

Table S1. S-allele pairs leading to practical disturbances in orchards through the dual-successive-screen model: DSI and PASI.

A Stigma phenotype G1	B Pollen phenotype G2	C Stigma phenotype G2	D Pollen phenotype G1	Fruit due to self- fecundation in the field	Fruit due to self- fecundation in a bag	Fruit due to crosses
[R1R2]	<u>R1</u>	[R1R4]	<u>R2</u>	AB none; CD none	AB none; CD none	none
[R2R4]	<u>R1</u>	[R1R4]	<u>R2</u>	AB yes; CD yes	AB yes; CD none	yes compatible
[R2R6]	<u>R2</u>	[R1R2]	<u>R2</u>	AB yes; CD none	AB yes; CD none	none
[R1R5]	<u>R3R5</u>	[R3R5]	<u>R1R5</u>	AB none; CD none	AB yes; CD yes	none
[R2R3]	<u>R1R3</u>	[R1R3]	<u>R2</u>	AB yes; CD none	AB yes; CD none	yes compatible
[R2R4]	<u>R6</u>	[R2R6]	<u>R2</u>	AB yes; CD none	AB yes; CD yes	none
[R4R5]	<u>R1R5</u>	[R1R5]	<u>R4R5</u>	AB yes; CD yes	AB yes; CD yes	none
[R4R5]	<u>R2R5</u>	[R2R5]	<u>R4R5</u>	AB yes; CD yes	AB yes ; CD yes	none

Table S2. Pairwise combinations of female (Line) x male (Column) leading to compatibility in one direction and incompatibility in the other direction of the cross (asymmetry). All pair should G1xG2 or G2xG1.

<i>Genotype¹</i>						R5R6						
Pollen					R2R5						R4R6	
Pollen					R2R4						R3R6	
Pollen					R2R3						R2R6	
Pollen	R1R4	R1R2	R3R4	R4R4	R4R5	R1R6	R1R3	R1R5	R3R5			
<i>Phenotypes= determinants</i>	<u>R1</u>	<u>R2</u>	<u>R3</u>	<u>R4</u>	<u>R5</u>	<u>R6</u>	<u>R1R3</u>	<u>R1R5</u>	<u>R3R5</u>	<u>Number of</u>	combinations	
<i>Stigma</i>										symmetric	asymmetric	
[R1R2]		R1R2								7	2	
[R1R3]		R1R2, R2R3				R1R6, R3R6				7	4	
[R1R4]		R1R2				R1R6				7	2	
[R1R5]		R1R2, R2R5				R5R6				7	4	
[R1R6]		R1R2				R1R6				7	2	
[R2R2]						R2R6				8	1	
[R2R3]			R3R4			R3R6	R1R3		R3R5	5	4	
[R2R4]						R2R6				8	1	
[R2R5]					R4R5	R1R6, R5R6		R1R5	R3R5	5	5	
[R2R6]										9	0	
[R3R3]		R2R3				R3R6				7	2	
[R3R4]		R2R3				R3R6				7	2	
[R3R5]		R2R5, R2R3								8	2	
[R3R6]			R3R4							8	1	
[R4R4]	R1R4	R2R4	R3R4		R4R5	R4R6				4	5	
[R4R5]		R2R5				R5R6				7	2	
[R4R6]										9	0	
[R5R5]		R2R5				R5R6				7	2	
[R5R6]					R4R5			R1R5	R3R5	6	3	
										140	46	

¹ PASI in stigma [R1] = [R2] = [R3] = [R4] = [R5] = [R6] and in pollen R6 > R2, > R1 = R3 = R5 > R4

Table S3. This is a table. S -allelepairs leading to inconsistencies between literature, DSI and PASI after paternity tests revealing a pollen class that may suffer degradation of S determinants (DSD) causing paradoxical diagnosis to identify pollinizers

Stigma G1 or G2	Father G2 or G1	Diagnosis in literature	After DSI	After PASI	DSD may	Final Paternity test diagnosis accepted/rejected
R1R2	<u>R1, R1R3,R1R5</u> <u>R1, R3, R1R3,</u> <u>R1R4, R1R5,</u> <u>R1R6, R3R4,</u> <u>R3R5, R3R6</u>	Pollinizer	<u>Pollinizer</u>	Rejected	yes	rejected
R1R3	<u>R1, R1R3,R1R5</u>	Pollinizer	<u>Pollinizer</u>	Reject	yes	rejected
R1R4	<u>R1, R2, R1R5,</u> <u>R3R5</u>	Pollinizer	<u>Pollinizer</u>	Reject	yes	rejected
R1R5	<u>R1, R1R3, R1R5,</u> <u>R6</u>	Pollinizer	<u>Pollinizer</u>	Reject	yes	rejected
R1R6	<u>R2,</u> <u>R3,R1R3,R3R5</u>	Pollinizer	<u>Pollinizer</u>	Reject	yes	rejected
R2R3	<u>R2</u>	Pollinizer	<u>Pollinizer</u>	Reject	yes	rejected
R2R4	<u>R2,R1R5, R3R5</u>	Pollinizer	<u>Pollinizer</u>	Reject	yes	rejected
R2R5	<u>R2, R6</u>	Pollinizer	<u>Pollinizer</u>	Reject	yes	rejected
R2R6	<u>R3, R1R3,R3R5</u>	Pollinizer	<u>Pollinizer</u>	Reject	yes	rejected
R3R4	<u>R3,R5, R1R3,</u> <u>R3R5, R3 R5</u>	Pollinizer	<u>Pollinizer</u>	Reject	yes	rejected
R3R5	<u>R3, R1R3, R3R5,</u> <u>R6</u>	Pollinizer	<u>Pollinizer</u>	Reject	yes	rejected
R3R6	<u>R5</u>	Pollinizer	<u>Pollinizer</u>	Reject	yes	rejected
R4R5	<u>R6</u>	Pollinizer	<u>Pollinizer</u>	Reject	yes	rejected
R4R6	<u>R5, R1R5, R3R5,</u> <u>R6</u>	Pollinizer	<u>Pollinizer</u>	Reject	yes	rejected
R5R6		Pollinizer	<u>Pollinizer</u>	Reject	yes	rejected