Tying Its Own Hands: APHIS's Inability to Regulate Genetically Modified Crops

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Tying Its Own Hands: APHIS’s Inability to Regulate Genetically Modified Crops

Christopher Heckman

Presently, the federal regulation of genetically modified crops is limited. Federal agencies have struggled to properly interpret and execute the broad and outdated congressional mandates in an era of immense development and rapid innovation of agricultural biotechnology. While these advances offer the potential for many benefits, this Note addresses the inability or unwillingness of federal agencies to interpret the relevant federal statutes in a way that enables the agencies to oversee the progress and expansion of this technology. In addition, this Note addresses the difficulty of challenging the agencies’ inaction through litigation given the lack of explicit direction from Congress. As a result, unless Congress enacts new legislation to address these modern issues, federal agencies will continue to struggle with the uncertainty as to what level of oversight is mandated or permissible under existing law. Despite the lack of clarity from Congress, however, the agencies can still oversee and regulate agricultural biotechnology by recognizing that the existing congressional mandates, while outdated, are broad enough to authorize federal agency oversight in this emerging and flourishing technological sector.

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INTRODUCTION

Federal regulation over genetically modified (GM) crops is an important and complex issue, but it is not receiving a sufficient amount of attention and oversight by federal agencies. Courts have recognized that GM crops can present significant harms to both economic and environmental interests, but those same courts have generally been unable to overturn the regulating agencies’ decisions to unconditionally deregulate the crops. The list of unconditionally deregulated crops continues to grow, and the Ninth Circuit has indicated that the deregulation trend is reversible only through change in agency policies or through new legislation. This pattern of unconditional deregulation is a problem because once the Animal and Plant Health Inspection Service (APHIS) decides to deregulate a modified plant, it no longer has any authority over it, even to monitor it for unexpected impacts.

Overall, the current regulatory framework of GM crops includes a jumble of agencies that execute decades-old statutes in an attempt to safely encourage and facilitate biotechnology development. The plants generally fall under the purview of several federal agencies: the Environmental Protection Agency

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1. In re Genetically Modified Rice Litigation, 666 F. Supp. 2d 1004, 1031 (E.D. Miss. 2009) ("Plaintiffs have evidence showing that the risk of contamination by GM plants to non-GM plants was well known.").
3. Ctr. for Food Safety v. Vilsack (Alfalfa II), 718 F.3d 829, 834 (9th Cir. 2013).
4. The Animal and Plant Health Inspection Service (APHIS) has decided to unconditionally deregulate the following crops that have been modified to be resistant to herbicides: cotton, corn, canola, soybeans, alfalfa, and sugar beets. Determinations of Nonregulated Status, U.S. DEPT AGRIC, http://www.aphis.usda.gov/biotechnology/petitions_table_pending.shtml/not_reg (last visited Apr. 17, 2014).
5. Alfalfa II, 718 F.3d at 834.
(EPA), the Food and Drug Administration (FDA), and APHIS. For the most part, the agencies lack any explicit mandates from Congress to regulate modified crops. Instead, the agencies have been guided by the Coordinated Framework for Regulation of Biotechnology, which was published by President Reagan’s Domestic Policy Council more than a quarter-century ago. In devising the Framework, the Domestic Policy Council and federal agencies proclaimed that emerging developments and widespread use of biotechnology did not require additional regulation by federal agencies. Instead, the Framework sought to promote the crops’ “new and promising possibilities in a wide range of applications [that] can be expected to bring considerable benefits to mankind.” As a result, the Framework established the major policy premise that modern genetic engineering practices need not be regulated any more rigorously than traditional plant genetic manipulation techniques like hybridization.

At the most basic level, the regulatory scheme assigns authority in a seemingly predictable and broad fashion: the FDA is responsible for food safety, the EPA is responsible for microbes and pesticides, and APHIS is responsible for the cultivation process. However, none of those responsibilities specifically include a statutory mandate to regulate agricultural practices or products that involve genetically modified crops. The agencies operate under statutes that are decades old and contain little if any mention of biotechnology.

Advocates for regulation for plant biotechnology have argued in litigation proceedings that federal agencies can and should interpret their broad statutory mandates to allow implementation of regulations that can protect against the potential threats of biotechnology. The FDA, for example, has jurisdiction over “food additives.” From the plain meaning of “food additive,” one might

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11. Id. These benefits are discussed in Part V of this Note.
15. Although the Plant Protection Act was enacted in 2000, it includes essentially the same language as its predecessor statutes. See Mandel, supra note 6, at 2224.
reasonably conclude that genetic material that is added into the plants from which the food is derived could qualify. However, the FDA foreclosed that possibility when it published its own Statement of Policy in 1992 announcing that the agency will presume that food produced using genetically modified plants is “generally recognized as safe.”\textsuperscript{18} And under the Federal Food, Drug, and Cosmetic Act, food items “generally recognized as safe” are not subject to FDA regulation.\textsuperscript{19} As a result, FDA takes the position that it is neither obligated nor able to regulate foods containing biotechnology products. Challenges against this position through litigation have thus far been unsuccessful.\textsuperscript{20}

Cultivation of plants using biotechnology may also trigger review by EPA, which regulates the sale, distribution, and use of pesticides under the Federal Insecticide, Fungicide, and Rodenticide Act.\textsuperscript{21} However, EPA’s authority over genetically engineered plants includes only a very narrow subset of the plants being produced. The language of the controlling statute limits such review to apply only to plants that are modified to produce pesticides.\textsuperscript{22} Thus, EPA’s authority over GM crops is very limited.

