
Changes in Irish *Phytophthora infestans* population affect potato late blight resistances

Steven Kildea

F Hutton, Mehenni-Ciz, Kennedy C, LJ Dowley & D Griffin





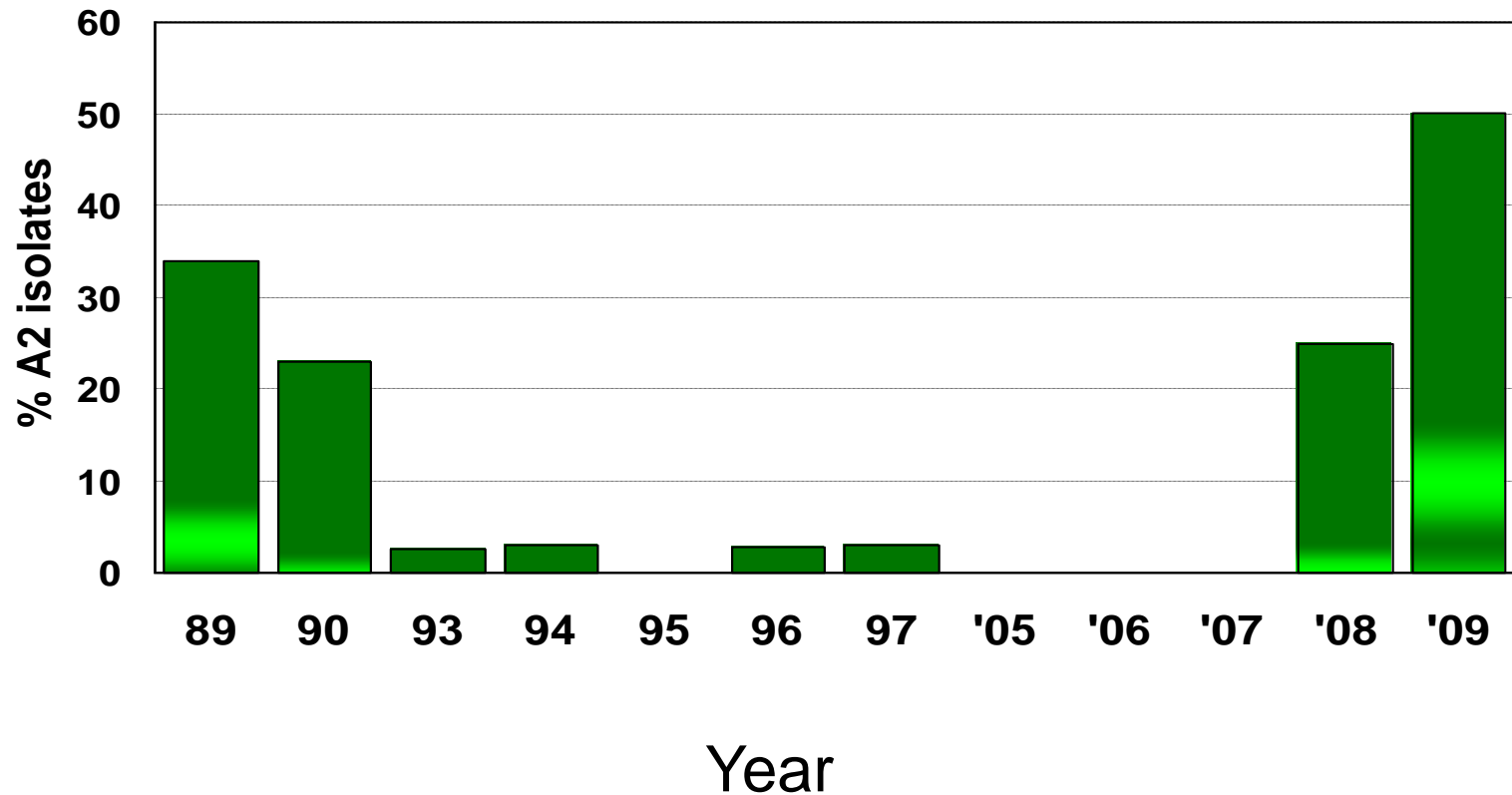
Setanta

Sante

Carlow August 2008

Changes in Irish population

Mating type Rep. Ireland



Teagasc Untreated Blight Trial

Each year ~ 60 clones from breeding programme assessed

20 Tuber plots x 6 replications with natural infection*

Variety	2006	2007	2008	2009	2010	2011
Alpha	A1 Population (8_A1)	A1 Population (8_A1)	A1 + A2 (8_A1 & Blue-13)	A1 + A2 (8_A1 & Blue-13)	???	A1 Population
Bintje						
Eersteling						
Escort						
Gloria						
Robijn						
B.Queen						
Cara						
Setanta						
S.Mira						
Toluca						
Bionica						

The 2009 “wash-out”



The 2011 “trickle”



19th August

First detection of blight

Variety	2006	2007	2008	2009	2010	2011
Alpha	+6 days					
Bintje	+6 days					
Eersteling	+6 days					
Escort	+14 days					
Gloria	27 July					
Robijn	+14 days					
B.Queen	27 July					
Cara	+6 days					
Setanta	+6 days					
S.Mira	n/a					
