The Livestock Indemnity Program: Using a Program that Pays for Death to Save Lives

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I. INTRODUCTION

On March 14, 2019, Willard Ruzicka received a pre-dawn call from the county sheriff.[1] The nearby Spencer Dam had collapsed under the force of floodwater and ice jams, and Ruzicka needed to evacuate immediately.[2] The 72-year-old Nebraskan grabbed his wallet and his cellphone, hurried to his truck, and drove to high ground.[3] From his vantage point, the fourth-generation farmer watched "car-sized chunks of ice" destroy his house and outbuildings.[4]

While Ruzicka and his family all survived the disaster, their livestock were not as lucky.[5] Calving season had begun the month prior, a remarkably cold and snowy February.[6] When weather forecasters predicted a "bomb cyclone" stretching from Texas to Minnesota, the Ruzickas evacuated their bulls to a neighbor's field.[7] However, because of the freezing temperatures and snow, the mother cows and still-fragile calves were moved into a barn.[8] Ruzicka did not have time to set the cows and calves loose when he received the call about the broken dam.[9] Floodwaters arrived rapidly, overtaking the bulls and drowning the newborn

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[1] *Operation Haylift*, MINOT DAILY NEWS (Apr. 17, 2019), https://www.minotdailynews.com/special-sections/inside-ag/2019/04/operation-haylift/.
[2] *Id.*; Burt Rutherford, *Photos: Powerful Scenes of Destruction from Midwest After Bomb Cyclone*, BEEF (Mar. 18, 2019), https://www.beefmagazine.com/disaster/photos-powerful-scenes-destruction-midwest-after-bomb-cyclone/gallery?slide=4.
[3] Ted Genoways, *River of No Return: How Austerity and Climate Change Put Northeastern Nebraska Underwater*, NEW REPUBLIC (May 28, 2019), https://newrepublic.com/article/153748/nebraska-flooding-austerity-climate-change.
[4] Genoways, *supra* note 3.
[5] Burt Rutherford, *Photos: Powerful Scenes of Destruction from Midwest After Bomb Cyclone*, BEEF (Mar. 18, 2019), https://www.beefmagazine.com/disaster/photos-powerful-scenes-destruction-midwest-after-bomb-cyclone/gallery?slide=5.
[6] Ted Genoways, *supra* note 3.
[7] *Id.*; Eliza Barclay & Brian Resnick, *A "Bomb Cyclone" Is Bringing Hurricane-force Winds and Blizzard to the Great Plains*, VOX (updated Mar. 13, 2019), https://www.vox.com/2019/3/13/18263630/bomb-cyclone-2019.
[8] Genoways, *supra* note 3.
[9] *Id.*

calves.[10] Miraculously, many of the mother cows survived, but Ruzicka feared for their long-term health due to floodwater exposure.[11]

A bomb cyclone, formed when pressure plummets as two temperature extremes meet, combines elements of a blizzard with rain, hail, and hurricane-force winds.[12] This type of weather event has been extremely rare over the Plains in the past, but the impact of climate change could make such disasters more common in the future.[13] The extremely cold temperatures in early 2019 compounded the damage, as winter snow accumulated without melting.[14] Sudden warm temperatures in the days before the bomb cyclone melted the snow, which could not soak into the still-frozen ground and instead ran into waterways.[15] Frozen-over rivers swelled, breaking up huge chunks of ice that flowed downstream.[16]

When the bomb cyclone arrived, dropping even more precipitation, dams and levees were overwhelmed.[17] The Spencer Dam was particularly vulnerable; the year before, it was found in