Perhaps the most suitable authority to regulate GM plants is the Department of Agriculture’s APHIS. Compared to the FDA and EPA, APHIS has expansive statutory authority to regulate. Under the Plant Protection Act, APHIS has jurisdiction over “plant pests”\textsuperscript{23} and “noxious weeds.”\textsuperscript{24} The definitions for both terms of art are very broad. But like the FDA, APHIS has slowly tied its own hands by interpreting its authority as being quite narrow, at least with regards to the regulation of GM crops.\textsuperscript{25}

APHIS’s failure to regulate is based on an excessively narrow reading of its statutory mandate. Although the agency derives its jurisdictional authority from a statute that does not address the subject matter directly, APHIS could still assert jurisdiction over GM crops. Such a position would be consistent with the broad language of the Plant Protection Act because GM crops could potentially pose dangers similar to those posed by other traditional “plant pests” and “noxious weeds,” which have been long regulated by APHIS. In order to demonstrate its authority over the crops and oversee their development,

Despite the expansive language of the Plant Protection Act, APHIS has rejected any notion that genetically modified crops fit into either the “plant pest” or “noxious weed” definitions, and the number of modified crops under APHIS’s regulation continues to decline. The following section illustrates a recent decision, Center for Food Safety v. Vilsack (also known as Alfalfa II), in which APHIS approved yet another petition from Monsanto to unconditionally deregulate a modified crop. The holding highlights the significant obstacles that await any challenger who opposes APHIS’s decisions to deregulate modified crops.

I. THE ALFALFA II DECISION

APHIS has typically granted petitions to unconditionally deregulate genetically modified crops on the grounds that the Plant Protection Act does not grant sufficient authority to prevent the harms that genetically modified crops threaten to cause.\footnote{Discussed infra Part II.} In 2005, APHIS announced another controversial decision to deregulate a modified crop. This time, it approved Monsanto’s petition to completely deregulate cultivation of Roundup Ready Alfalfa (RRA), which is engineered to be resistant to glyphosate—the active ingredient in Monsanto’s “Roundup” weed killer.\footnote{Alfalfa II, 718 F.3d at 837.} In effect, the decision permitted cultivation of modified alfalfa plants without restriction and enabled farmers to use Roundup to kill surrounding weeds, without the risk of killing the alfalfa.

Several plaintiffs brought suit in the Northern District of California to contest RRA’s deregulation, alleging that APHIS erroneously decided that it lacked statutory authority to regulate RRA. The plaintiffs also alleged that APHIS did not follow proper procedures under the National Environmental Policy Act, Plant Protection Act, Endangered Species Act, and the Administrative Procedure Act.\footnote{Id. at 832.} However, neither the Northern District of California nor the Ninth Circuit Court of Appeals found any of these legal arguments persuasive enough to overturn APHIS’s decision to unconditionally deregulate RRA.\footnote{Id. at 833.}

The Ninth Circuit noted that the seminal issue within each cause of action was jurisdictional: whether APHIS properly determined that RRA is not a “plant pest” under the Plant Protection Act.\footnote{Id. at 839.} Under the Act, APHIS has jurisdiction over the genetically engineered alfalfa only if it constitutes a “plant pest” or “noxious weed” within the meaning of the statute.\footnote{Id. at 834.} As long as APHIS...
lacks jurisdiction, it is no longer obligated to consult with other entities like the Fish and Wildlife Service about threats to endangered species from the crops and it does not have to consider other options involving the plant’s continued regulation.\footnote{33}{Id. at 839.}

Initially, prior to Monsanto’s deregulation petition, APHIS was required to regulate RRA. The Plant Protection Act creates a presumption that a genetically modified plant is a plant pest when the modified plant acquires the modified traits through insertion of the genes using an organism that is itself a plant pest.\footnote{34}{Id. at 835 (citing 7 C.F.R. § 340.1 (2014)).} Monsanto created RRA by transferring a glyphosate-resistant gene to the natural alfalfa plant through a bacterium ("Agrobacterium"), and APHIS regulations classify that bacterium as a plant pest.\footnote{35}{Id.} Thus, because RRA was created using Agrobacterium, RRA was presumptively classified as a “plant pest.”

Monsanto and Forage Genetics responded to the presumptive classification by petitioning APHIS in 2004 to overcome the presumption that RRA was a plant pest. They sought unconditional deregulation of the plant. After considering the harms inherent in RRA’s deregulation, APHIS decided that RRA was no more harmful than conventional alfalfa, and granted Monsanto’s petition in 2005.\footnote{36}{Id. at 35.} Between 2005 and 2011, many of the same plaintiffs that later sued in \textit{Alfalfa II} successfully brought suit against APHIS under the National Environmental Policy Act to compel the agency to prepare an Environmental Impact Statement (EIS) in order to assess the environmental impact of the deregulation and to evaluate potential alternatives to deregulation.\footnote{37}{Monsanto Co. v. Geertson Seed Farms, 130 S. Ct. 2743 (2010).} The plaintiffs were successful in compelling APHIS to draft and consider an EIS. However, although the agency fully examined the risks of deregulation, it still decided to proceed and issued a Record of Decision in 2011 that unconditionally deregulated RRA.\footnote{38}{Alfalfa II, 718 F.3d at 838.}

In response to APHIS’s final Record of Decision, more challengers brought suit to argue that the agency had incorrectly interpreted its statutory mandate to regulate the plant. The Ninth Circuit, however, was unconvinced that APHIS had jurisdiction to regulate RRA. The court instead held that APHIS had properly interpreted the Plant Protection Act and that RRA did not meet the definition of a plant pest under the Act, and thus APHIS did not have jurisdiction to regulate it.\footnote{39}{Id. at 840.}

While acknowledging that RRA could cause numerous harms to surrounding agriculture and the environment including the cross contamination of modified genes with organic or conventional farmers’ crops and increased use of pesticides, the Ninth Circuit held that such risks do not provide sufficient

\footnotesize{\begin{itemize}
\item \footnote{33}{Id. at 839.}
\item \footnote{34}{Id. at 835 (citing 7 C.F.R. § 340.1 (2014)).}
\item \footnote{35}{Id.}
\item \footnote{36}{Id. at 35.}
\item \footnote{37}{Monsanto Co. v. Geertson Seed Farms, 130 S. Ct. 2743 (2010).}
\item \footnote{38}{Alfalfa II, 718 F.3d at 838.}
\item \footnote{39}{Id. at 840.}
\end{itemize}}
justification to classify RRA as a plant pest. According to the Ninth Circuit and APHIS regulations, the Plant Protection Act’s criteria for labeling a plant or animal as a plant pest concerns only whether the organism causes physical injury, disease, or damage to other plants. These kinds of harms, as circumscribed through APHIS regulations, evoke images of damage caused by organisms like snails, insects, and fungi. Neither APHIS nor the Ninth Circuit recognized that such harm was present in the case of genetically modified alfalfa.

