DESIRABLE QUALITIES IN CULTIVATED PLANTS

(Think, however, about possible "trade-offs" for achievement of these qualities)

1. Adaptation to specific climates and soil types.
2. Loss of perennial habit and switch to annual habit.
3. Uniformity in fruit, seed size, flowering time, ripening, etc.
4. Minimal fiber in edible part.
5. Increased succulence (for ex: tubers)
6. Starch accumulation.
7. Gigantism (often associated with polyploidy)
8. Loss of seed dispersal ability (for ex. non-shattering cereal heads)
9. Synchronous maturation and fruiting of tillers, and anti-lodging.
10. Loss of bitter or toxic substances (bitter vs. sweet cassava)
11. Loss of mechanical protection (prickle-less raspberries)
12. Loss of seed dormancy (no vernalization required for germination)
13. Synchronous maturation of fruit/seed.
14. Enhanced disease or insect pest resistance.
15. Seedless fruit
16. Increased diversity of form.
17. Increased fruit yield, larger seeds.
18. Enriched nutritional quality (for ex. high lysine content in corn)
19. Photoperiod (short vs. long-day flower initiation)
20. Improved storage properties.
21. Increased floral rewards (for ex. pollen for bees to increase honey yield)

(Adapted from "The Origin of Cultivated Plants" by F. Schwanitz. 1966)

THREE MAJOR BREEDING SYSTEMS IN SOME CROPS PLANTS

Asexually propagated plants

"Irish" potato (tuber)
Apple varieties
Banana (stem)
Sugarcane (stem)
Dahlia (root)
Iris (rhizome)
Onions (bulb)
Narcissus (bulb)
Gladiolus (corm)
Some citrus varieties
Grapes (stem grafts)

Self-pollinated plants

Wheat
Barley
Rice
Many legumes (pea, bean, peanut, lentil, soybean
Oats
Flax
Grape
Lettuce
Citrus

Cross-pollinated plants

Maize
Alfalfa
Spinach
Sugarcane

Onion	Rye
Melons	Avocado
Strawberry	Cabbage
Squash	Blackberry
Olive	Almond
Radish	Cherry
Apples	Carrot
Clovers	Parsley
Millets	Mango
Sunflower	Pineapple