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N FUTURE **SSUES**

GMOs and TRIPs

United States Supreme Courtrules that Banks for Cooperatives are subject to state income taxation

In a unanimous opinion, the United States Supreme Court has ruled that CoBank ACB, as the successor to the National Bank for Cooperatives, is subject to Missouri state income taxes. Director of Revenue of Missouri v. CoBank ACB, No. 99-1792, 2001 WL 137461 (U.S. Feb. 20, 2001). In so doing, the Court rejected CoBank's contention that as a federal instrumentality it is shielded from state taxation by the Supremacy Clause and the doctrine of implied tax immunity that originated in McCulloch v. Maryland, 4 Wheat. 316, 4 L.Ed. 579 (1819). Under this doctrine, federal instrumentalities are entitled to implied tax immunity when they are so closely connected to the federal government "that the two cannot be realistically be viewed as separate entities. CoBank, 2001 W.L. 137461 at *4 (quoting United States v. New Mexico, 455 U.S. 720, 735 (1982)).

Banks for cooperatives were created by the Farm Credit Act of 1933. Under the current Act, they are denominated as "federally charted instrumentalities of the United States." See 12 U.S.C. § 2121. Their mission is to provide credit to farmer cooperatives. Although the initial capital for the banks was provided by the federal government through investments in bank stock, the Act contemplated that this capital would be repaid, leaving the banks privately owned by their member-

Recognizing that the federal government would hold stock in the banks until the federal government's initial capital contribution was repaid, the 1933 Act subjected banks for cooperatives to state income taxation except when the United States held their stock. In 1971, Congress amended the Farm Credit Act, but it left intact the limited immunity from state taxation established by the 1933 Act. At the time, however, this immunity was of no avail to the banks because all of the federal government's initial investment had been repaid.

The Farm Credit Act was amended again in 1985. This time Congress eliminated the authority of Farm Credit Administration (FCA), a federal agency, from owning stock in banks for cooperatives. Since the original federal government investments Continued on page 2

Classifying producers in todays agricultural economy

In a recent analysis of today's agricultural economy, The Economic Research Service issued a report that unveiled a new method of classifying agricultural producers.1 Historically, agricultural producers were classified according to the value of what they produced. The new method, based on total household income, gives a clearer picture of the variety of situations that exist in rural communities across the country today by comparing the total household income of agricultural producers to the national average for household income. Under this new method, agricultural producers are classified in one of the following eight classes, the first seven of which are considered as "family farms.

- · Limited resource farms. Any small farm with gross sales of less than \$100,000, total farm assets of less than \$150,000 and total operator household income of less than \$20,000.
- · Retirement. Small farms whose operators report they are retired. This category excludes limited resource farms operated by retired farmers.

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had been repaid, the effect of the 1985 amendments was to eliminate the authority of the FCA to make temporary investments in the stock of the banks to meet the emergency credit needs of their borrowers, authority that had been conferred on the FCA's Governor in 1971.

In eliminating the FCA's authority to acquire stock in the banks for cooperatives, Congress made technical and conforming amendments to the Act that eliminated the banks' pre-existing exemption from state taxation when the FCA was a stockholder. Left standing was a provision that only provided that "any and all notes, debentures, and other obligations issued by such bank [of cooperatives] shall be exempt, both as to principal and interest from all taxation ... now or hereafter imposed by ... any state" 16 U.S.C. § 2134.

In the litigation before the Court, CoBank seized on the technical and conforming amendments eliminating the limited immunity from state income taxation to argue that Congress, in stripping this limited immunity from the Act, in-

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tended to render the banks immune from state taxation under the implied immunity doctrine.

The court below, the Missouri Supreme Court, had been persuaded by this argument. It transmuted the congressional silence left by the technical and conforming amendments into the conclusion that Congress, by not consenting to the states' taxation of the banks, had left it to the Supremacy Clause to cloak these federal instrumentalities with the immunity CoBank was asserting. The United Supreme Court, however, was unpersuaded with CoBank's argument.

The Court rejected CoBank's arguments on two grounds. First, the Court was unwilling to infer from the technical and conforming amendments that Congress had intended to reverse its 50-year history of permitting the banks to be taxed by the states except when the federal government was a bank stockholder. Instead, reasoned the Court, Congress had merely eliminated statutory language that became superfluous once the FCA was barred from investing in bank stock. It pointedly noted that Congress could have retained but recast the eliminated language to leave an exemption from state taxation irrespective of government stockholdings. Rather than electing this approach, Congress deleted the provision in its entirety. The Court opined that the resulting "silence [was] insufficient to disrupt the 50-year history of state taxation of banks for cooperatives." 2001 WL 137461 at *5.