II. THE IMPORTANCE OF REGULATION: POTENTIAL INJURIES TO AGRICULTURE AND THE ENVIRONMENT

There are legitimate disputes about the precise extent of harm that GM crops can inflict upon the environment and whether the benefits of GM crops override the risks of such harm. For example, in the first series of litigation regarding Monsanto’s petitions to unconditionally deregulate RRA, Monsanto Co. v. Geertson Seed Farms (Alfalfa I), the Supreme Court was presented with an evidentiary record which indicated that the “parties’ experts disagreed over virtually every factual issue relating to possible environmental harm.” However, despite the legitimate disputes on both sides, the risk of irreparable harm in this case is too great to ignore. APHIS should recognize its authority under the Plant Protection Act to at least partially regulate the crops to ensure that the potential threats to agriculture and the environment are contained.

Courts and federal agencies should approach the development of biotechnology by adopting the precautionary principle, which has been influential in the European Union as an important check against unbridled development and deregulation of GM crops. The principle essentially advises erring on the side of caution when the risks of harm are potentially grave but uncertain. In the agricultural biotechnology context, regulating development in accordance with the precautionary principle is necessary because the consequences of development are so complex and uncertain: adding new genes

40. Id.
42. Id. (citing 7 U.S.C. § 7702(14) (2012)). In order to be classified as a plant pest under the Plant Protection Act, the organism must be able to “directly or indirectly injure, or cause disease, or damage in or to any plants or parts thereof; or any processed, manufactured, or other products of plants.” 7 C.F.R. 340.1 (2014).
45. The Sixth Circuit aptly described the principle using a simple example: “If a particular factor might cause a disease, and the factor is readily avoidable, why not advise the patient to avoid it? Such advice—telling a welder, say, to use a respirator—can do little harm, and might do a lot of good.” Tamraz v. Lincoln Elec. Co., 620 F.3d 665, 673 (6th Cir. 2010).
to an organism could often lead to unpredictable and complicated results to the plant species and to the surrounding environment.\textsuperscript{46}

Furthermore, the precautionary approach is consistent with other environmental statutes in the United States. For example, some courts characterize the Clean Air Act as having a “precautionary nature.”\textsuperscript{47} This kind of interpretation makes intuitive sense: using a precautionary perspective is important because the regulated activities can pose “unprecedented threats to environmental protection and human health.”\textsuperscript{48} Where there is a chance of irreparable environmental and agricultural damage, as will be presented here in the case of RRA, agencies and courts would be wise to use a precautionary approach before acting in a way that renders the regulatory bodies powerless to prevent harm.

\textbf{A. Transgenic Contamination of Organic Crops}

One of the most prevalent and commonly alleged harms from GM crops is the transferal of newly introduced genetic material into organisms or environments beyond those intended to be affected, which is commonly referred to as transgenic contamination.\textsuperscript{49} Even APHIS’s Final EIS report, which represents the agency’s understanding of the harms that could arise if it decided to deregulate RRA, noted that transgenic contamination was a significant risk. In its section on “Unavoidable Impacts,” APHIS noted that without regulation, “unintentional gene flow from [GM] alfalfa to non-[GM] alfalfa and unintentional mixing of [GM] alfalfa seeds . . . would likely result.”\textsuperscript{50}

Agricultural experts acknowledge that GM seeds can contaminate organic or conventional crops by numerous means: wind, flooding, improper cleaning of farming machinery, spillage during transport, and other human errors.\textsuperscript{51} This problem continues to intensify each year, for as “the number and diversity of field tests [of plant biotechnology] increase[s], the likelihood of cross-pollination due to pollen drift from field tests to commercial fields . . . also

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{46} Id.
\item \textsuperscript{47} Lead Indus. Ass’n v. EPA, 647 F.2d 1130, 1152 (D.C. Cir. 1980) (emphasizing the “precautionary nature of the act, i.e., to assure that regulatory action can effectively prevent harm before it occurs; to emphasize the predominant value of protection of public health”).
\item \textsuperscript{49} The Ninth Circuit addressed these alleged harms by labeling them “economic consequences” that are not covered by the Plant Protection Act. Alfalfa II, 718 F.3d at 841.
\item \textsuperscript{50} U.S. DEP’T OF AGRIC., FINAL ENVIRONMENTAL IMPACT STATEMENT (FEIS): GLYPHOSATE-
\item \textsuperscript{51} M. Marvier & R. Van Acker, Can Crop Transgenes Be Kept on a Leash?, 3 FRONTIERS ECOLOGY & ENV’T 93, 95–100 (2005).
\end{itemize}
\end{footnotesize}
The United States is now beyond the stage of field testing as a result of RRA’s unconditional deregulation, and farmers and the public face even more risk because the crop can now be freely planted with much less restriction and oversight.

In fact, in the earliest case discussing the issue of RRA’s deregulation, *Alfalfa I*, the trial court reviewed the evidence of harm and “found that genetic contamination of organic and conventional alfalfa had already occurred, and it had occurred even while Monsanto and Forage Genetics had contractual obligations in place to protect against such harm.” The Supreme Court recognized that this is a substantial problem: transgenic contamination causes “irreparable environmental harm because contamination cannot be reversed and farmers cannot replant alfalfa for two to four years after contaminated alfalfa has been removed.”

One of the most serious economic consequences of transgenic contamination occurs when organic and conventional farmers can no longer sell their crops because the crops have been exposed to genetically modified material. When there is cross contamination of modified crops with conventional or organic crops, the non-GM farmers will no longer be able to market their products as organic, or at least as not genetically engineered. Furthermore, some countries, such as Japan, do not permit imports of glyphosate-tolerant alfalfa, and thus contamination can also impact a farmer’s ability to export the crop. The district court in *Geertson* recognized that the economic effects on organic and conventional farmers are exacerbated by the government’s deregulation decision. It stated that the harms are “interrelated with, and, indeed, a direct result of, the effect on the physical environment; namely, the alteration of a plant species’ DNA through the transmission of genetically engineered genes.”

Not only are conventional and organic farmers concerned about their plant crops being contaminated with the genes of genetically altered crops, the farmers also worry about the risk of accidental commingling of their harvested plants with genetically modified harvested crops. For example, in 2006, the U.S. Department of Agriculture (USDA) announced that a regulated variety of GM rice had commingled with a significant amount of conventional rice.

