

APPLICATION OF UNITED STATES PATENT AND TRADE LAWS TO UNAUTHORIZED OVERSEAS USE OF A PATENTED PLANT VARIETY

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The purpose of this article is to explore the applicability of United States patents¹ and trade laws to protect United States plant breeders² from unauthorized use of their patented plant varieties outside the territorial limits of the United States. The possibility exists that plant-specific patent laws can be used against foreign breeders who make unauthorized use of such plants, when such relief is not available under utility patents. Additionally, United States trade laws, such as section 1337 of the Tariff Act of 1930, may afford relief to the United States breeder who is harmed in the United States market by unauthorized overseas use of his protected plant variety. Examination of these laws shows that their applicability to overseas

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1. The term "patent" as used generally throughout this paper includes plant variety protection, which is not formally a patent but is a functional equivalent to one.

2. The term "United States plant breeder" or "United States breeder" is used in this article in a very general sense to cover all those who develop new plant varieties and obtain or hold patent or PVPA protection under the laws of the United States, regardless of nationality.

infringements can be enhanced through legislative change.

In order to fully explain how these laws may be useful to a plant breeder, this article will first consider the history and current structure of the seed industry and then define situations faced by a breeder in the international setting. After the problem has been defined, the legal framework of intellectual property rights in the United States and other countries will be mapped out. Finally, the article will examine the applicability of United States laws to the defined problem.

I. INTRODUCTION: THE GLOBAL SEED TRADE³

Agriculture is being revolutionized on a global scale. The revolution is occurring quietly, despite the fact that concurrent revolutions in other industries caused by the same basic force are generating headlines and legal reform throughout the world. The agricultural revolution's American proponents are, however, left in undefined areas of United States patent and trade law.

Biotechnology,⁴ the revolutionary force, is dramatically altering the way plant breeders develop new varieties of beneficial plants. It opens up entirely new avenues for dramatically changing the characteristics of plants. The impact of this technology on the agricultural sector is just beginning to be felt. The possibility of inserting genes from other plants into the chromosomes of corn, and thus developing a corn plant capable of fixing its own nitrogen, is now foreseeable.⁵ Soybeans have already had antibiotic resistant genes inserted into their chromosomes.⁶

The question presented is how best to foster such economically beneficial innovation. American policy is "to promote the Progress of Science and Useful Arts, by securing for limited Times to Authors and Inventors exclusive Rights to their respective Writings and Discoveries."⁷ Such a system benefits innovative plant breeders by allowing them to profit from their investment in time and research, instead of allowing others to take the breeders' research for their own gain (without permission).

Although the grant of intellectual property rights to plant breeders did not occur until this century, there is a growing recognition of the benefits in

3. The terms "seed trade" and "seed industry" are used in their popular sense to refer to businesses involving plant propagating material.

4. The word "biotechnology" is sometimes used broadly to include such things as fermentation and conventional plant breeding. However, its popular usage is limited to advanced technology such as recombinant DNA, tissue culture, and cloning. It is in this narrower sense that the word is used in this article.

5. See Hill, *Biotech Opening Doors for Plant Breeders*, WALLACES FARMER, Feb. 9, 1988, at 13.

6. *A First: Genetically Engineered Soybeans*, SEED INDUSTRY, June 1988, at 38.

7. U.S. CONST. art. 1, § 8.

granting such rights to the developers of useful plant varieties.⁸ Thus, breeders in many nations can now patent their creations.⁹ The United States offers arguably some of the best protection through various options available to its breeders.¹⁰ In fact, some breeders in other countries are envious of the protection bestowed on United States breeders in the United States market.¹¹

In order to understand the problems created by the lack of international uniformity in intellectual property rights for plant breeders, one must first consider the history and structure of the seed industry.

The seed industry is a comparatively recent development in the history of plant domestication. Before the late nineteenth century, seeds and seedstocks were either grown and kept by a grower or received from a neighbor. It was not until the opening of the American West that selling seeds became a viable business.¹² It was only this century which saw the rise of large national seed companies. This phenomenon was spurred, in part, by the development of hybrid seedcorn.¹³

Increasingly, these large seed companies are becoming international. In 1985 it was estimated that there were at least fifty privately owned seed companies with revenues of at least \$50 million engaged in global seed trade.¹⁴ These companies are usually engaged in providing more than one plant species—*e.g.*, hybrid seedcorn, soybeans, and potatoes. Additionally, many of these companies are involved in the other end of the production process through processing the grown plant.¹⁵

With the development of the seed business and commercialized plant breeding, there came a demand on behalf of the breeders for the right to profit from development of new varieties. As Luther Burbank¹⁶ stated in a hearing before the House of Representatives:

A man can patent a mousetrap or copyright a nasty song, but if he gives the world a new fruit that will add millions to the value of the earth's annual harvests he will be fortunate if he is rewarded by so much as

8. Survey, *Biotechnology*, THE ECONOMIST, Apr. 30, 1988, at 1.

9. S. WITT, *BIOTECHNOLOGY AND GENETIC DIVERSITY*, 73-108 (1985) [hereinafter WITT].

10. U.S. CONGRESS, OFFICE OF TECHNOLOGY ASSESSMENT, *COMMERCIAL BIOTECHNOLOGY: AN INTERNATIONAL ANALYSIS*, 401 (1984) [hereinafter OTA STUDY].

11. Canadian breeders in particular have often developed their new varieties in Canada only to ship them across the border to obtain United States patent protection. CANADIAN AGRICULTURAL RESEARCH COUNCIL, *PROCEEDINGS: WORKSHOP ON PLANT GENE PATENTING* (1987).

12. See generally J. DOYLE, *ALTERED HARVEST* (1985) [hereinafter DOYLE].

13. *Id.*

14. *Technology and Agriculture: Hearings before the Subcomm. on Investigations and Oversight of the House Comm. on Science and Technology*, 99th Cong., 1st Sess. 296-305 (1985) [hereinafter *Technology and Agriculture*].

15. See generally DOYLE, *supra* note 12.

16. Luther Burbank was a famed California plant breeder during the early half of this century. He was instrumental in lobbying for patents for plants. DOYLE, *supra* note 12, at 52-55.

having his name connected with the result¹⁷

In 1906 and 1908 attempts were made in the United States to bestow patent rights in plants.¹⁸ Congress finally passed legislation granting patent production for asexually reproduced plants in 1930.¹⁹ Intellectual property rights in most sexually reproduced plants, however, were not granted until the passage of the Plant Variety Protection Act (PVPA) in 1970.²⁰ This act was amended in 1980 to provide protection for six "soup vegetables" which were not protected by the original act.²¹

In 1980 plant breeders received the benefit of a landmark court case. The United States Supreme Court ruled that living organisms could be patented under the utility patent section of the United States Code.²² This decision was followed in 1985 by a ruling of the Patent and Trademark Office Board of Appeals and Interferences which stated that even plants covered by the Plant Patent Act or the PVPA could also be protected by a utility patent.²³

Meanwhile, European plant breeders were pursuing plant breeders' rights (PBR) legislation which was attuned to the special needs of plant breeders. Included in this type of legislation is the granting of intellectual property rights in plants, but not necessarily through the use of patents.²⁴ This movement led to the International Convention for the Protection of New Varieties of Plants (UPOV) in 1961.²⁵ The United States became a signatory to this convention in 1978.²⁶ This convention provides for uniformity in plant breeders' rights legislation and plant patents among the signatory nations.²⁷

While there has been much progress in the area of intellectual property rights in the United States and Europe, most Third World countries do not

17. H.R. REP. NO. 1129, 71st Cong., 2d Sess. 2 (1930).

18. The 1906 bill was introduced by Congressman Allen of Maine. It would have allowed for a twenty-year grant under the trade mark law. The 1908 bill was introduced by Congressman Clark of Missouri. It would have amended the patent laws to allow for patenting of new plant varieties. Neither appears to have been considered seriously. DOYLE, *supra* note 12, at 50.

19. Plant Patent Act, 35 U.S.C. §§ 161-64 (1982).

20. Plant Variety Protection Act, 7 U.S.C. §§ 2321-2583 (1982).

21. The six soup vegetables—okra, celery, peppers, tomatoes, carrots and cucumbers—were exempted from protection under the original PVPA due to lobbying by the Campbell's Soup Company and other large vegetable processors which feared increasing prices. After noting the increased profitability of the vegetables protected under the Act, the companies lobbied for inclusion of the vegetables. DOYLE, *supra* note 12, at 47.