Second, the Court observed that the banks for cooperatives never have had the same statutory immunity from state taxation that other Farm Credit System institutions have had. Specifically, while farm credit banks and federal land bank associations have been favored by specific provisions in the Farm Credit Act exempting certain capital holdings and the income derived from them from taxation by states and other governmental bodies, banks for cooperatives enjoyed more limited immunity, including that conferred by the statutory provision repealed in 1985. The Court therefore concluded that "in light of the structure of the Farm Credit Act-and the explicit grant of immunity to other institutions within the Farm Credit System-Congress' silence with respect to banks for cooperatives indicates that banks for cooperatives are subject to state taxation." Id. at *6.

-Christopher R. Kelley, Assistant Professor of Law, University of Arkansas, Of Counsel, Vann Law Firm, Camilla, GA

CLASSIFYING/Cont. from p. 1

- Residential/lifestyle. Farm operators who report a major occupation other than farming.
- Farming occupation/lower sales. Farms with less than \$100,000 of sales whose operators report farming as their major occupation. This class excludes those farmers who fall into the limited resource category described above.
- Farming occupation/higher sales. Farms with sales between \$100,000 and \$250,000 whose operators report farming as their major occupation.
- Large family farms. Farms with sales between \$250,000 and \$499,999.
- Very large family farms. Farms with sales of \$500,000 or more.
- Non-family farms. Farms organized as non-family corporations or cooperatives, as well as farms operated by hired managers.

After identifying this method of classification, the Service examined each category's dependence on off-farm income and compared its family income to U.S. average household income of about \$54,800. Excluding the retirement, resi-

dential lifestyle and non-family farms categories, all of the other classes depend heavily on off-farm income to support family expenses. The category farming occupation/higher sales is the first category that generates enough farm income to equal or exceed off-farm sources. The significance of this information is clear.

First, the success of families in many segments of agricultural production depends in large measure on non-farm sources.

Second, when communities confront the question of preserving agriculture in their midst, the first question to be asked should be, "Which of these classes represents the face of agriculture in the community at the time?"

The answer is likely to be that not only one, but several of the classes are represented. With several different classes present, the relative numbers within each classifications become important elements. For example, the first class has a doubtful future and a large number of producers in the category raises the question of what will happen to them if they succumb to any of the commercial problems they are likely to face? Will such facilities be converted to non-agricultural use? Will the land and buildings be consolidated with another production facil-

Cont. on page 6

Gene technology in the land down under

The following is a report of an agricultural tour and the World Congress of International Federation of Agricultural Journalists attended by Tracy Sayler in Australia in September 2000.

With about 90% of its population urban dwellers who live on the coasts, and a dependence on exports to move about 80% of its agricultural production, it is not surprising that biotechnology is a sensitive issue in Australia. Government and industry leaders realize that Australia could risk domestic and export markets if genetically modified products are commercialized. They also realize they could risk their market share if Australia does not commercialize GM products.

Some foods on the market in Australia contain ingredients from GM crops. Soybeans, canola, com, potatoes, sugarbeets, and cotton oil have all been approved for food use, and all except cotton oil are imported. Both industry and government play a role in assessing the safety of GM foods, with Australia's New Zealand Food (ANZFA, Authority http:// www.anzfa.gov.au) designated as the government agency responsible for ensuring the safety standards fo all food, including GM food.

Labeling regulations

On July 28, 2000, the Australia New Zealand Food Standards Council (comprised of health ministers from the Commonwealth, New Zealand, and the States and Territories of Australia) agreed on new labeling rules for GM goods. The new food standard will require the labeling of food and food ingredients containing novel DNA and/or novel protein in the final food. It also requires labeling of food and ingredients in which the food has altered characteristics. Genetically modified ingredients within a food will be identified in the ingredients panel of the label. The new standard allows any one ingredient in a food to contain up to 1% of GM material when its presence is unintended.

Exempt from these requirements are the following:

- · Highly refined food from which the refining process removes novel genetic material and/or novel protein;
- · Processing aids and food additives, except if novel genetic material and/or novel protein are present in the final fcm:
- · Flavors that are present in a concentration less than or equal to 0.1% in the final food; and
- · Food prepared at point of sale (such as restaurants and hotels).

To give food manufacturers and importers time to ascertain the status of

their products and revise their labels, the new standard is scheduled to take effect in September 2001. However, consumers will notice the gradual introduction of labels on food containing GM ingredients during the interim. Some manufacturers may decide to introduce labels indicating that food ingredients have been obtained from non-GM sources.