Toluca	n/a				-	
Bionica	n/a				-	

June: 47mm & 15 C July: 31.4mm & 17°C August: 36.5mm & 16°C

First detection of blight

Variety	2006	2007	2008	2009	2010	2011
Alpha		+9 days				
Bintje		+7 days				
Eersteling		30 June				
Escort		+14 days				
Gloria		+7 days				
Robijn		+14 days				
B.Queen		30 June				
Cara		+14 days				
Setanta		+ 21 days				
S.Mira		n/a				
Toluca		n/a				
Bionica		n/a				

June: 110.8mm & 12 C July: 128.8mm & 15°C August: 106.4mm & 15°C

First detection of blight

Variety	2006	2007	2008	2009	2010	2011
Alpha			n/a			
Bintje			2 July			
Eersteling			n/a			
Escort			+7 days			
Gloria			2 July			
Robijn			n/a			
B.Queen			2 July			
Cara			2 July			
Setanta			2 July			
S.Mira			n/a			
Toluca			n/a			
Bionica			n/a			

June: 88mm & 13 C July: 140mm & 15°C August: 143mm & 16°C

First detection of blight

Variety	2006	2007	2008	2009	2010	2011
Alpha				+7 days		
Bintje				6 July		
Eersteling				+7 days		
Escort				n/a		
Gloria				n/a		
Robijn				+7 days		
B.Queen				6 July		
Cara				+7 days		
Setanta				+7 days		
S.Mira				-		
Toluca				-		
Bionica				-		