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[10] *Id.*; Neala Boyer, *5th Generation Family Farm and Home Gone*, GOFUNDME (Mar. 16, 2019), https://www.gofundme.com/f/5th-generation-family-farm-and-home-gone.
[11] Michelle Rook, *Record Flooding Devastates Nebraska, Ag Damage Could Top $1 Billion*, AGWEEK (Mar. 20, 2019), https://www.agweek.com/business/record-flooding-devastates-nebraska-ag-damage-could-top-1-billion.
[12] Barclay & Resnick, *supra* note 7.
[13] *Id.*; Daniel Cusick & Chelsea Harvey, *Record Floods Could "Test the Limits" of Midwest Defenses*, SCI. AM. (Mar. 19, 2019), https://www.scientificamerican.com/article/record-floods-could-test-the-limits-of-midwest-defenses/; Susan Cosier, *US Farmers Count Cost of Catastrophic "Bomb Cyclone" in Midwest Farming*, GUARDIAN (Apr. 27, 2019), https://www.theguardian.com/environment/2019/apr/27/us-farmers-count-cost-of-catastrophic-bomb-cyclone-in-midwest.
[14] Jonathan Erdman, *Historic Flooding in Parts of Nebraska, Iowa and South Dakota Due to Rare Confluence of Meteorological Factors*, WEATHER CHANNEL (Mar. 15, 2019), https://weather.com/safety/floods/news/2019-03-14-record-historic-flooding-nebraska-south-dakota-iowa-why [hereinafter Erdman, *Historic Flooding*].
[15] Jonathan Erdman, *One Year Ago, a Bomb Cyclone Triggered Record Flooding in Nebraska That Destroyed Dam*, WEATHER CHANNEL (Mar. 13, 2020), https://weather.com/safety/winter/news/2020-03-13-bomb-cyclone-record-flooding-nebraska-spencer-dam-2019 [hereinafter Erdman, *One Year Ago*].
[16] *Id.*; Int'l Water Power & Dam Constr., *What Investigators Concluded About the Spencer Dam Failure in Nebraska*, NS ENERGY (Oct. 19, 2020), https://www.nsenergybusiness.com/features/spencer-dam-failure-investigation/; Mark E. Baker, *Case Study: Spencer Dam (Nebraska, 2019)*, ASS'N STATE DAM SAFETY OFF., https://damfailures.org/case-study/spencer-dam-nebraska-2019/ (last visited Mar. 12, 2022).
[17] Erdman, *One Year Ago*, *supra* note 15; Cusick & Harvey, *supra* note 13.

dire need of repair.[18] Ice chunks jammed the gates of the dam, closing off water flows and concentrating pressure on the dam overall until it gave way.[19]

In the aftermath, flooded roads and washed-out bridges hampered rescue efforts in eastern Nebraska, where the Ruzicka farm is located.[20] For the surviving cattle, access to feed was an immediate need, as the storm washed away 1,500 bales of hay and four bins of corn.[21] Flooding ruined the corn in the single remaining grain bin on the farm.[22] Officials estimated livestock losses from the disaster would exceed $400 million in Nebraska alone.[23] Because of the long-term impacts of floodwater harm to livestock, however, the exact cost is difficult to pinpoint.[24]

One program that provided aid to Nebraska farmers in the aftermath of the 2019 bomb cyclone is the Livestock Indemnity Program (LIP).[25] The federal government introduced the LIP in 2008 to reimburse farmers for livestock deaths due to adverse weather, including natural disasters.[26] The LIP has been critical for farms' survival in the aftermath of flooding, hurricanes, and heatwaves, but in its current form, the program does not require farmers to prioritize

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[18] Int'l Water Power & Dam Constr., *supra* note 16.
[19] Erdman, *One Year Ago*, *supra* note 15; Genoways, *supra* note 3; Baker, *supra* note 16.
[20] *See* Rook, *supra* note 11 (noting that an emergency crew volunteer was killed when a bridge collapsed in the aftermath of the flooding); Anya Magnuson & Molly Duerig, *After the Deluge: Historic Floods Spell Trouble for Farmers, Rural Communities and the Nation*, NEWS21 (Aug. 13, 2019), https://stateofemergency.news21.com/after-the-deluge-historic-floods-spell-trouble-for-farmers-rural-communities-and-the-nation/ (describing how flooded roads prevented families from reuniting until the waters receded).
[21] Rook, *supra* note 11; Magnuson & Duerig, *supra* note 20; *see also Operation Haylift*, *supra* note 1 (describing a volunteer operation to deliver hay to surviving cattle in the area).
[22] Magnuson & Duerig, *supra* note 20.
[23] Jason Hanna & Marlena Baldacci, *The Midwest Flooding Has Killed Livestock, Ruined Harvests and Has Farmers Worried for Their Future*, CNN (updated Mar. 27, 2019), https://www.cnn.com/2019/03/21/us/floods-nebraska-iowa-agriculture-farm-loss/index.html.
[24] Rook, *supra* note 11; *see also* Cosier, *supra* note 13 (explaining that in addition to immediate losses of livestock and crops, farms also suffer long-term economic loss due to delayed crop planting, structural repairs, and increased costs of feed).
[25] Cosier, *supra* note 13.
[26] *Weather-Related Disasters Increase Over Past 50 Years, Causing More Damage but Fewer Deaths*, WORLD METEOROLOGICAL ORG. (Aug. 31, 2021), https://public.wmo.int/en/media/press-release/weather-related-disasters-increase-over-past-50-years-causing-more-damage-fewer [hereinafter WMO]; Narimes Parakul, *Why Are Natural Disasters Intensifying?*, UC DAVIS MAG. (Mar. 22, 2021), https://magazine.ucdavis.edu/why-are-natural-disasters-intensifying/.

