



# THE CENTER FOR FOOD SAFETY

Docket No. APHIS-2013-0042-0050  
Regulatory Analysis and Development  
PPD, APHIS  
Station 3A-03.8  
4700 River Road Unit 118  
Riverdale, MD 20737-1238

## **Comments on USDA APHIS's Proposed Plant Protection Act Approval of Dow's 2,4-D-Resistant Corn and Soy; Noxious Weed Petition**

March 11, 2014

Docket No. APHIS-2012-0019

The Center for Food Safety (CFS) is a nonprofit public interest organization that works to protect public health and the environment by curbing the proliferation of harmful food production technologies and by promoting sustainable agriculture.<sup>1</sup> In furtherance of this mission, CFS uses legal actions, groundbreaking scientific and policy reports, books and other educational materials, and grassroots campaigns on behalf of its 400,000 farmer and consumer members across the country. CFS is a recognized national leader on the issue of genetically engineered (GE) organisms, and has worked on improving their regulation and addressing their impacts continuously since the organization's inception in 1997.

CFS submits the following comments on the Animal and Plant Health Inspection Service (APHIS)'s proposed approval of Dow's corn and soy genetically engineered to resist 2,4-D. These comments incorporate by reference and supplement the detailed legal and scientific comments and supporting reference materials and studies that CFS submitted at earlier stages of this agency proposal, including the two comment periods on the draft Environmental Assessments (EAs) on Dow's 2,4-D corn and soy in 2012, upon which the agency's approval was initially predicated. CFS also incorporates by reference the separate scientific comments and studies submitted by CFS during this comment period, as well as its member comments.

By deciding to prepare a draft Environmental Impact Statement (DEIS) before proceeding, APHIS has admitted and recognized, in part, what CFS and many others have explained and warned: that its proposed approval of Dow's 2,4-D crops will likely cause significant environmental, agronomic, and socioeconomic harm.

---

Main Office: 660 Pennsylvania Ave., S.E., Suite 302, Washington, D.C. • Phone: 202-547-9359 • Fax: 202-547-9429  
California Office: 303 Sacramento Street, 2<sup>nd</sup> Floor, San Francisco, CA 94111 • Phone: 415-826-2770 • Fax: 415-826-0507  
Pacific North West Office: 917 SW Oak St., Ste. 300, Portland, OR 97205 • Phone: 971-271-7372 • Fax: 971-271-7374

Email: [info@centerforfoodsafety.org](mailto:info@centerforfoodsafety.org) • [www.centerforfoodsafety.org](http://www.centerforfoodsafety.org) • [www.foodsafetynow.org](http://www.foodsafetynow.org)

CFS will not duplicate and repeat comments that it has already submitted numerous times, nor the detailed critiques and demands for lawful compliance and proper scientific analysis that APHIS has yet to answer, address, or explain. Rather, these comments incorporate previously unaddressed points and add to them with further deficiencies in APHIS's latest proposal. In sum, APHIS's proposal violates all applicable statutes, is arbitrary and capricious, is not supported by sound science, and otherwise is not in accordance with the law.

## COMMENTS

### I. APHIS'S AUTHORITY

Many of APHIS's errors in this process begin with the improper manner in which the agency is applying its authority. CFS has submitted previous comments covering this in detail. *See* Appendix A (CFS EA comments, April 27, 2012, pp.7-9, 46-48; CFS EA comments, September 11, 2012, pp.4-7, 42-44). We incorporate those comments and expand upon them here. Congress gave APHIS broad authority in the Plant Protection Act (PPA) to prevent the agronomic and environmental harms of the proposed crops. The agency's position flatly conflicts with the Supreme Court's *Monsanto v. Geertson Seed Farms* decision, in which the Court held APHIS had ample authority under the PPA to impose restrictions to minimize transgenic contamination and weed resistance risks.

APHIS oversees transgenic crops pursuant to the PPA, 7 U.S.C. §§ 7701-7772, which provides the U.S. Department of Agriculture (USDA) with broad authority to "prohibit or restrict . . . movement in interstate commerce of any plant" as necessary to prevent either "plant pest" or "noxious weed" harms.<sup>2</sup> The statute's multifaceted purpose is to protect not only agriculture, but also the "environment, and economy of the United States" through the "detection, control, eradication, suppression, prevention, or retardation" of these harms.<sup>3</sup> Pursuant to the PPA, all of APHIS's decisions "shall be based on sound science."<sup>4</sup>

"[T]he starting point for interpreting a statute is the language of the statute itself."<sup>5</sup> The PPA defines these harms expansively. A "noxious weed" is:

any plant or plant product that can directly or indirectly injure or cause damage to crops . . . or other interests of agriculture, . . . the natural resources of the United States, the public health, or the environment.<sup>6</sup>

"Plant pest" means:

any living stage [of a list of organisms] that can directly or indirectly injure, cause damage to, or cause disease in any plant or plant product.<sup>7</sup>

APHIS makes two fundamental errors in applying its PPA authority in this action. First, the agency winnows its application of its plant pest risk authority in order to avoid addressing and regulating the proposed crops based on the significant harms they will cause. Second, APHIS refuses to apply the rest of its broad PPA authority, namely its oversight over noxious weed harms.

#### A. Noxious Weed Harms

In this DEIS, APHIS completely failed to apply the rest of its PPA authority beyond its plant pest authority, in particular its duty to analyze and regulate the proposed crops based on the noxious weed harms they cause.

The PPA defines “noxious weed” extremely broadly to include “any plant or plant product that can directly or indirectly injure or cause damage” not only to “crops” and “other interests of agriculture,” but also “the natural resources of the United States, the public health, or the environment.”<sup>8</sup> As we have previously explained, APHIS’s approval of Dow’s 2,4-D crops will “directly or indirectly injure and damage . . . agriculture and the environment” through transgenic contamination; the proliferation of herbicide-resistant, noxious superweeds; massively increased herbicide use; and harm to protected species. *See* Appendix A (CFS EA comments, April 27, 2012, pp.7-9; CFS EA comments, September 11, 2012, pp.4-7).

Specifically, pursuant to this authority, APHIS has the power to restrict “any plant” that even “indirectly” results in noxious weed risks, and has done so.<sup>9</sup> Importantly, since the statutory noxious weed definition includes both direct and indirect harms, APHIS may regulate the weeds’ agricultural pathways, as well as the weeds themselves. APHIS has done this, for example, by restricting the import and requiring the pre-import treatment of *Guizotia abyssinica* (niger seed), not because niger seed itself creates noxious weed risks, but because it facilitates them, as it commonly harbors noxious weed seeds.<sup>10</sup> APHIS could do this because Congress gave the agency broad authority to prevent noxious weed harms by restricting “any plant.”

The proposed GE crops easily fit within this broad statutory definition, because, among other harms, they will “indirectly injure” agricultural interests by promoting noxious, multiple herbicide-resistant weeds. As we have discussed elsewhere in the record in great detail, herbicide-resistant weeds are one of the most serious challenges facing American agriculture. Herbicide-resistant crop systems like Dow’s Enlist crops are the pathways for rapid emergence of these herbicide-resistant weeds. They cause, *inter alia*, increased use of toxic herbicides, injuring public health and the environment; greater soil erosion through increased tillage, causing damage to natural resources; damage to crops by reducing yield; and dramatically higher weed control costs that threaten the basic interest of agriculture, the economic survival of American farmers. Similarly, volunteer 2,4-D resistant crops themselves may be troublesome weeds that directly injure agricultural interests. In our prior comments, we have submitted significant data regarding these herbicide resistant weed impacts and supporting documentation. *See* Appendix B (CFS Science comments).

With the 2,4-D crops, APHIS has now acknowledged these impacts and risks and its authority over them, concluding that NEPA required an EIS to analyze them. Like their predecessor Roundup Ready cropping systems, the proposed 2,4-D crops will cause proliferation of noxious herbicide-resistant (HR) weeds. APHIS concedes that Enlist crop systems would foster emergence of weeds with resistance to 2,4-D, but fails to assess the cumulative impacts of multiple resistance. Additional 2,4-D resistance would transform already troublesome HR weeds into noxious ones, and exacerbate the noxious character of already noxious weeds such as resistant Palmer amaranth by making them still more recalcitrant to control. Because HR weeds spread, the negative impacts of Enlist would not be confined to Enlist crop fields, but would rather become widespread. Because these crops will result in, and are the pathways for, these herbicide-resistant noxious weeds, APHIS plainly has the statutory authority to regulate them.

In addition to the broad, plain language of the statute covering these harms, the harms of these multiple herbicide resistant superweeds that APHIS's action will cause are also substantially similar to those types of harms normally considered by APHIS regarding noxious weeds. In a 2010 Federal Register notice, APHIS explained some economic and environmental factors it normally considers in its weed risk assessments. According to the agency,

These guidelines provide specific examples of what we mean by potential economic impacts and potential environmental impacts. Potential economic impacts include, but are not limited to:

- Reduced crop yield (*e.g.*, by parasitism, competition, or by harboring other pests);
- Lower commodity value (*e.g.*, by increasing costs of production, lowering market price, or a combination); or if not an agricultural weed, by increasing costs of weed control; and
- Loss of markets (foreign or domestic) due to presence of a new quarantine pest;

Potential environmental impacts include, but are not limited to, considerations of whether the weed, if introduced, could:

- Cause impacts on ecosystem processes (alteration of hydrology, sedimentation rates, a fire regime, nutrient regimes, changes in productivity, growth, yield, vigor, etc.);
- Cause impacts on natural community composition (*e.g.*, reduce biodiversity, affect native populations, affect endangered or threatened species, impact keystone species, impact native fauna, pollinators, or microorganisms, etc.);
- Cause impacts on community structure (*e.g.*, change density of a layer, cover the canopy, eliminate or create a layer, impact wildlife habitats, etc.);

- Have impacts on human health such as allergies or changes in air or water quality;
- Have sociological impacts on recreation patterns and aesthetic or property values; and
- Stimulate control programs including toxic chemical pesticides or introduction of a nonindigenous biological control agent.<sup>11</sup>

As explained above and in our previous comments, HR superweeds exhibit and cause many of these economic and environmental impacts, dramatically increasing pesticide use in efforts to control them, with impacts on the environment, protected species and health; reducing crop yield and greatly increasing costs of weed control. *See* Appendix B (CFS Science comments) and concurrently-submitted CFS science comments.

While there is strong agronomic evidence of these harms, it is premature and unnecessary to now conclusively argue whether APHIS will determine these resistant 2,4-D crop volunteers and 2,4-D resistant superweeds to be noxious weed harms, and require regulation, and if so what regulation would be appropriate. This is because APHIS has never undertaken a noxious weed assessment of these harms. In fact, APHIS completely failed to assess the multiple herbicide-resistant and noxious weed threats posed by Enlist crop systems. What matters at this juncture is that the agency plainly has the statutory authority and discretion to regulate the proposed crops based on these harms to agriculture and the environment. Consequently, APHIS must go back and undertake this analysis.

APHIS's now-outdated implementing regulations concerning transgenic plants, 7 C.F.R. Part 340, were promulgated pursuant to its previous, narrower Plant Pest Act authority and therefore refer to only plant pest harms. APHIS misleadingly claims the "defining mandate of the PPA is the authorization for APHIS to regulate, manage, and control plant pests," DEIS at 1, but this is contrary to the statute's plain language and completely ignores that the PPA of 2000 significantly expanded APHIS's authority, including over noxious weeds, providing the agency new tools with which to carry out its mandate.<sup>12</sup> The PPA also provides "a much wider and more flexible set of criteria for identifying and regulating noxious weeds."<sup>13</sup>

Elsewhere APHIS admits that it has authority over noxious weed harms as well as plant pest harms, DEIS at v, but then immediately claims its regulations require that "APHIS can only consider plant pest risks," *id.* The current GE crop regulations do not, however, purport to limit APHIS to addressing only plant pest harms in deregulation determinations; in fact, since 2008 APHIS has proposed revised regulations that "make it clear" that its GE crop regulations implement its broader authority under the PPA, expressly also including its authority to prevent noxious weed harms:

The PPA grants the Secretary authority to regulate . . . noxious weeds.

. . . In order to best evaluate the risks associated with these GE organisms and regulate them when necessary, APHIS needs to exercise its authorities

regarding noxious weeds and biological control organisms, in addition to its authority regarding plant pests.

. . . We are proposing to revise the scope of the regulations in § 340.0 to make it clear that decisions regarding which organisms are regulated remain science-based and take both plant pest and noxious weed risks into account.<sup>14</sup>

The proposed rules' import is their acknowledgement of APHIS's statutory discretion (and its "need[] to exercise" it). APHIS cannot negate its authority simply by delaying updated regulations that "make it clear." The agency's failure to amend its regulations to expressly require compliance with the statute does not allow it to ignore a statutory directive in the meantime. Nor do the Part 340 GE crop regulations anywhere purport to preclude application of APHIS's noxious weed authority. In any event, APHIS's regulations do not, and could not, deny its noxious weed discretion and mandate. Statutes are not limited by regulations that do not implement full statutory mandates, and APHIS may not repudiate the authority granted to it. The statutory mandate applies even without up-to-date regulations "making clear" that obligation, and APHIS's failure to consider this important factor in any way was arbitrary, capricious, and contrary to law.

