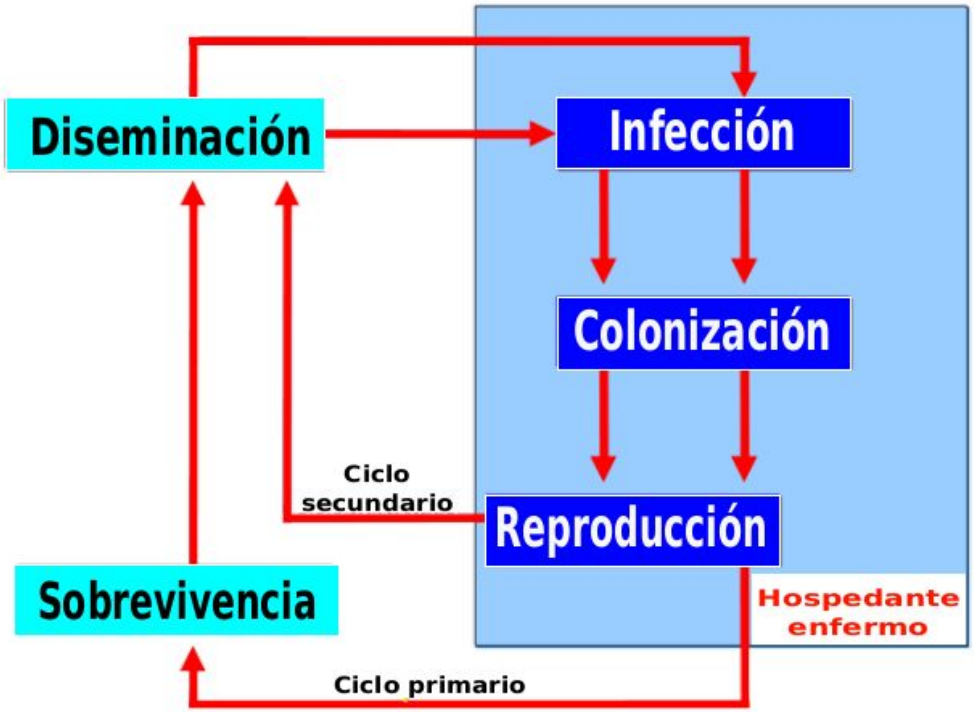
Progreso temporal

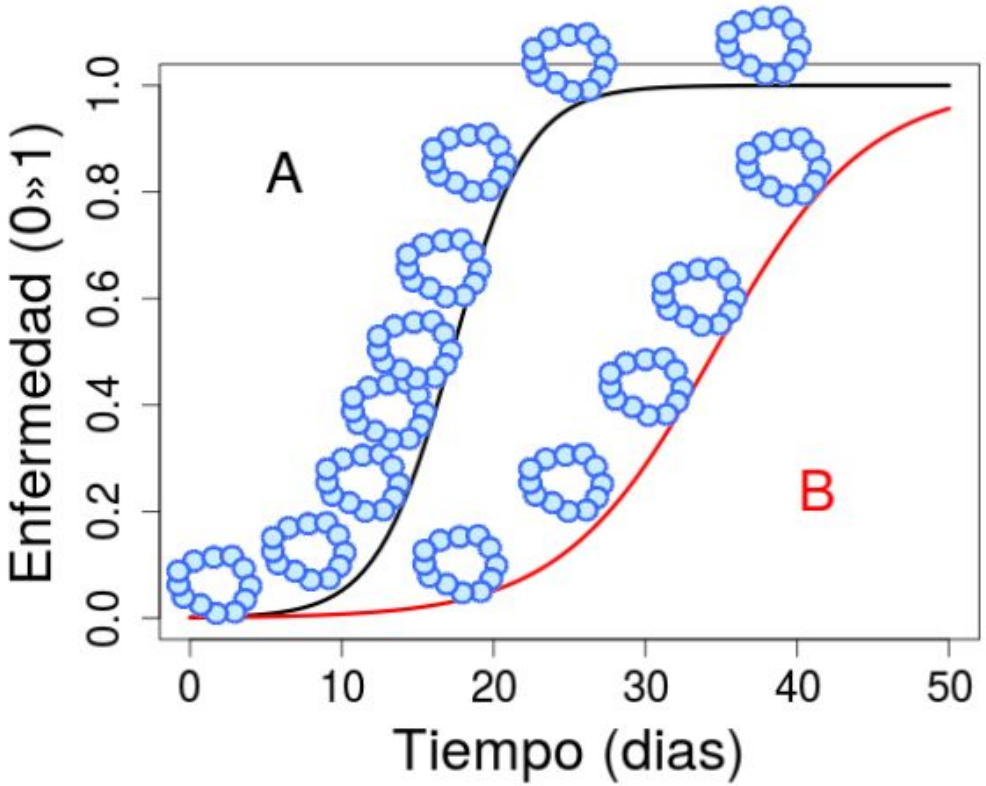
Juan Pablo Edwards Molina (Prof. Responsable)
Pamela Dirchwolf (Coordinadora)