lifesaving measures for farmed animals.[27] In some cases, animal safety is disincentivized because of the LIP's documentation requirements.[28]

The 2023 Farm Bill should amend the existing LIP to provide economic incentives to protect farmed animals from natural disasters fueled by climate change. This new model would tie LIP funds to a farm's proactive measures to prevent disaster-related deaths and create a system of rewards for saving animals' lives. The new model will be most successful if phased in over time, allowing farms to scale up their disaster mitigation efforts in a cost-effective way.

This paper begins with a brief overview of the history of livestock insurance, then explains the LIP in its current form. Part III highlights the steep cost that climate change is wreaking on the livestock industry, from the loss of farmed animals' lives to the massive drain on federal funds. Part IV proposes modifying the LIP to promote animal well-being, mitigate losses in disasters fueled by climate change, and ensure the stability of U.S. agriculture.

II. THE ROAD TO THE LIVESTOCK INDEMNITY PROGRAM

Although widespread today, government-supported crop insurance in the U.S. began less than 100 years ago during the Great Depression.[29] Conversely, livestock insurance schemes have been traced back much farther, with one scholar pointing to mutual aid programs in Hindu

[27] *Compare* 7 C.F.R. §§ 760.401–760.406 (2021) (setting out the program requirements for LIP, which does not include mitigation of losses), *with* 7 C.F.R. § 760.104(b) (2021) (requiring farmers carry a "risk management policy" on certain crops or farmed products in order to qualify for government-funded disaster assistance for those products).

[28] *See* Alex Cerussi & Irina Anta, *Natural Disasters: Considerations for Animals in Agriculture*, AM. BAR ASS'N (Jan. 29, 2020), https://www.americanbar.org/groups/tort_trial_insurance_practice/publications/tortsource/2020/winter/natural-disasters-considerations-animals-agriculture (claiming that LIP documentation requirements incentivize farmers to keep animals inside structures during disasters so that the animals' bodies "can be counted more easily").

[29] DENNIS A. SHIELDS, CONG. RSCH. SERV., R40532, FEDERAL CROP INSURANCE: BACKGROUND 1 (2015); CELIA M. REYES, ET AL., AGRICULTURE INSURANCE PROGRAM: LESSONS FROM DIFFERENT COUNTRY EXPERIENCES 4 (Philippine Inst. for Dev. Stud., Discussion Paper Series, No. 2017-02, 2017) (available at http://hdl.handle.net/10419/173579).

societies thousands of years ago as the origin of livestock insurance.[30] These early schemes were typically either privately funded or based on farmers' participation in societies or guilds.[31]

Government-supported livestock insurance began in the mid-1700s in central and northern Europe.[32] Government programs have proven to be far more stable than private insurers; for example, of three private livestock insurers operating in Nebraska prior to the Great Depression, one retired, one went bankrupt, and one pivoted to selling automobile insurance due to the lack of profitability in livestock insurance.[33] Today, the U.S. government provides over $8 billion in subsidies for agricultural insurance—including both livestock and crop insurance.[34]