APHIS has elsewhere argued that in order to apply this authority it must be petitioned by an outside party. However, APHIS's authority to prevent noxious weed risks by restricting "any plant" does not depend on inclusion in a list; the listing process is permissive.<sup>15</sup> Nothing in the PPA suggests that the agency is barred from restricting a plant that threatens agronomic and environmental damage if APHIS has not included the plant on a published list.<sup>16</sup> Rather, APHIS has the authority to "prohibit or restrict . . . any plant" if the agency "determines that the prohibition or restriction is necessary."<sup>17</sup> In fact, APHIS regularly acts to prevent noxious weed risks without regard to listing.<sup>18</sup>

Regardless, CFS hereby submits these comments and its previous comments simultaneously as a noxious weed petition to APHIS, to apply its noxious weed authority, as part of this process, to the proposed 2,4-D crops, as the pathway for multiple herbicide, 2,4-D resistant noxious weeds.<sup>19</sup> As the proposed new rules make clear, this should be a holistic, inclusive noxious weed harms-plant pest harms process, not a separate bifurcated process. Accordingly, APHIS must broaden the scope of its analysis to this action, and properly apply all its statutory authority. It cannot claim that it "must" approve the proposed crops, because it lacks plant pest authority due to its overly narrow, contradictory and arbitrary interpretation of that authority (see *infra*). Instead, it now must apply its broader authority over noxious weed harms, which can cover "any plant." APHIS therefore must make this assessment anew, beginning with a new EIS, which meaningfully considers alternatives and analyses impacts it has thus far refused to analyze, and issue a new PPA decision applying its fulsome PPA authority.

## B. Plant Pest Harms

First, any purported limitations on APHIS's plant pest authority alone are immaterial given the availability and its now plainly triggered applicability of its noxious weed authority. *See supra*. That said, the PPA and Part 340 regulations by their plain language provide APHIS with ample discretion to address the 2,4-D crops' harms as plant pest risks. The PPA's plant pest harm definition includes "any living stage" of organisms that can "directly or indirectly injure, cause damage to, or cause disease in any plant or plant product."<sup>20</sup> The PPA places no restriction on how such damage may occur. CFS has previously explained how Dow's 2,4-D crops "directly or indirectly injure" and "cause damage to [] plant[s] and plant product[s]," namely, to conventional and organic corn and soy (in the case of transgenic contamination), and to wild and endangered plants and cultivated crops (in the case of resistant superweeds and the herbicide application integral to the 2,4-D crop system). *See Appendix A* (CFS EA comments, April 27, 2012, pp.7-9; CFS EA comments, September 11, 2012, pp.4-7). These are significant harms to agriculture, the environment, and the economy, the protection of which is the PPA's overarching purpose.<sup>21</sup> APHIS's "plant pest risk assessment" (PPRA), the only document upon which the agency is unlawfully basing its NEPA decision, turning NEPA into an empty exercise, *see infra*, completely fails to analyze these harms or explain that failure.

APHIS's arbitrary interpretation of its plant pest authority is also belied by the agronomic facts of Dow's 2,4-D crops. Under APHIS's regulations, GE plants are presumed to create plant pest risks—and thus regulated articles under the PPA—until APHIS determines otherwise.<sup>22</sup> The agency retains control over these regulated articles, prescribing how they may be introduced into the environment and forbidding their release or movement in interstate commerce absent explicit approval.<sup>23</sup> APHIS may grant permission to conduct experimental field trials of a regulated article subject to protective restrictions, after receiving sufficient data.<sup>24</sup> Developers who want to commercialize a transgenic plant based on field trial data must petition USDA for deregulation, which APHIS can grant "in whole or in part."<sup>25</sup> In most cases, GE crops are engineered with an *agrobacterium*, a listed plant pest under the Part 340 regulations. The existence of this plant pest in every cell of the plant makes it resistant to herbicides that the crop's manufacturers sell as part of their herbicide-resistant crop system. The use of the plant pest raises the question of how that plant pest will affect the crop, and how the plant pest-engineered crop will affect the environment. Such crops then begin as regulated articles that APHIS must approve before commercial sale.

However, Dow's 2,4-D crops are not engineered with any plant pests, as APHIS acknowledges: "No plant pest or plant pest-derived material was used to generate the DAS-40278-9 corn plants."<sup>26</sup> As such, APHIS's claim that its review is limited to that of whether 2,4-D corn or soy will become a plant pest is even more unsupportable and contrary to sound science. There are no plant pests in these crops. Thus the definition of a "plant pest" harm for purposes of APHIS's authority must be interpreted to mean something other than how APHIS is presenting it. Otherwise the agency's review and authority over plant pest risks is simply whether these crops will—essentially,

magically—turn into plant pests, even though they do not have any plant pests inside them.

APHIS now explains its authority as threefold: “if it is a plant pest (such as certain microorganisms or insects that can cause injury or damage to plants); or, if it is created using an organism that is itself a plant pest; or, if APHIS does not know or cannot determine if the GE organism is or may be a plant pest.” DEIS at i. Because Dow’s 2,4-D crops contain no plant pest genes, presumably APHIS regulates them pursuant to the third prong (i.e., “if APHIS does not know or cannot determine if the GE organism is or may be a plant pest”). This regulatory posture does not, however, alter the fallacy of the agency’s position. Pursuant to its own interpretation, APHIS requires an EIS, years of field trial data, and other regulatory requirements on weediness impacts and potential harm to non-target organisms, *see infra*, but all of that is superfluous. Actually, the agency is merely deciding whether the crop will transform into a plant pest, even though it does not have any plant pest genes, a scientific impossibility. APHIS’s position is not supported by sound science and is arbitrary and capricious, making its plant pest review a charade.

In contrast to APHIS’s presentation, sound science instructs that “plant pest risk” is a flexible construct, as it must be to adapt a 1957 statute, enacted for the primary purpose of controlling pathogenic microbes, to permit regulation of plants—organisms from a different phylogenetic kingdom—and to accommodate profound scientific uncertainties about the impacts of a new technology, genetic engineering. That the regulation is based on a comparative risk standard (“unlikely to pose a greater plant pest risk than” its conventional counterpart), rather than an absolute biological one, illustrates this further. Unmoored from the insertion of a plant pest itself into the crop, it is plain that APHIS must simply apply the statutory definition, which broadly includes any direct or indirect harm to other plants or plant products. Neither the PPA nor its regulations limit the form or type this “injury, damage, or disease to plants and plant products,” DEIS at i, can take.

APHIS’s interpretation is also belied by the regulation’s data requirements.<sup>27</sup> A deregulation petitioner must present a wide array of information, including weediness, impacts on agricultural practices, indirect impacts on agricultural products, and effects on non-target organisms, which encompass these crops’ contamination, superweeds, consequent herbicide application, and endangered species impacts, but data that would be superfluous if APHIS needed merely to determine whether the crops will turn into a traditional plant pest, like a parasitic plant (a scientific impossibility).

APHIS is internally contradictory in the DEIS, at some places attempting to limit “plant pest risk” to “plant disease or damage.” *See, e.g.*, DEIS at i; DEIS at iv (purpose only to protect “plant health”). This is contrary to the plain language of the PPA, which broadly defines “harm” as to “directly or indirectly injure, cause damage to, or cause disease in any plant or plant product.” In the DEIS, APHIS also contradicts statements it has made elsewhere. Indeed, APHIS has acknowledged since its first GE crop approval



in 1994 (and in many approvals thereafter) that its GE crop review is “considerably broader” than its review of “traditional” plant pests, belying its present arguments:

A certification that an organism does not present a plant pest risk means that there is a reasonable certainty that the organism cannot directly or indirectly cause disease, injury, or damage either when grown in the field, or when stored, sold, or processed. This approach is considerably broader than the narrow definition of plant pest risk arising from microbial or animal pathogens, including insect pests. Other traits, such as increased weediness, and harmful effects on beneficial organisms, such as earthworms and bees, are clearly subsumed within what is meant by direct or indirect plant pest risk.<sup>28</sup>

And again:

APHIS views this [plant pest] definition very broadly. The definition covers direct or indirect injury, disease, or damage not just to agricultural crops, but also to plants in general, for example, native species, as well as to organisms that may be beneficial to plants, for example, honeybees, rhizobia, etc.<sup>29</sup>

APHIS’s application of its plant pest authority here is contrary to this past precedent, as well as sound science. The agency refuses to address the true harms of Dow’s proposed 2,4-D crops, thus failing to consider all important factors. Further, the agency’s decision is contrary to the plain language of the PPA, which gives APHIS authority over broadly defined harms, including those of the proposed 2,4-D crops.

## II. THE NATIONAL ENVIRONMENTAL POLICY ACT AND THE BASIC REQUIREMENTS FOR ENVIRONMENTAL IMPACT STATEMENTS (EIS)

NEPA is “our basic national charter for protection of the environment.”<sup>30</sup> NEPA emphasizes the importance of comprehensive environmental analysis to ensure that federal agencies make informed decisions and requires federal agencies to assess the environmental consequences of their actions before those actions are undertaken. NEPA “ensures that the agency . . . will have available, and will carefully consider, detailed information concerning significant environmental impacts; it also guarantees that the relevant information will be made available to the larger [public] audience.”<sup>31</sup> NEPA also established the Council on Environmental Quality (CEQ).<sup>32</sup> The regulations subsequently promulgated by CEQ, 40 C.F.R. §§ 1500-1508, implement the directives and purpose of NEPA, and “[t]he provisions of [NEPA] and [CEQ] regulations must be read together as a whole in order to comply with the spirit and letter of the law.”<sup>33</sup> CEQ’s regulations are applicable to and binding on all federal agencies.<sup>34</sup> Among other requirements, CEQ’s regulations mandate that federal agencies address all “reasonably foreseeable” environmental impacts of their proposed programs, projects, and regulations.<sup>35</sup> This must include analyses of direct, indirect, and cumulative effects.<sup>36</sup>

The assessment must be a “hard look” at the potential environmental impacts of its action.<sup>37</sup>

NEPA requires federal agencies, including APHIS, to prepare an EIS for all “major Federal actions significantly affecting the quality of the human environment.”<sup>38</sup> In other words, if the action may significantly affect the environment, APHIS must prepare an EIS.<sup>39</sup> Here, APHIS has admitted that some impacts from its proposed action (i.e., deregulation of 2,4-D crops) may significantly affect the environment, and has thus prepared a draft EIS. *See, e.g.*, DEIS at vi.

By preparing an EIS, APHIS has triggered additional NEPA standards and requirements with which its analyses must comply. Naturally, an EIS must be significantly more comprehensive than an EA. APHIS therefore must undertake the analyses in its EIS with more rigorous scientific scrutiny than its EA.<sup>40</sup>

In preparing an EIS, an agency must take a “hard look” at the impacts of the proposed agency action so that the agency may “make decisions that are based on understanding of environmental consequences.”<sup>41</sup> The EIS ensures that the agency will take actions that “protect, restore and enhance the environment.”<sup>42</sup>

Fundamentally, an EIS serves different purposes than an EA. As the Ninth Circuit has explained,

An EA simply assesses whether there will be a significant impact on the environment. An EIS weighs any significant negative impacts of the proposed action against the positive objectives of the project. Preparation of an EIS thus ensures that decision-makers know that there is a risk of significant environmental impact and take that impact into consideration. As such, an EIS is more likely to attract the time and attention of both policymakers and the public.<sup>43</sup>

Thus NEPA mandates that APHIS undertake a wide-ranging evaluation of environmental harms in its EIS.

“The primary purpose of an environmental impact statement is to serve as an action-forcing device to insure that the policies and goals defined in [NEPA] are infused into the ongoing programs and actions of the Federal Government.”<sup>44</sup> An EIS must “provide full and fair discussion of significant environmental impacts and [must] inform decision makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.”<sup>45</sup> It must analyze, *inter alia*: “(i) the environmental impact of the proposed action, (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented, (iii) alternatives to the proposed action, (iv) the relationship between local short-term uses of man’s environment and the maintenance and enhancement of long-term productivity, and (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.”<sup>46</sup>

The effects that must be rigorously analyzed in an EIS include, among other things, the direct environmental impacts of the proposed action, the indirect effects of the proposed action, and the cumulative impacts of the proposed action. Direct effects are those “which are caused by the action and occur at the same time and place.”<sup>47</sup> Indirect effects are those “which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.”<sup>48</sup> A cumulative impact constitutes the “impact on the environment which results from the incremental impact of the action when added to past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”<sup>49</sup>

NEPA also requires an EIS to contain a thorough discussion of the “alternatives to the proposed action.”<sup>50</sup> This discussion of alternatives is “the heart” of the agency’s NEPA process, and is intended to provide a “clear basis for choice among options by the decisionmaker and the public.”<sup>51</sup> Through it, the agency must “[r]igorously explore and objectively evaluate all reasonable alternatives.”<sup>52</sup>

Moreover, an adequate EIS must analyze the proposed agency action in different contexts.<sup>53</sup> Specifically, “context” means that “the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality . . . Both short- and long-term effects are relevant.”<sup>54</sup>

An EIS must also analyze the intensity or “severity of the impacts” of the proposed agency action.<sup>55</sup> This requires an agency to consider “the degree to which the effects on the quality of the human environment are likely to be highly controversial.”<sup>56</sup> An agency must also discuss “the degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks,” and “the degree to which the proposed agency action is related to other actions of “individually insignificant but cumulatively significant impacts.”<sup>57</sup> Analysis of the intensity of the proposed action must discuss the extent to which the proposed agency action “may cause loss or destruction of significant scientific, cultural or historical resources,” and “the degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.”<sup>58</sup> The EIS must disclose and analyze “whether the action threatens a violation of Federal, State or local law or requirements imposed for the protection of the environment.”<sup>59</sup>

Finally, the EIS must “state whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not. A monitoring and enforcement program shall be adopted and summarized where applicable for any mitigation.”<sup>60</sup> “Mitigation must ‘be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated.’”<sup>61</sup> “A

mere listing of mitigation measures” or “broad generalizations and vague references to mitigation measures” are legally inadequate.<sup>62</sup>

Pursuant to these standards, as discussed below as well as in our comments submitted separately and previously in this process, APHIS has failed to comply with NEPA’s mandates, in violation of NEPA and the Administrative Procedure Act (APA).

