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IN FUTURE ISSUES

- Agricultural provisions in the Omnibus Budget Reconciliation Act of 1993

New USDA National Appeals Division bills introduced

On August 6, 1993, bills intended to establish an independent USDA National Appeals Division to hear administrative appeals arising from determinations made by the Commodity Credit Corporation (CCC), Agricultural Stabilization and Conservation Service (ASCS), Soil Conservation Service (SCS), Rural Development Administration (RDA), Farmers Home Administration (FmHA), and the Federal Crop Insurance Corporation (FCIC) were introduced in the Senate (S. 1425) and the House of Representatives (H.R. 5742). The bills are modeled on bills introduced last session, S. 3119 and H.R. 4752, but they contain a number of new provisions.

If enacted, the bills will create a National Appeals Division (NAD) within the Office of the Secretary, independent of the agencies involved, for the purpose of making the final determination in the administrative appeal process. The power of the Secretary to remove the NAD Director is limited, and the Secretary's authority over NAD is delegable only to the NAD Director. The proposed legislation gives the NAD Director the same authority as the Secretary to grant equitable relief.

The bills require NAD to hold hearings within forty-five days of the receipt of a request for a hearing. Hearings are de novo and are to be held "in the State of residence of the appellant or at a location that is otherwise convenient to the appellant and the Division." The NAD Director and NAD hearing officers are given subpoena authority and may permit testimony to be taken by deposition if it is inconvenient for a witness to attend a hearing. Ex parte communications are prohibited. The burden of proof is on the agency that made the adverse decision.

The bills provide that determinations will be made by NAD hearing officers within thirty days of the hearing or within thirty days of receipt of the waiver of a hearing. An appellant may request the NAD Director to review a hearing officer's determination. The NAD Director may not reverse a NAD hearing officer's finding of fact based on oral testimony or the "inspection of evidence" unless the finding is clearly erroneous or the Director receives new information. The appellant and the hearing officer have the right to comment on the new information if, "under extraordinary circumstances," the Director elects to consider new information in reviewing a determination.

The bills require NAD determinations to be based on the applicable statutes and regulations published in the Code of Federal Regulations. NAD determinations are administratively final and binding on the agency involved, but agency heads may request review of a NAD determination in "extraordinary circumstances." In addition to showing the "extraordinary circumstances" warranting review, the agency head must offer reasons why the decision is contrary to the applicable statutes or regulations.

NAD must maintain a subject matter index of all significant decisions and make the

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1993 disaster assistance legislation enacted

The President has signed legislation intended to assist farmers with this summer's weather-related disasters. Unlike other recent disaster assistance which did not provide for full payment of eligible claims, the 1993 legislation provides for 100 percent payment of each eligible claim, subject to a \$100,000 per person limit. Also, the legislation provides that farmers whose operations were substantially affected by a natural disaster and who otherwise would be required to refund their 1993 crop advance deficiency payments cannot be required to make repayment until 1994.

The 1993 disaster legislation incorporates the disaster assistance provisions of the 1990 farm bill found at 7 U.S.C. section 1421, note. The general ASCS regulations on disaster assistance are set forth in 7 C.F.R. section 1477 (1993). The instructions for

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index and the indexed decisions available to the public. NAD must also maintain and make available, without recommendation, a registry of attorney and non-attorney advocates who are available to represent appellants during the appeals process.

The bills provide that NAD determinations are reviewable in federal district court under the judicial review provisions of the Administrative Procedure Act.

—Christopher R. Kelley, Lindquist & Vennum, Minneapolis, MN

CONFERENCE CALENDAR

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administering disaster assistance issued by the national ASCS office to the state and county ASC committees are contained in the ASCS Handbook volume designated "Disaster Assistance, 1-PAD (Revision 2)."