Reimbursement for crop and livestock losses due to natural disasters was governed by a patchwork system of federal, state, and private funding programs until the 2008 Farm Bill.[35] The Farm Bill is a package of legislation related to the U.S. food system and is generally passed every five years.[36] The 2008 Farm Bill expanded disaster assistance to farmers and introduced the LIP.[37] The bill was politically contentious because of its tremendous financial outlays and had to be passed over President Bush's veto.[38] Later analysis showed that the bill cost $3.4 billion more than originally projected, largely due to higher spending on crop insurance.[39]

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[30] Edwin W. Kopf, *Origin, Development and Practices of Livestock Insurance*, 14 (pt. 2) CAS. ACTUARIAL SOC'Y PROC. 291, 311 (1928).
[31] *Id.* at 311–13.
[32] *See id.* at 313 (noting "[t]he first *governmental* cattle insurance" began in Silesia—modern-day Poland—in the mid-18th century, followed by the Netherlands ("Friesland") and Denmark).
[33] *Id.* at 361.
[34] REYES, ET AL., *supra* note 29, at 5–6.
[35] MATTHEW MACLACHLAN ET AL., USDA ECON. RSCH. SERV., EIB-187, FEDERAL NATURAL DISASTER ASSISTANCE PROGRAMS FOR LIVESTOCK PRODUCERS, 2008-16 1 (Jan. 2018).
[36] *2014 Farm Bill*, U.S. S. COMM. ON AGRIC., NUTRITION, & FORESTRY, https://www.agriculture.senate.gov/issues/farm-bill (last visited Mar. 13, 2022).
[37] Food, Conservation, and Energy Act of 2008, H.R. 6124, 110th Cong. § 12033 (2008); S. AGRIC., NUTRITION & FORESTRY COMM., THE FOOD, CONSERVATION AND ENERGY ACT OF 2008 11 (2008).
[38] *Congress Passes Farm Bill Over Bush Veto*, CNN (updated June 18, 2008), http://www.cnn.com/2008/POLITICS/06/18/farm.bill/index.html.
[39] JIM MONKE & RENÉE JOHNSON, CONG. RSCH. SERV., R41195, ACTUAL FARM BILL SPENDING AND COST ESTIMATES 5, 7 (2010).

The LIP was initially piloted as a time-limited program, covering disaster-related livestock deaths from January 1, 2008, through September 30, 2011.[40] For animal deaths due to adverse weather, including natural disasters, LIP would pay farmers 75% of the market value of the animal, calculated as of the date of the animal's death.[41] Payments were capped at $100,000 per year for each eligible farm, and payments made under certain other disaster relief programs counted towards the annual cap.[42] Based on 2021 reimbursement rates, LIP would compensate for approximately 102 dairy cows, 590 lambs, or 25,000 laying hens.[43]

Due to ongoing congressional dysfunction, the 2008 Farm Bill expired, and a new bill did not pass until 2014.[44] The 2014 Farm Bill reinstated the lapsed LIP, retroactive to livestock losses incurred on or after October 1, 2011, and removed the end date for the program.[45] The current Farm Bill, passed in 2018, lifted the cap on annual payments and confirmed that Indigenous tribes are eligible for LIP payments.[46]

Major international and domestic events are likely to play a role in the next iteration of the Farm Bill, due in 2023.[47] The COVID-19 pandemic highlighted food insecurity in the U.S., resulting in additional federal funding for food assistance programs, such as the Supplemental