Australia and New Zealand will have one of the most rigorous and progressive labeling requirements for GM foods in the world. In fact, the requirements are regarded as even slightly more stringent than those of the European Union, previously the benchmark for GM labeling legislation. Japan has a threshold of 4% GM content, above which labeling is required. The United States and Canada do not require the labeling of GM foods that have the same properties and characteristics of conventionally-produced counterparts.

While industry may be able to absorb a part of the new labeling costs, some costs may be passed on to consumers. In addition, consumers searching for GM-free foods may have to pay a premium to cover the manufacturer's expense in testing food ingredients and in complying with the new labeling rules.

Biotech R&D down under

Commercial applications of biotechnology in Australian agriculture are now limited. Currently in the land down under, only genetically modified cotton and carnation plants are approved for commercial production. In 1999, Australia had less than 1% of the global transgenic crop, with an estimated 100,000 hectares (247,000 acres) of insect-resistant cotton, and small areas of carnations genetically modified for better color and longer "vase-life."

However, biotech research and development is being aggressively pursued in virtually all facets of Australian agriculture. Both commercial companies and public research organizations are conducting transgenic crop research and development in Australia. Much of the public research is being conducted by Australia's Commonwealth Scientific and Industrial Research Organization (CSIRO, http://www.csiro.au), which is similar to the Agricultural Research Service of the US Department of Agriculture.

Over 100 field trials of transgenic crops and 80 extensions to those trials have taken place in Australia. Herbicide resistance is the trait most frequently tested, followed by insect resistance, disease resistance, product qualities, agronomic properties, and DNA markers. Cotton and canola are the most researched transgenic crops in Australia, together

accounting for over half of the trials and extensions.

Gene technology is also being applied by CSIRO in other unique research areas. Some examples:

Livestock vaccines-Gene technology creates new opportunities for fighting viral and bacterial infections. For example, CSIRO's Australian Animal Health Laboratory is using gene technology to insert the gamma-interferon gene into a harmless virus, which when given to the animal, would cause a strong immune reaction and help fight infection.

Sheep production—CSIRO researchers are using gene technology to improve wool growth and quality, produce leaner meet, and protect sheep against the blowfly, an insect that costs the industry around \$300 million (\$AUD) a year and "causes the animals great pain and suffering," according to CSIRO. In the blowfly research, CSIRO scientists are working toward transferring a tobacco enzyme gene into sheep skin cells. The enzyme dissolves chitin, the main structure on an insect's skeleton and out. Transgenic sheep will secrete the enzyme in their sweat. When blowfly maggots feed on the sweat, the enzyme should dissolve the lining of their gut, causing

Aquaculture—CSIRO scientists are developing new diagnostic tests to detect diseases that could affect Atlantic salmon, trout, and prawn farms. Additionally, they are developing better ways of introducing genes into invertebrates like insects and shellfish to improve food production, safeguard the environment, and protect humans against insect-borne diseases.

Pesticide breakdown-Many chemical pesticides do not decompose easily in the environment. As a result, they tend to concentrate in the food chain and may affect the health of humans and other animals. Overuse of pesticides kills most pests, but leaves a few that are able to resist the effects of these chemicals. The offspring of the remaining 'resistant' pests are also unaffected by the chemicals. Research shows that resistant insects produce enzymes that degrade pesticides into harmless substances. CSIRO entomologists are working to use these enzymes in bioremediation efforts to remove pesticide residues from the environment. Initial work shows that the enzymes degrade organophosphates under conditions similar to those in the natural environment. CSIRO has recently signed an agreement with an Australian

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Important biotech cases involve patentability of plants and licensing of technology

By Roger A. McEowen

Two cases winding their way through the federal courts promise to be of major importance to the future of biotechnology and the intellectual property rights in technologically manipulated genetic composition. In late February, the United States Supreme Court granted certiorari in Pioneer v. J.E.M. Ag Supply, thereby agreeing to hear a dispute between two corn seed companies struggling for economic advantage in the lucrative market for genetically engineered plants. The primary question before the court is whether plants created from seeds are eligible for utility patents. The case centers on the efforts of Pioneer to protect 17 com seed patents that it says the defendant infringed by making and selling identical seeds. The defendant countersued, arguing that the patents should not have been awarded in the first place. The two lower courts that have heard the case have held that plants created from seeds are eligible for utility patents and, therefore, the defendant infringed the plaintiff's patent.2 In the second case, Monsanto v. Pioneer, the federal district court for the eastern district of Missouri ruled that certain license agreements between Monsanto and Pioneer relating to Roundup Ready soybeans and Roundup Ready canola did not survive Pioneer's merger with Dupont on October 1, 1999. The decision came in response to a motion for summary judgment filed by Monsanto. The court also granted Pioneer's motion for summary judgment, ruling that Monsanto was not entitled to any damages for alleged breach of these license agreements.

