

Index

- Aaronson v. Quick Point Pencil Co.*, 46
- Agency for International Development (AID), use and regulation of genetically altered animals by, 16, 109
- Agreements, international
concerning biological inventions, 21, 155-159
see also individual agreements
- Agricultural Research Service (ARS)--USDA, use and regulation of genetically engineered animals by, 16, 106
- Agricultural Research Service Culture Collection. See Northern Regional Research Laboratory
- Agriculture
impacts of plant protection on U. S., 84-87
proprietary protection variation among crops used in, 79,82-84
transgenic animal patenting's effects on, 136-137
see also individual crop types
- Alcohol, Drug Abuse, and Mental Health Administration (ADAM HA), use and regulation of genetically engineered-animals by, 105
- American Association for Accreditation of Laboratory Animal Care, 105
- American Fruit Growers v. Brogdex*, 93
- American Type Culture Collection (ATCC), 141-142, 147, 149, 150
- Animal and Plant Health Inspection Service (APHIS)--(USDA), use and regulation of genetically engineered animals by, 107
- Animals
history of patenting, 32
intellectual property protection's economic impacts on four classes of, 17, 119-123
see also Cattle; Livestock; Poultry; Transgenic animals
- Animal Welfare Act of 1985, 103, 104, 107, 133
- Annas, George, 91
- Applications, patent
requirements for, 40-41
time required for PTO examination of, 9, 60
- Argentina, patent law in, 164
- Aristotle, 99
- Arizona, beef cattle production in, 117
- Armstrong Nurseries, Inc. v. Smith et. al.*, 72
- Asgrow Seed Co. v. Kunkle Seed Co., Inc. et. al.*, 75
- Asilomar Conference, 30
- Australia, intellectual property law in, 162
- Australian Patent Office, 162
- Barnes, F., 23
- Baylor College of Medicine (Texas), 23
- Beef. See Cattle; Livestock
- Belgium, national patent law of, 161
- Biotechnology
definition of, 3
intellectual property protection strategies in industry involving plant, 84
patent activity in emerging areas of, 55-56
patent litigation related to, 8-9,56-60
patents' impact on commercialization of, 8,55
see **also** DNA
- Board of Patent Appeals and Interferences (BPAI)—PTO, 41
Ex parte Allendecision by, 93
utility patent ruling by, 11, 31-32, 74-75, 79
- Bolar Pharmaceutical Co., 58-59
- Boyer, Herbert, 56
- Brave New World*, 31
- Brazil, patent law in, 164
- Breeding
European laws concerning plant, 159
gene insertion techniques use in future, 13,97-98
PPA encouragement of, 9-10,71-72,85
PVPA encouragement of, 10-11,72-73,85-87
- British Patent Act of 1977, 161
- Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purpose of Patent Procedure, 18, 141, 142, 144, 147, 158-159
- Bulgaria, intellectual property law in, 163
- Burger, Warren, 49, 125
- Burroughs-Wellcome (PLC)--U. K., 55
- California, 83
beef cattle production in, 117
milk production in, 116
- California, University of (San Francisco), 30,56
- Canada, patent law in, 164-165
- Canadian Patent Act, 164
- Canadian Patent Office, 164
- Cattle
beef, 117
dairy, 116-117
see **also** Livestock
- Cetus, stock offering by, 55
- Chakrabarty, Ananda, 31,52
- Charles River Biotechnical Services, 121
- Chickens. See Poultry
- Chile, intellectual property law in, 164
- Cohen, Stanley N., 56
- Cohen-Boyer patent, 30,56
- Commercialization, patents' impact on biotechnology, 8,55
- Commission of the European Communities, 161, 162
- Congress, U.S.
issues and options for, 22-26
patent policies adopted by, 30,32,55
subject matter patentability intended by, 5, 37, 39
- Contracting. See Licensing
- Cooperative State Research Service (CSRS)—USDA, use and regulation of genetically engineered animals by, **16, 106-107**
- Coordinated Framework** for Regulation of Biotechnology, 103
- Copyright Office, U. S., subject matter policy of, 43
- Copyrights, basic concepts and workings of, 5,43-44
- Corcoran, Elizabeth, 27

- Corn, proprietary protection methods used in seed industry for hybrid, 82
- Court of Customs and Patent Appeals, U.S. (CCPA), deposit decision by, 143
- Courts. See Court of Customs and Patent Appeals, U. S.; Litigation; Supreme Court, U.S.