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[40] U.S. DEP'T AGRIC., LIVESTOCK INDEMNITY PROGRAM (LIP) FACT SHEET 1 (Nov. 2008).
[41] *Id.* at 2.
[42] *Id.* at 2.
[43] U.S. DEP'T AGRIC., DISASTER ASSISTANCE: LIVESTOCK INDEMNITY PROGRAM FACT SHEET 5–7 (Apr. 2021) [hereinafter Disaster Assistance Fact Sheet].
[44] JIM MONKE, RANDY ALISON AUSSENBERG & MEGAN STUBBS, CONG. RSCH. SERV., R42442, EXPIRATION AND EXTENSION OF THE 2008 FARM BILL 1, 3–4 (2013).
[45] Agricultural Act of 2014, Pub. L. No. 113-79; U.S. S. COMM. ON AGRIC., NUTRITION & FORESTRY, AGRICULTURAL ACT OF 2014 2 (2014).
[46] Agriculture Improvement Act of 2018, Pub. L. 115-334 (codified in scattered sections of 2, 7, 12, 16, 21, 25, 31, 34, 40, 42, 43, & 47 U.S.C.); RENÉE JOHNSON & JIM MONKE, CONG. RSCH. SERV., RS22131, WHAT IS THE FARM BILL? 8 (2019); RANDY SCHNEPF & MEGAN STUBBS, CONG. RSCH. SERV., R45659, U.S. FARM PROGRAM ELIGIBILITY AND PAYMENT LIMITS UNDER THE 2018 FARM BILL (P.L. 115-334) 15 n.43 (2019); STEPHEN CARPENTER & LINDSAY KUEHN, FARMERS' GUIDE TO DISASTER ASSISTANCE, VOLUME 3: LIVESTOCK INDEMNITY PROGRAM (LIP) 2 (Aug. 2019).
[47] Dennis Rudat, *Conservation, Crop Insurance, Dairy Pricing Priorities Detailed at 2023 Farm Bill Hearing*, MICH. FARM NEWS (May 2, 2022), https://www.michiganfarmnews.com/conservation-crop-insurance-dairy-pricing-priorities-detailed-at-2023-farm-bill-hearing.

Nutrition Assistance Program (SNAP, commonly known as "food stamps").[48] SNAP is the biggest expenditure in the Farm Bill, and many believe a new Farm Bill cannot pass in Congress without satisfactorily funding SNAP.[49] Additionally, Russia's invasion of Ukraine could shift attention away from livestock or climate change issues as the disruption of global grain markets becomes a pressing international concern.[50] On the domestic front, open hostility between the two major political parties could delay the next Farm Bill.[51] Lastly, increased appropriations for ad hoc disaster relief may cause Congress to re-examine the LIP and other permanent disaster relief programs.[52]

Under the current program terms, LIP funding pays farmers for livestock losses above normal mortality rates that are caused by adverse weather events.[53] The original reimbursement rate—75% of the market value of the animal on the day of death—remains in effect today.[54] Adverse weather events include earthquakes, tornados, hurricanes, floods, or wildfires.[55] Extreme temperatures, including heatwaves, blizzards, and severe winter storms, are also

[48] *FNS Responds to COVID-19*, USDA FOOD & NUTRITION SERV., https://www.fns.usda.gov/coronavirus (last visited May 6, 2022).
[49] Ellen Vollinger, *The Road to the 2023 Farm Bill: A Strong Nutrition Title and the Rural/Urban Alliance*, FOOD RSCH. & ACTION CTR. (Apr. 8, 2022), https://frac.org/blog/the-road-to-the-2023-farm-bill. *Compare Farm Bill Spending*, USDA ECON. RSCH. SERV. (last updated Oct. 19, 2021), https://www.ers.usda.gov/topics/farm-economy/farm-commodity-policy/farm-bill-spending/ (noting that more than 75% of funding allocations in the 2018 Farm Bill were for nutrition programs), *with SNAP in the Farm Bill*, SNAP TO HEALTH!, https://www.snaptohealth.org/farm-bill-usda/snap-in-the-farm-bill/ (last visited May 6, 2022) (claiming that 95% of nutrition spending in the Farm Bill goes to SNAP).
[50] Rudat, *supra* note 47; Craig Hanson et al., *The Ukraine Crisis Threatens a Sustainable Food Future*, WORLD RES. INST. (Apr. 1, 2022), https://www.wri.org/insights/ukraine-food-security-climate-change; Ximena Bustillo, *Behind Biden's Plan to Bump up Farm Subsidies*, POLITICO (May 2, 2022), https://www.politico.com/newsletters/weekly-agriculture/2022/05/02/behind-bidens-plan-to-bump-up-farm-subsidies-00029242.
[51] Chuck Abbott, *Danger Signs for 2023 Farm Bill in Partisan Rancor on Capitol Hill*, SUCCESSFUL FARMING (Nov. 22, 2021), https://www.agriculture.com/news/business/danger-signs-for-2023-farm-bill-in-partisan-rancor-on-capitol-hill.
[52] GENEVIEVE K. CROFT ET AL., CONG. RSCH. SERV., R47057, PREPARING FOR THE NEXT FARM BILL 19 (2022).
[53] 7 C.F.R. § 760.401(b) (2021).
[54] 7 C.F.R. § 760.406(b) (2021).
[55] 7 C.F.R. § 760.402 (2021); Disaster Assistance Fact Sheet, *supra* note 43, at 2.