Patentability of plants

In Pioneer v. J.E.M. Ag Supply, the defendant argues that the utility category of patent law was not intended to include plants, because the Congress created other laws governing plant inventions. Specifically, the defendant argues that the Congress intended the Plant Patent Act (PPA) and the Plant Variety Protection Act (PVPA) to be the only legal mechanisms available to obtain an intellectual property right in a plant invention. The outcome of that argument is critical. Protection of intellectual prop-

Roger A. McEowen is Associate Professor of Agricultural Economics, Extension Specialist in Agricultural Law & Policy, Kansas State University, Manhattan, Kansas. He is a Member of both the Kansas and Nebraska Bars. erty rights in gemplasm is less broad under either the PPA or the PVPA than that of a patent. $^{\rm 8}$

A key inquiry in the proper resolution of the dispute in Pioneer v. J.E.M. Ag Supply9 is the scope of protection accorded under the PPA and the PVPA, and the intent of the Congress in enacting those laws. Clearly, biotechnology inventions are subject to the same basic rules of patentability as are conventional mechanical and chemical inventions. However, the law that has been applied in the United States was developed befare the advent of genetic engineering techniques. Before 1930, it was commonly believed that plants and other living organisms, even those bred by man, were not patentable because they were products of nature. Indeed, the Commissioner of Patents in Ex parte Latimer, 10 held that the fiber from the needle of an evergreen tree was not patentable because it was a product of nature. Similarly, plants were considered not amenable to the patent law's "written description" requirement. 11 While the PVPA, as enacted, protected sexually reproducible plants, the Supreme Court, in Diamond v. Chakrabarty, 2 determined that living things such as genetically engineered microorganisms could be patented under general patent law so long as they satisfied the statutory criteria. The court's language was sufficiently broad to suggest that even plants that could be protected under the PPA or the PVPA could be the object of a general utility patent. 13

The two lower courts that have heard the case have held that plants created from seeds are eligible for utility patents, and that the defendant had infringed Pioneer's patents. 14 As a result, the defendant was found to have infringed Pioneer's patents. 15 However, at least part of the lower courts' reasoning appears to be based on the general notion that the Congress intended the patent laws to be construed liberally. This was also the primary reason that the Federal Circuit, in State Street Bank & Trust Co. v. Signature Financial Group, Inc., 16 reversed a lower court and upheld a patent for a business method that used a mathematical formula. The court held that business methods are patentable if they are new, useful and not obvious to someone with knowledge in the field. The Supreme Court declined to hear the case in 1999.17 Thus, the grant of certiorari in Pioneer v. J.E.M. Ag Supply 18 may indicate that the Supreme Court might restrict the ability to obtain utility patents on plants, but that outcome seems unlikely. On the contrary, the Supreme Court may take the opportunity to reinforce the breadth of the patent law's application to plants.

License agreements

Monsanto v. Pioneer¹⁹ involves the licensing of particular germplasm (and the associated intellectual property rights) to Pioneer. Licensing is used as a means of protecting intellectual property rights in patented germplasm. The license allows the licensor to impose license fees on the licensee for using the hybrid seeds in research and development efforts, and impose royalties on farmers who bring the licensor's products to market. With respect to seed, the license does not constitute a sale of the seed subject to the agreement, but merely amounts to a limited use of the seed. ²⁰

The primary question before the district court in Monsanto v. Pioneer21 was whether federal common law or state merger law should apply to patent license agreements in merger situations. It seems fairly clear that rights arising under patent licensing contracts are purely contractual rights governed by state law, with the question of assignability of a patent license determined from an examination of the purposes and provisions of the particular license. 22 A number of courts have held that a patent licensing contract is personal to the licensee and may not be assigned unless it contains words of assignability such as "heirs, executors, administrators and assigns." 23 Other courts have held that the language of particular patent licensing contracts rendered the licenses assignable. 24

