

Supplemental Table S1. Recursion equations to simulate random mating.

genotype	frequency	frequency after random mating
X/X; III/III; IV/IV	f_1	$ \begin{aligned} & f_1 m_1/2 + f_1 m_3/2 + f_1 m_4/4 \\ & + f_2 m_1/4 + f_2 m_3/4 + f_2 m_4/8 \\ & + f_3 m_1/4 + f_3 m_3/8 + f_3 m_4/16 \\ & + f_5 m_1/8 + f_5 m_3/8 + f_5 m_4/16 \\ & + f_6 m_1/16 + f_6 m_3/16 + f_6 m_4/32 \end{aligned} $
X/X; III/III; IV/IV ^F	f_2	$ \begin{aligned} & f_2 m_1/4 + f_2 m_3/4 + f_2 m_4/8 \\ & + f_3 m_1/8 + f_3 m_3/8 + f_3 m_4/16 \\ & + f_5 m_1/8 + f_5 m_3/8 + f_5 m_4/16 \\ & + f_6 m_1/16 + f_6 m_3/16 + f_6 m_4/32 \end{aligned} $
X/X; III/III ^M ; IV/IV ^F	f_3	$ \begin{aligned} & f_2 m_1/4 + f_2 m_2/2 + f_2 m_4/8 + f_2 m_5/4 \\ & + f_3 m_1/4 + f_3 m_2/4 + f_3 m_3/8 \\ & + f_3 m_4/8 + f_3 m_5/8 \\ & + f_4 m_1/4 + f_4 m_3/4 + f_4 m_4/8 \\ & + f_5 m_1/8 + f_5 m_2/4 + f_5 m_4/16 + f_5 m_5/8 \\ & + f_6 m_1/8 + f_6 m_2/8 + f_6 m_3/16 \\ & + f_6 m_4/16 + f_6 m_5/16 \\ & + f_7 m_1/8 + f_7 m_3/8 + f_7 m_4/16 \end{aligned} $
X/X; III ^M /III ^M ; IV/IV ^F	f_4	$ \begin{aligned} & f_3 m_1/8 + f_3 m_2/4 + f_3 m_4/16 + f_3 m_5/8 \\ & + f_4 m_1/4 + f_4 m_2/2 + f_4 m_4/8 + f_4 m_5/4 \\ & + f_6 m_1/16 + f_6 m_2/8 + f_6 m_4/32 + f_6 m_5/16 \\ & + f_7 m_1/8 + f_7 m_2/4 + f_7 m_4/16 + f_7 m_5/8 \end{aligned} $
X/Y ^M ; III/III; IV/IV ^F	f_5	$ \begin{aligned} & f_2 m_3/4 + f_2 m_4/8 + f_2 m_6/2 + f_2 m_7/4 \\ & + f_3 m_3/8 + f_3 m_4/16 + f_3 m_6/4 + f_3 m_7/8 \\ & + f_5 m_1/8 + f_5 m_3/4 + f_5 m_4/8 \\ & + f_5 m_6/4 + f_5 m_7/8 \\ & + f_6 m_1/16 + f_6 m_3/8 + f_6 m_4/16 \\ & + f_6 m_6/8 + f_6 m_7/16 \\ & + f_8 m_1/4 + f_8 m_3/4 + f_8 m_4/8 \\ & + f_9 m_1/8 + f_9 m_3/8 + f_9 m_4/16 \end{aligned} $