- Culture depositories. See International Depository Authorities
- Czechoslovakia, intellectual property protection in, 163
- Darwin, Charles, 98, 100
- Data collection
 - on Federal regulation of genetically altered animals, 16, 102-110
 - on post-Chakrabarty biotechnology-related patent activity, 55-56
 - on seed and plant industries', universities', and nurseries' opinions concerning intellectual property protection, 11, 78,80-81
- Delta & Pine Land Co. v. Peoples Gin Co.*, 75
- Department of Agriculture, U.S. (USDA), 24,70
 - deposit issues and, 147, 149
 - egg pricing link to market reports from, 116
 - farmer's exemption abuses, limitations and, 25,79
 - pork production estimate by, 117
 - PVPA administration by, 7, 11,74
 - soybean planting survey by, 79, 83
 - use and regulation of genetically engineered animals by, 16, 106-108
- Department of Commerce, U.S. (DOC), 147
- Department of Defense, U.S. (DoD), 127
- Department of Energy, U.S. (DOE), use and regulation of genetically engineered animals by, 110-111
- Department of Health and Human Services, U.S. (DHHS), 147
- Deposit
 - access to samples on, 148-149
 - considerations when choosing plant protection methods, 82
 - issues involving, 18-21, 142-147
 - maintenance, 147-148
 - methods for plant and animal, 149-150
 - PPA and, 72
 - PTO policy on, 18-20,26, 143-146, 148
- Depositories. See International Depository Authorities
- Design patents
 - as type of subject matter patent, 38
 - see also Patents; Subject matter
- Diamond v. Chakrabarty*, 7-8,31,33,93**
 - biotechnology R&D encouragement from ruling in, 54,55, 85-87
 - details of decision in, 51-54
 - ethical questions raised by, 130-137
 - patent activity following, 8-9,55-56,60
- DNA (Deoxyribonucleic acid)
 - as copyright subject matter, 43-44
 - development of technology for recombinant, 51
 - Federal Government research involving recombinant, 16, 102-110
 - NIH guidelines for research involving recombinant, 105
 - techniques for producing transgenic animals, 12-13,93-98
 - see **also** Biotechnology
- Duffey, William, 49
- du Pont de Nemours & Co., E. I., 12,32, 121
- Economics
 - of animal patenting on the Third World, 135-136
 - of biotechnology-related R&D, 55
 - of farmer's exemption prohibition, 86
 - of on-farm agricultural seed and plant use, 78
 - of private plant breeding, 9, 11,71,73, 85-87
 - of royalty collection from animal patents, 121-122
 - of seed industries, 82, 84
 - of transgenic animal patenting on consumers, 115, 123
 - of transgenic animal patenting on inventors, 16-17, 119-120, 123, 115
 - of transgenic animal patenting on users and producers (licensees), 115, 120-122, 123
 - of transgenic animal research, 94-95
- Endangered Species Act, 103, 110
- Environmental Protection Agency, U.S. (EPA), use and regulation of genetically engineered animals by, 108
- Ethics, involved in animal patenting, 17-18,30-31, 127-137
- Europe, 147
 - animal patent applications in, 23, 156, 158
 - intellectual property laws of countries in Eastern, 162-163
 - patentable subject matter in, 22, 160
 - UPOV formation in, 10,73
 - see also European Common Market
- European Common Market (EC), 162
 - European Patent Convention and, 158
 - see *also* Europe: individual member countries of
- European Patent Convention (EPC), 21,23
 - animal patenting opposition by members of, 135
 - national patent laws in member countries of, 161-162
 - patentable subject matter in member countries, 160-161
 - purpose and workings of, 158
 - see also individual signatories of
- European Patent Office (EPO)**, 21,23, 148, 157, 158, 160
- Ex parte Allen**, 30,33,93
- Ex parte Grayson**, 93
- Ex parte Hibberd**
 - biotechnology R&D encouragement from ruling on, 85
 - utility patent use ruling in, 11, 30, 33,74-75, 93
- Farmers, PVPA exemption for, 11,25,73-74,79,83,86
- Federal Food, Drug, and Cosmetic Act (FDCA), 58-59,103,108
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 103, 108
- Federal Meat Inspection Act, 107
- Federal Republic of Germany (FRG), national patent law of, 149, 161
- Feldman v. Aunstrup**, 144
- First, Neal, 23, 113
- Fish and Wildlife Service (FWS)—Department of the Interior, use and regulation of genetically engineered animals by, 109-110