Relaciones patógeno - hospedante

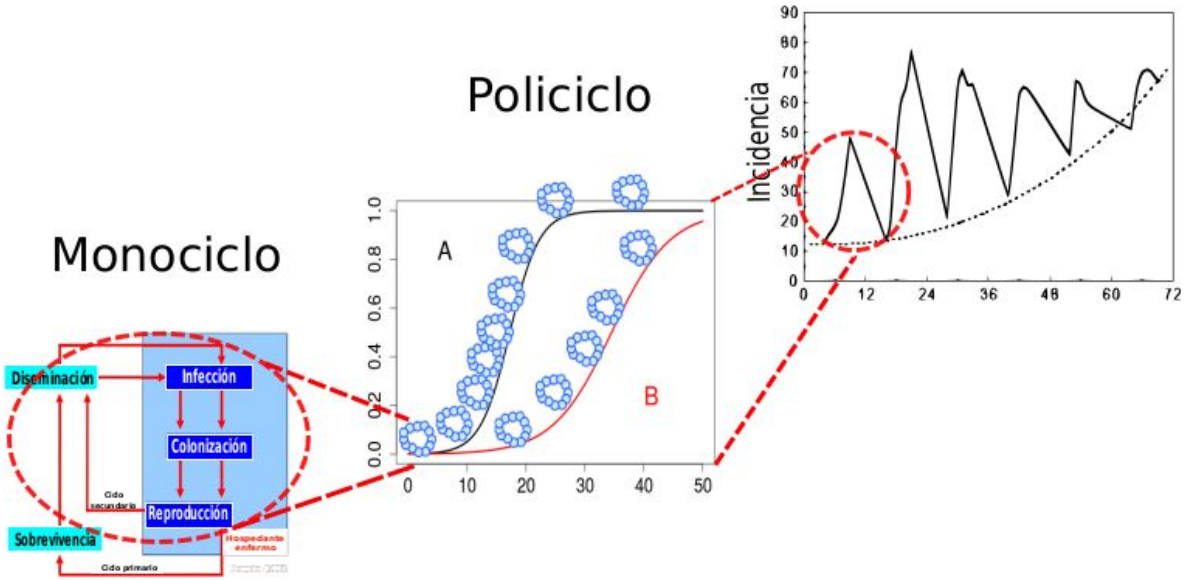


Amorim, 1995

Proceso policiclo

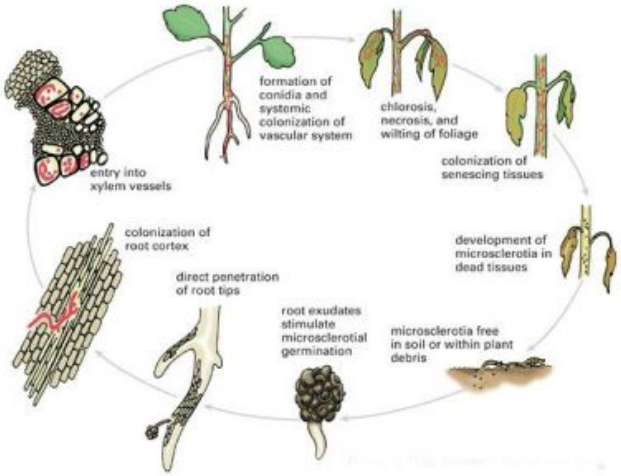


Escala temporal

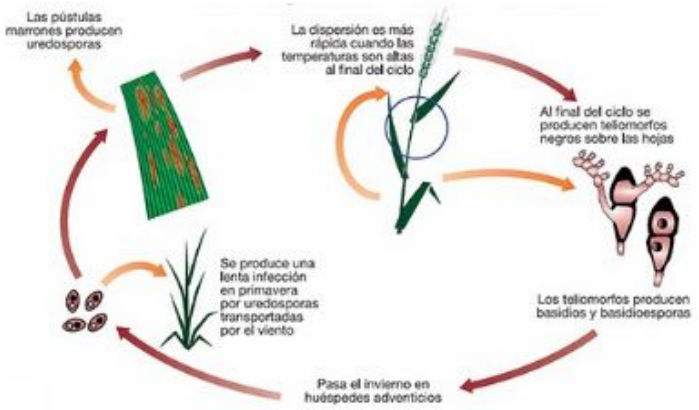


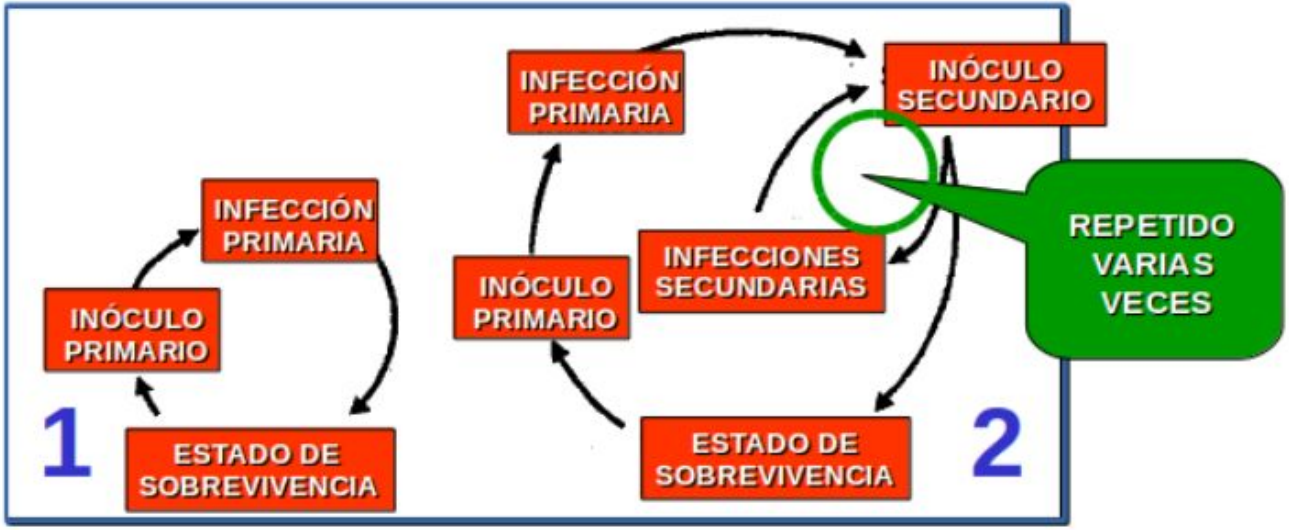
Patrones regulares

Sin ciclos 2°: *Verticillium dahliae* / Girasol



Muchos ciclos 2° *Puccinia recondita* / Trigo





Tipo de enfermedades

Interés simple
o MONOCICLICAS

Interés compuesto
o POLICICLICAS

Monocíclicas vs Policíclicas

Caracteristica	Monocíclicas	Policíclicas
Producción de inóculo secundario (mismo ciclo cultivo)	**No**	**Si**
Importancia de la cantidad de inóculo inicial	Alta	Baja: si la tasa de progreso es alta o si el tiempo de desarrollo es largo
Ejemplos típicos	"Patógenos de suelo" (Fusarium, Verticillium,...)	"Patógenos foliares" Royas, Oidios, Manchas foliares