Of course, a question similar to assignability arises if the licensee is bought-out by another company - the situation that precipitated the Monsanto litigation. There is some precedence on the issue. In early, 1998, a state-court jury awarded Mycogen Corporation \$174.9 million in damages for Monsanto's breach of the terms of option agreements for licensing germplasm technology for insect resistance in cotton, corn and canola.25 Monsanto and Lubrizol Genetics, Inc. entered into an agreement in 1989 which included a clause on licensing options for germplasm technology for glyphosate in cotton, maize and oilseed and Bt technology for insect resistance in corn. In 1992, Mycogen bought Lubrizol and its subsidiaries. In 1992, Mycogen attempted to exercise the licensing option with

Monsanto, and Monsanto refused. The trial court ruled that Monsanto breached the agreement by preventing Mycogen from rightfully licensing the technology, thereby causing Mycogen to enter the market late. Monsanto later motioned for a judgment notwithstanding the verdict, but the motion was denied. On appeal, however, the appellate court overturned the damage award. The California Supreme Court has agreed to hear the case. ²⁶

In Monsanto v. Pioneer, 27 however, the court explained in its ruling that a non-assignable license to a corporation or a partnership expires with the legal death of the corporation or partnership. Pioneer is expected to appeal the ruling to the U.S. Court of Appeals for the Federal Circuit. If the case is upheld on appeal and damages were to be allowed, the amount could be an enormous handicap to the violating firm.

In any event, it is likely that we have not heard the last word on these sensitive biotech issues. ment, a patent application must contain a written description of the invention, and must describe the manner and process of making and using the invention. 35 U.S.C. §112. law, a court might conclude that the Congress enacted the PPA, PVPA and patent law for the express purpose of placing a ceiling on intellectual property rights for plant breeders.

²¹ No. 4:99CV1917-DJS, E.D. Mo. (Mar. 20, 2001).

²² See, e.g., Farmland Irrigation Co. v. Dopplmaier, 48 Cal. 2d 208, 308 P.2d 732 (1957)

²³ See, e.g., Bowers v. Lake Superior Contracting & Dredging Co., 149 Fed. 983 (8th Cir. 1906); Oliver v. Rumford Chemical Works, 109 U.S. 75 (1883).

²⁴ See, e.g., Moors v. Gilbert, 178 Kentucky 359, 198 S.W. 903 (1917); Paul E. Hawkins Co. v. Carnell, 112 F.2d 396 (3rd Cir. 1940).

 25 See Mycogen Plant Science, Inc. v. Monsanto Co., No. 671890, Calif. Super., San Diego County.

²⁶ Mycogen Corp. v. Monsanto Co., pet. for review granted, 2000 Cal. LEXIS 8281 (Cal. Sup. Ct. (Oct. 25, 2000)).

²⁷ No. 4:99CV1917-DJS, E.D. Mo. (Mar. 20, 2001).

CONFERENCE CALENDAR

Agricultural Law Symposium

April 26-27, 2001

Dodge City, Kansas Dodge House Inn

Topics include: Agricultural Law Update by Roger A. McEowen; Water Law Update by Michael K. Ramsey; Contract Production of Ag Products by Roger A. McEowen; Cooperative Marketing Issues by John Huffaker; Real Estate Developments by James B. Wadley; Ethical Issues for Estate Planners and Tax Practitioners by Roger A. McEowen; Litigating Damages in an Agricultural Law Case by Hon. Robert J. Schmisseur; Recent Developments in Probate, Estates and Trusts by Steven W. Graber; and Ethics by Philip Ridenour.

To register, call 785-532-1501.

For hotel reservations, call 620-225-9900.

¹ 49 U.S.P.Q. 2d (BNA) 1813 (N.D. Iowa 1998), *aff'd*, 200 F.3d 1374 (Fed. Cir. 2000), *cert. granted*, 148 L. Ed. 2d 954 (2001).

 $^{^{2}}$ Id.

³No. 4:99CV1917-DJS, E.D. Mo. (Mar. 20, 2001).

⁴ 49 U.S.P.Q. 2d (BNA) 1813 (N.D. Iowa 1998), aff'd, 200 F.3d 1374 (Fed. Cir. 2000), cert. granted, 148 L. Ed. 2d 954 (2001).

⁵The defendant claimed that the Patent and Trademark Office granted the patents involved in the case on the basis of an erroneous understanding of the applicable law. See, e.g., Thomson Industries, Inc. v. Nippon Thompson Co., 298 F. Supp. 466 (E.D. N.Y. 1968).

^{6 35} U.S.C. §§161-164.

⁷7 U.S.C. §§2321 *et. seq.*

⁸ See e.g., 7 U.S.C. §§2543 ("farmer's exemption); and 2544 (research exemption)

^{9 49} U.S.P.Q. 2d (BNA) 1813 (N.D. Iowa 1998), aff'd, 200 F.3d 1374 (Fed. Cir. 2000), cert. granted, 148 L. Ed. 2d 954 (2001).

