Definiton of genetic engineering and history analysis

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Sheep and goats were domesticated around 8, 000 BC in the Fertile Crescent, while pigs appeared in China about 7 000 BC, yaks in Tibet about 5, 000 BC and horses in Eastern Europe around 4, 000 BC. The first domesticated bird was the rock pigeon, appearing in Greece, Egypt and Mesopotamia around 3 000 BC and the first domesticated fish was probably carp, raised as food in China around 1, 000 BC. The first evidence of plant domestication comes from emmer and oinker wheat found In pre-pottery Neolithic A villages In Southwest Salsa dated about 10, 500 to 10, 100 BC.

The Fertile Crescent of Western Asia, Egypt, and India were sites of the earliest planned sowing and harvesting of plants that had previously been gathered in the wild. Independent development of agriculture occurred in northern and outworn China, Africans Sale, New Guiana and several regions of the Americas. The eight Neolithic founder crops (emmer wheat, oinker wheat, barley, peas, lentils, bitter vetch, chick peas and flax) had all appeared by about 7000 BC. [4] Horticulture first appears in the Eleven during the Scholastic period about 6 800 to 6, 300 BC.

Due to the soft tissues, archeological evidence for early vegetables is scarce. The earliest vegetable remains have been found in Egyptian caves that date back to the 2nd millennium BC. Selective breeding of domesticated plants was once the mall way early farmers shaped organisms to cult their needs. Charles Darwin described three types of selection: methodical (when selecting for some pre-determined characteristic), natural (when a trait that helps an organism survive better is passed on). Early breeding relied on unconscious and natural selection.

The introduction of methodical selection is unknown. Common characteristics that were bred into domesticated plants include grains that did not shatter to allow easier harvesting, uniform ripening, shorter lifespan that translate to faster growing, loss of toxic compounds, and productivity. Some plants, like the Banana, were able to be propagated by vegetative cloning. Offspring often did not contain seeds, and therefore sterile. However, these offspring were usually Juicier and larger. Propagation through cloning allows these mutant varieties to be cultivated despite their lack of seeds.

Habitation was another way that rapid changes in plant's makeup were introduced. It often increased vigor in plants, and combined desirable traits together. Habitation most likely first occurred when humans first grew similar, yet slightly different plants in close proximity. Tritium aestivated, wheat used in baking bread, is an Leopoldville. Its creation is the result of two separate habitation events. X-rays were first used to deliberately mutate plants in 1927. Between 1927 and 2007, more than 2, 540 genetically mutated plant varieties had been produced using x-rays.

Main article: History of genetics Various genetic discoveries have been essential in the development of genetic engineering. Genetic inheritance was first discovered by Gregory Mendel in 1865 following experiments crossing peas. Although largely ignored for 34 years he provided the first evidence of hereditary segregation and independent assortment. In 1889 Hugo De Varies came up with the name "(pan)gene" for after postulating that articles are responsible for inheritance of characteristics and the term " genetics" was coined by William Battens in 1905.

In 1928 Frederick Griffith proved the existence of a “ transforming principle” involved in inheritance, which Avery, McLeod and McCarty later (1944) identified as DNA. Edward Laurie Datum and George Wells Beadle developed the central dogma that genes code for proteins in 1941. The double helix structure of DNA was identified by James Watson and Francis Crick in 1953. As well as discovering how DNA works, tools had to be developed that allowed it to be manipulated. In 1970 Hamilton Smiths lab discovered restriction enzymes that allowed DNA to be cut at specific places and separated out on an electrophoresis gel.

This enabled scientists to isolate genes from an organism’s genome. DNA aliases, that Join broken DNA together, had been discovered earlier in 1967 and by combining the two enzymes it was possible to “ cut and paste” DNA sequences to create recombinant DNA. Plasmids, discovered in 1952, became important tools for transferring information between cells and replicating DNA sequences. Frederick Ganger developed a method for sequencing DNA in 1977, greatly increasing the emetic information available to researchers. Polymerase chain reaction (PC), aided identification and isolation of genetic material.