



Soybean

Glycine max



Mating & Breeding System

Soybeans have small flowers with a typical legume flower structure. Some cultivars are entirely cleistogamous, which means that the flower buds do not open and fertilization takes place with self-pollen without any outside influence. Other cultivars have flowers that open only under the right environmental conditions.

Pollen dispersal by insects or wind appears to be limited to very short distances, which is important not only for pollination but also with respect to the movement of genes between genetically modified (GM) and conventional soy crops.

Pollination, Quality & Yield

In the early history of soybean culture, it was believed that plants were fully self-compatible and fully self-pollinating, and that flowers were not visited by insects. However, most (75%) of soybean flowers abort, and this could be due to poor pollination or to limited resources. Since some cultivars have flowers that only open under the right conditions, bloom can vary within an area or even within a single field. When conditions are suitable, soybeans will produce some nectar but are usually a poor pollen resource. Research results have been ambiguous but there is anecdotal evidence that the presence of honey bees (i.e. in crops grown in the vicinity of commercial hives) or wild bees (i.e., in fields with abundant wild flowers in the field margins) may increase the yield of soybean. The benefits of either cross- or self-pollination may depend on the specific cultivar.

Pollination Recommendations

Further research on the value of adding pollinators to soybeans is needed. Honey bees are the most likely candidate, as they appear to be among the most enthusiastic foragers in this crop. A stocking rate of 1.5 colonies per hectare has been proposed based on foraging rates and bloom density.



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References

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