### III. ALTERNATIVES

Section 102(2)(E) of NEPA requires all agencies to “[s]tudy, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources.” 42 U.S.C. § 4331(2)(E). Regardless of whether an EA or EIS is prepared, NEPA “requires that alternatives be given full and meaningful consideration.”<sup>63</sup>

CFS has previously explained at length why APHIS has failed to comply with NEPA’s Alternatives analysis mandates in its proposal based on EAs. *See* Appendix A (CFS EA comments, April 27, 2012, at pp.11-14; CFS EA comments, September 11, 2012, at pp.7-9). In those comments, we identified numerous reasonable alternatives that APHIS had ignored, and still continues to ignore or unlawfully refuse to consider. *Id.* These include but are not limited to alternatives to mitigate against transgenic contamination; alternatives to mitigate against the worsening crisis of herbicide resistant superweeds; alternatives to mitigate the impacts from herbicide drift; and alternatives to address the unanalyzed risks from “stacking” with other GE crops. *Id.* APHIS should have included analyses fully exploring these alternatives. Specifically, the alternatives considered by APHIS must include a “range of reasonable actions which might meet the goals of the agency by using different approaches which may reduce the environmental impacts of the agency’s action.”<sup>64</sup> We incorporate and expand on our previous comments here, with regard to the DEIS.

Reasonable alternatives are “the heart” of the EIS.<sup>65</sup> Accordingly, APHIS’s reasonable alternatives analysis must “sharply defin[e] the issues and provid[e] a clear basis for choice among options by the decisionmaker and the public.”<sup>66</sup> APHIS’s duty to consider alternatives is more rigorous and comprehensive for this DEIS than for an EA. That is, although an EA need only include “brief discussions . . . of alternatives,”<sup>67</sup> now, in preparing an EIS, APHIS must “[r]igorously explore and objectively evaluate all reasonable alternatives,” including the no action alternative, and, for alternatives that were not evaluated, “discuss the reasons for their having been eliminated.”<sup>68</sup> In so doing, the agency must “[d]evote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits.”<sup>69</sup>

The DEIS purports to include “four” alternatives, from the two (proposed action/no action) that were in the draft EAs. DEIS at 11. However, even this claimed expansion of choice is illusory. The two new “alternatives”—alternative 3, approval of the GE corn only, and alternative 4, approval of the GE soy only—are immediately declared impossible, because AHIS has already “made” the determination that the GE

crops “are not plant pests”; thus, according to APHIS’s logic, even considering these stated alternatives would be inconsistent with the agency’s purpose in the proposed action. DEIS at 12-13.

First, despite the rigor required by NEPA, APHIS’s DEIS presents no serious analysis of alternatives, as APHIS states repeatedly that it effectively has no alternatives. Instead, APHIS merely provides a cursory (and illusory) review of just two options it purports to have “evaluated” to satisfy this requirement: the proposed approval action and the “no action” action. APHIS attempts to simply hide this all-or-nothing approach behind alternatives 3 and 4, which are actually just variations of approval/disapproval, without restrictions. It is a classic NEPA violation to limit the consideration of alternatives simply to (1) action or (2) no action.<sup>70</sup> Thus, APHIS’s alternatives analysis, including its failure to consider other options, is unlawful and arbitrary. APHIS cannot sidestep the unlawfulness of its analysis by pretending to consider two other alternatives in one paragraph each, only to reject them out-of-hand in that same paragraph.

Second, the only alternative to approval that APHIS has actually “evaluated” is that of no action, i.e., denying Dow’s petition. Yet even this analysis is defective. In dismissing the no action option, APHIS again states that it is forced to approve Dow’s 2,4-D crops based on its earlier “plant pest risk assessment.” DEIS at vi, 11. However, APHIS is bound by NEPA to refrain from approving this action—regardless of the agency’s findings in any separate, plant pest risk assessment—until the agency has completed the requisite comprehensive environmental analysis of all potentially significant environmental and ecological risks that approval presents.<sup>71</sup>

Third, APHIS’s alternatives analysis is fundamentally flawed because it is, like the rest of the EIS, far too limited in scope. An agency’s alternatives analysis should be a function of the purpose and need of the action under review.<sup>72</sup> However, “an agency may not define the objectives of its actions in such unreasonably narrow terms as to make consideration of alternatives a mere formality.”<sup>73</sup> But APHIS does exactly that here. On page 1 of the DEIS, when explaining its “purpose and need,” APHIS starts by correctly noting its very broad mission “to protect the health and value of American agriculture and natural resources.” APHIS also correctly states that it must comply with NEPA and explains that for 2,4-D crops the agency found the herbicide-resistant weeds issue to be significant, requiring preparation of an EIS “to further analyze the potential for selection of 2,4-D-resistant weeds and any other impacts that may occur.” DEIS at 7. As the agency recognizes, an EIS provides “APHIS decisionmakers with a mechanism for examining the broad and cumulative impacts on the quality of the human environment that may result” from approval of 2,4-D crops. *Id.* As an EIS is action-forcing procedure and analysis, APHIS’s language parrots the correct role the agency’s NEPA analysis should play: to analyze the potential impacts of a decision before it is made, and to meaningfully consider alternatives before deciding on an action.

Yet elsewhere APHIS explains its actual process:

APHIS regulates those [GE] organisms that have the potential to be plant pests or to increase plant pest risks. It performs extensive, science-based analyses to determine whether or not a GE organism is a plant pest. Results are recorded by the Agency in a Plant Pest Risk Assessment (PPRA). If the conclusion of the PPRA is that a GE organism is unlikely to be a plant pest, the Agency conducts an environmental review consistent with regulations codified under authority of [NEPA] before making a formal determination about its regulatory status.

DEIS at 1. Thus, in its actual process, APHIS first severely limits the scope of such review to only what it currently considers to be “plant pest risks” or, stated alternatively other places, whether the GE crop itself is going to become a “plant pest.” Then, in a separate, (20-page) non-NEPA document discussing the agency’s self-determined subset of risks, APHIS cherry-picks what it does or does not consider to be such a “plant pest” risk (e.g., none of the harms caused by GE crops such as 2,4-D corn and soybeans are included). Then, because the agency has not found plant pest risks or risk that the GE crop itself will become a plant pest, APHIS declares itself without authority to disapprove commercial use of the GE crop. Here, APHIS’s 2,4-D crop DEIS repeats this claim early and often, throughout. *See, e.g.*, DEIS at 7 (“If the Agency determines that a regulated article is unlikely to be a plant pest risk, a GE organism is no longer subject to the regulatory provisions of the PPA or the regulations of 7 CFR part 340.”); DEIS at ii (“If APHIS concludes that the GE organism does not pose any plant pest risk, APHIS must then issue a regulatory decision of non-regulated status.”). That is, according to APHIS, even before a NEPA analysis, it has no option other than full, unmitigated approval.

There are numerous problems with APHIS’s approach, as discussed *supra*, but in sum, the limitations APHIS proclaims regarding its authority have no statutory or scientific basis. Rather, under the PPA, APHIS has authority over broadly defined harms, harms that fit the harms that the GE crops proposed here. APHIS admits that it has the ability to partially deregulate GE crops, but wrongly claims that it cannot use that authority here. Contrary to APHIS’s overly constricted view, there is no list of factors to which APHIS is limited in determining whether to grant or deny a deregulation petition, or to deregulate “in part.” Rather, APHIS may consider any risks encompassed by the statutory definitions of “plant pest” harms and “noxious weed” harms, which are very broad.

The upshot for alternatives purposes is that APHIS cannot meaningful comply with NEPA’s alternatives mandates by pretending to consider other options, while simultaneously claiming to have no such options. APHIS therefore violated NEPA when it defined the purpose and need in this DEIS so narrowly as to preclude the agency from meaningfully considering any alternatives to the course of action it selected. APHIS wants the façade of alternatives, not actual alternatives. However, NEPA unequivocally requires that APHIS meaningfully consider reasonable alternatives. In contrast, by declaring that it had no authority to select other alternative, APHIS relegated the NEPA process to a pointless exercise. APHIS’s process attempts to turn the NEPA review process into a charade, subverting the requirement that “[e]nvironmental impact

statements shall serve as the means of assessing the environmental impact of proposed agency actions, rather than justifying decisions already made.”<sup>74</sup> “NEPA’s purpose is not to generate paperwork—even excellent paperwork—but to foster excellent action.”<sup>75</sup> APHIS violates the statute’s fundamental goal if it erroneously concludes that it need not or could not take into account what its NEPA analysis reveals.

In APHIS’s view, all that matters is the 20-page 2012 PPRA, not the years-long NEPA process it has prepared. It is nonsensical for APHIS to suggest that it has complied with NEPA’s mandate to take a “hard look” at the consequences of its action while simultaneously insisting it is precluded from allowing its approval decision to be influenced by its NEPA analysis. APHIS has the NEPA analysis process precisely backwards: the NEPA analysis must inform the agency’s decision-making process, not the other way around. “The ‘hard look’ must be taken objectively and in good faith, not as an exercise in form over substance, and not as a subterfuge to rationalize a decision already made.”<sup>76</sup> NEPA requires that environmental considerations be factored into government decision-making “early enough so that it can serve practically as an important contribution to the decisionmaking process and will not be used to rationalize or justify decisions already made.”<sup>77</sup> In addition to contravening NEPA, it is also contrary to the PPA’s sound science mandate for APHIS to turn NEPA into a *post hoc* pretense.

Fourth, in considering alternatives, APHIS impermissibly relies on Dow’s biased representations of its own products. In so narrowly defining the purported purpose and need to make Dow’s approval a foregone conclusion, APHIS ignores that “NEPA requires an agency to ‘exercise a degree of skepticism in dealing with self-serving statements from a prime beneficiary of the project and to look at the general goal of the project rather than only those alternatives by which a particular applicant can reach its own specific goals.’”<sup>78</sup> Dow’s goal is to commercialize 2,4-D-resistant GE crops; thus, commercialization cannot be APHIS’s goal as well. In contrast, by law, the agency must consider the “general goals” of its purview and statutory mandate under the PPA: to protect agriculture and the environment from a broadly defined array of harms, including those of GE crops.<sup>79</sup>

In so doing, APHIS must consider alternatives that are reasonable, meaning feasible from a technical, practical, and common sense perspective. As CEQ has instructed:

In determining the scope of alternatives to be considered, the emphasis is on what is ‘reasonable’ rather than on whether the proponent or applicant likes or is itself capable of carrying out the particular alternative. Reasonable alternatives include those that are practical or feasible from a technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant.<sup>80</sup>

APHIS must therefore consider CFS’s proposed reasonable alternatives regarding limiting approval and requiring mandatory measures to protect against transgenic

contamination, herbicide-resistant weeds, and herbicide application harms from 2,4-D crops.

With regards to the herbicide-resistant weed epidemic, the entire purpose of Dow's 2,4-D crops is as the purported "solution" to this crisis, as APHIS notes:

This nearly exclusive use of glyphosate over the past fifteen years led to the selection of glyphosate resistant (GR) weeds, weeds that could survive an application of the herbicide that once would kill earlier generations.

\* \* \* \* \*

The primary purpose of Enlist™ corn and soybean varieties is to help growers manage GR weeds.

DEIS at iii. That is, in APHIS's view, the superweeds epidemic caused by GE crop systems has necessitated Dow's new GE crop system proposal. However, as the agency has recognized, Dow's 2,4-D-resistant crops will themselves create new weed resistance problems (i.e., a new superweeds epidemic), in the form of 2,4-D resistant superweeds. In fact, APHIS correctly identified weed resistance impacts from 2,4-D crops as being so significant as to require an EIS:

APHIS has identified the possible selection of HR weeds resulting from the change in management practices associated with the adoption of Enlist™ corn and soybean as a potentially significant environmental impact. . . . Because of the likely adverse socioeconomic impacts that would result in the event that 2,4-D resistant weeds would be selected from the expected increased 2,4-D use on Enlist™ crops, APHIS believed these impacts may be significant.

DEIS at vi.

Thus, given the breadth and significance of the herbicide-resistant weed issue that Dow and APHIS give as the fundamental need and purpose for 2,4-D crops, which APHIS believes is significant enough as to warrant an EIS, NEPA requires APHIS to, at a minimum, consider and evaluate a wide range of alternatives capable of addressing the same problem.<sup>81</sup> For example, APHIS did not consider an alternative to Enlist crops for weed control that encourages use of agroecological weed control methods instead of herbicides or intensive tillage; USDA researchers have studied and developed successful agroecological weed control methods. Such methods include complex rotations, cover cropping, limited tillage, changes in timing of planting, and other management options. This agroecological weed control alternative could be promoted by various incentives, subsidies, training programs, and other measures that would spur adoption.

