

RUCKELSHAUS, ADMINISTRATOR, UNITED
STATES ENVIRONMENTAL PROTECTION
AGENCY *v.* MONSANTO CO.

APPEAL FROM THE UNITED STATES DISTRICT COURT FOR THE
EASTERN DISTRICT OF MISSOURI

No. 83-196. Argued February 27, 1984—Decided June 26, 1984

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) authorizes the Environmental Protection Agency (EPA) to use data submitted by an applicant for registration of a covered product (hereinafter pesticide) in evaluating the application of a subsequent applicant, and to disclose publicly some of the submitted data. Under the data-consideration provisions of § 3, as amended in 1978, applicants now are granted a 10-year period of exclusive use for data on new active ingredients contained in pesticides registered after September 30, 1978, while all other data submitted after December 31, 1969, may be cited and considered in support of another application for 15 years after the original submission if the applicant offers to compensate the original submitter. If the parties cannot agree on the amount of compensation, either may initiate a binding arbitration proceeding, and if an original submitter refuses to participate in negotiations or arbitration, he forfeits his claim for compensation. Data that do not qualify for either the 10-year period of exclusive use or the 15-year period of compensation may be considered by EPA without limitation. Section 10, as amended in 1978, authorizes, in general, public disclosure of all health, safety, and environmental data even though it may result in disclosure of trade secrets. Appellee, a company headquartered in Missouri, is an inventor, producer, and seller of pesticides, and invests substantial sums in developing active ingredients for pesticides and in producing end-use products that combine such ingredients with inert ingredients. Appellee brought suit in Federal District Court for injunctive and declaratory relief, alleging, *inter alia*, that the data-consideration and data-disclosure provisions of FIFRA effected a "taking" of property without just compensation, in violation of the Fifth Amendment, and that the data-consideration provisions violated the Amendment because they effected a taking of property for a private, rather than a public, purpose. The District Court held that the challenged provisions of FIFRA are unconstitutional, and permanently enjoined EPA from implementing or enforcing those provisions.

Held:

1. To the extent that appellee has an interest in its health, safety, and environmental data cognizable as a trade-secret property right under Missouri law, that property right is protected by the Taking Clause of the Fifth Amendment. Despite their intangible nature, trade secrets have many of the characteristics of more traditional forms of property. Moreover, this Court has found other kinds of intangible interests to be property for purposes of the Clause. Pp. 1000–1004.

2. EPA's consideration or disclosure of data submitted by appellee prior to October 22, 1972, or after September 30, 1978, does not effect a taking, but EPA's consideration or disclosure of certain health, safety, and environmental data constituting a trade secret under state law and submitted by appellee between those two dates may constitute a taking under certain conditions. Pp. 1004–1014.

(a) A factor for consideration in determining whether a governmental action short of acquisition or destruction of property has gone beyond proper "regulation" and effects a "taking" is whether the action interferes with reasonable investment-backed expectations. With respect to any health, safety, and environmental data that appellee submitted to EPA after the effective date of the 1978 FIFRA amendments (October 1, 1978), appellee could not have had a reasonable, investment-backed expectation that EPA would keep the data confidential beyond the limits prescribed in the amended statute itself. As long as appellee is aware of the conditions under which the data are submitted, and the conditions are rationally related to a legitimate Government interest, a voluntary submission of data in exchange for the economic advantages of a registration can hardly be called a taking. Pp. 1005–1008.

(b) Prior to its amendment in 1972 (effective October 22, 1972), FIFRA was silent with respect to EPA's authorized use and disclosure of data submitted to it in connection with an application for registration. Although the Trade Secrets Act provides a criminal penalty for a Government employee who discloses, in a manner not authorized by law, any trade-secret information revealed to him during the course of his official duties, it is not a guarantee of confidentiality to submitters of data, and, absent an express promise, appellee had no reasonable, investment-backed expectation that its information submitted to EPA before October 22, 1972, would remain inviolate in the EPA's hands. The possibility was substantial that the Federal Government at some future time would find disclosure to be in the public interest. *A fortiori*, the Trade Secrets Act, which penalizes only unauthorized disclosure, cannot be construed as any sort of assurance against internal agency

use of submitted data during consideration of the application of a subsequent applicant for registration. Pp. 1008-1010.

(c) However, under the statutory scheme in effect between October 22, 1972, and September 30, 1978, a submitter was given an opportunity to protect its trade secrets from disclosure by designating them as trade secrets at the time of submission. The explicit governmental guarantee to registration applicants of confidentiality and exclusive use with respect to trade secrets during this period formed the basis of a reasonable investment-backed expectation. If EPA, consistent with current provisions of FIFRA, were now to disclose such trade-secret data or consider those data in evaluating the application of a subsequent applicant in a manner not authorized by the version of FIFRA in effect between 1972 and 1978, its actions would frustrate appellee's reasonable investment-backed expectation. If, however, arbitration pursuant to FIFRA were to yield just compensation for the loss in the market value of appellee's trade-secret data suffered because of EPA's consideration of the data in connection with another application (no arbitration having yet occurred), then appellee would have no claim against the Government for a taking. Pp. 1010-1014.

3. Any taking of private property that may occur in connection with EPA's use of data submitted to it by appellee between October 22, 1972, and September 30, 1978, is a taking for a "public use," rather than for a "private use," even though subsequent applicants may be the most direct beneficiaries. So long as a taking has a conceivable public character, the means by which it will be attained is for Congress to determine. Congress believed that the data-consideration provisions would eliminate costly duplication of research and streamline the registration process, making new end-use products available to consumers more quickly. Such a procompetitive purpose is within Congress' police power. With regard to FIFRA's data-disclosure provisions, the optimum amount of disclosure to assure the public that a product is safe and effective is to be determined by Congress, not the courts. Pp. 1014-1016.

4. A Tucker Act remedy is available to provide appellee with just compensation for any taking of property that may occur as a result of FIFRA's data-consideration and data-disclosure provisions, and thus the District Court erred in enjoining EPA from acting under those provisions. Neither FIFRA nor its legislative history discusses the interaction between FIFRA and the Tucker Act, and inferring a withdrawal of Tucker Act jurisdiction would amount to a disfavored partial repeal by implication of the Tucker Act. FIFRA's provision that an original submitter of data forfeits his right to compensation from a later submitter for the use of the original submitter's data if he fails to participate in, or comply with the terms of, a negotiated or arbitrated

compensation settlement merely requires a claimant to first seek satisfaction through FIFRA's procedure before asserting a Tucker Act claim. Pp. 1016-1019.

5. Because the Tucker Act is available as a remedy for any uncompensated taking appellee may suffer as a result of the operation of the challenged provisions of FIFRA, appellee's challenges to the constitutionality of the arbitration and compensation scheme of FIFRA are not ripe for resolution. Pp. 1019-1020.

564 F. Supp. 552, vacated and remanded.

BLACKMUN, J., delivered the opinion of the Court, in which BURGER, C. J., and BRENNAN, MARSHALL, POWELL, REHNQUIST, and STEVENS, JJ., joined, and in which O'CONNOR, J., joined, except for Part IV-B and a statement on p. 1013. O'CONNOR, J., filed an opinion concurring in part and dissenting in part, *post*, p. 1021. WHITE, J., took no part in the consideration or decision of the case.

Deputy Solicitor General Wallace argued the cause for appellant. With him on the briefs were *Solicitor General Lee*, *Acting Assistant Attorney General Liotta*, *Deputy Assistant Attorney General Walker*, *Jerrold J. Ganzfried*, *Raymond N. Zagone*, *Anne S. Almy*, and *John A. Bryson*.

A. Raymond Randolph, Jr., argued the cause for appellee. With him on the briefs were *David G. Norrell*, *Thomas O. Kuhns*, *W. Wayne Withers*, *Frederick A. Provorny*, *Gary S. Dyer*, *C. David Barrier*, and *Kenneth R. Heineman*.*

*Briefs of *amici curiae* urging reversal were filed for the American Association for the Advancement of Science et al. by *Thomas O. McGarity*; for the American Federation of Labor and Congress of Industrial Organizations et al. by *Marsha S. Berzon*, *Michael Rubin*, *Laurence Gold*, *Albert H. Meyerhoff*, and *J. Albert Woll*; for the Pesticide Producers Association et al. by *David B. Weinberg* and *William R. Weissman*; and for PPG Industries, Inc., by *Thomas H. Truitt*, *David R. Berz*, and *Jeffrey F. Liss*.

Briefs of *amici curiae* urging affirmance were filed for Abbott Laboratories et al. by *Kenneth W. Weinstein* and *Laurence S. Ebner*; for the American Chemical Society et al. by *William J. Butler, Jr.*, and *Arthur D. McKey*; for the American Patent Law Association, Inc., by *Donald S. Chisum*; for Avco Corp. by *Alvin D. Shapiro*; for Sathon, Inc., by *Ralph E. Brown* and *Mark E. Singer*; for SDS Biotech Corp. et al. by *Harold Himmelman* and *Cynthia A. Lewis*; and for Stauffer Chemical Co. by *Laurence S. Ebner*, *John T. Ronan III*, and *John W. Behan*.