- Food and Drug Administration, U.S. (FDA), 59
 - Center for Veterinary Medicine, 107
 - effect on patent term of regulatory review by, 41
 - patent infringement and drug approval-related testing required by, 58

- use and regulation of genetically engineered animals by, 108
 Food Safety and Inspection Service (FSIS)—USDA, use and regulation of genetically engineered animals by, 107-108
 France, national patent law of, 161
Funk Bros. Seed Co. v. Kalo Inoculant Co., 93
- Genentech, Inc., stock offering by, 30,55
 General Electric Co., 31, 52
 General Hospital Corp., The (Massachusetts), 23
 Genetically engineered animals. See Transgenic animals
 Genetic engineering. See Biotechnology
 Georgia, “phony peach disease” in, 71
 German Democratic Republic (G.D.R.). patent law in, 163
 Germplasm, impact of plant protection on exchange of, 25-26, 87
 Godown, Richard, 113
 Government, U.S. Federal
 genetically altered animal regulation by, 16, 102-110
 milk price supports, 17, 116
 patent rights for inventions made with assistance from, 43
 post-Chakrabarty events and trends in patent policy of, 8-9, 54-55
 see also individual agencies of
 Government Patent Policy Act of 1980, 8,43,55
 Guide for the Care and Use of Laboratory Animals, 103, 105
 Guidelines
 Patent and Trademark Office deposit, 18-20, 143-146, 148
 for Research Involving Recombinant DNA Molecules (NIH), 103-104, 105, 109, 110
 see also Policy; Regulation
- Harvard** mouse. See Oncomouse
 Harvard University, 12,23,30,32,98,99, 121
 Health Research Extension Act, 104
 History
 of intellectual property law, 4-12, 37
 of plant property protection, 9-12, 70-75
 of species integrity philosophy, 14, 98-102
 Hoffman-La Roche, 55
 Hungary, patent law in, 163
 Huxley, Aldous, 31
- Immunex (Washington State), 23
 Incentives, economic, for private plant breeding research, 9, 11, 71,73,85-87
 Industry
 choosing and managing plant protection by seed and plant, 78-82
 features of dairy, 116-117
 features of poultry, 115-116
 features of red meat production, 117
 intellectual property criteria considered by, 11, 78-84
 R&D expenditures by biotechnology, 55
 Infringement, patent
 definition of and remedy for, 41
 litigation involving, 8-9, 58-59
In re Lundak, 144
In re Wakefield, 93
 Institute of Microbiology, Rutgers University (IMRU), 142
 Integrated Genetics, Inc. (Massachusetts), 23
- Intellectual property, 4-7,37,46-47
 comparison of various forms of protection for, 11-12, 75-78
 economic impacts on four classes of animals from protecting, 17, 119-123
 effect on U.S. agriculture of protecting plant, 84-87
 history of plant protection-related, 9-12, 70-75
 international agreements concerning protection of, 21-22, 155-159
 plants and, 9-12,69,87-89
 U.S. seed and plant industry criteria for choosing protection for, 11, 78-84
 see **also** Copyrights; Patents; Trademarks; Trade secrets
 International Depositary Authorities (IDAs), 18, 20, 141-142, 144, 145-146, 149.158-159
 impact of deposit of patented animals on, 20-21, 150
 role of, 19, 146-147
 International searching authority (ISA), 157
 International Union for the Protection of New Varieties of Plants (UPOV)
 breeders’ rights protection through, 10,73, 165
 workings and purpose of, 159, 161, 163, 164
 Inventions Secrecy Act, 127-128
 In Vitro International, Inc. (IVI), 142, 149
- Japan
 biotechnology deposit and, 147
 patent law in, 163-164
 Japanese Patent Office, 22, 163, 164
 Jefferson, Thomas, 35,37,54
- Karny, Geoff.91
Kewanee Oil v. Bicron Corp., 46
Kim Brothers v. Hagler, 72
 Kinsman, John, 113
- Lacey Act, 104
 Lanham Act. See Trademark Act of 1946
 Leder, Philip, 99
 Legislation
 language changes in patent, 37
 worldwide national patent, 161, 165
 see **also** individual statutes
 Licensing
 considerations when choosing plant protection methods, 81-82
 impacts of animal patenting on users/producers, 120-122
 Linnaeus, Carolus, 98
 Litigation
 biotechnology-related patent infringement. 8-9,58-59
 considerations when choosing plant protection methods, 79-81
 post-Chakrabarty patent, 8-9,56-60
 see **also** individual legal cases
 Livestock
 economic impacts of transgenic animal patenting on production of, 17, 120, 121-122, 123