An agency may not formulate an action's objectives arbitrarily or to mandate one particular outcome. However, in the DEIS, APHIS does precisely this, again and again



claiming the limitations of its current, outdated regulations. The agency's purported scope argument is wrong, *see supra*, but even if it was correct, APHIS's purpose and need must be guided by the purpose of the statute (i.e., the PPA) under which the agency is taking action, not the agency's own regulations: "[T]he statutory objectives of the project serve as a guide by which to determine the reasonableness of objectives outlined in an EIS."<sup>82</sup>

The fundamental objectives of the PPA are the "protection of the agriculture, environment, and economy of the United States." 7 U.S.C. § 7701(1). Further, as discussed, CFS is submitting its comments also as a noxious weed listing petition, triggering APHIS's broader statutory duties and oversight. In this DEIS, APHIS said nothing about these statutory goals in its purpose and need statement, instead focusing exclusively on its outdated plant pest regulations and declaring that those regulations dictate but one result: unrestricted approval. Unrestricted approval may serve the financial interests of Dow, but "[p]erhaps more importantly [than the need to take private interests into account], an agency should always consider the views of Congress, expressed, to the extent that the agency can determine them, in the agency's statutory authorization to act, as well as in other congressional directives."<sup>83</sup> The Ninth Circuit has recognized "that 'NEPA's legislative history reflects Congress's concern that agencies might attempt to avoid any compliance with NEPA by narrowly construing other statutory directives to create a conflict with NEPA. Section 102(2) of NEPA therefore requires government agencies to comply 'to the fullest extent possible.'"<sup>84</sup>

Finally, it is unlawful for APHIS to refuse to consider reasonable alternatives that the agency believes (rightly or wrongly) fall within another agency's jurisdiction. NEPA regulations require alternatives analyses to "include reasonable alternatives not within the jurisdiction of the lead agency."<sup>85</sup> Thus APHIS's repeated reliance on and deferral to EPA when convenient, discussed *infra*, is not lawful NEPA compliance. As CFS has explained in great detail in our prior comments, there are significant environmental impacts due to the massive herbicide use these proposed new crops will cause. APHIS violated NEPA in failing to analyze them. The agency also violated NEPA in failing to consider alternatives to restrict and prevent such pesticide harms, even if it believes EPA also has such authority. APHIS could for example, as a condition for its action, introduce a regulatory requirement that conditions any approval to EPA similarly reviewing the crops and preventing herbicide drift and harm to non-target species. Courts have "repeatedly recognized that if the agency fails to consider a viable or reasonable alternative, the [NEPA analysis] is inadequate."<sup>86</sup>

#### IV. HERBICIDE IMPACTS

CFS has already filed several previous comments specifically addressing the herbicide impacts of APHIS's proposed approval of Dow's 2,4-D crops. Appendix A (CFS EA comments, April 27, 2012, pp.30-32; CFS EA comments, September 11, 2012, pp.22-25). In those comments, CFS explained how APHIS's analyses of these impacts are based on mistaken baselines for acreage and use and flawed assumptions, and are also

contrary to sound science. Further, CFS submitted detailed scientific comments on both EAs that also addressed this topic at great length, explaining the projected massive increase in overall pesticide use if 2,4-D crops are approved; changes in use patterns; 2,4-D's drift; the novel use of quizalofop; stacking with glyphosate and other pesticides; and the foreseeable myriad environmental harms they would cause. *See* Appendix B (CFS Science Comments). However, APHIS has failed to respond to those concerns in the DEIS. Now, in addition to these legal comments on the DEIS, CFS is also submitting science comments with further analysis of these harms, including, *inter alia*, impacts on farmers and health, biodiversity, non-target species, sensitive crops, insects such as monarch butterflies, species beneficial to agriculture, pollinators, and threatened and endangered species. CFS incorporates these comments here.

In the DEIS, APHIS makes no effort to analyze the harms that approval of 2,4-D crops will cause. Instead, the agency disavows these impacts entirely, instead simply relying on the U.S. Environmental Protection Agency (EPA):

The scope of this draft EIS covers the direct and indirect impacts that would result from the cultivation and use of the plant. EPA, in its registration process, is considering any direct and indirect impacts from the use of the herbicide on Enlist™ plants. The USDA is relying on EPA's authoritative assessments and will not duplicate the assessment prepared by EPA.

*See, e.g.*, DEIS at viii. However, APHIS violates NEPA by relying solely on EPA's future assessment of the direct and indirect impacts the 2,4-D crop system, and consequent herbicide application, will have on human health and the environment. In contrast, by law federal agencies must address all "reasonably foreseeable" environmental impacts of their proposed programs, projects, and regulations.<sup>87</sup> Such a review must include analyses of direct, indirect, and cumulative effects.<sup>88</sup> The assessment must be a "hard look" at the potential environmental impacts of its action.<sup>89</sup> Despite having decided to undertake an EIS and recognizing that approval of 2,4-D crops will massively increase and change associated herbicide use in GE corn and soy, APHIS has refused to analyze these herbicide impacts.

Instead, APHIS artificially separated the GE crops from the impacts of the herbicide (i.e., 2,4-D) the plants are created and designed to be sprayed with. Indirect effects from 2,4-D crops plainly include the effects of herbicides that undisputedly will be used on the crops, since they are the crop's very purpose. Herbicide impacts are not just foreseeable, they are intended and certain. The 2,4-D crops were developed by Dow to be resistant to 2,4-D; they consequently have no value without it and thus must be sold together with it, as a cropping system. Greatly increased 2,4-D use is at a minimum, an indirect effect, of APHIS's action that must be analyzed by APHIS.

As noted, APHIS's reliance on EPA is unlawful. Two prior courts have ruled that APHIS must analyze the herbicide impacts of its herbicide-resistant crop decisions in EISs, for Roundup Ready alfalfa and Roundup Ready sugar beets. Moreover, the courts

have long and consistently rejected agencies' attempts to avoid analyzing the pesticide impacts of their actions under NEPA by arguing that EPA has purview over pesticides under FIFRA.<sup>90</sup> Thus, APHIS cannot rely solely on EPA's evaluation of effects under a separate statute to adequately fulfill its own NEPA obligations. Further, FIFRA analyses and standards are different than NEPA review. "Compliance with FIFRA requirements does not overcome an agency's obligation to comply with environmental statutes with different purposes."<sup>91</sup> Absent NEPA analysis by APHIS, there will be no NEPA analysis of 2,4-D herbicide impacts. This violates NEPA and the APA.

## V. HERBICIDE-RESISTANT WEED IMPACTS

As discussed, the major change between APHIS's previous EAs prepared and the current DEIS is that APHIS concluded that the resistant weed impacts of its proposed action were significant enough to trigger its duty to prepare an EIS. CFS has previously filed extensive comments on the resistant weed impacts of the proposed action, and we incorporate them here by reference.

APHIS categorized this HR weed analysis as part of its cumulative impacts analysis. It is well-established that "a cumulative impacts analysis must include 'some quantified or detailed information' since without such information it is not possible for the court or the public to be sure that the agency provided the hard look that is required of its review."<sup>92</sup> In a cumulative impact analysis, "general statements about possible effects and some risk do not constitute a hard look. . . . The cumulative impact analysis must be more than perfunctory; it must provide a 'useful analysis of the cumulative impacts of past, present, and future projects."<sup>93</sup> Moreover, a cumulative impact analysis must be timely: "it is not appropriate to defer consideration of cumulative impacts to a future date when meaningful consideration can be given now."<sup>94</sup> "If the agency did not present this detailed information and analysis it will be found to have violated NEPA unless it provides a convincing justification as to why more information could not be provided."<sup>95</sup>

A proper NEPA cumulative impacts analysis must also include an assessment of all of NEPA's cognizable impact types listed in 40 C.F.R. 1508.8; potential effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health.<sup>96</sup> As the CEQ regulations explain, when "economic or social and natural or physical environmental are interrelated," the NEPA analysis must discuss "all of these effects on the human environment."<sup>97</sup> Finally, CEQ regulations for cumulative impacts require the analysis of present and reasonably foreseeable actions regardless of what agency (federal or non-federal) or person undertakes such other actions.<sup>98</sup>

As is apparent from these NEPA cumulative impacts analysis standards, the cumulative impacts analysis in APHIS's DEIS does not comply with NEPA. APHIS concluded that it needed to prepare an EIS

[b]ecause of the likely adverse socioeconomic impacts that would result in the event that 2,4-D resistant weeds would be selected from the expected increased 2,4-D use on Enlist™ crops, APHIS believed these impacts may be significant.

DEIS at vi; DEIS at 7 (“APHIS has identified the possible selection of HR weeds as an environmental impact.”). APHIS terms this impact a cumulative one because it would “only result from the combined action of USDA on the subject petitions and of the EPA’s action to register 2,4-D for use on Enlist™ corn and soybean.” *Id.* APHIS then recognizes that

[i]f 2,4-D resistant weeds were to be selected as a result of these combined actions, growers who rely on 2,4-D for effective and inexpensive weed control are likely to experience increased socioeconomic impacts from more costly and restrictive weed control alternatives.

*Id.* Elsewhere, APHIS recognizes that “if APHIS approves the three petitions for nonregulated status for Enlist™ corn and soybean, it is reasonably foreseeable that EPA will independently approve registration of Enlist Duo™ herbicide for use on these GE plant varieties.” DEIS at ix (emphasis added). Thus, APHIS “concluded that, for the decisions on the three DAS petitions, it will prepare an EIS to further analyze the potential for selection of 2,4-D-resistant weeds and any other impacts that may occur.” DEIS at 7 (emphasis added).

However, in the cumulative impacts analysis itself, APHIS unlawfully cabined its analysis in ways that do not comply with NEPA’s mandates. Specifically, the agency refused to analyze the direct, indirect, and cumulative herbicide impacts of its action beyond that of creating resistant weeds, instead deferring entirely to EPA. DEIS at 118. However, as noted, CEQ regulations for cumulative impacts require the analysis of present and reasonably foreseeable actions regardless of what agency (federal or non-federal) or person undertakes such other actions.<sup>99</sup>

It is also arbitrary and capricious for APHIS to consider and analyze only one aspect (the development of resistant weeds) of the intertwined and integral role that 2,4-D and other herbicides fill in herbicide-resistant crop systems like the Dow Enlist crop system, rather than considering the entire system. It is arbitrary for APHIS to pick and choose when and if to consider the role and impacts of herbicides; NEPA requires all reasonably foreseeable impacts be analyzed.

Further, APHIS still improperly cabined its cumulative impacts analysis to only socioeconomic impacts of herbicide-resistant weeds on farmers and agriculture, even though it recognized that there were broader environmental effects. *See, e.g.*, DEIS at 134 (“While direct impacts from the changes in herbicide use associated with Enlist Duo™ could affect certain wildlife, they are outside the scope of this EIS.”); DEIS at 144:

Under the Preferred Alternative, there is an expectation that the use of 2,4-D will increase. This increase in 2,4-D use has the potential to impact natural resources. APHIS does not regulate the use of 2,4-D. The direct and indirect impacts which arise from this increased use are the result of the action that EPA is taking with respect to labeling Enlist™ for use on the corn and soybean events that are the subject of the three petitions being considered in this EIS. APHIS has considered the cumulative impacts from changes in production practices that may arise from herbicide resistant weeds.

APHIS did the same thing for potential cumulative health effects from its action. DEIS at 145. This violates NEPA. A proper NEPA cumulative impact analysis must include an assessment of all of NEPA's cognizable impact types listed in 40 C.F.R. 1508.8; potential "effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health."<sup>100</sup> Accordingly, APHIS cannot limit its analysis to only the socioeconomic impacts of its action. As the CEQ regulations explain, when "economic or social and natural or physical environmental are interrelated," then the NEPA analysis must discuss "all of these effects on the human environment."<sup>101</sup> APHIS therefore must broaden its EIS cumulative impacts analysis to consider all the cumulative effects of approving deregulation of 2,4-D crops.

## VI. IMPACTS OF ITS ACTION THAT APHIS UNLAWFULLY FAILS TO ANALYZE

Federal agencies must address all "reasonably foreseeable" environmental impacts of their proposed programs, projects, and regulations.<sup>102</sup> Such analysis necessarily must include analyses of direct, indirect, and cumulative effects.<sup>103</sup> The assessment must be a "hard look" at the potential environmental impacts of its action.<sup>104</sup> Despite having decided to undertake the DEIS, APHIS continues to fail and/or refuse to analyze many important environmental, socioeconomic, and agronomic impacts of its action, in violation of all applicable statutes.

### A. Incomplete and Inadequate Scientific Analysis and Data

First, as a general matter and as pointed out in CFS's prior and concurrent comments, APHIS's analyses are incomplete and inadequate in numerous ways. For example, APHIS concluded that corn acreage will not increase based on its proposed approval, DEIS at viii, but CFS comments submitted concurrently point out that this critical assumption, which creates the entire geographic baseline of APHIS's analysis of harm, is incorrect. Namely, the 2,4-D resistant weeds that will proliferate if Dow's corn and soy are approved will likely force some conventional wheat farmers to switch to GE corn, increasing corn acreage and replacing a low impact crop for a high impact one.<sup>105</sup> Similarly, APHIS's DEIS fails to correctly analyze the amount that 2,4-D use will increase, another baseline, fundamental projection needed for meaningful analysis, as well as whether and how much use of glyphosate, glufosinate, and quizalofop will

increase. APHIS even completely fails to consider the possible use of several other herbicides.<sup>106</sup>

Nor, under NEPA, is it acceptable for APHIS to claim that impacts from increased and different herbicide application are uncertain: “Reasonable forecasting and speculation is thus implicit in NEPA and we must reject any attempt by agencies to shirk their responsibilities under NEPA by labeling any and all discussion of future environmental effects a ‘crystal ball inquiry.’”<sup>107</sup> Thus, APHIS’s apparent plan to “approve now and ask questions later is precisely the type of environmentally blind decision-making NEPA was designed to avoid.”<sup>108</sup>

In the face of scientific uncertainty, 40 C.F.R. section 1502.22 imposes three mandatory obligations on APHIS: (1) a duty to disclose the scientific uncertainty; (2) a duty to complete independent research and gather information if no adequate information exists (unless the costs are exorbitant or the means of obtaining the information are not known); and (3) a duty to evaluate the potential, reasonably foreseeable impacts in the absence of relevant information.