JUSTICE BLACKMUN delivered the opinion of the Court.

In this case, we are asked to review a United States District Court's determination that several provisions of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 61 Stat. 163, as amended, 7 U. S. C. § 136 *et seq.*, are unconstitutional. The provisions at issue authorize the Environmental Protection Agency (EPA) to use data submitted by an applicant for registration of a pesticide¹ in evaluating the application of a subsequent applicant, and to disclose publicly some of the submitted data.

I

Over the past century, the use of pesticides to control weeds and minimize crop damage caused by insects, disease, and animals has become increasingly more important for American agriculture. See S. Rep. No. 95-334, p. 32 (1977); S. Rep. No. 92-838, pp. 3-4, 6-7 (1972); H. R. Rep. No. 92-511, pp. 3-7 (1971). While pesticide use has led to improvements in productivity, it has also led to increased risk of harm to humans and the environment. See S. Rep. No. 92-838, at 3-4, 6-7; H. R. Rep. No. 92-511, at 3-7. Although the Federal Government has regulated pesticide use for nearly 75 years,² FIFRA was first adopted in 1947. 61 Stat. 163.

¹For purposes of our discussion of FIFRA, the term "pesticides" includes herbicides, insecticides, fungicides, rodenticides, and plant regulators. See §§ 2(t) and (u) of FIFRA, as amended, 7 U. S. C. §§ 136(t) and (u).

²The first federal legislation in this area was the Insecticide Act of 1910, 36 Stat. 331, which made it unlawful to manufacture and sell insecticides that were adulterated or misbranded. In 1947, the 1910 legislation was repealed and replaced with FIFRA. 61 Stat. 172.

Some States had undertaken to regulate pesticide use before there was federal legislation, and many more continued to do so after federal legislation was enacted. In 1946, the Council of State Governments recommended for adoption a model state statute, the Uniform State Insecticide, Fungicide, and Rodenticide Act. See S. Rep. No. 92-838, p. 7 (1972); H. R. Rep. No. 313, 80th Cong., 1st Sess., 3 (1947).

As first enacted, FIFRA was primarily a licensing and labeling statute. It required that all pesticides be registered with the Secretary of Agriculture prior to their sale in interstate or foreign commerce. §§ 3(a) and 4(a) of the 1947 Act, 61 Stat. 166–167. The 1947 legislation also contained general standards setting forth the types of information necessary for proper labeling of a registered pesticide, including directions for use; warnings to prevent harm to people, animals, and plants; and claims made about the efficacy of the product. §§ 2(u)(2) and 3(a)(3).

Upon request of the Secretary, an applicant was required to submit test data supporting the claims on the label, including the formula for the pesticide. §§ 4(a) and (b). The 1947 version of FIFRA specifically prohibited disclosure of “any information relative to formulas of products,” §§ 3(c)(4) and 8(c), but was silent with respect to the disclosure of any of the health and safety data submitted with an application.³

In 1970, the Department of Agriculture’s FIFRA responsibilities were transferred to the then newly created Environmental Protection Agency, whose Administrator is the appellant in this case. See Reorganization Plan No. 3 of 1970, 35 Fed. Reg. 15623 (1970), 5 U. S. C. App., p. 1132.

Because of mounting public concern about the safety of pesticides and their effect on the environment and because of a growing perception that the existing legislation was not equal to the task of safeguarding the public interest, see S. Rep. No. 92–838, at 3–9; S. Rep. No. 92–970, p. 9 (1972); H. R. Rep. No. 92–511, at 5–13, Congress undertook a comprehensive revision of FIFRA through the adoption of the Federal Environmental Pesticide Control Act of 1972, 86 Stat. 973. The amendments transformed FIFRA from a labeling law into a comprehensive regulatory statute. H. R. Rep. No. 92–511, at 1. As amended, FIFRA regulated the

³ Appellant here concedes, however, that as a matter of practice, the Department of Agriculture did not publicly disclose the health and safety information. Brief for Appellant 5, n. 5.

use, as well as the sale and labeling, of pesticides; regulated pesticides produced and sold in both intrastate and interstate commerce; provided for review, cancellation, and suspension of registration; and gave EPA greater enforcement authority. Congress also added a new criterion for registration: that EPA determine that the pesticide will not cause "unreasonable adverse effects on the environment." §§ 3(c)(5)(C) and (D), 86 Stat. 980-981.

For purposes of this litigation, the most significant of the 1972 amendments pertained to the pesticide-registration procedure and the public disclosure of information learned through that procedure. Congress added to FIFRA a new section governing public disclosure of data submitted in support of an application for registration. Under that section, the submitter of data could designate any portions of the submitted material it believed to be "trade secrets or commercial or financial information." § 10(a), 86 Stat. 989. Another section prohibited EPA from publicly disclosing information which, in its judgment, contained or related to "trade secrets or commercial or financial information." § 10(b). In the event that EPA disagreed with a submitter's designation of certain information as "trade secrets or commercial or financial information" and proposed to disclose that information, the original submitter could institute a declaratory judgment action in federal district court. § 10(c).

The 1972 amendments also included a provision that allowed EPA to consider data submitted by one applicant for registration in support of another application pertaining to a similar chemical, provided the subsequent applicant offered to compensate the applicant who originally submitted the data. § 3(c)(1)(D). In effect, the provision instituted a mandatory data-licensing scheme. The amount of compensation was to be negotiated by the parties, or, in the event negotiations failed, was to be determined by EPA, subject to judicial review upon the instigation of the original data submitter. The scope of the 1972 data-consideration provision, however,

was limited, for any data designated as "trade secrets or commercial or financial information" exempt from disclosure under § 10 could not be considered at all by EPA to support another registration application unless the original submitter consented. *Ibid.*

The 1972 amendments did not specify standards for the designation of submitted data as "trade secrets or commercial or financial information." In addition, Congress failed to designate an effective date for the data-consideration and disclosure schemes. In 1975, Congress amended § 3(c)(1)(D) to provide that the data-consideration and data-disclosure provisions applied only to data submitted on or after January 1, 1970, 89 Stat. 755, but left the definitional question unanswered.

Much litigation centered around the definition of "trade secrets or commercial or financial information" for the purposes of the data-consideration and data-disclosure provisions of FIFRA. EPA maintained that the exemption from consideration or disclosure applied only to a narrow range of information, principally statements of formulae and manufacturing processes. In a series of lawsuits, however, data-submitting firms challenged EPA's interpretation and obtained several decisions to the effect that the term "trade secrets" applied to any data, including health, safety, and environmental data, that met the definition of trade secrets set forth in Restatement of Torts § 757 (1939). See, *e. g.*, *Mobay Chemical Corp. v. Costle*, 447 F. Supp. 811 (WD Mo. 1978); *Chevron Chemical Co. v. Costle*, 443 F. Supp. 1024 (ND Cal. 1978). These decisions prevented EPA from disclosing much of the data on which it based its decision to register pesticides and from considering the data submitted by one applicant in reviewing the application of a later applicant. See S. Rep. No. 95-334, at 7; H. R. Rep. No. 95-663, p. 18 (1977).

Because of these and other problems with the regulatory scheme embodied in FIFRA as amended in 1972, see S. Rep.

No. 95-334, at 2-5; H. R. Rep. No. 95-663, at 15-21; see generally EPA Office of Pesticide Programs, *FIFRA: Impact on the Industry* (1977), reprinted in S. Rep. No. 95-334, at 34-68, Congress enacted other amendments to FIFRA in 1978. These were effected by the Federal Pesticide Act of 1978, 92 Stat. 819. The new amendments included a series of revisions in the data-consideration and data-disclosure provisions of FIFRA's §§ 3 and 10, 7 U. S. C. §§ 136a and 136h.