$X/Y^M, III/III^M, IV/IV^F$	f_6	$ \begin{aligned} & f_2m_4/8 + f_2m_5/4 + f_2m_7/4 + f_2m_8/2 \\ & + f_3m_3/8 + f_3m_4/8 + f_3m_5/8 \\ & + f_3m_6/4 + f_3m_7/4 + f_3m_8/4 \\ & + f_4m_3/4 + f_4m_4/8 + f_4m_6/2 + f_4m_7/4 \\ & + f_5m_1/8 + f_5m_2/4 + f_5m_4/8 \\ & + f_5m_5/4 + f_5m_7/8 + f_5m_8/4 \\ & + f_6m_1/8 + f_6m_2/8 + f_6m_3/8 + f_6m_4/8 \\ & + f_6m_5/8 + f_6m_6/8 + f_6m_7/8 + f_6m_8/8 \\ & + f_7m_1/8 + f_7m_3/4 + f_7m_4/8 \\ & + f_7m_6/4 + f_7m_7/8 \\ & + f_8m_1/4 + f_8m_2/2 + f_8m_4/8 + f_8m_5/4 \\ & + f_9m_1/4 + f_9m_2/4 + f_9m_3/8 \\ & + f_9m_4/8 + f_9m_5/8 \\ & + f_{10}m_1/4 + f_{10}m_3/4 + f_{10}m_4/8 \end{aligned} $
$X/Y^M, III^M/III^M, IV/IV^F$	f_7	$ \begin{aligned} & f_3m_4/16 + f_3m_5/8 + f_3m_7/8 + f_3m_8/4 \\ & + f_4m_4/8 + f_4m_5/4 + f_4m_7/4 + f_4m_8/2 \\ & + f_6m_1/16 + f_6m_2/8 + f_6m_4/16 \\ & + f_6m_5/8 + f_6m_7/16 + f_6m_8/8 \\ & + f_7m_1/8 + f_7m_2/4 + f_7m_4/8 \\ & + f_7m_5/4 + f_7m_7/8 + f_7m_8/4 \\ & + f_9m_1/8 + f_9m_2/4 + f_9m_4/16 + f_9m_5/8 \\ & + f_{10}m_1/4 + f_{10}m_2/2 + f_{10}m_4/8 + f_{10}m_5/4 \end{aligned} $
$Y^M/Y^M, III/III; IV/IV^F$	f_8	$ \begin{aligned} & f_5m_3/8 + f_5m_4/16 + f_5m_6/4 + f_5m_7/8 \\ & + f_6m_3/16 + f_6m_4/32 + f_6m_6/8 + f_6m_7/16 \\ & + f_8m_3/4 + f_8m_4/8 + f_8m_6/2 + f_8m_7/4 \\ & + f_9m_3/8 + f_9m_4/16 + f_9m_6/4 + f_9m_7/8 \end{aligned} $
$Y^M/Y^M, III/III^M, IV/IV^F$	f_9	$ \begin{aligned} & f_5m_4/16 + f_5m_5/8 + f_5m_7/8 + f_5m_8/4 \\ & + f_6m_3/16 + f_6m_4/16 + f_6m_5/16 \\ & + f_6m_6/8 + f_6m_7/8 + f_6m_8/8 \\ & + f_7m_3/8 + f_7m_4/16 + f_7m_6/4 + f_7m_7/8 \\ & + f_8m_4/8 + f_8m_5/4 + f_8m_7/4 + f_8m_8/2 \\ & + f_9m_3/8 + f_9m_4/8 + f_9m_5/8 \\ & + f_9m_6/4 + f_9m_7/4 + f_9m_8/4 \\ & + f_{10}m_3/4 + f_{10}m_4/8 + f_{10}m_6/2 + f_{10}m_7/4 \end{aligned} $

