Regulatory Impact Analysis and Final Regulatory Flexibility Analysis

ORGANIC LIVESTOCK AND POULTRY PRACTICES FINAL RULE
AMS-NOP-15-0012; RIN 0581-AD44

JANUARY 2017

I. Executive Summary

AMS is conducting this rulemaking to maintain consumer confidence in the USDA organic seal. This action is necessary to augment the USDA organic livestock production regulations with clear provisions to fulfill one purpose of the Organic Foods Production Act (OFPA) (7 U.S.C. 6501-6522): to assure consumers that organically-produced products meet a consistent and uniform standard. OFPA mandates that detailed livestock regulations be developed through notice and comment rulemaking and intends for the involvement of the National Organic Standards Board (NOSB) in that process (7 U.S.C. 6508(g)). In 2010, AMS published a final rule (75 FR 7154, February 17, 2010) clarifying the pasture and grazing requirements for organic ruminant livestock, which partially addressed OFPA's objective for more detailed livestock standards. This rule extends that level of detail and clarity to all organic livestock and poultry, and would ensure that organic standards cover their entire lifecycle, consistent with recommendations provided by USDA's Office of Inspector General and nine separate recommendations from the NOSB.

This rule adds requirements for the production, transport, and slaughter of organic livestock and poultry. The provisions for outdoor access and space for organic poultry production are the focal areas of this rule. Currently, organic poultry are required to have outdoor access, but this varies widely in practice. Some organic poultry operations provide large, open-air outdoor areas, while other operations provide minimal outdoor space or use screened and covered enclosures commonly called ‘‘porches’’ to meet outdoor access requirements. This variability perpetuates an uneven playing field among producers and sows consumer confusion about the meaning of the USDA organic label.

This final rule will resolve the current ambiguity about outdoor access for poultry and address the wide disparities in production practices among the organic poultry sector. Greater clarity about the significance of the USDA organic seal in the marketplace will help to maintain consumer confidence in the organic label, which drives the $43 billion in sales of organic products, and support a fair, viable market for producers who chose to pursue organic certification.

The economic impact analysis describes the potential impacts for organic egg and broiler producers, because these types of operations will face additional production costs as a result of this rule, and the potential benefits of greater clarity in the requirements for organic poultry. The following provisions will require producers to incur costs to provide:

- Additional indoor space for broilers;
- Additional outdoor space for layers;

To project costs, AMS assessed current, or baseline, conditions and considered how producers might respond to the above requirements. Based on public comment, NOSB deliberations and surveys of organic poultry producers, we determined that the indoor stocking density requirements for broilers and the outdoor access/stocking density requirements for layers drive the costs of this rule. For organic layers, the key factor affecting compliance is the availability of land to accommodate all birds at the required stocking density. We considered two potential scenarios of how producers would respond: (1) All affected organic egg producers make operational changes to comply with the rule and maintain current levels of production; or, (2), 50 percent of organic egg operations move to the cage-free market because they choose to leave the organic market.

Based on public comment, AMS assumed that organic broiler producers would build new facilities to maintain their current production level and remain in the organic market. In this analysis, AMS accounts for costs that accrue to legacy producers and new entrants; the full compliance costs recur annually and are included in the total. Legacy producers are producers who decided to go into the organic business with no knowledge of the costs that would be imposed by this rulemaking. Costs do not accrue until this rule is fully implemented, i.e., three years after publication for broiler producers and five years after publication for layer producers.

In summary, AMS estimates that production costs will range between $8.2 million to $31 million annually. This range spans three producer response scenarios, which are summarized in the table below.

- We estimate that the annualized costs for organic broiler and egg producers are $28.7 to $31 million (over 15 years), if all certified organic egg production in 2022 complies with this rule and all certified organic broiler production in 2020 complies with this rule. The timeframe corresponds to the end of the implementation period for the outdoor access requirements for layers and indoor space requirements for broilers. In this scenario, the potential reduced feed efficiency and increased mortality from greater outdoor access are the key variables that impact costs for layers.
- We estimate the annualized costs for organic broiler and organic egg production is $11.7 to $12.0 million if 50 percent of organic egg production in 2022 transitions to the cage-free egg market. Under the latter

scenario, the shift would also result in foregone profits of nearly $80 to $86 million (annualized) for productions that moves from organic to cage-free egg production. (Because foregone revenues are not a direct cost of compliance with the rule, they are totaled separately from estimated compliance costs). In this scenario, the difference in price between organic and cage-free eggs accounts for the transfer impact.

- We estimate the annualized costs for organic broiler and organic egg production is $8.2 million if 50 percent of organic egg production in 2022 transitions to the cage-free egg market and producers who cannot comply with the rule do not enter organic production during the implementation timeframe.
- In the above scenarios, we estimate the annualized costs for organic broiler production account for $3.5 million to $4.0 million of the above totals. This reflects costs to build additional housing for more space per bird to meet the indoor stocking density requirement.

This rule will have broad, important benefits for the organic sector as a whole which are difficult to quantify. Clear and consistent standards, which more closely align to consumer expectations, are essential to sustaining demand and supporting the growth of the $43 billion U.S. organic market. Clear parameters for production practices will ensure fair competition among producers by facilitating equitable certification and enforcement decisions.

To monetize the benefits of this rule, AMS used research that has measured consumers' willingness to pay for outdoor access between $0.21 and $0.49 per dozen

eggs. Based on this, AMS estimates that the annualized benefits would range between $4.1 million to $49.5 million annually. The range in benefits accounts for several producer response scenarios, which correspond to those described above for the cost estimates.

In the Regulatory Flexibility Analysis, we report that large poultry operations would have significantly higher compliance costs than small operations on average. Larger organic layer operations, in particular, will have demand for greater land areas for outdoor access.

A summary of the estimated costs and benefits associated with this rule is provided in the summary table below.

Summary of benefits, costs, and distributional effects of final rule.

Assumed conditions	**Affected population**	**Costs, millions[a]**	**Benefits, millions**	**Transfers, millions**
All producers remain in organic market; Organic layer and broiler populations continue historical growth rates after rule.	Organic layer and organic broiler production at full implementation of rule, i.e., 2022 for layers; 2020 for broilers.	$28.7 - $31.0	$16.3 - $49.5	N/A

50% of organic layer production in year 6 (2022), moves to the cage-free market. Organic layer and broiler populations continue historical growth rates after rule.	Organic layer and organic broiler production at full implementation of rule, i.e., 2022 for layers; 2020 for broilers.	$11.7 - $12.0	$4.5 - $13.8	$79.5 - $86.3
50% of current organic layer production moves to the cage-free market in year 6 (2022). There are no new entrants after publication of this rule that cannot comply.	Current organic layer production; organic broiler production at full implementation of rule in 2020.	$8.2	$4.1 - $12.4	$45.6 - $49.5
Other impacts: Estimated paperwork burden: $3.9 million				

[a] All values in the costs, benefits and transfer columns of this table are annualized and discounted at 3% and 7% rates.

II. Executive Orders 12866 and 13563

Executive Orders 12866 and 13563 direct agencies to assess all costs and benefits of available regulatory alternatives, and, if regulation is necessary, to select regulatory approaches that maximize net benefits (including potential economic, environmental, public health and safety effects, distributive impacts, and equity). Executive Order 13563 emphasizes the importance of quantifying both costs and benefits, reducing costs, harmonizing rules, and promoting flexibility. This rulemaking has been designated as an "economically significant regulatory action" under section 3(f) of Executive Order 12866, and, therefore, has been reviewed by the Office of Management and Budget (OMB). A summary of the estimated costs and benefits associated with this rule is provided in Table 1. Summary of benefits, costs, and distributional effects of final rule.

Table 1. Summary of benefits, costs, and distributional effects of final rule.

Category		Primary Estimate	Low Estimate	High Estimate	Units			Notes
					Year Dollars	Discount Rate	Period Covered	
Benefits	Annualized Monetized $millions/year- All producers remain in organic market		$21.2	$49.5	2016	7%	15 years	
			$16.3	$39.2	2016	3%	15 years	
	Annualized Monetized $millions/year – 50% of production exits in year 6 (2022)		$5.8	$13.6	2016	7%	15 years	
			$4.5	$10.8	2016	3%	15 years	
	Annualized Monetized $millions/year 50% of current production exits in year 6 (2022); no new entry		$5.3	$12.4	2016	7%	15 years	
			$4.1	$9.9	2016	3%	15 years	
	Annualized Quantified					7%		
						3%		
	Qualitative	Protects the value of the USDA organic seal to consumers. Facilitates level enforcement of organic livestock and poultry standards. Alleviates the need to maintain additional third-party animal welfare certification and the associated costs and resources.						
Costs	Annualized Monetized $millions/year All producers remain in organic market	$28.7			2016	7%	15 years	
		$31.0			2016	3%	15 years	
		$11.7			2016	7%	15 years	

	Annualized Monetized $millions/year – 50% of production exits in year 6 (2022)	$12.0			2016	3%	15 years	
	Annualized Monetized $millions/year 50% of current production exits in year 6 (2022); no new entry	$8.2			2016	7%	15 years	
		$8.2			2016	3%	15 years	
	Annualized Quantified					7%		
						3%		
	Qualitative	Transition of some egg production to cage-free may shift organic feed purchases towards domestic rather than imported sources.						
Transfers	Annualized Monetized $millions/year – 50% of production exits in year 6 (2022)	$86.3	$0		2016	7%	15 years	
		$79.5	$0		2016	3%	15 years	
		From:			To:			
	Annualized Monetized $millions/year 50% of current production exits in year 6 (2022); no new entry	$43.7	$0		2016	7%	15 years	
		$47.4	$0		2016	3%	15 years	
	Other Annualized Monetized $millions/year					7%		
						3%		
		From:			To:			

Effects	State, Local or Tribal government: None estimated. Small Business: This action will have cost impacts for organic poultry producers. Larger organic egg operations will likely bear higher costs because they face greater constraints in providing adequate outdoor areas that comply with the new minimum space requirements for birds outdoors. Administrative costs: The total in this table do not include the estimate costs associated with reporting and recordkeeping requirements as described in the Paperwork Reduction Act. AMS estimates that the undiscounted value of these costs will be $3.9 million annually.

A. Need for the Rule

AMS is conducting this rulemaking to maintain consumer confidence in the standards represented by the USDA organic seal. Specifically, this action is necessary to augment the USDA organic livestock production regulations with clear provisions to fulfill one purpose of the OFPA: to assure consumers that organically-produced products meet a consistent and uniform standard (7 U.S.C. 6501). OFPA mandates that detailed livestock regulations be developed through notice and comment rulemaking and intends for NOSB involvement in that process (7 U.S.C. 6508(g)). In 2010, AMS published a final rule (75 FR 7154, February 17, 2010) clarifying the pasture and grazing requirements for organic ruminants, which partially addressed OFPA's objective for more detailed standards. This present rulemaking would extend that level of detail and clarity to all organic livestock and ensure that organic standards cover their entire lifecycle, consistent with recommendations provided by USDA's Office of Inspector General and nine separate recommendations from the NOSB.

AMS issued an administrative appeal decision in 2002 that allowed the certification of one operation that used porches as outdoor access to protect water quality. This decision served to address a fact-specific enforcement issue. Some certifying agents used this appeal decision to grant certification to poultry operations using porches to

provide outdoor access. Thereafter, certification and enforcement actions have remained inconsistent and contributed to wide variability in living conditions for organic poultry, as well as consumer confusion about the significance of the organic label with regard to outdoor access. In accordance with OFPA, this action will clarify USDA statutory and regulatory mandates and establish consistent, transparent, and enforceable requirements. Further, it will align regulatory language and intent to enable producers and consumers to readily discern the required practices for organic poultry production and to differentiate the products in the marketplace.

This rule adds requirements for the production, transport, and slaughter of organic livestock. Most of these align with current practices of organic operations (e.g., prohibiting or restricting certain physical alterations, euthanasia procedures, housing for calves and swine). These provisions were recommended by the NOSB in consideration of other third-party animal welfare certification programs, industry standards, input from organic producers, and input from public comment.[1] According to a survey by the Organic Egg Farmers of America, 76 percent of organic egg production in the U.S. participates in private animal welfare certification programs.[2] Therefore, AMS expects that many of the requirements in this rule are already implemented and will not produce significant costs. The following provisions account for the estimated costs in this rule:

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[1] NOSB, December 2011. Formal Recommendation of the National Organic Standards Board to the National Organic Program, Animal Welfare and Stocking Rates, Available at: http://www.ams.usda.gov/rules-regulations/organic/nosb/recommendations. At the NOSB meeting in November 2010, the NOSB explained how the recommended handling, transport and slaughter provisions aligned with the American Meat Institute's animal handling guidelines. These guidelines cover handling, transportation and slaughter and are standard industry practices. The transcripts from that meeting are available at: http://www.ams.usda.gov/rules-regulations/organic/nosb/meetings.
[2] Organic Egg Farmers of America (OEFA), Organic Poultry Industry Animal Welfare Survey, 2014.

- Outdoor access and door spacing for avian species must be designed to promote and encourage outdoor access for all birds on a daily basis;
- Indoor stocking density for broilers;
- Outdoor stocking density for layers;
- At least 50 percent of outdoor access space for avian species must be soil and include maximal vegetation.

This action includes provisions to facilitate consistent practices regarding stocking densities and outdoor space at organic poultry operations. Currently, outdoor access and minimum indoor and outdoor space requirements vary widely among organic poultry operations. This variability leads to consumer confusion about the meaning of the USDA organic label and perpetuates an uneven playing field among producers. This rule enables AMS and certifying agents to efficiently administer the NOP. In turn, the consistency and transparency in certification requirements will facilitate consumer purchasing decisions.

Consumer surveys indicate the need for more precise animal welfare standards within the USDA organic regulations. A 2014 Consumer Reports Organic Food Labels Survey noted that half of consumers believe that organic chicken living space must meet minimum size requirements; 68 percent believe there should be minimum size requirements. Further, 46 percent believe organic chickens go outdoors; 66 percent believe the chickens should go outdoors.[3] A second survey, designed by the American Society for the Prevention of Cruelty to Animals, showed that 63 percent of respondents

[3] Consumer Reports National Research Center, Organic Food Labels Survey, March 2014. Nationally representative phone survey of 1,016 adult U.S. residents.

believe that organic livestock have access to pasture and fresh air throughout the day and 60 percent believe that organic livestock have significantly more space to move than non-organic animals.[4]

The majority of organic producers also participate in private, third-party verified animal welfare certification programs.[5] These certification programs vary in stringency, particularly for outdoor access requirements. Such widespread participation among organic poultry producers indicates that producers believe that consumers want additional label claims to provide information about production practices.

The broad latitude of the existing USDA organic regulations leads to wide variance in production practices within the organic egg sector (e.g., a porch in contrast to extensive outdoor area with diverse vegetation). The USDA organic label alone does not enable consumers to discern these differences in organic production practices, and as more consumers become aware of this disparity, they will either seek specific brands of organic eggs or seek animal welfare labels in addition to the USDA organic seal. Information gleaned through public comment, the media and input from the NOSB other sources suggests that consumers seek specific brands of organic eggs based on their knowledge of poultry living conditions or seek animal welfare labels in addition to the USDA organic seal.

After reviewing NOSB recommendations and public comments, AMS believes that many livestock and poultry producers would prefer to use the organic label to convey information about their livestock practices to consumers rather than undergoing two

[4] This phone survey was administered to 1,009 adults in October 2013.
[5] Organic Egg Farmers of America, 2014.

separate certification processes. While sales of organic products, including eggs and poultry, continue to increase annually, surveys designed to measure consumer trust in the organic label reveal consumer confusion about the meaning of the label. A 2015 report on organic food and beverage shoppers states that one-third of the respondents indicated that the term "organic" has no real value or definition.[6] The study concludes that consumers are confused by the various marketing terms, such as "natural," and advises organic brands to convey more information to consumers. AMS believes that in the context of organic livestock and poultry production, particularly egg production, variations in practices result in consumers receiving inadequate and inconsistent information about livestock products. This is supported by the consumer survey results described above.

Consumers' understanding of the organic label is informed by various sources, such as the media, trade and advocacy groups, retail-level marketing, marketing by farmers, and USDA outreach. Currently, the absence of clear standards and inconsistent practices across organic livestock and poultry producers are critical barriers to informing consumers and effectively marketing organic products. By establishing clear organic livestock and poultry standards, this rule will shape what information is being conveyed to consumers about organic livestock products. Clear standards and consistent production practices are necessary to clearly and accurately illustrate to consumers the meaning of the organic seal on these products, and to differentiate organic products from other products in the market. This final rule (1) establishes clear standards that will create the foundation necessary to present clear and consistent information to consumers about animal living conditions to distinguish organic products from competing labeling terms in

[6] Mintel Group Ltd., "Organic Food and Beverage Shoppers – US – March 2015." March 2015.

the market, (2) alleviates the need for multiple certifications, which is assumed to result in the elimination of duplicative paperwork, on-site inspections, and additional costs of third party certifications.

In 2009 and 2011, the NOSB issued recommendations, as authorized by OFPA, for additional requirements to support animal welfare. In the process of developing these recommendations, the NOSB consulted with and received numerous public comments from authorities in the fields of animal welfare, consumers, livestock producers, and certifying agents. AMS developed this final rule in response to the NOSB recommendations and stakeholder feedback.

This action also responds to the 2010 USDA Office of Inspector General (OIG) audit findings of inconsistent applications of the USDA organic regulations for outdoor access for livestock. OIG noted the absence of regulatory provisions covering the duration (i.e., hours per day) of outdoor access and the size of the outdoor area. Among organic poultry producers, OIG observed wide variation in the amount of outdoor space provided. As recommended by OIG, AMS published draft guidance, Outdoor Access for Organic Poultry, for public comment (75 FR 62693, October 13, 2010).[7] The draft guidance advised certifying agents to use the 2002 and 2009 NOSB recommendations as the basis for certification decisions regarding outdoor access for poultry. The draft guidance informed certifying agents and producers that maintaining poultry on soil or outdoor runs would demonstrate compliance with the outdoor access requirement in § 205.239. However, after extensive comments by producers, certifying agents, and other

[7] The draft guidance was published on March 10, 2013 and posted on the NOP website.

stakeholders, including the request for rulemaking, AMS determined to pursue rulemaking to clarify outdoor access for poultry and did not finalize the guidance.

B. Discussion of Comments Received

1. Percentage of Production from Aviary/Porch Systems

(Comment) AMS received some comments that challenged our assumption that aviary systems account for 50 percent of organic egg production. These comments, primarily from egg producers, assert that aviary systems account for 70–80 percent of organic egg production. In addition, some comments indicated that the estimated proportion of organic egg production that might transition to cage-free (45 percent in the proposed rule) should be adjusted to reflect a higher percentage of eggs produced in aviary systems.

(Response) The proportion of organic eggs from aviary systems is a critical data point in this analysis because we expect that these operations will have more difficulty in complying with the rule. Given that aviary houses with multiple interior levels house a higher density of birds than single-story houses, these operations would need to acquire comparatively more land to maintain current production levels. We believe that operations that cannot acquire sufficient land are more likely to transition to cage-free egg production.

In consideration of comments about the proportion of organic eggs produced in aviary systems and the lack of data for a precise estimate, AMS is revising our estimate to assume that aviaries account for 70 percent of organic egg production.[8] In addition to

[8] AMS is not aware of any data that categorizes and quantifies organic egg production by housing type. To inform our baseline assumption about the prevalence of aviary systems, AMS relied on surveys of organic egg producers which

public comments, AMS considered data points from two surveys that were conducted independently by producer-related organizations in anticipation of this rulemaking. The surveys, conducted in 2014, accounted for a combined 10.89 million layers and had some overlap in the producers that they surveyed.[9] These survey results show the proportion of organic eggs that are produced in operations that use porches as outdoor access versus direct soil contact. Since aviaries are more likely to use porch systems because they can house more birds, AMS is using this as additional information to inform our estimate of the proportion of eggs produced in aviary systems. The survey results support the use of a range of 70 percent for this estimate.

- The Organic Egg Farmers of America survey accounted for 157 producers and 8.33 million layers. This study reported that 76 percent of the operations surveyed provide outdoor access with direct soil contact while 24 percent provide outdoor access with a porch.
- The Egg Industry Center (EIC) Survey accounted for 8 producers and 5.07 million layers.[10] The survey reported that 42 percent of respondents provide outdoor access with a poultry porch. This survey population also reported that they planned to expand their layer production by 50 percent over the next 24 months.

In April 2016, AMS Market News reported 14 million organic layers currently in production. In consideration of the growth in the organic layer population, particularly

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asked whether outdoor access is provided by porches/enclosed areas. AMS assumes that the use of a porch is more indicative of aviary-style housing, and therefore used porches as an indicator of housing type.

[9] The NASS 2014 Organic Producer Survey reported a peak inventory of layers in 2014 at 9.59 million.

[10] The EIC survey population only included producers with more than 30,000 hens. According to the EIC Survey, the producers (8) which also responded to the OEFA survey accounted for 2.51 million layers; those that did not respond to the OEFA survey accounted for 2.56 million layers.

from 2014 to 2016, we attribute most of that increase to the expansion of larger, aviary-style operations and are therefore revising our estimated proportion of eggs from organic aviaries.

Despite this increase in aviary operations, the main driver of costs related to this final rule is the availability of land. In this analysis, AMS equated aviary systems with insufficient land and most single-story or pasture systems with adequate land. Therefore, changing the proportion of egg production from aviaries changes the assumption of the proportion of organic egg production that has adequate land. However, as discussed below, AMS did not significantly revise the percentage of production that may transition to cage-free egg production because AMS expects that there are other factors which will determine whether a specific operation which cannot obtain adjacent land for outdoor access will remain in the organic market. In terms of the cost impacts, where we expect producers will be able to acquire sufficient land and sustain current production levels, changing the proportion of egg production from aviaries to 70 percent increases the annual costs by 41 percent or $2.5 million over the estimate in the proposed rule, however, there are other factors that contribute to the cost increase.

2. Mortality Rate

(Comment) AMS received comments addressing the estimated increase in mortality rate. In the proposed rule, we anticipated that mortality rate would increase from 5 percent to 8 percent because of increased predation, disease, and parasites from outdoor access. Multiple comments projected that mortality rates would jump to the 20 to 30 percent range, and that this would be unacceptable. Some comments cited research indicating that poultry raised indoors have lower mortality than free-range birds due to

lower incidence of predation and cannibalism. Another comment urged AMS to conduct more research to understand a correlation between outdoor access and increased mortality and questioned why we did not use 10 percent at the baseline mortality rate.

AMS also received comments that the 2013 National Animal Health Monitoring Survey stated that average mortality in organic production was 4.9% compared to 5.2% for conventional production. The comment noted that the 2014-2015 avian influenza outbreak affected 211 indoor poultry operations. The comment also suggested that the costs be recalculated without assuming that mortality would increase.

(Response) AMS is aware that mortality is an important measurement, and one of several indicators of animal welfare. In addition, AMS recognizes that mortality rate is affected by various factors, including outdoor access. There are few studies that examine whether access to outdoors results in increased mortality among poultry, and the findings of these studies vary tremendously, with some studies finding no correlation between access to outdoors and increased mortality and others noting a 10 to 20 percent increase in mortality. These studies often examine several performance indicators and were not designed to specifically study mortality rates.

Many studies comparing caged, cage-free, and free-range systems (with outdoor access) sample from the same breeds of layers in order to compare each system for productivity, feed conversion, mortality, and other factors. By using the same breed for each system, studies are able to limit at least one factor of variation between operations; however, this does not take into account that breeds may be suited for one type of system, but suboptimal for another situation.

A 2014 study of commercial organic egg farms in the Netherlands (Bestman & and Wagenaar, 2014) found that there was no relation between the amount of time spent outdoors during the laying period and mortality rate at 60 weeks.[11] The findings also showed an average mortality rate of 7.8 percent. The breeds of birds and husbandry practices were controlled by individual farmers. In addition to mortality, the authors addressed several other indicators of animal welfare, including feather pecking damage, parasites, body weight, and other physical attributes. The authors concluded that in terms of feather pecking, organic flocks show less damage with greater use of outdoor areas, and that the organic flocks perform about the same or worse than other commercial systems for several other factors.

AMS maintains that USDA's Animal and Plant Health Inspection Service (APHIS) published statistics on organic egg production for 2013 (APHIS, 2014) is the best resource to estimate how the requirements for outdoor access in this final rule would impact mortality rates because this captures mortality rates among organic egg operations. In the proposed rule, AMS assumed that only 10 percent of organic operations would not see a change in mortality rate as a result of this rule. We now believe that is actually an underestimate and that a substantially higher proportion of organic producers would not see an increase in mortality rates under this rule.

APHIS found that average mortality in U.S. organic layer flocks was 4.9 percent at 60 weeks and 6.8 percent over the useful life of the flock. It also found that on more than half of all farms, mortality at 60 weeks was below 4 percent, while only 11 percent

[11] Bestman, Monique, and Jan-Paul Wagenaar. "Health and Welfare in Dutch Organic Laying Hens." *Animals* 4 (2014): 374−390. http://www.louisbolk.org/downloads/2908.pdf.

of farms experienced mortality rates greater than 10 percent. This same survey reported that about 66 percent of organic production is raised on pasture or with uncovered outdoor access while 35 percent had porches or covered outdoor access; however, the survey does not report mortality rate based on type of outdoor access.[12] Therefore, AMS is maintaining that the baseline mortality rate for organic layers is 5 percent; in the final rule, we are assuming that this rate represents organic operations generally and are not differentiating mortality rates for pastured organic operations. We are also retaining the projection that mortality will rise to 8 percent with the implementation of this rule. While there are various studies that predict higher rates, we are aligning more closely with the NAHMS data because we believe this is the closest approximation for mortality rates in organic egg production systems.

3. Costs to Prevent Disease Outbreak

(Comment) AMS received comments advising that this analysis include costs for an increased potential for disease outbreak among organic poultry due to increased outdoor access.

(Response) AMS carefully considered commenters' concerns about disease risks when birds have access to the outdoors. AMS consulted with APHIS and FDA in the development of this final rule to ensure that the practices support minimizing disease risks in outdoor poultry operations. We have not estimated such costs because various factors contribute to risk of disease outbreak and while these costs are not zero, they are not calculable. The Animal and Plant Health Inspection Service (APHIS) continues to conduct epidemiological investigations to identify the transmission pathways for highly

[12] AMS obtained the data on the percentage of organic production by outdoor access through request to the NAHMS.

pathogenic avian influenza HPAI. At this point, APHIS concludes, there is not conclusive evidence to point to a specific pathway or pathways for the current spread of the virus.[13]

4. Costs to Build Additional Houses

(Comment) AMS received comments noting that the analysis did not include the costs to build additional houses or the costs that producers would incur if they needed to decrease the number of birds in their operation. One comment referenced the study conducted by Vukina et al., which projected that large egg producers (over 100,000 layers) would need to reduce flock size by 13.5 percent to comply with the NOSB recommendations and that flock size in current facilities would decrease by 56 percent in total.

(Response) In this rulemaking, the availability of the land, rather than the indoor area of existing houses, is the limiting factor for compliance. AMS set the indoor stocking density to match the existing practices of numerous organic producers who participate in a widely recognized third-party animal welfare certification program. Therefore, the underlying premise is that organic egg producers would not need to build additional houses or reduce the number of birds to comply with the indoor space requirements.[14] The Vukina et al., study was based on the implementation of the indoor

[13] USDA-APHIS (2015). Epidemiologic and Other Analyses of HPAI-Affected Poultry Flocks: September 9, 2015 Report. Available at: https://www.aphis.usda.gov/animal_health/animal_dis_spec/poultry/downloads/Epidemiologic-Analysis-Sept-2015.pdf.

[14] In developing the regulatory impact analysis for the proposed rule, AMS considered implementing the more stringent indoor stocking densities for layers, recommended by the NOSB. In order to understand the cost impacts of the indoor stocking density as recommended by the NOSB, we projected costs for producers to maintain their current level of production. This would have entailed a significant upfront cost to construct new facilities and would have cost the industry an estimated $114 million per year.

stocking rates recommended by the NOSB, which were 2.0 square foot per bird (layers); 2.0 – 3.0 pounds per square foot (pullets); 1.0 – 5.0 pounds per square foot (broilers).[15]

AMS acknowledges that some producers may opt to remain in organic production by obtaining non-adjacent land and constructing new facilities. While AMS is not estimating aggregate costs based on assumptions about what proportion of organic producers may decide to remain in organic production by constructing new facilities, we are providing some parameters of such costs. Based on information from the organic egg producers, AMS estimates that the costs of aviary housing is $70/hen. Further, we believe that larger organic operations have a minimum of 100,000 hens; medium scale have between 30,000 – 100,000 birds and smaller scale less than 30,000 birds. Therefore, the corresponding estimates for housing costs for producers of each size category: $7 million minimum (large scale); $2.1 - $7 million (medium); $2.1 million maximum (smaller scale). In addition, producers that construct new aviary facilities to house 100,000 birds would need approximately 6.12 acres of land for housing and outdoor space. This amounts to nearly $28,000 in land costs.

