

Seeds in the Modern World - Patents, Corporations, Industry

Let's start with where some of the most common crops come from -- wild plants!

All foods originated from wild plants, which is well-illustrated through Vavilov's Centers of Diversity (or Centers of Origin) that show the wild ancestry of many of our cultivars

Barley: 10,500 years ago from the Sea of Galilee

Wheat: 9,000 years ago from eastern Iraq

Corn: Approximately 8,700 years ago from southern Mexico, though origin stories from various traditions are present throughout Central and South America

Carrots: 5,000 years ago from wild carrots in Europe. First cultivated as a storage root 1,100 years ago in what is now Afghanistan

Story of How We Lost Seeds

Seed Patenting + Seed Industry in US Timeline

1850: Patent and Trade Office is established and begins offering free seeds.

1861: By this date, 2.4 million seed packets had been distributed through the Patent and Trade Office's free seed program.

1862: President Lincoln signs the Morrill Act, which set up the land grant college system through proceeds from federal land sales. These institutions were established for the study of agriculture, science, engineering, and other fields in response to the Industrial Revolution. By 1887, land grant colleges expanded to include agricultural experimentation stations to help communities develop crops for local climate, soil, and disease issues.

1883: The American Seed Trade Association (ASTA) is formed around the idea that seeds should not be given away freely but are commodities to be sold.

1897: By this date, 1.1 billion packets of free seeds had been distributed by the U.S. government.

1898: USDA's Office of Foreign Seed and Plant Introduction is created with help from Dr. David Fairchild and Frank Meyer. Fairchild served as its Chairman from 1904-1928. Frank Meyer was a "food explorer" sponsored by the office.

1924: Congress ends the USDA Seed Distribution Program in response to lobbying pressure from the ASTA.

1930: The Plant Patent Act (PPA) is passed

- First patenting protection for plants
- Relaxed enablement requirement for new matter— allowed for the marketing of plants without improving the genetics
- Applies to asexually reproduced plants(not including edible tuber propagated plants)
- 20-year term from date of filing
- Right to exclude others from making,using,selling, offering for sale and importing the plant, or any of its parts
- Protect sasingle plant and asexual progeny

1970: The Plant Variety Protection Act (PVPA) is passed for seed propagated crops. Companies could now “own” seed- producing plant varieties and could claim *new and distinct* plant varieties as their intellectual property. The actual genetics of the plant could not be owned.

1980: Utility Patents for plants become legal as a result of the U.S. Supreme Court case of *Diamond v. Chakrabarty* (447 U.S. 303)

- Upheld that “anything under the sun made by man”, including living things, could be patented
- Case concerned the patenting of oil-eating bacteria
- “The fact that micro-organisms are alive is without legal significance.”

1985: The legal case of *Ex Parte Hibberd* (227 USPQ 443) expands on the legal precedent set by *Diamond v. Chakrabarty*

1986: Coordinated Framework for the Regulation of Biotechnology: regulatory policy on genetic engineering developed by President Reagan’s administration

- No new laws would be passed to regulate biotechnology; existing statutes are sufficient to review the products

2001: *J.E.M. Ag Supply Inc. v Pioneer Hi-Bred International Inc.* J.E.M. resold Pioneer’s patented corn seeds without permission.

- J.E.M. claimed the original PVPA allowed farmers to save their own seed
- The court ruling held that newly developed plant breeds fall within the scope of a law passed in 1952 and that neither PPA nor PVPA limits this coverage