Under FIFRA, as amended in 1978, applicants are granted a 10-year period of exclusive use for data on new active ingredients contained in pesticides registered after September 30, 1978. § 3(c)(1)(D)(i). All other data submitted after December 31, 1969, may be cited and considered in support of another application for 15 years after the original submission if the applicant offers to compensate the original submitter. § 3(c)(1)(D)(ii).⁴ If the parties cannot agree on the amount of

⁴Section 3(c)(1)(D), 92 Stat. 820-822, 7 U. S. C. § 136a(c)(1)(D), reads in relevant part:

"(i) With respect to pesticides containing active ingredients that are initially registered under this Act after [September 30, 1978], data submitted to support the application for the original registration of the pesticide, or an application for an amendment adding any new use to the registration and that pertains solely to such new use, shall not, without the written permission of the original data submitter, be considered by the Administrator to support an application by another person during a period of ten years following the date the Administrator first registers the pesticide . . . ;

"(ii) except as otherwise provided in subparagraph (D)(i) of this paragraph, with respect to data submitted after December 31, 1969, by an applicant or registrant to support an application for registration, experimental use permit, or amendment adding a new use to an existing registration, to support or maintain in effect an existing registration, or for reregistration, the Administrator may, without the permission of the original data submitter, consider any such item of data in support of an application by any other person . . . within the fifteen-year period following the date the data were originally submitted only if the applicant has made an offer to compensate the original data submitter and submitted such offer to the Administrator accompanied by evidence of delivery to the original data submitter of the offer. The terms and amount of compensation may be fixed by agreement between the original data submitter and the applicant,

compensation, either may initiate a binding arbitration proceeding. The results of the arbitration proceeding are not subject to judicial review, absent fraud or misrepresentation. The same statute provides that an original submitter who refuses to participate in negotiations or in the arbitration proceeding forfeits his claim for compensation. Data that do not qualify for either the 10-year period of exclusive use or the 15-year period of compensation may be considered by EPA without limitation. § 3(c)(1)(D)(iii).

Also in 1978, Congress added a new subsection, § 10(d), 7 U. S. C. § 136h(d), that provides for disclosure of all health,

or, failing such agreement, binding arbitration under this subparagraph. If, at the end of ninety days after the date of delivery to the original data submitter of the offer to compensate, the original data submitter and the applicant have neither agreed on the amount and terms of compensation nor on a procedure for reaching an agreement on the amount and terms of compensation, either person may initiate binding arbitration proceedings by requesting the Federal Mediation and Conciliation Service to appoint an arbitrator from the roster of arbitrators maintained by such Service. . . . [T]he findings and determination of the arbitrator shall be final and conclusive, and no official or court of the United States shall have power or jurisdiction to review any such findings and determination, except for fraud, misrepresentation, or other misconduct by one of the parties to the arbitration or the arbitrator where there is a verified complaint with supporting affidavits attesting to specific instances of such fraud, misrepresentation, or other misconduct. . . . If the Administrator determines that an original data submitter has failed to participate in a procedure for reaching an agreement or in an arbitration proceeding as required by this subparagraph, or failed to comply with the terms of an agreement or arbitration decision concerning compensation under this subparagraph, the original data submitter shall forfeit the right to compensation for the use of the data in support of the application. . . . Registration action by the Administrator shall not be delayed pending the fixing of compensation;

“(iii) after expiration of any period of exclusive use and any period for which compensation is required for the use of an item of data under subparagraphs (D)(i) and (D)(ii) of this paragraph, the Administrator may consider such item of data in support of an application by any other applicant without the permission of the original data submitter and without an offer having been received to compensate the original data submitter for the use of such item of data.”

safety, and environmental data to qualified requesters, notwithstanding the prohibition against disclosure of trade secrets contained in § 10(b). The provision, however, does not authorize disclosure of information that would reveal "manufacturing or quality control processes" or certain details about deliberately added inert ingredients unless "the Administrator has first determined that the disclosure is necessary to protect against an unreasonable risk of injury to health or the environment." §§ 10(d)(1)(A) to (C).⁵ EPA may not disclose data to representatives of foreign or multinational pesticide companies unless the original submitter of

⁵ Section 10(d), 92 Stat. 830, reads in relevant part:

"(1) All information concerning the objectives, methodology, results, or significance of any test or experiment performed on or with a registered or previously registered pesticide or its separate ingredients, impurities, or degradation products and any information concerning the effects of such pesticide on any organism or the behavior of such pesticide in the environment, including, but not limited to, data on safety to fish and wildlife, humans, and other mammals, plants, animals, and soil, and studies on persistence, translocation and fate in the environment, and metabolism, shall be available for disclosure to the public: *Provided*, That the use of such data for any registration purpose shall be governed by section 3 of this Act: *Provided further*, That this paragraph does not authorize the disclosure of any information that—

"(A) discloses manufacturing or quality control processes,

"(B) discloses the details of any methods for testing, detecting, or measuring the quantity of any deliberately added inert ingredients of a pesticide, or

"(C) discloses the identity or percentage quantity of any deliberately added inert ingredient of a pesticide,

unless the Administrator has first determined that disclosure is necessary to protect against an unreasonable risk of injury to health or the environment.

"(2) Information concerning production, distribution, sale, or inventories of a pesticide that is otherwise entitled to confidential treatment under subsection (b) of this section may be publicly disclosed in connection with a public proceeding to determine whether a pesticide, or any ingredient of a pesticide, causes unreasonable adverse effects on health or the environment, if the Administrator determines that such disclosure is necessary in the public interest."

the data consents to the disclosure. § 10(g). Another subsection establishes a criminal penalty for wrongful disclosure by a Government employee or contractor of confidential or trade secret data. § 10(f).

II

Appellee Monsanto Company (Monsanto) is an inventor, developer, and producer of various kinds of chemical products, including pesticides. Monsanto, headquartered in St. Louis County, Mo., sells in both domestic and foreign markets. It is one of a relatively small group of companies that invent and develop new active ingredients for pesticides and conduct most of the research and testing with respect to those ingredients.⁶

These active ingredients are sometimes referred to as "manufacturing-use products" because they are not generally sold directly to users of pesticides. Rather, they must first be combined with "inert ingredients"—chemicals that dissolve, dilute, or stabilize the active components. The results of this process are sometimes called "end-use products," and the firms that produce end-use products are called "formulators." See the opinion of the District Court in this case, *Monsanto Co. v. Acting Administrator, United States Environmental Protection Agency*, 564 F. Supp. 552, 554 (ED Mo. 1983). A firm that produces an active ingredient may

⁶ A study by the Office of Pesticide Programs of the EPA showed that in 1977 approximately 400 firms were registered to produce manufacturing-use products. S. Rep. No. 95-334, p. 34 (1977). It was estimated that the 10 largest firms account for 75% of this country's pesticide production. *Id.*, at 60. A correspondingly small number of new pesticides are marketed each year. In 1974, only 10 new pesticides were introduced. See Goring, *The Costs of Commercializing Pesticides*, International Conference of Entomology, Aug. 20, 1976, reprinted in *Hearings on Extension of the Federal Insecticide, Fungicide, and Rodenticide Act before the Subcommittee on Agricultural Research and General Legislation of the Senate Committee on Agriculture, Nutrition, and Forestry*, 95th Cong., 1st Sess., 250, 254 (1977).

use it for incorporation into its own end-use products, may sell it to formulators, or may do both. Monsanto produces both active ingredients and end-use products. *Ibid.*

The District Court found that development of a potential commercial pesticide candidate typically requires the expenditure of \$5 million to \$15 million annually for several years. The development process may take between 14 and 22 years, and it is usually that long before a company can expect any return on its investment. *Id.*, at 555. For every manufacturing-use pesticide the average company finally markets, it will have screened and tested 20,000 others. Monsanto has a significantly better-than-average success rate; it successfully markets 1 out of every 10,000 chemicals tested. *Ibid.*

Monsanto, like any other applicant for registration of a pesticide, must present research and test data supporting its application. The District Court found that Monsanto had incurred costs in excess of \$23.6 million in developing the health, safety, and environmental data submitted by it under FIFRA. *Id.*, at 560. The information submitted with an application usually has value to Monsanto beyond its instrumentality in gaining that particular application. Monsanto uses this information to develop additional end-use products and to expand the uses of its registered products. The information would also be valuable to Monsanto's competitors. For that reason, Monsanto has instituted stringent security measures to ensure the secrecy of the data. *Ibid.*

It is this health, safety, and environmental data that Monsanto sought to protect by bringing this suit. The District Court found that much of these data "contai[n] or relat[e] to trade secrets as defined by the Restatement of Torts and Confidential, commercial information." *Id.*, at 562.

Monsanto brought suit in District Court, seeking injunctive and declaratory relief from the operation of the data-consideration provisions of FIFRA's §3(c)(1)(D), and the data-disclosure provisions of FIFRA's §10 and the related §3(c)(2)(A). Monsanto alleged that all of the challenged pro-

visions effected a "taking" of property without just compensation, in violation of the Fifth Amendment. In addition, Monsanto alleged that the data-consideration provisions violated the Amendment because they effected a taking of property for a private, rather than a public, purpose. Finally, Monsanto alleged that the arbitration scheme provided by § 3(c)(1)(D)(ii) violates the original submitter's due process rights and constitutes an unconstitutional delegation of judicial power.

After a bench trial, the District Court concluded that Monsanto possessed property rights in its submitted data, specifically including the right to exclude others from the enjoyment of such data by preventing their unauthorized use and by prohibiting their disclosure. 564 F. Supp., at 566. The court found that the challenged data-consideration provisions "give Monsanto's competitors a free ride at Monsanto's expense." *Ibid.* The District Court reasoned that § 3(c)(1)(D) appropriated Monsanto's fundamental right to exclude, and that the effect of that appropriation is substantial. The court further found that Monsanto's property was being appropriated for a private purpose and that this interference was much more significant than the public good that the appropriation might serve. 564 F. Supp., at 566-567.