Since AMS deviated from those provisions, we are not utilizing the associated cost projections.

5. Costs for Swine Producers Implementing Outdoor Access Requirements

(Comment) AMS received comments stating that we had failed to account for costs to swine producers to implement the proposed requirements for year-round, soil-based outdoor access.

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[15] For a 4.5 pound layer, which is the average mature weight for the ISA Brown breed, this converts to 2.25 pounds per square foot.

(Response) As discussed above, AMS has deferred implementing more specific outdoor access requirements for swine in order to further consider the unique needs and behaviors of swine in an outdoor environment. In consideration of comments about environmental impacts and disease pressures, we are not requiring soil-based outdoor access areas. Swine producers must continue to comply with existing requirements to provide outdoor access; such access may consist of areas that have concrete or other impermeable surfaces. Therefore, we are not estimating additional costs will accrue to swine producers as a result of this rule. As ruminant and avian livestock have been the focus of this rulemaking and the NOSB deliberations on animal welfare recommendations, this deferral will provide time for a detailed look at organic swine production.

6. Costs for Alternatives

(Comment) Some comments pointed out that AMS discussed alternatives to the proposed action, but did not provide costs for these alternatives and specifically stated that some costs were not estimated in the analysis. These include: (1) the proposed requirement that the outdoor access area have at least 50 percent soil; (2) maintenance for the proposed outdoor area (e.g., fencing); (3) requiring accommodation for 10 percent or 50 percent rather than 100 percent the birds at one time; and (4) allowing porches as outdoor access.

(Response)

In the proposed rule, AMS included cost estimates for minimum soil content in the outdoor access areas. This estimate included the total cost to purchase additional land for the estimated production that would not have adequate outdoor space. That estimate

was calculated using average real estate values for farm land, so we can reasonably expect that area would already have the minimum soil coverage.

7. Assumption about Two Barn Footprints

(Comment) In the proposed rule, AMS made assumptions about the amount of land for outdoor access areas. We generalized that poultry houses have 2 barn footprints of outdoor space per house and requested comments on the validity of that assumption. Some comments argued that basing an assumption about land availability on aerial photography is flawed. We also received comments explaining limited land availability due to site-specific conditions, such as the location of existing driveways and buildings (e.g., feed mills, feed system equipment), spacing between poultry houses, water body and property line setbacks, and topography. In addition, a few comments indicated that the available land may not be near the farm where the poultry are housed or that acquisition of additional land is impossible.

(Response) AMS understands that individual operations may face various impediments to land acquisition and that the availability of land will vary. These costs may include obtaining land which is not adjacent to existing housing, capital costs to construct new housing adjacent to the land for the outdoor access area, and/or moving existing roads or structures in order to clear land for outdoor access. AMS is not quantifying the costs for overcoming such constraints or combinations of constraints because this would entail several additional assumptions that introduce a high degree of uncertainty into the estimated values. AMS expects that in some situations, these constraints would be insurmountable and operations would move to the cage-free market. The analysis accounts for barriers to land acquisition by estimating the costs for a portion

of organic operations to transition to cage-free egg production due to the lack of available land. This potential scenario is discussed below in the section on Costs of the Final Rule.

In response to the descriptions in public comment, AMS is modifying the estimated proportion of organic operations that have adequate land to comply with this rule. In the proposed rule, we estimated this could be 50 percent of organic egg production. As discussed above, AMS is assuming that all aviary operations, which account for an estimated 70 percent of organic egg production, would need to acquire additional land. Based on public comments, we are also projecting that a portion, 17 percent, of single-story (non-aviary) operations, which account for an estimated 5 percent of all organic egg production, would also need to acquire additional land because they may not have two barn footprints of outdoor space due to various conditions specific to the operation. In summary, AMS assumes that operations representing 75 percent of organic egg production could incur costs for purchasing and maintaining additional land to comply with the outdoor stocking density requirement.

AMS expects that these producers will face different impediments to acquiring additional land and will not respond uniformly. Therefore, while AMS is assuming that aviary operations do not currently have the land base to comply, not all of this production would move to the cage-free market as a result of this constraint. AMS is estimating that about two-thirds of the aviaries, equivalent to 45 percent of organic egg production, and that a portion of non-aviary production, which accounts for 5 percent of organic egg production, will not be able to acquire additional land and will move to the cage-free market. In summary, AMS believes that 50 percent of organic production may transition to cage-free egg production, while the remainder would be incentivized to remain in the

organic market and obtain needed land. Of note, in the proposed rule we estimated that 45 percent of organic egg production would make the transition to the cage-free market. The 45 percent estimate was supported by several comments from organic producers.

8. Consumer Willingness-to-Pay

(Comment) AMS received comments questioning assumptions made in the proposed rule about consumer expectations and willingness–to-pay increased costs associated with providing livestock with outdoor access. Some commenters questioned AMS's view that consumer expectations around organic livestock production practices are not being met under the current regulations. Commenters asserted that significant growth in the organic egg industry in recent years demonstrates that consumer expectations are in fact being met. They argued that, since consumer expectations appear to be satisfied, it is questionable whether they would actually be willing to pay more for eggs produced by hens with access to the outdoors once this rule is implemented.

Other commenters questioned the statement that adequate outdoor access is a core concern among organic consumers and the assumption that they would be willing to pay more for outdoor access alone. Commenters argued that consumer expectations with respect to organic livestock practices are not only about access to the outdoors, but about overall animal welfare and food safety. This includes concerns over suffering associated with increased morbidity, higher mortality rates, and increased food safety risks that may be associated with outdoor access.

Some commenters did not support the surveys that AMS relied on in the proposed rule to determine consumer expectations and willingness to pay. One commenter noted that the surveys cited in the proposed rule did not verify whether respondents consider

porches to be acceptable outdoor access, since porches provide access to fresh air and sunlight. Three commenters opposed AMS's reliance on surveys conducted by Consumer Reports and the American Society for the Prevention of Cruelty to Animals (ASPCA) claiming that the surveys are likely flawed, used leading questions and biased against larger farming operations. The comment contended that AMS must rely on unbiased, peer-reviewed research.

A number of commenters reinforced AMS's evaluation of consumer expectations and willingness-to-pay for improved animal welfare practices in organic production. Consumer Reports shared the results of a 2015 consumer survey which were similar to those from the 2014 survey cited in the proposed rule. In 2015, 54 percent of participants responded that they think that the organic label means that animals went outdoors, and 46 percent think that it does not mean that animals went outdoors. Meanwhile, slightly more than two-thirds (68 percent) of participants think that the organic label should mean that animals went outdoors. Similarly, one animal welfare group (Food Animal Concerns Trust) submitted the results of a survey that showed that 73.1 percent of respondents believe that organic should mean outdoor access for livestock. These and various other commenters stated that the survey results suggest confusion in the marketplace under the current standards, and clearly indicate that consumer expectations are not being met. These commenters agreed that consumers who expect outdoor access for organic livestock would be willing to pay a premium for these products if the standards are strengthened.

(Response) Consumer perceptions of organic claims are critical to characterizing the benefits of this rule. For the proposed rule, AMS cited data to gauge the expectations

of consumers with respect to outdoor access for organic livestock. AMS is aware that consumers generally are becoming more interested in livestock practices and that an increasing number of organic consumers are seeking to understand organic claims in the context of various animal welfare certification programs in the marketplace. Information collected through years of public comment to the NOSB and the proposed rule, indicates that there is a gap between what consumers expect about the uniformity of outdoor access practices for poultry and the actual diversity in practices on organic farms. AMS understands that the proportion of organic eggs from birds that have only a porch for outdoor access is increasing.[16] Given consumer preferences cited in the survey above and conveyed in public comments, the continual shift towards minimizing soil-based outdoor access for organic poultry widens the gap between consumer expectations. Public comment and the NOSB recommendations have led AMS to determine that if this gap persists and becomes more visible, consumer confidence in the organic label broadly could waver.

The continued growth in the sales of organic eggs is driven by a range of factors that influence consumer purchasing decisions, some of which reflect the expectation that organic birds have outdoor access. AMS cited several publications, including peer-reviewed journal articles and consumer surveys designed by animal welfare organizations, to understand consumer perceptions and preferences about production practices for laying hens. The consumer surveys cited in the rule help to approximate the

[16] This conclusion is based on the Egg Industry Center Survey of U.S. Organic Egg Production in December 2014. This questionnaire was administered to producers with at least 30,000 hens. Forty-two percent of the survey respondents reported using porches for outdoor access. In addition, the survey respondents collectively indicated they planned to expand the number of layers by 50 percent over the next 24 months. The survey accounted for 5.07 million organic layers.

level of consumer interest in certain production practices and inform of the available information on consumer perception of the organic label. AMS did not selectively cite studies, but shared the data from the limited information that is available on this subject. In order to more fully characterize these surveys, AMS has added information about the methodology in the section below, Benefits of the Final Rule. Further, AMS did not use the results from these surveys to quantify the potential benefits of this rule. In summary, there is limited quantitative data available on consumer expectations and willingness to pay for the various attributes of organic products. AMS believes that the research and survey data that we used to inform this rule is accurate and was drawn from diverse sources.

Porches may fall under willingness-to-pay for outdoors numbers

AMS acknowledges that surveys evaluating consumer expectations and willingness to pay for outdoor access for organic livestock do not clarify consumer expectations about whether porches meet consumer expectations for outdoor space. Based on numerous public comments on this proposed rule and to the NOSB in developing their recommendations on animal welfare we are aware of the prevalent perception among consumers that a porch, or other enclosed structure, is not equivalent to open access to the outdoors. In this final rule, AMS has maintained that enclosed porches and lean-to type structures (e.g. screened in, roofed) cannot be considered outdoor space. In response to comments, AMS has revised this final rule to allow porches that are not enclosed (e.g. with a roof, but with screens removed) and allow birds to freely access other outdoor areas to be counted as outdoor space. AMS believes that this requirement provides flexibility for producers, yet still aligns with consumer expectations that

providing access to enclosed porches is not equivalent to providing open access to the outdoors.

(General) AMS did not receive specific comments on the quantitative estimates used in the proposed rule for consumer willingness to pay for outdoor access. Based on the more general comments that AMS did receive in this area, we determined that no change to the estimates of consumer willingness to pay was necessary for the final rule.

9. Impacts on Feed Suppliers

(Comment) AMS received a number of comments contending that this action will cause a disruption of the market for domestic organic feed grains if a significant number of organic egg producers exit production. One comment submitted an analysis which concluded that the organic poultry sector would no longer need 43 percent of organic feed corn and 98 percent of organic soybeans, relative to 2014 production, due to decreased feed efficiency and reduced flock size among large producers. Another comment estimated that the impact on organic grain would be a $71 million loss for organic corn and a $26.4 million loss for organic soybeans.[17] Some comments also asked AMS to consider impacts on organic grain producers and their organic rotation crops, such as beans.

(Response) It is unlikely that domestic markets for organic feed will be seriously affected by the regulation. Demand for organic feed grains (primarily corn and soybeans) far exceeds domestic production. USDA's Economic Research Service (ERS) states that

[17] The comment calculated this using the following variables: the estimated organic layer population in the proposed rule (13.5 million); consumption of 4 pounds of feed each year per hen; $10/bushel for organic corn and soybeans; 45% reduction in organic layer population.

"Despite the strong interest in organic food in the United States, overall adoption of organic corn, soybeans, and wheat remains low, standing at less than 1 percent of the total acreage of each crop."[18] According to a report[19] by the Sustainable Food Laboratory, "Organic grain supply is an identified bottleneck for value-added processes. Growth in grain production lags other organic commodities and remains a negligible amount of total U.S. cropland." In addition to use by organic egg and poultry producers, organic feed is also used by organic dairy, beef, pork, and other organic animal agriculture producers.

According to ERS data, Wisconsin accounted for 14 percent of total domestic production acreage in 2011—the largest producer of organic corn in the U.S. Minnesota, Iowa, New York, and Texas were the next largest and the top five states accounted for 52 percent of domestic organic corn acreage. The state with the greatest acreage in organic soybean production was Minnesota, with 14 percent of the total, followed by Iowa, Michigan, Arkansas, and New York, with these five states accounting for 50 percent of total acreage in 2011.

The deficit in domestic production is made up for by imports of organic feed grains. Imports of feed corn, the most important feed ingredient, accounted for 26 percent of total domestic consumption in 2015. Imports of soybeans, the second most important feed ingredient, accounted for 71 percent of domestic consumption in 2015. Because of the high proportion of imports in the organic feed grains markets, prices for domestically

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[18] *Despite Profit Potential, Organic Field Crop Acreage Remains Low*. by William D. McBride and Catherine Greene. Amber Waves, November 2015 (http://www.ers.usda.gov/amber-waves/2015-november/despite-profit-potential,-organic-field-crop-acreage-remains-low.aspx#.VyzvEhKs0Sn).

[19] *Barriers and Opportunities: The Challenge of Organic Grain Production in the Northeast, Midwest and Northern Great Plains*. by Elizabeth Reaves, Sustainable Food Lab and Nathaniel Rosenblum, Stonyfield Inc. http://wlstylr.com/sustainablefoodlab/wp-content/uploads/2015/12/Organic-Grain-Report_Final_9.28.14_Short.pdf.

produced feed closely follow world prices. Overall domestic demand for organic feed may decrease as a result of operations exiting the organic market, but any decrease would result in reductions of imported feed. Any decreases in demand caused by lower organic egg production would be unlikely to lead to changes in the price of domestically produced organic feed. Of note, one analysis of the potential impacts to the organic feed grain market submitted via comment was based on the projection that organic producers would need to drastically reduce flock size in order to comply with indoor stocking density requirements that are more stringent than those in this action. Therefore, those projections are not based on requirements in this final rule and are likely overestimated.

10. Impacts on Other Entities in Supply/Production Chain

(Comment) Some comments stated that this rule would have adverse impacts on businesses that service organic egg producers, such as feed haulers, transporters, suppliers, service providers, etc. Comments also asked whether AMS would incorporate impacts on secondary markets for organic products that use breaker eggs or poultry products as ingredients and requested impacts on price and supply in this area.

(Response) AMS expects that these entities would continue to have a market for their services once this rule is implemented. Producers that cannot comply with this rule may transition to the cage-free market and therefore will still need these services to obtain feed and transport eggs and animals. Regarding the market impacts for products that use organic eggs or poultry products as ingredients, AMS believes that the supply projections for organic eggs as provided below in the section Costs of the Final Rule, are relevant to the impacts on the breaker egg market. AMS developed enterprise budgets for organic egg and broiler producers to estimate the costs of this rule and considered that 20

percent of the eggs go to the breaker market to be used as ingredients in processed products. We expect that the proportion of breaker eggs to total production will hold constant after the implementation of this rule. AMS does not have data on whether breaker eggs from organic operations retain their organic status for further processing.

We do not expect adverse impacts for entities that use poultry products as ingredients because, as discussed below in the Costs of the Final Rule, we expect that organic broiler producers will maintain production levels after this rule is implemented.

11. Impact on Employees of Organic Egg Producers

(Comment) AMS received comments from employees of some organic egg producers expressing concerns that this rule threatens their jobs.

(Response) AMS expects that some portion of organic egg producers, particularly those that do not have the land available for the outdoor access space, will leave the organic egg market, but will maintain or increase their current production volume in the expanding cage-free market. Therefore, AMS contends that this rule does not jeopardize employment status as these egg operations can serve a diversified market.

12. Impacts on Consumers – Prices and Accessibility

(Comment) AMS received comments that predicted that this rule would significantly raise consumer prices and decrease consumer demand. One comment reasoned that prices would rise by the same amount that supply decreases, leading to a $1.79 increase in the price of one dozen eggs (based upon the price of $4.16 per dozen and an estimated 43% reduction in the supply of organic eggs, as stated in the proposed rule). Another comment stated that this rule would cause prices of organic eggs to double and shift consumption patterns. In addition, a few comments mentioned concerns about

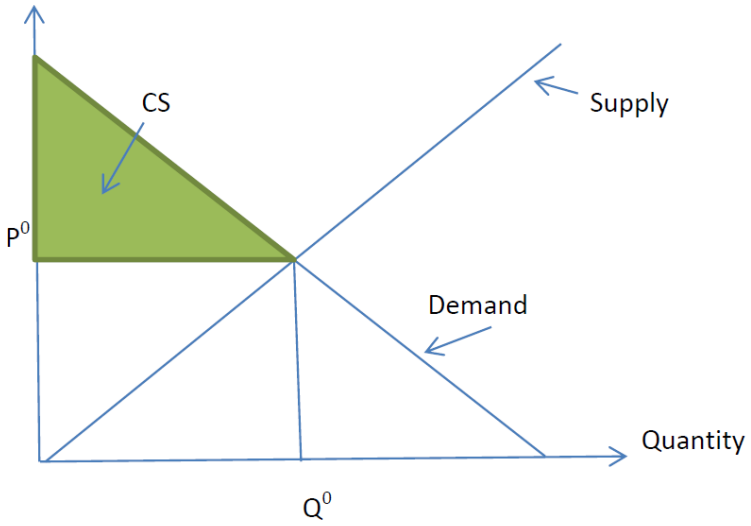
how this rule would impact the accessibility of organic eggs to disadvantaged communities due to expected price increases.

(Response) AMS considered the potential impact that the rule could have on egg prices and consumer welfare. AMS is expecting that some organic egg producers will move to the cage-free market, decreasing the supply of organic eggs and increasing the supply of cage-free eggs. Generally, when the supply of a product in the market is less than the quantity that consumers want to purchase, prices will increase. To predict changes in retail prices for both organic and cage-free eggs, AMS projected future prices for these products in the absence of this rule. To project prices after this rule, we examined how consumers might respond to price increases and producers might respond to that reduced demand.

Figure 1 shows a general depiction of consumer surplus. Price (P) is on the vertical axis; Quantity (Q) is on the horizontal axis. The demand function is a downward sloped line that reflects consumer's willingness to demand more of the good at low prices than at high prices. The supply function is an upward sloping line that reflects a producer's willingness to supply more of a good at higher prices than at lower prices. Both demand and supply functions are for the overall market.

Market equilibrium occurs where the supply and demand functions intersect. Equilibrium price is P^0 and equilibrium quantity is Q^0. Some consumers in the market would have been willing to pay a higher price than P^0 for a unit of Q and realize a benefit referred to as consumer surplus. The shaded area in Figure 1 below the demand curve and above price P^0 is the consumer surplus (CS).

Figure 1. Consumer surplus.



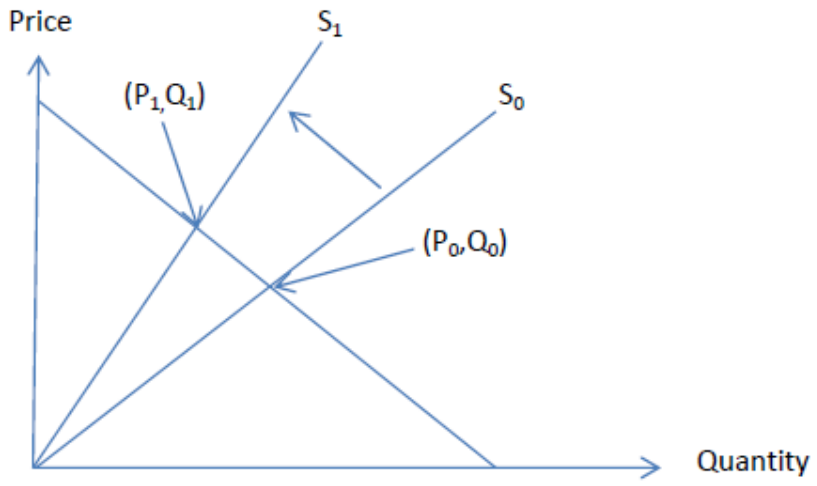
As a result of this rule, some producers who currently market their eggs as organic will no longer be able to do so. Presumably, these producers will sell their eggs in the cage-free market. In this analysis AMS is accounting for costs among "legacy" producers, i.e., producers who obtained organic certification prior to the publication of this rule without knowledge of the potential costs of these requirements. Producers who need to be in compliance with this rule within 3 years are those who would obtain certification concurrent to or after publication of this rule and therefore have full knowledge of the costs of complying with these requirements. The decision to voluntarily enter or continue organic production in consideration of those costs is a business decision and the costs of that action are not solely attributed to this rule. AMS assumes a 50 percent drop in organic egg production in 2022, when the implementation period is expected to end. The 50 percent of the eggs that would no longer be sold as organic are then assumed to be sold as cage-free eggs following the implementation period.[20] That

[20] See sections below on benefits and costs of the final rule.

shift in supply would increase organic egg prices and decrease cage-free egg prices, resulting in changes in consumer and producer welfare in both markets.

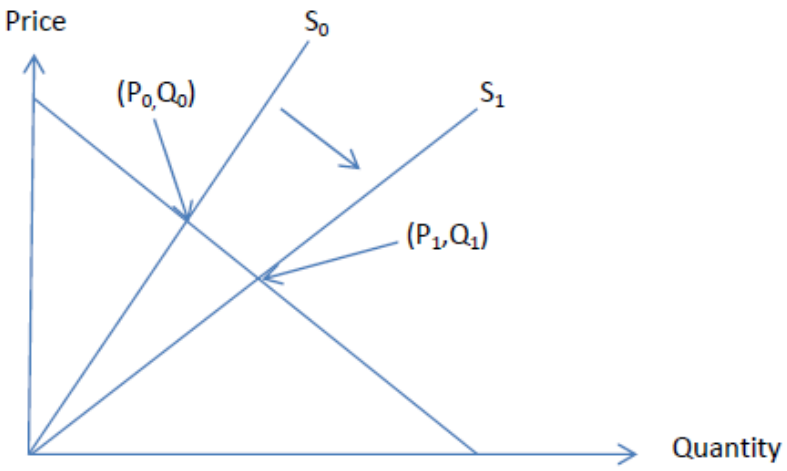
Figure 2 shows the impact of the rule on the organic market. Initial supply is S_0, equilibrium price is P_0 and equilibrium quantity is Q_0. When producers exit the market supply shifts to S_1, equilibrium quantity falls to Q_1, and equilibrium price rises to P_1. The consumer demand function is assumed to be unaffected by the rule because this rule aligns production practices with consumer expectations of those practices.

Figure 2. Impact on the organic egg market.



Producers who cannot comply with the rule are assumed to sell their eggs in the cage-free market. In that market, the supply function shifts outward and again the demand curve for cage-free eggs is not expected to change (see Figure 3).

Figure 3. Impact on the cage-free market.



By using estimates of the own price elasticity of demand from the academic literature (discussed below), we can determine an estimate of the price after the rule takes effect. The elasticity of demand is defined as the percentage change in quantity resulting from a one percent change in price.

$$\varepsilon = \% \text{ Change in } Q / \% \text{ Change in } P$$

For example, if the elasticity of demand equals -2, then a ten percent increase in price results in a twenty percent decrease in the quantity demanded. Using the elasticity of demand, the price after the rule takes effect, P_1 can be determined:

$$P_1 = P_0 + [(Q_0 - Q_1)/Q_0]*P_0*\varepsilon$$

The linear demand functions are:

$$\text{Demand: } P = \beta_0 + \beta_1 Q$$

Consumer surplus (CS) is then:

$$CS = \int(\beta_0 + \beta_1 Q)dQ - PQ = \beta_0 Q + (\beta_1/2)Q^2 - PQ$$

For both consumers of organic eggs and cage-free eggs, the change in consumer surplus (ΔCS) is:

$$\Delta CS = (\beta_0 Q_1 + (\beta_1/2)Q_1^2 - P_1 Q_1) - (\beta_0 Q_0 + (\beta_1/2)Q_0^2 - P_0 Q_0)$$

Various sources were used to estimate a range of demand elasticities for organic and cage-free eggs. The elasticity of demand represents the response of the quantity of eggs demanded to the market price and is used to characterize the degree to which consumers reduce their egg consumption as price rises. One factor influencing demand elasticity is the price and availability of substitutes. If an item has several close substitutes that are similar in price, then the elasticity of demand would be large (in absolute value). When the price of the good in question rises, consumers switch to a substitute, resulting in a significant quantity response. A lack of close substitutes would indicate a lower elasticity where price changes would result in less significant quantity changes.

Another factor influencing elasticity of demand is the share of the consumer's total expenditures, or budget the good represents. If the budget share is relatively small, then the price elasticity is low. Even significant price changes (in terms of percentages) of low cost goods will not significantly reduce the quantity consumed. When the elasticity of demand is less than one (in absolute value), it is referred to as "inelastic" because a one percent change in price results in a less than one percent change in the quantity demanded. If the elasticity is greater than one, it is referred to as "elastic" because a one percent change in price results in more than a one percent change in the quantity demanded.

Conventionally produced eggs have no close substitutes and account for a very small share of a consumer's budget. For these reasons, we would expect the elasticity of

demand to be low. Sumner et al.[21] reviewed the economic literature to evaluate the impact of alternative egg production systems found that (p. 247):

> The retail demand elasticities in the literature generally range from about −0.15 to −0.3. Representative studies, which vary in relevance of the data and statistical analysis, include the following: Kastens and Brester,[22] You et al,[23] Huang and Lin[24], and Yen et al.[25] None of the econometric estimates use data from the last 15 yr. There is a need for more research to confirm the small elasticity of demand in the current market.

Two recent studies have treated different types of eggs (e.g. organic, conventional) as separate goods and estimated their elasticities (see Table 2). Lusk[26] examined the demand for cage, organic, conventional, and "other"[27] types of eggs in two markets (San Francisco and Dallas/Ft. Worth). The data Lusk analyzed consisted of weekly volume sales, dollar sales, and average price per egg by stock keeping units aggregated across stores in the two markets from the time period January 1, 2007 to January 25, 2009.

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[21] D. A. Sumner , H. Gow , D. Hayes , W. Matthews , B. Norwood , J. T. Rosen-Molina , and W. Thurman "Economic and market issues on the sustainability of egg production in the United States: Analysis of alternative production systems" 2011 Poultry Science 90 :241–250.

[22] Kastens, T., and G. Brester. 1996. Model selection and forecasting ability of theory-constrained food demand systems. Am. J. Agric. Econ. 78:301–312.

[23] You, Z., J. Epperson, and C. Huang. 1996. A composite system of demand analysis for fruits and vegetables in the United States. J. Food Distrib. 27:11–22.

[24] Huang, K. S., and B. Lin. 2000. Estimation of Food Demand and Nutrient Elasticities from Household Survey Data. Technical Bulletin, Number 1887. USDA, Economic Research Service, Food and Rural Economic Division, Washington, DC.

[25] Yen, S., B. Lin, and D. Smallwood. 2003. Quasi- and simulated likelihood approaches to censored demand systems: Food consumption by food stamp participants. Am. J. Agric. Econ. 85:458–478.

[26] Lusk, Jayson. 2010. "The Effect of Proposition 2 on the Demand for Eggs in California". Journal of Agricultural & Food Industrial Organization. Volume 8. No. 3: 1-18.

[27] Egg types that included claims such as omega 3, vegan fed, pasteurized, and fertile.

Table 2. Own price elasticity estimates from demand systems.

Lusk[28]			**Heng and Peterson**[29]	
Egg Type	Market		Egg Type	
	San Francisco	Dallas/Ft Worth		
Conventional	-1.01	-0.99	Conventional	-0.11
Organic	-1.13	-1.52	Organic	-1.07
Other*	-1.70	-1.89	Nutrient Enhanced*	-0.95
Cage Free	-2.26	-2.99		
			Additive Free	-0.43
			Brown	-1.55
*These designations are roughly comparable. Lusk describes "other" to include claims such as omega 3, vegan fed, pasteurized, and fertile. Heng and Peterson[30]describe nutrient enhanced to include claims such as omega-3 and vitamin added.				

Heng and Peterson[31] examined the demand for organic, nutrient fortified, additive free, brown and conventional eggs. The data include weekly sales of over 300 brands encompassing 2,287 products nationwide from April, 2008 to March, 2010. Observed product characteristics include brand name (private labels and specific brands), egg size, package size, shell color, and labeled attributes, such as organic, nutrient-enhanced (including omega-3 and vitamin-added), and additive-free.

[28] Lusk, Jayson. 2010. "The Effect of Proposition 2 on the Demand for Eggs in California". Journal of Agricultural & Food Industrial Organization. Volume 8. No. 3: 1-18.
[29] Heng, Yan and Hikuru Peterson. "Estimating Demand for Differentiated Eggs Using Scanner Data" Selected paper presented at the Agricultural & Applied Economics Association's 2014 AAEA Annual Meeting, Minneapolis, MN, July 27-29, 2014.
[30] Ibid.
[31] Heng, Yan and Hikuru Peterson. "Estimating Demand for Differentiated Eggs Using Scanner Data" Selected paper presented at the Agricultural & Applied Economics Association's 2014 AAEA Annual Meeting, Minneapolis, MN, July 27-29, 2014.