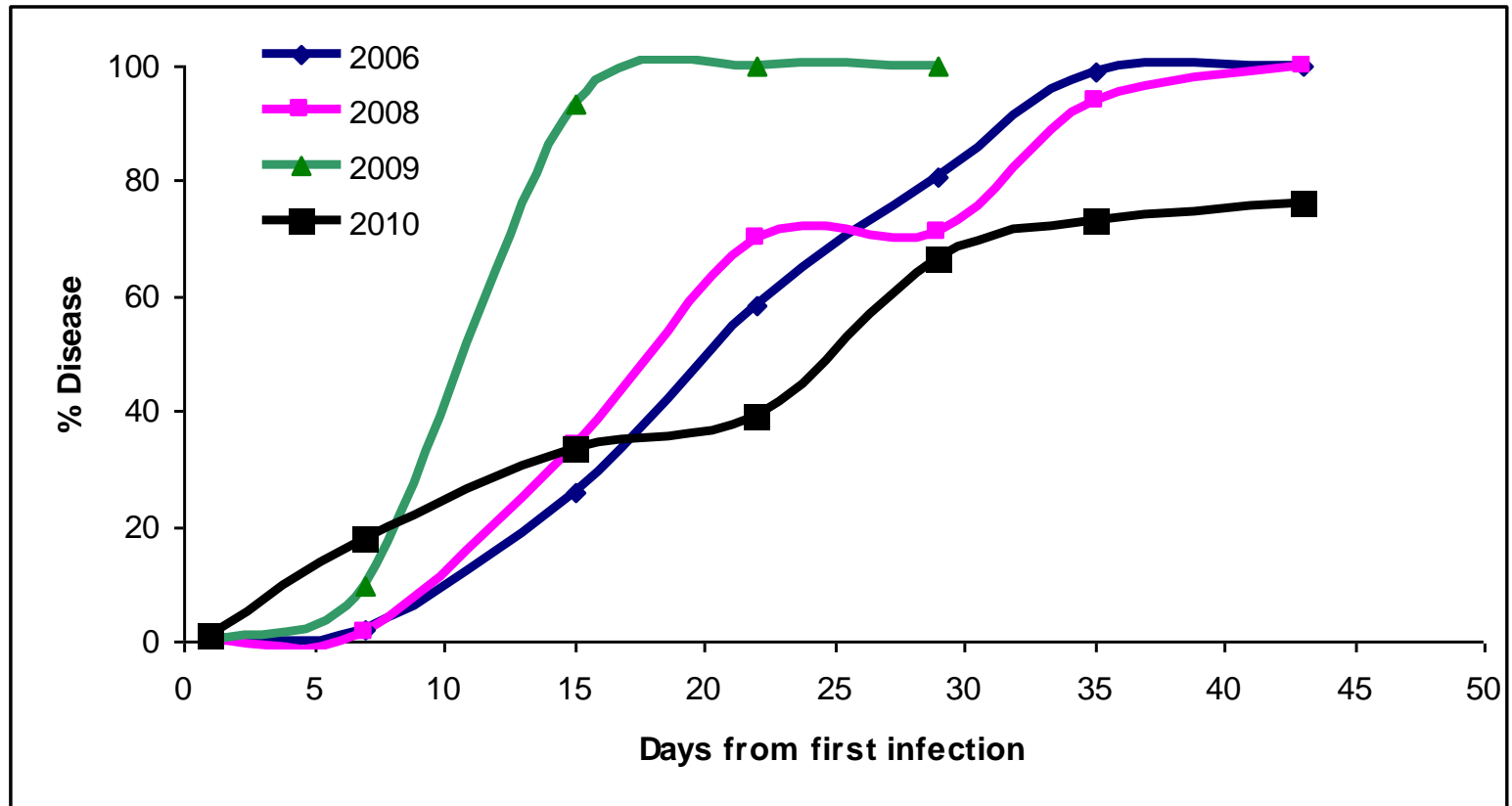
June: 65.4mm & 14 C July: 152.4mm & 15°C August: 100mm & 16°C