The District Court also found that operation of the disclosure provisions of FIFRA constituted a taking of Monsanto's property. The cost incurred by Monsanto when its property is "permanently committed to the public domain and thus effectively destroyed" was viewed by the District Court as significantly outweighing any benefit to the general public from having the ability to scrutinize the data, for the court seemed to believe that the general public could derive all the assurance it needed about the safety and effectiveness of a pesticide from EPA's decision to register the product and to approve the label. *Id.*, at 567, and n. 4.

After finding that the data-consideration provisions operated to effect a taking of property, the District Court found

that the compulsory binding-arbitration scheme set forth in §3(c)(1)(D)(ii) did not adequately provide compensation for the property taken. The court found the arbitration provision to be arbitrary and vague, reasoning that the statute does not give arbitrators guidance as to the factors that enter into the concept of just compensation, and that judicial review is foreclosed except in cases of fraud. 564 F. Supp., at 567. The District Court also found that the arbitration scheme was infirm because it did not meet the requirements of Art. III of the Constitution. *Ibid.* Finally, the court found that a remedy under the Tucker Act was not available for the deprivations of property effected by §§3 and 10. 564 F. Supp., at 567-568.

The District Court therefore declared §§3(c)(1)(D), 3(c)(2)(A), 10(b), and 10(d) of FIFRA, as amended by the Federal Pesticide Act of 1978, to be unconstitutional, and permanently enjoined EPA from implementing or enforcing those sections. See Amended Judgment, App. to Juris. Statement 41a.⁷

We noted probable jurisdiction. 464 U. S. 890 (1983).

III

In deciding this case, we are faced with four questions: (1) Does Monsanto have a property interest protected by the Fifth Amendment's Taking Clause in the health, safety, and environmental data it has submitted to EPA? (2) If so, does EPA's use of the data to evaluate the applications of others or EPA's disclosure of the data to qualified members of the public effect a taking of that property interest? (3) If there

⁷The District Court's judgment in this case is in conflict with the holdings of other federal courts. See, e. g., *Petrolite Corp. v. United States Environmental Protection Agency*, 519 F. Supp. 966 (DC 1981); *Mobay Chemical Corp. v. Costle*, 517 F. Supp. 252, and 517 F. Supp. 254 (WD Pa. 1981), *aff'd sub nom. Mobay Chemical Co. v. Gorsuch*, 682 F. 2d 419 (CA3), cert. denied, 459 U. S. 988 (1982); *Chevron Chemical Co. v. Costle*, 499 F. Supp. 732 (Del. 1980), *aff'd*, 641 F. 2d 104 (CA3), cert. denied, 452 U. S. 961 (1981).

is a taking, is it a taking for a public use? (4) If there is a taking for a public use, does the statute adequately provide for just compensation?

For purposes of this case, EPA has stipulated that "Monsanto has certain property rights in its information, research and test data that it has submitted under FIFRA to EPA and its predecessor agencies which may be protected by the Fifth Amendment to the Constitution of the United States." App. 36. Since the exact import of that stipulation is not clear, we address the question whether the data at issue here can be considered property for the purposes of the Taking Clause of the Fifth Amendment.

This Court never has squarely addressed the applicability of the protections of the Taking Clause of the Fifth Amendment to commercial data of the kind involved in this case. In answering the question now, we are mindful of the basic axiom that "[p]roperty interests . . . are not created by the Constitution. Rather, they are created and their dimensions are defined by existing rules or understandings that stem from an independent source such as state law.'" *Webb's Fabulous Pharmacies, Inc. v. Beckwith*, 449 U. S. 155, 161 (1980), quoting *Board of Regents v. Roth*, 408 U. S. 564, 577 (1972). Monsanto asserts that the health, safety, and environmental data it has submitted to EPA are property under Missouri law, which recognizes trade secrets, as defined in § 757, Comment *b*, of the Restatement of Torts, as property. See *Reddi-Wip, Inc. v. Lemay Valve Co.*, 354 S. W. 2d 913, 917 (Mo. App. 1962); *Harrington v. National Outdoor Advertising Co.*, 355 Mo. 524, 532, 196 S. W. 2d 786, 791 (1946); *Luckett v. Orange Julep Co.*, 271 Mo. 289, 302-304, 196 S. W. 740, 743 (1917). The Restatement defines a trade secret as "any formula, pattern, device or compilation of information which is used in one's business, and which gives him an opportunity to obtain an advantage over competitors who do not know or use it." § 757, Comment *b*. And the parties have stipulated that much of the information, research, and test data that Monsanto has submitted under

FIFRA to EPA "contains or relates to trade secrets as defined by the Restatement of Torts." App. 36.

Because of the intangible nature of a trade secret, the extent of the property right therein is defined by the extent to which the owner of the secret protects his interest from disclosure to others. See *Harrington, supra*; *Reddi-Wip, supra*; Restatement of Torts, *supra*; see also *Kewanee Oil Co. v. Bicron Corp.*, 416 U. S. 470, 474-476 (1974). Information that is public knowledge or that is generally known in an industry cannot be a trade secret. Restatement of Torts, *supra*. If an individual discloses his trade secret to others who are under no obligation to protect the confidentiality of the information, or otherwise publicly discloses the secret, his property right is extinguished. See *Harrington, supra*; 1 R. Milgrim, Trade Secrets § 1.01[2] (1983).

Trade secrets have many of the characteristics of more tangible forms of property. A trade secret is assignable. See, e. g., *Dr. Miles Medical Co. v. John D. Park & Sons Co.*, 220 U. S. 373, 401-402 (1911); *Painton & Co. v. Bourns, Inc.*, 442 F. 2d 216, 225 (CA2 1971). A trade secret can form the res of a trust, Restatement (Second) of Trusts § 82, Comment *e* (1959); 1 A. Scott, Law of Trusts § 82.5, p. 703 (3d ed. 1967), and it passes to a trustee in bankruptcy. See *In re Uniservices, Inc.*, 517 F. 2d 492, 496-497 (CA7 1975).

Even the manner in which Congress referred to trade secrets in the legislative history of FIFRA supports the general perception of their property-like nature. In discussing the 1978 amendments to FIFRA, Congress recognized that data developers like Monsanto have a "proprietary interest" in their data. S. Rep. No. 95-334, at 31. Further, Congress reasoned that submitters of data are "entitled" to "compensation" because they "have legal ownership of the data." H. R. Conf. Rep. No. 95-1560, p. 29 (1978).⁸ This general

⁸Of course, it was not necessary that Congress recognize the data at issue here as property in order for the data to be protected by the Taking

perception of trade secrets as property is consonant with a notion of "property" that extends beyond land and tangible goods and includes the products of an individual's "labour and invention." 2 W. Blackstone, Commentaries *405; see generally J. Locke, *The Second Treatise of Civil Government*, ch. 5 (J. Gough ed. 1947).

Although this Court never has squarely addressed the question whether a person can have a property interest in a trade secret, which is admittedly intangible, the Court has found other kinds of intangible interests to be property for purposes of the Fifth Amendment's Taking Clause. See, e. g., *Armstrong v. United States*, 364 U. S. 40, 44, 46 (1960) (materialman's lien provided for under Maine law protected by Taking Clause); *Louisville Joint Stock Land Bank v. Radford*, 295 U. S. 555, 596-602 (1935) (real estate lien protected); *Lynch v. United States*, 292 U. S. 571, 579 (1934) (valid contracts are property within meaning of the Taking Clause). That intangible property rights protected by state law are deserving of the protection of the Taking Clause has long been implicit in the thinking of this Court:

"It is conceivable that [the term 'property' in the Taking Clause] was used in its vulgar and untechnical sense of the physical thing with respect to which the citizen exercises rights recognized by law. On the other hand, it may have been employed in a more accurate sense to denote the group of rights inhering in the citizen's relation to the physical thing, as the right to possess, use and dispose of it. In point of fact, the construction given the phrase has been the latter." *United States v. General Motors Corp.*, 323 U. S. 373, 377-378 (1945).