covered by the program.[56] Drought losses are covered under a separate program and therefore not included as adverse weather events under the LIP.[57]

LIP payments have a few notable limitations.[58] First, to apply for LIP funds, a farm must be able to document the number of animals killed in a qualifying disaster.[59] Good recordkeeping is essential to verify the pre-disaster size of herds and flocks.[60] Second, LIP funds are not available for any individual or entity with an adjusted gross income greater than $900,000.[61] While this means that approximately 90% of U.S. farms can apply for LIP payments, the large farms that account for approximately 60% of U.S. farm production are ineligible.[62] Other tools will be needed to leverage large factory farm compliance with disaster mitigation practices.[63]

Finally, farmers must follow a two-step process in filing a claim.[64] A notice of loss must be filed within 30 days of the animals' deaths becoming apparent to the farmer.[65] Then an application for payment must be filed within 30 days of the end of the calendar year.[66] A state's "normal mortality rate" is set each year by the USDA Farm Service Agency (FSA) with input

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[56] 7 C.F.R. § 760.402 (2021); Disaster Assistance Fact Sheet, *supra* note 43, at 2.
[57] 7 C.F.R. § 760.401(b) (2021); U.S. DEP'T AGRIC., DISASTER ASSISTANCE: LFP - LIVESTOCK FORAGE DISASTER PROGRAM FACT SHEET 1 (May 2021).
[58] *See* 7 C.F.R. §§ 706.403, 760.103, 760.116 (2021) (listing other requirements to receive LIP funds).
[59] 7 C.F.R. §§ 760.405(c)–(f) (2021).
[60] Jay Parsons, *Extreme Heat and the Livestock Indemnity Program*, UNIV. NEBRASKA–LINCOLN, https://newsroom.unl.edu/announce/beef/5404/31141 (last visited Mar. 13, 2022).
[61] 7 C.F.R. § 1400.500(a) (2021). *See generally* U.S. DEP'T AGRIC. FARM SERV. AGENCY, AVERAGE ADJUSTED GROSS INCOME CERTIFICATION AND VERIFICATION, 2019–2023 FACT SHEET (June 2019).
[62] *See Farming and Farm Income*, USDA ECON. RSCH. SERV. (last updated Feb. 4, 2022), https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/farming-and-farm-income/ (stating 89.2% of U.S. farms have annual gross cash farm income of less than $350,000, but noting that nonfamily farms and farms with annual gross cash farm income over $1 million account for 59.4% of all production).
[63] *But see* Liza Gross, *Groups Urge the EPA to Do Its Duty: Regulate Factory Farm Emissions*, INSIDE CLIMATE NEWS (Oct. 29, 2021), https://insideclimatenews.org/news/29102021/epa-factory-farm-emissions/ (explaining how industrial farms have long been exempted from federal environmental laws and the enforcement of those laws by the EPA).
[64] Disaster Assistance Fact Sheet, *supra* note 43, at 3.
[65] 7 C.F.R. § 760.405(a)(2) (2021); Disaster Assistance Fact Sheet, *supra* note 43, at 3.
[66] 7 C.F.R. § 760.405(b)(1) (2021). *But see* Disaster Assistance Fact Sheet, *supra* note 43, at 3 (stating that a notice of loss must be filed within 30 days but an application for payment may be filed within 60 days of the end of the year).

from state agricultural organizations.[67] Because the LIP only reimburses for animal deaths in excess of the normal mortality rate, farmers may not be able to show they have qualifying livestock deaths until the end of the year.[68] Cash-flow issues, such as delayed compensation for livestock deaths, hit smaller farms hard and can increase consolidation by factory farms.[69]

III. OUTRAGEOUSLY COSTLY: FARMED ANIMAL DEATHS DUE TO CLIMATE CHANGE

Climate change is no longer a future problem.[70] Farms today are already experiencing climate change impacts, from decreased reproductive success due to higher temperatures[71] to reduced availability of water-soluble nutrients in forage stressed by drought.[72] Increased livestock mortality is of growing concern not only for farmers, but also for governments concerned with food security.[73]