22. *Diamond v. Chakrabarty*, 447 U.S. 303 (1980).

23. *Ex parte Hibberd*, 227 U.S.P.Q. 443 (1985).

24. WITT, *supra* note 9, at 77-85.

25. *Id.* at 77.

26. Patents: Protection of New Varieties of Plants, Convention Between the United States of America and Other Governments, Oct. 23, 1978, T.I.A.S. No. 10199 [hereinafter UPOV].

27. UPOV, *supra* note 26, at art. 1.

offer such protection. These countries reason that by refusing to bestow rights in technology, they make otherwise patent-protected products available to their citizens at the cheapest possible price, and ensure adequate access to technology.²⁸ In addition, some developed countries, including Canada (one of the United States' largest seed markets),²⁹ are reluctant to pass plant breeders' rights legislation.³⁰

Thus, some seed companies engaging in international trade export their best seed only to those countries which have plant breeders' rights legislation. Countries lacking such protection receive other than the best seed.³¹ In those countries in which plant variety protection is lacking, companies use other means of protecting their successful varieties, including trade secrets and contractual arrangements.

Aside from structuring international business transactions to protect intellectual property rights, how might United States breeders enforce intellectual property rights against a foreign breeder who is already making unauthorized use of a protected variety? There is no question that current United States law is adequate (albeit not flawless)³² protection for a United States breeder against another United States breeder who is attempting to benefit from the former's expense in developing a new variety. But can those proprietary rights be enforced against a foreign breeder?

While patent-based litigation among domestic breeders appears to be on the rise,³³ there apparently has been no litigation directed toward enforcing plant patents against foreign breeders when the infringement occurs overseas.³⁴ However, as companies compete in what appears to be a very profitable international market,³⁵ litigation undoubtedly will increase. Not

28. *Fighting Trespassing on "Intellectual Property,"* THE WASHINGTON POST, Dec. 6, 1987, at H1. Additionally, the argument is made by Third World countries that because much of the germ plasm used in breeding programs comes from the Third World, it is unfair for them to pay royalties on the varieties developed from them. Bordwin, *The Legal and Political Implications of the International Undertaking on Plant Genetic Resources*, 12 *ECOLOGY L.Q.* 1053, 1058-59 (1985).

29. The five largest seed markets in 1987 were Mexico, Japan, Canada, Saudi Arabia and Italy. USDA, *U.S. Seed Exports*, Dec. 9, 1987.

30. *Plant Breeders' Right Bill Stopped at Parliament's Door*, THE WESTERN PRODUCER, Apr. 28, 1988, at 9.

31. This is the practice of Pioneer Hi-Bred, International. Telephone interview with Mary Helen Mitchell, general counsel for Pioneer Hi-Bred, International (June 14, 1988).

32. One of plant breeders' chief complaints about the statutory scheme is the "farmer's exception" in the PVPA, which provides that a farmer may sell seed saved from his crop for reproductive purposes as long as such sales do not constitute the majority of his business. See *ASTA, Patenting and Plant Variety Protection for the Seed Industry* (unpublished).

33. See Mayes, *Violations May Bring Changes in PVP*, SEED INDUSTRY, June 1988, at 8.

34. This conclusion is based on the author's own research and interviews with attorneys, government and industry spokesmen.

35. The Freedonia Group estimates that at the turn of the century the sale of genetically engineered crops will amount to \$65 billion. Agricultural Genetics, of Great Britain, estimates that seed cost in the production of the European wheat crop will rise from twenty percent of

only will North American and European markets be profitable, but markets in less developed countries will be increasingly profitable.³⁶

Because the United States seed industry currently has an edge in using biotechnology to develop new plant varieties,³⁷ it is increasingly engaged in international trade.³⁸ United States breeders are exporting substantial amounts of seeds and other propagating material overseas. But in these shipments lies great risk to the innovative breeder's rights in a successful seed. The risk is that by selling the seed the innovative breeder gives another breeder the ability to "copy" his plant. The United States breeder may not be able to stop an infringing act³⁹ unless he has obtained patent protection for his plant in the jurisdiction where this infringement occurs. Even then, the breeder may find that the enforcement provisions of a foreign patent law lack teeth.⁴⁰

II. THE SCOPE OF THE PROBLEM

There are three possible situations in which a holder of a United States plant patent may find his protected variety "infringed" by a foreign breeder, and may want to enforce his monopoly rights in his protected variety. The latter two situations will probably arise as a result of the first situation discussed.

The first and simplest situation is merely the unauthorized sale of the protected plant outside the borders of the United States. Because no act occurs within the boundaries of the United States, this is perhaps the most

the total cost to forty percent in twenty years. Survey, *Biotechnology*, THE ECONOMIST, Apr. 30, 1988, at 12.

36. Since the Green Revolution in the late 1960s, the Third World has become increasingly dependent on commercially produced seeds, which have replaced locally grown cultivars. MOONEY, SEEDS OF THE EARTH (1979). In addition, there are increasing opportunities to export horticultural products to developed countries. II ASAC INTERNATIONAL, AGRIBUSINESS INVESTMENT OPPORTUNITIES IN GUATEMALA (1988). See also *Technology and Agriculture*, *supra* note 14.

37. OTA STUDY, *supra* note 10, at 3.

38. See Freiberg, *Biotechnology: Slow, Incremental Progress*, SEEDMEN'S DIGEST, April 1988 at 16.

39. The term "infringing act" is used in this context to mean an unauthorized use which would infringe a United States patent if it took place in this country. It is important to note that because the act may be legal in the country in which it took place, and because United States patent law lacks extra territorial effect, such an act does not legally constitute infringement.

40. A survey of major United States industrial firms conducted by the United States International Trade Commission found that thirty-one countries had inadequate remedies for patent infringement, while twenty-seven failed to enforce the patents. UNITED STATES INTERNATIONAL TRADE COMMISSION, FOREIGN PROTECTION OF INTELLECTUAL PROPERTY RIGHTS AND THE EFFECT ON U.S. INDUSTRY AND TRADE 3-6, 3-7 (1988) [hereinafter FOREIGN PROTECTION OF INTELLECTUAL PROPERTY RIGHTS].

difficult situation to remedy.⁴¹ There are three factors to be considered in developing a cause of action in this context. One factor is whether there is direct competition between the United States patent holder and the other breeder. The second factor is whether the other breeder is operating only locally or internationally. The third and most important factor is whether the nation in which this act occurs recognizes intellectual property rights in plant varieties. If it does, the breeder may want to seek whatever protection of intellectual property rights is available in that country.

The second situation involves the importation of plants patented in this country into the United States. It should be noted that the importer is not necessarily the person making the unauthorized overseas use of the plant. Because there is direct competition with the United States patent holder, and there are also acts which occur within the boundaries of the United States, this situation affords the best basis for a remedy under United States law.⁴²

The last situation concerns the importation of "products," like fruit or flowers, derived from the patented plant. It should be kept in mind that both United States breeders and United States producers of the derived product face economic harm. In some sectors of the industry, the breeder and the producer are one and the same. While a favorable resolution of this problem is less certain than in the second problem, a good possibility exists that current United States patent and trade law can be used to stop such imports.⁴³

The remedies available in any of these situations may be determined by the mechanism used by a United States breeder to protect his plant variety.

III. THE STATE OF INTELLECTUAL PROPERTY RIGHTS IN PLANT VARIETIES OUTSIDE THE UNITED STATES

The most desirable protection for a breeder is patent protection in countries in which there is unauthorized use of the plant. Therefore, an overview of plant patent law in other nations is in order. This overview is intended to show why a breeder may be forced to resort to United States law to enforce his proprietary rights.

It is important to keep in mind that even if intellectual property rights exist in another country, it does not necessarily follow that effective protection is available to United States breeders or other holders of United States plant patents.⁴⁴ This may be due to stiffer requirements for patentability or lack of enforcement.⁴⁵

41. See *infra* notes 133-44 and accompanying text.

42. See *infra* notes 187-99 and accompanying text.

43. *Id.*

44. S. BENT, R. SCHWAAB, D. CONLIN & D. JEFFERY, *INTELLECTUAL PROPERTY RIGHTS IN BIOTECHNOLOGY WORLDWIDE 1* (1987) [hereinafter BENT].