google sheet

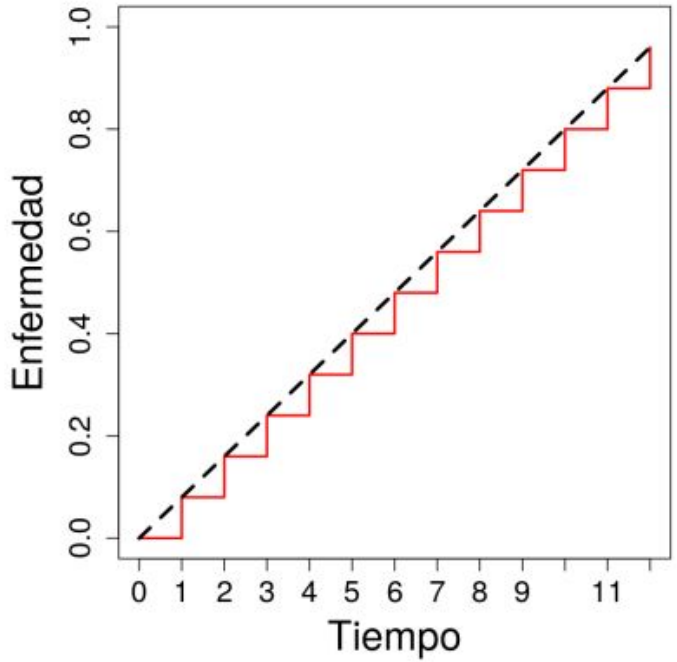
Interés simple

$$y = y_0 + R\ t$$

y : Nivel de enfermedad en el tiempo t

R: Tasa de infección aparente

y_0: Enfermedad en tiempo= 0 (Inóculo inicial)