In general, disaster assistance payments are available for eligible producers who were either prevented from planting an eligible crop or who were unable to harvest at least sixty percent of the crop's expected production, a percentage that is increased to sixty-five percent for producers with crop insurance. 7 C.F.R. § 1477.5(a)(4) (1993). Payments are computed by multiplying an established payment rate by the amount of the crop the producer is unable to harvest which is in excess of forty percent of expected production, a percentage that is reduced to thirty-five percent for producers with crop insurance. 7 C.F.R. § 1477.5(b), (c) (1993). For target price crops, for example, the payment rate is sixty-five percent of the target price if the producer is enrolled in that year's acreage reduction program and is sixty-five percent of the basic county loan rate if the producer is not enrolled. In effect, 1993 disaster assistance will typically provide an eligible producer with about forty-two cents for each dollar of loss.

The disaster assistance program also provides for forgiveness of the obligation to repay advance deficiency payments received by producers who have experienced disaster losses. Any advance deficiency payments made with respect to that portion of losses up to forty percent of expected production, or in the case of producers who had insurance on the crop, thirty-five percent of the expected production, are not required to be refunded. 7 C.F.R. § 1477.5(e) (1993).

In recent years, the primary reasons for the ASCS's denial or reduction of disaster assistance benefits have included the producer's failure to establish that crop losses were the result of a natural disaster or related condition; the failure to document or otherwise show production losses, including the failure to provide adequate evidence to verify the existence and disposition of the crop; and the failure to meet application and other deadlines. In some cases, producers of nonprogram crops were unaware that they could prove yields for purposes of expected production instead of being assigned established or adjusted yields. Such problems may be avoided through familiarity with the program requirements and the assembly and maintenance of the required information and records.

To receive benefits, producers must timely submit an application for benefits (Form CCC-441) and must establish that the prevented planting or reduced production resulted from a natural disaster or related condition and was not the fault of the producer or caused by some other

nonqualifying reason such as herbicide drift (Form ASCS-574). Producers must also submit an acreage report (Form ASCS-578) indicating all cropland and all crops produced on the farm during the disaster year.

In addition to reporting acreage, producers must report and be able to support production and yield data (Form ASCS-658). Production reports are to reflect crops actually harvested as well as production figures based on appraisals and assigned yields. The existence of harvested production that is commercially stored or removed from the farm must be supported by verifiable information, such as elevator or warehouse receipts, showing the existence and disposition of the crop. See 7 C.F.R. § 1477.9 (1993).

In some circumstances, such as when a program crop will be destroyed or fed to livestock without being harvested, having the crop appraised before its destruction will avoid a production quantity being assigned to the crop. Similarly, production should be established as a matter of record before a crop is commingled with another year's crop to avoid the entire commingled crop being considered the disaster year's production. As a general rule, production should always be appraised if it cannot be measured accurately for any reason.

If the producer was prevented from planting a crop, the producer must show the intention to plant a crop by submitting receipts for input purchases and similar evidence. With limited exceptions, producers who have an interest in acreages of a crop other than those for which a disaster claim is filed must show acreage and production evidence for the crops on each farm in which the producer has an interest. ASCS Handbook, 1-PAD (Rev. 2), ¶ 213 (Amend. 5).

—Christopher R. Kelley

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2. FCA; Borrower rights notices for distressed loans; content; proposed rule. 58 Fed. Reg. 38091.
3. FCA; Lending limits; effective date: 1/1/94. 58 Fed. Reg. 40311.
4. FSA; Central filing system; Minnesota. 58 Fed. Reg. 36389.
5. FCIC; Disaster Assistance Act of 1988; Procedures for implementation; interim rule with request for comments by 9/7/93. 58 Fed. Reg. 36592.
6. FCIC; Fraud, misrepresentation; false claims, etc.; sanctions; proposed rule. 58 Fed. Reg. 37874.

—Linda Grim McCormick, Toney, AL

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Who owns dinner: evolving international legal rules for ownership of plant genetics

By Neil D. Hamilton

[This in depth article is excerpted from an article that will appear in a forthcoming symposium on international agricultural trade in the Tulsa Law Journal.]

Questions concerning commercial access to and control over the world's plant genetic resources (PGR) and the use of genetic engineering, may become some of the most important legal issues facing society. Who will benefit from unleashing the power of the world's plant genes? Will it be the scientists and companies who develop and market improved seeds and the products they yield, as well as the farmers who raise them? Will the nations, which claim national sovereignty to the genes, or the traditional farmers, who argue they preserved the genetic resources, receive a portion of the profits developed from their national wealth.