First detection of blight

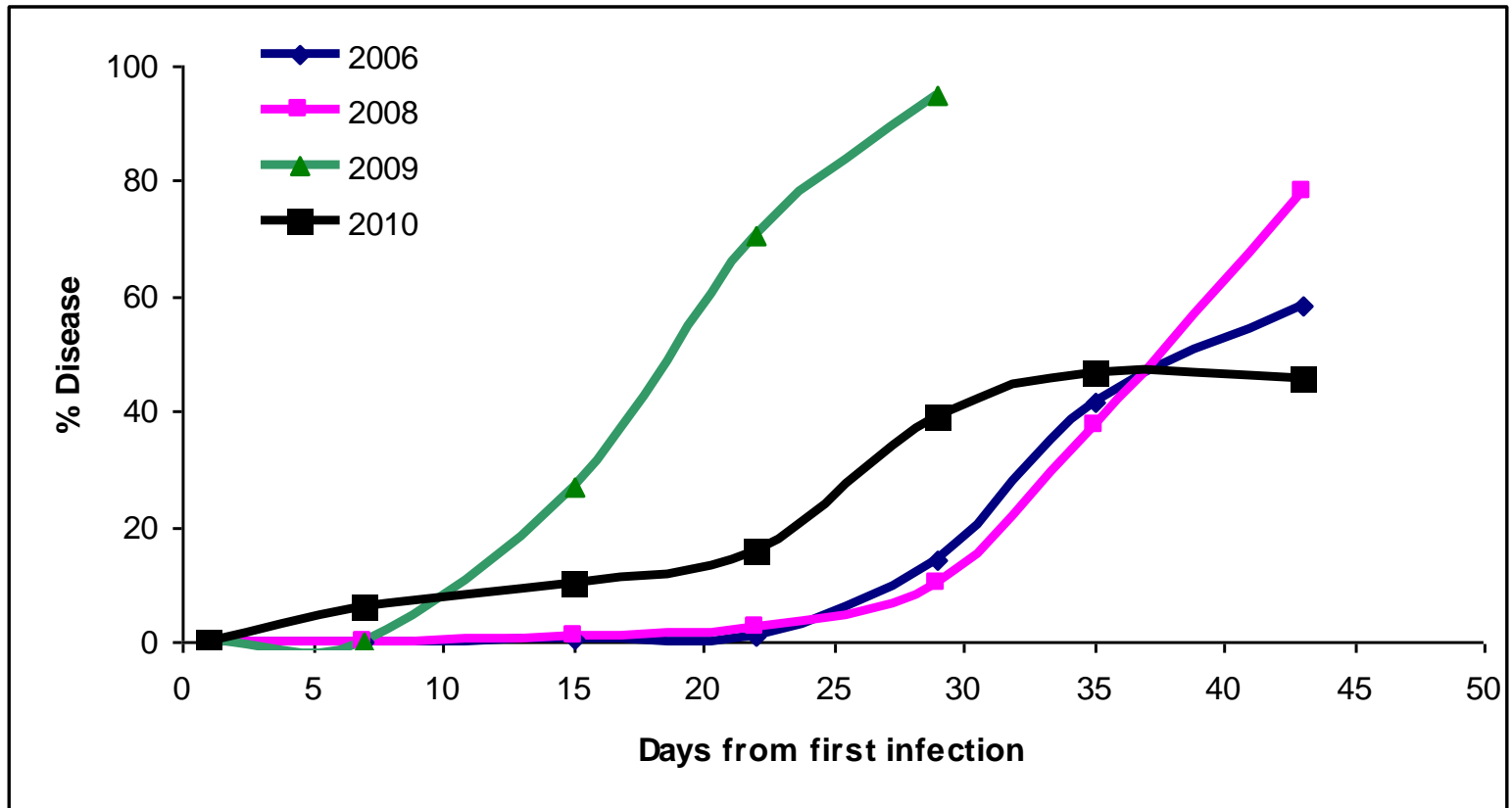
Variety	2006	2007	2008	2009	2010	2011
Alpha					+19 days	
Bintje					+12 days	
Eersteling					7 July	
Escort					+12 days	
Gloria					+12 days	
Robijn					+12 days	
B.Queen					+12 days	
Cara					+19 days	
Setanta					+12 days	
S.Mira					+19 days	
Toluca					-	
Bionica					-	