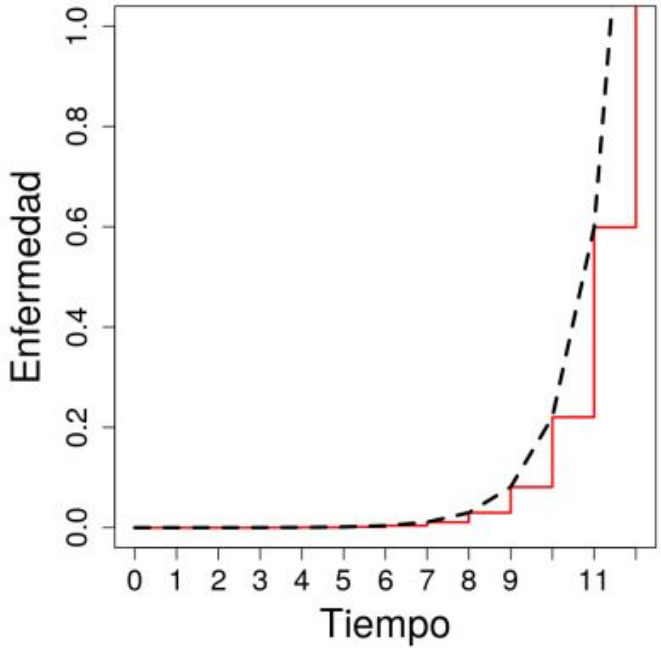
Interés compuesto

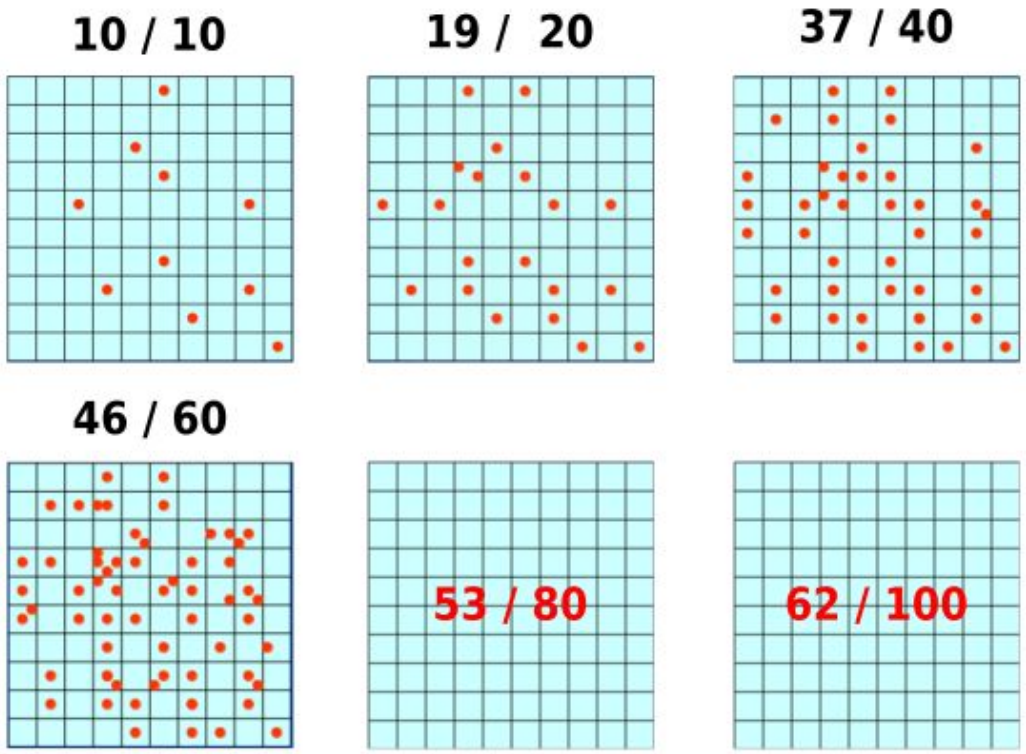
$y = y_0 \ exp(r \ t)$

y: Nivel de enfermedad en el tiempo t

r: Tasa de infección aparente

y_0: Enfermedad en t=0 (Inóculo inicial)