 overview of major market sectors producing/using, 115-117
 see **also** Animals; Cattle; Poultry; Transgenic animals
 Locke, John, 130
 Luminus PTY Ltd. (Australia), 23

- Mexico, intellectual property protection in, 165
- Microinjection, viability of gene insertion using, 13,95-97
- Minnesota, milk production in, 116
- Models, animals as disease, 119, 120, 123
- Monitoring. See Regulation
- Morality. See Ethics
- National Aeronautics and Space Administration (NASA), use and regulation of genetically engineered animals by, 110
- National Council of Churches, 132, 134
- National Environmental Policy Act (NEPA), 108, 110
- National Institutes of Health (NIH), use and regulation of genetically engineered animals by, 16, 102-105
- National Science Foundation (NSF), use and regulation of genetically engineered animals by, 16, 108-109
- Netherlands, The, 148
- New York State, milk production in, 116
- North Dakota, beef cattle production in, 117
- Northern Regional Research Laboratory (NRRL)--USDA, 141, 142
- Novelty, as requirement for patent issuance, 39-40
- Oklahoma, beef cattle production in, 117
- Oncomouse
 - marketing of, 121
 - patenting of, 12, 23, 30, 32, 98, 99
- Origin of Species, The*, 100
- Owens-Corning, 44
- Pun-American Plant CO. v. Matsui*, 72
- Paris Union Convention
 - description, workings, and purpose of, 155-157
 - members of, 156
 - priority right of, 144, 156
- Parke Davis Co., 141
- Pasteur, Louis, 7, 30, 31, 51, 142
- Patent Act of 1952, congressional intent expressed in Committee Reports accompanying, 4-5, 37
- Patent and Trademark Amendments. See Government Patent Policy Act of 1980
- Patent and Trademark Office, U.S. (PTO)
 - animal patenting policy of, 12, 93
 - biotechnology patents issued by, 3, 29
 - classes of utility patents used by, 39
 - deposit guidelines, 18-20, 26, 143-146, 148
 - enablement policy of, 26
 - as international searching authority, 157
 - post-Chakrabarty** patent activity by, 8-9, 55-56, 60
 - use and regulation of genetically engineered animals by, 102
- Patent Cooperation Treaty (PCT), 157
- Patents
 - arguments against issuance of transgenic animal, 130-137
 - arguments for issuance of transgenic animal, 127-130
 - barriers to issuance of, 37-40
 - basic concepts, workings, and requirements of, 4-5, 37-43
 - definition of, 31
 - economic impacts of transgenic animal, 16-17, 115, 117-123
 - effect on biotechnology commercialization of, 8, 55
 - history of plant, animal, cell, and micro-organism, 31-32
 - method for obtaining, 40-41
 - process protection available using (prior to 1980), 51
 - protection of rights granted by, 8-9, 41-43, 58-59
 - term of, 5, 11, 39, 41, 70, 73, 148-149
 - see also Design patents; Plant patents; Process patents; Utility patents
- Penguin Books, 44
- People's Republic of China (P.R.C.), patent law in, 165
- Pharmaceutical Manufacturers Association, 60
- Pharmaceutical Proteins Ltd. (U.K.), 23
- Pharmaceuticals, transgenic animals used in production of, 17, 119-120, 121, 123
- Plant Patent Act of 1930 (PPA)
 - goals and strategy of, 9-10, 25, 30, 31, 33, 71-72, 85
 - judicial interpretation of, 72
 - plant patents authorization by, 69-70, 73, 75, 76
 - Supreme Court's analysis of, in **Chakrabarty** ruling, 8, 54
- Plant patents
 - definition of, 69-70
 - protection available using PVPCs and utility patents v., 76-77
 - as type of subject matter patent, 39
- Plants
 - definitions of asexually and sexually produced, 60
 - history of intellectual property protection relating to, 9-12, 31-32, 70-75
 - methods for depositing, 149
- Plant Variety Protection Act of 1970 (PVPA), 24, 30, 31
 - amendments to, 11, 30, 80
 - farmers exemption under, 11, 25, 73-74, 79, 83, 86
 - goals and strategy of, 10-11, 25, 72-74
 - judicial interpretation of, 75
 - research exemption under, 11, 73, 82
 - seed deposit required under, 20, 149
 - Supreme Court's analysis of, in **Chakrabarty** ruling, 8, 54
 - USDA administration of, 7, 11, 74
- Plant Variety Protection Certificates (PVPCs), 25
 - definition of, 70
 - exclusions to, 11, 73-74
 - protection available using plant patents and utility patents v., 76, 77
 - seed deposit required for issuance of, 20, 149