45. *Id.*

There are two main groupings into which countries may be placed to evaluate intellectual property rights. The division coincides with the division between the western industrial countries and the developing countries. Most of the western industrial nations adhere to the UPOV convention⁴⁶ and provide some form of plant breeders' legislation. In contrast, many developing nations legislatively prohibit patent rights in plants and afford no plant breeders' rights.⁴⁷

Under the UPOV convention, member nations must grant plant variety protection for varieties of certain species of plants.⁴⁸ At least five species must be covered under the member's PBR statute when the convention enters into force.⁴⁹ Within eight years, nineteen more species must be protected.⁵⁰ The convention states that requirements for varietal protection are distinctness, homogeneity, and stability.⁵¹ The exclusive right acquired under the convention is the sole right to sell the plant commercially.⁵² It is important to note that until UPOV was amended in 1978,⁵³ member states were not allowed to have multiple forms of protection for any one species.⁵⁴ The convention also requires some reciprocity between the member nations.⁵⁵

For reasons already discussed, developing countries have been reluctant to give breeders a proprietary right in the varieties they develop. Typical of these nations is Mexico. Mexican patent law excludes "[p]lant or animal varieties, and the biological process for the production thereof."⁵⁶ While Mexico has signed the UPOV convention, it has not passed any plant breeders' rights legislation.⁵⁷

It should also be noted here that most communist countries exclude plants from the patent laws,⁵⁸ but there is some plant variety protection in the form of certificates of invention.⁵⁹ However, normally these only recognize the fact of invention and confer a small reward.⁶⁰

46. The nations that are members of UPOV are Denmark, France, Hungary, Ireland, Israel, Italy, Japan, The Netherlands, New Zealand, South Africa, Sweden, The United Kingdom, The United States, and West Germany. BENT, *supra* note 44, at 436.

47. See generally BENT, *supra* note 44, at 539-47.

48. UPOV, *supra* note 26, arts. 2 & 4.

49. UPOV, *supra* note 26, art. 4.

50. *Id.*

51. UPOV, *supra* note 26, art. 6.

52. UPOV, *supra* note 26, art. 5.

53. *Id.*

54. UPOV, *supra* note 26, art. 2, § 1.

55. UPOV, *supra* note 26, art. 3.

56. BENT, *supra* note 44, at 507.

57. *Id.*

58. The function of a patent in a communist country is not so much to provide incentives for inventiveness but to benefit the state with the knowledge of such inventiveness. *Id.* at 530.

59. *Id.*

60. *Id.*

Institutional mechanisms also exist for obtaining patent protection in several countries. The most notable example is the European Patent Office of the European Economic Community.⁶¹ These conventions and reciprocal patent agreements provide a plant breeder with the opportunity to obtain patent protection in the member countries by filing only a single application.⁶²

IV. LEGAL PROTECTION FOR PLANT BREEDERS IN THE UNITED STATES

As already mentioned, United States law provides the broadest protection available for plant breeders.⁶³ The protections available include trade secret protection, utility patents, plant patents, and plant variety protection. In addition, limited protection is available through the use of design patents and copyright law for certain plant varieties.⁶⁴ Though a breeder is implicitly barred from using both plant patents and plant variety protections for the same variety, since the former pertains to asexual reproduction while the latter covers sexual reproduction, it is possible to obtain any other combination of intellectual property protection.⁶⁵

A. Trade Secrets

In the earliest history of plant breeding, trade secret protection probably meant no more than refraining from telling the competition down the road how to grow a successful plant variety. Trade secret protection has now developed into a formalized system of law within the United States and most other nations.⁶⁶

In the United States trade secret protection—unlike patents—is primarily a matter of state law.⁶⁷ Representative of state trade secret laws is the Uniform Trade Secrets Act (UTSA), which has been adopted by sixteen states.⁶⁸ The UTSA defines a trade secret as information (including formulas, patterns, data compilations, devices, methods, and techniques) which has economic value independent of the fact that it is not generally known.⁶⁹

61. Sinnott, *A Comparative Analysis of Some Reciprocal Patent Treaties*, 65 J. PAT. OFF. Soc'y, 522, 524-26 (1983).

62. *Id.* However, it is open to debate whether a United States breeder with a utility patent on a plant is barred from using a reciprocal patent agreement with a nation that adheres to the UPOV convention. See UPOV, *supra* note 26, arts. 2 & 3.

63. BENT, *supra* note 44, at 80.

64. See *infra* notes 121-26 and accompanying text.

65. *Ex parte* Hibberd, 227 U.S.P.Q. 443, 446-47 (1980).

66. See RESTATEMENT OF TORTS § 757 (1939).

67. See *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470 (1974).

68. The states which have adopted the UTSA are: Arkansas, California, Colorado, Connecticut, Delaware, Idaho, Indiana, Kansas, Louisiana, Minnesota, Montana, North Carolina, North Dakota, Oklahoma, Rhode Island, Virginia, and Wisconsin. M. JAGER, *TRADE SECRETS LAW*, app. A2-1 (1987).

69. Uniform Trade Secrets Act § 1(4).

This definition makes trade secret protection available for subject matter which is not patentable.

Many companies protect their biotechnological advances with trade secret laws instead of securing patents.⁷⁰ Companies do this for two reasons. The first involves the rapidity with which protection can be obtained, and the length of time it lasts: on the one hand, because of the rapid development of biotechnology, an innovation is often obsolete before it can be patented,⁷¹ while on the other, there is no time limit on trade secret protection—the formula for Coca-Cola has been secret for decades.⁷² The second reason is that trade secret protection involves no risk of disclosing research data which may be useful to competitors, while patent law protection requires disclosure.⁷³

Trade secret law affords legal remedies to persons whose trade secrets are misappropriated.⁷⁴ A trade secret is misappropriated when it is acquired by improper means or disclosed in violation of a confidential relationship.⁷⁵ Improper means under the UTSA include theft, bribery, misrepresentation, and breach or inducement of a breach of a duty to maintain secrecy.⁷⁶ Trade secret misappropriation may also result from a breach of contract.⁷⁷

There is a particularly vexing problem in the application of trade secrets to the seed industry. While trade secret laws will undoubtedly protect the confidential means by which a new variety is developed, once seeds or other propagating materials are sold it is difficult to argue that the plant is a trade secret.⁷⁸ For example, in *Rice Researchers, Inc. v. Hiter*,⁷⁹ a Mississippi court held that a former employee, who was selling a rice variety developed by the company, could not be held liable for disclosing trade secrets unless it could be shown that he improperly acquired the original

70. Korn, *Patent and Trade Secret Protection in University-Industry Research Relationship in Biotechnology*, 24 HARV. J. ON LEGIS. 191, 218-19 (1987).

71. Note, *Patents, Plants and Biotechnology—Policy and Law*, 14 WEST. STATE U.L. REV. 529, 535 (1987) [hereinafter *Policy and Law*].

72. Korn, *supra* note 70, at 218.

73. *Policy and Law*, *supra* note 71, at 533. See also *infra* note 117 and accompanying text.

74. RESTATEMENT OF TORTS § 757 (1939).

75. Uniform Trade Secret Act § 1(2).

76. *Id.* at § 1(1).

77. For this reason, trade secret law is particularly well suited for keeping former employees from disclosing proprietary information. In fact, Pioneer Hi-Bred, International, Inc., is using this approach to prevent its former European vice-president from performing just such an act. *Pioneer Hi-Bred files suit to protect trade secrets*, DES MOINES REGISTER, Mar. 10, 1988, at 1M, col. 6.

78. See *Rice Researchers, Inc. v. Hiter*, 512 So. 2d 1259 (Miss. 1987). But see *Pioneer Hi-Bred Int'l, Inc. v. Holden Found. Seeds, Inc.*, No. 81-60-E, slip op. (S.D. Iowa Oct. 29, 1987) (court held that genetic material is a trade secret).

79. *Rice Researchers, Inc. v. Hiter*, 512 So. 2d 1259 (Miss. 1987)

seeds.⁸⁰

Of course, there is the additional problem of enforcing trade secret laws in an international setting, at least against third parties.⁸¹ While many foreign jurisdictions do have trade secret laws,⁸² many countries where unauthorized use of protected varieties is occurring either have no such law or have ineffectual enforcement and remedies.