Underlying these scientific points is the basic principle that NEPA—at its core—contemplates high-quality information and accurate scientific analysis.<sup>109</sup> Public scrutiny is essential to implementing NEPA.<sup>110</sup> The DEIS is inadequate because it does not contain actual analysis or real data supporting APHIS’s assumptions regarding its reliance on EPA or the industry to mitigate the harms approval will cause, for all herbicide effects of its action. Further, APHIS relies on Dow’s proprietary herbicide use data rather than use data from USDA’s National Agricultural Statistics Service.

Environmental information must be available to the public before decisions are made.<sup>111</sup> One major goal of NEPA is to “guarantee that the relevant information will be made available to the larger audience that may also play a role in both the decision-making process and the implementation of that decision.”<sup>112</sup> Without this information, it is extremely difficult, if not impossible for the public, including scientists with the proper expertise, to provide meaningful opinions. This deficiency defeats a primary purpose of NEPA.

## B. Transgenic Contamination

In its prior sets of comments, CFS has discussed at great length (approximately 27+ pages and citations therein) the transgenic contamination impacts that will stem from APHIS’s approval action. *See* Appendix A (CFS comments, September 11, 2012 EA comments, pp.9-22; CFS comments April 27, 2012 EA comments, pp.14-29). We incorporate those comments and will not repeat them.

In this DEIS, APHIS makes no attempt to address or answer our concerns about transgenic contamination in any way. To summarize, transgenic contamination is a multi-faceted harm that has both an environmental and intertwined economic component. Transgenic contamination happens via many myriad pathways, including but certainly

not limited to cross-pollination. Repeated past experiences and scientific evidence submitted and ignored by APHIS show that transgenic contamination from GE crops to conventional and organic plants can, has, and will cause significant and widespread economic harm to the agricultural economy both domestically and abroad in the billions of dollars, as well as the fundamental loss of choice for farmers and consumers caused by loss of non-GE varieties and irreparable contamination of biodiversity. *Id.*

Such economic effects are cognizable impacts that must also be analyzed under NEPA, since they are interrelated and intertwined with environmental effects. These economic effects include market rejection of organic, export, and conventional GE-sensitive products. *Id.* Transgenic contamination has caused organic and conventional farmers and exporters billions of dollars and the loss of non-engineered varieties harms the proposed crops, if not restricted, will greatly exacerbate. The economic effects also include costly burdens, such as testing and required buffer zones, on non-GE farmers and businesses that are necessary to reduce the risk of contamination if approval is granted without restriction. *Id.* Further, economic effects include the risk and harm to GE-sensitive agricultural industries overall, such as organic, and the impacts of contaminating non-GE animal feed. *Id.* These effects also include impacts on the public's and U.S. and foreign farmers' fundamental right to choose to have non-GE varieties of these crops. *Id.* APHIS must analyze the risks and adverse impacts of transgenic contamination from these 2,4-D crops to natural varieties and all environmental and intertwined socioeconomic impacts of such contamination.

In this DEIS, as it did in the previous EA documents, APHIS admits contamination because of its proposed action is possible, even likely, but refuses to analyze it. *See, e.g.,* DEIS at 13, 14, 64-65, 109. In fact, the agency has never analyzed the contamination impacts of any previously approved GE corn or soy, either. Yet one of the primary goals of NEPA is to preserve and maintain “an environment which supports diversity and variety of individual choice.”<sup>113</sup> APHIS instead puts the entire burden on non-GE farmers to attempt to avoid contamination, making assumptions regarding their ability to do without analyzing the risks, impacts or any such mitigation upon which the agency is relying. *See* mitigation section *infra*.

Moreover, more fundamentally, APHIS claims it need not analyze or consider protections from transgenic contamination or alternatives to its action that might include such protections. *See, e.g.,* DEIS at 13, 14. This argument lacks legal or scientific bases. In this DEIS, NEPA requires that APHIS analyze all reasonably foreseeable direct, indirect, and cumulative impacts of its action. The agency does not—cannot—dispute the action will cause contamination. As APHIS well knows, two federal courts have already squarely held that transgenic contamination is a cognizable impact that must be so analyzed, holding that APHIS must rigorously analyze transgenic contamination in an EIS, regarding Roundup Ready alfalfa and Roundup Ready sugar beets. The agency's proposal and refusal of analysis here is contrary to those court decisions and the agency's past precedent, since APHIS did analyze contamination impacts at length, in the only two EISs the agency has every completed on any GE crop. The agency's refusal to do so here is unlawful and violates all applicable statutes.

### C. Seed Market Concentration

As CFS has previously explained at length, APHIS has completely failed to analyze the foreseeable impacts of its proposed action to seed market concentration. Appendix A (CFS EA comments, September 11, 2012 at pp.21-22; CFS EA comments, April 27, 2012, pp.27-29.). The DEIS continues this unlawful failing.

### D. Stacking

As CFS has previously explained at length, APHIS has completely failed to analyze the impacts of its preferred action with regards to the “stacking” of the proposed GE crops with other GE crops. Appendix A (CFS EA comments, September 11, 2012 at pp.28-29; CFS EA comments, April 27, 2012, pp.33-35). In sum, APHIS admits that these crops will be stacked with other GE varieties, and Dow has stated that such stacking is its major intention. *Id.* APHIS has admitted that the range of such stacking is broad, including herbicide resistance, insect resistance, and other GE traits. However, despite this plainly foreseeable—indeed, intended and announced—aspect of its proposed action, in the DEIS, APHIS continued to unlawfully exclude any analysis of its potential impacts.

### E. Climate Change

As CFS explained in prior comments, APHIS’s analysis of the impacts of the proposed 2,4-D-resistant corn and soy on climate change is based on unsubstantiated assumptions that are not supported by the latest science, in violation of NEPA. *See* Appendix A (CFS EA comments, April 27, 2012, pp.41-42; CFS EA comments, September 11, 2012, pp.34-36). APHIS’s insistence that the Enlist crop system will reduce global warming impacts relies on two unsubstantiated assumptions: (1) that the adoption of herbicide-resistant crop systems such as the Enlist crop system will lead to increased utilization of conservation tillage practices in farming; and (2) that the increase use of various herbicides the Enlist crop system is specifically engineered to withstand would not lead to increased Greenhouse Gas (GHG) emissions. *See id.* Both of these assumptions are wrong. CFS previously submitted studies and data demonstrating that the adoption of the herbicide-resistant crop system is not the cause of the increased utilization of conservation tillage practices in farming. *See id.* Moreover, even assuming that herbicide-resistant crop systems have promoted conservation tillage practices such as no-till, recent studies have called into question whether no-till methods truly reduce global warming impacts. Conversely, recent studies have found that GHGs that contribute to global warming are generated at higher levels in no-till fields. *See id.* Finally, APHIS ignores the fact that increased use of 2,4-D and other herbicides (glyphosate and quizalofop in the case of Enlist corn and glyphosate and glufosinate in the case of Enlist soybean), made possible only by the deregulation of Enlist corn and soybean, will in fact worsen the impacts of global warming by producing additional GHG



emissions. *See id.* APHIS's failure to acknowledge or quantify the increased GHG emissions from the combined usage of various herbicides on the Enlist crop system violates NEPA's "hard look" requirement, and is contrary to the CEQ's draft guidance that agencies analyze GHG emissions of the proposed action and the relationship of different alternatives and climate change "including the relationship to proposal design, environmental impacts, mitigation and adaptation measures."<sup>114</sup>

#### F. Conservation Tillage

As explained in previously-filed comments, APHIS's assumption that Enlist corn and soybeans will promote conservation tillage relative to existing conventional corn and soybean production ignores the long-term impacts of adopting to the Enlist cropping system, in violation of NEPA's requirement that the agency consider both short-term and long-term effects in an EIS.<sup>115</sup> *See* Appendix A (CFS EA comments, April 27, 2012, p.36; CFS EA comments, September 11, 2012, p.30); Appendix B (CFS Science EA Comments II, April 27, 2012, pp.2-9; CFS Science EA comments, September 11, 2012, pp.74-76). As set forth in CFS's prior comments, studies claiming that conservation tillage results in more carbon sequestration than conventional tillage are a result of sampling bias and flawed study design. *See* Appendix B (CFS Science EA Comments II, April 27, 2012, pp.2-9; CFS Science EA comments, September 11, 2012, pp.74-76). Moreover, even assuming conservation tillage results in greater carbon sequestration, there is considerable doubt whether herbicide-resistant crop systems such as Enlist corn and soybeans are the direct cause of increased conservation tillage. *See id.* To the contrary, by APHIS's own admission, the history of the existing glyphosate-resistant crop regime demonstrates that farmers resort to increased tillage in order to combat the epidemic of glyphosate-resistant weeds. *See id.* Yet APHIS failed to address whether the adoption of the Enlist crop system would lead to similar increase in tillage practice in the long run, contrary to NEPA's requirement that the agency consider both short-term and long-term effects.

The DEIS's analysis of conservation tillage and climate change impacts is similarly deficient under NEPA. On the one hand, APHIS admits that "there is a potential impact on climate change from increased herbicide use and more aggressive tillage regimes to control herbicide-resistant weeds, causing increased release of GHG from burning additional fossil fuels and soil disruption that releases sequestered carbon as GHGs" under the existing glyphosate-resistant regime. On the other hand, the agency summarily dismisses this impact in the context of the Enlist crop system, stating, "In the long term, selection of 2,4-D resistant weeds may result in similar aggressive tillage practices that are expected to occur." DEIS at 145. APHIS's statement that the deregulation of Enlist corn and soybeans does not alter production practices that contribute to climate change ignores the agency's acknowledgments elsewhere in the DEIS that the deregulation of Enlist corn and soybeans will result in increased herbicide

use. *See* DEIS at 114. APHIS's analysis is therefore contrary to NEPA's requirement that the agency considers both short-term and long-term effects in different contexts.<sup>116</sup>

#### G. Volunteer Resistant Dow Corn and Soy

As CFS has previously explained at length, APHIS has failed to adequately analyze the adverse agronomic and environmental impacts of volunteer 2,4-D corn and soy, particularly stacked with other herbicide modes of resistance. Appendix A (CFS EA comments, April 27, 2012, pp. 35-36; CFS EA comments, September 11, 2012, pp.29-30).

APHIS's DEIS continues this failing. The proposed Dow 2,4-D crops will become difficult to control weeds when they sprout as volunteers in the next year's crop, reducing yield.<sup>117</sup> Volunteer corn and soy becomes a significant weed when it is herbicide resistant because it is difficult to control, and the proposed Enlist corn would be resistant to four different modes of action: 2,4-D; quizalofop and other grass herbicides normally used; glyphosate; and glufosinate. It is foreseeable that Dow will make Enlist corn resistant to more herbicides as well.<sup>118</sup> These agronomic and environmental impacts may be significant, triggering EIS review under NEPA. Further, as discussed *infra*, these resistant weed volunteer harms also trigger APHIS's plant pest and noxious weed authorities. However, APHIS failed to consider and analyze these impacts, in violation of its statutory mandates.

#### H. Public Health

CFS's previous comments discussed risks to public health and farm workers from APHIS's proposed action. Appendix A (CFS EA comments, April 27, 2012, pp.39-41; CFS EA comments, September 11, 2012, pp.33-34); Appendix B (CFS Science comments). Public health issues may be significant environmental impacts under NEPA. Specifically, CEQ regulations identifying the factors that may be significant effects on the human environment state that one such factor is "[t]he degree to which the proposed action affects public health or safety."<sup>119</sup> Accordingly, APHIS's DEIS must identify any potential human health or safety risks and determine whether those human health and safety impacts are significant.

For APHIS to lawfully conclude that public health or safety impacts are not significant, it must provide a convincing statement of reasons. Here, however, APHIS completely failed to undertake a meaningful analysis of potential human health impacts or provide a convincing statement of reasons why such impacts are not significant, and as such, has failed to comply with NEPA.

APHIS passes the buck to FDA, under the Federal Food, Drug, and Cosmetic Act (FFDCA), but APHIS cannot solely rely on another agency's evaluation of impacts under a separate statute to adequately fulfill APHIS's own NEPA obligations.<sup>120</sup> Health impacts are cognizable impacts pursuant to NEPA that require analysis in an EIS if they may significantly impact the "human environment." These impacts are interrelated to

environmental impacts because they would stem from the transgenic contamination of natural corn and soy (through cross-pollination and other means) and cause unknown and unwilling human exposures. Accordingly, APHIS has its own duty to comply with NEPA, including assessment of potential significant impacts to public health and safety.

In addition to being contrary to NEPA, there is a second reason APHIS should not defer completely to FDA: FDA's GE consultation process, which is merely voluntary, is extraordinarily weak and therefore fails to adequately assess human health impacts. (See, e.g., DEIS at 87 ("GE organisms for food and feed may undergo a voluntary consultation process with the FDA prior to release onto the market.") (Emphases added). That consultation process is based on a statement of policy, not a binding regulation. GE crop developers may choose to consult with FDA, but this process is vitiated by its voluntary nature and a lack of any established testing standards; in particular, GE crop developers seldom if ever conduct animal feeding trials with GE crops for the purpose of detecting potential toxicity. The manufacturer merely sends FDA a summary of its findings. FDA makes no findings of safety itself. See DEIS at 87 ("Under the FFDCA, it is the responsibility of food and feed manufacturers to ensure that the products they market are safe and labeled properly.") (Emphasis added).) In the consultation process for 2,4-D-resistant corn and soybeans, FDA neither prepared any NEPA documentation (an EA or EIS) on its policy, nor provided notice and comment opportunities for the public.

