

( )

*Meloidogyne javanica*

*Fusarium oxysporum*

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*Fusarium*

*Meloidogyne javanica*

*oxysporum*

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*Phaseolus*

*P. vulgaris* L.

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*F.oxysporum* Schlecht

M.

( )

( ) *javanica*

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Rutgers

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*Meloidogyne*

*F.oxysporum*

*javanica* (Treub) Chitwood

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*M. javanica*

*F. solani* *F.oxysporum*

*F.oxysporum*

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(.)

1. egg mass

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( )

( )

%

( )

(T<sub>5</sub>)

%

( )

(R)

$$R = \frac{P_f}{P_i}$$

P<sub>i</sub>= initial population , P<sub>f</sub>= final population

(T<sub>5</sub>)

(T<sub>4</sub>, T<sub>3</sub>)

(T<sub>2</sub>)

(T<sub>1</sub>)

(T<sub>6</sub>)

(ab)

(T<sub>2</sub>)

(T<sub>1</sub>)

:( )

( )

-

(T<sub>4</sub>, T<sub>3</sub>)

% =

% =

=

( )

(b)

(T<sub>5</sub>)

% =

% =

% =

%

( )

:( )

(T<sub>5</sub>)

(T<sub>2</sub>)

( )

- 
1. Reproduction factor
  2. Dhawan and Goswami

(T<sub>1</sub>) (T<sub>4</sub>) %  
 ( )  
 %  
 (T<sub>1</sub>)  
 (T<sub>3</sub>) (T<sub>1</sub>)  
 b (T<sub>5</sub>) a (T<sub>4</sub>, T<sub>3</sub>) (T<sub>2</sub>)  
 c (T<sub>4</sub>)  
 T<sub>4</sub> ( )  
 T<sub>4</sub> T<sub>3</sub>  
 % / % / % / T<sub>1</sub> T<sub>5</sub>  
 % / % / % / T<sub>1</sub> %  
 (T<sub>4</sub>) T<sub>1</sub> (T<sub>1</sub>)  
 T<sub>3</sub> T<sub>1</sub> (T<sub>4</sub>) ( )  
 T<sub>5</sub> ( )  
 ( ) ( ) %  
 %

	cm		cm		gr		gr		gr		gr	
	b <sub>1</sub>	b <sub>2</sub>	b <sub>1</sub>	b <sub>2</sub>	b <sub>1</sub>	b <sub>2</sub>	b <sub>1</sub>	b <sub>2</sub>	b <sub>1</sub>	b <sub>2</sub>	b <sub>1</sub>	b <sub>2</sub>
T <sub>1</sub>	/ b	/ b	/ a	/ ab	/ bc	/ bc	/ b	/ b	/ bc	/ b	/ ab	/ ab
T <sub>2</sub>	/ bc	/ bc	/ ab	/ ab	/ b	/ b	/ c	/ b	/ b	/ b	/ bc	/ c
T <sub>3</sub>	/ dc	/ dc	/ c	/ b	/ bc	/ dc	/ b	/ b	/ dc	/ b	/ b	/ c
T <sub>4</sub>	/ bcd	dc	/ c	/ b	/ bc	/ bcd	/ bc	/ b	/ dc	/ b	/ bc	/ c
T <sub>5</sub>	d	/ d	/ bc	/ b	/ c	/ d	/ bc	/ b	/ d	/ b	/ c	/ bc
T <sub>6</sub>	/ a	a	/ a	a	/ a	/ a	/ a	/ a	/ a	/ a	/ a	/ a
	=T <sub>5</sub>		=T <sub>4</sub>		=T <sub>3</sub>		=T <sub>2</sub>		=T <sub>1</sub>			
			*			=b <sub>2</sub>		=b <sub>1</sub>		=T <sub>6</sub>		

.... :

%

	(800g)		(P <sub>f</sub> )		(R)	
	b <sub>1</sub>	b <sub>2</sub>	b <sub>1</sub>	b <sub>2</sub>	b <sub>1</sub>	b <sub>2</sub>
T <sub>1</sub>	/ a	/ a	a	/ a	/ a	/ a
T <sub>3</sub>	/ a	/ a	/ a	/ a	a	/ a
T <sub>4</sub>	/ c	/ b	b	a	/ c	/ c
T <sub>5</sub>	/ bc	b	ab	a	/ b	/ b

=b<sub>1</sub>                      =T<sub>5</sub>                      =T<sub>4</sub>                      =T<sub>3</sub> ( )                      =T<sub>1</sub>  
 .                      .                      T<sub>1</sub>                      \*                      =b<sub>2</sub>

*M. javanica F. oxysporum*

% (R)				(P <sub>f</sub> )			
%				R	P <sub>f</sub>	%	
b <sub>1</sub>	b <sub>2</sub>	b <sub>1</sub>	b <sub>2</sub>	R	P <sub>f</sub>	(T <sub>1</sub> )	
/ ab	abc	/ d	/ dc	(T <sub>5</sub> )	(T <sub>4</sub> )	(T <sub>3</sub> )	(T <sub>1</sub> )
( )	( )	( )	( )		( )		
/ ab	/ abc	d	bc				
( )	( / )	( )	( )				
ab	/ ab	b	/ ab				
( )	( / )	( )	( )				
/ b	/ bc	/ c	/ dc				
( )	( )	( )	( )	(T)			
/ a	/ a	/ a	/ a	(T <sub>3</sub> )			
( )	( / )	( )	( )				( )
/ b	c	/ d	/ d				

=T<sub>3</sub>                      =T<sub>2</sub>                      =T<sub>1</sub>                      %  
 =T<sub>5</sub>                      =T<sub>4</sub>                      (T<sub>5</sub>)  
 )                      =T<sub>6</sub>                      (T<sub>5</sub>)  
 .(                      T<sub>6</sub>                      (T<sub>4</sub>)  
 =b<sub>2</sub>                      =b<sub>1</sub>                      .( )                      (T<sub>4</sub>)

( )  
*F.oxysporum f.sp.lentis*      *M.javanica*      *F.oxysporum*      *M.javanica*

( )      .( )

.( )

(T<sub>3</sub>)

.( )

(T<sub>5</sub>)

(T<sub>1</sub>)

(T<sub>3</sub>)

(T<sub>5</sub>)

(T<sub>4</sub>)

(T<sub>3</sub>) (T<sub>1</sub>)

(T<sub>4</sub>)

(T<sub>5</sub>)

( )

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( )

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.( ( )

1. Giant cell

( )  
 ( )  
*F. oxysporum* f. sp.  
*M. phaseoli*  
*M. javanica*  
*F.oxysporum*  
*M.incognita*

( )  
 )  
 ( )  
*F.oxysporum*

(.)

( )  
*F. oxysporum* f.sp. *phaseoli*  
*M. incognita*

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