Questions of ownership of plant genetic resources [PGR] and what forms of plant intellectual property rights [PIPR] the international community will recognize are the central issues in the international debate. The debate over control of plant genetic resources is being waged in many international forums, in addition to the Biodiversity Treaty: the U.N. Food and Agriculture Organization (FAO) has adopted an "International Undertaking on Plant Genetic Resources" based on the concept of farmers rights and national sovereignty¹; the International Union for the Protection of New Varieties of Plants (UPOV) in Geneva, administers the inter-governmental convention signed by many developed countries to protect the interests of plant breeders²; the Uruguay round of the GATT negotiations, includes the TRIPs (trade related intellectual property) accord requiring recognition of PIPR³ as does the new North American Free Trade Agreement (NAFTA).

The goal of this article is to explore some of the issues related to the internationalization of intellectual property rights in plant genetic resources, specifically promoting a Western approach to PIPR.

Plant intellectual property rights: protections available in the U.S.

To appreciate the international controversy over PIPR, it is first necessary to understand how American IPR law applies to plants. U.S. plant breeders have

several options for protecting a new variety. First, they may claim "breeders rights" to new sexually reproducing varieties under the Plant Variety Protection Act (PVPA).⁴ This approach is most commonly used for cross or self pollinating crops such as wheat, cotton, and soybeans. Second, for asexually reproducing, those reproduced using cuttings or scions of the original such as fruit trees, the breeder can claim a "plant patent" under the 1930 Plant Patent Act (PPA).⁵ Third, under a 1985 decision of the U.S. Patent Office, *Ex Parte Hibberd*,⁶ a plant breeder may obtain a utility patent on a newly developed plant variety. The patent office decision to allow patenting of plant varieties was based on the 1980 U.S. Supreme Court decision in *Diamond v. Chakrabarty* approving patenting of living organisms developed by genetic engineering.⁷

In addition to these formal mechanisms, plant breeders have other ways to protect their inventions, such as the law of trade secrets. Companies that market improved genetics may also provide seed to producers under contractual arrangements that commit the producer to not save or sell any of the harvested crop as seed. The contractual claims may be included in the label when the seed is sold, as is done with limited-use licensing for computer software.

There are several important points to recognize about these various forms of legal protection. First, the term "patent" is often used very loosely and inaccurately in discussions of PIPR. For example, commentators often refer to "plant variety patents" under the PVPA; however, this usage is inaccurate. The protection afforded by the PVPA is in the form of a plant variety protection certificate. The PVP certificate offers "patent-like" protection to the breeder for a period of eighteen years, but is a form of sui generis PIPR. This type of protection, as provided under either the PVPA or UPOV, is more accurately described as "breeders rights", the usage herein. More confusion may arise when references are made to "plant patents" under the 1930 Plant Patent Act. This usage is accurate but confusing because it refers only to the unique form of patent protection specifically provided for asexually reproducing plants. The modern usage of the word "patent" to apply to a plant variety, as reflected in *Ex Parte Hibberd* refers to a true patent, no different from that given to the inventor of a washing machine or a windshield wiper blade. Patents for plants are often referred to as utility patents to distinguish them from "plant patents" under the PPA. Second, there are important differences in the legal standards that

must be satisfied to receive a utility patent, rather than breeders' rights under the PVPA. To receive a patent the applicant must convince the patent examiner the invention exhibits novelty, utility, and nonobviousness, whereas under the PVPA, the tests are novelty, uniformity, stability, and distinctiveness. The use of "nonobviousness" as a second threshold beyond distinctiveness is what makes the process of obtaining a plant utility patent more difficult. The issue is whether plant breeders experienced in the field would have expected the result obtained.