- Plant Variety Protection Office (PVPO)--USDA, 70
- Plato, 99
- Poland, intellectual property law in, 163
- Policy
 - copyright subject matter, 43
 - NIH genetically altered animal, 103-104, 105
 - post-Chakrabarty** events and trends in Federal patent, 8-9, 54-55
 - transgenic animal patenting and environmental, 136
- Poultry
 - economic impacts of transgenic animal patenting on production of, 17, 120, 121-122, 123
 - sector overview, 115-116
- Poultry Products Inspection Act, 103, 107
- Prather, R. S., 23
- Process patents
 - protection (prior to 1980) available using, 51
 - see **also** Patents
- Public Health Service Act, 108

- Public Health Service Policy on Humane Care and Use of Laboratory Animals, 104, 133
- Quigg, Donald J., 93, 125
- Regulation
of genetically altered animals by Federal Government agencies, 16, 102-110
see also Guidelines
- Republic, 99**
- Research
Chakrabarty decision's impact on biotechnology-related, 8, 54, 55
exemption to PVPA, 11, 73, 82
Federal Government recombinant DNA, 16, 102-110
gene insertion techniques used in transgenic animal production, 13, 92-98
plant protection methods use influence on seed and plant, 84-87
PPA encouragement of, 9-10,71-72, 85
PVPA encouragement of, 11, 72-73, 85-87
relationship of germplasm exchange, patent protection, and, 25-26
- Rich, Judge, 52
- Rifkin, Jeremy, 125
- Rob], J. M., 23
- Roche Products Inc., 58-59
- Romania, patent protection in, 163
- Scripps Clinic and Research Foundation v. Genentech*, 59
- Sculley, John, 91
- South Dakota, beef cattle production in, 117
- Soybeans, proprietary protection methods used in seed industry for, 82-83
- Species
impacts of transgenic animals on integrity of, 13-14, 98-102
right to exist, 15, 101-102
- Standards. See Guidelines; Regulations
- Stanford University (California), 30,56
- Stewart, Timothy A., 99
- Subject matter
categories for copyright protection, 43
jurisdiction and patentability, 37-39
obviousness and patentability, 40
- Subject matter patents. See Design patents; Plant patents; Utility patents
- Supreme Court, U. S., 11,74
biotechnology ruling by, 8-9,31,51-54
subject matter patentability limited by, 37, 39, 130-131
test for determining obviousness expressed by, 40
trade secret law decisions by, 46
- Swiss Federal Intellectual Property Office, 21, 160, 161
- Switzerland, national patent law of, 161
- Technology Transfer Act of 1986,8,55, 105
- Texas, beef cattle production in, 117
- Tomatoes, proprietary protection methods used in seed industry for, 83-84
- Toxic Substances Control Act (TSCA), 104, 108
- Trademark Act of 1946,5,44
- Trademarks, basic concepts and workings of, 5,44-46
- Trade secrets, 25
as alternative to patent use, 17, 118-119, 120, 123.129
basic concepts and workings of, 7,46
plant protection available using plant patents, utility patents, and PVPCs v., 77-78
- Transgene (F.R.G.), 23
- Transgenic Animal Patent Reform Act (HR 4970), 24,30,32, 122
- Transgenic animals
arguments against patenting, 18, 130-137
arguments for patenting, 18, 127-130
economic impacts from patenting, 16-17, 115.117-123
impact on species integrity from, 13-14, 98-102
methods and impacts of depositing, 20-21, 150
royalty collection from patents on, 121-122
techniques for producing, 12-13,92-98
see also Animals; Cattle; Livestock; Poultry
- Treaties. See Agreements, international
- Union of Soviet Socialist Republics (U. S. S. R.)
deposit access in, 148
intellectual property law in, 163
- United Kingdom (U.K.), national patent law of, 161-162
- United Nations (U.N.), 155
- United States (U.S.). See Government, U.S. Federal
- U.S. Government Principles for the Care and Use of Vertebrate-Animals Used in Testing, Research, and Training, 104
- Utility, as requirement for patent issuance, 39
- Utility patents, 25
definition of, 70
plant protection using, 11,74-75
protection available using plant patents and PVPCs v., 76-77
three classes of, 39
see **also** Patents
- Virus-Serum Toxin Act, 104
- Wisconsin, milk production in, 116
- World Council of Churches, 131
- World Intellectual Property Organization (WIPO), 142, 144, 155, 157
- Yoder Brothers Inc. v. California-Florida Plant Corp. et al.**, 72
- Yugoslavia, patent protection in, 163