Because of the ineffectiveness of trade secret laws to protect plant varieties which are publicly distributed,⁸³ and the substantial variation in state and international application of the laws, trade secrets will not be dealt with further.

B. Plant Patent Act

The Plant Patent Act,⁸⁴ adopted in 1930, is the oldest legislation in the world which specifically allows patent protection for plants. Being the oldest patent legislation directed specifically at plants, it provides the largest body of law in American jurisprudence on the subject of plant protection.

The Act offers breeders of asexually reproduced plants a patent affording less protection than a utility patent, but it imposes a less stringent standard of patentability. The Act bestows a seventeen-year patent monopoly on "whoever invents or discovers and asexually reproduces any distinct and new variety of plant . . . other than a tuberpropagated plant or a plant found in an uncultivated state."⁸⁵ Thus, the key requirements for patentability under this statute are distinctness, newness, and asexual reproduction.⁸⁶ The exclusive right granted is "the right to exclude others from asexually reproducing the plant or selling or using the plant so reproduced."⁸⁷

Thus, another breeder may be producing and selling the plant but not infringing on the patent, if he is producing it through sexual reproduction.⁸⁸

80. *Id.* at 1270.

81. Note, however, that because trade secrets can arise as a matter of contract, an action can be brought against employees and licensees for breach of the terms of a contract.

82. *Foreign Protection of Intellectual Property Rights*, *supra* note 40, at 3-9, 3-10.

83. However, trade secret law may still offer effective protection for hybrids, whose commercial value results from heterosis ("hybrid vigor"). Thus, the parent lines used in a breeding program, which may be patented, can be kept secret. First generation hybrids are explicitly excluded from the PVPA and implicitly excluded from the Plant Patent Act due to the sexual reproduction involved. However, both the breeding program and the resultant hybrid may be protected under a utility patent. For example, see *Hybrid Corn Plant and Seed*, Patent No. 4,737,596.

84. 35 U.S.C. §§ 161-64 (1982).

85. 35 U.S.C. § 161 (1982).

86. *Yoder Bros., Inc. v. California-Florida Plant Corp.*, 537 F.2d 1347, 1377 (5th Cir. 1976).

87. 35 U.S.C. § 163 (1982).

88. Langrock, *Plant Patents—Biological Necessities in Infringement Suits*, 41 J. PAT. OFF. SOC'Y 787 (1959); cf. *Pan-American Plant Co. v. Matsui*, 433 F. Supp. 693, 694 n.2 (N.D. Cal. 1977).

It is questionable whether selling derivative products such as fruit from a patented plant is an infringement.⁸⁹

C. Plant Variety Protection Act

The Plant Variety Protection Act⁹⁰ (hereinafter "PVPA") is the counterpart—applicable to sexually reproduced plants—to the Plant Patent Act. The PVPA is administered by the United States Department of Agriculture; it confers a "certificate of plant variety protection"—the functional equivalent of a plant patent.⁹¹

Plant variety protection is available to the breeder of any novel variety of sexually reproduced plant (other than fungi, bacteria, or first generation hybrids) who has so reproduced the variety.⁹² The certificate of protection is for a term of eighteen years.⁹³ The holder of the certificate has the right to exclude others from selling, importing, exporting, reproducing, or using the plant in producing hybrids.⁹⁴ Specifically excluded from the definition of infringement is the sale of seeds for non-reproductive purposes.⁹⁵ This exemption provides that one who grows the plant for other than reproductive purposes may keep seed to plant in the next growing season.⁹⁶ This section is referred to as the "crop exemption."⁹⁷

The key requirements for obtaining plant variety protection are distinctness, uniformity, and stability.⁹⁸ Distinctness means that the variety must exhibit some trait which makes it different from other varieties.⁹⁹ Uniformity means that the distinct trait must be the same throughout the variety.¹⁰⁰ It is not enough that some of the variety exhibit the trait some of the time. Stability means that the plant must be the same from generation to generation.¹⁰¹ Thus, first generation hybrids are excluded because they normally do not breed true.

Because of the relatively recent adoption of this Act, there is scant judicial interpretation of it.¹⁰² Some of the language is open to interpretation,

89. See *infra* notes 130-36 and accompanying text.

90. 7 U.S.C. §§ 2321-2627 (1982).

91. See *Ex parte* Hibberd, 227 U.S.P.Q. 443, 444-45 (1985).

92. 7 U.S.C. § 2402 (1982).

93. 7 U.S.C. § 2483(b) (1982).

94. 7 U.S.C. § 2483(a) (1982).

95. 7 U.S.C. § 2543 (1982). However, the original plant must have been obtained from an authorized source.

96. *Id.*

97. *Delta & Pine Land Co. v. Peoples Gin Co.*, 546 F. Supp. 939, 941 (N.D. Miss. 1982).

98. 7 U.S.C. § 2401(a) (1982).

99. 7 U.S.C. § 2401(a)(1) (1982).

100. 7 U.S.C. § 2401(a)(2) (1982).

101. 7 U.S.C. § 2401(a)(3) (1982).

102. There has been only one reported appellate decision concerning infringement under the act. *Delta & Pine Land Co. v. Peoples Gin Co.*, 546 F. Supp. 939 (N.D. Miss. 1982).

including arguments giving PVPA extraterritorial effect.

In addition, the PVPA is tied to another federal law which could be used to reinforce the PVPA. That law is the Federal Seed Act,¹⁰³ which calls upon certain sellers of protected varieties to sell only seed which has been examined for purity.¹⁰⁴

D. Utility Patents

Until recently a utility patent was presumed unavailable for living organisms.¹⁰⁵ In 1980, that presumption was dispelled by the United States Supreme Court in *Diamond v. Chakrabarty*.¹⁰⁶ That decision overturned the Patent and Trademark Office's denial of a utility patent¹⁰⁷ for a man-made, oil-eating microorganism.¹⁰⁸ The Court held that as long as the subject matter meets all the requirements for a patent, it does not matter that the invention is alive.¹⁰⁹

The Patent Office's initial reaction to this decision was that it would only grant patents on living organisms which were not covered by plant patents or the PVPA. This policy was changed in 1985 following a ruling by the Patent and Trademark Office Board of Appeals and Interferences that Congress did not intend that the Plant Patent Act and the PVPA would limit the availability of other patent provisions.¹¹⁰ Accordingly, plant breeders may use utility patents for their plants if they meet the necessary requirements for a utility patent.

The requirements for obtaining a utility patent are utility, novelty,¹¹¹ and nonobviousness.¹¹² Utility means merely that the invention must be useful.¹¹³ Novelty means that the invention must be different from that which already exists and must not have entered commerce prior to the application for the patent.¹¹⁴ Nonobviousness requires not only that the invention be new but that it must not have been predictable by others working in the

103. 7 U.S.C. §§ 1551-1610 (1982).

104. *Id.*

105. For a good discussion of the history of attempts to patent living matter under a utility patent see Note, *The Patentability of Living Matter: Hey Waiter What's Chakrabarty's Pseudomonas Bacterium Doing Back in the Supreme Court's Soup?*, 37 WASH. & LEE L. REV. 183 (1980).

106. *Diamond v. Chakrabarty*, 447 U.S. 303 (1980).

107. 35 U.S.C. § 101 (1982).

108. *Diamond v. Chakrabarty*, 447 U.S. at 311-13.

109. *Id.*

110. *Ex parte Hibberd*, 227 U.S.P.Q. 443, 446-47 (1985).

111. 35 U.S.C. § 101 (1982).

112. 35 U.S.C. § 103 (1982).

113. *Anderson v. Natta*, 480 F.2d 1392, 1395 (C.C.P.A. 1973).

114. 35 U.S.C. § 102 (1982); *Ansul Co. v. Uniroyal, Inc.*, 301 F. Supp. 273, 279 (S.D.N.Y. 1969).

field.¹¹⁵ In other words, the invention must not be a mere incremental advance, obvious to those skilled in the art.¹¹⁶

In addition, the applicant for a utility patent must disclose the invention in a manner such that one skilled in the art could reproduce the invention.¹¹⁷ The difficulty in describing the variety to be patented in such a way as to meet this requirement has created some problems for plant breeders.¹¹⁸ Thus, many plant breeders still avail themselves of the easier disclosure requirements of the Plant Patent Act and the PVPA.¹¹⁹

Another difference between utility patents and plant-specific patents is found in the extent of the protection. While there is little question that the plant is protected by plant-specific statutes, this may not be the case under a utility patent.¹²⁰ Thus, if a breeder patents a plant described as "a tomato plant with polka-dot fruit," does the patent protect the tomato plant capable of producing polka-dot fruit, or the polka-dot fruit, or the method of producing the polka-dot fruit? This question will be examined in more detail below.