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54. *Id.*
55. *Id.* at *2*.
56. *Id.*
57. *Id.* at *8.*
supplies. As a result, several U.S. trading partners refused the country’s rice exports, disrupting the $1.3 billion rice export market and causing significant economic losses for U.S. farmers and exporters due to the drastic reduction in demand.

In the StarLink Corn fiasco, commingling put food producers at risk as well. The problem started when Aventis, a multinational pharmaceutical company, genetically engineered a corn seed to produce a protein that is toxic to certain insects. Unfortunately, however, that protein also had several attributes similar to a peanut allergen. The crop was only approved for use as animal feed and ethanol production, but numerous reports found that human food products had tested positive for the protein as a result of commingling through transportation and storage. Aventis applied to cancel the limited registration of the crop, but the fear of contamination “nonetheless continues to affect corn markets. As a result, many U.S. food producers have stopped using U.S. corn.”

Another effect of transgenic contamination is the threat that GM crops pose to neighboring ecosystems. In fact, a study on genetically engineered mustard plants concluded that the modified plants were twenty times more likely to outcross to wild relatives than the non-genetically modified plants. The authors and conductors of the study interpreted these results to mean that “genetic engineering can substantially increase the probability of transgene escape.” Such genetic “escapes” can have unfortunate side effects; some studies have shown that the “introduction of any type of biological novelty can have unintended and unpredicted effects on the recipient community and ecosystem.” One particular risk of gene flow outside the farming area is the possible extinction of wild species. Professor Mandel described this threat clearly and succinctly: if “genes from transgenic crops find their way into wild plant species through a sexual transfer or interbreeding, and the wild transgenic plants then interbreed with unmodified plants, the result could be extinction of the unmodified wild species.”

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59. Id.
61. Id. at 835.
62. Id.
66. Mandel, supra note 6, at 2196.
67. Id.
B. Increased Use of Pesticides

Planting crops with resistance to the harmful effects of pesticides incentivizes farmers to use more pesticides to kill surrounding weeds because there is less threat of reducing yields through accidental application of the pesticide and destruction of the crop. When evaluating the harms of RRA deregulation in its EIS, APHIS recognized that “increased glyphosate use, due to the adoption of [GM] alfalfa, could affect non-target plants.” The Final EIS identified three potential causes of glyphosate exposure to the surrounding environment: aerial drift, runoff of surface waters containing the pesticide, and leaching of glyphosate into drainage systems.

Overall, APHIS’s Final EIS included estimates that farmers would use nearly 22 million more pounds of herbicides when RRA became unconditionally deregulated. Although glyphosate has a lower environmental impact quotient compared to other herbicides currently used in alfalfa production, glyphosate still can have devastating effects on plants. Farmers using conventional alfalfa currently use glyphosate to “take out” an alfalfa field, killing off the plant crop entirely. Furthermore, APHIS has already conceded that when glyphosate escapes through drifting away from the target area, nearby plant life may experience impaired germination and defective growth characteristics.

C. Creation of “Superweeds”

Inserting glyphosate-resistant genes into commercial crops creates the risk of genes from engineered crops will spread to a “weedy relative,” creating a “superweed” that also becomes resistant to herbicides. This kind of gene transfer is similar to the process previously described as transgenic contamination, except that the focus is on the specific gene transferred, not just the status as “genetically modified.” APHIS understands and recognizes this harm; it specifically notes that cultivation of RRA without oversight can contribute to the development of superweeds by outcrossing its herbicide-tolerant genes to other weedy relatives.

Another method of creating superweeds is through evolution and natural selection. Weeds that are exposed to large amounts of pesticides will mostly perish from the chemicals, but those that have genetic traits conferring resistance to the chemicals will survive and reproduce to create more weeds.

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69. U.S. DEP’T OF AGRIC., supra note 50, at vi.
70. Id.
72. Id. at vii.
73. Id.
74. Mandel, supra note 6 (citing NAT’L RESEARCH COUNCIL, ENVIRONMENTAL EFFECTS OF TRANSGENIC PLANTS 57 (2002)).
75. U.S. DEP’T OF AGRIC., supra note 50, at 34.
with the same traits. This process also represents a problem that has already manifested itself in the farmers’ fields. In as early as 2000, pesticide-tolerant weeds were found in a soybean field where farmers sprayed so much Roundup that weeds quickly evolved to survive it.\(^{76}\) Modified crops like RRA are able to withstand exposure to usually fatal chemicals all year, and weeds undergoing the same barrage of pesticides evolve quickly. This process can be understood as a process similar to bacteria exposed to antibiotics: the weeds that are naturally resistant to pesticides survive exposure and are able to reproduce in much greater numbers than the weeds without the resistance trait.\(^{77}\)

As of December 2010, nineteen states and over 2 million acres of cropland contain glyphosate-resistant weeds.\(^{78}\) APHIS even recognized in its EIS that there is “overlap between glyphosate-resistant weed locations and alfalfa hay acreage, [and] there is potential for rapid shifts of glyphosate-resistant weeds into GM alfalfa fields.”\(^{79}\) This is especially a concern in California because alfalfa is a major crop in the state and because glyphosate-tolerant weeds have already begun to develop there.\(^{80}\)

Overexpression of glyphosate-insensitive genes in weedy plants is not merely an inconvenience. It represents a significant threat to farming in general. APHIS identified numerous agricultural difficulties that arise if these “superweeds” are not contained.\(^{81}\) The weeds reduce crop yields because they compete for sunlight, nutrients, and water. And several forms of weeds are poisonous and can make the hay unmarketable if not contained.\(^{82}\) Scientists note that such evolution of weedy species “endangers the continued success of transgenic glyphosate-resistant crops and the sustainability of glyphosate as the world’s most important herbicide.”\(^{83}\)

## III. THE NINTH CIRCUIT COULD NOT OVERTURN THE DEREGULATION DECISION

From a legal standpoint, the Ninth Circuit made the correct decision to uphold APHIS’s decision to unconditionally deregulate RRA in *Alfalfa II*. The court’s review was restricted to the questions of whether APHIS substantially complied with its statutory and regulatory requirements, made factual determinations that were supported by substantial evidence, and did not make


\(^{78}\) U.S. DEP’T OF AGRIC., supra note 50, app. at G-4.