¹⁰ 1889 Comm'n Dec. 123 (1889).

¹¹ See predecessor of 35 U.S.C. §112. Indeed, the Commissioner of Patents cited this factor in arguing against granting a patent for living things such as genetically engineered microorganisms in *Diamond v. Chakrabarty*, 447 U.S. 303 (1980). Under the written description require-

¹² 447 U.S. 303 (1980).

¹³ This position has been confirmed in a case involving genetically engineered com. See Ex parte Hibberd, 227 U.S.P.Q. (BNA) 443 (Bd. Pat. App. & Interferences 1985)(statute applicable to maize plants; PVPA enacted out of concern that plants would not qualify for patent protection rather than because Congress thought plants were inherently unpatentable).

¹⁴ The federal district court noted that the Congress chose the expansive terms of "manufacture" and "composition of matter" in drafting 35 U.S.C. §101 which were broad and general; its language referring to patentability is: "any... process, machine, manufacture or composition of matter, or any...improvement thereof." 49 U.S.P.Q. 2d (BNA) 1813 (N.D. Iowa 1998). Also, the Committee Reports accompanying the 1952 amendments to the PPA indicate that the Congress intended statutory subject matter to "include anything under the sun that is made by man." S. Rep. No. 82-1979 at 5 (1952); H.R. Rep. No. 82-1923 at 6 (1952).

¹⁵ Infringement activities under the PVPA include selling the novel variety, importing the novel variety, sexually multiplying the novel variety, using the novel variety in producing (rather than developing) a hybrid or different variety, using seed which has been prohibited from propagation, or distributing the protected variety to another without proper notice. 7 U.S.C. §2541.

¹⁶ 149 F.3d 1368 (Fed. Cir. 1998), neversing 927 F. Supp. 502 (D. Mass. 1996), cert. denied, 525 U.S. 1093 (1999).

¹⁷ See 525 U.S. 1093 (1999).

 $^{^{18}}$ 49 U.S.P.Q. 2d (BNA) 1813 (N.D. Iowa 1998), aff'd, 200 F.3d 1374 (Fed. Cir. 2000), cert. granted, 148 L. Ed. 2d 954 (2001).

¹⁹ No. 4:99CV1917-DJS, E.D. Mo. (Mar. 20, 2001).

²⁰ Traditionally, restrictions on the use of patented material have been viewed with suspicion. Restrictions found in license agreements have been held invalid as adhesion contracts and because of federal preemption. See Vault Corp. v. Quaid Software, Ltd., 847 F.2d 255 (5th Cir. 1988). Thus, if a licensing agreement granted a seed company greater protection than what could be obtained under the PPA, PVPA, or general utility patent

GENE TECHNOLOGY/Cont. from p. 3

company to commercialize this technology.

Pest control—Australia has suffered extensively from introduced animal species that have "gone feral." The pests have flourished in the absence of their natural predators, diseases, and parasites, inflicting huge losses to Australian agriculture and fisheries and to the environment.

Scientists from CSIRO's Marine Science, Wildlife and Ecology, and Entomology Departments are working to develop a technique called "repressible sterility" to control pests. The technique involves attaching a special 'genetic switch' to a vital gene that controls fertility. Once the genetically modified pest is released into the wild, it would become sterile and unable to breed. This may be the only viable solution to controlling freshwater and marine pests. Researchers are testing the concept in captive zebra fish, the most widely studied fish in the world. Once proven in zebra fish under labora-

tory conditions, work will begin on using the technique in European carp.

Within a decade, farmers may be controlling plagues with a genetically modified virus that prevents mice breeding. Gene technology also offers a new way of controlling rabbits humanely, with a virus that will prevent them from breeding.

Designer grapevines—You wouldn't expect to see a lot of vineyards in this arid country, but [there] indeed, with production enabled by irrigation and favorable climate. Australians favor wine production and in fact, Australia has become the fourth largest wine exporter to the United Staes, behind Italy, France, and Chile, according to USA Today. Australia's wine, grape, and dried fruits industries are worth around \$1.5 billion (\$AUD) a year. Improvements in productivity and quality will be of enormous benefit to the industry and to consumers.

CSIRO Plant Industry scientists recently developed Australia's first genetically modified grapevine. The team is aiming to create grapes with enhanced flavor, improved color development, and increased disease resistance. The opportunity to introduce disease resistance and other valuable characteristics into grapevines, without changing the essential quality of varieties, offers Australia a large potential gains in the winery and vineyard business as well as to consumers and the environment, according to CSIRO.