The magnitude of several of the price elasticity estimates in the Lusk[32] study are much larger than the Heng and Peterson study. That study finds the price elasticity of conventional eggs to be approximately -1.0. This is an order of magnitude larger than the estimate from the Heng and Peterson[33] study, and several times larger than what Sumner et al.[34] found in a literature review. The 2010 Lusk study contains an egg product labeled as "other" which coincides to the "nutrient enhanced" egg product in the Heng and Peterson[35] study. The Lusk estimate for the price elasticity is almost double what Heng and Peterson concluded. Estimates of the price elasticities of organic eggs are closer in the two studies, but the Lusk estimates are significantly higher for the Dallas/Fort Worth market.

The largest price elasticity estimate in the Heng and Peterson study is for brown eggs. An elasticity of this size is plausible because conventional eggs are a close substitute for brown eggs, making consumers more sensitive to price changes for brown eggs. The largest price elasticity estimates in the Lusk study are for cage-free eggs. Organic eggs may be considered as a substitute for cage-free eggs if priced competitively, but the converse is probably not true.

The daily average production of cage-free eggs has grown from 3.5 million in 2007 to an estimated 12.4 million in 2016. Organic eggs have seen a similar rise in

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[32] Lusk, Jayson. 2010. "The Effect of Proposition 2 on the Demand for Eggs in California". Journal of Agricultural & Food Industrial Organization. Volume 8. No. 3: 1-18.
[33] Heng, Yan and Hikuru Peterson. "Estimating Demand for Differentiated Eggs Using Scanner Data" Selected paper presented at the Agricultural & Applied Economics Association's 2014 AAEA Annual Meeting, Minneapolis, MN, July 27-29, 2014.
[34] D. A. Sumner , H. Gow , D. Hayes , W. Matthews , B. Norwood , J. T. Rosen-Molina , and W. Thurman "Economic and market issues on the sustainability of egg production in the United States: Analysis of alternative production systems" 2011 Poultry Science 90 :241–250.
[35] Heng, Yan and Hikuru Peterson. "Estimating Demand for Differentiated Eggs Using Scanner Data" Selected paper presented at the Agricultural & Applied Economics Association's 2014 AAEA Annual Meeting, Minneapolis, MN, July 27-29, 2014.

production from 3.4 million eggs produced daily in 2007, to an estimated 10.1 million eggs per day in 2016. Organic and cage-free egg production is shown in Figure 4. The rate of growth in both types of eggs has been nearly identical over the past decade. Figure 5 shows quarterly prices of organic and cage-free eggs over the same period. Over the past decade, the price for a dozen organic eggs has gone from slightly over $3.00 to slightly over $4.00. Cage-free egg prices are lower than organic egg prices, but the trend in price is very similar. Figure 5 also shows the ratio of organic to cage-free price. Organic eggs are typically 35% more expensive than cage-free eggs. That relationship in price has been nearly constant for a decade.

Similar changes in prices and quantities over time argue that the elasticities of these two types of eggs should be approximately equal. Both studies used data collected at roughly the same time period: Lusk[36] from 2007 to 2009, and Heng and Peterson[37] from 2008 to 2010. The data set Heng and Peterson used was a nationwide data set consisting of over 2000 different products. Lusk examined data for two localized markets consisting of approximately 100 different products. The purpose of the Lusk study was to examine how consumer information impacts demand in two different markets, not to characterize the national egg market as Heng and Peterson did.

[36] Lusk, Jayson. 2010. "The Effect of Proposition 2 on the Demand for Eggs in California". Journal of Agricultural & Food Industrial Organization. Volume 8. No. 3: 1-18.
[37] Heng, Yan and Hikuru Peterson. "Estimating Demand for Differentiated Eggs Using Scanner Data" Selected paper presented at the Agricultural & Applied Economics Association's 2014 AAEA Annual Meeting, Minneapolis, MN, July 27-29, 2014.

Figure 4. Eggs produced per day (in millions).

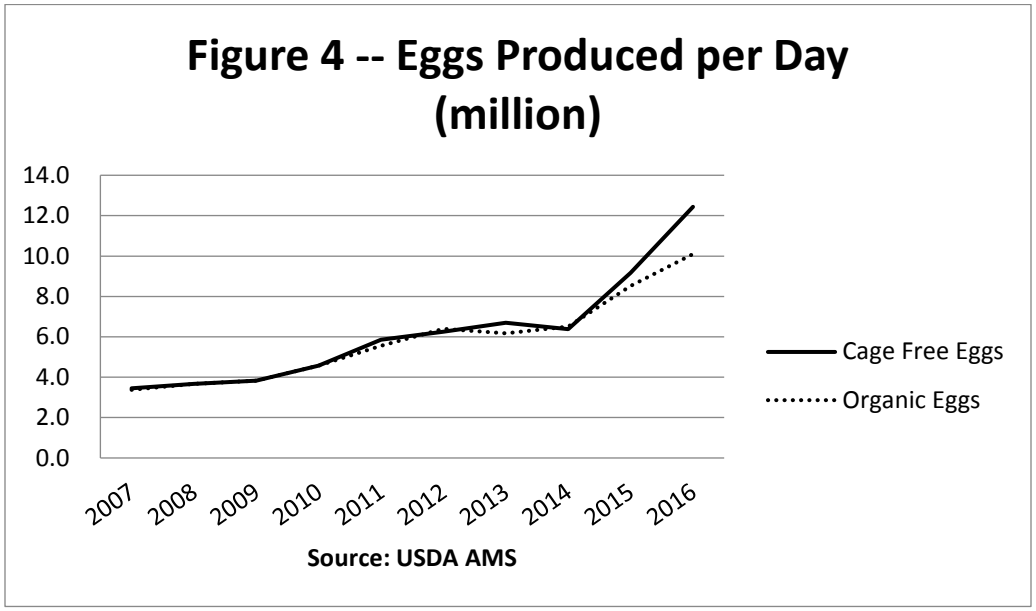
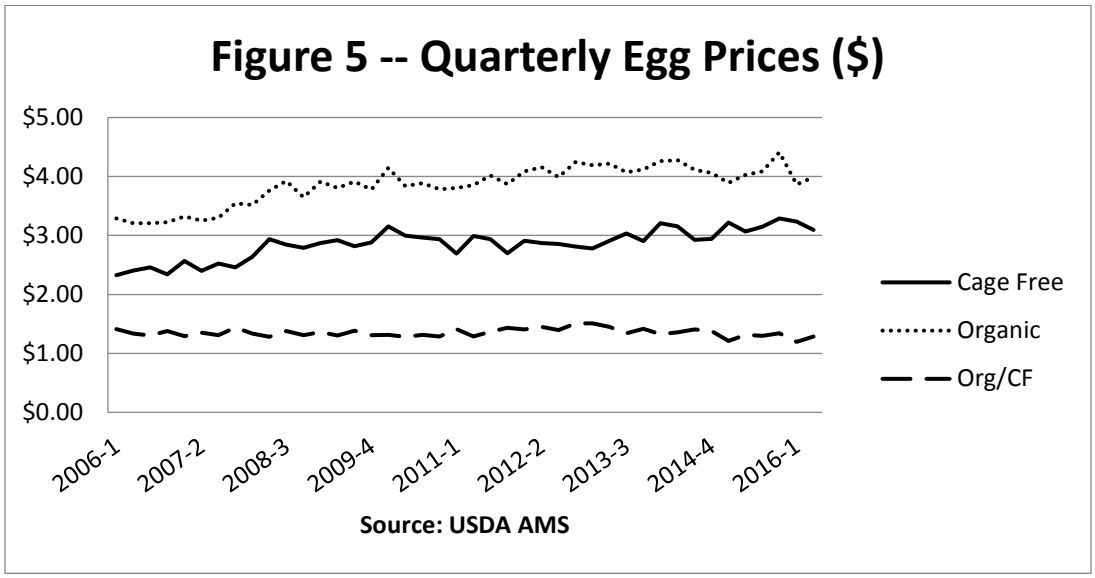


Figure 5. Quarterly egg prices.



To calculate potential price changes and changes in consumer welfare we need to determine prices and quantities for organic and cage-free eggs in the absence of this rule. Baseline prices and annual quantities for cage-free and organic eggs from 2016 to 2022 appear in Table 3. Cage-free quantities are based on current usage rates of pledged

companies and reflect the sum of these usage rates for each year. Estimates are provided by the AMS Agricultural Analytics Division based on AMS Market News Organic Egg and Poultry Reports.[38]

Table 3. Baseline prices and quantities.

Year	Cage-Free Quantity (million dozen)	Cage-Free Price ($/dozen)	Organic Quantity (million dozen)	Organic Price ($/dozen)
2016	460.37	3.16	325.83	3.93
2017	571.16	3.26	367.21	4.02
2018	572.04	3.36	413.85	4.11
2019	605.14	3.45	466.41	4.21
2020	840.45	3.56	525.64	4.30
2021	922.80	3.67	592.40	4.40
2022	1,005.16	3.78	667.63	4.50
2023	2,177.96	3.89	752.42	4.61
2024	3,089.73	4.01	847.98	4.71
2025	4,523.57	4.13	955.67	4.82
2026	4,913.27	4.25	1,077.04	4.93
2027	5,306.33	4.38	1,213.82	5.04
2028	5,730.84	4.51	1,367.98	5.16
2029	6,189.30	4.65	1,541.71	5.28

Organic egg quantities are projected from an assumed annual growth rate of 12.7% based on information from AMS Market News. This is the compound annual growth rate in the number of organic layers from 2007 to 2016.[39] Nominal organic egg and cage free egg prices are based on the historical growth in these prices which is 2.7% and 3.0% respectively.

[38] Estimates are based on the AMS Market News Organic Egg and Poultry Reports which provide weekly organic table egg production data and retail prices. https://www.ams.usda.gov/market-news/organic-market-news-reports. AMS Market News also provides a Monthly USDA Cage-Free Shell Egg Report which has production estimates and retail data, https://www.ams.usda.gov/market-news/egg-market-news-reports.
[39] USDA Livestock, Poultry and Grain Market News, 2016.

Next we need to determine what the production changes will be for organic and cage-free eggs following the implementation of the final rule. Existing producers face a five year phase-in period which will end in 2022. AMS projects that 50% of the organic 'legacy' production that existed prior to the publication of this rule may not be able to comply and will shift to the cage-free market at the end of the phase-in period (a shift of 162.9 million dozen eggs from organic to cage-free). After publication of the rule, AMS projects continued entry into the organic egg market (see Table 3). The implementation dates of the rule as drafted would give those operations – certified after the publication of the rule but prior to 3 years after publication – 5 years to comply. This is intended to provide additional time to producers who had intended to enter organic production near the time this rule is published to prepare land to meet the organic requirements (the required preparation time lasts three years). Given that the proposal was published early in 2016, the majority of new entrants from publication (2017) until three years later (2020) would be aware of the new requirements and construct facilities that comply with the outdoor space requirements. Because there is no economic rationale for a producer to incur the licensing and construction expenses associated with organic production, only to be out of compliance within a few years, late entrants into the market are assumed to comply. However, in the cost estimates below, AMS considered that there may be new entrants up until full implementation for layers and that there may be costs to these entrants. We believe this could significantly overestimate the costs, but are providing this to capture a range of potential outcomes given uncertainties in the underlying assumption.

To estimate the change in expected prices and consumer surplus in 2022, we use a range of elasticities derived from the Heng and Peterson study (see Table 4). We allow demand elasticities to range from -0.75 to -1.25. First, we can see that the higher the elasticity of demand, the larger the increase in price would be expected for organic eggs and the lower the price would be for cage-free eggs. For example, under an assumed -1.0 demand elasticity, changing quantities in both markets in 2022 results in price increase in the organic market (from $4.50 to $5.74 in 2022), and a price decrease in the cage-free market (from $3.78 to $3.09 in 2022). The change in prices is not symmetrical because the cage-free market is larger than the organic market. In terms of economic welfare measures, consumers of eggs see both increases in consumer surplus and losses in surplus. Assuming a demand elasticity of -1.25 would suggest prices increase of $1.55 for organic eggs and price decline of $0.86 for cage-free eggs.

Table 4. Egg prices and consumer surplus change in 2022.

	Organic Eggs		**Cage-Free Eggs**	
	Organic Price ($/dozen)	**Change in surplus ($million)**	**Cage-Free Price ($/dozen)**	**Change in surplus ($million)**
Baseline	$4.50	$0.00	$3.78	$0.00
Demand elasticity				
-1.25	$6.05	-$891.19	$2.92	$946.26
-1.00	$5.74	-$712.95	$3.09	$757.01
-0.75	$5.43	-$534.71	$3.26	$567.75
-0.50	$5.12	-$356.47	$3.43	$378.50

In general, the increase in consumer surplus for consumers of cage-free eggs outweigh the loss in consumer surplus for consumers of organic eggs. For example, cage-free eggs benefit (+$757.0 million in 2022) while consumers of organic eggs lose welfare (-$713.0 million in 2022) under the assumption of a -1.0 demand elasticity.

Many caveats apply to this analysis. First, the use of elasticity estimates to examine price and quantity changes is best suited for small changes. The elasticity of demand changes as one moves along the demand curve. The range of estimates chosen might be reasonable for initial analysis, but perhaps not as appropriate for the scenario which involves large changes in quantity in two markets. Second, if the demand elasticity of cage-free egg consumers is different from organic egg consumers, the result that consumer welfare is increased may not necessarily hold. Also, due to an assumed increase in both prices and quantities, changes in consumer surplus will increase over time. Third, within the timeframe of this rule, cage-free eggs are expected to largely replace conventional eggs. When that happens, the elasticity of demand for cage-free eggs would likely decline significantly, which would erode some of the consumer benefits. For example, suppose that consumer demand elasticity for cage-free eggs is -0.50 and the demand elasticity for organic eggs is -1.0. The loss in consumer welfare from organic egg consumers would outweigh gains from cage-free consumers. Fourth, once this rule is finalized, more producers might enter the organic market in excess of what is assumed in the baseline in anticipation of a shortage of organic eggs in starting in 2022. Addressing any of these caveats is purely speculative, so this analysis should be considered illustrative of the distribution of welfare impacts rather than an accurate accounting of them.

In addition, we acknowledges that achieving consistent organic practices is critical to maintain consumer trust in the organic sector and may necessitate that some producers leave the organic market and use alternate labeling claims. In addition to constraining the performance of existing organic operations, these conditions could

discourage participation in the NOP as producers seek alternate certification to better convey their management practices to consumers.

On the other hand, organic livestock production standards that are relevant and responsive to consumer preferences should drive demand for organic products and attract new entrants to the organic livestock market. This would have positive monetary impacts for organic livestock producers and other organic operations that produce/handle animal feed. We have not quantified the potential broader implications for not pursuing this action.

As discussed above, some consumers are likely to respond to price increases by substituting non-organic eggs for organic eggs. There are many factors independent of this rule, such as the price of feed that historically have temporarily affected the availability of organic eggs in the market. Likewise, while this rule may constrain the supply of organic eggs and affects local markets differently, we expect that this impact will be short-term. Over the long term, this regulation is expected to foster market stability by setting clear standards for livestock and poultry practices which will ensure equitable market participation and enforcement. Clear standards will also help to maintain consumer demand for organic livestock products as consumers become aware of the changes. Greater market stability will entice new producers to enter organic production and encourage some certified organic producers to expand and maintain the availability of organic eggs to U.S. consumers. For example, once this rule is implemented new producers might begin to enter the organic egg market during the implementation period in anticipation of supply shortages as producers that cannot

comply leave the market. This would lessen the projected drop in supply and increase in prices.

AMS acknowledges that implementing consistent organic livestock practices may affect consumers' organic egg consumption for a period of time. Yet we anticipate that clarifying organic livestock standards and aligning them with consumer expectations reduces the vulnerability to a shift in consumption patterns towards labels that more align with consumer preferences. There were comments from consumers and producers urging AMS to finalize this rule to ensure consistent production practices which encompass the criteria of various certification programs. The welfare analysis presented above does not include those additional consumer benefits. As discussed in more detail below, AMS estimates that the annual benefits to organic egg consumers would range between $13.8 million to $ 32.1 million annually with a mean value of $22.9 million over a 15 year period.[40,41]

13. Impact of Consumer Confusion

(Comment) Some comments challenged (1) the existence of consumer confusion around production practices for organic egg and poultry production and (2) the aim to meet consumer expectations as a primary justification for this rule. These comments noted the steady growth in demand for organic eggs and the shortage of organic eggs to

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[40] The 13 year period accounts for the time needed to fully depreciate layer houses. We use a 13 year timeframe to align with the methodology used to calculate the costs, below. The 13-year average includes five years of zero benefits, reflecting the five years before compliance with the new, more stringent standard is required, and eight years of positive benefits.

[41] If there were a decrease in animal welfare associated with producers switching from the baseline level (considered organic under the current standard) to the level provided under the cage-free standard, a necessary next step in the benefits calculation would be subtraction of the monetized decline in welfare. However, given AMS's understanding of management practices, the agency believes that there would be no such decline in animal welfare associated with switching label claims from organic to cage-free. [42]
http://www.poultrytimes.com/poultry_today/article_1fb7e224-43a6-11e6-b8d7-c7420f870aec.html

meet current demand as evidence that consumers are satisfied with current organic egg production methods. A comment advised that minimizing impacts on producers should be more persuasive than consumer expectations.

(Response) Sustained consumer demand for organic eggs drives the markets for these products. One of the central purposes of the Organic Foods Production Act of 1990 (OFPA) is to assure consumers that organic products meet a consistent standard. This rule creates consistency in production and certification practices and better aligns with the prevalent consumer assumption that organic poultry is outdoors. If these assumptions are not validated in the production standards for these products, consumers would likely shift purchases to alternate products certified under private, third-party standards that clearly delineate outdoor access requirements. This assertion is supported by research showing that consumers are willing to pay a premium for outdoor access, referenced in the section, Benefits of the Final Rule. Based on that research AMS predicts that the organic label could lose market share if consumers cannot readily discern whether the organic label signifies outdoor access but can discern that information from other labels. By establishing clear organic livestock and poultry standards, this rule will shape what information is being conveyed to consumers about organic livestock products through the media, advocacy and trade groups, USDA or AMS outreach, and other sources. With the implementation of this rule, the information conveyed to consumers about the organic label and animal welfare practices will shift to reflect the new requirements and consumers will be better informed.

14. Cage-Free Market Inaccessible

(Comment) AMS received a few comments from egg producers stating that they would face challenges in accessing the cage-free egg market because of the small scale of their operation or the location.

(Response) While AMS cannot assure that every producer of organic eggs who intends to transition to cage-free egg production will be able to find a buyer for cage-free eggs, it is clear that the cage-free market is facing a near-term supply shortage that is unprecedented for the industry.[42] At the time of this writing, cage-free egg production accounts for 7.2 percent of total egg production in the United States. AMS projections estimate that the share of the total egg market for cage-free eggs in 2022, the year this rule will be fully implemented, will be approximately 14.4 percent. Based on an analysis of commitments made by retailers, restaurants, food manufacturers and other buyers to shift to sourcing only cage-free eggs, AMS estimates that the cage-free share will need to grow to 76.6 percent of the total U.S. layer flock by 2026 in order for these buyers to fulfill their commitments. Producers currently operating in the organic market who transition to the cage-free market will face much smaller transition costs than will conventional (caged) producers, since organic operations are already producing without cages. AMS acknowledges that there will be localized barriers to this transition, including a lack of local cage-free buyers or a need for individual producers to identify and connect with these new markets, but on average we expect that the need for two-thirds of the U.S. layer flock to transition to cage-free by 2026 will present ample opportunity for most producers interested in transitioning.

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[42] http://www.poultrytimes.com/poultry_today/article_1fb7e224-43a6-11e6-b8d7-c7420f870aec.html

15. Costs to Comply With CAFO Regulations

(Comment) A number of commenters stated that the requirement for outdoor open access could affect compliance with U.S. Environmental Protection Agency (EPA) regulations for concentrated animal feeding operations (40 CFR 122.23).[43] The comments explain that lack of clarity about whether the proposed rule intended to require vegetation in the outdoor area makes it difficult to gauge the impacts of this rule with respect to compliance with regulations for concentrated animal feeding operations. Comments from producers expressed concern that managing runoff from outdoor areas in order to comply with the Clean Water Act would necessitate costly upgrades to existing nutrient management systems. The costs would entail constructing storm water containment for outdoor areas (e.g. creating berms), additional land acquisition, and administrative and environmental compliance costs.

(Response) In consideration of these comments, AMS has revised § 205.241(c) to require maximal vegetation in outdoor areas to minimize impacts to soil and water quality. Clean Water Act National Pollutant Discharge Elimination System (NPDES) permit requirements for concentrated animal feeding operations do not encompass outdoor areas that maintain vegetation in the normal growing season (see 40 CFR 122.23(b)(1)(ii)). Therefore, if outdoor areas are maintained in compliance with the USDA organic regulations, AMS does not believe this rule would adversely alter an organic operation's status or costs of compliance with respect to EPA regulations for

[43] 40 CFR 122.23 describes the criteria which characterize animal feeding operations: (1) Animals have been, are or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period; (2) Crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.

concentrated animal feeding operations, nor does it expect the rule to subject operations to additional requirements. We have not estimated any costs related to CWA compliance in this analysis. This rule also does not affect NPDES compliance requirements for other aspects of the poultry growing areas, and other federal, state, or local regulatory requirements may apply to the facilities as well.

16. Impact on Mammalian Livestock

(Comment) Many commenters stated that some of the proposed mammalian living conditions would have imposed new compliance costs on these producers. Commenters identified that the following provisions would result in compliance costs:

- Year-round outdoor access areas with 50 percent soil;
- Soil-based outdoor access areas for swine;
- At least one stall per animal in confined housing with stalls;
- The requirement that livestock be able to lay down in full lateral recumbence without touching the enclosure.

Comments from organic dairy producers stated that their operations were designed using outdoor hardened surfaces and would need significant resources to redesign their systems. They cited Natural Resource Conservation Service (NRCS) funding to construct hardened surfaces for livestock to use during the winter and other times when turning cattle out on pasture could damage soil or water quality. Other comments said that they could not comply with the proposed minimum soil requirement and would have to exit organic production because of degradation to soil and water quality.

Swine producers explained that they would need to rebuild their facilities to allow the pigs to have access to soil in the outdoor areas. Other commenters noted that putting

hogs on to soil would increase the risk of feral swine transmitting pseudorabies or other diseases to the organic swine, which could shut U.S. pork products out of many foreign markets, affecting both organic and nonorganic pork producers.

Other commenters noted that scientific research has shown that requiring one stall per animal in free stall barns does not improve animal welfare. These comments noted that some producers constructed free stall barns with less than one stall per animal and would incur costs if required to change that configuration. Dairy producers also stated that stalls were purposely designed to not allow cattle to lie down in full lateral recumbence or turn around in order to prevent injury to the animal and ensure that urine and manure were not deposited where they could contaminate the udder.

(Response) In the final rule, AMS has revised the provisions listed above. We removed the requirement that outdoor access areas have 50 percent soil with the requirement for vegetation to minimize impacts soil and water quality. Under the existing USDA organic regulations, the grazing provisions for ruminant livestock require that the animals be maintained on pasture during the grazing season. Therefore, we expect that the outdoor access areas for ruminant livestock currently meet the new requirement for vegetation. Under the existing regulations, livestock may be maintained on impermeable surfaces rather than on pasture or soil when conditions threaten soil or water quality.

We are also omitting the requirement for soil in outdoor access areas for swine. AMS needs additional time to more fully understand the impacts of altering outdoor access requirements for swine and turkeys.

For mammals, AMS is making two changes from the proposed rule in order to avoid unintended costs. We omitted the requirement for one stall per animal in confined

housing. This will permit the use of free stall barns, which are common among organic dairy operations in certain regions of the country. In addition, AMS removed the requirement that shelter for mammalian livestock must allow animals to lie down in full lateral recumbence. Tie stall barns, which do not allow for this movement, are designed for animal safety and cleanliness. AMS expects that with the above revisions, this action will not impose costs on producers.

17. Organic Egg Supply

(Comment) Some comments addressed AMS's projected impact of this action on the organic egg supply. One comment explained that if aviaries account for 70 percent of organic production and 90 percent of these leave the organic market, this would result in a 60 percent decrease in organic production. Another comment projected that the departure of 90 percent of aviaries would reduce the organic egg supply by 63 percent. One comment noted AMS's statement that new organic egg producers would likely enter the market as a result of this action and asked that we specify the number of new producers and expected production volume.

(Response) In the final rule, AMS is updating the projections on the impacts of this rule on the organic egg supply. The revised projections are based on new data on the organic egg layer population[44], a revised assumption about the land availability for organic egg operations based on public comment, and general economic principles of supply and demand. Based on public comments, we are confident that the organic egg

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[44] USDA AMS LPS Market News (Market News) 2010-2016 Egg Market News report. Available on the Market News website at: http://1.usa.gov/1vlDNgy.
USDA AMS LPS Market News (Market News) 2010-2015 Broiler Market News report. Available on the Market News website at: http://1.usa.gov/1uHsme1.

market will continue to grow through a combination of new entrants and expansion of existing operations.

Between 2007 and 2016, the organic egg market grew 12.7 percent (compound annual growth rate). We expect the organic egg sector will sustain this growth until the year 2020, when any new entrants (i.e., noncertified producers) would need to comply with the outdoor access requirements in this rule to obtain certification. Growth will continue until the year 2022, when all organic producers must comply with the outdoor access requirements. As discussed below, we predict that up to 50 percent of the organic market could transition to cage-free, creating a temporary dip in the supply of organic eggs. The historical growth rate in the organic egg market demonstrates avid and increasing consumer interest in these products and this projected drop would create an opportunity for new producers to enter and for remaining organic producers to expand to fulfill unmet consumer demand.

18. Average Age of Layer Houses

(Comment) AMS received a comment that noted that in the proposed rule AMS acknowledged a 39 percent increase in the number of organic layers between 2013 and 2015, but did not factor any new houses built to house these birds into the average age of a layer house. The comment asked whether, based on this information, AMS intended to adjust the average age and depreciation schedule, and ultimately the implementation timeframe.

(Response) AMS revised the average age of layer houses, the depreciation schedule, and the implementation timeframe based on updated information about the organic layer population. In the proposed rule, AMS used data from the National Animal

Health Monitoring Service 2013 Layers study. That survey provided a breakdown of the age of layer houses through 2013 and AMS calculated the average age of layer houses that were less than 20 years old to be 7.6 years. We calculated the average age among houses that had not fully depreciated in order to set an implementation timeframe wherein the average layer house would fully depreciate.[45]

Between 2014 and 2016, the population of organic layers grew 72 percent.[46] In terms of cost impacts, AMS is concerned with the percentage of production that has not fully depreciated. Therefore, AMS calculated the average age of layer houses among this subgroup. We assumed that the expansion in the organic layer population between 2014 and 2016 was housed in new barns. AMS's recalculation of layer houses shows a bimodal distribution: over 20 percent of layer houses are 20 years or older; 35 percent are 2 years old or less. The revised estimate of the average age of organic layer houses is 2.85 years. This means that the average organic layer house will need about 10 years to fully depreciate.[47]

As discussed below, AMS is not altering the five year implementation period for the outdoor access provisions for layers. Extending the implementation period to 10 years in order for the average organic layer barn to fully depreciate is not tenable for this industry. A longer implementation period, during which time divergent practices would persist, could be detrimental to the majority of organic producers who already comply

[45] AMS calculated the average age among layer houses that were less than 20 years old. We focused on this subgroup in order to more accurately estimate the age of aviary style houses, which are newer systems and likely to be younger structures.
[46] This growth is based on the number of layers reported by AMS Market News between April 2014 and April 2016. Some of this growth was due to operations newly reporting to Market News.
[47] Given the large increases in the organic layer population between 2014 and 2016, the structures that were built in 2016 will need approximately 12-13 years to fully depreciate. AMS estimates that nearly 25 percent of organic layer housing was constructed in 2016.

with this rule but operate at a competitive disadvantage, since it would extend the period during which they incur higher operating costs relative to porch-based systems.

19. Depreciation versus Useful Life of House

(Comment) AMS received comments questioning why AMS based the implementation period on the depreciation timeframe rather than useful life of the house. A number of comments noted a wide discrepancy between the age of some organic layer houses and depreciation timeframe. Comments reported poultry houses that are in good condition and either have been or are expected to be in use for at least 25 years. Therefore, a few comments argued that AMS should base costs on the useful life of the house rather than the depreciation timeframe.

(Response) Depreciation begins when a taxpayer places property in service for use in a trade or business or for the production of income. The property ceases to be depreciable when the taxpayer has fully recovered the property's cost, or when the taxpayer retires it from service, whichever happens first. The IRS defines depreciation schedules for assets, which are usually a set number of years. At the end of the time period, the asset is considered fully depreciated. This differs from the useful life of the structure, which may exceed this time period. A depreciation schedule is a conservative estimate of the useful life. Typically, the depreciation schedule is shorter than the useful life so that expenses are recognized earlier. In that way, if the structure does not live out its expected life, the owner does not incur an unexpected accounting loss. Therefore, it is not unusual for a fully depreciated structure to still be capable of operating for several more years.