We therefore hold that to the extent that Monsanto has an interest in its health, safety, and environmental data cognizable as a trade-secret property right under Missouri law,

Clause. We mention the legislative history merely as one more illustration of the general perception of the property-like nature of trade secrets.

that property right is protected by the Taking Clause of the Fifth Amendment.⁹

IV

Having determined that Monsanto has a property interest in the data it has submitted to EPA, we confront the difficult question whether a "taking" will occur when EPA discloses those data or considers the data in evaluating another application for registration. The question of what constitutes a "taking" is one with which this Court has wrestled on many occasions. It has never been the rule that only governmental acquisition or destruction of the property of an individual constitutes a taking, for

"courts have held that the deprivation of the former owner rather than the accretion of a right or interest

⁹ Contrary to EPA's contention, Brief for Appellant 29, Justice Holmes' dictum in *E. I. du Pont de Nemours Powder Co. v. Masland*, 244 U. S. 100 (1917), does not undermine our holding that a trade secret is property protected by the Fifth Amendment Taking Clause. *Masland* arose from a dispute about the disclosure of trade secrets during preparation for a trial. In his opinion for the Court, the Justice stated:

"The case has been considered as presenting a conflict between a right of property and a right to make a full defence, and it is said that if the disclosure is forbidden to one who denies that there is a trade secret, the merits of his defence are adjudged against him before he has a chance to be heard or to prove his case. We approach the question somewhat differently. The word property as applied to trade-marks and trade secrets is an unanalyzed expression of certain secondary consequences of the primary fact that the law makes some rudimentary requirements of good faith. Whether the plaintiffs have any valuable secret or not the defendant knows the facts, whatever they are, through a special confidence that he accepted. The property may be denied but the confidence cannot be. Therefore the starting point for the present matter is not property or due process of law, but that the defendant stood in confidential relations with the plaintiffs." *Id.*, at 102.

Justice Holmes did not deny the existence of a property interest; he simply deemed determination of the existence of that interest irrelevant to resolution of the case. In a case decided prior to *Masland*, the Court had spoken of trade secrets in property terms. *Board of Trade v. Christie Grain & Stock Co.*, 198 U. S. 236, 250-253 (1905) (Holmes, J., for the Court). See generally 1 R. Milgrim, *Trade Secrets* § 1.01[1] (1983).

to the sovereign constitutes the taking. Governmental action short of acquisition of title or occupancy has been held, if its effects are so complete as to deprive the owner of all or most of his interest in the subject matter, to amount to a taking." *United States v. General Motors Corp.*, 323 U. S., at 378.

See also *PruneYard Shopping Center v. Robins*, 447 U. S. 74 (1980); *Pennsylvania Coal Co. v. Mahon*, 260 U. S. 393, 415 (1922).

As has been admitted on numerous occasions, "this Court has generally 'been unable to develop any "set formula" for determining when "justice and fairness" require that economic injuries caused by public action'" must be deemed a compensable taking. *Kaiser Aetna v. United States*, 444 U. S. 164, 175 (1979), quoting *Penn Central Transportation Co. v. New York City*, 438 U. S. 104, 124 (1978); accord, *Hodel v. Virginia Surface Mining & Reclamation Assn., Inc.*, 452 U. S. 264, 295 (1981). The inquiry into whether a taking has occurred is essentially an "ad hoc, factual" inquiry. *Kaiser Aetna*, 444 U. S., at 175. The Court, however, has identified several factors that should be taken into account when determining whether a governmental action has gone beyond "regulation" and effects a "taking." Among those factors are: "the character of the governmental action, its economic impact, and its interference with reasonable investment-backed expectations." *PruneYard Shopping Center v. Robins*, 447 U. S., at 83; see *Kaiser Aetna*, 444 U. S., at 175; *Penn Central*, 438 U. S., at 124. It is to the last of these three factors that we now direct our attention, for we find that the force of this factor is so overwhelming, at least with respect to certain of the data submitted by Monsanto to EPA, that it disposes of the taking question regarding those data.

A

A "reasonable investment-backed expectation" must be more than a "unilateral expectation or an abstract need."

Webb's Fabulous Pharmacies, 449 U. S., at 161. We find that with respect to any health, safety, and environmental data that Monsanto submitted to EPA after the effective date of the 1978 FIFRA amendments—that is, on or after October 1, 1978¹⁰—Monsanto could not have had a reasonable, investment-backed expectation that EPA would keep the data confidential beyond the limits prescribed in the amended statute itself. Monsanto was on notice of the manner in which EPA was authorized to use and disclose any data turned over to it by an applicant for registration.

Thus, with respect to any data submitted to EPA on or after October 1, 1978, Monsanto knew that, for a period of 10 years from the date of submission, EPA would not consider those data in evaluating the application of another without Monsanto's permission. § 3(c)(1)(D)(i). It was also aware, however, that once the 10-year period had expired, EPA could use the data without Monsanto's permission. §§ 3(c)(1)(D)(ii) and (iii). Monsanto was further aware that it was entitled to an offer of compensation from the subsequent applicant only until the end of the 15th year from the date of submission. § 3(c)(1)(D)(iii). In addition, Monsanto was aware that information relating to formulae of products could be revealed by EPA to "any Federal agency consulted and [could] be revealed at a public hearing or in findings of fact" issued by EPA "when necessary to carry out" EPA's duties under FIFRA. § 10(b). The statute also gave Monsanto notice that much of the health, safety, and efficacy data provided by it could be disclosed to the general public at any time. § 10(d). If, despite the data-consideration and data-disclosure provisions in the statute, Monsanto chose to submit the requisite data in order to receive a registration, it can hardly argue that its reasonable investment-

¹⁰The Federal Pesticide Act of 1978 was approved on September 30, 1978. 92 Stat. 842. The new data-consideration and data-disclosure provisions applied with full force to all data submitted after that date.

backed expectations are disturbed when EPA acts to use or disclose the data in a manner that was authorized by law at the time of the submission.

Monsanto argues that the statute's requirement that a submitter give up its property interest in the data constitutes placing an unconstitutional condition on the right to a valuable Government benefit. See Brief for Appellee 29. But Monsanto has not challenged the ability of the Federal Government to regulate the marketing and use of pesticides. Nor could Monsanto successfully make such a challenge, for such restrictions are the burdens we all must bear in exchange for "the advantage of living and doing business in a civilized community." *Andrus v. Allard*, 444 U. S. 51, 67 (1979), quoting *Pennsylvania Coal Co. v. Mahon*, 260 U. S., at 422 (Brandeis, J., dissenting); see *Day-Brite Lighting, Inc. v. Missouri*, 342 U. S. 421, 424 (1952). This is particularly true in an area, such as pesticide sale and use, that has long been the source of public concern and the subject of government regulation. That Monsanto is willing to bear this burden in exchange for the ability to market pesticides in this country is evidenced by the fact that it has continued to expand its research and development and to submit data to EPA despite the enactment of the 1978 amendments to FIFRA.¹¹ 564 F. Supp., at 561.

Thus, as long as Monsanto is aware of the conditions under which the data are submitted, and the conditions are rationally related to a legitimate Government interest, a voluntary submission of data by an applicant in exchange for the economic advantages of a registration can hardly be called a taking. See *Corn Products Refining Co. v. Eddy*, 249 U. S.

¹¹ Because the market for Monsanto's pesticide products is an international one, Monsanto could decide to forgo registration in the United States and sell a pesticide only in foreign markets. Presumably, it will do so in those situations where it deems the data to be protected from disclosure more valuable than the right to sell in the United States.

427, 431-432 (1919) ("The right of a manufacturer to maintain secrecy as to his compounds and processes must be held subject to the right of the State, in the exercise of its police power and in promotion of fair dealing, to require that the nature of the product be fairly set forth"); see also *Westinghouse Electric Corp. v. United States Nuclear Regulatory Comm'n*, 555 F. 2d 82, 95 (CA3 1977).

B

Prior to the 1972 amendments, FIFRA was silent with respect to EPA's authorized use and disclosure of data submitted to it in connection with an application for registration. Another statute, the Trade Secrets Act, 18 U. S. C. § 1905, however, arguably is relevant. That Act is a general criminal statute that provides a penalty for any employee of the United States Government who discloses, in a manner not authorized by law, any trade-secret information that is revealed to him during the course of his official duties. This Court has determined that § 1905 is more than an "antileak" statute aimed at deterring Government employees from profiting by information they receive in their official capacities. See *Chrysler Corp. v. Brown*, 441 U. S. 281, 298-301 (1979). Rather, § 1905 also applies to formal agency action, *i. e.*, action approved by the agency or department head. *Ibid.*

It is true that, prior to the 1972 amendments, neither FIFRA nor any other provision of law gave EPA authority to disclose data obtained from Monsanto. But the Trade Secrets Act is not a guarantee of confidentiality to submitters of data, and, absent an express promise, Monsanto had no reasonable, investment-backed expectation that its information would remain inviolate in the hands of EPA. In an industry that long has been the focus of great public concern and significant government regulation, the possibility was substantial that the Federal Government, which had thus far taken no position on disclosure of health, safety, and environmental data concerning pesticides, upon focusing on the issue, would

find disclosure to be in the public interest. Thus, with respect to data submitted to EPA in connection with an application for registration prior to October 22, 1972,¹² the Trade Secrets Act provided no basis for a reasonable investment-backed expectation that data submitted to EPA would remain confidential.

A fortiori, the Trade Secrets Act cannot be construed as any sort of assurance against internal agency use of submitted data during consideration of the application of a subsequent applicant for registration.¹³ Indeed, there is some evidence that the practice of using data submitted by one company during consideration of the application of a subsequent applicant was widespread and well known.¹⁴ Thus,

¹² The 1972 amendments to FIFRA became effective at the close of the business day on October 21, 1972. 86 Stat. 998.