For more examples of CSIRO gene technology research information, visit the Web site, http://genetech.csiro.au.

Sources

- 1. Australia's Commonweath Scientific and Industrial Research Organization. http://www.csiro.au
- 2. Bureau of Rural Sciences, Department of Agriculture, Fisheries, and Forestry, Australia. http://www.brs.gov.au/indexf.html
- 3. Biotechnology Australia. http://www.biotechnology.gov.au
- 4. Australia New Zealand Food Authority. http://www.anzfa.gov.au

-Tracy Sayler, Journalist, Fargo, ND

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CLASSIFY/Cont. from page 2

ity to form a larger, viable production unit? It may not be possible to predict with assurance what the outcome will be, but a review of recent history may provide enough indicators to make a reasoned assessment. The next two categories of retirement and residential/lifestyle have only a short-term commitment to rural community life, which may change very quickly. Moving down the list, the commitment to agriculture increases with increasing capital investment in the production business. Those in the category of farming occupation/lower sales are

perhaps under the most intense pressure to confront the reality that size of operation may be important if they are to effectively compete in today's market. This factor will persuade these business owners to consider increasing the size of an operation, even if questions about the profit potential of the expansion remain.

Perhaps another important impact of this method of classifying agricultural producers is to drive home the point that large numbers of agricultural producers have significant need for income support. Preserving agricultural land will not be particularly effective if income generated in agricultural activities is inadequate to support those whose lives depend on it.

¹ See Robert Hoppe, et al., Economic Research Service Farm Typology: Classifying a Diverse Agricultural Sector, Agricultural Outlook, United States Department of Agriculture, November, 1999, pps. 11-13.

-John C. Becker, Professor of Agricultural Economics and Law, Penn State

The StarLink incident: changing the face of the U.S.grain industry

The StarLink corn issue may not result in significant changes in transgenic crop research, but it will indeed place more grain industry attention on systematic differentiation, i.e., the way transgenic crops are handled from farmers' fields to the marketplace. Just recently, the National Corn Growers Association (NCGA) urged growers who planted StarLink hybrids last year to make an extra effort to control possible volunteer StarLink corn in 2001. That may mean rotating to another crop or growing a herbicide-tolerant hybrid that allows farmers to control volunteer StarLink.

"The danger is [from] volunteer StarLink corn pollinating surrounding non-StarLink corn plants, further com-

pounding the problems of keeping StarLink out of the supply of U.S. com," says Ohio producer Fred Yoder, chairman of the NCGA Biotech Working Group. "Rotation is the best choice," he points out. "In an ideal situation for 2001, you'd rotate ground planted to StarLink last year into soybeans, oats, or some other crop that will allow you to find and destroy volunteer com. "But if you're locked into growing corn-on-corn, you need to plant herbicide-tolerant hybrids that let you eliminate StarLink volunteers," Yoder stresses. However, the NCGA is warning farmers not to use Roundup Ready hybrids to control StarLink volunteers since "Roundup Ready corn is not yet approved for export to the European

Union and is restricted from some domestic wet-milling markets."

The recommendation on controlling StarLink volunteers is made in addition to a statement issued by NCGA encouraging growers to plant seed that has been tested for Cry9C, the StarLink transgenic protein.

Some overseas buyers want proof

The StarLink corn issue has increased international and domestic purchaser concerns over transgenic foods and food safety—no good company wants to be involved in a product recall and suffer adverse press. Consequently, buyers are asking for proof of non-transgenic crop Cont. on p.7

Interpreting statutory grants of immunity from liability - Central Green Co. v. U.S.

In 1928, when the Congress authorized a massive federal flood control project along the Mississippi River, Congress included an immunity provision in the legislation that provided, "[N]o liability of any kind shall attach to or rest upon the United States for any damage from floods or flood waters at any place."²

In 1935, the federal government took over the State of California's Central Valley Project that captured and stored waters of the Sacramento and San Joaquin Rivers and re-engineered the distribution of the water to make it available where it would be of greatest service to the State. The project required development of a system of canals to move the water up to 160 miles from its source.