$Y^M/Y^M; III^M/III^M; IV/IV^F$	f_{10}	$ \begin{aligned} & f_6 m_4/32 + f_6 m_5/16 + f_6 m_7/16 + f_6 m_8/8 \\ & + f_7 m_4/16 + f_7 m_5/8 + f_7 m_7/8 + f_7 m_8/4 \\ & + f_9 m_4/16 + f_9 m_5/8 + f_9 m_7/8 + f_9 m_8/4 \\ & + f_{10} m_4/8 + f_{10} m_5/4 + f_{10} m_7/4 + f_{10} m_8/2 \end{aligned} $
$X/X; III/III^M; IV/IV$	m_1	$ \begin{aligned} & f_1 m_1/2 + f_1 m_2/1 + f_1 m_4/4 + f_1 m_5/2 \\ & + f_2 m_1/4 + f_2 m_2/2 + f_2 m_4/8 + f_2 m_5/4 \\ & + f_3 m_1/8 + f_3 m_2/4 + f_3 m_3/8 \\ & + f_3 m_4/8 + f_3 m_5/8 \\ & + f_4 m_1/4 + f_4 m_3/4 + f_4 m_4/8 \\ & + f_5 m_1/8 + f_5 m_2/4 + f_5 m_4/16 + f_5 m_5/8 \\ & + f_6 m_1/8 + f_6 m_2/8 + f_6 m_3/16 \\ & + f_6 m_4/16 + f_6 m_5/16 \\ & + f_7 m_1/8 + f_7 m_3/8 + f_7 m_4/16 \end{aligned} $
$X/X; III^M/III^M; IV/IV$	m_2	$ \begin{aligned} & f_3 m_1/8 + f_3 m_2/4 + f_3 m_4/16 + f_3 m_5/8 \\ & + f_4 m_1/4 + f_4 m_2/2 + f_4 m_4/8 + f_4 m_5/4 \\ & + f_6 m_1/16 + f_6 m_2/8 + f_6 m_4/32 + f_6 m_5/16 \\ & + f_7 m_1/8 + f_7 m_2/4 + f_7 m_4/16 + f_7 m_5/8 \end{aligned} $
$X/Y^M; III/III; IV/IV$	m_3	$ \begin{aligned} & f_1 m_3/2 + f_1 m_4/4 + f_1 m_6/1 + f_1 m_7/2 \\ & + f_2 m_3/4 + f_2 m_4/8 + f_2 m_6/2 + f_2 m_7/4 \\ & + f_3 m_3/8 + f_3 m_4/16 + f_3 m_6/4 + f_3 m_7/8 \\ & + f_5 m_1/8 + f_5 m_3/4 + f_5 m_4/8 \\ & + f_5 m_6/4 + f_5 m_7/8 \\ & + f_6 m_1/16 + f_6 m_3/8 + f_6 m_4/16 \\ & + f_6 m_6/8 + f_6 m_7/16 \\ & + f_8 m_1/4 + f_8 m_3/4 + f_8 m_4/8 \\ & + f_9 m_1/8 + f_9 m_3/8 + f_9 m_4/16 \\ & + f_5 m_6/4 + f_5 m_7/8 \\ & + f_6 m_1/16 + f_6 m_3/8 + f_6 m_4/16 \\ & + f_6 m_6/8 + f_6 m_7/16 \\ & + f_8 m_1/4 + f_8 m_3/4 + f_8 m_4/8 \\ & + f_9 m_1/8 + f_9 m_3/8 + f_9 m_4/16 \end{aligned} $

$X/Y^M; III/III^M; IV/IV$

m_4

$$\begin{aligned}
& f_1 m_4/4 + f_1 m_5/2 + f_1 m_7/2 + f_1 m_8/1 \\
& + f_2 m_4/8 + f_2 m_5/4 + f_2 m_7/4 + f_2 m_8/2 \\
& \quad + f_3 m_3/8 + f_3 m_4/8 + f_3 m_5/8 \\
& \quad + f_3 m_6/4 + f_3 m_7/4 + f_3 m_8/4 \\
& + f_4 m_3/4 + f_4 m_4/8 + f_4 m_6/2 + f_4 m_7/4 \\
& \quad + f_5 m_1/8 + f_5 m_2/4 + f_5 m_4/8 \\
& \quad + f_5 m_5/4 + f_5 m_7/8 + f_5 m_8/4 \\
& + f_6 m_1/8 + f_6 m_2/8 + f_6 m_3/8 + f_6 m_4/8 \\
& + f_6 m_5/8 + f_6 m_6/8 + f_6 m_7/8 + f_6 m_8/8 \\
& \quad + f_7 m_1/8 + f_7 m_3/4 + f_7 m_4/8 \\
& \quad + f_7 m_6/4 + f_7 m_7/8 \\
& + f_8 m_1/4 + f_8 m_2/2 + f_8 m_4/8 + f_8 m_5/4 \\
& \quad + f_9 m_1/4 + f_9 m_2/4 + f_9 m_3/8 \\
& \quad + f_9 m_4/8 + f_9 m_5/8 \\
& + f_{10} m_1/4 + f_{10} m_3/4 + f_{10} m_4/8
\end{aligned}$$