¹³ The Trade Secrets Act prohibits a Government employee from "publish[ing], divulg[ing], disclos[ing] or mak[ing] known" confidential information received in his official capacity. 18 U. S. C. § 1905. In considering the data of one applicant in connection with the application of another, EPA does not violate any of these prohibitions.

¹⁴ The District Court found: "During the period that USDA administered FIFRA, it was also its *policy* that the data developed and submitted by companies such as [Monsanto] could not be used to support the registration of another's product without the permission of the data submitter." *Monsanto Co. v. Acting Administrator, United States Environmental Protection Agency*, 564 F. Supp. 552, 564 (ED Mo. 1983) (emphasis in original). The District Court apparently based this finding on the testimony of two former Directors of the Pesticide Regulation Division, who testified that they knew of no instance in which data submitted by one applicant were subsequently considered in evaluating another application. *Ibid.*

This finding is in marked conflict with the statement of the National Agricultural Chemicals Association, presented before a Senate Subcommittee in 1972, which advocated that the 1972 amendments to FIFRA should contain an exclusive-use provision:

"Under the present law registration information submitted to the Administrator has not routinely been made available for public inspection. Such information has, however, as a matter of practice but without statutory authority, been considered by the Administrator to support the registration of the same or a similar product by another registrant." Federal

with respect to any data that Monsanto submitted to EPA prior to the effective date of the 1972 amendments to FIFRA, we hold that Monsanto could not have had a "reasonable investment-backed expectation" that EPA would maintain those data in strictest confidence and would use them exclusively for the purpose of considering the Monsanto application in connection with which the data were submitted.

C

The situation may be different, however, with respect to data submitted by Monsanto to EPA during the period from October 22, 1972, through September 30, 1978. Under the statutory scheme then in effect, a submitter was given an opportunity to protect its trade secrets from disclosure by designating them as trade secrets at the time of submission. When Monsanto provided data to EPA during this period, it was with the understanding, embodied in FIFRA, that EPA was free to use any of the submitted data that were not trade secrets in considering the application of another, provided

Environmental Pesticide Control Act: Hearings before the Subcommittee on Agricultural Research and General Legislation of the Senate Committee on Agriculture and Forestry, 92d Cong., 2d Sess., pt. 2, p. 245 (1972).

In addition, EPA points to the Department of Agriculture's Interpretation with Respect to Warning, Caution and Antidote Statements Required to Appear on Labels of Economic Poisons, 27 Fed. Reg. 2267 (1962), which presents a list of pesticides that would require no additional toxicological data for registration. The clear implication from the Interpretation is that the Department determined that the data already submitted with respect to those chemicals would be sufficient for purposes of evaluating any future applications for registration of those chemicals.

Although the evidence against the District Court's finding seems overwhelming, we need not determine that the finding was clearly erroneous in order to find that a submitter had no reasonable expectation that the Department or EPA would not use the data it had submitted when evaluating the application of another. The District Court did not find that the policy of the Department was publicly known at the time or that there was any explicit guarantee of exclusive use.

that EPA required the subsequent applicant to pay "reasonable compensation" to the original submitter. § 3(c)(1)(D), 86 Stat. 979. But the statute also gave Monsanto explicit assurance that EPA was prohibited from disclosing publicly, or considering in connection with the application of another, any data submitted by an applicant if both the applicant and EPA determined the data to constitute trade secrets. § 10, 86 Stat. 989. Thus, with respect to trade secrets submitted under the statutory regime in force between the time of the adoption of the 1972 amendments and the adoption of the 1978 amendments, the Federal Government had explicitly guaranteed to Monsanto and other registration applicants an extensive measure of confidentiality and exclusive use. This explicit governmental guarantee formed the basis of a reasonable investment-backed expectation. If EPA, consistent with the authority granted it by the 1978 FIFRA amendments, were now to disclose trade-secret data or consider those data in evaluating the application of a subsequent applicant in a manner not authorized by the version of FIFRA in effect between 1972 and 1978, EPA's actions would frustrate Monsanto's reasonable investment-backed expectation with respect to its control over the use and dissemination of the data it had submitted.

The right to exclude others is generally "one of the most essential sticks in the bundle of rights that are commonly characterized as property." *Kaiser Aetna*, 444 U. S., at 176. With respect to a trade secret, the right to exclude others is central to the very definition of the property interest. Once the data that constitute a trade secret are disclosed to others, or others are allowed to use those data, the holder of the trade secret has lost his property interest in the data.¹⁵

¹⁵ We emphasize that the value of a trade secret lies in the competitive advantage it gives its owner over competitors. Thus, it is the fact that operation of the data-consideration or data-disclosure provisions will allow a competitor to register more easily its product or to use the disclosed data

That the data retain usefulness for Monsanto even after they are disclosed—for example, as bases from which to develop new products or refine old products, as marketing and advertising tools, or as information necessary to obtain registration in foreign countries—is irrelevant to the determination of the economic impact of the EPA action on Monsanto's property right. The economic value of that property right lies in the competitive advantage over others that Monsanto enjoys by virtue of its exclusive access to the data, and disclosure or use by others of the data would destroy that competitive edge.

EPA encourages us to view the situation not as a taking of Monsanto's property interest in the trade secrets, but as a "pre-emption" of whatever property rights Monsanto may have had in those trade secrets. Brief for Appellant 27-28. The agency argues that the proper functioning of the comprehensive FIFRA registration scheme depends upon its uniform application to all data. Thus, it is said, the Supremacy Clause dictates that the scheme not vary depending on the property law of the State in which the submitter is located. *Id.*, at 28. This argument proves too much. If Congress can "pre-empt" state property law in the manner advocated by EPA, then the Taking Clause has lost all vitality. This Court has stated that a sovereign, "by *ipse dixit*, may not transform private property into public property without compensation This is the very kind of thing that the Taking Clause of the Fifth Amendment was meant to prevent." *Webb's Fabulous Pharmacies, Inc. v. Beckwith*, 449 U. S., at 164.

to improve its own technology that may constitute a taking. If, however, a public disclosure of data reveals, for example, the harmful side effects of the submitter's product and causes the submitter to suffer a decline in the potential profits from sales of the product, that decline in profits stems from a decrease in the value of the pesticide to consumers, rather than from the destruction of an edge the submitter had over its competitors, and cannot constitute the taking of a trade secret.

If a negotiation or arbitration pursuant to § 3(c)(1)(D)(ii) were to yield just compensation to Monsanto for the loss in the market value of its trade-secret data suffered because of EPA's consideration of the data in connection with another application, then Monsanto would have no claim against the Government for a taking. Since no arbitration has yet occurred with respect to any use of Monsanto's data, any finding that there has been an actual taking would be premature. See *infra*, at 1019-1020.¹⁶

In summary, we hold that EPA's consideration or disclosure of data submitted by Monsanto to the agency prior to October 22, 1972, or after September 30, 1978, does not effect a taking. We further hold that EPA consideration or disclosure of health, safety, and environmental data will constitute a taking if Monsanto submitted the data to EPA between October 22, 1972, and September 30, 1978;¹⁷ the data constituted trade secrets under Missouri law; Monsanto had designated the data as trade secrets at the time of its submission; the use or disclosure conflicts with the explicit assurance of confidentiality or exclusive use contained in the statute during that period; and the operation of the arbitration provision

¹⁶ Because the record contains no findings with respect to the value of the trade-secret data at issue and because no arbitration proceeding has yet been held to determine the amount of recovery to be paid by a subsequent applicant to Monsanto, we cannot preclude the possibility that the arbitration award will be sufficient to provide Monsanto with just compensation, thus nullifying any claim against the Government for a taking when EPA uses Monsanto's data in considering another application. The statutory arbitration scheme, of course, provides for compensation only in cases where the data are considered in connection with a subsequent application, not in cases of disclosure of the data.

¹⁷ While the 1975 amendments to FIFRA purported to carry backward the protections against data consideration and data disclosure to submissions of data made on or after January 1, 1970, 89 Stat. 751, the relevant consideration for our purposes is the nature of the expectations of the submitter at the time the data were submitted. We therefore do not extend our ruling as to a possible taking to data submitted prior to October 22, 1972.

does not adequately compensate for the loss in market value of the data that Monsanto suffers because of EPA's use or disclosure of the trade secrets.

V

We must next consider whether any taking of private property that may occur by operation of the data-disclosure and data-consideration provisions of FIFRA is a taking for a "public use." We have recently stated that the scope of the "public use" requirement of the Taking Clause is "coterminous with the scope of a sovereign's police powers." *Hawaii Housing Authority v. Midkiff*, ante, at 240; see *Berman v. Parker*, 348 U. S. 26, 33 (1954). The role of the courts in second-guessing the legislature's judgment of what constitutes a public use is extremely narrow. *Midkiff*, supra; *Berman*, supra, at 32.