Climate change exacerbates natural disasters that pose grave threats to livestock.[74] As one example, a trio of hurricanes in 2017 resulted in the deaths of millions of farmed animals and

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[67] U.S. DEP'T AGRIC., FSA HANDBOOK: LIVESTOCK INDEMNITY PROGRAM 1-11–1-12 (updated July 13, 2021).
[68] For example, if a farm loses 4% of its animals in a qualifying natural disaster, but the national normal mortality rate is 5%, the farm has no qualifying losses at the time of the disaster. However, if the farm then loses an additional 3% of its animals due to natural causes throughout the year, the farm's annual mortality rate (7%) is higher than the national normal mortality rate (5%). The farm can then file for reimbursement for the excess deaths (2%) that were caused by the qualifying disaster, but only if they filed a "notice of loss" within 30 days of the qualifying natural disaster. *See, e.g.*, Parsons, *supra* note 60.
[69] *See* Andrew Soergel, *Family Farms Pushed to Get Big or Go Bust*, US NEWS (Apr. 4, 2018), https://www.usnews.com/news/best-states/articles/2018-04-04/family-farms-pushed-to-get-big-or-go-bust (noting the consolidation of smaller farms into larger conglomerates and pointing to undercapitalization, bankruptcies, and family conflict as some of the stressors on smaller farms); *Understanding the Economic Crisis Family Farms are Facing*, FARM AID (Sept. 14, 2020), https://www.farmaid.org/blog/fact-sheet/understanding-economic-crisis-family-farms-are-facing/ ("[T]he country's once diverse local and regional foodsheds were systematically erased over time as corporate power in the food system accelerated").
[70] WMO, *supra* note 26.
[71] Umberto Bernabucci, *Climate Change: Impact on Livestock and How We Can Adapt*, 9 ANIMAL FRONTIERS 3, 4 (2019).
[72] M. Melissa Rojas-Downing et al., *Climate Change and Livestock: Impacts, Adaptation, and Mitigation*, 16 CLIMATE RISK MGMT. 145, 150–51 (2017).
[73] Cheikh Mbow et al., *Food Security*, *in* CLIMATE CHANGE & LAND 437, 456 (2019).
[74] Blaine Friedlander, *Heat Stress for Cattle May Cost Billions by Century's End*, SCIENCE X (Mar. 10, 2022), https://phys.org/news/2022-03-stress-cattle-billions-century.html.

billions of dollars in damages in the U.S.[75] Hurricane Harvey affected 4% of all U.S. beef cattle as it tore through Texas.[76] Hurricane Irma stressed Florida's beef and dairy cattle, reducing milk production, weight gain, and reproductive success.[77] And Hurricane Maria disrupted 50% of Puerto Rico's dairy industry and destroyed 70% of the island's poultry infrastructure.[78] These hurricanes all hit within a 30-day period in late summer and, in combination with massive wildfires in California, led to Congress introducing supplemental appropriations for disaster losses at the end of 2017.[79] The proposed legislation passed the House of Representatives and was eventually incorporated in a bill that Congress passed to avoid a government shutdown in February 2018.[80] The enacted legislation amended the LIP to include partial payments for livestock losses other than deaths, such as when an animal has to be sold below full market value.[81]

The amount of taxpayer funds allocated for animal deaths is staggering.[82] One advocacy group reviewed LIP payments for the three years prior to the COVID-19 pandemic and found outlays had steadily increased to a high of $58.5 million in 2019.[83] They also estimated that nearly a million animals died that year due to adverse weather.[84]