The IRS depreciation schedule is thirteen years for a layer house and fifteen years for a broiler house. At the end of the depreciation period, the business owner has recouped his or her investment and the structure is fully depreciated. In this rule, AMS account for costs that accrue to "legacy producers" and new entrants. "Legacy producers" are those individuals who decided to go into the organic business with no knowledge of the costs imposed by this rulemaking. Their assets are in the 1–13 year depreciation window for layer operations, and 1-15 year depreciation window for broiler operations. Given the uncertainty in forecasting impacts in the organic egg market and to capture a range of potential impacts, we have retained the discussion below about reducing costs associated with this rule over the depreciation timeframe for poultry houses. However, for the primary cost estimates, AMS is including the costs for new entrants and legacy producers and has not reduced the reported costs within the depreciation timeframe.

20. Broilers

(Comment) AMS received comments identifying errors in AMS's baseline assumptions about organic broiler production in the cost analysis. One comment explained that AMS (1) underestimated the total organic broiler production used as the baseline, and (2) assumed the indoor stocking density for organic broiler producers was lower (5.37 lbs/sq ft) than that used in practice. According to descriptive data provided in the comment, the vast majority of organic broiler production meets an indoor stocking density of 6.0 lbs/sq ft.[48] The comment estimated that it would cost $25 million for this operation to construct facilities to comply and could cost the entire sector two to three

[48] The comment further explained that the majority of organic broiler producers participate in the Global Animal Partnership (GAP) certification program and are certified at GAP Step 3 which requires an indoor stocking rate of 6 lbs/sq ft.

times that amount. While supportive of the proposed requirements, the comment requested that the implementation period be extended for 3 years to allow time for expanding the existing operations and bringing in new farmers.

(Response) AMS has revised the estimated costs for organic broiler operations by adjusting the following assumptions based on public comment: (1) the baseline organic broiler population is updated from 16 to 80 million; and (2) the baseline indoor stocking rate is updated from 6.5 to 6.0 lbs/sq ft. Based on those variables, AMS projects that the annual cost for organic broiler producers is $2.2 million over 15 years. Most of this cost, $29 million, is a one-time cost to construct housing; AMS has spread this cost over the 3-year implementation period.

AMS expects to mitigate these costs by providing a three-year implementation period for indoor stocking densities for broilers and other meat-type birds. We do not expect that organic broiler producers will need to reduce flock size because they may use the three year implementation period to construct the facilities needed to maintain their production levels.

21. Turkeys

(Comment) A number of comments objected to the proposed requirements for organic turkey production. Specifically, comments objected to the outdoor access requirements and stocking densities for turkeys on the basis that these would impose a significant cost burden and increase disease risk at the expense of animal welfare. One comment projected that compliance with the outdoor access requirements would cost the sector over $200 million for land acquisition and construction of new barns, and additional annual feed costs due to reduced feed efficiency ($8 million) and higher

mortality ($2.7 million). Other comments mentioned that the reduced feed efficiency and increased mortality rate for turkeys would cost about $250,000 per year on a typical farm.

(Response) AMS is not finalizing indoor or outdoor stocking density requirements for turkeys in this rule. In the proposed rule, the stocking densities for turkeys were the same as those for broilers and other meat-type birds. These rates were based on stocking density ranges that the NOSB recommended for broilers. The NOSB did not recommend specific ranges for turkeys. Based on information received in public comment and examination of the administrative records leading to the proposed stocking densities, AMS is deferring the establishment of indoor and outdoor stocking densities for turkeys. This will allow for the equivalent public, deliberative process that led to NOSB recommended stocking densities specific to layers and broilers. Organic turkey producers must continue to comply with the pre-existing requirement in the USDA organic regulations that all livestock have access to the outdoors.

22. Implementation Period

(Comment) AMS received comments about the proposed implementation scheme and schedule. Some comments suggested alternate implementation periods, specifically:

- 5–10 years to allow more time to pay off existing buildings before investing additional money for operational changes.
- 3 years for certified poultry operations;
- No implementation time for noncertified poultry operations that apply for certification;
- Grandfathering existing operations (i.e., existing organic operations would not be subject to the new requirements but could continue to produce organic products);

- 3 years for avian indoor space requirements, to avoid a disruption in the supply of organic chicken;
- 2 year phase-in for indoor stocking density for pullets because of rapid weight changes during 18 weeks;
- At least 1 year for the indoor space requirements to avoid renovating houses when birds are present, since the lifespan of a layer exceeds one year;
- 18 months to implement all provisions other than outdoor access for poultry;
- 3 years for outdoor space requirements for mammalians, especially swine.
- Some comments urged AMS not to delay the implementation of this rule and explained that producers who currently comply with the rule have incurred costs from years of unfair competition that should be factored into the analysis.

(Response) AMS is making one change to the implementation period: we are providing a 3–year implementation period for the indoor space requirements for broilers. For broilers, the indoor space requirements are the main hurdle to full compliance with this rule. AMS understands from comments that three years would provide time for these producers to expand facilities at existing farms and for the certification of new operations. We agree that this timeframe is warranted and adequate for producers to make structural changes and assure consumers of continual progress towards consistent practices in this sector.

AMS is maintaining a 5 year implementation period for the outdoor space requirements for poultry. AMS is concerned that extending this timeframe would perpetuate the issues that drove the NOSB to make its recommendations, including continued divergent practices and a lack of consistency and clarity in the industry. In

addition, grandfathering existing operations would indefinitely perpetuate the inconsistencies in practices that this rule seeks to address.

The proposed rule indicated that the provisions of this rule, with the exception of the outdoor space requirements for poultry, would need to be implemented one year after the publication of the final rule. We expect mammalian operations already comply with this rule, particularly after changes to certain provisions concerning housing and soil in outdoor access areas. We believe this timeframe is responsive to commenters' requests. We are not providing an extended implementation period for swine because we are not amending the outdoor access requirements for those species and do not expect these swine producers will need to change practices to comply with this rule.

While AMS acknowledges the request for more urgent implementation, AMS understands that this rule has wide-ranging implications and that an aggressive and rapid implementation timeline could be destabilizing. We believe that three years would not provide sufficient time for producers who need to expand the outdoor access areas to acquire additional land and potentially convert that land to organic production.

23. Pasture-Raised Labels

(Comment) Some comments have urged AMS to create separate labeling categories such as pasture-raised organic or free-range organic. These comments argue that premium labeling categories would preserve the existing market for organic eggs and create additional markets based on more stringent standards and higher premiums.

(Response) AMS is not creating any additional labeling category to differentiate production practices for organic poultry. The terms "pastured" and "free-range" are commonly used within the industry but are not currently regulated. The Organic Foods

Production Act of 1990 authorizes the USDA to establish standards governing the marketing of certain agricultural products as organically produced. Establishing regulations for the use of production-based marketing claims in addition to organic is not within the authority of the USDA organic regulations. Further, AMS expects that trying to define and regulate these terms in the context of organic poultry production would be problematic and would likely cause confusion in the marketplace.

24. Access to Credit

(Comment) A few comments stated that this rule would make it difficult for producers to secure credit for future capital improvements or expansion. These comments explained that lenders would be wary of extending credit because of the potential for further regulatory changes.

(Response) Current disparities in organic livestock production practices and the lack of clarity in the regulations have created uncertainty among producers about the current and future requirements for organic livestock production. They have also created confusion among consumers about the attributes of organic products, which could negatively affect demand. AMS expects that this regulatory change will bring greater stability and security to the market for organic livestock products. The addition of detailed requirements to the organic livestock regulations has been anticipated for years as the NOSB focused on recommendations for this action; the NOSB recommendations issued between 2009 and 2011concluded those deliberations and are the core sources for this rule. AMS does not consider this rulemaking action to be an indication of a succession of regulatory changes that would affect organic livestock producers.

25. Transport Requirements – Consistency with Requirements of Other Countries

(Comment) AMS received a comment that the transport requirements for livestock in Australia would not be consistent with the requirement that producers must make arrangements for livestock to have water and organic feed if transport time exceeds twelve hours (§ 205.242). The comment states that the Australian Animal Welfare Standards for the Land Transportation of Livestock ensure animal welfare and require that cattle over 6 months old which have been off water for 48 hours must have "a spell" for 36 hours before starting another journey. The comment also described a remote region within Australia where cattle are transported long distances. The comment did not describe any costs associated with complying with the transport requirements in this rule.

(Response) AMS understands that the transport requirement in this rule is more stringent than the transport requirement in Australia described above. According to the Organic Integrity Database, there are 245 certified operations in Australia that produce cattle, and one producer is located in the remote region referenced in the comment. Given that there is no description of potential impacts/costs and no similar comments from other potentially affected entities, we are not including estimated costs for compliance with § 205.242.

C. Baseline

1. Data Sources

This baseline focuses on the current production of organic eggs and the market for this commodity. AMS used multiple data sources, listed below, to describe the baseline and inform our assumptions for the cost analysis:

- 2011-2016 Organic Industry Surveys, published by the Organic Trade Association (OTA). The Nutrition Business Journal conducts this annual survey on behalf of

OTA to summarize market information and trends within the organic industry across food and non-food sectors.[49]

- 2014 Organic Survey, National Agricultural Statistics Service (NASS).[50] This survey reports acreage, production, and sales data for organic crops and livestock.
- 2011 Organic Production Survey, National Agricultural Statistics Service (NASS).[51] This survey reports acreage, production, and sales data for organic crops and livestock.
- The National Animal Health Monitoring and Surveillance (NAHMS) 2013 Layers study.[52] This study includes a section on organic egg production in the U.S., which provides an overview of various practices on organic layer operations.
- AMS also used summary information from the USDA Livestock, Poultry and Grain Market News Service (Market News) egg and broiler reports from 2010 to 2016.[53,54]
- Organic Egg Farmers of America (OEFA), Organic Poultry Industry Animal Welfare Survey, 2014. OEFA independently conducted and submitted the results

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[49] Organic Trade Association (OTA)/Nutrition Business Journal, 2014 Organic Industry Survey. Nutrition Business Journal conducted a survey between January 7, 2016 and March 25, 2016 to obtain information for their estimates. Over 200 organic firms responded to the survey. NBJ used secondary data from SPINS, IRI Group, Natural Foods Merchandiser's annual industry survey, public company financial filings and media reports to supplement the survey and build market statistics.

[50] The NASS 2014 Organic Survey is accessible at: http://www.agcensus.usda.gov/Publications/Organic_Survey/.

[51] The NASS 2011 Organic Production Survey is accessible at: http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1859.

[52] The NAHMS Layers 2013 Part IV: Reference of Organic Egg Production in the United States, 2013, may be found at the following link: http://1.usa.gov/1IkWw22https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/monitoring-and-surveillance/nahms/nahms_poultry_studies.

[53] USDA AMS LPS Market News (Market News) 2010-2016 Egg Market News report. Available on the Market News website at: http://1.usa.gov/1vlDNgy.

[54] USDA AMS LPS Market News (Market News) 2010-2015 Broiler Market News report. Available on the Market News website at: http://1.usa.gov/1uHsme1.

of a survey of organic egg and broiler producers. There were 157 survey responses, representing 8.33 million organic layers and 12 million organic broilers. The survey was distributed to certified organic poultry producers in July 2014.

- Egg Industry Center (EIC) Survey of U.S. Organic Egg Production. EIC independently conducted and submitted this survey which was distributed to organic egg producers with at least 30,000 hens. There were 23 respondents to this survey representing 5.07 million hens.
- Economic Impact Analysis of Proposed Regulations for Living Conditions for Organic Poultry, Phase 3 Report by T. Vukina, K. Anderson, M.K. Muth and M. Ball. This report, prepared for the NOP, estimated the costs for implementing the NOSB recommendation on avian living conditions. The analysis in this proposed rule essentially updates and expands the model used by Vukina et al., to estimate current costs and different producer response scenarios.

2. The Organic Egg and Poultry Market

According to the 2015 Organic Trade Association (OTA) Industry Survey, U.S. sales of organic food, fiber, and agricultural products totaled over $43 billion in 2015, up 10.8 percent from 2014.[55] Sales of organic eggs reached $678 million in 2015, an increase of 32 percent over the previous year. This sector has experienced continued double-digit sales growth since 2010, as shown in Table 5. The rate of growth may be

[55] OTA, 2016 Organic Industry Survey. According to this source, the marked increase in sales of organic eggs was attributed to high prices for conventional eggs, which narrowed the price gap for organic eggs and boosted demand for those products.

affected by several factors, including: (1) the price gap between organic and non-organic eggs based, for example, the cost of organic and non-organic feed – this may slow or increase growth depending on size of the gap[56]; (2) factors other than price driving consumer purchasing decisions, e.g., concerns about production practices; (3) competition from cage-free labels; and (4) accuracy in forecasting consumer demand.

In 2015, poultry sales ($494 million) grew nearly 13 percent and accounted for the greatest portion (60 percent) of the organic meat, poultry and fish market sector. As shown in Table 5, annual sales of organic poultry have climbed steadily since 2010, while retail prices for organic boneless, skinless breasts have fallen.[57] In comparison to beef, pork, and other meat products, poultry faces fewer obstacles to growth because feed for poultry is cheaper and time to market is shorter.[58]

[56] Other factors may affect the price gap between organic and nonorganic eggs. The outbreak of high pathogen avian influenza in 2015 caused prices of conventional eggs to spike and narrow the price gap.
[57] Retail prices for organic whole fryers per pound have fluctuated between 2010 and 2014, peaking in 2012 and falling the following two years.
[58] OTA, 2010-2016 Organic Industry Surveys.

Table 5. Organic eggs and broilers market—retail sales.

Subcategory	Year	Annual Sales (million $)[a]	Percent growth	Average retail price[b] (dozen eggs[c]/boneless, skinless breast)
	2015	678	32%	$4.19
Eggs	2014	514	17%	$4.16
	2013	439	16.9%	$4.16
	2012	375	17.5%	$4.11
	2011	319	20.2%	$3.90
	2010	266	10.4%	$3.85
Poultry	2015	494	9.2%	$7.45/lb
	2014	453	12.9%	$7.37/lb.
	2013	401	9.3%	$7.20/lb.
	2012	367	10.8%	$7.38/lb.
	2011	331	12.5%	$7.49/lb.
	2010	294	6.3%	$7.54/lb.

[a] Organic Trade Association, 2016 Organic Industry Survey.
[b] Based on supermarket advertised sale prices reported by AMS Livestock, Poultry and Seed Market News.
[c] Brown, Large, Grade A.

Table 6 shows the geographical distribution of organic egg and broiler production in the U.S., based on the USDA 2014 Organic Survey. According to that survey, there are an estimated 722 organic egg producers and 245 organic broiler operations. Five states are responsible for over one-third of organic egg production.[59] Pennsylvania and

[59] Given the growth in organic egg production between 2014 and 2016, AMS expects that geographical distribution of production has also shifted. Based on current data from AMS Market News, the top four ranking states for organic egg

California operations comprise only 7.5 percent of the total number of organic poultry producers, but produce 35 percent and 32 percent, respectively, of organic eggs. California also has 6.5 percent of U.S. organic broiler operations, which produce about 54 percent of organic broilers. Conversely, the production from states which report higher numbers of broiler operations, such as Wisconsin and Maine, is less than 1 percent of production. Several states do not report total production volume for broilers in order to protect confidentiality. Given these omissions, the data does not provide details of nearly 50 percent of state-wide production levels for organic broilers.[60]

production are: California, Michigan, Kansas and Missouri. The ranking in the above table is based on percent of organic egg operations, so there may be states that have more organic egg operations but do not produce as many eggs as other states with fewer, large-scale producers.

[60] For the cost analysis, AMS relied upon industry data provided in public comments to estimate baseline population of organic broilers. In this final rule, we updated the baseline number of broilers used in the proposed rule from 16 million to 80 million. Therefore, the data above serves to inform about the geographical distribution of organic egg and poultry production, but is not used as the baseline data for the cost analysis.

Table 6. Top states with organic egg and poultry operations compared to production.

Organic Eggs[a]				
	Number of Organic Egg Operations	**Percent of US Organic Egg Operations**	**Total Production (dozens)**	**Percent of US Organic Egg Production**
United States	722		166,313,847	
Top 5 States[b]	334	46.1%	61,157,980	36.7%
Wisconsin	97	13.3%	7,450,488	12%
Iowa	74	10.2%	8,628,066	14%
Maine	55	7.6%	4,051,040	7%
Pennsylvania	54	7.5%	21,623,599	35%
California	54	7.5%	19,449,787	32%
Organic Broilers[a]				
	Number of Organic Broiler Operations	**Percent of US Organic Broiler Operations**	**Total Production (birds)**	**Percent of US Organic Broiler Production[d]**
United States	245		43,255,401	
Top 5 States[b]	130	53%	23,319,734[c]	53.9%
Wisconsin	32	13%	21,104	0%
Pennsylvania	30	12.2%	N/A	N/A
New York	28	11.4%	N/A	N/A
Maine	24	9.8%	23,134	0%
California	16	6.5%	23,275,496	53.8%

[a] Source: National Agricultural Statistics Service, "2014 Organic Survey."
[b] States ranked by both number of farms and total production.
[c] This total does not include production for Pennsylvania and New York. The 2014 Organic Survey does not disclose the broiler production data for those states. In order to protect confidentiality, any tabulation which identifies data reported by a respondent or allows a respondent's data to be accurately estimated is not disclosed.
[d] There were other states that had higher production than the states reporting in this table, but had fewer organic broiler operations. Kentucky produced 27,685 broilers, but only had 7 organic broiler operations. Michigan produced 13,018 broilers, but had only 6 organic broiler operations.

D. Alternatives Considered

AMS considered alternatives to this action that ranged from non-rulemaking initiatives to adopting practice requirements that varied from those recommended by the NOSB, specifically varying the stringency of certain requirements for avian living conditions. AMS attempted to use performance standards to clarify the requirements for outdoor access for poultry by issuing guidance in 2010. Based on public comments on that guidance, AMS determined that the organic poultry sector needed more prescriptive

guidelines to clarify the intent of the requirement for outdoor access than could be conveyed in guidance. Given that guidance would continue to permit broad variations in outdoor access practices among organic poultry producers, and would not fulfill the statutory objective of the organic certification program to ensure consumers that organically produced products meet a consistent standard (7 U.S.C 6501(2)). Because guidance would not necessarily compel significant changes in practice, there would be no costs to producers. However, this option would not realize potential benefits of sustained consumer trust in a standard that is clear and consistently applied and enforced. The continuation of inconsistent practices, particularly regarding outdoor access for poultry, facilitates broader, negative publicity about the organic label which can dissuade consumers from this market. Therefore, AMS conceded that a stronger, regulatory option was necessary.

We acknowledge here, and have discussed above, that some comments on the proposed rule encouraged AMS to conduct more consumer education about the meaning of the term “organic” rather than pursue regulation changes. While AMS acknowledges the value of and is committed to ongoing consumer education and transparency about organic production, certification and labeling practices, we understand that consumer interest in organic products is a key factor that prompted NOSB action for more descriptive organic livestock production standards. In addition, the NOSB and AMS have heard from numerous organic poultry producers throughout the U.S., representing various sizes of operations that support clarifying outdoor access requirements for organic poultry in a manner that would require that birds be on vegetated ground. A number of

these producers contend that it is difficult to compete with operations that do not provide full, open outdoor access areas, but still use the organic label on their products.

Ultimately, a consumer education campaign about the meaning of organic while disparities in practices persist would have limited effectiveness, since it would not help consumers more clearly discern the attributes of organic claims on specific products. This rule will shape information, which is conveyed to consumers through various means, about the organic label on livestock products. As this rule permits a clear and narrow set of practices, specifically for outdoor access for poultry, the information that reaches consumers and impacts consumer perception and purchasing decisions will reflect greater consistency. The use of informational measures alone would have minimal costs but would preclude accrual of benefits. Therefore, in the interest of a transparent marketplace, AMS is pursuing rulemaking as the most effective intervention on behalf of consumers, organic producers, and producers who may consider entering the organic poultry market.

AMS also received comments urging that the agency develop standards for additional descriptive terms on organic labels for poultry, such as “pasture-raised organic” and “free-range organic” in this rulemaking. AMS has authority to establish organic standards but does not have the authority to establish standards for “pasture-raised” or “free range” under the USDA organic regulations. However, this rule does not impede organic producers from using those additional labeling claims, as applicable. While such labels may provide more information to consumers, AMS does not have authority to establish standards for these terms.

In regards to alternatives to the practice standard requirements, AMS reviewed options for indoor stocking density, outdoor space requirements for layers, and implementation timeframes. For each alternative, AMS examined how the provision aligned with the animal welfare objectives supported by the organic community and the potential costs and benefits to organic producers. These options are presented and discussed below.

Table 7. Indoor stocking density options—laying hens.

Alternative	Basis
Option 1 – Minimum of 2.0 ft^2 per layer	Consistent with the NOSB recommendation. This would provide more space per bird than private animal welfare standards.
Option 2 – Minimum of 1.8 ft^2 per layer	Provides increased space for birds while curtailing costs. On par with most stringent private third-party animal welfare standard.
Option 3– maximum 2.25 to 4.5 lbs/ft^2- depending upon the housing system.[a] (Final rule)	Consistent with current industry practice for many organic egg producers. Aligns with the majority of private third-party animal welfare certification programs.

[a] This is equivalent to 1.0 – 1.5 ft^2 per bird. The reasoning and method for converting to pounds per square foot is discussed in the preamble section for Avian Living Conditions.

The NOSB recommended indoor and outdoor space metrics for poultry as a component of broad measures to enhance animal welfare practices on organic livestock operations. Citing consumer demand for humane treatment of livestock, the proliferation of animal welfare certification labels, organic standards of major trading partners (e.g., Canada, the European Union), and varying practices among organic producers, the NOSB determined it was necessary to set maximum stocking densities for organic poultry.[61] The

[61] The European Union Organic Standards and the Canadian Organic Regime Standards specify indoor and outdoor stocking densities for various types of livestock, including laying hens: 6 birds/m^2 indoors; 4 birds/m^2 outdoors. After

NOSB aimed to develop stringent, comprehensive, and consistent animal welfare requirements for organic livestock and poultry production that would meet consumer demand and foster equitable certification decisions and fair competition among producers, consistent with the objectives of OFPA. The costs and benefits of the proposed alternatives are discussed in more detail in the next section below.

1. Indoor Stocking Density

AMS considered a range of indoor stocking densities, including 2.0 ft^2/bird or 1.8 ft^2/bird for all layer operations, or 1.0–1.5 ft^2/bird depending on the housing system. The NOSB recommended a minimum of 2.0 ft^2 per hen indoors and explained that the metric could be adjusted during colder months to allow producers to increase the density to maintain heat in poultry houses. In order to examine the difference in costs, AMS also considered setting the indoor stocking density at 1.8 ft^2 to parallel the most stringent indoor stocking density of a private animal welfare certification standard.

AMS is not pursuing the 2.0 ft^2/bird or 1.8 ft^2/bird options for all housing types. The estimated costs to implement a 1.8 ft^2/bird indoor stocking density range between $70 million to $260 million annually depending on various producer response scenarios.[62] AMS determined that the estimated costs associated with the alternatives for

converting the units for the stocking densities recommended by the NOSB, the NOSB would require slightly more space per bird indoors and significantly less outdoors. This rule would adjust the indoor stocking density to allow more birds to occupy a given unit of indoor area.

[62] In developing the likely producer responses to the proposed rule, AMS evaluated the costs for 4 different producer response scenarios: (1) all producers incur costs to maintain their current level of production; (2) some producers maintain their current level of production and some transition to the cage-free egg production; (3) all producers comply with the proposed rule by maintaining their existing facilities (and reduce the number of birds to meet the indoor stocking density); and, (4) some producers comply by maintaining existing facilities while other producers transition to cage-free egg production. Producers who exit to the cage-free market would be expected to have lower net returns, compared to organic eggs, as discussed below in the Costs section. The most costly scenario would be when producers maintain their existing facilities and reduce production to comply with more stringent indoor stocking rates that would permit fewer birds. The estimate for maintaining current levels of production included estimated costs for constructing additional facilities ($70/hen), except for a feed mill.

reduced stocking densities would be unduly burdensome on individual organic egg producers and could cause a sizeable reduction in the supply of organic eggs. We believe that requiring 2.0 ft^2 or 1.8 ft^2 per bird would adversely impact most organic egg production and cause approximately 80 percent of current organic egg production to exit the organic market. A reduced number of layers as a result of market exit would result in lost revenue and increased marginal operating costs from the reduced number of birds or compel producers to incur high capital costs for building additional housing to accommodate existing production levels. AMS did not consider a less stringent option in this case (e.g. 0.5 – 1.0 ft^2) because we believe that it would have little impact on the costs or the benefits of this action. Based on public comments and knowledge of the industry, AMS is aware that the indoor stocking densities under this rule are in line with the current industry standard. A less stringent option would likely not impact production practices and associated costs to producers, as most would continue current practices to meet other third party standards.

AMS is setting the indoor stocking density based on housing systems as follows: 4.5 lbs/ft^2 (equivalent to 1.0ft^2 per bird) for poultry in mobile housing and aviary/multi-level housing; 3.75 lbs/ft^2 (1.2 ft^2 per bird) for poultry houses with slatted/mesh flooring systems and 3.0 lbs/ft^2 (1.5 ft^2 per bird) for floor litter housing. These metrics are consistent with the standards of a common third-party animal welfare certification program. Based on public comments and knowledge of the industry, we expect that most organic poultry producers currently meet or exceed those levels. The tiered indoor stocking densities will foster a consistent level of poultry living conditions. It will also ease any disparate burden on producers in colder climates while maintaining consistency

throughout the industry and meeting consumer expectations for organic poultry production. In addition, we did not receive comments about adverse cost implications for adopting the indoor stocking density metrics for layers as proposed.

2. Outdoor Stocking Density

The USDA organic regulations require that livestock have year-round access to the outdoors, fresh air, direct sunlight, and shade (§ 205.239(a)). Other than identifying circumstances when livestock may be temporarily confined (§ 205.239(b)), the regulations prior to implementation of this final rule did not provide details on the frequency or duration of outdoor access or size of the outdoor space. AMS is establishing outdoor stocking densities for poultry and clarifying requirements for outdoor areas.

AMS is requiring that layers must have a maximum of 2.25 pounds of bird/ft^2 (approximately to 2.0 ft^2 per bird) in the outdoor area.[63] Under this rule, outdoor areas need to be large enough to hold all birds in the flock simultaneously, with a maximum of 2.25 pounds of bird/ft^2. This is consistent with the NOSB recommendation for minimum outdoor stocking density.[64] The NOSB selected that minimum threshold to protect soil quality and minimize parasite loads.

3. Vegetation Requirement

AMS considered whether to have a vegetation requirement in the outdoor access area for poultry. The NOSB stipulated that outdoor access areas be soil-based and have at

[63] As discussed above, this is approximately equivalent to 2.0 square feet per bird. AMS changed the units to pounds per square foot so that the actual space per bird is similar across birds of different species or breeds.
[64] The NOSB recommended a range of 2.0 ft^2 – 5.0 ft^2 per bird in the outdoor areas, explaining that a minimum of 5 ft^2 would ensure the availability of vegetation to birds during the growing season. In addition, we believe that a minimum 5.0 ft^2/ bird outdoor stocking density would be untenable because of the additional land needed.

least 50 percent vegetation cover. The proposed rule required that outdoor access areas have at least 50 percent soil, but did not require vegetation in that area.

Based on public comments, AMS understands that the absence of vegetation could be costly for producers in two key ways: (1) organic producers that have an NRCS-approved conservation plan would risk the loss of financial and technical assistance for conservation practices; and (2) maintaining livestock on soil without vegetation could jeopardize compliance with the regulations for concentrated animal feeding operations under the Clean Water Act. Both of these costs are linked to the potential adverse impacts to soil and water quality from having a group of livestock on bare soil. To avert these costs, AMS is requiring that outdoor access areas have maximal vegetation. This means that outdoor areas should have sufficient vegetation to protect soil and water quality, and meet any relevant requirements, such as those of NRCS or the Clean Water Act. The exact amount of vegetation may vary depending on the unique circumstances of each operation. AMS expects that this will entail minor costs for reseeding and fencing the outdoor access areas and we have included outdoor area maintenance expenses in the costs estimates. AMS estimates that the total costs for establishing and reseeding pastures will be about $85,000. This is based on estimates: $130/acre; 657 additional acres needed to accommodate all layers at the required outdoor stocking density.[65] The benefits of maintaining vegetation to support soil and water quality and encourage birds to use outdoor areas include avoided costs to producers of noncompliance with requirements

[65] To obtain the estimated cost per acre, AMS used a source on the costs to establish and maintain pasture with grass-legume mix for ruminants. The costs for the initial establishment is nearly $100/acre and about $115/acre for annual maintenance. AMS added 10 percent to these costs to account for organic seeds. Iowa State University Extension, 2000, AG-96, available at: http://www2.econ.iastate.edu/faculty/duffy/Pages/pastureandhay.pdf

under the Clean Water Act. NRCS also offers financial assistance to improve environmental and animal welfare outcomes that is tied to producer compliance with maintaining vegetation and other beneficial practices.