Central Green Co. owns land in the San Joaquin Valley that borders the Madera Canal that is part of the Central Valley Project. The Company alleged that because of negligent design, construction, and maintenance of the canal, subsurface flooding damaged the Company's pistachio orchards. The Company did not allege a physical failure of any dam that is part of the Project. Basing its claim on the Federal Tort Claims Act, the Company filed suit against the United States. The government defended the claim by relying on the immunity provision and

moved for judgment on the pleadings.⁴ The District Court dismissed the complaint on grounds that the Project had a flood control purpose and that the events giving rise to the cause of action were not wholly unrelated to it. The Ninth Circuit affirmed and an appeal was taken to the U.S. Supreme Court.

In reversing the Ninth Circuit, the Supreme Court in Central Green Co. noted the issue before it to be the scope of immunity offered the federal government as a result of its flood control project work. 5 The Supreme Court concluded that courts should consider the character of the waters that cause the relevant damage rather than the relation between the damage and a flood control project.6 In terms of the Company's claim, were flood waters part of the reason that the Company's pistachio orchards were damaged? The Court observed that the Company alleged that the cause of its injury was a continuous or repeated flow occurring over a period of years, rather than a single, discrete incident, such as a flood. As there were numerous factual issues to determine regarding the types of discharges through the system over the years, the Court held that it was error to grant the government's motion for judgment on the pleadings, and it remanded the case. 7

This case illustrates that applying an immunity provision that appears to be broadly worded and all inclusive will still require an analysis of factual allegations to avoid reaching oversimplified understanding of the provision. Extending this logic to other grants of immunity, the Court seems to suggest that a fair question to ask before applying an immunity provision is "Is the type of activity that caused the injury before the court the type that is intended to have the immunity protection that the statute describes?" Broadly worded grants of immunity therefore may be misinterpreted by granting broader immunity coverage than was intended.

-John C. Becker, Professor of Agricultural Economics and Law, Penn State

StarLink/Cont. from p.6

origin. In the last year, the National Sunflower Association has begun providing its members with a letter stating that U.S. sunflower is transgene free. The U.S. Department of Agriculture is providing similar documentation upon request.

Saudi Arabia, the largest single importer of U.S. corn oil, has banned imports of GM grains and processed foods containing GM ingredients. "All imported foodstuffs must be accompanied by authenticated health certificates indicating that they are free of any genetically modified elements and are fit for human consumption," according to the Saudi edict. This includes prepared foods that have one or more of their ingredients from GM plant material.

Other grains establish GMO protocol

Wheat organization advisors are using the StarLink example as impetus to establish the means for handling grains such as wheat, if and when a transgenic variety becomes commercially available. For example, at their recently held Wheat Industry Conference, The National Association of Wheat Grower (NAWG), Wheat

Export Trade Education Committee (WETEC), and U.S. Wheat Associates (A.S.W.) joint committee on biotechnology proposed the establishment of an advisory committee to work with Monsanto on the development of a closedloop system to prevent commingling of GM wheat with conventional wheat. The advisory committee recommended involving other sectors of the wheat industry, including farmers, grain handlers, millers, bakers, and exporters in the segregation process. Establishment of a reasonable tolerance for accidental commingling of GM and non-GM grain was also adopted.

StarLink controversy portends future of the indudstry

The StarLink controversy may shed some light on where the future of agriculture may be headed, suggests Zach Fore, cropping systems specialist with the University of Minnesota Extension Service. He predicts that the number of grain products possessing specific traits will greatly expand in the coming years, some of which will be products of biotechnology and others will result from conventional breeding and selection. In almost all cases, grain products possessing

specific traits will need to be segregated from other grains and will need to meet other criteria for handling and purity, he says.

In the simplest cases, farmers will need to plant, harvest, and store grains separately, then have them tested to meet certain purity standards. In the most complex cases, every step in the process from seed selection to final delivery will be certified, tested, and have a paper trail that allows traceability back to its origin.

The so-called "StarLink Incident" need not be looked upon as a negative issue, Fore says; rather, it will bring improvements. "It will result in agricultural products with special attributes to be managed, handled, distributed, and marketed better—to the benefit of all in the food chain, including farmers. It is critical that farmers view these developments as opportunities, not hassles. Farmers and food companies willing to respond by customizing what they produce and how they produce it for their customers will benefit," Fore says.

Tracy Sayler, Journalist, Fargo, ND Reprinted with permission from the March 2001 ISB News Report.

 $^{^{\}rm 1}$ U.S. Supreme Court 99-859, decided February 21, 2001.

 $^{^{2}}$ See 33 U.S.C. section 702c (West, 1986).

³ Central Green Co. v. U.S., U.S.S.C. 99-859, slip. Qp. p.2.

⁴ See Id.

⁵ See Id. 1,2.

⁶ See Id. 4,5.

⁷ See Id. 6.