The distinction between "patents" and "breeder's rights" is more than grammatical. There are two significant differences between the legal protections available under "breeders rights" and "patents". First, breeders rights are subject to what is known as a research exemption, which allows other plant breeders to use the protected variety in developing a new variety, which itself may then be protected under the act.⁸ The breeder of the new variety does not have to pay the creator of the first variety any licensing fee or royalty. The main controversy within the seed industry in connection with the "research exemption" has been establishing the "minimum distance" that must separate a new variety in terms of its performance or characteristics in order to allow protection as a distinct variety. This issue has been a central issue among UPOV members, who agreed to new provisions in the 1991 Convention concerning "essentially derived varieties". These provisions are designed to protect holders of breeders rights from appropriation by others.

The second important distinction between "breeders rights" and "patents" is that breeders rights under the PVPA are subject a "farmer exemption" that allows farmers to save seed to plant future crops, also known as a "plant back" or "crop exemption."⁹ The PVPA even allows farmers to sell protected seed to other farmers, a controversial issue to private seed breeders. In contrast to breeders rights, utility patents granted for plant varieties are not explicitly subject to either a research or farmers exemption. This means the holder of a patent on a new plant variety, such as a soybean genetically engineered to have a higher oil content, could allege infringement and request a licensing arrangement from any plant breeder using the variety in its product development. It also means farmers may legally obtain the seed only under authority of the patent holder. The greater economic protection afforded by patents on plant varieties explains why this form of protection is favored by Ameri-

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can biotechnology companies and why the U.S. has promoted "patenting" of plant varieties in various international trade agreements.

An historical perspective on the "internationalization" of the PIPR debate

The present international debate began in the early 1980s when the representatives of developing nations [hereinafter the South] became concerned over actions by the plant breeding industry in developed countries [hereinafter the North], especially as to the free flow of germ plasma from South to North.

As a result of these concerns representatives of the Third World forced the issue of the ownership and use of PGR onto the international agenda. The primary forum for doing so was the Food and Agricultural Organization (FAO) of the United Nations through the FAO Commission on Plant Genetic Resources. The first major action was the development and adoption of the "International Undertaking on Plant Genetic Resources" in 1983. The purpose of the agreement, as reflected in Article One, is to "ensure that plant genetic resources of economic or social interest, particularly for agriculture, will be explored, preserved, evaluated and made available for plant breeding and for scientific purposes."¹⁰ The concept underlying the agreement was the common heritage principle that "plant genetic resources are a heritage of mankind and consequently should be available without restriction."¹¹ The Undertaking made clear that this open availability was to apply to all genetic stocks including to "special genetic stocks," interpreted broadly to include the specially bred proprietary lines of seed breeders.

Broad application of the concept of common heritage was a major factor in making the Undertaking controversial to the seed companies and thus the governments of the North. The agreement, as later developed, recognized "breeders rights" but also recognized two other concepts — "national sovereignty" and "farmers rights" — which have become central issues in the international debate over control and use of PGR.¹² The first reflects the ideal that countries of origin have legal ownership of the PGR found within their borders and as a result can control the acquisition and use of the materials. The concept of "farmers rights" was developed as a counterbalance to breeders rights and is a generalized recognition of the value contributed to the development and preservation of PGR by the indigenous farmers of a country of origin. The idea of "farmers rights" was developed in part as the justification and the mechanism for sharing the economic benefits of PGR reaped by seed breeders and farmers in the North with the peoples of the developing

countries from which the PGR was originally obtained.

The resulting controversy concerning the development of the Undertaking and its subsequent refinement and interpretation became known as the "Seed Wars" of the 1980s. Seed breeders in the North were concerned that the "common heritage approach" threatened their rights in the improved proprietary breeding lines. Northern governments were concerned the concept of "farmers rights" was an open ended mechanism for the transfer of wealth from North to South.

Since its adoption, over 100 countries have signed the Undertaking; however, the U.S. has not. After considerable debate and controversy, the language of the Undertaking was modified to recognize breeders rights, thereby minimizing the concerns of seed companies that their improved lines would be expropriated. In 1989 the FAO adopted a new interpretation of the Undertaking which acknowledged that breeders rights are not incompatible with the Undertaking and that legal protection for patented varieties was allowed. The agreed interpretation resulted in decisions in 1990 by the U.S. and Canada to join the FAO Commission, but not to sign the Undertaking.