\(^{79}\) Id.

\(^{80}\) Id.

\(^{81}\) Id. app. at G-5.

\(^{82}\) Id.

an arbitrary and capricious determination. When considering Monsanto’s petition to deregulate RRA, APHIS interpreted the Plant Protection Act as not covering the alleged threats posed by the plant. If the Ninth Circuit could not find that an agency’s interpretation of the Plant Protection Act is clearly outside its authority, then it was required to defer to the agency’s expertise. In other words, the scope of judicial review was very narrow.

In fact, around the same time that the Ninth Circuit issued its decision in Alfalfa II, the Supreme Court solidified the deferential standard of review that applies when challenging the scope of an agency’s jurisdiction. In City of Arlington v. FCC, the Supreme Court held that “Chevron [deference] applies to cases in which an agency adopts a construction of a jurisdictional provision of a statute it administers.” The Ninth Circuit did not explicitly state that it was using Chevron to review APHIS’s jurisdiction over plant pests and noxious weeds. Instead, it stated that APHIS’s interpretation that RRA does not fit within the agency’s jurisdictional authority is “the best interpretation” of the Plant Protection Act.

City of Arlington adds further support to the Ninth Circuit in upholding APHIS’s jurisdictional determination. The Ninth Circuit did not need to hold that APHIS’s interpretation was “the best.” It only needed to hold that APHIS’s decision does not go beyond a range of reasonable interpretations “within the bounds of its statutory authority.”

Upholding a deregulation decision under the deferential standard of review does not represent a court’s agreement with the policy or “view of the wisdom of the [agency’s] decision.” In this case, complete deregulation is an unwise position for APHIS to take because there are many risks inherent in genetically modified crops that will manifest into direct harms to agricultural interests and the environment unless APHIS exercises adequate oversight. APHIS’s decision to unconditionally deregulate RRA also represents an excessively narrow reading of the Plant Protection Act’s jurisdictional mandate, which is broad enough to cover many modern biotechnology plants and plant products.

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84. Id. Under 5 U.S.C. section 706(2) (2012), the reviewing court shall set aside agency action found to be “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law” or “in excess of statutory jurisdiction, authority, or limitations, or short of statutory right.”

85. Id.

86. Good Samaritan Hosp., Corvallis v. Mathews, 609 F.2d 949, 954 (9th Cir. 1979) (citing Udall v. Tallman, 380 U.S. 1, 16 (1965)).


89. Id. (citing 1 R. PIERCE, ADMINISTRATIVE LAW TREATISE § 3.5 (2010)).

90. Alfalfa II, 718 F.3d at 840.

91. City of Arlington, 133 S. Ct. at 1868.

92. Under the arbitrary and capricious standard, the court must uphold the agency decision as long as it is reasonable and based on a permissible construction of the statute, regardless of the court’s view of the wisdom of the decision. See, e.g., Fort Hood Barbers Ass’n v. Herman, 137 F.3d 302, 307–08 (5th Cir. 1998).
IV. THE BREADTH OF THE PLANT PROTECTION ACT GRANTS APHIS THE ABILITY TO REGULATE AGRICULTURAL BIOTECHNOLOGY

Some legal scholars have suggested that the United States should abandon its current system of relying on anachronistic legal authorities to resolve complex biotechnological issues and instead pressure Congress to establish a modern scheme that would eliminate biotechnology’s regulatory gaps. A more realistic approach, however, would be through administrative execution of existing laws. APHIS has the potential authority to regulate the biotechnology under its current statutory mandates by interpreting the Plant Protection Act to encompass such regulation. The Framework, the seminal policy document addressing the subject, declared that existing statutes like those integrated into the Plant Protection Act would for the most part provide agencies with the mandates necessary to adequately oversee biotechnology. The Framework also noted that the USDA itself stated that under APHIS’s current “legislative authorities it could broadly regulate genetically engineered plants.” However, despite these votes of confidence for the existing broad and expansive statutory authority, APHIS continues to assert that the harms posed by GM crops are not within the purview of APHIS jurisdiction.

In 2000, Congress enacted the Plant Protection Act as part of a larger bill, the Agricultural Risk Protection Act, which consolidated several previously dispersed responsibilities within APHIS. While the Plant Protection Act appears on its face to be a modern statute, it mostly represents the integration of the older laws found in the Plant Quarantine Act, Federal Plant Pest Act, and Federal Noxious Weed Act. The newer Act did not add any additional language relevant to genetically modified crops. In fact, neither the Senate nor the House debated the Plant Protection Act portions of the larger bill before it passed, and the legislative history gave no indication regarding Congress’ intent to address genetically modified plants.

Despite lacking any explicit mandate, the Plant Protection Act nonetheless can be reasonably interpreted as delegating jurisdiction to APHIS to regulate at least two categories of organisms that apply to GM crops: plant pests and noxious weeds. The Act grants APHIS the authority to monitor and regulate

95. Id.
97. Id.; see also Emily Montgomery, Genetically Modified Plants and Regulatory Loopholes and Weaknesses under the Plant Protection Act, 37 VT. L. REV. 351, 374 (2012).
any plant or plant product if it determines that doing so is necessary to prevent the introduction or dissemination of (1) plant pests or (2) noxious weeds.\footnote{Id. (“The Secretary may prohibit or restrict the importation, entry, exportation, or movement in interstate commerce of any plant, plant product, biological control organism, noxious weed, article, or means of conveyance, if the Secretary determines that the prohibition or restriction is necessary to prevent the introduction into the United States or the dissemination of a plant pest or noxious weed within the United States.”).} Those key terms and the breadth of their interpretations determine whether or not APHIS has authority to regulate GM crops.