It is well accepted that genetic engineering has a greater likelihood of producing unintended effects than traditional breeding, some of them hazardous or detrimental.<sup>121</sup> Unintended effects are rarely well understood, but can result from extensive mutations to an organism's genes caused by the genetic engineering process.<sup>122</sup> Such disruptions are sometimes evident in the form of non-viable or debilitated organisms. However, subtler effects often are not detected in the development process. Potential adverse effects include the unintended amplification of naturally occurring toxins that are normally present at low, unobjectionable, levels; the unintended creation of novel toxins; and reduced levels of nutrients.

APHIS's cursory human health analysis is inadequate to comply with NEPA. To arrive at its human health conclusion, the agency relies only on two exceedingly frail bases: generalizations about GE food safety that are in no way specific to 2,4-D varieties (DEIS at 87); and Dow's completion of the FDA's voluntary consultation process (i.e., that FDA had "no questions") for two of the three 2,4-D varieties (the DAS-40278-9 corn and DAS-68416-4 soybean)—APHIS merely notes that Dow had the "intent" to consult with FDA about the third 2,4-D variety (DEIS at 88). This is a far cry from the "hard look" NEPA requires.

Similarly APHIS failed to analyze the impacts on public health and farm worker health from the massive increase in herbicide use that will stem from its proposed action. Instead, APHIS relied completely on EPA. As discussed *supra*, this reliance is similarly misplaced and violates NEPA.

## I. Seed Treatments of 2,4-D Corn and Soybeans

In this DEIS, APHIS's failure to address the issue of seed treatments of 2,4-D corn and soybeans violates NEPA. As previously stated, NEPA requires that an EIS "shall provide full and fair discussion of significant environmental impacts and shall inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment."<sup>123</sup> The DEIS falls short of that standard because APHIS fails to mention, let alone consider, the environmental and economic impacts stemming from the insecticides, fungicides, and other chemicals that will likely be used to treat the 2,4-D corn and soybean seeds.

APHIS's silence on the impacts of seed treatments used to treat 2,4-D corn and soybean seeds is egregious in light of known harm to honey bees, birds, and other vital pollinator species posed by the use of neonicotinoid insecticides in seed treatments of corn and soybean. A relatively new class of insecticide that was introduced a little more than a decade ago, neonicotinoid insecticides are now the most widely used insecticide in the world, with billions of dollars in sales.<sup>124</sup> The most common neonicotinoids on the market are imidacloprid, thiamethoxam, clothianidin, thiacloprid, dinotefiram, and acetamiprid.<sup>125</sup> Annually, over 3.5 million pounds of neonicotinoids have been applied across the U.S,<sup>126</sup> a number that continues to grow. Neonicotinoids are widely used as a seed treatment for corn and soy.<sup>127</sup> In fact, over 99 percent of all the corn seed planted in North America is treated with neonicotinoids, primarily clothianidin and a closely related compound, thiamethoxam.<sup>128</sup> Soy, canola, wheat, and cotton production also occur on millions of acres in the U.S.; neonicotinoid treated seeds are currently being planted on approximately 200 million acres in the U.S.<sup>129</sup>

However, APHIS's DEIS is silent on the negative impacts stemming from neonicotinoid seed treatments on corn and soybean, in direct violation of NEPA's mandate that the agency take a "hard look" at the environmental consequences of its proposed agency action.<sup>130</sup> As a seed treatment for corn and soybean, neonicotinoids contaminate the environment and pose serious threat to the health of honey bees, other vital pollinator species, aquatic species, and birds. First, when used as a seed coating, neonicotinoids enter and pollute the environment via dust-off from the seeds during planting.<sup>131</sup> Moreover, the treated seed absorbs the neonicotinoids and transports their pesticidal properties throughout all parts of the growing plant's tissue, rendering the entire plant poisonous to insects.<sup>132</sup> Neonicotinoid treatment of seeds results in systemic expression in the plant—that is, the insecticide is taken up by the plant's vascular system as the seed grows and gets expressed through its tissues, including flowers, pollen, and nectar.<sup>133</sup> Thus the entire plant is toxic to insects.<sup>134</sup> Neonicotinoids paralyze insects by blocking a chemical pathway that transmits nerve impulses in their central nervous systems.<sup>135</sup>

By failing to address the use of neonicotinoids as a seed treatment for 2,4-D corn and soybeans, APHIS also fails to examine and address the cumulative impacts on the environment stemming from this toxic seed treatment. Neonicotinoids are extremely persistent in the environment, with half-lives that range from 148 days to 6,932 days,

depending on soil types and weather conditions.<sup>136</sup> Their persistent nature leads to increased contamination of surface and groundwater in addition to soil.<sup>137</sup> The main pathways for human and animal exposure to neonicotinoids are residues in pollen and nectar, dust from treated seeds and soils, planter exhaust, untreated but contaminated non-crop plants adjacent to treated fields, guttation droplets on both treated and untreated but contaminated plants, and residues from foliar uses.<sup>138</sup> Once treated with a neonicotinoid, a plant can become highly toxic to non-target invertebrates, including pollinators such as honey and bumble bees.<sup>139</sup> In addition to the obvious effects of lethal doses neonicotinoids, sub-lethal exposures can cause significant impacts to bees, including reductions in learning, foraging abilities, and homing abilities.<sup>140</sup> Studies on the impacts of neonicotinoids have primarily focused on the significant harms they cause to pollinators; however, researchers are now starting to identify harm resulting from neonicotinoid use on aquatic invertebrates and birds.<sup>141</sup>

APHIS's DEIS is similarly silent on the foreseeable agro-economic impacts from the harm to honey bees and pollinators due to neonicotinoid seed treatments. According to data from the USDA, pollination contributes \$20 to 30 billion in crop production annually to the agricultural economy.<sup>142</sup> Indeed, one in every three bites of food for human consumption requires pollination by honey bees, and nearly 90 percent of all flowering plants require pollinators in order to reproduce.<sup>143</sup> Thus, the planting of 2,4-D corn and soybean treated with neonicotinoid insecticides and the resulting loss of honey bees and other pollinators can have detrimental impacts on U.S. agricultural production and the agricultural economy. The DEIS falls short of the requirements of NEPA's requirement to analyze "the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity."<sup>144</sup>

## VII. MITIGATION

It is fundamental that an EIS must discuss not only the impacts of a proposed action and reasonable alternatives, but also measures that may be taken to reduce the action's impacts. This requirement is implicit in NEPA's provision that an EIS describe "any adverse environmental effects which cannot be avoided should the proposal be implemented."<sup>145</sup> As the Ninth Circuit has emphasized, "The importance of the mitigation plan cannot be overestimated. It is a determinative factor in evaluating the adequacy of an environmental impact statement."<sup>146</sup>

Mitigation measures must be described "in detail,"<sup>147</sup> and an analysis explaining the effectiveness of the measures is "essential."<sup>148</sup> Under NEPA regulations, APHIS mitigation strategy must include:

- (a) Avoiding the impact altogether by not taking a certain action or parts of an action.
- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.

- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- (e) Compensating for the impact by replacing or providing substitute resources or environments.<sup>149</sup>

Further, the effectiveness of mitigation measures must be supported by studies and analytical data in the record: “[T]he Ninth Circuit has repeatedly held that NEPA requires analytical data describing mitigation’s effectiveness. A perfunctory description or mere listing of mitigation measures, without supporting analytical data, is inadequate.”<sup>150</sup> Finally, mitigation measures cannot substitute for actually analyzing environmental impacts.<sup>151</sup>

In this DEIS, APHIS’s repeated reliance on unanalyzed, uncertain mitigation violates NEPA. The agency includes various forms of mitigation it relies on to lessen the harms of its proposed action. In fact, pages 118 to 119 unabashedly include a long list of APHIS’s “assumptions” for its analysis. This is exactly what the Courts have said is unacceptable: “A perfunctory description or mere listing of mitigation measures, without supporting analytical data, is inadequate.”<sup>152</sup>

First, as explained above, APHIS unlawfully relied completely on EPA’s FIFRA process as “assumed,” unanalyzed mitigation for all herbicide impacts of APHIS’s proposed approval action:

One assumption of the APHIS analysis is that EPA will establish label restrictions that will ensure the safety standards for human health and the environment associated with the use of Enlist Duo™ on these three varieties will be met.

\* \* \* \* \*

APHIS assumes that drift from 2,4-D and other pesticide applications will be mitigated to an acceptable level by the registration requirements established by EPA.

DEIS at 118-19 (emphases added). On page 149, entitled “mitigation measures,” APHIS continues,

Mitigation measures to oversee the proper usage of herbicides are determined by EPA and are disseminated to the herbicide users through EPA approved labels. Adhering to herbicide label requirements, including application rates and techniques and following industry herbicide stewardship programs, will largely minimize improper herbicide usage. The extent of herbicide drift will be mitigated by the requirement to use the Enlist™ formulation which is at least 50 fold less volatile than other 2,4-D formulations, by conditions on the label that will require nozzles

that limit drift and restrictions on when and how the herbicide can be applied.

Far from analyzing labeling requirements “in detail,” APHIS includes no analysis of how EPA might accomplish this, or what levels might be acceptable or effective. Similarly, APHIS does not analyze risks from drift of 2,4-D, glufosinate, quizalofop, or glyphosate, even though these herbicides will be used as part of the Enlist crop system. This attempted mitigation reliance cannot substitute for APHIS’s duty to actually analyze foreseeable environmental impacts.<sup>153</sup>

Nor it is acceptable for APHIS to claim that such impacts are uncertain: “Reasonable forecasting and speculation is thus implicit in NEPA and we must reject any attempt by agencies to shirk their responsibilities under NEPA by labeling any and all discussion of future environmental effects a ‘crystal ball inquiry.’”<sup>154</sup> Consequently, APHIS’s claim that it “approve now and ask questions later is precisely the type of environmentally blind decision-making NEPA was designed to avoid.”<sup>155</sup>

Second, APHIS unlawfully relied on mitigation in the form of industry’s “best practices” and “stewardship:”

APHIS assumes that growers will choose management practices appropriate for the crops planted.

\* \* \* \* \*

APHIS assumes that herbicide applications will conform to the EPA-registered uses for corn and soybean. . . . In addition to corn and soybean, APHIS assumes that other approved 2,4-D uses (e.g. on pastures, wheat, oats, barley, millet, rye, sorghum, rice, cotton, sugarcane, almonds, apples, apricots, cherries, citrus, hazelnuts, nectarines, peaches, pears, pecans, plums, walnuts) will conform to EPA-registration requirements.

\* \* \* \* \*

APHIS assumes that all 2,4-D treatments made with the Enlist Duo™ formulation to corn and soybean will also include glyphosate because stewardship agreements between DAS and growers will stipulate that Enlist Duo™ products (which are a mixture of glyphosate and 2,4-D) be used.

DEIS at 118. On page 149 of the DEIS, APHIS again describes its reliance and clarifies that the mitigation upon which it is relying is not enforceable:

APHIS does not have the authority to regulate types of management practices or use of herbicides. Nevertheless, mitigation can occur by a number of means. First growers may voluntarily adopt best practices

recommended by weed experts as described in section 5.3.2. Second, any grower who uses Enlist<sup>™</sup> crops will be expected to follow a stewardship agreement that requires the use of a 2,4-D choline formulation mixed with glyphosate and recommends no more than two applications of this herbicide per season. APHIS assumes that there would be no binding enforcement mechanism to ensure that farmers follow the stewardship agreement but failure to do so could jeopardize a grower's access to the technology.

(Emphasis added.) Again, in violation of NEPA, APHIS fails to include analysis of the potential efficacy of these measures.

Moreover, APHIS admits that they are not enforceable; it is relying on Dow to police its own customers and sue them for any infractions, although Dow has no legal obligations or meaningful incentives to do so. Quite the contrary, Dow's financial interest in maximizing sale of its 2,4-D corn and soy seed conflicts with taking enforcement action against farmer-customers who violate its stewardship agreement. Thus, any reliance by APHIS on Dow's enforcement as a "mitigation" measure is by its nature arbitrary and capricious. APHIS provides no analysis of whether growers actually comply with stewardship provisions, nor any evidence that Dow will enforce them. "As with the question of the extent of the unremediated injury that might otherwise occur, the question of the impact of the proposed mitigation measures must be studied as part of the preparation of an EIS rather than after the injury has transpired."<sup>156</sup> Therefore, APHIS's mitigation section is inadequate and violates NEPA.

Regarding transgenic contamination, APHIS states its belief that it "reasonably can be assumed" that growers of non-GE and organic corn and soy can use practices to protect their crops from transgenic contamination. DEIS at 65-66. Once again, APHIS's mitigation assumption is without analytical basis; as discussed in CFS's here *supra* and in previous CFS comments on APHIS's NEPA analyses of deregulating GE crops, and as courts have previously held, transgenic contamination is a significant risk and substantial impact to farmers and the environment that must be analyzed in an EIS; it cannot be assumed away in a few sentences. Accordingly, APHIS's cursory assumptions and complete failure to analyze mitigation violate NEPA's mandates.

