interval between entry and mating, (mating latency time, MLT), was noted. A total of 120 females of each homozygous genotype were tested this way. In order to be able to distinguish between the male genotypes the males were marked with fluorescent microdust (Crumpacker 1974) in different colors, two days prior to the test. A pilot experiment showed no significant differences in mating success between males stained with the different colours.

Table 1 shows the total number of matings observed. First of all a contingency $\chi^2$ for all matings turned out to be not significant ($\chi^2 = 15.78; 0.10 < P < 0.05$). Therefore female and male totals can be treated separately. The females show significant differences between the different genotypes in the number of matings performed within 30 minutes: the contingency $\chi^2$ for mated versus not mated is highly significant ($\chi^2 = 40.47; P < 10^{-8}$). SS females are highly receptive and over 90% of the females mated during the observation time, while only 63% of the FS females mated. This difference in receptivity is also reflected by a negative correlation between the number of matings and the mean MLT (Table 2). The more reluctant the female the higher the MLT and the lower the number of matings within a limited time period.

Males show a significant departure from random mating ($\chi^2 = 8.88; P < 0.05$). The SS males are less successful having the lowest number of matings while the SF genotype is the most successful. The differences in number of matings is positively correlated with the MLT. This indicates that the SS males only successfully mate with the most receptive females, which mate fast, while the SF males are more persistent and also have a high number of matings with the more reluctant females. As a consequence the MLT is increased in the latter case. Evaluation of these data in the light of the model about mating success envolved by Kence & Bryant (1978) leads to the conclusion that the SS genotype has a significantly lower sexual vigor (females are less reluctant and males less successful) than the other genotypes. This indicates that differences in mating success between the different genotypes for G6pd and Pgd may influence the allele frequencies at these loci and may contribute to the maintenance of the polymorphism at these loci in nature. It is, however, still possible that the differences in mating success are due to closely linked genes and not to the enzyme loci themselves.