E. Design Patents and Copyrights

Design patents and copyrights have not yet been used by plant breeders, but intellectual property scholars have debated the applicability of these protections to plants.¹²¹ They are considered because they may offer unique advantages in the field of protecting intellectual property rights in an international setting.

The Design Patent Act¹²² grants patent protection for a term of fourteen years¹²³ to one who "invents any new, original and ornamental design for an article of manufacture"¹²⁴ It has been suggested that ornamental plants are uniquely suited to such protection.¹²⁵ The basic requirement is that the subject matter have new visual characteristics.¹²⁶ The characteristics must be such that an average observer would conclude that the design is original and not a modification of an existing design.¹²⁷ Thus, conceptually a

115. *Graham v. John Deere Co.*, 383 U.S. 1, 11 (1966).

116. *Id.*

117. 35 U.S.C. § 112 (1982).

118. Williams, *Utility Patent Protection for Plant Varieties* 4 (unpublished).

119. *Id.*

120. *Id.*

121. See generally Trzyna, *Are Plants Protectable Under the Design Patent Act?*, 69 J. PAT. OFF. SOC'Y 487 (1987) [hereinafter Trzyna]; Kayton, *Copyright in Living Genetically Engineered Works*, 50 GEO. WASH. L. REV. 191 (1982) [hereinafter Kayton].

122. 35 U.S.C. §§ 171-73 (1982).

123. 35 U.S.C. § 173 (1982).

124. 35 U.S.C. § 171 (1982).

125. Trzyna, *supra* note 121 at 496.

126. *Kuik-Site Corp. v. Clear View Mfg. Co.*, 758 F.2d 167, 171 (6th Cir. 1985).

127. *Id.*

design patent is available for plants —e.g., a rose which exhibits a black and red flower. However, if such protection is available, it arguably would only extend to the plant part which exhibits the visual characteristics, such as the flower of a rose.

A copyright is available for "original works of authorship fixed in any tangible medium of expression, now known or later developed . . ."¹²⁸ It has been argued that genes are a medium of expression and that a plant breeder is therefore entitled to his original arrangement of plant genes.¹²⁹ However, whether this argument will be accepted by the courts remains to be seen.

V. ENFORCEMENT OF UNITED STATES PATENT AND TRADE LAWS AGAINST A FOREIGN BREEDER

In applying United States law against a foreign breeder, the first step is to apply United States patent and trade laws to an overseas act. The second step is to apply United States patent and trade laws to acts committed within the territorial limits of the United States. The third step is to apply section 1337 of the Tariff Act of 1930¹³⁰ to importation of the protected plant or derivative products into the United States.

Bringing the force of United States patent law to bear on a breeder operating solely in a foreign jurisdiction is a difficult task. For that reason, United States breeders are usually better off availing themselves of the patent or plant breeders' rights protection available in a country where they wish to sell a new variety or suspect that another breeder may engage in unauthorized use of the variety. However, other nations' patent and plant breeders' rights legislation requires compulsory licensing. Thus, if the breeder does not sell or produce the plant in the country where he has obtained protection, he may find that the foreign government will license another breeder.¹³¹ If breeders do not avail themselves of foreign patent protection or find it ineffective, they may be forced to resort to United States patent law.¹³²

The first consideration in this evaluation is the effectiveness of United States patent law in stopping a foreign breeder from making unauthorized

128. 17 U.S.C. § 102(a) (1982).

129. Kayton, *supra* note 121, at 141.

130. 19 U.S.C. § 1337 (1982).

131. UNITED STATES GOVERNMENT ACCOUNTING OFFICE, INTERNATIONAL TRADE: STRENGTHENING WORLDWIDE PROTECTION OF INTELLECTUAL PROPERTY RIGHTS 26 (1987) [hereinafter GAO STUDY].

132. For the purposes of the rest of this article only the application of United States law in United States courts will be considered. Because of conflict of laws issues these laws may also be applied in foreign courts. Additionally, it is possible that a foreign court will entertain a United States patent claim or vice versa. See Safran, *Protection of Inventions in the Multinational Marketplace: Problems and Pitfalls in Obtaining and Using Patents*, 9 N.C.J. INT'L L. & COM. 117, 130-32 (1983).

use of the protected plant outside the boundaries of the United States.

It has long been settled that there is no infringement of a utility patent when one makes, sells, or uses a product outside the territorial boundaries of the United States even though the product is the subject of a valid United States patent.¹³³ Thus, a breeder who has patented his plant with a utility patent has no direct infringement¹³⁴ claim against a breeder who grows his patented plant overseas, even assuming he could establish personal jurisdiction over the infringing breeder.¹³⁵ The Patent Act specifically states that making, using, or selling "any patented invention, within the United States" constitutes an infringement of patents granted under the Act.¹³⁶

However, while making, using, and selling a patented item overseas may not be an infringement of a utility patent, other acts occurring overseas may be actionable, even without importation into this country.¹³⁷ Foreign acts which are connected with a direct infringement within the United States may well be actionable infringement.¹³⁸

Under the infringement section of the patent title, one who "actively induces infringement of a patent shall be liable as an infringer,"¹³⁹ regardless of where the act takes place.¹⁴⁰ It is arguable that one who knowingly helps a foreign breeder to engage in unauthorized use of a utility patented plant through acts in this country is an infringer.¹⁴¹ However, the language of the utility patent grant in 35 U.S.C. § 154¹⁴² and judicial decisions¹⁴³ indi-

133. *Dowagiac Mfg. Co. v. Minnesota Moline Plow Co.*, 235 U.S. 641, 650 (1915); *Deepsouth Packing Co. v. Laitram Corp.*, 406 U.S. 518, 527-29 (1972).

134. In United States jurisprudence there are three types of infringement: direct, indirect, and contributory. Direct infringement consists of making, using, or selling the patented product. Indirect infringement is actively encouraging another to make, use or sell a patented invention without permission. Contributory infringement consists of supplying an item which is mainly used in a patented invention. 35 U.S.C. § 271 (1982).

135. The problem of establishing personal jurisdiction in a patent infringement case will not be specifically dealt with here. On the related matter of subject matter jurisdiction, a patent or plant variety infringement action based on a United States patent is within the exclusive jurisdiction of the federal courts. 28 U.S.C. § 1338 (1982).

136. 35 U.S.C. § 271 (1982).

137. 35 U.S.C.A. § 271(f) (West Supp. 1988).

138. *Honeywell, Inc. v. Metz Apparatwerke*, 509 F.2d 1137, 1141 (7th Cir. 1975).

139. 35 U.S.C. § 271(b) (1982).

140. See *Honeywell, Inc. v. Metz Apparatwerke*, 509 F.2d at 1141.

141. A similar argument can be made under the contributory infringement provision in 35 U.S.C. § 271(c). Cf. *Deepsouth Packing Co. v. Laitram Corp.*, 406 U.S. 518, 527-29 (1972).

142. 35 U.S.C. § 154 (1982) provides:

Every patent shall contain a short title of the invention and a grant to the patentee, his heirs or assigns, for the term of seventeen years, subject to the payment of fees as provided for in this title, of the right to exclude others from making, using, or selling the invention throughout the United States, referring to the specification for the particulars thereof. A copy of the specification and drawings shall be annexed to the patent and be a part thereof.

143. See, e.g., *Brown v. Duchesne*, 60 U.S. (19 How.) 183, 190 (1856); *Goodyear Tire & Rubber Co. v. Rubber Tire Wheel Co.*, 164 F. 869, 872-73 (S.D. Ohio 1908).

cate that the monopoly grant extends only to the territorial boundaries of the United States. Thus, one who helps a foreign breeder grow a utility patented plant is not inducing an infringement as long as that plant is not later sold or used within the United States.¹⁴⁴

Another provision of the infringement section which unquestionably has an extraterritorial effect is section 271(f), which makes those who supply components of a patented invention from the United States, knowing that the parts are intended to be used in a patented invention, liable for infringement.¹⁴⁵ The problem in applying this provision to a patented plant is the lack of identifiable "component parts," though it might be argued that the parent lines of a hybrid variety are analogous to "parts."¹⁴⁶

While the utility patent has little extraterritorial effect, it is possible that the Plant Patent Act may afford a broader monopoly grant and extraterritorial application.¹⁴⁷ If the Plant Patent grant is broad enough to encompass an extraterritorial right,¹⁴⁸ then perhaps the indirect and contributory infringement provisions of patent law may be used by a plant patent holder against those involved in an unauthorized overseas use.