In 1991 the FAO Conference adopted a third Annex to the Undertaking, reflecting the enhanced spirit of cooperation in using and preserving PGR. The Annex provides in part:

- 1) that nations have sovereign rights over their plant genetic resources;
- 2) that breeders' lines and farmers' breeding material should only be available at the discretion of their developers during the period of development;
- 3) that Farmers Rights will be implemented through an international fund on plant genetic resources which will support plant genetic conservation and utilization programs, particularly, but not exclusively, in the developing countries.¹³

The International Union for the Protection of New Varieties of Plants (UPOV): breeders rights, patents, or both?

The U.S. and twenty-two other nations have joined the International Union for the Protection of New Varieties of Plants [UPOV]. This organization, located in Geneva, was created by several European countries in 1961 to develop and refine a system to recognize and protect the legal rights of plant breeders.¹⁴

The U.S. joined the organization on November 8, 1981. The UPOV Convention was the subject of significant revisions agreed to on March 19, 1991, which increase the IPR protections available for the products of biotechnology by:

- expanding the definition of "breeder" to

include both those who bred a variety and those who "discovered and developed" the variety;

- preventing the unauthorized exploitation of any variety if it is determined to be "essentially derived" from a protected variety, a provision which deals with the issue of minimum distances required to separate distinct varieties before breeders rights protection are available;

- extending breeders rights to cover harvested material produced from propagating material, the use of which was not authorized by the breeder, if the breeder has not had a reasonable opportunity to exercise rights as to the parent material;

- granting members an option to provide a farmer exemption to allow for saving and planting back of seeds, as in the PVPA; and

- removing the prohibition against double protection of varieties, found in Article 2, which had prevented UPOV members from offering both breeders' rights protection and patents for plant varieties.¹⁵

The U.S. had previously been exempted from the ban on double protection, but its removal creates the opportunity for the rapid expansion of both forms of protection in other countries, especially in Europe.

Congress will consider legislation to ratify the 1991 UPOV Convention this year. Senator Kerrey (Nebraska) recently introduced S. 1406 (the PVPA Amendment of 1993). Hearings are expected in September. See the August 6, 1993 Congressional Record.

The role of international agreements in recognizing PIPRs

As noted above, there is an extensive slate of international agreements in which PIPR is an issue. The U.S. position in these agreements is premised on the contribution of science and individual ingenuity to create new "plant genetics", while the newly "environmentalized" views of the developing nations and their social allies view genetic resources as the property and inventions of the countries of origin. More significantly, the controversy over the U.S. opposition to the Biodiversity Treaty language illustrates the significance of the conflict over what forms of intellectual property rights will be recognized, as being the central issue in the debate over ownership and use of plant genetic resources.

Trade related intellectual property and GATT

Perhaps the most significant forum for the promotion of the Northern view of the ownership of plant genetics is the current round of GATT negotiations. The current text of that agreement, Section 5; Patents, includes "Article 27: Patentable Subject Matter" which contains the central provisions applicable to intellectual property claims to plants. The premise in section 1

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is that "patents shall be available for any invention, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application."¹⁶ A footnote provides, "the terms 'inventive step' and 'capable of industrial application' may be deemed by a PARTY to be synonymous with the terms 'non-obvious' and 'useful' respectively."¹⁷ However, there are exceptions to the requirement of patentability in Article 27. Section 2 provides:

PARTIES may exclude from patentability inventions the prevention within their territory of the commercial exploitation of which is necessary to protect ordre public or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment, provided that such exclusion is not made merely because the exploitation is prohibited by domestic law.¹⁸

The most significant provision concerning PIPR is Article 27 § 3(b). It reads:

3. PARTIES may also exclude from patentability:

(b) plants and animals other than microorganisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, PARTIES shall provide for the protection of plant varieties either by patents or by an effective sui generis system or by any combination thereof. This provisions shall be reviewed four years after the entry into force of this Agreement.