Finally, regarding herbicide-resistant weed development, APHIS correctly recognizes that deregulating 2,4-D crops will cause the development of 2,4-D-resistant weeds. DEIS at 140. APHIS thus "recommends" a list of agronomic voluntary practices "to mitigate the increased selection pressure associated with the increased use of 2,4-D." *Id.* APHIS states that it is "unknown" whether farmers will follow these listed practices. *Id.* APHIS then concludes that the distribution and growth of 2,4-D resistant weeds is "impossible to predict" because the extent to which farmers will follow these practices is "unknown." *Id.* However, APHIS's reliance on this unanalyzed, uncertain "mitigation" violates NEPA. The effectiveness of mitigation measures must be supported by studies and analytical data in the record: "[T]he Ninth Circuit has repeatedly held that NEPA



requires analytical data describing mitigation's effectiveness. A perfunctory description or mere listing of mitigation measures, without supporting analytical data, is inadequate."<sup>157</sup> Nor can mitigation measures substitute for actually analyzing environmental impacts.<sup>158</sup>

## VIII. MIGRATORY BIRD TREATY ACT

The Migratory Bird Treaty Act (MBTA) implements the obligations of the U.S. under several international treaties and conventions for the protection of migratory birds.<sup>159</sup> The MBTA mandates that proposed projects must avoid the take of migratory birds entirely and must minimize the loss, destruction, and degradation of migratory bird habitat.<sup>160</sup> The vast majority of U.S. native birds are protected under the MBTA, even those that do not participate in international migrations.<sup>161</sup> Under the MBTA, "[n]o person may take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such bird except as may be permitted under the terms of a valid permit."<sup>162</sup>

In this DEIS, APHIS fails to properly consider and disclose its obligations to migratory birds, never even mentioning its responsibilities under the MBTA. The MBTA prohibits the take of migratory birds entirely and mandates that the loss, destruction, and degradation of migratory bird habitat must be minimized. If approved, 2,4-D resistant corn and soy would likely be grown in fields visited by hundreds, if not thousands, of species of birds protected under the MBTA. Rather than determining whether deregulation of 2,4-D resistant corn and soy would have adverse effects on species protected under the MBTA, APHIS simply ignores this significant issue.

Further, APHIS's consideration of impacts to migratory birds pursuant to its obligations under Executive Order 13186 is cursory at best. Relying exclusively on data submitted by the applicant regarding compositional differences between the proposed novel GE crops as compared to other corn and soy strains, and apparently nothing else, APHIS concludes that the migratory birds that forage in cornfields are unlikely to be affected adversely by ingesting the GE crops. DEIS at 161. This conclusion stands unsubstantiated, and APHIS did not make any attempt to review applicable literature or conduct research to determine whether this industry supplied conclusion is in fact an accurate depiction of the potential impacts.

That migratory birds heavily rely on agricultural fields, common agricultural birds are in decline, and pesticide use in agricultural fields and as seed treatments is a significant factor in this decline are well known facts.<sup>163</sup> APHIS acknowledges in the DEIS that migratory birds feed on spilled soybean and corn seed. DEIS at 56-57. The agency also admits that, just in the Dakotas, as many as 33 "desirable" bird species have been identified in corn and soy fields. *Id.*; *see also* DEIS at 91. Each of these species has unique physiology, yet APHIS makes no actual attempt to consider the actual impacts of the proposed action on these species, instead relying on assumptions to deny the potential for impacts. *Id.* APHIS failed to provide any data or actually consider the risks to migratory birds. This constitutes a failure to take the required hard look at impacts to

migratory birds and could potentially lead to take under the MBTA, and also violates the APA.

Respectfully submitted,



---

George A. Kimbrell  
Sylvia Shih-Yau Wu  
*Center for Food Safety*  
917 SW Oak Street, Suite 300  
Portland, Oregon 97205  
[gkimbrell@centerforfoodsafety.org](mailto:gkimbrell@centerforfoodsafety.org)  
[swu@centerforfoodsafety.org](mailto:swu@centerforfoodsafety.org)

---

<sup>1</sup> See generally The Center for Food Safety, <http://www.centerforfoodsafety.org>.

<sup>2</sup> 7 U.S.C. § 7712(a).

<sup>3</sup> 7 U.S.C. § 7701(1).

<sup>4</sup> *Id.* §§ 7701(4), 7711(b), 7712(b).

<sup>5</sup> *Gwaltney of Smithfield, Ltd v. Cheasapeake Bay Found., Inc.*, 484 U.S. 49, 56 (1987).

<sup>6</sup> 7 U.S.C. § 7702(10).

<sup>7</sup> *Id.* § 7702(14).

<sup>8</sup> 7 U.S.C. § 7702(10).

<sup>9</sup> 7 U.S.C. § 7712(a).

<sup>10</sup> See, e.g., 7 C.F.R. § 360.400.

<sup>11</sup> 75 Fed. Reg. 68945, 68948 (November 10, 2010).

<sup>12</sup> See APHIS, *The Plant Protection Act*, [http://www.aphis.usda.gov/lpa/pubs/fsheet\\_faq\\_notice/fs\\_phproact](http://www.aphis.usda.gov/lpa/pubs/fsheet_faq_notice/fs_phproact).

---

<sup>13</sup> *Int'l Ctr. for Tech. Assessment v. Johanns (ICTA)*, 473 F. Supp. 2d 9, 25 & n.15 (Feb. 5, 2007).

<sup>14</sup> 73 Fed. Reg. 60,008, 60,011 (Oct. 9, 2008) (emphases added).

<sup>15</sup> See 7 U.S.C. § 7712(f)(1).

<sup>16</sup> 7 U.S.C. § 7712(f)(1).

<sup>17</sup> 7 U.S.C. § 7712(a).

<sup>18</sup> See APHIS, Guide to the Listing Process for Noxious Weeds, available at [http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/weeds/downloads/listingguide.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/weeds/downloads/listingguide.pdf).

<sup>19</sup> See 7 C.F.R. § 360.500.

<sup>20</sup> 7 U.S.C. § 7702(14); see also 7 C.F.R. § 340.2.

<sup>21</sup> 7 U.S.C. § 7701(1).

<sup>22</sup> 7 C.F.R. §§ 340.0(a)(2) & n. 1, 340.1, 340.2, 340.6.

<sup>23</sup> 7 C.F.R. §§ 340.0.

<sup>24</sup> *Id.* §§ 340.3, 340.4.

<sup>25</sup> 7 U.S.C. § 7711(c)(2), 7 C.F.R. § 340.6, 7 C.F.R. § 340.6(d)(3)(i).

<sup>26</sup> APHIS, *Plant Pest Risk Assessment for DAS-40278-9 Corn*, at 7.

<sup>27</sup> 7 C.F.R. § 340.6(c)(4).

<sup>28</sup> APHIS, Glyphosate-Tolerant Soybean Line 40-3-2 App. 5 (1994), [http://www.aphis.usda.gov/brs/aphisdocs2/93\\_25801p\\_com.pdf](http://www.aphis.usda.gov/brs/aphisdocs2/93_25801p_com.pdf) (emphases added); APHIS, *Glyphosate-Tolerant Canola Line RT73 3* (1998), [http://www.aphis.usda.gov/brs/dec\\_docs/9821601p\\_det.htm](http://www.aphis.usda.gov/brs/dec_docs/9821601p_det.htm) ; APHIS, *Canola Transformation Events MS8 and RF3 Genetically Engineered for Pollination Control and Glufosinate Herbicide Tolerance 3* (1998), [http://www.aphis.usda.gov/brs/dec\\_docs/9827801p\\_det.htm](http://www.aphis.usda.gov/brs/dec_docs/9827801p_det.htm); APHIS, *Glufosinate-Ammonium Tolerant Sugar Beet Transformation Event T120-7 3* (1997), [http://www.aphis.usda.gov/brs/dec\\_docs/9733601p\\_det.htm](http://www.aphis.usda.gov/brs/dec_docs/9733601p_det.htm); APHIS, *Glyphosate Tolerant Corn* App. 5 (2000), [http://www.aphis.usda.gov/brs/aphisdocs2/00\\_01101p\\_com.pdf](http://www.aphis.usda.gov/brs/aphisdocs2/00_01101p_com.pdf).

<sup>29</sup> 69 Fed. Reg. 315, 316 (January 5, 2004).

<sup>30</sup> 40 C.F.R. § 1500.1(a).

<sup>31</sup> *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349(1989).

<sup>32</sup> See 42 U.S.C. §§ 4321, 4344.

<sup>33</sup> 40 C.F.R. § 1500.3.

---

<sup>34</sup> 40 C.F.R. §§ 1500.3, 1507.1; *see, e.g., Hodges v. Abraham*, 300 F.3d 432, 438 (4th Cir. 2002).

<sup>35</sup> *See* 40 C.F.R. §§ 1502.4, 1508.8, 1508.18, & 1508.25.

<sup>36</sup> *See* 40 C.F.R. §§ 1508.8, .9, .13, .18.

<sup>37</sup> *Blue Mountains Biodiversity v. Blackwood*, 161 F.3d 1208, 1211 (9<sup>th</sup> Cir. 1998). *Nat'l Parks & Conservation Ass'n v. Babbitt*, 241 F.3d 722, 731 (9th Cir. 2001) (quoting 40 C.F.R. § 1508.27).

<sup>38</sup> 42 U.S.C. § 4332(2)(C).

<sup>39</sup> *Steamboaters v. FERC*, 759 F.2d 1382, 1392 (9th Cir. 1985); *Idaho Sporting Cong. v. Thomas*, 137 F.3d 1146, 1150 (9th Cir. 1998) (citation omitted).

<sup>40</sup> *See, e.g., Sierra Nevada Forest Prot. Campaign v. Rey*, 573 F. Supp. 2d 1316, 1349 (E.D. Cal. 2008) (citation omitted) (noting that an EIS is subject to “rigorous scrutiny,” while an EA is “simpler”); *see Protect Lake Pleasant, LLC v. Connor*, No. CIV 07-0454-PHX-RCB, 2010 WL 5638735, \*33 (D. Ariz. July 30, 2010) (same).

<sup>41</sup> *Marsh*, 490 U.S. at 374; *see* 40 C.F.R. § 1500.1(c).

<sup>42</sup> 40 C.F.R. § 1500.1(c).

<sup>43</sup> *Anderson v. Evans*, 314 F.3d 1006, 1023 (9th Cir. 2002).

<sup>44</sup> 40 C.F.R. § 1502.1.

<sup>45</sup> *Id.*

<sup>46</sup> 42 U.S.C. § 4332(2)(C).

<sup>47</sup> 40 C.F.R. 1508.8(a).

<sup>48</sup> 40 C.F.R. 1508.8(b).

<sup>49</sup> 40 C.F.R. § 1508.7.

<sup>50</sup> 42 U.S.C. §§ 4332(C)(iii); 4332(E).

<sup>51</sup> 40 C.F.R. § 1502.14.

<sup>52</sup> 40 C.F.R. § 1502.14(a).

<sup>53</sup> *See* 40 C.F.R. § 1508.27.

<sup>54</sup> 40 C.F.R. § 1508.27(a).

<sup>55</sup> 40 C.F.R. § 1508.27(b).

<sup>56</sup> 40 C.F.R. § 1508.27(b)(4).

---

<sup>57</sup> 40 C.F.R. § 1508.27(b)(5), (7).

<sup>58</sup> 40 C.F.R. § 1508.27(b)(8)-(9).

<sup>59</sup> 40 C.F.R. § 1508.27(b)(10).

<sup>60</sup> 40 C.F.R. § 1505.2(c).

<sup>61</sup> *Carmel-By-the-Sea v. U.S. Dep't of Transp.*, 123 F.3d 1142, 1154 (9th Cir. 1997) (quoting *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 353 (1989)).

<sup>62</sup> *Neighbors of Cuddy Mountain v. U.S. Forest Serv.*, 137 F.3d 1372, 1381 (9th Cir. 1998).

<sup>63</sup> *Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1229 (9th Cir. 1988).

<sup>64</sup> *See, e.g., Soda Mountain Wilderness Council v. Norton*, 424 F. Supp. 2d 1241, 1265 (E.D. Cal. 2006).

<sup>65</sup> 40 C.F.R. § 1502.14.

<sup>66</sup> *Id.*

<sup>67</sup> 40 C.F.R. § 1508.9(3)(b).

<sup>68</sup> *Id.* § 1502.14(a).

<sup>69</sup> *Id.* § 1502.14(b); *see, e.g., W. Watersheds Project*, 721 F.3d at 1274 (“Regulations require both documents to incorporate a range of reasonable alternatives, but the depth of discussion and analysis required is different depending on whether the document is an EIS or an EA.”).

<sup>70</sup> *See, e.g., American Oceans Campaign v. Daley*, 183 F. Supp. 2d 1, 17-21 (D.D.C. 2000); *Muckleshoot Indian Tribe v. U.S. Forest Serv.*, 177 F.3d 800, 813-14 (9th Cir. 1999) (consideration of only unqualified deregulation and the no action alternative is presumptively too limited to comply with NEPA).

<sup>71</sup> *See, e.g., Save Our Cumberland Mts. v. Kempthorne*, 453 F.3d 334, 343 (6th Cir. 2006).

<sup>72</sup> *See* 40 C.F.R. § 1502.13 (agency must “specify the underlying purpose and need to which the agency is responding in proposing the alternatives....”); *City of Carmel-By-The-Sea v. U.S. Dep't of Transp.*, 123 F.3d 1142, 1155 (9th Cir. 1995) (“The stated goal of a project necessarily dictates the range of ‘reasonable’ alternatives and an agency cannot define its objectives in unreasonably narrow terms.”) (citation omitted).

<sup>73</sup> *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 196 (D.C. Cir. 1991).