AMS considered minimum space requirements of 2.25 pounds/ft^2 to accommodate either 10 percent, 50 percent, or 100 percent of layers in a house to be outdoors at one time and received comments supporting this as a less costly alternative. AMS examined the 10 and 50 percent alternatives based upon information that only a portion of a flock is outdoors at any given time; comments cited research which concludes that the percent of a flock that ventures out of the house is generally under 35 percent. AMS acknowledges that only a portion of the flock will likely be outdoors at a given time, and other birds will remain in the indoor space even when outdoor space is accessible. A number of public comments urged AMS to adopt lower outdoor stocking densities, requiring more space per bird, to allow freedom of movement and natural behaviors, such as stretching wings and scratching and pecking without denuding the soil. AMS received ample public comments comparing the stringency of the proposed outdoor access requirements with those of other third-party certification programs. Under the 10 and 50 percent scenarios, the maximum stocking density would be exceeded whenever more than 10 percent or 50 percent of the flock is outdoors and would impede a producer's ability to maintain maximal vegetation in the outdoor space. When all birds do not use the outdoor area simultaneously, the birds that are outdoors will effectively have more space per bird which will assist producers in maintaining adequate vegetated cover.

AMS estimates that the monetary costs of a 10 percent or 50 percent alternative would be lower than the estimated costs of this rule, since outdoor space requirements are

the main constraint to compliance. Costs under a 10 percent alternative would be significantly lower because operations would need to acquire less land for outdoor space. As shown in Table 8 below, AMS estimates that the costs associated with acquiring and maintaining land for layers could be reduced by as much as 90 percent. In this scenario outdoor access for birds would also be scaled back significantly which would reduce costs associated with variables such as production volume, mortality rate, and feed costs, however data is not available to quantify these outcomes or total costs under this alternative. While this scenario would be associated with lower cost, AMS notes that requiring outdoor space for just 10 percent of the flock would fail to achieve a key objective of this rule and would not produce the intended benefits.

Requiring that outdoor areas accommodate 50 percent of the flock would have a smaller impact on overall costs. Under this alternative, AMS estimates that land costs would be reduced by roughly 50 percent. Again, additional differences under the 50 percent alternative that could affect total cost of the rule include lessened impacts on production volume and operating expenses (outside of land costs) due to changes in factors such as feed costs, mortality, lay rate, etc. However, AMS notes that any cost reductions associated with these factors would likely be small because the 50 percent alternative mainly impacts the requirement, and would likely not have as much of an impact on bird behavior (how many birds go outside).

Under these 10 percent or 50 percent alternatives, AMS expects that most organic producers would not need to acquire additional land and birds would have reduced exposure to predators and parasites. A lower land requirement may also impact the number of operations that remain in organic production compared with those that move

to cage-free production, however AMS is unable to estimate what this number may be. On the other hand, higher densities of birds in outdoor areas would be detrimental to soil and water quality, and parasite loads. Moreover, the success of the organic label depends upon practices that reflect the preferences of the participants and consumers who chose organic eggs in the marketplace. Outdoor access requirements that are lenient in comparison to other third-party certification could negatively impact consumer confidence. Adequate outdoor access is a core concern among organic consumers, and outdoor areas that accommodate relatively few birds would not align with consumer expectations and would perpetuate divergent practices that result in an uneven playing field among producers.

Table 8. Percent of flock indoors and cost

Percent of flock outdoors	Land costs	Other impacts
100%	3,812,000	Meets consumer expectations and protects value of organic label; optimal protection for soil and water quality and minimized parasite loads; increased mortality rates; reduced feed efficiency; reduced lay rate, etc.
50%	1,906,000	Adverse impacts on soil and water quality when more than 50% of flock is outdoors at one time; small improvements in mortality rates, feed efficiency, lay rate, etc; fewer operations move to cage-free market.
10%	381,200	Adverse impacts on soil and water quality when more than 10% of flock is outdoors at one time; reduced mortality rates, improved feed efficiency; improved lay rate, etc.; fewer operations move to cage-free market.

4. Porches as Outdoor Areas

AMS is aware that the use of porches for outdoor access on organic operations is contentious, and the Agency deliberated extensively over whether porches should count as outdoor space. In general, a porch is a screened-in area with a solid floor and roof overhead. Although the vast majority of organic poultry operations do not use porches,

AMS estimates that about 70 percent of organic egg production comes from operations that use porches exclusively to provide outdoor access. The practice of using porches to provide outdoor access in organic poultry operations gained traction among producers following a 2002 AMS administrative appeal decision that allowed the certification of one poultry operation planning to provide outdoor access via porches. This appeal decision was used by some poultry producers to justify that porches may satisfy the requirement to provide outdoor access for poultry under the USDA organic regulations. Organic production systems utilizing porches to provide outdoor access have increased since that time. In 2011, the NOSB, with the support of numerous producer and consumer stakeholders, unanimously recommended that enclosed, covered porches should not be considered outdoor access. Consistent with that recommendation, enclosed porches are not adequate to provide the sole means of outdoor access under this final rule. However, AMS has revised the final rule to allow porches to be counted as either indoor space or as part of the calculation of outdoor space, provided that they meet certain parameters for both uses.

Proponents of porches state that they are essential for biosecurity to protect poultry from predation and disease that could result from contact with wild animals or feces. However, producers and other stakeholders who oppose porches state that porches provide a competitive advantage – for example, through decreased feed conversion rates (less feed to produce a dozen eggs) – and that organic consumers expect that birds will have direct access to soil and vegetation. Opponents have challenged the contention that porches are essential to biosecurity, citing other disease control methods, such as the use of netting over outdoor areas and placing footbaths at the entrances to houses. Further,

they note that the outbreak of Highly Pathogenic Avian Influenza (HPAI) that began in December 2014 in the U.S. was detected in 211 commercial flocks, which are primarily exclusively indoor operations, and in 21 backyard flocks, which generally provide ample outdoor access.[66] AMS, after consulting with sister agencies, interprets the data above to mean that there are biosecurity risks associated with any type of operation, and those risks can be managed to minimize risk in outdoor poultry operations.

Enclosed porches do not provide contact with soil or vegetation nor align with consumer expectations about outdoor access conveyed through public comments and NOSB recommendations. Allowing enclosed porches to provide outdoor access would not address the disparity in outdoor access provisions within this sector. This disparity leads to consumer confusion about husbandry practices and may place the vast majority of organic producers, who currently provide outdoor access through soil and vegetation, at a competitive disadvantage. It would not meet the OFPA's intent to assure consumers that organically produced products meet a consistent and uniform standard. AMS is concerned that allowing porches as the sole area for outdoor access could erode consumer demand for organic eggs and lead to an exodus of consumers and producers for other labeling programs. In comparison to the outdoor space needed for outdoor access, porches cover a small portion, so a producer would still need to provide access to land that extends beyond the porch area. Therefore, this final rule prohibits enclosed porches to be counted as outdoor space. However, to provide flexibility, the final rule does clarify

[66] USDA APHIS reports and data can be found at the following site: https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/avian-influenza-disease/!ut/p/z1/04_iUlDg4tKPAFJABpSA0fpReYllmemJJZn5eYk5-hH6kVFm8X6Gzu4GFiaGPu6uLoYGjh6Wnt4e5mYG7mam-l76UfgVFGQHKgIAz0VrTQ!!/

under § 205.241(c)(7) that porches that are not enclosed (e.g. with a roof, but with screens removed) and allow birds to freely access other outdoor areas can be counted as outdoor space.

5. Implementation Period

AMS considered different implementation periods to mitigate the costs of this rule. In the proposed rule, AMS allotted a five year implementation period for outdoor access requirements for poultry for certified operations; up to three years for operations that become certified after publication of the final rule; and one year to implement all other requirements. We concluded with a five-year implementation period in consideration of balancing cost mitigation and the need to provide clarity and address divergent practices in the industry.

While we expect that organic egg producers will bear a greater cost burden for this final rule, this implementation period should also align with upgrades or new construction for broiler houses for approximately 16 percent of production, based on the number of birds that could not be accommodated under the new indoor stocking density requirements. We note that 15 percent of broiler houses generally are 5 years old or less and have a depreciation rate of 15 years, per the OEFA survey or 10 years per IRS Publication 225.[67] While organic broiler houses are likely to be newer on average, given that the NOP was not established until 2002, we anticipate that the majority of organic broiler houses would be nearing the end of useful life when this rule is implemented.

[67] This reflects the percentage of broiler houses in the U.S., not specific to organic operations that were 15 years old or less in 2006. We applied that proportion to this analysis because the population of broilers has grown since that time, so houses that were older than 15 years are likely to have been upgraded or renovated in the interim. This data was reported in MacDonald, James M. *The Economic Organization of U.S. Broiler Production.* Economic Information Bulletin No. 38. Economic Research Service, U.S. Dept. of Agriculture, June 2008. The depreciation rate was reported in the Organic Egg Farmers of America Survey conducted in July 2014 and cited above.

Further, AMS understands from public comments that broiler producers need 3 years to transition land or construct additional facilities to maintain production levels and comply with this rule, and that this will cost the industry $50 to $75 million. These commenters supported the broiler indoor and outdoor space requirements but requested a 3-year implementation period. AMS is granting this request for a 3-year implementation period to implement the indoor space requirements for broilers.

AMS also considered a 3-year period to fully implement all provisions. We considered this as a minimum because it aligns with the 3-year period that is required to transition land to organic production if there have been applications of prohibited substances (§ 205.202(b)).[68] We estimate that 50 percent of organic egg production may need additional land to meet the outdoor access requirements. This short timeframe would impose an unduly immediate cost burden and deter producers from exploring options to remain in organic egg production, potentially causing a sharp reduction in the supply of organic eggs.

Conversely, a 10-year implementation period could erode consumer demand for organic eggs if the organic label requirements do not keep pace with growing consumer preferences for more stringent outdoor living conditions. Further, it is ambiguous whether this would result in substantial cost reduction as costs are linked to the population of layers. Given the growth in the organic egg market, particularly in the capacity of aviary operations, a longer implementation period is unlikely to substantially reduce costs.

[68] Section 205.202(b) of the USDA organic regulations requires that land from which harvested crops will be represented as organic must have had no prohibited substances, as listed in § 205.105, applied to it for a period of 3 years immediately preceding harvest of the crop. Further, organic livestock are required to have organically produced feed (§ 205.237(a)).

Prolonging the disparity in organic egg production practices and the resulting consumer confusion would be detrimental to the numerous organic egg producers who could readily comply with this rule. They would continue to operate at a competitive disadvantage to operations that provide less outdoor access and have greater feed efficiencies and lower mortality rates.

E. Consumer and Producer Responses as Drivers of Benefits and Costs

Table 9 shows the various scenarios from producer and consumer responses to the provisions and the impact on costs/benefits for the organic industry.

Table 9. Consumer and producer responses and connection to cost.

Consumer and Producer Responses	**Cost/Benefit Impact**
Producers change their practices to meet the new, more stringent organic standards; consumers continue consuming organic agriculture products	Costs: incremental cost of producing to new, more stringent organic standards, relative to existing organic standards Benefits: incremental credence benefits of consuming products produced according to new, more stringent organic standards, relative to existing organic standards*
Producers discontinue (or avoid newly achieving) organic certification; consumers switch from products meeting existing organic standards to non-organic versions of similar products	Cost savings: incremental savings of producing with non-organic practices, relative to existing organic standards, foregone profits Benefits (reduced): incremental credence benefits of consuming products produced according to non-organic practices, relative to existing organic standards*
Producers discontinue (or avoid newly achieving) organic certification; consumers switch to dissimilar products	Impacts (may be positive or negative): incremental production costs, foregone profits, incremental credence benefits, incremental non-credence attributes
* The price premium that consumers are willing to pay for certified organic products correspond to benefits, as that term is used for purposes of analysis under Executive Orders 12866 and 13563, only if organic production practices yield real improvements in areas such as animal welfare, human health or environmental outcomes.	

F. Benefits of the Final Rule

This rule will bring specificity and clarity to the regulations relating to animal welfare practices for organic livestock and poultry. Greater clarity and specificity will

foster the uniform application of the practice standards in organic production, animal transport, and slaughter. This, in turn, will maintain consumer confidence driving organic purchases and facilitate market access for producers. By tightening the requirements for outdoor access, this rule will improve the clarity of information in the marketplace about the significance of the organic label on livestock products. It is essential that the seal is supported by clear regulations that ensure uniformity in production practices. Organic products cannot be distinguished from non-organic products based on appearance; consumers rely on process verification methods, such as certification to a uniform standard, to ensure that organic claims are true. For this reason, organic products have been described as "credence goods" in the economics literature. [69,70] Credence goods have properties that are difficult to detect, both before and after purchase. Organic livestock products are an example of a "credence good" for which consistent verification to a common production standard across the sector supports continued consumer confidence.

Consumers are increasingly interested in the treatment of animals raised for food, as evidenced by the proliferation of animal welfare certification labeling claims. This rule will ensure that organic producers are competitive in this market and may alleviate the need to pursue additional certification to communicate the use of strict animal welfare practices to consumers. The existing animal welfare certification programs have varying requirements, even within individual programs, creating a range of standards in the

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[69] Caswell, Julie A. and Eliza M. Mojduszka. 1996. "Using Informational Labeling to Influence the Market for Quality in Food Products." American Journal of Agricultural Economics. Vol. 78, No. 5: 1248-1253.
[70] Zorn, Alexander, Christian Lippert, and Stephan Dabbert. 2009. "Economic Concepts of Organic Certification." Deliverable 5 for Project CERTCOST: Economic Analysis of Certification Systems in Organic Food and Farming. http://www.certcost.org/Lib/CERTCOST/Deliverable/D11_D5.pdf.

marketplace.[71] For example, these programs may include standards for pastured, cage-free and free-range production. However, high participation rates among organic livestock and poultry producers in these third-party animal welfare certification programs indicates that the organic label does not provide the level of information consumers need to assess whether a specific brand meets their expectations for animal welfare practices. We expect that private animal welfare certification labels on organic products serve as supplementary information that provides consumers with assurance of certain product attributes, such as minimum space requirements, which are not currently guaranteed through organic certification. Consumers who purchase these doubly certified products would likely not be satisfied with private animal welfare certification alone because organic certification addresses other unique attributes they seek, e.g., animals receive only organic feed.

Establishing clear practice standards for organic products which meet or exceed most of the private animal welfare certification requirements will foster a more efficient market for organic products. Narrowing the range of acceptable practices within organic egg production would bolster consumer confidence in the information conveyed by an organic label claim on these products. As the requirements in this final rule would meet or exceed most of the private animal welfare certification standards, we expect that producers would find organic certification sufficient and reduce participation in other certification programs. This would streamline the business practices of organic livestock

[71] The Humane Farm Animal Care program has compiled a table comparing the requirements of selected third-party animal welfare certification programs for laying hens. This includes stocking density and outdoor standards. The comparison table is available at: http://certifiedhumane.org/how-we-work/fact-sheet/.

producers by reducing redundant and duplicative paperwork, verification processes for organic certification, and a need for separate animal welfare certification.

Several studies show a correlation between consumer preferences/demand for products associated with higher animal welfare standards and higher price premiums. We believe these studies may be applicable in predicting consumer behavior in the organic egg market, particularly for consumers who regularly purchase organic eggs. Sustained consumer demand for organic eggs could mitigate some costs associated with this rulemaking and incentivize producers to comply with this proposed rule and remain in the organic market.

A study by Heng examined whether consumers are willing to pay a premium for livestock products associated with improved animal welfare.[72] The results identified the basic living needs of hens (including providing outdoor access) as the most important factors for their welfare. The estimates also indicated that on average consumers placed a higher value on animal welfare issues than on potential environmental issues in their egg choices. In addition, the estimated Willingness to Pay (WTP) parameters suggested that consumers were willing to pay a premium in the range of $0.21 to $0.49 per dozen. Such premiums could serve as an incentive for farmers to pursue a labeling claim that signifies improved animal welfare practices.

[72] Yan Heng, "Three Essays on Differentiated Products and Heterogeneous Consumer Preferences: The Case of Table Eggs" (PhD diss., Kansas State University, 2015).

Another study by Heng et al[73] estimated the values of certain attributes of eggs, including outdoor access and stocking density. [74, 75] This study included a survey to assess general perceptions of animal welfare. Respondents with favorable perceptions of pro-animal welfare products rated cage-free and outdoor access as more important factors affecting egg quality than adjusting stocking density or not inducing molting. [76] WTP parameters revealed that 89 percent of respondents in one cohort were willing to pay a premium of $0.25 per dozen for eggs from hens given outdoor access; 11% of those respondents were not willing to pay a premium for outdoor access.[77] We believe that organic consumers generally have high regard for animal welfare-friendly products. Therefore, we expect that focus on parity will resonate positively with consumer preferences for definitive outdoor access practices for organic layers. Further, it will be associated with a willingness to pay a premium for more consistency in how this practice is implemented.

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[73] Yan Heng, et al., (2013). Consumer Attitudes toward Farm-Animal Welfare: The Case of Laying Hens. Journal of Agricultural and Resource Economics 38(3):418-434.

[74] Yan Heng, et al., (2013). Consumer Attitudes toward Farm-Animal Welfare: The Case of Laying Hens. Journal of Agricultural and Resource Economics 38(3):418-434.

[75] The study used 2 levels for outdoor access: access or none. The study used three levels for stocking density: 67 square inches per bird (United Egg Producers standards); 138 square inches (average space needed for hens to fully stretch their wings) and 1.5 square feet (third-party animal welfare standards, e.g., Certified Humane and Animal Welfare Approved).

[76] Respondents were asked whether they agreed that food products produced in an animal-friendly environment are: from healthier and happier farm animals, healthier for humans, better quality, better for the environment, and taste better.

[77] Respondents in this study were provided with additional information about potential environmental consequences of different management practices to understand how environmental concerns could influence consumers' valuation of layer management practices. The additional information suggested that cage-free and outdoor access systems could contribute to poorer air quality and use more energy to regulate temperatures. The $0.25 premium was measured among the group that had the environmental information. We believe this group is more descriptive of organic consumers generally because their purchases are driven by some awareness of production practices underlying the organic claim. The mean premium among respondents without that information was $0.16 for hens given outdoor access. Because the willingness-to-pay distributions for more outdoor access and space shifted positively with the additional information on potential environmental impacts of different housing systems, the study noted that consumer concerns for animal welfare issues surmount environmental concerns.

Sumner et al.[78] looked at the potential market impacts of shifting egg production from caged housing to alternative non-cage systems.[79] The authors note that the analysis could be extended to other alternatives such as free-range and pasture-based production. While not focusing on organic eggs, these results are illustrative of the impacts of mandated housing changes on supply and demand for eggs.[80] The research concludes that farm price increases of 40 percent for eggs would likely reduce consumption by less than 10 percent. The authors note that in the U.S., egg consumption is relatively unresponsive to price change and egg expenditures are a very small share of the consumer budget. Based on other research, the study surmised that consumers are willing to pay more for animal welfare-related attributes (e.g., ample space per hen, safe outdoor access) when they have more information about the housing systems. These results support the expectation for consumer willingness to pay for eggs perceived to be produced using alternative housing. We believe that the space and outdoor access requirements in this final rule would enable consumers to better differentiate the animal welfare attributes of organic eggs and maintain demand for these products.

Chang et al. (2010) examined prices for eggs with various labels about production (e.g., cage-free, free-range, organic) to assess how consumers value certain product attributes.[81] This study noted that price premiums for cage-free and free-range eggs are

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[78] D. A. Sumner , H. Gow , D. Hayes , W. Matthews , B. Norwood , J. T. Rosen-Molina ,
and W. Thurman "Economic and market issues on the sustainability of egg production in the United States: Analysis of alternative production systems" 2011 Poultry Science 90 :241–250.
[79] Ibid.
[80] Specifically, this study looks at four parameters: price elasticity of demand; willingness to pay for price increases for eggs produced under alternative housing systems; price elasticity of supply; and, change in the marginal per unit cost of production due to shifting to an alternative housing.
[81] Chang, Jae Bong, et al., (2010). The Price of Happy Hens: A Hedonic Analysis of Retail Egg Prices. Journal of Agricultural and Resource Economics 35(3):406-423.

56.7 percent and 87.5 percent higher, respectively, than conventional egg prices (the price premium for organic over conventional was 85 percent). Free-range eggs are distinguished from cage-free, for the purposes of this study, by the provision of outdoor access for the laying hens in free-range systems.[82] This data demonstrates that consumers value living conditions that reflect improved animal welfare for hens, even more so when the birds are able to go outdoors. The findings of this study show that consumers of organic eggs appear willing to pay higher premiums for production practices than consumers of other types of eggs. We believe these findings could be persuasive in an organic egg producer's decision to comply with this final rule in order to remain in the organic market.

In addition, informal national surveys reveal consumer expectations that organic eggs are produced from hens that went outdoors. A 2014 Consumer Reports Labeling Survey noted that 55 percent of consumers believe that the organic label on meat and poultry means that the animals went outdoors.[83] Further, the survey measured that 72 percent of consumers believe the organic label should mean that the animals went outdoors. A second survey, designed by the American Society for the Prevention of

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[82] The study notes that organic production requires that hens be given outdoor access and concludes that free-range can be synonymous with organic.

[83] Consumer Reports National Research Center, Food Labels Survey, 2014. . The Consumer Reports National Research Center conducted a nationally representative phone survey to assess consumer opinion regarding the labeling of food. Opinion Research Corporation (ORC) of Princeton, New Jersey administered the survey to a nationally representative sample of 1,004 adult U.S. residents (half of the respondents were women) through its CARAVAN Omnibus Survey. Respondents were selected by means of random-digit dialing and were interviewed via phone. The data were statistically weighted so that respondents in the survey were demographically and geographically representative of the U.S. population. The survey was conducted April 17-21, 2014. These are the survey questions that are relevant to the data cited above: (1) Do you think that the 'ORGANIC' label on meat and poultry means any of the following? A range of practices are listed including, "The animals went outdoors." (2) Should the 'ORGANIC' label on meat and poultry mean any of the following? A range of practices are listed including, "The animals went outdoors." Consumer Reports National Research Center, Food Labels Survey, 2014. Nationally representative phone survey of 1,004 adult U.S. residents.

Cruelty to Animals, showed that 63 percent of respondents believe that organic livestock have access to pasture and fresh air throughout the day and 60 percent believe that organic livestock have significantly more space to move than non-organic animals.[84] This final rule aligns consumer expectations and the production practices required to make an organic label claim regarding animal welfare for poultry.

We expect that clear, consistent requirements for avian living conditions can sustain consumer demand and support the growth in the market for organic poultry products. Several articles describe a positive association between the establishment of uniform regulation of product labels and consumer confidence. Van Loo, et al, (2011) asserts that uniform organic standards and certification procedures are essential to maintain consumer trust in the validity of organic labels and willingness to pay for such products.[85] They found that the magnitude of consumers' willingness-to-pay for organic chicken breast depended on the type of organic label: a 35 percent premium for general organic labeled (not USDA organic) chicken breast versus a 104 percent premium for a chicken breast labeled as USDA certified organic. Smith (2009) states that governmental regulatory oversight of credence-type claims, such as "organic," can facilitate the availability of improved information on food quality, deter irresponsible practices and

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[84] This phone survey was administered to 1,009 adults in October 2013. ASPCA designed the survey and this survey and it was conducted via phone by caravan ORC International between October 1 and 3, 2013. The sample of 1,009 adults included 659 respondents that were reached via landline and 350 respondents reached on cell phones, as well as 347 adults who buy half or more of their food products as organics. The data are weighted slightly to ensure it is representative of the general population nationwide. The margin of error for the total sample is +/- 3.1 percentage points. The survey posed the following question: "To the best of your knowledge, which of the following facts are true of animals raised on organic farms?" Respondents were presented with a set of assumptions to rate, including, "Animals have access to pasture and fresh air throughout the day," "Animals have significantly more space to move than on non-organic farms." This phone survey was administered to 1,009 adults in October 2013.[85] Van Loo, Ellen J., Caputo, Vincenzina, Nayga Jr., Rodolfo M. (2011). Consumers' willingness to pay for organic chicken breast: Evidence from choice experiment. Food Quality and Preference, 22(2011), 603-613.

[85] Van Loo, Ellen J., Caputo, Vincenzina, Nayga Jr., Rodolfo M. (2011). Consumers' willingness to pay for organic chicken breast: Evidence from choice experiment. Food Quality and Preference, 22(2011), 603-613.

provide a mechanism to prosecute violations.[86] Smith also observes that governmental standards can address the market failure connected to uncertainty about product quality and prevent consumer deception and fraud. The prevalent participation among organic poultry producers in private animal welfare certification programs demonstrates that the organic certification alone does not provide the quality assurances that consumers expect for animal welfare attributes. Adding specificity to the USDA organic regulations for poultry living conditions would fill that void and add stability to a market sector that has widely varying production characteristics.

The benefits of this final rule are the real improvements in attributes (e.g., animal welfare) for society.

To monetize the benefits, AMS is using previous research, referenced above, that has measured that consumers are willing to pay between $0.21 and $0.49 per dozen eggs for outdoor access.[87] [88] AMS estimates the benefits by multiplying the low ($0.21), mid ($0.35), and high ($0.49) points of that range by the projected number (in dozens) of organic eggs produced by layers that are estimated to newly have outdoor access as a result of this rule being implemented.[89] The National Animal Health Monitoring Survey (NAHMS) reports that 36 percent of organic hens covered in the surveyed have at least 2

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[86] Smith, G. (2009). "Interaction of Public and Private Standards in the Food Chain", OECD Food, Agriculture and Fisheries Working Papers, No. 15, OECD Publishing. Retrieved from http://search.proquest.com/docview/189840535?accountid=26357

[87] Heng, 2015.

[87] Heng, 2015.

[88] Some quantity of organic egg production is diverted to processed foods. Applying the outdoor access price premium for table/shell eggs to organic eggs used in processed foods introduces some uncertainty into the benefits analysis.

[89] AMS projects that the number of organic eggs produced when this rule is fully implemented would reach 710,578,652 dozen. We assume that organic egg producers remain in the organic market and that 50 percent of this production would newly have access to the outdoors when this rule is implemented. The organic egg supply projections are discussed in the costs section below.

square feet per bird (equivalent to 2.25 lbs/ft^2) of outdoor space and 35 percent of hens have outdoor access via a porch system or covered area.[90] AMS does not know what percentage of total organic egg production this represents, so we assume a range from 35 percent at the lower bound to 64 percent (=100%-36%) at the upper bound.[91] AMS estimates that the annual benefits would thus range between $13.77 million to $ 32.1 million annually with a mean value of $23 million over a 15-year period.[92,93, 94] The estimated benefits would not begin to accrue until the rule is fully implemented beginning in year 6, which would be 2022.

In addition, AMS estimated the benefits for the scenario in which we assume that 50 percent of organic egg production may move to cage-free production as a result of this rule. For this estimate, we used the assumptions mentioned above for the range of consumers willingness-to-pay for eggs from birds with outdoor access ($0.21/dozen to $0.49/dozen) and that 50 percent of production would newly have outdoor access as a

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[90] AMS obtained this data through a special tabulation from the APHIS National Animal Health Monitoring System. The report was provided to AMS on May 12, 2015.

[91] For the estimated costs, we assume that 50% of organic layers do not comply with the proposed outdoor access requirements and will newly have outdoor access under these requirements. This is consistent with the estimated range of organic poultry production that would newly have access to the outdoors, which is used to calculate benefits.

[92] The 13 year period accounts for the time needed to fully depreciate layer houses. We use a 13 year timeframe to align with the methodology used to calculate the costs, below. The 13-year average includes five years of zero benefits, reflecting the five years before compliance with the new, more stringent standard is required, and eight years of positive benefits.

[93] If there were a decrease in animal welfare associated with producers switching from baseline organic practices to practices associated with other production standards, including cage-free, a necessary next step in this analysis would be to calculate the monetized decline in welfare. However, AMS does not have sufficient information to estimate this animal welfare decline, if any, at this time.

[94] The benefits were calculated using the following steps:

1. We used the year 6 (2022) projection for the number of eggs – when this rule is fully implemented: about 711 million dozen eggs.
2. We assume that 50% of this production will be from birds that newly have access to the outdoors: about 355 million dozen eggs.
3. Multiply #2 by $0.21. This is the lower bound of the estimated premium that consumers are willing to pay for outdoor access.
4. Apply straight line reduction of that amount over 13 years; total the amount for years 6-13.
5. The average of years 6-13 is the lower end of the benefit estimate.
6. For the upper bound – multiply #2 by $0.49 premium. This is the upper bound of the estimated premium that consumers are willing to pay for outdoor access Repeat steps 4 & 5.

result of this rule. We assumed that 50 percent of current production would exit the organic market in 2022 and that there would be no new entrants until that time. AMS expects that this underestimates the benefits because a scenario with no new entrants is highly unlikely. Under these conditions, the benefits of this scenario range from $3.79 million to $8.84 million per year.

AMS also considered a scenario in which the 50 percent of producers move to cage-free egg production in 2022. In addition, the organic egg market continues to grow at the historic compound annual growth rate of 12.7% between 2017 and 2022. Under these conditions, the benefits would range from $6.93 million to $16.17 million per year.

In summary, considering various scenarios, the estimated benefits range from $3.79 to $32.1 million annually.