The District Court found that EPA's action pursuant to the data-consideration provisions of FIFRA would effect a taking for a private use, rather than a public use, because such action benefits subsequent applicants by forcing original submitters to share their data with later applicants. 564 F. Supp., at 566. It is true that the most direct beneficiaries of EPA actions under the data-consideration provisions of FIFRA will be the later applicants who will support their applications by citation to data submitted by Monsanto or some other original submitter. Because of the data-consideration provisions, later applicants will not have to replicate the sometimes intensive and complex research necessary to produce the requisite data. This Court, however, has rejected the notion that a use is a public use only if the property taken is put to use for the general public. *Midkiff*, ante, at 243-244; *Rindge Co. v. Los Angeles*, 262 U. S. 700, 707 (1923); *Block v. Hirsh*, 256 U. S. 135, 155 (1921).

So long as the taking has a conceivable public character, "the means by which it will be attained is . . . for Congress to determine." *Berman*, 348 U. S., at 33. Here, the public purpose behind the data-consideration provisions is clear from

the legislative history. Congress believed that the provisions would eliminate costly duplication of research and streamline the registration process, making new end-use products available to consumers more quickly. Allowing applicants for registration, upon payment of compensation, to use data already accumulated by others, rather than forcing them to go through the time-consuming process of repeating the research, would eliminate a significant barrier to entry into the pesticide market, thereby allowing greater competition among producers of end-use products. S. Rep. No. 95-334, at 30-31, 40-41; 124 Cong. Rec. 29756-29757 (1978) (remarks of Sen. Leahy). Such a procompetitive purpose is well within the police power of Congress. See *Midkiff*, ante, at 241-242.¹⁸

Because the data-disclosure provisions of FIFRA provide for disclosure to the general public, the District Court did not find that those provisions constituted a taking for a private use. Instead, the court found that the data-disclosure provisions served no use. It reasoned that because EPA, before registration, must determine that a product is safe and effective, and because the label on a pesticide, by statute, must set forth the nature, contents, and purpose of the pesticide, the label provided the public with all the assurance it needed that the product is safe and effective. 564 F. Supp., at 567, and n. 4. It is enough for us to state that the optimum amount of disclosure to the public is for Congress, not the courts, to decide, and that the statute embodies Congress'

¹⁸ Monsanto argues that EPA and, by implication, Congress misapprehended the true "barriers to entry" in the pesticide industry and that the challenged provisions of the law create, rather than reduce, barriers to entry. Brief for Appellee 35, n. 48. Such economic arguments are better directed to Congress. The proper inquiry before this Court is not whether the provisions in fact will accomplish their stated objectives. Our review is limited to determining that the purpose is legitimate and that Congress rationally could have believed that the provisions would promote that objective. *Midkiff*, ante, at 242-243; *Western & Southern Life Ins. Co. v. State Bd. of Equalization*, 451 U. S. 648, 671-672 (1981).

judgment on that question. See 123 Cong. Rec., at 25706 (remarks of Sen. Leahy). We further observe, however, that public disclosure can provide an effective check on the decisionmaking processes of EPA and allows members of the public to determine the likelihood of individualized risks peculiar to their use of the product. See H. R. Rep. No. 95-343, p. 8 (1977) (remarks of Douglas M. Costle); S. Rep. No. 95-334, at 13.

We therefore hold that any taking of private property that may occur in connection with EPA's use or disclosure of data submitted to it by Monsanto between October 22, 1972, and September 30, 1978, is a taking for a public use.

VI

Equitable relief is not available to enjoin an alleged taking of private property for a public use, duly authorized by law,¹⁹ when a suit for compensation can be brought against the sovereign subsequent to the taking. *Larson v. Domestic & Foreign Commerce Corp.*, 337 U. S. 682, 697, n. 18 (1949). The Fifth Amendment does not require that compensation precede the taking. *Hurley v. Kincaid*, 285 U. S. 95, 104 (1932). Generally, an individual claiming that the United States has taken his property can seek just compensation under the Tucker Act, 28 U. S. C. § 1491.²⁰ *United States v. Causby*, 328 U. S. 256, 267 (1946) ("If there is a taking, the claim is 'founded upon the Constitution' and within the juris-

¹⁹ Any taking of private property that would occur as a result of EPA disclosure or consideration of data submitted by Monsanto between October 22, 1972, and September 30, 1978, is, of course, duly authorized by FIFRA as amended in 1978.

²⁰ The Tucker Act, 28 U. S. C. § 1491, reads, in relevant part:

"The United States Claims Court shall have jurisdiction to render judgment upon any claim against the United States founded either upon the Constitution, or any Act of Congress or any regulation of an executive department, or upon any express or implied contract with the United States, or for liquidated or unliquidated damages in cases not sounding in tort."

diction of the Court of Claims to hear and determine"); *Yearsley v. Ross Construction Co.*, 309 U. S. 18, 21 (1940).

In this case, however, the District Court enjoined EPA action under the data-consideration and data-disclosure provisions of FIFRA, finding that a Tucker Act remedy is not available for any taking of property that may occur as a result of the operation of those provisions. We do not agree with the District Court's assessment that no Tucker Act remedy will lie for whatever taking may occur due to EPA activity pursuant to FIFRA.

In determining whether a Tucker Act remedy is available for claims arising out of a taking pursuant to a federal statute, the proper inquiry is not whether the statute "expresses an affirmative showing of congressional intent to permit recourse to a Tucker Act remedy," but "whether Congress has in the [statute] *withdrawn* the Tucker Act grant of jurisdiction to the Court of Claims to hear a suit involving the [statute] 'founded . . . upon the Constitution.'" *Regional Rail Reorganization Act Cases*, 419 U. S. 102, 126 (1974) (emphasis in original).

Nowhere in FIFRA or in its legislative history is there discussion of the interaction between FIFRA and the Tucker Act. Since the Tucker Act grants what is now the Claims Court "jurisdiction to render judgment upon any claim against the United States founded . . . upon the Constitution," we would have to infer a withdrawal of jurisdiction with respect to takings under FIFRA from the structure of the statute or from its legislative history. A withdrawal of jurisdiction would amount to a partial repeal of the Tucker Act. This Court has recognized, however, that "repeals by implication are disfavored." *Regional Rail Reorganization Act Cases*, 419 U. S., at 133. See, e. g., *Amell v. United States*, 384 U. S. 158, 165-166 (1966); *Mercantile National Bank v. Langdeau*, 371 U. S. 555, 565 (1963); *United States v. Borden Co.*, 308 U. S. 188, 198-199 (1939).

Monsanto argues that FIFRA's provision that an original submitter of data who fails to participate in a procedure for reaching an agreement or in an arbitration proceeding, or fails to comply with the terms of an agreement or arbitration decision, "shall forfeit the right to compensation for the use of the data in support of the application," § 3(c)(1)(D)(ii), indicates Congress' intent that there be no Tucker Act remedy. But where two statutes are "capable of co-existence, it is the duty of the courts, absent a clearly expressed congressional intention to the contrary, to regard each as effective.'" *Regional Rail Reorganization Act Cases*, 419 U. S., at 133-134, quoting *Morton v. Mancari*, 417 U. S. 535, 551 (1974). Here, contrary to Monsanto's claim, it is entirely possible for the Tucker Act and FIFRA to co-exist. The better interpretation, therefore, of the FIFRA language on forfeiture, which gives force to both the Tucker Act and the FIFRA provision, is to read FIFRA as implementing an exhaustion requirement as a precondition to a Tucker Act claim. That is, FIFRA does not withdraw the possibility of a Tucker Act remedy, but merely requires that a claimant first seek satisfaction through the statutory procedure. Cf. *Regional Rail Reorganization Act Cases*, 419 U. S., at 154-156 (viewing Tucker Act remedy as covering any shortfall between statutory remedy and just compensation).²¹

With respect to data disclosure to the general public, FIFRA provides for no compensation whatsoever. Thus, Monsanto's argument that Congress intended the compensation scheme provided in FIFRA to be exclusive has no relevance to the data-disclosure provisions of § 10.

Congress in FIFRA did not address the liability of the Government to pay just compensation should a taking occur. Congress' failure specifically to mention or provide for re-

²¹ Exhaustion of the statutory remedy is necessary to determine the extent of the taking that has occurred. To the extent that the operation of the statute provides compensation, no taking has occurred and the original submitter of data has no claim against the Government.

course against the Government may reflect a congressional belief that use of data by EPA in the ways authorized by FIFRA effects no Fifth Amendment taking or it may reflect Congress' assumption that the general grant of jurisdiction under the Tucker Act would provide the necessary remedy for any taking that may occur. In any event, the failure cannot be construed to reflect an unambiguous intention to withdraw the Tucker Act remedy. "[W]hether or not the United States so intended," any taking claim under FIFRA is one "founded . . . upon the Constitution," and is thus remediable under the Tucker Act. *Regional Rail Reorganization Act Cases*, 419 U. S., at 126. Therefore, where the operation of the data-consideration and data-disclosure provisions of FIFRA effect a taking of property belonging to Monsanto, an adequate remedy for the taking exists under the Tucker Act. The District Court erred in enjoining the taking.

