

Crop	Peas	Tomatoes	Squash	Corn	Spinach
Reproductive Type	Monoecious, perfect flowers – both male and female parts in same flower, very close together	Monoecious, perfect flowers – both male and female parts in same flower, sometimes stigma may be exerted (stick out, enables out-crossing)	Monoecious, imperfect flowers – male (just flower and stem) and female (visible ovary below flower) on same plant, separated	Monoecious, imperfect flowers – male (tassel) and female (silk) on same plant, separated	Dioecious – separate male and female plants
Inbreeder/Outbreeder?	Very inbreeding	Mostly inbreeding	Outcrosser, can treat as inbreeder (no inbreeding depression), insect-pollinated	Very outcrossing: inbreeding depression, wind-pollinated	Most outcrossing: Not possible to self-pollinate, insect-pollinated
Isolation needed	Few feet – 50 ft	30 ft – 100 ft	100 ft with barriers/other methods, hand pollinate, cages with insects	¼ mile to 10 miles (can detassel, hand-pollinate, separate by timing)	¼ mile to 1 mile, cages with insects
Population size to save seeds from	1 (superior) 40 to save heterogeneous	1 (superior), 20 (good heterogeneity), 40 to save high heterogeneity	1 (superior), 20 (good heterogeneity), 40 to save high heterogeneity	100 +	1 (superior), 20 (good heterogeneity), 40 to save high heterogeneity

	Selfers/Inbreeders	Crossers/Outbreeders
Identifying parents	Know both parents – male and female in same plant	Only know mother
→ If you find a good plant, will its offspring be as good?	More likely – offspring resemble parents closely	Less likely - Only see mother plant, don't know father's traits or how they combine
Changes in homo-/heterozygosity over generations	Become 50% more homozygous (fixed) with each generation	Preserve heterozygosity – can adapt to changing environment, constantly remixing genetics
→ Uniformity	Easier to attain	Harder to attain
Number of plants needed	Less (1-50)	More (30-100+)
Inbreeding depression	No	In some crops (e.g. corn)
Self-incompatibility	No	In some crops (e.g. broccoli)
To save selfed seed	Self-pollinate on their own – no hand pollination	Need to hand self-pollinate
To make crosses	Harder – need to emasculate (remove male parts), hand pollinate	Easier – can hand-pollinate or allow crossing by wind/insects (need to identify crosses in offspring)
Isolation	Less – few-200 feet	More – ¼ - 10 miles