G. Costs of the Final Rule

AMS considered various alternatives for the stocking density and outdoor space provisions for organic egg production. AMS also considered how these producers might respond to the stocking densities and outdoor access requirements and how this would impact the supply and demand for organic eggs. In addition, AMS also estimated impacts of this rule on organic broiler operations. In summary, AMS expects that impacts on the organic poultry sector will drive the costs of this rule, and we estimate those production costs will range between $8.2 million to $31 million annually, plus $3.9 million for documentation/recordkeeping practices. As explained above, we do not expect the mammalian health care, mammalian living conditions, transportation, or slaughter provisions to impose additional costs, as we expect that these sections will largely codify

existing industry practices. Therefore, we do not project costs for the implementation of those provisions of this final rule that pertain to mammalian livestock.

1. Assumptions – Layers

To estimate the costs to comply with minimum indoor and outdoor space requirements for organic layers, AMS made assumptions about the current facilities and practices for organic egg production. The indoor stocking requirements align with current practices in organic egg production. Table 10 provides the indoor stocking rates by housing type. AMS is aware that many organic egg producers participate in third-party animal welfare certification programs, in particular, the Certified Humane label program.[95] The indoor stocking rates for layers match the standards for the Certified Humane certification program which has ample organic producer participation across various operation sizes and housing types. Therefore, we believe that most organic egg producers could comply with the indoor stocking rates with minor or no changes to their current operation.

The Humane Farm Animal Care standards[96] for egg laying hens specify minimum indoor and outdoor space requirements for four types of housing systems: pasture-based (where birds have unlimited access to pasture and low outdoor stocking density, approximately 40 ft^2 per bird); loose-housing systems, which include floor litter and slatted/mesh floor systems (both single-story houses) and aviaries (multi-level platforms

[95] The Organic Egg Farmers of America (OEFA) survey reported that 87 percent of organic egg production is also certified to private animal welfare standards. The survey results do not indicate which animal welfare certification programs organic egg producers participate in, but AMS is aware that the Certified Humane label is a common choice.
[96] Producers who meet the Humane Farm Animal Care (HFAC) standards, as verified through an application and inspection, may use the Certified Humane Raised and Handled logo. Participants are inspected and monitored by Humane Farm Animal Care. The minimum indoor and outdoor space requirements cited here are published in the 2014 HFAC Standards for Production of Egg Laying Hens. They are available at: http://certifiedhumane.org/how-we-work/our-standards/. Accessed July 7, 2015.

and perches). AMS also estimated the distribution of organic production among the housing types as shown in Table 10.

Table 10. U.S. organic layers by housing type.

Housing system	**Baseline minimum indoor space (ft^2 per bird)**	**Percent of U.S. organic laying flock**
Pasture housing	1.0	10%
Floor litter housing	1.5	10%
Slatted/mesh floor housing	1.2	10%
Aviary housing	1.0	70%

In this analysis, the outdoor space is the key constraint that drives the costs of compliance. This final rule requires an outdoor stocking density of a maximum of 2.25 pounds/ft^2 for layers. Many organic poultry producers currently provide an outdoor stocking density of 2.25 pounds/ft^2 for layers; for these producers, the maximum outdoor stocking density will not pose additional costs. However, AMS expects that a greater percentage of production will need to make operational changes to comply with the outdoor stocking density. In addition to land costs, these operations could incur costs for fencing, installing more exits, and other measures that make the area usable as outdoor space. In order to estimate the potential costs, AMS made assumptions about the availability of land for two different potential producer responses. We expect that these scenarios serve as upper and lower bound estimates of the potential costs of this rule.

AMS assumes that layer operations have the equivalent of two layer house footprints of outdoor space available for each house, although we are aware that not all operations conform to this assumption and have accounted for this in our cost estimate by increasing the proportion of organic operations for which access to land may present an barrier to continuing in organic egg production. We considered that the land available for

outdoor access could be the areas between and alongside of the houses and extending from the ends of the houses. For this analysis, we assumed that pasture housing, floor litter housing, and slatted/mesh floor housing systems collectively account for 30 percent of organic egg production and that nearly all of these either currently comply with the outdoor space requirements or have the land available to comply with the outdoor stocking rate without significant changes to the number of birds or facilities. AMS is not assuming that all of these operations currently provide outdoor access for layers at the required stocking density, but that they have the space available to do so.

In addition to the above assumptions, a few producer survey results are notable. The National Animal Health Monitoring Survey (NAHMS) reports that 36 percent of organic hens covered in the survey have at least 2 ft^2 per bird (equivalent to 2.25 lbs/ft^2) of outdoor space and 35 percent of hens have outdoor access via a porch system or covered area. We do not know what percentage of total organic egg production this represents, however, two additional surveys of organic egg producers provide some context. The EIC survey reports that 15.5 percent of all organic layers have at least 2.0 ft^2 outdoors and access to soil; the OEFA survey, reports that 59 percent of organic layers reportedly have at least 2.0 ft^2 outdoors.

In this analysis, AMS postulates that a producer will consider two options in response to this rule: (1) comply with the rule and remain in the organic egg market; or (2) transition to the cage-free egg market. Using those potential responses, AMS constructed two scenarios to project how the organic egg sector would behave and estimated the costs for each scenario. This section explains the assumptions and variables used to build our estimates.

AMS constructed enterprise budgets for representative organic egg operations by housing type (i.e., pasture housing, slatted floor/mesh, floor litter housing, aviary housing).[97] For each representative operation, we identified a baseline cost structure which included estimated fixed and variable costs to determine the cost to produce one dozen eggs. We then made assumptions about how and if these values would change under the rule. The fixed and variable costs are listed in Table 11.

Table 11. Fixed and variable costs for enterprise budget.

Fixed Costs
House
Composter
Equipment – total
Cooler
Generator
Organic Certification
Insurance (0.5% of the value of the assets)
Property tax (0.8% of the value of the assets)
Variable costs
Pullets
Feed
Wood Chips
Utilities
Labor
Process and Packaging Fee
Manure cleanout
Maintenance of outdoor space (e.g., seeding, fencing)
Miscellaneous

[97] This analysis mirrors the cost estimation methodology used by Vukina, et al., to prepare a cost analysis for the National Organic Program on implementing the National Organic Standards Board recommendations on stocking densities and outdoor access for organic poultry. Vukina et al., developed the baseline cost structure by interviewing organic layer and broiler producers and using existing literature. We have used most of their assumed values for fixed and variable costs in this analysis. The results of that analysis were reported in the following articles: Tomislav Vukina, et al., "Economic effects of proposed changes in living conditions for laying hens under the National Organic Program," *Journal of Applied Poultry Research* 23 (1) (March 2014): 80-93. Accessed February 5, 2016. doi:10.3382/japr.2013-00834. Also, Tomislav Vukina, et al., "Proposed changes in living conditions for broilers under the National Organic Program will have limited economic effects," *Journal of Applied Poultry Research* 23 (2) (June 2014): 233-243. Accessed February 5, 2016. doi:10.3382/japr.2013-00896.

To complete the cost estimates for complying with this rule, AMS employed the following basic assumptions and values:

- Simple linear (straight line) depreciation of assets with zero salvage value.
- Annual opportunity cost of capital of 3 percent.
- Homogenous labor hired at $13.25 per hour.[98]
- Price variability for inputs (e.g., feed, pullets), according to the size of the flock.[99]
- Feed costs per ton of $462 ($525 for pasture operations).[100]
- Lay rate (eggs/hen/year) of 308 (284 for pasture operations).
- Feed conversion rate of 4.0 pounds per dozen.[101]
- Operations can purchase additional land if needed.
- Annual rental rate per acre of land of $135.[102]

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[98] Labor costs were estimated using data obtained on hourly wages for farming, fishing, and forestry occupations published by the Bureau of Labor Statistics for states with high concentrations of organic broiler and egg production. We calculated an average hourly wage rate using wage rates from eight states—California, Iowa, Massachusetts, Michigan, New York, North Carolina, Oregon, and Pennsylvania—resulting in an average hourly wage rate of $13.25. Organic certification costs were calculated as the average of California Certified Organic Farmers (CCOF) and Iowa Organic Certification Program posted fees for each organic production sales range category.

[99] AMS used the following estimates for birds placed per cycle to calculate costs for the representative operation for each housing type: aviaries - 100,000 birds; slatted/mesh floor and floor litter – 16,000 birds; pastured – 15,000 or less.

[100] To estimate feed costs, we assumed the feed portion of the ration contains 70 percent corn and 30 percent soybean meal and that these make up 90 percent of the ration. We assumed the remainder is vitamins, minerals, etc. We used prices reported in the AMS Market News report on organic feed prices, August 3, 2016. That report contained the following prices: corn - $8.28/bushel; soybean meal $855/ton. In the proposed rule, the estimated feed costs were $574/ton. We adjusted the feed ration for pasture operations proportionally.

[101] AMS estimates increased feed costs per bird due to increased energy expenditure outdoors. We project the feed conversion rate will move from the baseline 3.8 pounds per dozen to 4.0 pounds per dozen.

[102] Prices for land were constructed based on average real estate values for farm land per acre in 2016 (National Agricultural Statistics Service [NASS], Land Values, 2016 Summary, August 2016). Land prices were calculated as the average of the published land prices in the top five states for organic egg production. The prices for land in New York, Massachusetts, Michigan, North Carolina, and California were averaged to obtain a land price of $4.495 per acre. The annual rental rate was obtained by multiplying the value of land with the 3 percent interest rate, resulting in an annual rate of $135 per acre.

- Building costs of $70 per hen.[103]
- Baseline layer population: 14 million in 2016.[104]

AMS assumes that the mortality rate for hens would increase to 8 percent from 5 percent when this rule is fully implemented.[105] The increased mortality would chiefly be attributed to increased predation, disease and parasites from greater outdoor access.

The NOSB recognized mortality rates as a key indicator of animal welfare and important to the economic viability of an operation. In addition, the NOSB has discussed specific practices to prevent and manage predation and disease in a production environment where outdoor access is an integral part. These include predator deterrents (electrified fencing, overhead netting), rotation of land, well-drained soil, lower stocking density, and selection of breeds that are suited to free range conditions.[106] While the tradeoff between a higher mortality rate for greater outdoor access generally reflects the preferences of the organic community, organic producers will be required to use practices to effectively minimize mortality and correct excessive and preventable loss.

The key factors that influence the enterprise budgets—and magnitude of the impacts to operations—are feed conversion rates, production volume, and cost of land. Under the rule, feed is the variable cost that will shift most notably. The cost of feed will increase due to lower feed conversion as birds expend more energy outdoors.[107] Lower

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[103] This includes poultry houses, pullet housing, processing equipment and infrastructure improvement, but does not include costs to construct a new feed mill. These costs are based on information from organic egg producers for existing housing costs.
[104] AMS Market News, April 2016.
[105] The National Animal Health Monitoring Survey Layers 2013, reports that about half of organic egg producers have a 60-week mortality of less than 4 percent. About 20 percent of organic egg producers have a 60-week mortality of 7 percent or higher.
[106] At its May 2012 meeting, the NOSB discussed a guidance document for assessing animal welfare of poultry. This included a description of management practices that support animal welfare and a target mortality rate of 3 to 5 percent.
[107] In the enterprise budget, some of the variable costs (labor, processing and packaging fee) would decline slightly under the proposed rule.

feed conversion plus higher mortality will ultimately reduce production volume, relative to the baseline with the same number of birds.

In regards to land, AMS assumes that single-story housing systems (pasture, floor litter, and slatted/mesh floor housing), have the land area to meet the outdoor stocking density for their current production. Aviary operations will require a larger land area for outdoor access than other housing types because these are multi-level structures that hold more birds than single-story poultry houses. We assume that aviaries have an indoor space roughly three times larger than the footprint of the barn. Therefore, aviary houses will on average require the equivalent of six house footprints of outdoor space to meet the minimum outdoor space requirement.[108] AMS assumes that as a baseline, aviaries have the land to accommodate 33 percent of current production at the proposed outdoor stocking rates and will need to acquire additional land. AMS calculates that an aviary operation will need an additional 3 acres of land per 100,000 birds. In this analysis, we consider circumstances in which operations may not be able to acquire adequate land.

In summary, the marginal cost to produce one dozen eggs will increase for each type of housing system except pasture. For floor litter and slatted/mesh floor housing, AMS estimates the marginal costs to produce one dozen eggs would increase by 2.9 percent; for aviary systems the marginal costs would increase by 3.4 percent (assuming that aviaries can obtain land for outdoor access) or 35 percent for aviaries that cannot

[108] Aviaries generally have two to four levels; for this analysis we chose the midpoint - three levels. Aviaries, while more prevalent in larger scale egg operations, are also used for small and mid-size egg laying operations.

obtain additional land.[109] The section below discusses how these costs to individual operations will impact the organic egg sector.

2. Assumptions – Broilers

This rule contains indoor and outdoor space requirements specific to broiler and other meat-type avian species. Similar to organic egg production, AMS expects that the space requirements for broilers are the provisions that would have cost implications. This rule, consistent with the NOSB recommendation, sets a maximum of 5.0 lbs./ft^2 for indoor and outdoor stocking density for broilers. According to the OEFA survey, 100 percent of responding broiler operations participate in private, third-party animal welfare certification. In order to estimate the potential costs to comply with the stocking density, AMS made the following key assumptions:

- The baseline indoor stocking density for broilers is 6.0 lbs./ft^2.[110] That metric is based on public comment which affirms that the majority of organic poultry producers participate in a third-party animal welfare certification program which has indoor stocking density standards set at 6.0 lbs/sq ft.
- Operations which can meet the indoor stocking density can also meet the outdoor stocking density. We expect that the land area around a broiler house is equivalent to the footprint of two broiler houses. Since broilers are not housed in multi-level

[109] In the case where aviaries are not able to acquire additional land, AMS assumes that these operations will move to the cage-free market because this would be a lower cost option than reducing the number of birds to comply with the outdoor stocking density and remain in the organic market.
[110] In the proposed rule, AMS assumed that the baseline stocking density for organic broilers was 5.37 lbs/sq ft, which was calculated as the weighted average of a range of likely indoor stocking densities based on third-party animal welfare certification programs.

aviaries like laying hens, the outdoor space could accommodate the same number of birds at the indoor stocking density.[111]

- Current annual organic broiler production is roughly 80 million birds and the average live weight of organic broilers at slaughter is 5.84 pounds.[112]
- An organic broiler house will have 6 production cycles per year; each cycle is 6-8 weeks long.[113]

In addition, we applied the same assumptions for layers, specifically mortality rates, depreciation of assets, property tax, labor, insurance, etc., to the cost estimates for broilers.

3. Cost Estimate for Organic Egg and Poultry Production

AMS assumes that in response to this rule, affected producers will make operational changes to comply with the rule and continue organic egg and poultry production. The projected net returns shown in Table 12 support this projection; under this rule the net returns for organic eggs will exceed the net returns of selling to the cage-free market, provided additional land can be obtained. Table 12 shows the difference in net returns per 100,000 dozen eggs for organic eggs under the current USDA organic regulations and projection for this final rule, and for cage-free eggs. The net returns vary based on housing systems, i.e., aviary and single-story houses.[114]

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[111] Vukina et al., also assumed for their analysis that the representative broiler producer is in a position to buy or lease one acre of additional land to expand outdoor access and meet the proposed stocking density.
[112] The AMS Livestock, Poultry and Grain Market News Report, Weekly USDA Certified Organic Poultry and Eggs, is available at: http://www.ams.usda.gov/market-news/organic-market-news-reports. AMS Market News reported that 16 million organic broiler chickens were slaughtered under Federal Inspection in 2014.
[113] A 6 week production cycle is more common.
[114] This comparison of net returns has changed from the proposed rule, chiefly because we updated the costs of organic feed which resulted in a reduction of $574/ton in the proposed rule to $462/ton in the final rule. Organic feed accounts for the highest percentage of production costs for organic poultry. In addition, the updated prices for organic eggs

Table 12. Comparison of net returns by label claim.[115]

Label claim	Net Return ($) – Aviaries	Net Return ($) – Single-story houses
Certified Organic - Current Baseline	62,962	56,681
Certified Organic (projected for final rule) -	57,375[b]	51,720
Certified Organic (operations which cannot obtain additional land)	6,481	51,720
Cage-Free	14,861	8,550

[a]All values in table are per 100,000 dozen eggs.

AMS assumes that producers would seek to maintain their current level of production (i.e., the same number of layers) and would seek additional land to meet the outdoor stocking density. The estimated total costs for the organic egg sector are the sum of increased operating expenses and reduced production. AMS is calculating the costs over a 15-year timeframe. These estimates represent recurring, increased costs for poultry producers to participate in the organic market relative to their current costs in the absence of this regulation. The "costs" include both increased operational costs and lost revenue.

To estimate costs, AMS accounts for potential impacts to legacy organic egg producers, i.e., producers certified when this rule is published, as well as new entrants, i.e., producers who enter the organic egg market after this rule is published. While AMS uses the above methodology for the primary estimate of the potential costs associated

moved from $2.64/dozen in the proposed rule to $2.83/dozen in this final analysis. Therefore, reducing the price of feed significantly increases the returns and widens the gap between returns for organic versus cage-free eggs.

[115] The net return estimates use the following data values/sources: (1) Wholesale value of organic eggs ($2.83/dozen) and wholesale value of cage-free eggs ($1.65/dozen). These are the values reported to AMS Market News for Free on Board organic and cage-free eggs in June 2015. (2) We assumed that 20% of the eggs would go the breaker egg market priced at $1.00/dozen. This is the price reported to AMS Market News in 2015. In the final rule, the gap in estimated net returns between certified organic production under the existing regulations and cage-free has increased from the estimates in the proposed rule. In the final rule, AMS updated the costs for organic feed which is the key factor that widened the gap in net returns. The estimated cost of organic feed declined from the proposed rule which increases the net returns for organic but does not impact the cage-free net returns.

with this rule, AMS has considered alternative methods. The following describes a method that would yield lower costs. Given the uncertainty in the cost estimate and projecting the impacts on the egg market, the use of both methods should capture the range of likely impacts of this rule.

The methodology described above reflects an assumption that costs accrue to legacy organic producers and new entrants. Another plausible calculation model, assumes that costs only accrue to legacy organic producers. As an example for which this assumption seems plausible, consider a producer with a fairly new house, located in a spot without open land; such a producer would likely choose to switch to cage-free eggs until the time when the house gets close to needing replacement, and then might build the new house at a location spacious enough to allow for organic production. The costs associated with this type of case would decrease over time as current producers fully depreciate their poultry houses with estimates approaching zero by year 13, when all houses in operation when this rule was published have fully depreciated. At that point, a producer's decision to maintain organic certification, in consideration of the costs compared to other alternatives, is a cost of doing business in the organic market and is not solely tied to this rule.

There are no outdoor space costs for the first five years because layer operations are not required to make any changes to the outdoor space during that time period.

As discussed above, the operating expenses for most organic egg operations will increase chiefly due to decreased feed efficiency, and the purchase of additional land. There may be added costs for maintenance of outdoor areas (e.g., reseeding, fencing) which will vary depending on site-specific conditions. The one-time expenditure for the

purchase of additional land is projected to be about $3.8 million for the organic egg sector.

The reduced volume of eggs going to the market due to higher mortality and decreased lay rate and feed conversion, all associated with more outdoor access, will also lower net returns. In Table 13, AMS estimated how the rule would affect total egg production while holding the layer numbers constant for each housing type.

Table 13. Proposed rule impact on organic egg production by housing type.

Housing type	**Difference in total egg production after rule (percent decrease)** [a]
Pasture	No change
Floor litter	1.5 percent
Slatted/mesh floor	1.5 percent
Aviary	1.5 percent

[a] AMS estimated how the rule would affect total egg production while holding the layer numbers constant for each housing type.

For the organic egg sector, AMS estimates that the costs of this rule will average $15 million to $21.9 million annually, over 15 years, if all producers comply (the discounted, annualized estimated costs are $24.7 million to $27.5 million)[116] The compliance costs that would occur in year 1 if all organic egg producers had to comply at that time is $24.3 million. In this analysis, AMS did not calculate costs to egg producers in years 1 to 5 because the outdoor access requirements do not need to be fully implemented until year 6. Therefore, the total costs are calculated from the values in years 6 to 15. To calculate the estimated costs, AMS used the projected population of layers after year 6 (28,686,101). This accounts for producers who enter the organic egg

[116] These average annual costs and annualized costs are discounted at 3 percent and 7 percent. Using the alternative method described above, i.e., including costs for legacy producers only and linearly decreasing costs over the depreciation period, the estimated, annual cost for layers are $8.6 million (undiscounted value).

market after the publication of this rule until full implementation. AMS expects that this may overestimate the costs, because the growth in the organic egg market may moderate after publication of this rule.

To calculate costs for organic egg production, we devised 3 cohorts based on the distribution of layer houses by age: (1) production in houses 4 years or older; (2) production in houses that are 2 years old (constructed in 2015); (3) production in houses that are 1 year old or less (constructed in 2016).[117] AMS constructed these cohorts by updating the distribution of the ages of poultry houses based on organic layer data for 2014 through 2016.[118] Using this data, we estimate that 12 percent of organic layers houses were built in 2015; 24 percent were built in 2016; and 64 percent were built at least 4 years ago. These proportions also reflect the distribution of costs among the cohorts.

For each cohort, AMS applied the full compliance costs for each year after the rule must be fully implemented. These recurrent costs are incurred through year 15, relative to the without-regulation baseline. Given the uncertainty in these cost estimates and forecasting impacts in the organic egg market, AMS is presenting estimates without deprecation to capture the full range of potential impacts. If all currently certified organic egg producers comply with this rule and the organic egg production continues to grow at

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[117] When AMS published the proposed rule, we did not have information on the ages or capacity of poultry houses that entered into organic production from 2014 to 2016. We did have information on the distribution of ages of poultry houses that were constructed in 2013 and earlier. In order to calculate the costs we assumed that the ages of those houses were uniformly distributed.

[118] AMS Market News tracks the growth in organic egg production biannually. Based on this data, AMS is reporting that the organic layer population increased from 2014 to 2015 by 18.5 percent and from 2015 to 2016 by 37.5 percent. Using the existing data from NAHMS on age of organic layer houses through 2013, AMS estimated the distribution of organic poultry houses by age. Given that recent growth in organic layers, we estimate that 12 percent of organic layer houses are 2 years old and 24 percent of layer houses are 1 year old or less. As the reported number of organic layers dropped from 2013 -2014, we are not recording any new facilities that would have been constructed in that timeframe and therefore there is not cohort for 3 year old houses.

12.7% each year, we estimated that the annual cost of the rule is $32.3 million ($17 million at 7 percent discount; $24.2 million at 3 percent discount. While AMS is presenting the costs associated with this methodology as the primary costs estimates, we discuss the rationale for an alternative methodology based on linearly reducing costs over the depreciation time period for poultry houses.

The following description of applying the deprecation to the cost estimates would yield a lower cost estimate. This also assumes that costs only accrue to legacy organic producers. Within the 'older' cohort, we continue to assume that the age distribution of poultry houses is uniform and that each year $1/13^{th}$ of the houses fully depreciate. For this group, the estimated costs decrease linearly by $1/13^{th}$ annually until they reach zero in year 10. When this rule is published in 2017 (year 1), 4/13ths of the layer barns will have been fully depreciated based on federal tax returns. Thus, the estimated compliance costs for year 1 ($27.8 million) are reduced by 4/13ths (to $19.2 million). No costs are reported during the implementation period in years 1 through 5. By year 6 when this rule is fully implemented, 9/13ths of the barns in this cohort have fully depreciated. Therefore, only the remaining costs for the barns that have not fully depreciated in years 6 through 9 are reported in this rule.

We estimate that the cohorts for houses 2 years old and 1 year old account for 12 percent and 24 percent, respectively, of the total costs for layers. For these cohorts, the same costs are reported each year throughout the remaining depreciation period (11 years for houses 2 years old) and 12 years for houses 1 year old. No costs are reported during the 5 year implementation period. Therefore, the costs which accrue in years 6 through 13 for all cohorts contribute to the totals reported in this rule.

For this analysis, AMS assumes that organic broiler producers would build new facilities to maintain their current production to comply with the indoor stocking density and remain in the organic market.[119] In this scenario, costs are driven by expenses to construct new facilities. AMS is projecting costs based on public comment and research about the costs of broiler houses.[120] For this analysis, AMS calculated a one-time upfront cost for facilities and land as $35.3 million plus additional annual costs of $989,000. AMS is providing a 3-year implementation period for the indoor stocking density requirements for broilers so we expect construction costs would actually be incurred in that timeframe. Consistent with the methodology for layer cost estimates, we account for new entrants to organic broiler production until the full implementation of requirements for broilers in year 4 (2020). Based on AMS Market News data on the growth in organic chicken slaughter from 2015 to 2016, we estimate that organic broiler production will grow 4.9 percent annually. The estimated compliance costs ($988,886) recur annually over a 15-year period. AMS is presenting cost estimates without deprecation to capture the full range of potential impacts. If all currently certified organic broiler producers comply with this rule and the growth/new entrants is 4.9 percent annually until full implementation of broiler requirements at year 4, we estimate the average annual costs are $2.5 million to $2.8 million (the discounted, annualized values are $3.5 million (3 percent) to $4.0 million (7 percent)).

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[119] In the proposed rule, we assumed that organic broiler producers would maintain their current facilities and reduce the number of birds. Based on public comment, we have altered our assumption about how broiler producers will likely respond to this rule.

[120] The public comment projected that this rule would cost the organic broiler sector between $50 and $75 million to invest in new facilities. AMS's estimate is lower for mainly two reasons: (1) we estimate that to maintain current production levels, new facilities would need to accommodate 15% rather than 20 % of the current production that would be excluded by the indoor stocking density requirements; and, (2) we estimate that a broiler house costs $300,000 rather than $385,000.

While AMS is presenting the costs associated with this methodology as the primary costs estimates, we also describe the rationale for an alternative methodology based on linearly reducing costs over the depreciation time period for broiler houses, 15 years. That methodology would apply the deprecation to the cost estimates would yield a lower cost estimate. In this scenario, the annual costs would be reduced by 1/15th each year throughout the 15-year period because broiler houses depreciate over 15 years.[121] Annual costs during the 3-year implementation period for indoor space requirements for broilers would not be included in the total. In summary, the costs for organic broiler production under these assumptions is estimated to average $2.23 million annually (undiscounted value).[122]

In summary, the average annual costs for the organic poultry sector are estimated to range from $17.4 million to $24.7 million annually over 15 years.[123, 124] AMS estimates that the increased operating costs and lost revenue from decreased production volumes would result in a 3 to 3.4 percent increase in the break-even price for one dozen

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[121] The OEFA survey reported that depreciation rate for broiler houses as reported on Federal Tax Schedule F is 15 years.

[122] In the proposed rule, AMS estimated that the annual costs for the organic broiler production would be between $3.3 million to $6.8 million. The estimated costs for the final rule are less than the upper bound of the proposed rule despite two key changes that would contribute to increased costs: (1) increasing the baseline population of broilers from 16 million to nearly 97 million based on new data and to account for new entrants, and (2) adjusting the assumed baseline stocking density to a higher density. The estimated costs fell in the final rule because based on public comments, we assumed that producers would seek to maintain current levels of production. In the proposed rule we assumed that producers would reduce production in order to avoid building new facilities and therefore incur high annual costs from lost revenue due to the decreased production. In the final rule, based on public comment, we assume that producers will build additional housing capacity to maintain production levels. They will incur higher one-time costs, spread over the-year implementation period, and minimal increased costs throughout the remainder of the 15-year period related to the operation of additional housing.

[123] AMS averaged aggregate costs over a 15-year period because this is the depreciation period for broiler houses.

[124] In the proposed rule, we estimated that the average annual costs for layers in this scenario was nearly $9.5 million over 13 years, using the methodology of linearly reducing costs over the deprecation period. The average annual costs for layers have increased in the final rule for several reasons: (1) we applied an estimated annual growth rate of 12.7%, rather than 2%, to project the number of layers/eggs in the future. AMS acknowledges that 12.7% growth may not be sustainable throughout the 5 year implementation period for layers and beyond. As production increases, costs rise and this contributes to the higher estimates. In addition, we accounted for the significant growth in the U.S. organic layer population between 2014 and 2016 and assumed that most of these birds were housed in new barns. Therefore, we divided the layer production into cohorts based on age of the poultry house.

organic eggs ($2.12 to $2.18 per dozen for non-aviary operations; $2.04 to $2.11/dozen for aviaries).

AMS is providing a summary in Table 14 to show the expected timing of when producers will incur various costs.

Table 14. Implementation timeline and related costs.

Year	Legacy Producers	New Entrants[a]
2017 (1)		*Land Acquisition* (requires 3 year transition if not organic)
2018 (2)		*Seeding outdoor access area*
2019 (3)	Land Acquisition (requires 3 year transition if not organic)	
2020 (4)		**Full compliance** *Increased feed costs* *Increased mortality*
2021 (5)	Preparation of outdoor area (pasture maintenance costs)	
2026 (6)	**Full compliance** Increased feed costs, increased mortality	

[a] For the purposes of this table, new entrants are producers that obtain organic certification within 3 years of the publication of this rule. These producers have a 3-year implementation period for the new outdoor access requirements. In year 4, they must fully comply with the rule and will be subject to enforcement action for noncompliance.