The Plant Protection Act provides a two-step process to determine whether an organism is a plant pest. First, the organism must fit within a category of organisms that Congress labeled as having plant pest properties.\footnote{Id.} The organism must then have the ability to “directly or indirectly injure, cause damage to, or cause disease in any plant or plant product.”\footnote{Id.} Because the statute is silent regarding which kind of injury to other plants is sufficient, APHIS has considerable leeway to interpret the language broadly under the Arlington/Chevron deference to agency interpretations of jurisdictional authority.\footnote{City of Arlington v. U.S. Fed. Commc’n’s Comm’n, 133 S. Ct. 1863, 1868 (2013).}

The largest statutory hurdle for proponents of APHIS regulation over GM crops is likely found in the first prong of the plant pest definition, which requires the plant to be among one of the categories of already designated plant pests. In this case, the only categories that could plausibly apply to GM crops are found in section 7712(14)(C) and (H), which include “parasitic plant[s]” or “any article similar to or allied with” any of the other pest categories.\footnote{7 U.S.C. § 7712(14).} In its discretion, APHIS might reasonably classify genetically modified crops as an article similar to or allied with a “parasitic plant” because the harms posed by GM crops through transgenic contamination are somewhat similar to harms from parasites.

\textit{RRA} more easily meets the second prong of the plant pest definition. In the \textit{Alfalfa II} case, APHIS interpreted the Plant Protection Act’s language too narrowly when it characterized the scope of harm under the Plant Protection Act to require physical harm to plants.\footnote{7 U.S.C. § 7712(12).} The statute states that an organism may be classified as a plant pest when it “can directly or indirectly injure or cause disease or damage in or to any plants.”\footnote{Alfalfa II, 718 F.3d at 834.} The language plainly includes injury, disease, or damage that is indirect. And as explained in Part III of this Note, GM plant strains can cause several distinct injuries to other plants, but APHIS refuses to consider these injuries to be covered under the Plant

\footnote{7 U.S.C. § 7702(14); 7 C.F.R. § 340.1 (2014).}
Protection Act. Such injuries should be considered to be within the purview of the Plant Protection Act because direct and indirect harms arise through transgenic contamination, increased use of pesticides, and creation of superweeds.

Because APHIS has such broad discretion to interpret the Plant Protection Act, the Ninth Circuit’s evaluation of APHIS’s deregulation decision was limited in scope. The Court was also unable to consider the possibility that RRA is a noxious weed, which is the other regulated article under the Plant Protection Act. In the *Alfalfa II* case, the deregulation petition at issue addressed only RRA’s status as a plant pest.\(^{107}\)

Agency regulations do not presumptively classify genetically modified crops as noxious weeds in the same way that they are often presumptively held to be plant pests, and no person or organization ever petitioned to have RRA designated as a noxious weed prior to the *Alfalfa II* proceedings.\(^{108}\)

Noxious weeds are defined even more expansively than plant pests. The term applies to any plant or plant product that can directly or indirectly injure one or more of the following: crops (including nursery stock or plant products), livestock, poultry, agricultural interests, irrigation, navigation, natural resources of the United States, public health, or the environment.\(^{109}\)

Unlike the definition of plant pests, the definition for noxious weeds does not require that the crop fit within the categories of “parasitic plant” or “any article similar to” a parasitic plant.\(^{110}\)

The second prong requiring “injury” is also broader than the plant pest definition. Under the noxious weed provisions of the Plant Protection Act, APHIS has jurisdiction to protect against any plant or plant product that causes direct or indirect injury to plants, plant products, agriculture, and the environment.\(^{111}\)

This language provides wide discretion to APHIS to regulate GM crops, since the harms referenced in this article are all threats to plants, agriculture, and the environment. APHIS could regulate merely by adding to the published list of noxious weeds through either its own regulation or through a response to a private party’s petition.\(^{112}\)

The Secretary of APHIS has considerably broad options for issuing limitations after making a determination about a specific plant, including limiting importation in interstate commerce, allowing inspections, requiring remedial measures, and issuing quarantine conditions.\(^{113}\)

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107. *Id.* at 843 (“Neither the Plant Protection Act nor APHIS’s regulations . . . require APHIS to conduct a separate noxious weed analysis in response to a party’s petition to deregulate a plant under 7 C.F.R. § 340.6.”).
108. *Alfalfa II*, 718 F.3d at 836.
110. *Id.* § 7702(10).
111. *Id.* § 7702(f).
112. *Id.* § 7712(f)(1)–(2) (“Secretary may publish, by regulation, a list of noxious weeds . . . Any person may petition the Secretary to add a plant species to, or remove a plant species from, the regulations issued by the Secretary.”).
113. *Id.* § 7712(c).
The harms of genetically modified crops described in Part III of this Note are exactly the kind of harms that noxious weed regulations are intended to remedy. APHIS should give more attention to the potential threats of GM crops and recognize that its authority under the Plant Protection Act is expansive. Transgenic contamination, creation of superweeds, and increased use of pesticides all contribute to the “direct or indirect injury to plants, plant products, agriculture, and the environment.”

For example, transgenic contamination constitutes a threat to agriculture. When genetically modified crops harm the market for conventional and organic farmers through transgenic contamination, that occurrence threatens the market and viability of conventional and organic agriculture. When common export markets in Europe and Asia refuse U.S. exports of rice and other plants, agriculture has been threatened. The same can be said with regard to the development of superweeds. When weeds develop characteristics that prevent their eradication through pesticides, those weeds present a grave threat to farmers and agriculture in general. APHIS could also lawfully assert jurisdiction under the Plant Protection Act in order to prevent environmental degradation caused by farmers who use excessive amounts of glyphosate and allow the pesticides to escape and reach nearby water and plant life. APHIS has conceded glyphosate can drift in the air, escape through surface waters, and leach into drainage systems, and it should recognize that unregulated status of GM crops creates the threat of indirect physical injury to other plants.

Any of these harms could reasonably be classified as sufficiently severe and relevant to the Plant Protection Act’s mandate to enforce some kind of regulatory control or inspection procedures on plant pests and noxious weeds. Informal agreements, absent regulatory backing, are not sufficient. In the past, APHIS has attempted to assuage concerns about threats to agriculture and the environment by referring to the fact that the pesticides and genetically modified seeds all include “labeling instructions” which inform a purchaser about how to appropriately use the products. However, evidence continues to surface these measures are inadequate—harm occurs “even while Monsanto and Forage Genetics had contractual obligations in place to protect against such harm.”