144. See *supra* notes 135, 136 and accompanying text for discussion concerning what constitutes using and selling a utility patent within the United States.

145. 35 U.S.C.A. § 271(f) states:

(1) Whoever without authority supplies or causes to be supplied in or from the United States all or a substantial portion of the components of a patented invention, where such components are uncombined in whole or in part, in such manner as to actively induce the combination of such components outside of the United States in a manner that would infringe the patent if such combination occurred within the United States, shall be liable as an infringer.

(2) Whoever without authority supplies or causes to be supplied in or from the United States any component of a patented invention that is especially made or especially adapted for use in the invention and not a staple article or commodity of commerce suitable for substantial noninfringing use, where such component is uncombined in whole or in part, knowing that such component is so made or adapted and intending that such component will be combined outside of the United States in a manner that would infringe the patent if such combination occurred within the United States, shall be liable as an infringer.

35 U.S.C.A. § 271(f) (West Supp. 1988). This provision was adopted to remedy the situation which occurred in *Deepsouth*. See *infra* notes 149-51 and accompanying text.

146. However, in light of advances in biotechnology, in the future there may be certain growth media or other "parts" which need to be supplied in order to grow the patented plant.

147. See *infra* notes 152-54 and accompanying text.

148. While conventional legal philosophy holds that a patent right cannot extend across territorial boundaries, it has been held that United States trademark protection does extend beyond the territorial boundaries of the United States. See, e.g., *Steele v. Bulova Watch Co.*, 344 U.S. 280 (1952). As to Congress' power to protect United States patent holders, see *Sealed Air Corp. v. United States Int'l Trade Comm.*, 645 F.2d 976 (1981). "The Tariff Act(s) . . . were intended to provide an adequate remedy for domestic industries against unfair acts instigated by foreign concerns operating beyond in personam jurisdiction of domestic courts Authority to provide such remedy is grounded in Congress' plenary constitutional power to regulate foreign commerce" *Id.* at 985.

To see how this argument might be made, one could examine the Supreme Court's delineation of the extraterritorial effect of the utility patent in *Deepsouth Packing Co. v. Laitram Corp.*,¹⁴⁹ a case which involved a manufacturer who was making parts of a patented shrimp deveining machine in the United States and then assembling the machine overseas. The company admitted that if it assembled the machine in the United States it would infringe the patent; however, the Court found that the company did not infringe the patent by the sole act of making the parts in the United States.¹⁵⁰ The Court then held that since both the monopoly grant in section 154, and the direct infringement covered by section 271, were framed in terms of making, using, or selling "within the United States," overseas assembly did not constitute infringement.¹⁵¹

However, there is a difference between the monopoly grant under section 191 (which provides "the right to exclude others from making, using or selling the invention throughout the United States")¹⁵² and the grant under the Plant Patent Act (which provides "the right to exclude others from asexually reproducing the plant or selling or using the plant so reproduced").¹⁵³ Notably absent from the Plant Patent Act is the territorial limitation. It is arguable that the monopoly grant under the Plant Patent Act is not limited to the territorial boundaries of the United States. However, the general presumption is that congressional legislation applies only to the territorial limits of the United States.¹⁵⁴ Additionally, because the Plant Patent Act is within the patent title of the U.S. Code, the territorial limitation of section 271(a) appears to apply to "making, selling and using."

The question remains whether the territorial limitation in 271(a) affects the operation of the other infringement subsections absent explicit territorial limitation in the patent grant. The answer hangs on the definition of "infringement" as used in section 271. If "infringement" as used in subsections (b) and (c) of section 271¹⁵⁵ includes an extraterritorial unauthorized

149. *Deepsouth Packing Co. v. Laitram Corp.*, 406 U.S. 518 (1972).

150. *Id.* at 526.

151. *Id.* Note that section 271 has since been amended to prohibit manufacturing component parts and then shipping them overseas for assembly. 35 U.S.C.A. § 271(f) (West Supp. 1988). See Cong. Rec. 10,525 (1984) citing *Deepsouth* as exemplifying the problem to be corrected by the legislation.

152. 35 U.S.C. § 154 (1982).

153. 35 U.S.C. § 163 (1982).

154. "All legislation is prima facie territorial." *American Banana Co. v. United Fruit Co.*, 213 U.S. 327, 357 (1909).

155. The language of those provisions is as follows:

(b) Whoever actively induces infringement of a patent shall be liable as an infringer.

(c) Whoever sells a component of a patented machine, combination or composition, or a material or apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such a patent, and not a staple article or com-

use, then it is possible to find that a foreign breeder is an indirect or contributory infringer. If one argues successfully that the grant for a plant patent extends over the border, then an unauthorized use outside United States boundaries of a plant patented variety, while not a direct infringement, may be pursued as a contributory or indirect infringement. However, because 271(a) includes the words: "except as otherwise provided in this title," it is likely that an affirmative statement of extraterritorial effect is needed. This conclusion is supported by the Court's substantial reliance on section 271(a) in *DeepSouth*.¹⁵⁶

For several reasons, a finding that there is no extraterritorial effect is not as easily reached under the PVPA. The first reason is that the PVPA is not a part of the patent title.¹⁵⁷ Thus, the territorial limitation on direct infringement embodied in section 271(a) does not apply. Additionally, none of the enumerated acts of infringement on plant variety protection contains an explicit territorial limitation. In fact, the infringing acts of importing and exporting the protected variety implicitly involve a foreign act.¹⁵⁸ The best reason for finding extraterritorial effect is found in the language of the introductory clause of the infringement section. This clause states that the listed acts are infringing if they are performed "in the United States, or in

modity of commerce suitable for substantial noninfringing use, shall be liable as a contributory infringer.

35 U.S.C.A. § 271 (1984 & West Supp. 1988).

156. For the same reasons, a design patent probably has no extraterritorial reach, except for possible application of 35 U.S.C. § 271(f), which is also applicable to plant patents. On the necessity that the direct infringement occur within the United States, see *Nippon Elec. Glass Co. v. Sheldon*, 489 F. Supp. 119, 122-23 (S.D.N.Y. 1980).

157. The PVPA is found under title 7 of the U.S. Code, while the Patent Act is found under title 35 of the U.S. Code.

158. Infringement of plant variety protection is committed by those who without authority perform any one of the following acts:

(1) sell the novel variety, or offer it or expose it for sale, deliver it, ship it, consign it, exchange it, or solicit an offer to buy it, or any other transfer of title or possession of it;

(2) import the novel variety into, or export it from, the United States;

(3) sexually multiply the novel variety as a step in marketing (for growing purposes) the variety; or

(4) use the novel variety in producing (as distinguished from developing) a hybrid or different variety therefrom; or

(5) use a seed which had been marked "Unauthorized Propagation Prohibited" or "Unauthorized Seed Multiplication Prohibited" or progeny thereof to propagate the novel variety; or

(6) dispense the novel variety to another, in a form which can be propagated, without notice as to being a protected variety under which it was received; or

(7) perform any of the foregoing acts even in instances in which the novel variety is multiplied other than sexually, except in pursuance of a valid United States plant patent; or

(8) instigate or actively induce the performance of any of the foregoing acts.