Table 15. Estimated costs for organic egg and poultry sector—full compliance.

Year	Broilers[a]	Layers[b]	Total[c]	3% Discounted Values	7% Discounted Values
2017	$11,761,083	$0	$11,761,000	$11,419,000	$10,992,000
2018	$11,761,083	$0	$11,761,000	$11,086,000	$10,273,000
2019	$11,761,083	$3,812,000	$15,573,000	$14,252,000	$12,712,000
2020	$989,000	$0	$989,000	$879,000	$754,000
2021	$989,000	$0	$989,000	$853,000	$705,000
2022	$989,000	$44,133,000	$45,122,000	$37,789,000	$30,067,000
2023	$989,000	$44,133,000	$45,122,000	$36,688,000	$28,100,000
2024	$989,000	$44,133,000	$45,122,000	$35,620,000	$26,261,000
2025	$989,000	$44,133,000	$45,122,000	$34,582,000	$24,543,000
2026	$989,000	$44,133,000	$45,122,000	$33,575,000	$22,938,000
2027	$989,000	$44,133,000	$45,122,000	$32,597,000	$21,437,000
2028	$989,000	$44,133,000	$45,122,000	$31,648,000	$20,035,000
2029	$989,000	$44,133,000	$45,122,000	$30,726,000	$18,724,000
2030	$989,000	$44,133,000	$45,122,000	$29,831,000	$17,499,000
2031	$989,000	$44,133,000	$45,122,000	$28,962,000	$16,354,000
TOTAL	**$47,150,000**	**$445,144,000**	**$492,294,000**	**$370,506,000**	**$261,395,000**
15-year average	**$3,143,000**	**$29,676,000**	**$32,820,000**	**$24,700,000**	**$17,426,000**
			Annualized	**$31,036,000**	**$28,700,000**

[a] Broiler producers would incur one-time costs in years 1 through 3 for land and facilities (totaling $35,283,000); the remaining annual costs, amount to $988,886 in year 1, and recur annually in years 4-15. Only the one-time costs for land/buildings in years 1-3 are included in the total; the annual costs in years 1 through 3 are not included in the total because broiler producers do not need to fully comply until year 3.

[b] Full compliance costs for layers in years 1 through 5 are not included in the total because producers would not need to fully comply until year 6 (when the outdoor access requirements must be implemented). The total does include a one-time land cost of $3.81 million

[c] This table does not include the administrative costs for the additional reporting and recordkeeping requirements associated with this rule. Those are described in the section, Paperwork Reduction Act, and are included in the Table 1, Summary of Costs and Benefits.

In addition to the estimated costs described above, the total estimated costs for this rule include an amount for recordkeeping and reporting. This rule requires that organic producers describe specific practices as part of an organic system plan and maintain specific records to assist in the verification of compliance with the requirements of this rule. These costs are described in detail in the Paperwork Reduction Act section below. The total estimated recordkeeping and reporting burden for this rule is $3.9 million.

4. Impact of Egg Operations Leaving Organic Production

Alternatively, a number of organic egg operations may consider leaving organic production for the cage-free market. AMS estimates that up to two-thirds of organic aviaries, accounting for 45 percent of total organic egg production, may transition to cage-free egg production due to marketing opportunities and challenges of complying with the outdoor space requirements.[125] Our assumptions about land availability, described above, and the projected net returns for organic eggs and cage-free eggs informed our prediction of how organic producers may respond. The estimated two-thirds of organic aviaries that may not have the land available would need to reduce the number of birds to meet the stocking density. That reduced production volume would result in significant net loss and would not be economically viable. Therefore, we project that this production, which accounts for an estimated 45 percent of total organic egg production, would likely transition to the cage-free egg market. In addition, AMS expects that a small portion of non-aviary organic operations may not have the land available; this would account for an estimated 5 percent of total egg production.[126] As shown in Table 12, these producers will be able to sell their eggs as cage-free which has a lower cost of production but also lower premiums compared to the organic egg market.

For this analysis, we estimate the foregone profit as the difference in net returns for cage-free and organic eggs for a 15-year period. This covers the time needed to fully depreciate layer houses (13 years), and aligns with the timeframe over which we are

[125] AMS based this assumption on a review of Organic System Plans for organic egg operations which have more than one level of living space and at least 16,000 hens. We set this criteria to capture aviaries. We reviewed 62 OSPs to visually gauge whether the land area adjacent to the houses could be sufficient to comply with the proposed outdoor stocking density.

[126] This is equivalent to 17 percent of the nonaviary operations under the revised assumption that aviaries account for 70 percent of organic egg production and other systems account for 30 percent of organic egg production.

accounting for estimated costs of this rule. Reported profit effects recur annually throughout the 15-year period. The two cost estimates for this scenario are based on different assumptions about the amount of affected production. We base costs on (1) the projected layer population in 2022 assuming 12.7% growth in the organic egg market, i.e. new entrants, during the 5-year implementation period for the outdoor access requirements for layers; and, (2) the layer population in 2017, and no new entrants to the organic egg market during the implementation period for this rule. For the estimate described under the conditions in (1), AMS assumes that the reported layer population continues to increase at the compound annual growth rate of 12.7%, to reach 28,686,000 layers producing nearly 711 million dozen eggs. For the estimate described under the conditions in (2) above, AMS expects that organic egg producers who cannot obtain additional land now will not be able to do so after this rule is published and will remain in organic production for 5 years to maximize profits under the existing regulations. In addition, we expect that any producers who cannot comply with this rule will not enter the organic egg market during the implementation period. Given the uncertainty in the projecting impacts on the organic egg market, we believe these scenarios will cover the range of potential costs if producers that cannot obtain sufficient land move to cage-free egg production.

In the final rule, we separate transfers, which result from organic producers moving to the cage-free market, from costs which accrue to producers who remain in organic production. The transfer impacts for the first five years after publication of the rule are zero. This is because we expect that producers will seek to maximize profits by remaining in the organic market until the outdoor access requirements will be enforced,

in year six.[127] In year years 6 through 15, the annual transfer impacts is $170 million when we assume that 50 percent organic production volume in 2022 transitions to the cage-free egg market. If we assume that: (1) 50 percent of current organic egg production will move from the organic to cage-free egg production in 2022; and that (2) between publication and full implementation of this rule there will be no entrants to organic egg production who cannot comply with this rule, then the estimated transfer impacts are $93.5 million annually. Given uncertainties in quantifying the effects of this rule, AMS is presenting these various scenarios to cover the likely range of potential impacts of this rule.

While AMS is presenting the costs associated with the above methodology (i.e., recurring annual costs relative the without-regulation baseline) as the primary costs estimates, we also describe the rationale for an alternative methodology based on linearly reducing over the depreciation time period for broiler houses, 15 years, and assuming that there are no new entrants after publication of this rule who cannot comply with the new requirements. That methodology of applying the deprecation to the estimated costs would yield lower cost estimates. For example, when the rule is fully implemented in year 6, 5/13^{ths} of these aviary layer barns would have been fully depreciated, so none of the transfers incurred in years one through five are included in the total. In year six, 5/13ths of actual costs are removed leaving a reported transfer of $58 million. Each subsequent year, an additional 1/13th of the actual costs are removed until reported transfers reach $0

[127] As discussed, above, this is a substantial increase from the proposed rule, because AMS used updated data on feed costs which widened the gap in net returns between organic under the existing regulations and cage-free production.

in year 14. Using these assumptions, we estimate that the foregone profit from the transition to the cage-free egg market would average $17 million over 15 years.[128]

These profit effects encompass real costs and cost savings, such as the savings resulting from a switch from organic feed to less expensive conventional feed; however, the highest-magnitude aspect of the profit effect is very likely the non-collection of the differential price premiums for organic eggs relative to cage-free eggs. As discussed previously, consumers pay this premium largely because they place a value on laying hens having access to the outdoors.

To complete the estimate for this exit scenario we assume that organic egg producers, including the 50 percent of production (66 percent of the organic aviaries and 83 percent of the non-aviaries) that do not exit to the cage-free market, have the land base to meet the outdoor access requirements and will maintain organic egg production. As described in the above scenario, these producers will incur increased expenses for higher feed costs due to decreased feed efficiency and maintenance of outdoor access areas (e.g., fencing). In addition, we expect that remaining aviaries will need additional land to comply with the outdoor stocking density and will face increased annual rent for land. These organic producers would also experience reduced profits resulting from decreased lay rate and higher mortality with increased outdoor access. The average annual,

[128] In this scenario, particularly where we assume that 50 percent of the organic production volume in 2022 moves to cage-free production, the transfer projections are significantly above the proposed rule. This is because: (1) AMS calculated costs using a higher baseline layer population, 12.5 million in the proposed rule versus nearly 27 million in the final rule; (2) AMS updated the price of organic feed which decreased from the proposed rule final rule. In the proposed rule, we estimated that the cost of feed was $574/ton. In the final rule, we updated that cost, as described above to $462/ton. Because the cost of feed is the largest variable cost for organic production, a reduction in this cost increases the net returns. These factors chiefly contributed to a larger gap between cage-free and organic net returns over larger production volumes. (3) AMS altered the methodology by carrying the full value of the transfer impacts each year, rather than reducing these values linearly throughout the depreciation period.

estimated costs of complying with the rule, for those producers who do not transition to cage-free, will average $7.5 million (50 percent of market in moves to cage-free on 2022; no new entry after publication of rule) to $13.8 million (50 percent of market moves to cage-free in 2022; new entrants after publication of rule). [129] In aggregate, this scenario would result in estimated annual costs of $5.0 million ($2.5 million annualized at 7 percent discount; $5 million at 7 percent discount) to $9.6 million ($6.8 million annualized at 3 percent discount) for the organic poultry sector. In addition, this estimated annual transfer impacts range from $26.5 million to $37.8 million ($43.7 million annualized at 7 percent discount; $47.4 annualized at 3 percent discount) at the lower bound, and $48.3 million to $68.6 million annually at the upper bound ($79.5 million annualized at 3 percent discount; $86.2 million annualized at 7 percent discount) annually in transfers.

[129] AMS averaged aggregate costs over a 15-year period because this is the depreciation period for broiler houses.

Table 16. Estimated cost for organic egg and poultry production-some operations move to cage free in year 6 (2022).

Year	Cost: Broilers[a]	Cost: Layers (stay in organic production)[b]	Cost: Total[c]	3% Discounted Value	7% Discounted Value
2017	$11,761,000	$0	$11,761,000	$11,419,000	$10,992,000
2018	$11,761,000	$0	$11,761,000	$11,086,000	$10,273,000
2019	$11,761,000	$0	$11,761,000	$10,763,000	$9,601,000
2020	$989,000	$0	$989,000	$879,000	$754,000
2021	$989,000	$0	$989,000	$853,000	$705,000
2022	$989,000	$7,541,000	$8,530,000	$7,144,000	$5,684,000
2023	$989,000	$7,541,000	$8,530,000	$6,936,000	$5,312,000
2024	$989,000	$7,541,000	$8,530,000	$6,734,000	$4,965,000
2025	$989,000	$7,541,000	$8,530,000	$6,538,000	$4,640,000
2026	$989,000	$7,541,000	$8,530,000	$6,347,000	$4,336,000
2027	$989,000	$7,541,000	$8,530,000	$6,162,000	$4,053,000
2028	$989,000	$7,541,000	$8,530,000	$5,983,000	$3,788,000
2029	$989,000	$7,541,000	$8,530,000	$5,809,000	$3,540,000
2030	$989,000	$7,541,000	$8,530,000	$5,640,000	$3,308,000
2031	$989,000	$7,541,000	$8,530,000	$5,475,000	$3,092,000
TOTALS	**$47,150,000**	**$75,414,310**	**$122,564,000**	**$97,767,000**	**$75,042,000**
Annual average	**$3,143,000**	**$5,028,000**	**$8,171,000**	**$6,518,000**	**$5,003,000**
			Annualized	**$8,190,000**	**$8,239,000**

[a] Broiler producers would incur one-time costs in years 1 through 3 for land and facilities (totaling $29,138,000). The remaining annual costs, amount to $989,000. The annual costs in years 1 through 3 are not included in the total because producers would not need to comply until year 3. Although organic broiler producers do not need to implement the indoor stocking density until year 4, we expect they will begin incurring costs immediately to construct new facilities. The values listed in year 6 are the full compliance costs for layers after the implementation period. This amount/cost recurs annually.

[b] The years with $0 value have no costs because producers would not need to comply with the rule during these years.

[c] The total annual costs are based on 15-year annual costs for broiler and layers.

Table 17. Estimated cost for organic egg and poultry production–some operations move to cage-free in year 6 (2022); new entry continues after rule.

Year	Cost: Broilers[a]	Cost: Layers (stay in organic production)[b]	Cost: Total[c]	3% Discounted Value	7% Discounted Value
2017	$11,761,000	$0	$11,761,000	$11,419,000	$10,992,000
2018	$11,761,000	$0	$11,761,000	$11,086,000	$10,273,000
2019	$11,761,000	$0	$11,761,000	$10,763,000	$9,601,000
2020	$989,000	$0	$989,000	$879,000	$754,000
2021	$989,000	$0	$989,000	$853,000	$705,000
2022	$989,000	$13,784,000	$14,773,000	$12,372,000	$9,844,000
2023	$989,000	$13,784,000	$14,773,000	$12,012,000	$9,200,000
2024	$989,000	$13,784,000	$14,773,000	$11,662,000	$8,598,000
2025	$989,000	$13,784,000	$14,773,000	$11,322,000	$8,035,000
2026	$989,000	$13,784,000	$14,773,000	$10,992,000	$7,510,000
2027	$989,000	$13,784,000	$14,773,000	$10,672,000	$7,018,000
2028	$989,000	$13,784,000	$14,773,000	$10,361,000	$6,559,000
2029	$989,000	$13,784,000	$14,773,000	$10,060,000	$6,130,000
2030	$989,000	$13,784,000	$14,773,000	$9,767,000	$5,729,000
2031	$989,000	$13,784,000	$14,773,000	$9,482,000	$5,354,000
TOTALS	**$47,150,000**	**$137,840,000**	**$184,990,000**	**$143,701,000**	**$106,303,000**
Annual average	**$3,143,000**	**$9,189,000**	**$12,333,000**	**$9,580,000**	**$7,087,000**
			Annualized	**$12,037,000**	**$11,671,000**

[a] Broiler producers would incur one-time costs in years 1 through 3 for land and facilities (totaling $29,138,000). The remaining annual costs, amount to $989,000. The annual costs in years 1 through 3 are not included in the total because producers would not need to comply until year 3. Although organic broiler producers do not need to implement the indoor stocking density until year 4, we expect they will begin incurring costs immediately to construct new facilities. The values listed in year 6 are the full compliance costs for layers after the implementation period. This amount/cost recurs annually.

[b] The years with $0 value have no costs because producers would not need to comply with the rule during these years.

[c] The total annual costs are based on 15-year annual costs for broiler and layers.

Table 18. Estimated transfers (foregone profit) for organic egg and poultry production; some operations move to cage-free in year 6 (2022).

Year	Transfers: Layers (exiting the organic market) - reduced returns	3% Discounted Value	7% Discounted Value
2017	$0	$0	$0
2018	$0	$0	$0
2019	$0	$0	$0
2020	$0	$0	$0
2021	$0	$0	$0
2022	$170,042,000	$142,408,000	$113,306,000
2023	$170,042,000	$138,260,000	$105,894,000
2024	$170,042,000	$134,233,000	$98,966,000
2025	$170,042,000	$130,323,000	$92,492,000
2026	$170,042,000	$126,527,000	$86,441,000
2027	$170,042,000	$122,842,000	$80,786,000
2028	$170,042,000	$119,264,000	$75,501,000
2029	$170,042,000	$115,791,000	$70,561,000
2030	$170,042,000	$112,418,000	$65,945,000
2031	$170,042,000	$109,144,000	$61,631,000
TOTALS	**$1,700,423,000**	**$1,029,648,000**	**$723,947,000**
Annual Average	**$113,361,000**	**$68,643,000**	**$48,263,000**
	Annualized	**$86,250,000**	**$79,485,000**

[a] AMS averaged aggregate transfer impacts over a 15-year period because this is the depreciation period for broiler houses. For the annual 15-year transfer impacts, we used zero value in years 1 through 5 because we expect producers will maximize profits and remain in the organic sector until year six, when the new outdoor access requirements are enforced.

Table 19. Estimated transfers (foregone profit) for organic egg and poultry production; some operations move to cage-free in year 6 (2022); no entry after rule.

Year	Transfers: Layers (exiting the organic market) - reduced returns	3% Discounted Value	7% Discounted Value
2017	$0[a]	$0	$0
2018	$0	$0	$0
2019	$0	$0	$0
2020	$0	$0	$0
2021	$0	$0	$0
2022	$93,527,000	$78,327,000	$62,321,000
2023	$93,527,000	$76,046,000	$58,244,000
2024	$93,527,000	$73,831,000	$54,434,000
2025	$93,527,000	$71,681,000	$50,872,000
2026	$93,527,000	$69,593,000	$47,544,000
2027	$93,527,000	$67,566,000	$44,434,000
2028	$93,527,000	$65,598,000	$41,527,000
2029	$93,527,000	$63,687,000	$38,810,000
2030	$93,527,000	$61,832,000	$36,271,000
2031	$93,527,000	$60,031,000	$33,898,000
TOTALS	**$935,270,000**	**$566,329,000**	**$398,187,000**
Annual Average	**$62,351,000**	**$37,755,000**	**$26,546,000**
	Annualized	**$47,439,000**	**$43,719,000**

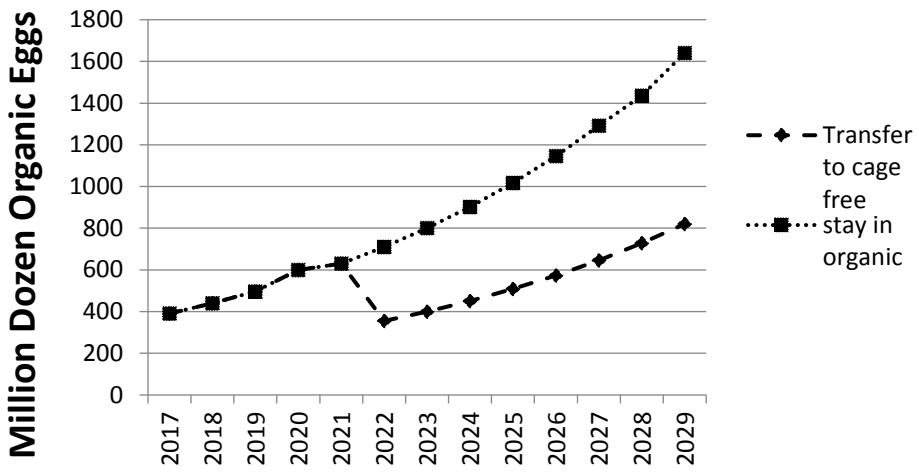
[a] AMS averaged aggregate transfer impacts over a 15-year period because this is the depreciation period for broiler houses. For the annual 15-year transfer impacts, we used zero value in years 1 through 5 because we expect producers will maximize profits and remain in the organic sector until year six, when the new outdoor access requirements are enforced.

5. Impact on Organic Egg Supply

AMS also considered the impact of this rule on the organic egg supply if 50 percent of organic production transitions to cage-free production. We are using the number of layers as an indicator of organic egg supply. Between 2007 and 2016, the

compound annual growth rate of organic layers was 12.7 percent.[130] We used this growth rate to project that the number of organic layers over the 13-year period that we are accounting for costs.[131] Figure 6 shows the projected growth trajectory for each producer response scenario.

Figure 6. Actual and projected growth in the organic egg supply.



We estimate that up to 50 percent of organic egg producers could exit to the cage-free market. In this case, we expect that the number of layers would drop by 50 percent relative to peak production. Peak production would occur five years after publication of the final rule and the drop in production would occur six years after publication when the rule must be fully implemented. After the projected decline, AMS expects that the organic layer population would resume growth at the 12.7 percent annual rate. This is

[130] USDA Livestock, Poultry and Grain Market News, 2016. This reflects the most recent numbers reported on the organic layer population in April 2016. The growth from one-year to the next could have been higher or lower than the 12.7 percent average.

[131] In the proposed rule, AMS used a projected growth rate of 2 percent. That figure was based on historical growth in the conventional eggs between 2007 and2015. Given updated data that showed significant growth in the number of organic layers between 2014 and 2016, AMS determined that the 2 percent conventional growth rate is not indicative of the organic market.

likely a conservative estimate as unmet consumer demand for organic eggs would be an incentive for operations to enter organic egg production and for existing organic operations to expand. Therefore, we expect that for some interval immediately after the drop in organic egg production, the growth rate could be faster than 12.7 percent. For the scenario assuming that all organic producers can comply with this rule and maintain organic production, we expect that the number of organic layers will grow 12.7 percent annually throughout and after the implementation period.

AMS is providing that this final rule, except for the outdoor access provisions for avian species and indoor space provisions for broilers, be implemented one year after publication. The avian outdoor access provisions will be implemented in two phases: (1) Operations/ facilities/ poultry houses which are initially certified 3 years after publication need to comply with the outdoor stocking density to obtain certification; and (2) all operations certified before the 3-year mark need to comply with the proposed outdoor stocking density five years after the publication of the final rule. For broilers, the indoor space requirements need to be fully implemented three years after publication of the final rule.

For the final rule, AMS also evaluated the impact on consumers by projecting the potential impacts on prices. The following analysis considers the price impacts if 50 percent of organic egg production moves to the cage-free market when this rule is fully implemented.

H. Impacts on Other Entities

AMS expects that the handling requirements for organic livestock, including transit and slaughter, are common industry practice and would not substantially affect producers or handlers. During the development and deliberation of the NOSB's animal welfare recommendations in 2009 and 2011, there were numerous public comments. Those comments did not inform of any substantial impacts of provisions pertaining to mammalian livestock.

USDA's Animal and Plant Health Inspection Service (APHIS) already has requirements to support animal health during transit. With regard to slaughter, USDA's Food Safety and Inspection Service (FSIS) already requires that mammalian slaughter facilities meet similar requirements as those recommended by the NOSB, per the Humane Methods of Slaughter Act within the Federal Meat Inspection Act.

Some small mammalian slaughter facilities may not currently be inspected by FSIS; for example, those operations that sell meat intra-state only. However, AMS understands that humane slaughter practices in compliance with the Humane Methods of Slaughter Act are industry standard. AMS expects that costs incurred to comply with the rule would not be a substantial barrier. Such costs could include those related to training staff, developing record-keeping materials, making minor facility renovations, and documenting and analyzing the facility's compliance with the rule. Therefore, AMS does not expect that existing organic slaughter facilities would incur substantial costs or make onerous changes to current facilities or procedures in order to comply with this rule. In addition, AMS did not receive comments regarding costs for these facilities.

AMS understands that it is possible that a subset of the existing certified organic slaughter facilities could surrender their organic certification as a result of this action,

which could impact organic livestock producers. However, AMS cannot predict the number of such entities, if any, that would surrender organic certification and the corresponding impact to organic producers. Similarly, certain businesses currently providing livestock transport services for certified organic producers or slaughter facilities may be unwilling to meet and/or document compliance with the proposed livestock transit requirements. In the proposed rule, AMS requested comments specifically on the proposed regulations for slaughter, but did not receive any descriptive information.

As discussed below in the Paperwork Reduction Act section, this rule would impose additional paperwork requirements. Organic livestock and poultry producers and handlers must develop and maintain an organic system plan. This is a requirement for all organic operations, and the USDA organic regulations describe what information must be included in an organic system plan (§ 205.201). This rule describes the additional information (§§ 205.238, 205.239, 205.241, and 205.242) that will need to be included in a livestock operation's organic system plan in order to assess compliance. AMS expects that as producers adapt to the requirements introduced by the amendments at §§ 205.238, 205.239, 205.241, and 205.242, the number of labor hours per year for currently certified operators will decrease.

This rule would also impose a minor burden on certifying agents. These entities will need to become familiar with the requirements of the rule and update organic system plan forms.

AMS does not expect that this rule would impose any unique cost burdens on foreign-based livestock operations that are USDA certified organic due to the extremely

limited number of foreign certified poultry operations. There are less than 5 producers and handlers of USDA certified egg or chicken operations outside of the U.S. according to the NOP's Organic Integrity database. There about 250 USDA certified organic operations that have mammalian livestock and operate outside of the U.S.; most of these are cattle operations in Australia.[132]

AMS did not estimate costs for impacts to third-party animal welfare certification programs. As discussed above, we expect that organic producers may opt to no longer participate in these certification programs once this rule is fully implemented. AMS believes that these private certification programs have a participant base that is broader than organic producers and offer a unique service for producers who want to convey specific information about animal welfare practices to consumers.

I. Retrospective Analysis

Within 3-5 years of full implementation, the Administrator shall conduct and make publicly available a retrospective analysis of the impacts of this rulemaking. This analysis will include a retrospective evaluation of the benefits, costs and transfers of the rule, along with a comparison of these impacts to the prospective estimates contained in this final regulatory impact analysis. The retrospective analysis should include consideration of factors such as: the impacts on exit and entry of affected entities; market shares of affected entities, as well as market competition and concentration; the impacts on the number of producers participating in the organic program; impacts on organic egg

[132] The Organic Integrity Database reports that there are 359 operations certified for livestock outside of the U.S. Excluding the operations located in Australia, nearly all of the other foreign operations are engaged in honey production. Bees are defined as livestock under the USDA organic regulations.

production volume, impacts on secondary (e.g., feed/grain) markets; impacts on supply and price of eggs; and impacts on consumer understanding. An opportunity for public comment on this analysis will be provided.

J. Conclusions

By resolving the ambiguity about outdoor access for poultry, this action furthers an objective of OFPA: consumer assurance that organically produced products meet a consistent standard. In turn, it also provides assurance to producers that organic certification standards reflect the expectations of the consumer base. Augmenting the animal welfare practice standards for organic livestock would provide a foundation for efficient and equitable compliance and enforcement, and facilitate fair competition among organic livestock producers. AMS is providing a 5-year implementation period for the outdoor access provisions for existing organic poultry operations in consideration of the average time needed to finish depreciating the capital costs of aviary houses, production realities and cost to producers who invested in organic production facilities. AMS is also providing a 3-year implementation period for the indoor space requirements for poultry in consideration of the time needed to build facilities to accommodate current production levels.

III. Regulatory Flexibility Act.

The Regulatory Flexibility Act (RFA) (5 U.S.C. 601-612) requires agencies to consider the economic impact of each rule on small entities and evaluate alternatives that would accomplish the objectives of the rule without unduly burdening small entities or

erecting barriers that would restrict their ability to compete in the market. The purpose is to fit regulatory actions to the scale of businesses subject to the action.

The RFA permits agencies to prepare the initial RFA in conjunction with other analyses required by law, such as the Regulatory Impact Analysis (RIA). AMS notes that several requirements to complete the RFA overlap with the RIA. For example, the RFA requires a description of the reasons why action by the agency is being considered and an analysis of the rule's costs to small entities. The RIA describes the need for this rule, the alternatives considered and the potential costs and benefits of this rule. In order to avoid duplication, we combine some analyses as allowed in section 605(b) of the RFA. The RIA explains that the scope of that analysis is the impact on organic egg and broiler production. AMS believes that other types of organic livestock and poultry production would not face significant costs to comply with this rule because the proposed provisions generally codify current practices. As explained below, AMS expects that the vast majority of organic egg producers and broiler producers that could be impacted by this rule may qualify as small businesses. In the RIA, the discussion of alternatives and the estimated costs and benefits pertain to impacts upon all entities, including small entities. Therefore, the scope of those analyses is applicable to the RFA. The RIA should be referred to for more detail.

A. Discussion of Comments Received

1. Small Farmers Opposed to an Implementation Period

(Comment) AMS received comments voicing small farmer objections to an implementation period for poultry. These comments explained that this would prolong

unfair market conditions in which small farmers cannot compete with larger operations that provide outdoor access solely via porches.

(Response) AMS is providing an implementation period because the specific requirements in this rule for outdoor access for organic poultry will require some organic producers, regardless of size, to make changes. We expect that there are small organic egg producers that will need time to make operational changes to comply with the outdoor access requirements.

2. Small Farmer Participation in Rulemaking

(Comment) A comment claimed that AMS did not engage with small-scale producers in the decision making for this rulemaking and observed that many of the provisions in the NOSB recommendations had been significantly modified or revised in the proposed rule.

(Response) AMS understands and values the public engagement and transparency in the development of NOSB recommendations and rulemaking for the USDA organic regulations. While AMS did make some deviations from the NOSB recommendations, on balance, these were incorporated into the proposed rule. In cases where there were deviations, these were explained in the proposed rule.

3. Impact on Small Grain Farmers

(Comment) A few comments described that small farmers who provide grain as poultry feed would be adversely impacted by this rule. These comments explained that they would be negatively affected because the poultry operation(s) to which they supply feed would not be able to comply with this rule.