V. OBSTACLES TO REGULATION: OUTSIDE INFLUENCES THAT AFFECT APHIS’S DECISION TO Deregulate

The Plant Protection Act’s jurisdictional authority could be interpreted to broadly cover all genetically modified crops that pose harmful effects to the environment or agriculture when cultivated, but a campaign for change in

114. Id.
115. See discussion supra Part II.ii.
116. See discussion supra Part. III.iii.
117. U.S. DEP’T OF AGRIC., supra note 50, at vi.
118. Alfalfa II, 718 F.3d at 834.
119. Geertson Seed Farms v. Johanns, 570 F.3d 1130, 1137 (9th Cir. 2009).
APHIS’s policies and regulations faces many obstacles. As the *Alfalfa II* case shows, courts cannot compel APHIS to regulate because its interpretation of the Plant Protection Act is not entirely inconsistent with its plain language and because “APHIS retains considerable discretion” whether to regulate. The Ninth Circuit’s opinion suggests that APHIS has the prerogative to choose how to interpret the Plant Protection Act, and the agency’s history of decisions likely indicates that APHIS prefers not to regulate new GM crops if it can reasonably avoid doing so. A decision to regulate GM crops is certainly a difficult one to make, especially when technological development and mass production appear to be more attractive in the short term as opposed to cautious and expensive oversight.

### A. The Coordinated Framework, Internal Regulations, and the Deferential Standard of Judicial Review Hinder Cautious Regulation

The Administrative Procedure Act establishes the “full extent of judicial authority to review executive agency action for procedural correctness.” Challenges to APHIS’s refusal to classify a plant as a “plant pest” or noxious weed have generally been made under the arbitrary and capricious standard, which requires the court merely to determine whether the decision was “based on a consideration of the relevant factors and whether there has been a clear error of judgment. This inquiry must be searching and careful, but the ultimate standard of review is a narrow one.” A challenge to APHIS’s deregulation decisions as being contrary to law under of Administrative Procedure Act section 706 would likewise get a similar form of deference.

The arbitrary and capricious standard makes any judicial intervention quite difficult because APHIS need only examine the relevant data, articulate a satisfactory explanation for its action, and make a rational connection between the facts and the choice made. Some scholars question the sufficiency of APHIS’s scientific investigations because the vast majority of deregulation

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121. Emily Waltz, *GM Grass Eludes Outmoded USDA Oversight*, 29 NAT. BIOTECHNOLOGY 772, 773 (2011) (citing Tom Sappington, an entomologist with the Agricultural Research Service, the research arm of the USDA).
122. “As an agency whose overall purpose is to promote domestic agriculture, the USDA’s approach with respect to GM plants is geared towards deregulation.” Emily Montgomery, *Genetically Modified Plants and Regulatory Loopholes and Weaknesses under the Plant Protection Act*, 37 Vt. L. Rev. 351, 370 (2012) (citing Angelo, *supra* note 93, at 142 (“USDA’s approach is focused on deregulating GMOs.”))
126. *Salazar*, 898 F. Supp. 2d at 139.
decisions utilize only an Environmental Assessment, rather than the more thorough EIS. In fact, APHIS has conducted only two full EISs, and both of them were court-ordered. However, the fact remains that APHIS has conducted the reviews when required to do so.

Internal regulations also stymie attempts to persuade APHIS to regulate. The agency has crafted procedures that constrain its ability to recognize the harms of GM crops. For example, when reviewing petitions to regulate a plant as a noxious weed, APHIS has chosen to evaluate the dangers of a plant by examining its properties at the species level, instead considering the specific traits that have been modified within the species. Thus, APHIS is not actually evaluating genetically modified crops at all; it instead sticks its head in the sand and acts as if the plants (conventional and modified) are exactly the same. However, this position completely ignores the fact that APHIS’s deregulation petitions specifically require APHIS to undertake this comparative inquiry between modified and conventional crops. The deregulation petition requires evidence that the GM article is “unlikely to pose a greater plant pest risk than the unmodified organism from which it was derived.” Despite this sensible requirement, the problem remains that APHIS has consistently rejected arguments that the environmental problems caused by the crops should be considered plant pest or noxious weed harms.

The Coordinated Framework for Regulation of Biotechnology further pressures APHIS to regulate less. Although the Plant Protection Act mandates that APHIS use “sound science” when making decisions, the Framework specifies that the process of biotechnology development is not inherently risky, and therefore only the products of biotechnology require oversight, but not the process itself. The 1986 Domestic Policy Council wanted the “existing oversight and review mechanisms to ensure that adequate review and control . . . while avoiding any undue burdens that may hamper technological developments.” However, as a policy document, it cannot completely stifle regulation because it “does not alter existing regulations and no limitations have been imposed to govern the scope of any regulations that may be proposed by any agency in the future.”

127. Montgomery, supra note 122.
128. Id.
129. U.S. DEP’T OF AGRIC., REVIEW OF PETITION TO ADD GENETICALLY ENGINEERED GLYPHOSATE-TOLERANT KENTUCKY BLUEGRASS TO THE FEDERAL NOXIOUS WEED REGULATIONS 2–3 (2011) (“Consistent with the provisions of the Plant Protection Act which provide APHIS authority to regulate noxious weeds, it has been the Agency’s policy to regulate at the species level.”).
130. 7 C.F.R. § 340.6(4) (2014).
131. Alfalfa II, 718 F.3d at 840 (“The agency . . . never considered possible consequences associated with increased herbicide use, including creation of herbicide resistant weeds to be ‘plant pest’ injuries.”).
134. Id.
B. The Tantalizing Potential Benefits of GM Crops

The pressures to deregulate are exacerbated by the allure of potential benefits of modifying plant genes. Some have praised the development of genetically modified crops as a blessing to both farmers and consumers of the products. Generally, the most salient opportunities and benefits of genetically modified crops relate to efficiency: they offer the possibility of increased production using fewer resources.

In theory farmers should be able to extract more plant product from an acre of planted land if fewer plants are lost to insects, weeds, poor climatic conditions, and diseases.

Furthermore, those favoring cultivation of modified crops point to potential environmental benefits. For example, one of the greatest threats to biodiversity is habitat loss, and by increasing the agricultural (and nutritional) productivity of existing farmland, modified crops can reduce pressures to use more and increasingly marginal non-farm habitat. Herbicide-tolerant crops are also more suitable for reduced tilling practices, which help prevent erosion, improves water retention, and decreases the level of sediment and chemicals in water supplied to the crops.