This provision gives Parties the choice of adopting a system for variety patents or a system such as a plant variety protection, such as breeders rights protection in the U.S. Plant Variety Protection Act, or both. In that regard the provision requires all GATT Parties, including the many developing countries who currently have no provisions for either plant patents or breeders rights, to adopt at least some PIPR system for their protection. This requirement is the provision that makes the 1991 UPOV Convention take on greater significance, because of its potential to serve as the minimum international standard for providing intellectual property rights in plants. Article 27 has the potential to elevate the UPOV provisions for breeders rights, currently applicable only to the twenty-three members of the convention, to the status of being the international trade standard for the over 100 GATT Parties. If this occurs the TRIPS accord could be the mechanism which truly signifies the internationalization of intellectual property rights in plant genetic resources.

North American Free Trade Agreement (NAFTA)

Recently negotiated, and still controversial, Chapter Seventeen of North American Free Trade Agreement (NAFTA) be-

tween the U.S., Canada, and Mexico concerns intellectual property. Article 1701 requires each party to "provide in its territory to the nationals of another Party adequate and effective protection and enforcement of intellectual property rights, while ensuring that measures to enforce intellectual property rights do not themselves become barriers to legitimate trade."¹⁹ As part of the obligations of Article 1701(d) each party must at a minimum give effect to the substantive provisions of several international accords on intellectual property, including, "the International Convention for the Protection of New Varieties of Plants, 1978 (UPOV Convention), or the International Convention for the Protection of New Varieties of Plants, 1991 (UPOV Convention)."²⁰ The specific terms of the agreement relating to intellectual property claims to plants are found in Article 1709 which provides, in part:

Article 1709: Patents

1. Subject to paragraphs 2 and 3, each party shall make patents available for any inventions, whether products or processes, in all fields of technology, provided that such inventions are new, result from an inventive step and are capable of industrial application. For the purposes of this Article, a party may deem the terms "inventive step" and "capable of industrial application" to be synonymous with the terms "nonobvious" and "useful", respectively.

2. A Party may exclude from patentability inventions if preventing in its territory the commercial exploitation of the inventions is necessary to protect ordre (sic) public or morality, including to protect, human, animal or plant life or health or to avoid serious prejudice to nature or the environment, provided that the exclusion is not based solely on the grounds that the party prohibits commercial exploitation in its territory of the subject matter of the patent.

3. A Party may also exclude from patentability:

(a) diagnostic, therapeutic and surgical methods for the treatment of humans or animals;

(b) plants and animals other than microorganisms; and

(c) essentially derived biological processes for the production of plants or animals, other than non-biological and microbiological processes for such production.

Notwithstanding subparagraph (b), each Party shall provide for the protection of plant varieties through patents, an effective scheme of sui generis protection, or both.²¹

The effect of the last subsection, while slightly different in wording, is the same as Article 27 section (b) of the TRIPS accord. It requires Parties to provide some

form of IPR for plant varieties, either in the form of patents, plant breeders rights as in UPOV, or both. One difference is the NAFTA provisions specifically require the parties to comply with the UPOV convention while TRIPS does not.

As a result of the negotiation of NAFTA, both Canada and Mexico have taken steps to adopt plant variety protection laws to comply with Article 1709. The Canadian Plant Breeders' Rights Act was adopted on June 19, 1990.²² The Canadian law is similar to the PVPA in the terms of the legal protections granted plant breeders and the standards that must be met to obtain protection. As a result of the enactment Canada was eligible to apply for membership in the 1978 version of the UPOV Convention, which was granted on March 4, 1991.²³

In 1991 Mexico adopted a new law for the "Promotion and Protection of Industrial Property", effective June 28, 1991, which included patent protection for plant varieties.²⁴ The law makes Mexico one of the first developing countries to provide for patent protections in the field of biotechnology. In addition Mexico is currently drafting a plant variety protection law patterned after the provisions of both UPOV and the PVPA. The proposal was originally drafted in the form of a presidential decree, but work is now under way to draft legislation for national enactment.