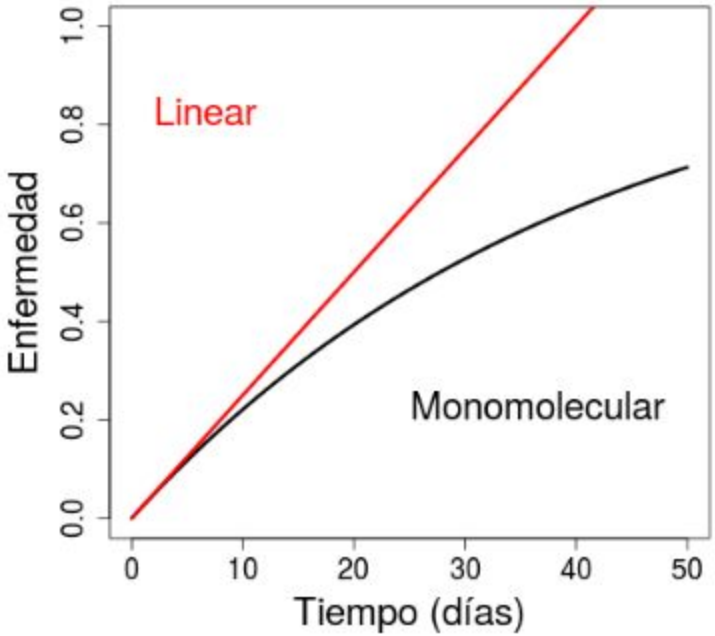




FACTOR DE CORRECCION (FC) $= (1 - y)$

$$dy/dt = r = QR$$

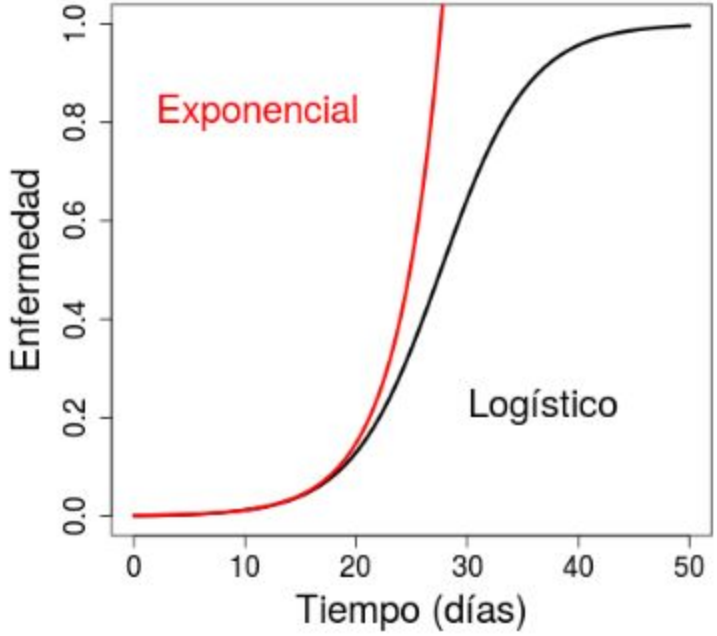
$$y = y_0 + QR * t$$



$$dy/dt = QR(1 - y)$$

$$dy/dt = ry$$

$$y = y_0 exp(r * t)$$

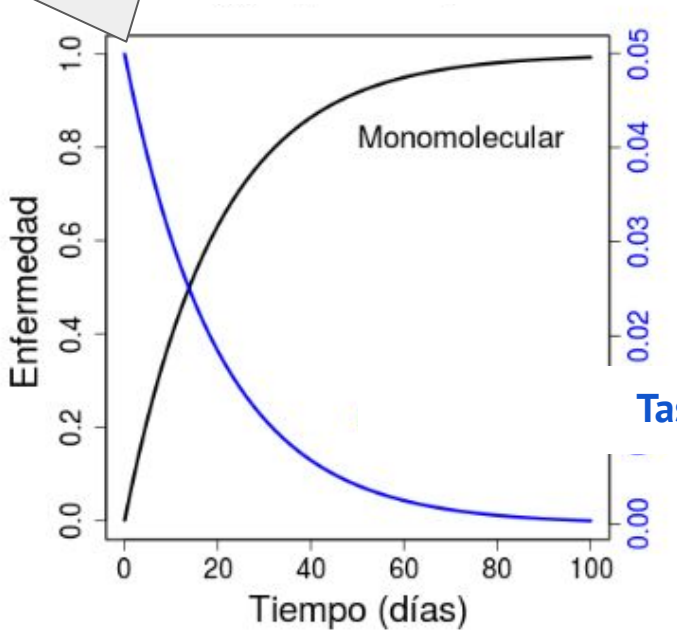


$$dy/dt = ry(1 - y)$$

$$y = 1/(1 + (1 - y0)/y0 * exp(-r * x))$$

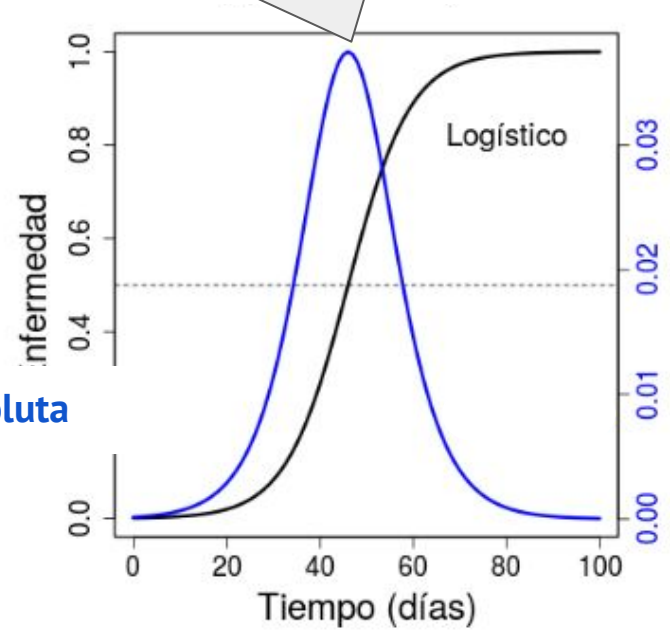
	Velocidad de aumento de la enfermedad (tasa absoluta)	por integración
Modelo	dy/dt	y
linear	**r = QR** Q = inóculo pre-existente R = tasa de infección QR = nro de contactos efectivos	$y = y_0 + QRt$
monomolecular	**QR * (1-y)** (1-y) = proporción de tejido sano	$y = 1 - (1 - y_0) * \exp(-r_M t)$
exponencial	**ry**	$y = y_0 * \exp(r_E * t)$
logístico	**ry * (1-y)**	$y = 1/(1 + ((1/y_0) - 1) * \exp(-r_L t))$

Máximo [QR * (1-y)]