VI. ALTERNATIVES TO FEDERAL REGULATION

The federal government is the primary body for regulation of biotechnology, but some states have also adopted laws both promoting and restricting its development. But when a state law conflicts with the Plant Protection Act, the federal Act prevails because it has an express preemption clause.

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142. 7 U.S.C. § 7756 (2012) (“No State or political subdivision of a State may regulate in foreign commerce any article, means of conveyance, plant, biological control organism, plant pest, noxious weed, or plant product in order (1) to control a plant pest or noxious weed; (2) to eradicate a plant pest
has issued a regulation or order to prevent the dissemination of the biological control organism, plant pest, or noxious weed.”

Some have interpreted the Act’s language as providing that when APHIS approves field-testing of a GM crop, or completes field-testing and approves the crop for deregulation, a state cannot go against that decision and prevent the crop’s introduction into the environment without overcoming additional requirements under the Act. Others are less certain about the true effect of the Plant Protection Act’s preemption clause, noting that the language is not entirely clear and has not been tested in the courts.

The Act does, however, allow states to impose additional prohibitions or restrictions on a plant or plant product when it can demonstrate to APHIS that “there is a special need for additional prohibitions or restrictions based on sound scientific data or a thorough risk assessment.” Between 2002 and 2007, nearly 350 bills were introduced by state legislatures to either provide monetary incentives or restrictions on genetically engineered plants or animals. Despite some state legislative restrictions, states still generally assume a limited role in the regulation of growing procedures and release of crops into the environment by “cooperating with federal agencies and providing state concerns and issues as appropriate to the federal decision makers.”

State tort law might provide a decent alternative to federal agency regulation by defining standards of care for growers of genetically modified crops and outsourcing monitoring and enforcement costs to the civil court system through nuisance, trespass, products liability, and negligence. Such claims have had some success in at least one district court: the StarLink Corn Products Liability Litigation case involved allegations that Aventis Corporation had a duty to prevent cross-contamination of its modified corn crop, but had breached that duty when it allowed commingling through poor handling and transportation of the crop. The Northern District of Illinois denied Aventis’s motion to dismiss the negligence claim, holding that the factual allegations

or noxious weed; or (3) prevent the introduction or dissemination of a biological control organism, plant pest, or noxious weed.”

143. Id. § 7756(b)(1).
144. Farquhar & Meyer, supra note 141.
147. Farquhar & Meyer, supra note 141.
149. Connor, supra note 145, at 1190 (citing Bates v. Dow Agrosciences LLC, 554 U.S. 431 (2005) (documenting the Supreme Court’s unwillingness to find a broad preemptive effect of EPA pesticide labeling regulations under the Federal Insecticide, Fungicide, and Rodenticide Act)).
150. Id. at 1210–12.
were sufficient to plead a cause of action for negligence.\textsuperscript{152} Similarly, the Eastern District of Missouri has also allowed farmers in Missouri to proceed to the trial phase of litigation when the farmers asserted claims of negligence and private nuisance in response to a corporation’s failure to contain genetically modified rice strains which contaminated and commingled with the farmers’ conventional rice.\textsuperscript{153}

\textbf{CONCLUSION}

This Note does not propose a radical shift in federal regulatory oversight. It merely suggests that APHIS recognize its expansive statutory authority over plant pests and noxious weeds. The Plant Protection Act does not compel APHIS to issue nationwide bans on cultivating genetically modified crops or to prevent products from containing genetically modified material. Whether such regulation is necessary is outside the scope of this Note. Instead, I propose that APHIS acknowledge and prevent the threats that GM crops pose to plants, agriculture, and the environment. This can be done through imposing conditions on approval of GM cultivation that require “inspection of the premises” and determinations that “the facilities there are adequate” to prevent dissemination and transgenic contamination.\textsuperscript{154} This is exactly the kind of regulation and oversight that APHIS is permitted to execute under the Plant Protection Act and the permitting regulations.

Deregulation decisions should be made under a precautionary framework. Although the 1986 Framework has some positive aspects for encouraging growth and development of technology, the precautionary principle is a wiser philosophy for contemporary environmental issues because it helps ensure that a regulatory agency does not make any irreparable mistakes. By shifting the burden of proof to private firms who are obligated to prove that a new product or practice is safe and noninvasive, the framework incentivizes development through sensible practices and testing.\textsuperscript{155}

One of the primary goals of enacting the Plant Protection Act was to “provide more flexibility to address the constantly changing needs of a global environment . . . allowing APHIS to address its mission of agricultural protection consistent with concepts of regionalization and risk-based decisionmaking.”\textsuperscript{156} The risk of harms from GM crops is well recognized. APHIS knows that unauthorized “releases into food, animal feed, [and] the

\textsuperscript{152}Id.\textsuperscript{153} In re Genetically Modified Rice Lit., 666 F. Supp. 2d 1004, 1034 (E.D. Miss. 2009); see also Sample v. Monsanto Co., 283 F. Supp. 2d 1088 (E.D. Miss. 2003) (transgenic contamination of conventional soybeans).\textsuperscript{154} 7 C.F.R. § 360.303 (2014) (approving the application for permit to move a noxious weed; conditions specified in permit).\textsuperscript{155} Maxwell Keith, Transgenic Plants and Substantial Success, 26 J. ENVTL. L. & LITIG. 435, 445–46 (2011).\textsuperscript{156} Hearing on H.R. 3766 Before the H. Comm. on Agric., 105th Cong. (1998), available at http://commdocs.house.gov/committees/ag/hagplant.000/hagplant_0f.htm.
environment beyond farm fields have occurred, and it is likely that such incidents will occur again."  

A safe compromise might arise through partial deregulation, which was discussed by the Supreme Court in *Geertson* as a potential solution. APHIS could modify the scope of partial deregulation to be sufficiently limited to prevent harm to the surrounding crops and environment, but still enable production and advancement of biotechnology. Congress delegated APHIS sufficiently broad authority to oversee the developments of modern genetic practices in farming, and the agency should act now through its existing statutory authority to ensure that such development does not cause significant and unnecessary harm to other plants, agriculture, or the environment.

159. Id.

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