UN Biodiversity Treaty: Do U.S. efforts to expand PIPR's conflict with the "environmentalization" of PGR

The major international environmental event of the 1990's was the United Nations Conference on Environment and Development (UNCED), popularly known as the Earth Summit, held from June 3 to 14, 1992, in Rio de Janeiro, Brazil. News from the conference was dominated by the U.S. refusal to sign the Convention on Biological Diversity, known as the Biodiversity Treaty.²⁵ The U.S.'s refusal was primarily the result of opposition to what were perceived as vague and uncertain provisions on intellectual property rights relating to biotechnology and possible mandates to share technology with developing countries. To understand U.S. concerns about the proposed language it is important to consider the purpose of the Treaty. Article I provides:

The objectives of this Convention, to be pursued in accordance with its relevant provisions, are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate fund-

The Treaty endorsed the concept of national sovereignty over genetic resources, by stating the principle "States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies..."²⁷ The Treaty also included three Articles dealing directly with the PIPR: Article 15 "Access to Genetic Resources", Article 16 "Access to and Transfer of Technology", and Article 19 "Handling of Biotechnology and its Benefits." To understand the role of the Treaty in shaping future international developments concerning PIPR, the language of those Articles must be considered:

Article 15. Access to Genetic Resources

1. Recognizing the sovereign rights of States over their natural resources, the authority to determine access to genetic resources rests with the national governments and is subject to national legislation.

2. Each Contracting Party shall endeavor to create conditions to facilitate access to genetic resources for environmentally sound uses by other Contracting Parties and not to impose restrictions that run counter to the objectives of this Convention.

3. For the purposes of this Convention, the genetic resources being provided by a Contracting Party, as referred to in this Article and Articles 16 and 19, are only those that are provided by Contracting Parties that are countries of origin of such resources or by the Parties that have acquired the genetic resources in accordance with this Convention.

4. Access, where granted, shall be on mutually agreed terms and subject to the provisions of this Article.

5. Access to genetic resources shall be subject to the prior informed consent of the Contracting Party providing such resources, unless otherwise determined by the Party.

6. Each Contracting Party shall endeavor to develop and carry out scientific research based on genetic resources provided by other Contracting Parties with the full participation of, and where possible in, Contracting Parties.

7. Each Contracting party shall take legislative, administrative or policy measures, as appropriate, and in accordance with Articles 16 and 19, and, where necessary, through the financial mechanism established by Articles 20 and 21 with the aim of sharing in a fair and equitable way the results of research and development and the benefits arising from the commercial and other utilization of genetic resources with the Contracting Party providing such resources. Such sharing shall be upon mutually agreed terms.²⁸

The principles reflected in Article 15 —

national sovereignty; prior informed consent for access, i.e. for plant exploration, and use, i.e. commercialization; participation by source countries in research; and the sharing the results of research and development — while not new ideas, in that they reflect the central premises of the FAO Undertaking, are certainly significant advances in recognizing the interests of developing countries. The provisions are important because they will provide a basis in international law for recognizing, first, the South's role as the provider of the genetic materials that will fuel development of biotechnology, and second, that the results of biotechnology, in terms of the science and technology as well as the financial returns, are to be shared with developing countries. From the perspective of the North a central question in considering the impact of the treaty concerns how these principles will affect the development of intellectual property right protections available for biotechnology.

These Articles caused considerable concern on the part of many U.S. biotechnology businesses. Largely on the basis of this industry opposition President Bush refused to sign the Treaty. The financial investments companies have made in genetic engineering, plant breeding, and other biotechnologies and the fact that many of those investments are just now reaching commercial viability, create a natural concern about sharing the technology on "concessional and preferential terms" with developing countries. Business relations are usually premised on exact language with understood interpretations and protections, making industry skeptical of the vague and undefined language employed in international treaties of this nature. This uncertainty over future interpretations is of special concern because of U.S. reliance on developing a strong system of intellectual property right protections for biotechnology.

Despite these concerns, on June 4, 1993, President Bill Clinton signed the Biodiversity Treaty. The U.S. did not submit an interpretive statement which industry representatives had been expecting, although the State Department is reported to be working on one.