Tasa absoluta

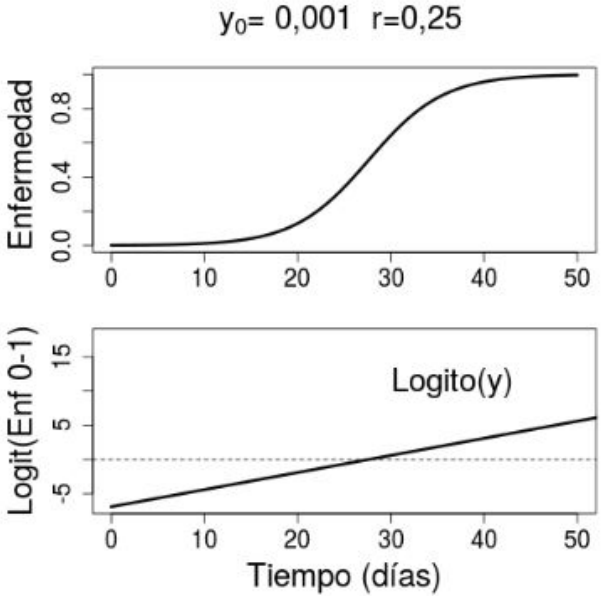
punto de inflexión: y = 50%



Simétrica en torno al punto de inflexión

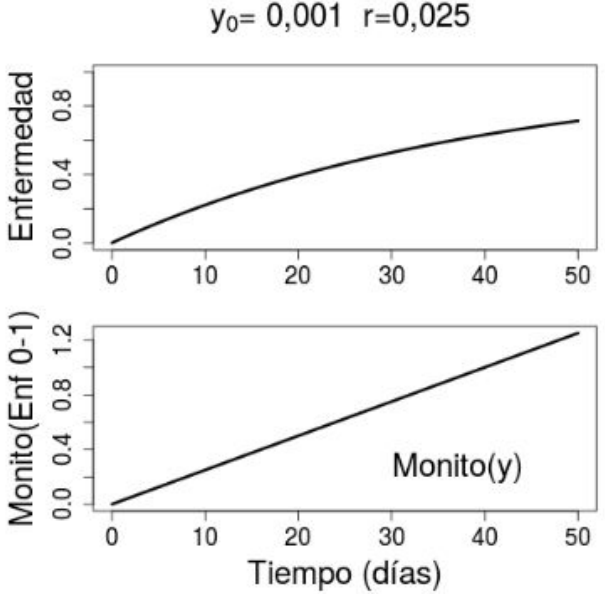
Linearizando

Logístico



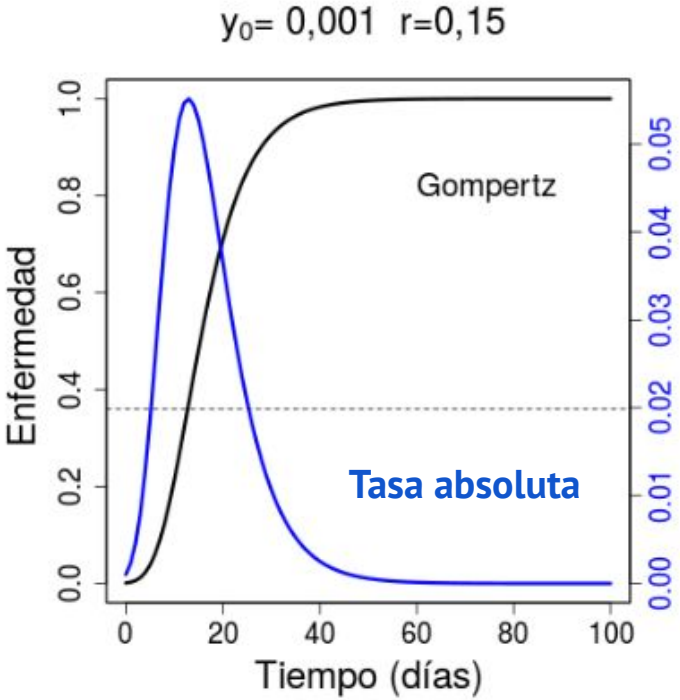
$$logito(y) = log(\frac{y}{1-y})$$

Monomolecular

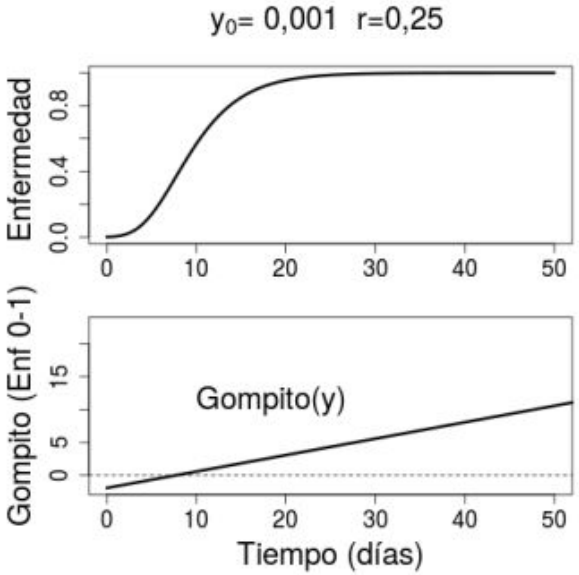


$$monito(y) = log(\frac{1}{1-y})$$

Gompertz

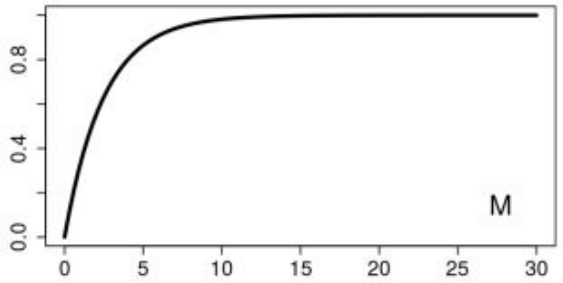


Linearizando