$X/Y^M; III^M/III^M;$
 IV/IV

m_5

$$\begin{aligned}
& f_3 m_4/16 + f_3 m_5/8 + f_3 m_7/8 + f_3 m_8/4 \\
& + f_4 m_4/8 + f_4 m_5/4 + f_4 m_7/4 + f_4 m_8/2 \\
& \quad + f_6 m_1/16 + f_6 m_2/8 + f_6 m_4/16 \\
& \quad + f_6 m_5/8 + f_6 m_7/16 + f_6 m_8/8 \\
& \quad + f_7 m_1/8 + f_7 m_2/4 + f_7 m_4/8 \\
& \quad + f_7 m_5/4 + f_7 m_7/8 + f_7 m_8/4 \\
& + f_9 m_1/8 + f_9 m_2/4 + f_9 m_4/16 + f_9 m_5/8 \\
& + f_{10} m_1/4 + f_{10} m_2/2 + f_{10} m_4/8 + f_{10} m_5/4
\end{aligned}$$

$Y^M/Y^M; III/III; IV/IV$

m_6

$$\begin{aligned}
& f_5 m_3/8 + f_5 m_4/16 + f_5 m_6/4 + f_5 m_7/8 \\
& + f_6 m_3/16 + f_6 m_4/32 + f_6 m_6/8 + f_6 m_7/16 \\
& + f_8 m_3/4 + f_8 m_4/8 + f_8 m_6/2 + f_8 m_7/4 \\
& + f_9 m_3/8 + f_9 m_4/16 + f_9 m_6/4 + f_9 m_7/8
\end{aligned}$$

$Y^M/Y^M; III/III^M;$ IV/IV	m_7	$ \begin{aligned} & f_5 m_4/16 + f_5 m_5/8 + f_5 m_7/8 + f_5 m_8/4 \\ & + f_6 m_3/16 + f_6 m_4/16 + f_6 m_5/16 \\ & + f_6 m_6/8 + f_6 m_7/8 + f_6 m_8/8 \\ & + f_7 m_3/8 + f_7 m_4/16 + f_7 m_6/4 + f_7 m_7/8 \\ & + f_8 m_4/8 + f_8 m_5/4 + f_8 m_7/4 + f_8 m_8/2 \\ & + f_9 m_3/8 + f_9 m_4/8 + f_9 m_5/8 \\ & + f_9 m_6/4 + f_9 m_7/4 + f_9 m_8/4 \\ & + f_{10} m_3/4 + f_{10} m_4/8 + f_{10} m_6/2 + f_{10} m_7/4 \end{aligned} $
$Y^M/Y^M; III^M/III^M;$ IV/IV	m_8	$ \begin{aligned} & f_6 m_4/32 + f_6 m_5/16 + f_6 m_7/16 + f_6 m_8/8 \\ & + f_7 m_4/16 + f_7 m_5/8 + f_7 m_7/8 + f_7 m_8/4 \\ & + f_9 m_4/16 + f_9 m_5/8 + f_9 m_7/8 + f_9 m_8/4 \\ & + f_{10} m_4/8 + f_{10} m_5/4 + f_{10} m_7/4 + f_{10} m_8/2 \end{aligned} $