7 U.S.C. § 2541 (1982).

commerce which can be regulated by Congress or affecting such commerce."¹⁵⁹ It appears that Congress, in using the phrase "in commerce which can be regulated by Congress,"¹⁶⁰ specifically intended that the PVPA extend beyond the territorial boundaries of the United States. United States courts have held that, if Congress intends a law to have extraterritorial effect, it will be applied beyond the border.¹⁶¹

Such an intent can be found in the legislative history of the PVPA. Sponsors of the PVPA said that it would "make American agricultural products more competitive in world markets."¹⁶² Additionally, the legislative history emphasizes the necessity of encouraging and promoting commercial plant breeders to benefit the rest of the United States economy.¹⁶³

Given the potential extraterritorial effect of the PVPA, can an action be brought against a foreign breeder who commits no infringing acts, as defined in the PVPA, within the territorial limits of the United States? For a foreign act to be actionable in United States courts, the act must have some nexus with the United States.¹⁶⁴ Under antitrust and securities laws, the courts have held that economic harm or the threat of economic harm within the boundaries of the United States resulting from a specific foreign act is all that is needed to present an actionable claim.¹⁶⁵

More relevant to patent law is the extraterritorial reach of United States trademark law.¹⁶⁶ Three primary factors determine the applicability of the Trademark Act to a foreign action. They are: the defendant's citizenship, the effect on United States commerce, and the existence of a conflict

159. *Id.*

160. *Id.* Congress' power to regulate commerce is based in the commerce clause, U.S. CONST. art. I, § 8. Commerce includes "intercourse between nations, and parts of nations, in all its branches . . ." *Gibbons v. Ogden*, 22 U.S. (9 Wheat.) 1, 190 (1824). In *United States v. Hanigan*, 681 F.2d 1127 (1982), the statutory phrase "all other commerce over which the United States has jurisdiction" was found to be coextensive with the limits of the commerce clause. *Id.* at 1129-30.

161. See *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 443-44 (2d Cir. 1945). "It is settled law . . . that any state may impose liabilities, even . . . for conduct outside its borders that has consequences within its borders . . ." *Id.* at 443.

162. H.R. REP. NO. 1605, 91st Cong., 2d Sess. 2, reprinted in 1970 U.S. CODE CONG. & ADMIN. NEWS 5082, 5083.

163. *Id.*

164. See *Steele v. Bulova Watch Co.*, 344 U.S. 280, 288-89 (1952); *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 443-44 (2d Cir. 1945).

165. See *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 443-44 (2d Cir. 1945) (antitrust law); *Travis v. Anthes Imperial Ltd.*, 473 F.2d 515, 527-28 (8th Cir. 1973) (securities regulation).

166. Lanham Act (Trademark Act of 1946), 15 U.S.C. §§ 1051-72, 1091-96, 1111-21, 1123-27 (1982). The language in the Act which gives rise to extraterritorial reach is "to regulate commerce within the control of Congress by making actionable the deceptive and misleading uses of marks in such commerce." 15 U.S.C. § 1127 (1982). See *Steele v. Bulova Watch Co.*, 344 U.S. 280 (1952).

with foreign law.¹⁶⁷ However, the presence or absence of these factors is not dispositive of the issue.¹⁶⁸ The court may look beyond the primary factors.¹⁶⁹

In light of the trademark cases, it is possible that a situation involving a foreign act will give rise to an actionable claim under the PVPA, even without the importation of the plant into the United States.

Under the PVPA the importation of the protected variety is explicitly made an infringing act.¹⁷⁰ However, under the patent title there is no explicit infringement in the mere importation of the patented plant variety. The infringement occurs in the use or sale of the plant once it is within the United States.¹⁷¹

Under the Plant Patent Act, an infringement would result from the importation of asexually reproduced plants coupled with the sale or use of such plants.¹⁷² However, if the imported plants were sexually reproduced from the protected variety there would probably be no direct infringement.

Under a utility patent the definition of infringement is not as clear cut. A finding of infringement turns on the subject matter protected by the utility patent. If a breeder only has patent protection for the fruit or the process for breeding the plant, importation of the plant and its sale in this country is not an infringement.¹⁷³ But if the plant itself is patented, then the importation and sale will probably be an infringement.¹⁷⁴

Does this protection against importation of the plant extend to imports derived from the plant? For example, if a foreign breeder, without authority, grows a protected rose variety with the intention of shipping cut roses into the United States, do the patent laws alone afford a remedy for the United States breeder?¹⁷⁵ Again, the answer turns on the protection which is granted and how that grant is construed.

167. *American Rice, Inc. v. Arkansas Rice Growers Coop. Ass'n*, 701 F.2d 408, 414 (5th Cir. 1983). See generally Note, *Extraterritorial Application of the Lanham Act: American Rice, Inc. v. Arkansas Rice Growers Cooperative Ass'n*, 9 N.C.J. INT'L L. & COM. REG. 133 (1983).

168. *American Rice, Inc. v. Arkansas Rice Growers Coop. Ass'n*, 701 F.2d at 414.

169. *Id.*

170. 7 U.S.C. § 2541(2) (1982).

171. Thus, if an importer gave away the plants there would be no direct infringement. However, there is good reason to believe that this would be indirect infringement if the importer knew the plant was patented.

172. See 35 U.S.C. § 163 (1982).

173. See *In re Amtorg Trading Corp.*, 75 F.2d 826, 831-32 (C.C.P.A. 1935).

174. See *Knoll Int'l, Inc. v. Continental Imports, Inc.*, 192 U.S.P.Q. 644 (E.D. Pa. 1976).

175. While the importation of cut flowers has never given rise to a patent issue, such imports have been litigated frequently before the United States International Trade Commission. See *Certain Fresh Cut Flowers from Peru, Kenya, and Mexico*, Invs. No. 303-TA-18 (final), USITC Pub. No. 1968 (1987); *Certain Fresh Cut Flowers from Canada, Chile, Columbia, Costa Rica, Ecuador, Israel, and the Netherlands*, Invs. Nos. 701-TA-275 through 278 (final), 731-TA-327, USITC Pub. No. 1956 (1987); *Fresh Cut Roses from Columbia*, Invs. No. 731-TA-148 (final), USITC Pub. No. 1575 (1984).

All the cases which have been considered under the Plant Patent Act and the PVPA have dealt with infringement only in terms of growing a protected variety in the United States. The question of infringement by the sale of products derived from growing plants has not been addressed.

The protective grant under the Plant Patent Act prohibits others from "selling or using the plant" which is asexually reproduced.¹⁷⁶ The problem lies in defining the word "plant."¹⁷⁷ Does the "plant" include something other than the plant in its entirety? Does it include fruits and flowers of the plant? Courts generally interpret a patent grant narrowly.¹⁷⁸ Accordingly, it is likely that courts will interpret "plant" to mean a plant in its entirety. An argument, however, can also be made from the Act's predominant focus on asexual reproduction that the sale of vegetative propagating material is also an infringement.¹⁷⁹ If there is any extraterritorial reach in the Plant Patent Act, the argument could also be made that the importation of a derivative product presents an actionable claim based on the use of the protected plant to produce the product.¹⁸⁰

Protection against imported derivative products may be slightly better under the PVPA, due to its arguable extraterritorial reach and its broad definition of infringement. Arguably an unauthorized use of the protected variety overseas, which results in an imported derivative product, is actionable as an instigation or inducement of an infringement.¹⁸¹ However, because many of the infringing acts in the PVPA are defined in terms of production for commercial propagation, and because farmers are allowed an exemption to sell seed,¹⁸² it is possible that the protection extends only to those products which are capable of reproduction.

The protection available against imports under a utility patent is derived not from a statutory grant, as under the PVPA or the Plant Patent Act, but from the patent claim itself.¹⁸³ If the breeder claims polka-dot apples, the importation and sale of polka-dot apples would infringe on the pat-

176. 35 U.S.C. § 163 (1982).

177. It has been held that "plant" as used in the Plant Patent Act means plant in its popular sense rather than its scientific sense. *In re Arzberger*, 112 F.2d 834, 838 (C.C.P.A. 1940); *Kim Bros. v. Hagler*, 167 F. Supp. 665, 667-68 (S.D. Cal. 1958).

178. *Deepsouth Packing Co. v. Laitram Corp.*, 406 U.S. 518, 530 (1972).

179. In *Yoder Bros., v. California-Florida Plant Corp.*, 537 F.2d 1347 (5th Cir. 1976), it was held that an infringement was shown when plant cuttings were taken without authority. *Id.* at 1382-83. Additionally, the court held that there was no need to show that the infringer had a fully mature plant, even though description in the patent covered only the fully mature plant. *Id.* at 1383.

180. See *Yoder Bros. v. California-Florida Plant Corp.*, 537 F.2d at 1382-83.

181. See 7 U.S.C. § 2541(8) (1982).

182. See 7 U.S.C. §§ 2541(3), 2543 (1982) (infringement by sexual multiplication of the variety as a step in marketing for other than growing purposes; the right of the farmer to save seed from his own crop).

