Table S5 The segregation analyses of AG118×GM285 F3 families in adzuki bean

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Hybridized combination | Number of families |  | Black families | Theoretical segregation ratio | Chi-square | Beige families | Theoretical segregation ratio | Chi-square | Red families |
| AG118×  GM285 | 147 | Theoretical value | 33.3：33.3：16.7：16.7 | 2:2:1:1 | 1.76 | 24：12 | 2：1 | 0 | 12 |
| Observed value | 27:36:19:17 | 24：12 | 12 |

Annotation: When degrees of freedom are 1,2 and 3 numbers of χ2p = 0.05 are 3.84,5.99 and 7.82 respectively

There are four different genotypes in black families. The theoretical genotypes segregation ratio is BBYY: BBYy: BByy: BbYY: BbYy: Bbyy = 1:2:1:2:4:2 .The phenotype of BBYY, BBYy and BByy are balck no segregation. The phenotype of BbYY is balck segregating only beige. The phenotype of BbYy is balck segregating beige and red. The phenotype of Bbyy is balck segregating only red. So the theoretical phenotype segregation ratio is balck no segregation: balck segregating beige and red: balck segregating only red: balck segregating only beige = (1+2+1) :4:2:2 = 2:2:1:1

There are two different genotypes in Beige families. The theoretical segregation ratio is b b T t: b b TT = 2:1