June: 37.6mm & 14 C July: 96.9mm & 16°C August: 25.5mm & 15°C

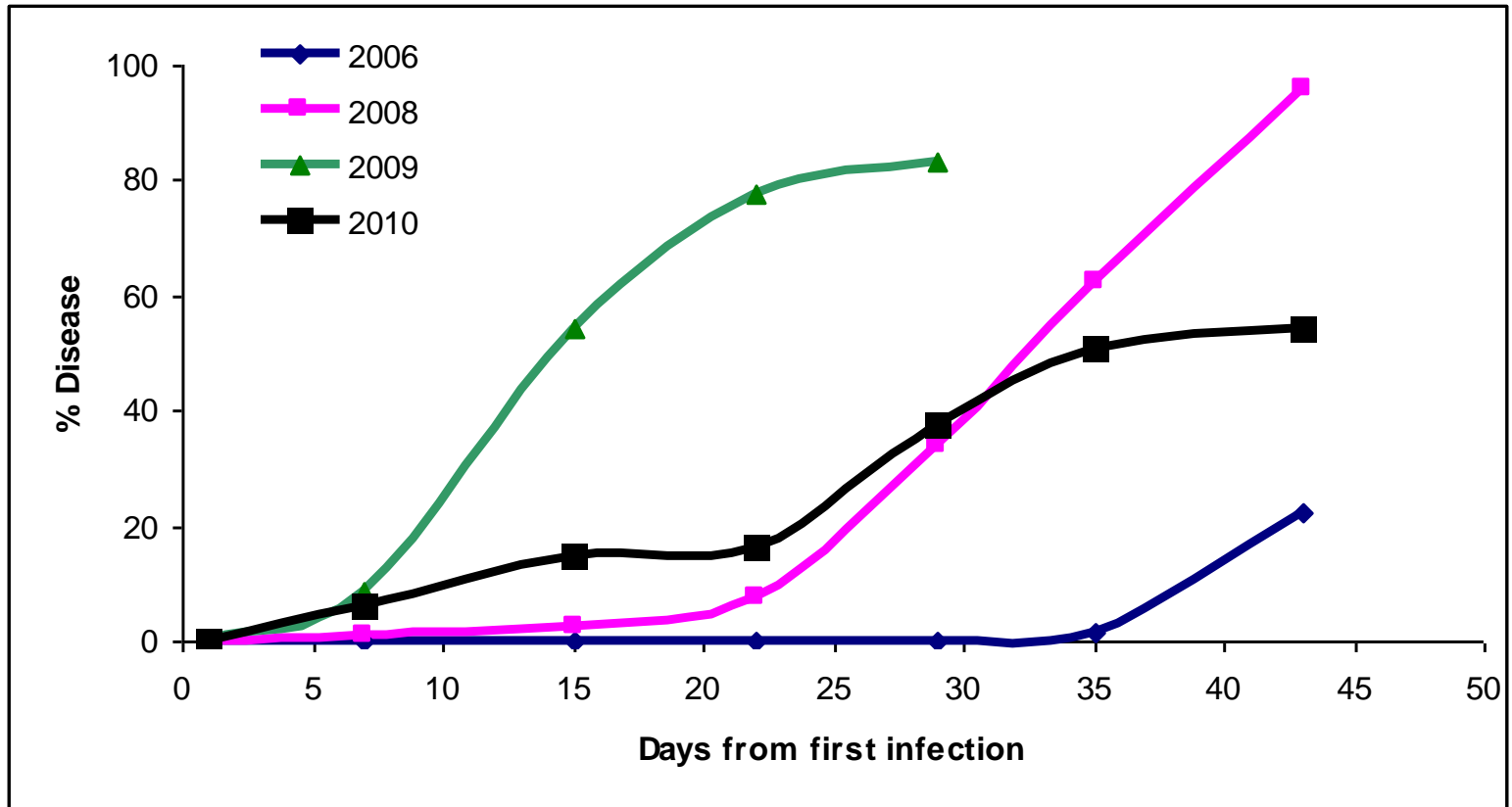
British Queen



Cara



Setanta



The 2011 “trickle”

- New strains of blight have affected potato resistances under natural conditions
- Weather continues to be the largest factor in disease epidemics and progress
- How has the 2011 ‘flip’ affected resistances?



British Queen

Cara

7