What does the future hold for recognizing PIPRs

It is clear the world is poised on the edge of a period of rapid expansion in the recognition of PIPR. The potential conclusion of the TRIPS accord may serve to greatly expand the role of UPOV in setting an international standard for recognizing breeders' rights, a very significant development. Second, the "environmentalization" of social concerns for preserving plant genetic resources and the use of this basis for recognizing the legal rights of countries of origins and indigenous farmers in plant genetic resources, are equally

significant. A central issue will be how these two developments can be reconciled so a race to claim PIPRs does not overrun the recognition of "farmers rights" and adversely affect efforts to conserve plant genetic resources.

¹ See Harold Bordwin, "The Legal Political Implications of the International Undertaking on Plant Genetic Resources," 12 *Ecology Law Quarterly* 1053 (1985).

² See, John Barton, "The International Breeder's Rights System and Crop Plant Innovation, 216 *Science*, June 1982, p. 1071 and Barton, John, "Patenting Life," *Scientific American* March 1991, p. 40

³ See e.g., "Uruguay Round of GATT Provides New Forum for Debating Germplasm Ownership Issues," *Diversity*, Vol 6, nos 3 & 4, 1990, p. 39.

⁴ 7 U.S.C. §§ 2321-2583, P.L. 91-577, Dec. 24, 1970, see House Report 91-1605, 1970 U.S. Code Cong. and Adm. News, p. 5082. For a discussion of the law, see e.g. Scott Wegner, "The Plant Variety Protection Act: has the farmer exemption swallowed the act?," *Agricultural Law Update*, April 1992, p. 4.

⁵ 35 U.S.C. §§ 161-164.

⁶ 227 U.S.P.O. 443 (B.P.A.I. 1985)

⁷ *Diamond v. Chakrabarty*, 447 U.S. 303, 65 L.Ed. 2d 144, 100 S.Ct. 2204 (U.S. Sup. Ct. 1980).

⁸ 7 U.S.C. § 2544

⁹ 7 U.S.C. § 2543.

¹⁰ *Supra* note 1, at 1062-63.

¹¹ *Id.*

¹² FAO/UN, Conference, 25th Session, Nov. 11-30, 1989, Rome, "Interpretation of the International Undertaking on Plant Genetic Resources," C 89/24, July 1989.

¹³ Quoted from "Actions Taken by FAO Conference Reflect New Era of Harmony for International Plant Genetics," *Diversity*, Vol. 7, no. 4, 1991, p. 5.

¹⁴ See, e.g., UPOV, *Seminar on the Nature and Rationale for the Protection of Plant Varieties under the UPOV Convention*, Proceedings of Congress organized by UPOV in cooperation with the Government of Hungary, Budapest, Sept. 19-21, 1990.

¹⁵ UPOV, *International Convention for the Protection of New Varieties of Plants, of December 2, 1961, as Revised at Geneva on November 10, 1972, on October 23, 1978 and on March 19, 1991.*

¹⁶ This language is taken from Agreement on Trade-Related Aspects of Intellectual Property Rights, Including Trade in Counterfeit Goods (Annex III), also known as the "Dunkel Text."

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ North American Free Trade Agreement, Chapter Seventeen Intellectual Property, text prepared September 6, 1992.

²⁰ *Id.*

²¹ *Id.*

²² Brian Belcher and Geoffrey Hawtin, *A Patent on Life: Ownership of Plant and Animal Research*, International Development Research Center (IDRC), Canada (1991), p. 9.

²³ *Plant Variety Protection*, Gazette and Newsletter UPOV #62, April 1991, p. 9 contains a reprint of the Canadian law.

²⁴ "Plant varieties patentable in Mexico," *Biotechnology and Development Monitor*, no. 9, Dec. 1991, p. 20.

²⁵ United Nations Environment Programme, *Convention on Biological Diversity*, 5 June 1992, Na. 92-7807 [hereinafter Biodiversity Treaty].

²⁶ Biodiversity Treaty, note 25, *supra*, at p. 3.

²⁷ *Id.*, Article 3, p. 4.

²⁸ *Id.*

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