<sup>74</sup> 40 C.F.R. § 1502.02(g).

<sup>75</sup> 40 C.F.R. § 1500.1(c).

<sup>76</sup> *Western Watersheds Project*, 632 F.3d at 491.

- 
- <sup>77</sup> *Metcalf v. Daley*, 214 F.3d 1135, 1142 (9th Cir. 2000).
- <sup>78</sup> *Env'tl. Law & Policy Ctr. v. United States Nuclear Regulatory Comm'n*, 470 F.3d 676, 683 (7th Cir. 2006).
- <sup>79</sup> 7 U.S.C. § 7701(1).
- <sup>80</sup> *Forty Most Asked Questions Concerning CEQ's NEPA Regulations*, 48 Fed. Reg. 18,026 (Mar. 23, 1981)
- <sup>81</sup> 40 C.F.R. § 1502.13; *see, e.g., City of Carmel-By-The-Sea v. U.S. Dep't of Transp.*, 123 F.3d at 1155.
- <sup>82</sup> *Westlands Water Dist. v. U.S. Dept. of Interior*, 376 F.3d 853, 866 (9th Cir. 2004).
- <sup>83</sup> *Nat'l Parks & Conservation Ass'n*, 606 F.3d at 1070.
- <sup>84</sup> *Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1213 (9th Cir. 2008).
- <sup>85</sup> 40 C.F.R. 1502.14(c).
- <sup>86</sup> *See Alaska Conservation Council v. Fed. Highway Admin.*, 649 F.3d 1050, 1056 (9th Cir. 2011).
- <sup>87</sup> *See* 40 C.F.R. §§ 1502.4, 1508.8, 1508.18, & 1508.25.
- <sup>88</sup> *See* 40 C.F.R. §§ 1508.8, .9, .13, .18.
- <sup>89</sup> *Blue Mountains Biodiversity v. Blackwood*, 161 F.3d 1208, 1211 (9<sup>th</sup> Cir. 1998). *Nat'l Parks & Conservation Ass'n v. Babbitt*, 241 F.3d 722, 731 (9th Cir. 2001) (quoting 40 C.F.R. § 1508.27).
- <sup>90</sup> *See Or. Env'tl. Council v. Kunzman*, 714 F.2d 901 (9th Cir. 1983); *S. Or. Citizens Against Toxic Sprays, Inc. v. Clark*, 720 F.2d 1475 (9th Cir. 1983); *Save Our Ecosystems v. Clark*, 747 F.2d 1240, 1248 (9th Cir. 1984).
- <sup>91</sup> *Wash. Toxics*, 413 F.3d at 1032.
- <sup>92</sup> *Soda Mountain Wilderness Council v. Norton*, 424 F. Supp. 2d 1241 (E.D. Cal. 2006).
- <sup>93</sup> *Muckleshoot Indian Tribe v. U.S. Forest Serv.*, 177 F.3d 800, 810 (9th Cir. 1999).
- <sup>94</sup> *Env'tl. Prot. Info. Ctr. v. U.S. Forest Serv.*, 451 F.3d 1005, 1014 (9th Cir.2006).
- <sup>95</sup> *Soda Mountain Wilderness Council v. Norton*, 424 F.Supp.2d 1241 (E.D. Cal 2006).
- <sup>96</sup> *See e.g., Wyoming v. U.S. Dept. of Agric.*, 661 F.3d 1209 (10th Cir. 2011).
- <sup>97</sup> 40 C.F.R. § 1508.14.
- <sup>98</sup> 40 C.F.R. § 1508.7.
- <sup>99</sup> 40 C.F.R. § 1508.7.
- <sup>100</sup> *See e.g., Wyoming v. U.S. Dept. of Agric.*, 661 F.3d 1209 (10th Cir. 2011).

---

<sup>101</sup> 40 C.F.R. § 1508.14.

<sup>102</sup> See 40 C.F.R. §§ 1502.4, 1508.8, 1508.18, & 1508.25.

<sup>103</sup> See 40 C.F.R. §§ 1508.8, .9, .13, .18.

<sup>104</sup> *Blue Mountains Biodiversity v. Blackwood*, 161 F.3d 1208, 1211 (9<sup>th</sup> Cir. 1998). *Nat'l Parks & Conservation Ass'n v. Babbitt*, 241 F.3d 722, 731 (9<sup>th</sup> Cir. 2001) (quoting 40 C.F.R. § 1508.27).

<sup>105</sup> See CFS science comments submitted concurrently.

<sup>106</sup> *Id.*

<sup>107</sup> *Scientists' Inst. for Public Info. v. Atomic Energy Comm'n*, 481 F.2d 1079, 1091-92 (D.C. Cir. 1973).

<sup>108</sup> *Conner v. Burford*, 848 F.2d 1441, 1450-51 (9<sup>th</sup> Cir. 1988).

<sup>109</sup> 40 C.F.R. § 1500.1(b).

<sup>110</sup> 40 C.F.R. §1500.1.

<sup>111</sup> 40 C.F.R. §1500.1.

<sup>112</sup> *Robertson v. Methow Valley Citizens*, 490 U.S. 332, 349 (1989); 40 C.F.R. §1501.2(b).

<sup>113</sup> 42 U.S.C. § 4331(a)(4).

<sup>114</sup> Council on Environmental Quality, Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions (Feb. 18, 2010) at 1.

<sup>115</sup> 40 C.F.R. § 1508.27(a).

<sup>116</sup> *Id.*

<sup>117</sup> See CFS science comments submitted concurrently.

<sup>118</sup> *Id.*

<sup>119</sup> 40 C.F.R. § 1508.27(b)(2).

<sup>120</sup> *Ore. Env'tl. Council v. Kunzman*, 714 F.2d 901, 905 (9<sup>th</sup> Cir. 1983); *Save Our Ecosystems v. Clark*, 747 F.2d 1240, 1248 (9<sup>th</sup> Cir. 1983).

<sup>121</sup> *Safety of Genetically Engineered Foods: Approaches to Assessing Unintended Health Effects*, Committee on Identifying and Assessing Unintended Effects of Genetically Engineered Foods on Human Health, Inst. of Med. & Nat'l Research Council, Nat'l Academy of Scis. (2004).

---

<sup>122</sup> A.K. Wilson, J.R. Latham & R.A. Steinbrecher, *Transformation-Induced Mutations in Transgenic Plants: Analysis and Biosafety Implications*, *Biotechnology & Genetic Engineering Reviews*, Vol. 23, 209–34 (Dec. 2006).

<sup>123</sup> 40 C.F.R. § 1502.1.

<sup>124</sup> See generally Pierre Mineau & Cynthia Palmer, Am. Bird Conservancy, *The Impact of the Nation's Most Widely Used Insecticides on Birds* 12 (2013), available at [http://www.abcbirds.org/abcprograms/policy/toxins/Neonic\\_FINAL.pdf](http://www.abcbirds.org/abcprograms/policy/toxins/Neonic_FINAL.pdf).

<sup>125</sup> Jeroen P van der Sluijs et al., *Neonicotinoids, Bee Disorders and the Sustainability of Pollinator Services*, 5 *Curr Opin Environ Sustain* 293–305 (Sept. 2013), available at <http://www.sciencedirect.com/science/article/pii/S1877343513000493>.

<sup>126</sup> Memorandum from U.S. EPA, DP404793, Estimated Incremental Increase in Clothianidin Usage from Pending Registrations (2012).

<sup>127</sup> Larissa Walker, Ctr. for Food Safety, *Pollinators and Pesticides* i–ii (2013), available at [http://www.centerforfoodsafety.org/files/pollinatorreport\\_final\\_19155.pdf](http://www.centerforfoodsafety.org/files/pollinatorreport_final_19155.pdf).

<sup>128</sup> V. Girolami et al., *Translocation of Neonicotinoid Insecticides From Coated Seeds to Seedling Guttation Drops: A Novel Way of Intoxication for Bees*, 102 *J. Econ. Entomology* 1808 (2009); Christian H. Krupke et al., *Multiple Routes of Pesticide Exposure for Honey Bees Living Near Agricultural Fields*, 7 *PLoS ONE* 1 (2012), available at e29268.doi:10.1371/journal.one.0029268; Andrea Tapparo et al., *Assessment of the Environmental Exposure of Honeybees to Particulate Matter Containing Neonicotinoid Insecticides Coming From Corn Coated Seeds*, 46 *Envtl. Sci. & Tech.* 2592 (2012), available at DOI: 10.1021/es2035152. Indeed, only the 0.2 percent of total corn seed used for organic production is spared this toxic treatment.

<sup>129</sup> Univ. of Minn. Inst. of Agric. Professionals, *2013 Crop Pest Management Shortcourse* 4 (2013), available at <http://www.extension.umn.edu/agriculture/ag-professionals/cpm/2013/docs/UMN-Ext-CPM13-Krupke.pdf>.

<sup>130</sup> *Lands Council v. Powell*, 395 F.3d 1019, 1027 (9th Cir. 2005); see 42 U.S.C. § 4332(E) (requiring agencies to “study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources”).

<sup>131</sup> Van der Sluijs, JP et al., *Neonicotinoids, Bee Disorders and the Sustainability of Polilnator Services*, 5 *Current Opinion in Envtl. Sustainability* 293-305 (Sept. 2013), <http://www.sciencedirect.com/science/article/pii/S1877343513000493>.

<sup>132</sup> See *id.*; Walker at 4–5.

<sup>133</sup> *Id.*

<sup>134</sup> Jennifer Hopwood et al., *Are Neonicotinoids Killing Bees?*, <http://ento.psu.edu/publications/are-neonicotinoids-killing-bees>.

<sup>135</sup> *Id.* at 3.



---

<sup>136</sup> Memorandum from U.S. EPA, EFED Risk Assessment for the Seed Treatment of LClothianidin 600FS on Corn and Canola 40–41 (2013), *available at* <http://www.epa.gov/pesticide/chemical/foia/cleared-reviews/reviews/044309-2003-02-20a.pdf>.

<sup>137</sup> *See id.*; Walker at 6.

<sup>138</sup> *See id.*; V. Girolami et al., *supra* note XXX; Krupke et al., at 2–3; Tapparo et al.,

<sup>139</sup> Dave Goulson, *An Overview of the Environmental Risks Posed by Neonicotinoid Insecticides*, 50 J. Applied Ecology, 977, 977 (Aug. 2013), *available at* Doi: 10.1111/1365-2664.12111.

<sup>140</sup> *Id.* at 983–84.

<sup>141</sup> *See* Mineau & Palmer at 40–51.

<sup>142</sup> USDA, *Report on the National Stakeholders Conference on Honey Bee Health* (Oct. 2012), <http://www.usda.gov/documents/ReportHoneyBeeHealth.pdf>.

<sup>143</sup> Renee Johnson, Cong. Research Serv., *Honey Bee Colony Collapse Disorder* (Jan. 2010), <http://www.fas.org/sgp/crs/misc/RL33938.pdf>.

<sup>144</sup> 42 U.S.C. § 4332(2)(C).

<sup>145</sup> 42 U.S.C. § 4332(C)(ii). *Robertson*, 490 U.S. at 351-352.

<sup>146</sup> *Ore. Natural Res. Council v. Marsh*, 832 F.2d 1489, 1493-94 (9th Cir. 1987) *rev'd on other grounds*, *Marsh v. Ore. Natural Res. Council*, 490 U.S. 360 (1989).

<sup>147</sup> *Id.* at 1493.

<sup>148</sup> *South Fork Band Council of W. Shoshone of Nev. v. U.S. Dep't of Interior*, 588 F.3d 718, 727 (9th Cir. 2009).

<sup>149</sup> *Id.* § 1508.20.

<sup>150</sup> *League To Save Lake Tahoe v. Tahoe Regional Planning Agency*, 739 F. Supp. 2d 1260, 1282 (E.D. Cal. 2009).

<sup>151</sup> *See, e.g., Northern Plains Resource Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1085-86 (9th Cir. 2011).

<sup>152</sup> *League To Save Lake Tahoe v. Tahoe Regional Planning Agency*, 739 F. Supp. 2d 1260, 1282 (E.D. Cal. 2009).

<sup>153</sup> *See, e.g., Northern Plains Resource Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1085-86 (9th Cir. 2011).

<sup>154</sup> *Scientists' Inst. for Public Info. v. Atomic Energy Comm'n*, 481 F.2d 1079, 1091-92 (D.C. Cir. 1973).

---

<sup>155</sup> *Conner v. Burford*, 848 F.2d 1441, 1450-51 (9th Cir. 1988).

<sup>156</sup> *Nat'l Parks Conservation Ass'n v. Babbitt*, 241 F.3d 722 (9th Cir. 2001).

<sup>157</sup> *League To Save Lake Tahoe v. Tahoe Regional Planning Agency*, 739 F. Supp. 2d 1260, 1282 (E.D. Cal. 2009).

<sup>158</sup> *See, e.g., Northern Plains Resource Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1085-86 (9th Cir. 2011).

<sup>159</sup> 16 U.S.C. § 701.

<sup>160</sup> *Id.* § 701–12.

<sup>161</sup> *See* 50 C.F.R. § 10.13.

<sup>162</sup> *Id.* § 21.11.

<sup>163</sup> *See e.g.,* Pierra Mineau & Mélanie Whiteside, *Pesticide Acute Toxicity is a Better Correlate of U.S. Grassland Bird Declines than Agricultural Intensification*, 8 PLOS One 2 (Feb. 2013), available at <http://www.plosone.org/article/fetchObject.action?uri=info%3Adoi%2F10.1371%2Fjournal.pone.0057457&representation=PDF>.