VII

Because we hold that the Tucker Act is available as a remedy for any uncompensated taking Monsanto may suffer as a result of the operation of the challenged provisions of FIFRA, we conclude that Monsanto's challenges to the constitutionality of the arbitration and compensation scheme are not ripe for our resolution. Because of the availability of the Tucker Act, Monsanto's ability to obtain just compensation does not depend solely on the validity of the statutory compensation scheme. The operation of the arbitration procedure affects only Monsanto's ability to vindicate its statutory right to obtain compensation from a subsequent applicant whose registration application relies on data originally submitted by Monsanto, not its ability to vindicate its constitutional right to just compensation.

Monsanto did not allege or establish that it had been injured by actual arbitration under the statute. While the District Court acknowledged that Monsanto had received several offers of compensation from applicants for registration, 564 F. Supp., at 561, it did not find that EPA had con-

sidered Monsanto's data in considering another application. Further, Monsanto and any subsequent applicant may negotiate and reach agreement concerning an outstanding offer. If they do not reach agreement, then the controversy must go to arbitration. Only after EPA has considered data submitted by Monsanto in evaluating another application and an arbitrator has made an award will Monsanto's claims with respect to the constitutionality of the arbitration scheme become ripe. See *Duke Power Co. v. Carolina Environmental Study Group, Inc.*, 438 U. S. 59, 81 (1978); *Regional Rail Reorganization Act Cases*, 419 U. S., at 138.

VIII

We find no constitutional infirmity in the challenged provisions of FIFRA. Operation of the provisions may effect a taking with respect to certain health, safety, and environmental data constituting trade secrets under state law and designated by Monsanto as trade secrets upon submission to EPA between October 22, 1972, and September 30, 1978.²² But whatever taking may occur is one for a public use, and a Tucker Act remedy is available to provide Monsanto with just compensation. Once a taking has occurred, the proper forum for Monsanto's claim is the Claims Court. Monsanto's challenges to the constitutionality of the arbitration procedure are not yet ripe for review. The judgment of the District Court is therefore vacated, and the case is remanded for further proceedings consistent with this opinion.

It is so ordered.

JUSTICE WHITE took no part in the consideration or decision of this case.

²² We emphasize that nothing in our opinion prohibits EPA's consideration or disclosure, in a manner authorized by FIFRA, of data submitted to it by Monsanto. Our decision merely holds that, with respect to a certain limited class of data submitted by Monsanto to EPA, EPA actions under the data-disclosure and data-consideration provisions of the statute may give Monsanto a claim for just compensation.

JUSTICE O'CONNOR, concurring in part and dissenting in part.

I join all of the Court's opinion except for Part IV-B and the Court's conclusion, *ante*, at 1013, that "EPA's consideration or disclosure of data submitted by Monsanto to the agency prior to October 22, 1972 . . . does not effect a taking." In my view public disclosure of pre-1972 data would effect a taking. As to consideration of this information within EPA in connection with other license applications not submitted by Monsanto, I believe we should remand to the District Court for further factual findings concerning Monsanto's expectations regarding interagency uses of trade secret information prior to 1972.

It is important to distinguish at the outset public disclosure of trade secrets from use of those secrets entirely within EPA. Internal use may undermine Monsanto's competitive position within the United States, but it leaves Monsanto's position in foreign markets undisturbed. As the Court notes, *ante*, at 1007, n. 11, the likely impact on foreign market position is one that Monsanto would weigh when deciding whether to submit trade secrets to EPA. Thus a submission of trade secrets to EPA that implicitly consented to further use of the information within the agency is not necessarily the same as one that implicitly consented to public disclosure.

It seems quite clear—indeed the Court scarcely disputes—that public disclosure of trade secrets submitted to the Federal Government before 1972 was neither permitted by law, nor customary agency practice before 1972, nor expected by applicants for pesticide registrations. The Court correctly notes that the Trade Secrets Act, 18 U. S. C. § 1905, flatly proscribed such disclosures. The District Court expressly found that until 1970 it was Government "policy that the data developed and submitted by companies such as [Monsanto] be maintained confidentially by the [administrative agency] and was not to be disclosed without the permission of the data submitter." *Monsanto Co. v. Acting Administrator, EPA*, 564 F. Supp. 552, 564 (1983). Finally, the Court, *ante*, at

1009, n. 14, quotes from a 1972 statement by the National Agricultural Chemicals Association that "registration information submitted to the Administrator has not routinely been made available for public inspection." It is hard to imagine how a pre-1972 applicant for a pesticide license would not, under these circumstances, have formed a very firm expectation that its trade secrets submitted in connection with a pesticide registration would not be disclosed to the public.

The Court's analysis of this question appears in a single sentence: an "industry that long has been the focus of great public concern and significant government regulation" can have no reasonable expectation that the Government will not later find public disclosure of trade secrets to be in the public interest. *Ante*, at 1008. I am frankly puzzled to read this statement in the broader context of the Court's otherwise convincing opinion. If the degree of Government regulation determines the reasonableness of an expectation of confidentiality, Monsanto had as little reason to expect confidentiality *after* 1972 as before, since the 1972 amendments were not deregulatory in intent or effect. And the Court entirely fails to explain why the nondisclosure provision of the 1972 Act, § 10, 86 Stat. 989, created any greater expectation of confidentiality than the Trade Secrets Act. Section 10 prohibited EPA from disclosing "trade secrets or commercial or financial information." No penalty for disclosure was prescribed, unless disclosure was with the intent to defraud. The Trade Secrets Act, 18 U. S. C. § 1905, prohibited and still prohibits Government disclosure of trade secrets and other commercial or financial information revealed during the course of official duties, on pain of substantial criminal sanctions. The Court acknowledges that this prohibition has always extended to formal and official agency action. *Chrysler Corp. v. Brown*, 441 U. S. 281, 298-301 (1979). It seems to me that the criminal sanctions in the Trade Secrets Act therefore created at least as strong an expectation of privacy before 1972 as the precatory language of § 10 created after 1972.

The Court's tacit analysis seems to be this: an expectation of confidentiality can be grounded only on a statutory nondisclosure provision situated in close physical proximity, in the pages of the United States Code, to the provisions pursuant to which information is submitted to the Government. For my part, I see no reason why Congress should not be able to give effective protection to all trade secrets submitted to the Federal Government by means of a single, overarching, trade secrets provision. We routinely assume that wrongdoers are put on notice of the entire contents of the Code, though in all likelihood most of them have never owned a copy or opened a single page of it. It seems strange to assume, on the other hand, that a company like Monsanto, well served by lawyers who undoubtedly do read the Code, could build an expectation of privacy in pesticide trade secrets only if the assurance of confidentiality appeared in Title 7 itself.

The question of interagency use of trade secrets before 1972 is more difficult because the Trade Secrets Act most likely does not extend to such uses. The District Court found that prior to October 1972 only two competitors' registrations were granted on the basis of data submitted by Monsanto, and that Monsanto had no knowledge of either of these registrations prior to their being granted. 564 F. Supp., at 564. The District Court also found that before 1970 it was agency policy "that the data developed and submitted by companies such as [Monsanto] could not be used to support the registration of another's product without the permission of the data submitter." *Ibid.* This Court, however, concludes on the basis of two cited fragments of evidence that "the evidence against the District Court's finding seems overwhelming." *Ante*, at 1010, n. 14. The Court nevertheless wisely declines to label the District Court's findings of fact on this matter clearly erroneous. Instead, the Court notes that the "District Court did not find that the policy of the Department [of Agriculture] was publicly known at the time [before 1970] or that there was any explicit guarantee of exclusive use." *Ibid.* This begs exactly the right question, but the

Court firmly declines to answer it. The Court simply states that "there is some evidence that the practice of using data submitted by one company during consideration of the application of a subsequent applicant was widespread and well known." *Ante*, at 1009 (footnote omitted). And then, without more ado, the Court declares that with respect to pre-1972 data Monsanto "could not have had a 'reasonable investment-backed expectation' that EPA would . . . use [the data] exclusively for the purpose of considering the Monsanto application in connection with which the data were submitted." *Ante*, at 1010.

If one thing is quite clear it is that the extent of Monsanto's pre-1972 expectations, whether reasonable and investment-backed or otherwise, is a heavily factual question. It is fairly clear that the District Court found that those expectations existed as a matter of fact and were reasonable as a matter of law. But if the factual findings of the District Court on this precise question were not as explicit as they might have been, the appropriate disposition is to remand to the District Court for further factfinding. That is the course I would follow with respect to interagency use of trade secrets submitted by Monsanto before 1972.