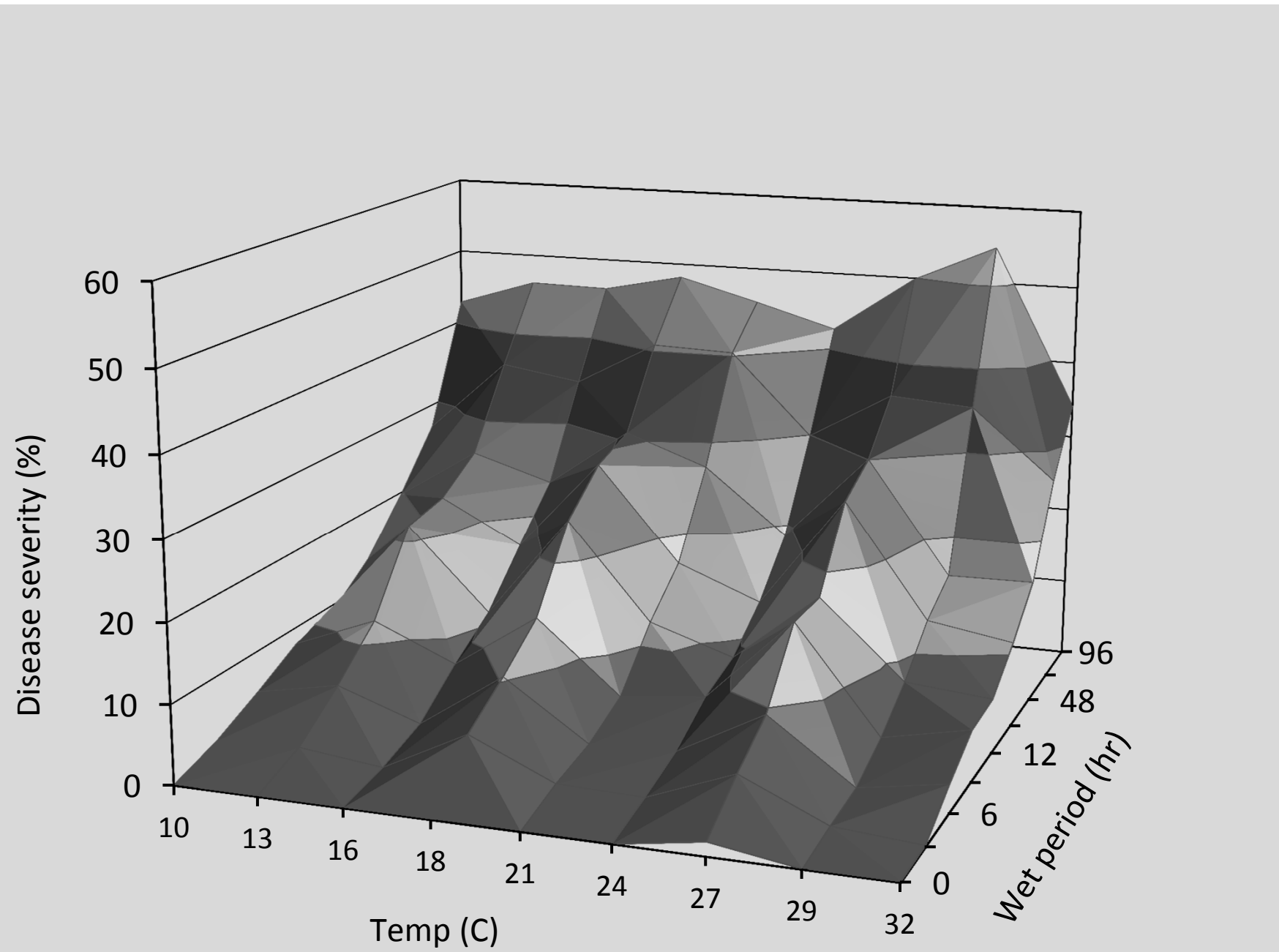
Temperature x Wetness Effects
Multiple Regression

Variable	Parameter
intercept	a (-8.546) **
T	b (0.828) **
W	c (1.040) **
W^2	d (-0.016) **
T^3	e (-0.0007) **
W^3	f (0.0001) **

$R^2 = 0.87$ ** = $P<0.01$

Temperature x Wetness Effects