(Response) In the RIA above, AMS addressed comments about potential impacts of this rule on organic grain producers. In summary, given that demand for organic feed exceeds domestic supplies, AMS does not anticipate that organic feed grain producers would be unable to find another buyer for their grain.

4. Impact on Small Farmers – Mammalian Living Conditions

(Comment) Some comments explained that several proposed requirements specific to mammalian livestock would be burdensome and costly for small producers to implement. The comments identified the following proposed requirements as problematic for small producers: (1) for housing with stalls, at least one stall must be provided for each animal in the facility at a given time, (2) animals must be able to turn around and lie down in full lateral recumbence in a stall, and (3) at least 50 percent of outdoor access area must be soil and that animals have outdoor access year-round.

(Response) In this final rule, AMS has responded to these concerns by revising or clarifying the requirements listed above. The changes and justification are discussed more fully in the Mammalian Living Conditions section and the RIA. In summary, in response to these concerns AMS has changed several proposed requirements for organic mammalian livestock producers to mitigate costly infrastructure changes and ensure that organic producers can continue to maintain environmental and animal health stewardship practices.

5. Stringency of Rule

(Comment) AMS received comments claiming that this rule would not protect small farmers and was more advantageous to larger producers. These comments remarked that the indoor and outdoor stocking density requirements for layers are weak

which threatens consumer confidence in the organic label and continues the economic disadvantage for farmers using more stringent practices. On the other hand, AMS also received comments stating that provisions in this rule are too burdensome for small farmers and urged AMS to provide more time to study the impacts on these entities. In particular, comments referenced limited land availability for outdoor access requirements and potential for increased mortality as sources of burdensome costs and/or major obstacles to compliance.

(Response) AMS observes that the diversity in perspectives that represent small farmers, as conveyed in public comments, is evidence that factors other than size of the operation, such as location and configuration of poultry houses, may be more significant in determining whether an operations can readily comply with this rule. AMS maintains that the clearer requirements on outdoor access for poultry will bring a baseline consistency in poultry production practices that will support consumer demand for these products. Organic producers who exceed these requirements and want to convey that information to consumers have options for making additional labeling claims through other labeling programs.

6. Key Changes from Proposed Rule to Final Rule

In response to comments on the proposed rule, AMS changed a number of provisions in order to alleviate potential costs imposed on stakeholders. Below is a summary of the provisions changed in the final rule which affect the estimated costs to small businesses.

Table 20. Changes from proposed to final rule affecting cost estimates for small businesses.

Porches as Outdoor Space	The final rule maintains that enclosed porches must not be counted as outdoor space. However, to provide

	flexibility, the final rule clarifies that porches that are not enclosed (e.g. with a roof, but with screens removed) and allow birds to freely access other outdoor areas can be counted as outdoor space.
Mammalian Outdoor Requirements - Soil	In the final rule, AMS removed "soil" as part of the outdoor requirements but requires that ruminants have access to pasture during the grazing season. Operations must provide year-round outdoor access, using either hardened surfaces or soil based areas unless the livestock are temporarily confined indoors.
Mammalian Outdoor Requirements – Space for Swine	The final rule does not include an outdoor space requirement for swine. AMS removed this requirement for further review by the National Organic Standards Board (NOSB).
Mammalian Indoor Requirements – Space and Stalls	AMS revised the mammalian indoor space requirements to remove the requirement that animals must have adequate space for full lateral recumbence and turning around without touching the enclosure. The final rule requires that over a 24-hour period, mammalian livestock must have the opportunity to move, turn around, and exhibit natural behaviors, providing more flexibility for producers. The final rule also clarifies that tie stalls, free stalls, stanchion barns, compost pack, and bed pack barns are all suitable facilities for cattle.
Indoor Space Requirements - Turkeys	AMS has removed the indoor space requirements for turkeys in the final rule.
Avian Living Conditions - Temporary Confinement	AMS removed the provision that would have required a documented occurrence of disease in the region or migratory pathway to temporarily confine animals. The final rule allows producers to temporarily confine birds because of conditions under which health, safety, or well-being of the animal could be jeopardized, providing producers with additional options to protect animal health.

B. Small Entities Affected by the Rule

AMS has considered the economic impact of this action on small entities. Small entities include avian and mammalian livestock producers and slaughter facilities that currently hold or are pursuing USDA organic certification, as well as organic certifying

agents. While this action will affect all operations involved in the production, handling, and certification of organic livestock, AMS believes that the cost of implementing this rule will fall primarily on current and prospective organic egg and broiler producers, including: (1) egg and broiler producers that are seeking organic certification for that operation, and (2) egg and broiler producers that are currently certified organic under the USDA organic regulations.

The RFA requires, with some exception, that AMS define small businesses according to its size standards. The Small Business Administration (SBA) sets size standards for defining small businesses by number of employees or amount of revenues for specific industries. These size standards vary by North American Industry Classification System (NAICS) code (13 CFR part 121.201). For the RFA analysis, AMS focused on estimating how different size organic layer and broiler operations (small versus large) would be impacted as a result of meeting the indoor and outdoor space requirements.

AMS does not expect that this rule would substantially affect other stakeholders, including (1) operations that produce other types of organic poultry, (2) operations that produce mammalian livestock, (3) operations that handle organic livestock, and (4) organic certifying agents. These determinations are based on a number of assumptions described below and explained in the RIA. This analysis focused on the impact of this rule on small businesses in the United States.

The table below shows the number of small business that may be affected by this rule. AMS believes that small egg producers and small chicken (broiler) producers will

be most affected, while others will likely not experience substantial impacts. An explanation of how these numbers were estimated is provided in the sections below.

Table 21. Small businesses affected by rule.

Small Business Type	NAICS Code	Number Affected by Rule
Small egg producers (grossing less than $15,000,000 per year)	112310	718
Small chicken producers (grossing less than $750,000 per year)	11230	218
Small livestock slaughter facilities Small poultry slaughter facilities (grossing less than ($500,000,000 per year)	311611 311615	114
Organic certifying agents (annual receipts less than $7,500,000)	NAICS Subsector 115	41

C. Why is AMS Implementing This Rule?

The Organic Food Production Act (OFPA) provides general requirements for organic livestock production, and directs USDA to provide more detailed provisions through rulemaking. The current USDA organic regulations have broad and general requirements for ensuring the welfare of certified organic livestock and poultry. Organic livestock and poultry must be raised in a way that accommodates their health and natural behavior and reduces stress. Specifically, organic livestock and poultry producers must provide access to the outdoors, shade, clean and dry bedding, shelter, space for exercise, fresh air, clean drinking water, and direct sunlight (§ 205.239(a)). Additionally, the organic regulations describe allowed and prohibited livestock care practices and specify requirements for organic livestock living conditions (§ 205.239(b)). AMS began the process of adding more specificity to the livestock provisions with the publication of the 2010 final rule on access to pasture for ruminants (75 FR 7154). This action fulfills the

expectations set forth in OFPA and anticipated by the organic community for more clarity on production practices for poultry and other livestock species.

The USDA organic regulations for livestock and poultry are general and provide latitude for varying interpretations that may result in different practices, particularly concerning outdoor access for poultry. One of the main disparities in practice is the use of porches as the sole area for outdoor access versus an unenclosed area with soil and/or vegetation. This disparity in outdoor access has economic implications for producers and jeopardizes consumer confidence in the organic label.

Operations that provide soil- or pasture-based outdoor access have cited that they are at a competitive disadvantage compared to operations that are providing more limited access to the outdoors.[133] To clarify the parameters on acceptable outdoor access and to resolve the divergence in practices, organic producers, the NOSB, organic trade groups, and consumer groups have pressed AMS to intervene and set clear guidelines regarding outdoor access, minimum space requirements, and other livestock and poultry provisions. With this rule, AMS is adding more specific requirements for organic livestock and poultry, including specific minimum indoor and outdoor space requirements for organic poultry, and provisions for handling during transportation and slaughter. These requirements are largely based on recommendations from the NOSB which were developed with substantive input from stakeholders, including producers and consumers. In the RIA, AMS explains that the outdoor access requirements for poultry are expected to have cost impacts for organic egg and broiler producers. Therefore, this RFA analysis focuses on those production sectors. The other proposed requirements for mammalian

[133] Increased outdoor access is associated with increased mortality due to predation and decreased feed efficiency.

living conditions, care and production practices and handling during transport and slaughter would not entail compliance costs because they essentially codify existing practices. The scope of the analysis is also explained in the RIA.

Consumers have become increasingly interested in how their food is produced and in the case of livestock products are considering animal husbandry practices in their purchasing decisions. Based on public comments received in response to the proposed rule and the public comments during the NOSB's deliberations on animal welfare, AMS understands that a majority of consumers expect, and may be willing to pay more for, animal welfare requirements that are more stringent than conventional products. This includes requiring outdoor access for organic poultry. AMS believes that the costs incurred by producers in complying with this action are necessary to reflect consumer expectations for organic products and to sustain a market for numerous organic producers. As discussed in the RIA, the benefits of action are derived from supporting consumer expectations related to practices for organic livestock. AMS believes that the long-term economic impact of not addressing the ambiguity about how the USDA organic regulations should be applied across the organic livestock and poultry sector would undermine the integrity of the USDA organic seal more broadly.

D. What are the Estimated Costs for Organic Layer Operations?

Small egg producers are listed under NAICS code 112310 (Chicken Egg Production) as grossing less than $15,000,000 per year. AMS estimates that out of 722

operations reporting sales of organic eggs, 4 exceed that threshold.[134] However, we estimate that large producers account for 25 percent of organic egg production.

The availability of adjacent land for egg laying operations to meet the outdoor access requirements and the indoor stocking density for broilers are the chief obstacles for compliance and therefore the source of costs to implement this rule. In order to determine costs, AMS assumes that producers will seek to maintain current levels of production, i.e., raising the same number of birds. For layers, the estimated costs vary depending on how producers respond to maintain production: will they obtain additional land or transition to cage-free egg production if land is not available? For broilers, how much will it cost producers to build additional facilities for the indoor space needed to accommodate current production levels?

In the RIA, we describe the costs for two producer response scenarios for layers. (1) Producers generally have or can acquire adequate outdoor space to meet the proposed outdoor stocking density and stay in organic production. In this scenario, the increased costs for layers are due primarily to increased mortality and reduced feed efficiency associated with increased outdoor access. The reported cost estimates for this scenario are provided in the RIA in Table 15. We project the reported total costs would total $168 million to $246 million for small layer operations and $56 million to $82 million for large layer operations. Per operation, we estimate the total annual cost would be nearly $26,000 to $29,000 for small operations and $1.5 million to $17 million for large operations.[135]

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[134] The National Agricultural Statistics Service's 2014 Organic Survey provides the number of farms reporting sales of organic eggs and those reporting sales of organic broilers. AMS requested a special tabulation from NASS to obtain the number of organic egg and organic broiler operations which exceed the Small Business Administration sales criterion for small businesses in each of these production categories.

[135] The per operation totals are calculated using 722 as the total number of organic layer operations; 718 qualify as small and 4 qualify as large per the SBA size standards.

AMS estimates that business revenues for small organic layer operations are $736 million, or about $1.03 million per firm. For small egg producers, business revenues would need to be less than $867,000 to $967,000 per firm for the rule to cost more than 3% of revenue. The estimated business revenue is calculated from the projected organic egg production from small producers using AMS Market News data on the U.S. organic layer population, estimated lay rate of 308 eggs/hen/year and the wholesale price for organic eggs $2.83/dozen (AMS Market News).

Table 22. Estimated costs for organic layers operations based on size - producers remain in organic production.

	Small operations (less than $15 million in sales)	Large operations ($15 million or more in sales)
Number of operations	718	4
Total annualized cost (million)[a]	$168,427,000 - $246,332,000	$56,142,000 - $82,111,000
Average total cost per business	$235,000 - $343,000	$14,036,000 - $20,528,000
Average annualized cost per operation[b]	$26,000 - $29,000	$1,541,000 - $17,195,000

[a] The total costs for layers are the Net Present Value discounted at 3 percent and 7 percent.
[b] These are the 15-year annualized costs for layers, discounted at 3 percent and 7 percent.

Approximately 50 percent of layer production will not be able to acquire additional land and therefore moves those birds to cage-free production. In this scenario, the increased costs are driven by the difference in net revenue between cage-free and organic production. AMS estimates that if a 100,000-dozen-egg, aviary facility transitioned from the current USDA organic regulations to the cage-free label, the operation would, on average, have reduced annual profits ($14,861 versus $62,962). The

reported cost estimates for this scenario are provided in the RIA in Tables 16 and 17**Error! Reference source not found.**.

In this scenario, the costs vary depending on whether or not we assume that producers will continue to enter the organic market after publication of this rule. Therefore we project cost for (1) 50 percent of the current organic egg market moves to cage-free egg production when the rule is fully implemented in 2022; and (2) 50 percent of the egg market in 2022 moves to cage-free egg production, which includes a portion of producers who entered the market during the implementation period. We believe that these scenarios are lower and upper bound estimates and that the likely impacts will fall within this range.

For egg producers that remain in the organic market, we project the costs would range between $28 million to $76 million for small layer operations and $9.4 million to $23 million for large layer operations that remain in organic production. Per operation, we estimate the total annual cost would be between $11,500 to $24,000 for small operations and $518,000 to $1 million for large operations. As noted below, the transfer impacts which estimate the amount of forgone profit from transitioning from the organic to the cage-free egg market, are calculated separately. We project the annualized, discounted transfer impacts would total between $45.6 million to $86. 2 million. This equates to $34 million to $64.7 million annually for small layer operations and $11.4 million to $22 million for large layer operations that move to cage-free egg production. Per operation, we estimate the total annual transfer would be about 95,000 to $180,000 for small operations and $5.7 million to $10.8 million for large operations.

In this scenario, AMS estimates that business revenues for small organic layer operations are $368 million, or about $1.03 million per firm. For small egg producers, business revenues would need to be less than $385,000 to $800,000 per firm for the rule to cost more than 3% of revenue. As small layer revenue exceeds this amount, AMS concludes that this rule will not significantly impact small businesses. The estimated business revenue is calculated from the projected organic egg production from small producers using AMS Market News data on the U.S. organic layer population (14 million in 2016), estimated lay rate of 308 eggs/hen/year and the wholesale price for organic eggs $2.83/dozen (AMS Market News).

Table 23. Estimated costs for organic layer operations based on size - producers transition to cage-free.

	Small operations (less than $15 million in sales)	Large operations ($15 million or more in sales)
Number of operations	359	2
Total costs (million)[a]	$28,324,000-$76,069,000	$9,441,000 - $23,356,000
Average total cost per operation	$79,000 - $212,000	$75,530,000 - $202,850,000
Annualized cost (million)[b]	$4,146,000 - $8,496,000	$1,036,000 - $2,124,000
Average annual cost per operation	$11,548 - $24,000	$518,000 - $1,062,000

[a] The total costs for layers are the Net Present Value discounted at 3 percent and 7 percent.
[b] These are the 15-year annualized costs for layers, discounted at 3 percent and 7 percent.

We carried the full compliance costs each year. The reported costs in this analysis include only costs that accrue after the implementation period, in years 6 through 13. AMS expects that the costs to comply with the outdoor space requirements would be more burdensome for larger organic layer producers and would increase the likelihood for these operations to transition to a cage-free label. These operations would require

significantly more land and would be less likely to have that area available for expansion. Since nearly all of the organic producers qualify as small businesses, we expect that there is considerable variation in the size of operations in this category.

As previously stated, producers could choose to surrender their organic certification and move to alternate labels such as cage-free, which would reduce both their annual profits and their annual operating costs. AMS estimates –two-thirds of organic aviary operations and 17 percent of non-aviary operations (which equals 50 percent of total organic egg production) transition to the cage-free market in response to this rule. Because aviary houses hold more birds, these operations will require a larger land base to comply with the outdoor stocking density. Therefore, we expect that any operations which exit the organic egg market would be less likely to qualify as small businesses per SBA criteria. Furthermore, AMS received public comment which indicates that numerous small organic farmers support clear regulations that require outdoor access for poultry.

E. What are the Estimated Costs for Organic Broiler Producers?

Small chicken producers are listed under NAICS code 11230 (Broilers and Other Meat Type Chicken Production) as grossing less than $750,000 per year. According to the NASS special tabulation, AMS estimates that 27 of the 245 operations reporting sales of organic broilers would not qualify as small businesses.[136] We expect that organic broiler producers that do not currently provide the indoor space to meet this regulation will build additional facilities.[137] As shown in the RIA, we expect that organic broiler

[136]The per operation totals are calculated using 245 as the total number of organic layer operations; 218 qualify as small and 27 qualify as large per the SBA size standards.
[137] AMS estimates that 5.3 percent of organic broilers are pasture-raised and already comply with this rule, which equates to about 4 million birds.

houses currently hold a higher density of birds than is permitted by this rule. For broilers, the costs are driven by up-front capital costs for additional buildings to create more indoor space.

AMS estimates that the large businesses represent 50 percent of the organic broiler market.[138] AMS reports that the proposed indoor and outdoor space requirements would impose total costs of nearly $17 million per year for small organic broiler operations and nearly $17 million for large organic broilers operations.

AMS estimates that business revenues for small organic broiler operations are $211 million, or about $964,000 per firm. For small broiler producers, business revenues would need to be less than $267,000 to $300,000 per firm for the rule to cost more than 3% of revenue. The estimated business revenue is calculated from the NASS Certified Organic Survey 2015 Summary which reports the value of sales for organic broilers.

Table 24. Estimated costs for organic broiler operations based on size.

	Small operations (less than $750,000 in annual sales)[a]	Large operations (over $750,000 in annual sales)
Number of operations	218	27
Total costs (million)[a]	$18,638,000 - $21,138,000	$18,638,000 - $21,138,000
Average total cost per business	$85,000 - $97,000	$690,000 - $783,000
Annualized cost (million)[b]	$1,771,000 - $2,047,000	$1,771,000 - $2,047,000

[138] In the proposed rule, AMS estimated that the ratio of small to large organic broiler operations was 75 percent to 25 percent. Based on public comment, we are adjusting that ratio to 50 percent for small and large because we understand that larger producers account for a greater share of organic broiler production.

Average, 15 year annualized, reported cost per operation	$8,000 - $9,000	$66,000 - $76,000

[a] The total costs for broilers are the Net Present Value discounted at 3 percent and 7 percent.
[b] These are the 15-year annualized costs for broilers, discounted at 3 percent and 7 percent.

For broilers, the costs are calculated over a 15-year period based on the time period to depreciate a broiler house for federal tax returns. The total costs are based on the full compliance costs which recur annually. The reported costs in this analysis include only costs that accrue after the implementation period, in years 4 through 15.

AMS also expects that organic producers may have some increased costs to meet the reporting and recordkeeping requirements associated with this rule. These are described in the Paperwork Reduction Act section and are included in the Summary Cost and Benefits table. In general, this rule asks producers to maintain specific documents and records as part of their organic system plan in order to verify compliance with the requirements of this rule. AMS estimates these costs would total $3.9 million.

F. Would Other Organic Livestock Producers and Handlers be Substantially Affected?

Based on available data, AMS does not expect that other organic livestock producers and handlers would be substantially affected by this action. As explained in the RIA and above, we made changes to some of the requirements for mammalian living conditions and livestock care and production practices, and handling and transport to slaughter, to mitigate unintended costly impacts and in effect, to codify existing industry practices. The determination that this rule would not impact other sectors is based on a series of assumptions described below.

1. Organic Mammalian Livestock Producers

AMS believes that the clarifications for organic mammalian livestock, including provisions related to living conditions, animal treatment and physical alternations, are

common industry practice and would not have a substantial impact on such producers. AMS previously addressed major living condition changes for ruminant livestock in its final rule, Access to Pasture (Livestock) (75 FR 7154, February 17, 2010).

2. Organic Livestock Handling Operations

Based on available information, AMS understands that, in practice, all handling operations for organic livestock are small businesses. We expect that the handling requirements for organic livestock, including transit and slaughter, are common industry practice and would not substantially affect handlers. USDA's Animal and Plant Health Inspection Service (APHIS) already has requirements to support animal welfare during transit. AMS understands that the additional requirements related to transit are of industry standard. Also, operations providing transit services for organic livestock are not required to be certified to the USDA organic standard. Therefore, while operations providing transit services would need to comply with the proposed transit requirements, they would not be directly subject to additional certification requirements.

Both small livestock slaughter facilities (NAICS code 311611) and poultry slaughter facilities (NAICS code 311615) are defined as those grossing less than $500,000,000 per year. AMS understands that most of the approximately 114 U.S.-based livestock slaughter facilities certified to the USDA organic regulations are small businesses. With regard to slaughter, USDA's Food Safety and Inspection Service (FSIS) already requires that mammalian slaughter facilities meet similar requirements as those recommended by the NOSB, per the Humane Methods of Slaughter Act within the Federal Meat Inspection Act. Some small mammalian slaughter facilities may not currently be inspected by FSIS; for example, those operations that sell meat intra-state

only. However, AMS understands that humane slaughter practices in compliance with the Humane Methods of Slaughter Act are industry standard. In addition, some small poultry slaughter facilities which are exempt from FSIS inspection already observe the good commercial practices that would align with the Poultry Products Inspection Act and FSIS regulations. AMS expects that costs incurred to comply with this rule would not be a substantial barrier. Such costs could include those related to training staff, developing record-keeping materials, making minor facility renovations, and documenting and analyzing the facility's compliance with the rule. Therefore, AMS does not expect that existing organic slaughter facilities would incur substantial costs or make onerous changes to current facilities or procedures in order to comply with the rule.

AMS understands that it is possible that a subset of the existing certified organic slaughter facilities could surrender their organic certification as a result of this action, which could impact organic livestock producers. However, AMS cannot predict the number of such entities, if any, that would surrender organic certification and the corresponding impact to organic producers. Similarly, certain businesses currently providing livestock transport services for certified organic producers or slaughter facilities may be unwilling to meet and/or document compliance with the livestock transit requirements.

3. What Is the Impact for Organic Certifying Agents?

This rule would also affect certifying agents that certify organic livestock operations. The Small Business Administration (SBA) defines small agricultural service firms, which includes certifying agents, as those having annual receipts of less than $7,500,000 (North American Industry Classification System Subsector 115—Support

Activities for Agriculture and Forestry). There are currently 79 USDA-accredited certifying agents; based on a query of the NOP certified organic operations database, there are approximately 41 certifying agents who are currently involved in the certification of organic livestock operations. AMS believes that these certifying agents would meet the criterion for a small business, though some are agencies of state governments. While certifying agents are small entities that will be affected by this rule, we do not expect these certifying agents to incur substantial costs as a result of this action. Certifying agents must already comply with the current regulations, e.g., maintaining certification records for their clients. Their primary new responsibility under this proposal would be to determine if organic livestock producers are meeting the requirements in this rule, including but not limited to the minimum indoor and outdoor space requirements for organic poultry.

G. How Would the Proposed Implementation Period Affect Small Businesses?

AMS considered alternatives to this action that ranged from non-rulemaking initiatives to adopting practice requirements that varied from those recommended by the NOSB, specifically varying the stringency of certain requirements for avian living conditions. The table, Changes from Proposed to Final Rule Affecting Cost Estimates for Small Businesses, describes changes that were made to mitigate cost impacts. In addition, AMS examined alternatives specific to organic poultry and egg production, because these requirements drive the costs of this rule.

AMS attempted to clarify outdoor access for poultry through guidance which reinforced an outcome-based standard. This was insufficient to achieve consistency in outdoor access practices across the industry. AMS also considered a consumer education

campaign to explain the requirements of organic livestock production in lieu of regulation. While these non-regulatory actions would have minimal to no cost, neither option would realize potential benefits of sustained consumer trust in a standard that is clear and consistently applied and enforced. The continuation of inconsistent practices, particularly regarding outdoor access for poultry, facilitates broader, negative publicity about the organic label which can dissuade consumers from this market.

AMS also considered less stringent requirements for certain provisions that apply to poultry:

1) Outdoor access areas that accommodate 10 or 50 percent of the flock at one time versus the entire flock. While this would reduce the costs of this rule by 50 to 90 percent, because the outdoor access requirements drive the cost of this rule, this would have no benefits and be potentially detrimental to the organic industry overall allowing inconsistent practices among organic producers to cause confusion about how to implement, enforce and interpret the requirements for organic egg production.

2) Adding a vegetation requirement for outdoor access areas. AMS expects that the absence of a vegetation requirement would be costly to producers because it could jeopardize compliance with the regulations for concentrated animal feeding operations under the Clean Water Act and result in expensive operational changes to divert and contain runoff. To avert these costs, AMS is requiring that outdoor access areas have maximal vegetation. AMS expects that this will entail minor costs for reseeding and fencing the outdoor access areas and we have included outdoor area maintenance expenses in the costs estimates. AMS estimates that the total costs for establishing and reseeding pastures will be about $85,000. This is based on estimates: $130/acre; 657

additional acres needed to accommodate all layers at the required outdoor stocking density.[139]

3) Allowing porches as the sole area for outdoor access. This final rule prohibits enclosed porches to be counted as outdoor space. However, to provide flexibility, the final rule does clarify under § 205.241(c)(7) that porches that are not enclosed (e.g. with a roof, but with screens removed) and allow birds to freely access other outdoor areas can be counted as outdoor space. Allowing porches to count as outdoor access would nullify several requirements that are tied to outdoor access, such as maximum outdoor stocking density and soil-based outdoor access space with vegetation. AMS expects that the allowance of porches for outdoor access would essentially maintain baseline requirements for producers and therefore eliminate estimated costs for organic egg producers. However, prolonging the status quo would have potentially detrimental impacts for the organic sector by drifting from the statutory objectives for consistent standards.

1. Minimum Outdoor Space Requirements.

AMS understands that, based on the analysis above, both small and large organic layer operations and broiler operations may incur costs in order to comply with the proposed minimum indoor and outdoor space requirements. While our analysis demonstrates that large poultry operations would have significantly higher compliance costs than small operations on average, we understand that small producers that are closer

[139] To obtain the estimated cost per acre, AMS used a source on the costs to establish and maintain pasture with grass-legume mix for ruminants. The costs for the initial establishment is nearly $100/acre and about $115/acre for annual maintenance. AMS added 10 percent to these costs to account for organic seeds. Iowa State University Extension, 2000, AG-96, available at: http://www2.econ.iastate.edu/faculty/duffy/Pages/pastureandhay.pdf

to the size thresholds may still incur substantial costs to comply with the proposed rule. Therefore, AMS is seeking to reduce the economic burden to organic producers, including small businesses, without unduly delaying the improved animal conditions.

AMS is proposing a 5-year implementation period for the minimum outdoor space requirements for poultry. Producers and poultry houses which are not certified prior to 3 years after publication of this rule would need to meet all of the requirements in order to obtain organic certification. Such new operations and poultry houses would include: (1) all poultry houses that first became certified organic 3 years or more after the final rule was published; and (2) new or replacement poultry houses operated by existing organic layer operations if such facilities were built 3 years or more after the final rule was published.

AMS is also providing a 3-year implementation period for the indoor space requirements for broilers. A facility which is certified before 3 years after publication of this rule would have 5 years to come into compliance with the outdoor space requirements for poultry. A facility must comply with the indoor space requirements for broilers before 3 years after publication of this rule in order to continue or obtain organic certification. Based on public comment, this is the length of time necessary for the majority of organic broiler operations to build additional facilities and expand the number of producers.

By providing an implementation period, both large and small existing organic producers would have additional time to implement the necessary changes in order to comply with this rule. For example, operations choosing to expand will need land for the outdoor space. This new land would need to be certified organic before organic poultry

could have access to it. Since land that has been treated with a prohibited substance in the past 3 years is not eligible for organic certification, the implementation period would allow organic producers to transition additional land to organic production. AMS is maintaining a 5-year implementation period for the outdoor space requirements for poultry. AMS believes this provides adequate time for producers to fully consider their options and implement needed changes. AMS is concerned that extending this timeframe would be detrimental to numerous organic producers who already comply with this rule and have expected AMS to act on the NOSB recommendations and standardize the requirements for organic poultry. A lengthy implementation time period could erode consumer demand for organic products in favor of other labels that have clear, definitive standards for outdoor space for poultry.

2. All Other Requirements

For all other provisions of the proposed rule, AMS is providing an implementation date of one year after the publication of the final rule. AMS chose a one-year period because all livestock and slaughter operations will need to change their Organic System Plans (OSPs) to meet the requirements. During the one-year implementation period, certifying agents will need to update their OSP forms and make modifications to their certification processes in order to evaluate compliance with the new requirements. This would include training staff and inspectors. AMS believes one year is adequate for organic operations, including for small businesses, to implement these changes.

H. Do These Requirements Overlap or Conflict with Other Federal Rules?

AMS has not identified any relevant Federal rules that are currently in effect that duplicate, overlap, or conflict with this proposed rule. AMS has reviewed rules administered by other Federal agencies, including FDA, EPA, APHIS and FSIS, and revised the rule to avoid duplication or conflict. This action provides additional clarity on the animal welfare requirements for organic livestock that are specific and limited to the USDA organic regulations.