

Table S20 Transpose of the recursion matrix for calculating probabilities of the two-locus X chromosome female diplotype of the form $AA|BB$, in the generation of four-way RIL by sibling mating

State at $k + 1$	State at k			
1:	2: $\frac{1-r}{2}$	3: $\frac{r}{2}$	4: $\frac{1-r}{2}$	5: $\frac{r}{2}$
2:	1: $\frac{(1-r)^2}{4}$	4: $\frac{1-r}{2}$	5: $\frac{r}{2}$	6: $\frac{r^2}{4}$
3:	7: $\frac{1-r}{4}$	8: $\frac{r}{4}$		
4:	1: $\frac{(1-r)^2}{4}$	2: $\frac{1-r}{2}$	3: $\frac{r}{2}$	6: $\frac{r^2}{4}$
5:	9: $\frac{1-r}{4}$	10: $\frac{r}{4}$		
6:	11: $\frac{1-r}{2}$	12: $\frac{r}{2}$		
7:	2: $\frac{1}{2}$	3: $\frac{1}{2}$	7: $\frac{1-r}{4}$	8: $\frac{r}{4}$
8:	9: $\frac{r}{4}$	10: $\frac{1-r}{4}$	11: $\frac{1}{4}$	12: $\frac{1}{4}$
9:	4: $\frac{1}{2}$	5: $\frac{1}{2}$	9: $\frac{1-r}{4}$	10: $\frac{r}{4}$
10:	7: $\frac{r}{4}$	8: $\frac{1-r}{4}$	11: $\frac{1}{4}$	12: $\frac{1}{4}$
11:	1: $\frac{r^2}{2}$	6: $\frac{(1-r)^2}{2}$	11: $\frac{1-r}{2}$	12: $\frac{r}{2}$
12:	7: $\frac{r}{4}$	8: $\frac{1-r}{4}$	9: $\frac{r}{4}$	10: $\frac{1-r}{4}$