183. Williams, Patent Protection for Plants, (paper presented at ASTA Corn and Sorghum/Soybean Research Conference, Dec. 10, 1985).

ent claim. But if the breeder claims only a tree which can produce a polka-dot apple, then the importation and sale of the apples is not an infringement. Thus, breeders must carefully frame their claims to cover possible derivative products.¹⁸⁴

Perhaps a better alternative, at least for certain crops, is a design patent. This option is better because design patents protect unique visual display, *i.e.*, the commercially valuable traits of ornamental plants.¹⁸⁵ An infringement action could be brought against an importer who brings in a cut rose because it is the sale of the flower, and not the plant, which infringes the patent.

Patent infringement claims are burdensome to bring in federal court because they must be brought individually against each alleged infringer and the final resolution of the problem may take a long time.¹⁸⁶ If the United States breeder is facing a rapid loss in the United States market because of infringing imports, he may find quicker and perhaps broader protection under United States trade laws.

VI. UNITED STATES TRADE LAWS

A provision which is well suited to protecting patent rights is section 1337 of the Tariff Act of 1930,¹⁸⁷ which allows an action based on unfair methods or acts in the importation of goods to be brought before the United States International Trade Commission.¹⁸⁸ The claim need not arise out of actionable infringement if it derives from "unfair methods of competition and unfair acts in the importation of articles into the United States."¹⁸⁹ Unfair acts and methods include acts which would be infringements had they occurred in the United States, as well as true infringement claims.¹⁹⁰

Two crucial elements must appear in a section 1337 determination: an unfair act or method; and injury or threat of injury to domestic industry. Additionally, there must be a domestic industry which is economically operated, and there must be an importation or sale.¹⁹¹ The injury requirement was originally applied to all alleged unfair acts. This rule was recently changed, as it applied to imports of patented items or their derivative products, by the passage of the Omnibus Trade and Competitiveness Act of 1988.¹⁹² The Act amended section 1337 to provide that the mere act of im-

184. Trzyna, *supra* note 121, at 502.

185. See 35 U.S.C. §§ 171-73 (1982).

186. Brunsvold, *Analysis of the United States International Trade Commission as a Forum for Intellectual Property Disputes*, 60 J. PAT. OFF. SOC'Y 505, 520-22 (1978).

187. 19 U.S.C. § 1337 (1982).

188. *Id.*

189. 19 U.S.C. § 1337(a) (1982).

190. *In re N. Pigment Co.*, 71 F.2d 447, 455 (C.C.P.A. 1934).

191. H. APPLEBAUM & G. KAPLAN, *U.S. TRADE LAW AND POLICY* 229-36 (1987).

192. Sterne, *Patent Infringement Practice Before the United States International Trade*

porting such items is an unfair trade practice.¹⁹³

The requirement that there be an unfair act or method can be met by a showing of an unauthorized use of a patented subject overseas, contributory infringement, inducement to infringe, misappropriation of trade secrets, or false advertising.¹⁹⁴ Additionally, section 1337 provides the only remedy available for unauthorized overseas use of a process patent (a type of utility patent).¹⁹⁵

Three remedies for unfair acts are available under section 1337. The first, a temporary exclusion order (TEO), is available almost from the outset.¹⁹⁶ The only condition precedent is a determination by the Commission that there is reason to believe a section 1337 violation exists.¹⁹⁷ The second remedy is based on a finding of a section 1337 violation. Upon such a finding, a permanent exclusion order can be issued.¹⁹⁸ The last remedy is a cease and desist order, which can be served on anyone who is violating or believed to be violating section 1337.¹⁹⁹

No other trade law²⁰⁰ appears to be as easily applied to intellectual property right disputes in international trade as section 1337. Other trade laws may be of use to breeders in effecting change in countries lacking adequate protection for intellectual property rights in plants.²⁰¹

Commission, 2 INT'L TRADE L.J. 190, 201-02 (1977).

193. 19 U.S.C. § 1337(a)(1)(B) (West Supp. 1988).

194. One case that encompassed all of these acts is *Apparatus for the Continuous Production of Copper Rod*, USITC Pub. No. 1017 (1979).

195. Kaye & Plaia, *Unfair Competition in Imports: A Review of Developments During the Year 1979 Under Section 1337 of the Tariff Act of 1930*, 62 J. PAT. OFF. SOC'Y 582, 587-88 (1980).

196. Brunsvold, *supra* note 186, at 520-22.

197. 19 U.S.C. § 1337(e) (1982).

198. 19 U.S.C. § 1337(d) (1982).

199. 19 U.S.C. § 1337(f) (1982).

200. For a compilation of United States trade law, see HOUSE COMM. ON WAYS AND MEANS, U.S. House of Rep., *Overview and Compilation of U.S. Trade Statutes* (Jan. 6, 1987) [hereinafter *Compilation*].

201. Section 301 of the Trade Act of 1974, 19 U.S.C. §§ 2101-2487, enforces United States rights against "unjustifiable and unreasonable foreign trade practices which burden, restrict or discriminate against United States commerce" and is administered by the United States Trade Representative. This provision could be used to enforce adherence to trade agreements, and it may be that the UPOV convention could be considered a trade agreement. This provision may also be used to impose tariffs on imported products. Remedies can only be sought against signatory countries. Because this provision works primarily on an intergovernmental basis, it affords no immediate remedy to a breeder. See generally Hudec, *Retaliation Against "Unreasonable" Foreign Trade Practices: The New Section 301 and GATT Nullification and Impairment*, 59 MINN. L. REV. 461, 461 (1975); GAO STUDY, *supra* note 131.

Another provision that may be used to prohibit imports of plants is section 22 of the Agricultural Adjustment Act of 1933, 7 U.S.C. § 1854 (1982). This provision is directed to the effect of increased imports on United States agricultural price support programs; it suspends such imports when they harm these programs. However, given the broad exclusionary nature of this law, it would be hard to target it to a specific varietal importation.

VII. LEGISLATIVE RESPONSE

There is some difficulty in applying United States patent and trade laws to unauthorized overseas use of a patented plant. The question presented is how these laws can be made more effective. While it is unlikely that Congress will extend patent protection beyond United States borders because of the negative response which other countries may make, Congress could make certain changes which affect imports into this country.

The infringement section of the patent title might be amended to define certain imports and overseas acts as infringing. One specific amendment could provide that importing products made by a patented process, or from a plant patented variety, constitutes infringement. The power of the infringement section to control overseas acts could also be enhanced by providing that one who, by acts in the United States, induces another to engage in unauthorized use of a patented item outside the boundaries of the United States, is liable as an infringer. There should be an exception in the last proposal for varietal use authorized by a licensee in another country.

An amendment to the Plant Patent Act extending its grant of monopoly to the sale of propagating material would be useful in limiting imports of such material. The PVPA would also benefit from a similar provision. The infringement section of the PVPA could be revised to define infringement to include the importation of a product derived from unauthorized propagation of the novel variety. However, such a provision would have to be carefully crafted to avoid a conflict with the farmer's exemption and the research exemption.

VIII. CONCLUSION

Under current law in the United States, a breeder who wishes to protect his investment in new plant varieties should carefully consider what threats he may be faced with and choose his protection accordingly.

If a breeder perceives a threat in foreign markets, the Plant Variety Protection Act provides the best protection because of its potential extraterritorial effect. If a breeder perceives a threat to the domestic market through importation of the plant's reproductive material, the options available are the PVPA or the Plant Patent Act. If a breeder perceives a threat in the domestic market due to importation of derived products, the best choice may be a carefully framed utility patent or a design patent.

To ensure international protection, the best alternative is to obtain pat-

There are also subsidy and anti-dumping provisions in American trade law which could be used by a breeder. See *Compilation*, *supra* note 200, at 40-56. These laws could bring pressure to bear on countries having lenient intellectual property laws. However, in anti-dumping cases there must be a threat of material harm to domestic industry. The problem here is that the domestic injury probably must be suffered by producers of like products rather than by the industry which enables production of the like product (e.g., plant breeders).

ent protection in as many countries as feasible. However, due to the lack of international agreement about intellectual property rights in plants, the breeder must still consider the extent of protections available under United States patent and trade laws.