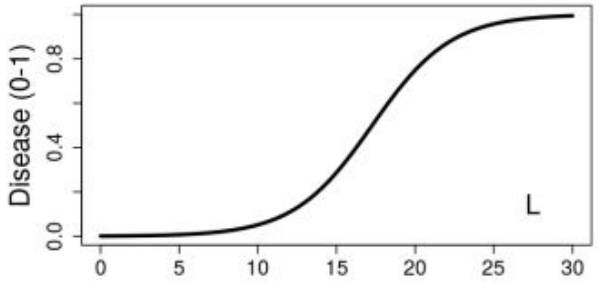


$$gompito(y) = -LN(-LNy))$$

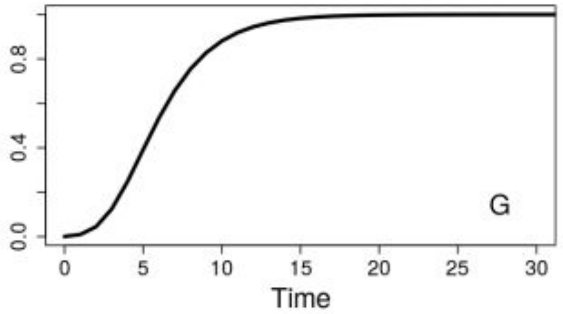
$$y = 1 - (1 - y0) * exp(-r_M t)$$



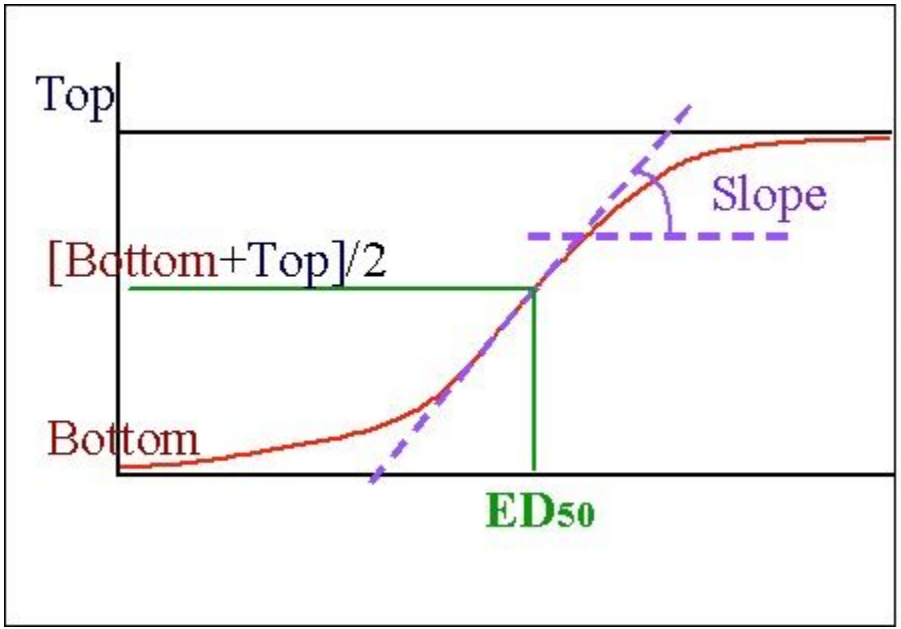
$$y = 1/(1 + ((1/y_0) - 1) * exp(-r_L t))$$



$$y = exp(-(-log(y_0))exp(-r_G x))$$



Parametrización de modelo logístico



4PL = Four Parameters:

Bottom, Top, Slope, ED_{50}

3PL = Three Parameters:

Bottom, Top, Slope

2PL = Two Parameters:

Bottom, $Slope^{e}$