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[75] Sam Bloch, *2017's Natural Disasters Cost American Agriculture Over $5 Billion*, COUNTER (Jan. 4, 2018), https://thecounter.org/2017-natural-disasters-agriculture-damage-5-billion/; Matt McGrath, *Climate Change: Big Increase in Weather Disasters Over the Past Five Decades*, BBC (Sept. 1, 2021), https://www.bbc.com/news/science-environment-58396975.
[76] Bloch, *supra* note 75 (declaring 1.2 million beef cattle, or 27% of all beef cattle in Texas, were impacted by Hurricane Harvey).
[77] *Id.* (listing losses of $7.5 million due to decreased milk production, $14 million due to poor weight gain, and $41.3 million due to poor reproductive success).
[78] *Id.*
[79] H.R. 4667, 115th Cong. (2017).
[80] Bipartisan Budget Act of 2018, Pub. L. No. 115-123, § 20101 (2018).
[81] U.S. DEP'T AGRIC., THE 2018 BIPARTISAN BUDGET ACT – WHAT IT MEANS FOR YOU FACT SHEET 2 (May 2018).
[82] *Extreme Weather*, ANIMAL WELFARE INST., https://awionline.org/content/extreme-weather (last visited Mar. 13, 2022).
[83] *Id.*; *Congress Directs USDA to Help Farmers Develop Disaster Plans*, ANIMAL WELFARE INST., https://awionline.org/content/extreme-weather (last visited Mar. 13, 2022).
[84] *Extreme Weather*, *supra* note 82.

In addition to LIP payments, Congress established a separate fund for animal deaths due to "depopulation" during the pandemic shutdowns in 2020.[85] Many slaughterhouses closed due to COVID-19 outbreaks.[86] Unable to access these processing facilities, farmers killed many of their animals at their own farms, often through intensely cruel measures.[87] The federal government then paid the farmers 80% of the market value of the destroyed animals.[88] Congress allocated up to $11.2 billion for pandemic assistance to agricultural producers, above and beyond the LIP funds available for deaths caused by adverse weather.[89]

As economic recovery continues, it appears the U.S. is on track for pre-pandemic levels of LIP payments. Within the first two months of 2022, the federal government committed nearly $7 million in LIP payments.[90]

IV. MODIFYING THE LIVESTOCK INDEMNITY PROGRAM TO SAVE LIVES

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[85] U.S. DEP'T AGRIC., PANDEMIC LIVESTOCK INDEMNITY PROGRAM FACT SHEET 1 (June 2021); *Ventilation Shutdown Used to "Depopulate" Farm Animals During Pandemic Causes Severe Suffering*, ANIMAL WELFARE INST. (July 1, 2020), https://awionline.org/press-releases/ventilation-shutdown-used-depopulate-farm-animals-during-pandemic-causes-severe.

[86] Dianne Gallagher & Pamela Kirkland, *Meat Processing Plants Across the US Are Closing Due to the Pandemic. Will Consumers Feel the Impact?*, CNN BUS. (Apr. 27, 2020), https://www.cnn.com/2020/04/26/business/meat-processing-plants-coronavirus/index.html.

[87] Sophie Kevany, *Millions of Farm Animals Culled as US Food Supply Chain Chokes Up*, GUARDIAN (Apr. 29, 2020), https://www.theguardian.com/environment/2020/apr/29/millions-of-farm-animals-culled-as-us-food-supply-chain-chokes-up-coronavirus; *see also* Gallagher & Kirkland, *supra* note 86 (explaining that some farmed animals were killed due to a lack of access to feed and water, while others were killed because the animals' bodies had "grown too large to fit on the processing lines"); Sophie Kevany, *Millions of U.S. Farm Animals to Be Culled by Suffocation, Drowning, and Shooting*, GUARDIAN (May 19, 2020), https://www.theguardian.com/environment/2020/may/19/millions-of-us-farm-animals-to-be-culled-by-suffocation-drowning-and-shooting-coronavirus (describing the inhumane methods used to "cull" farmed animals while slaughterhouses were shut down).

[88] U.S. DEP'T AGRIC., PANDEMIC LIVESTOCK INDEMNITY PROGRAM FACT SHEET 2 (June 2021); *see also Pandemic Payments: Aid Under Pandemic Livestock Indemnity Program*, NAT'L AGRIC. L. CTR. (Aug. 17, 2021), https://nationalaglawcenter.org/pandemic-payments-aid-under-pandemic-livestock-indemnity-program/ (stating that in addition to 80% of the market value of the killed animals, farmers also received "the cost of depopulating and disposing of the animals based on a single payment rate per head").

[89] *Pandemic Payments: Aid Under Pandemic Livestock Indemnity Program*, *supra* note 88.

[90] *See Government Spending Open Data*, USASPENDING, https://www.usaspending.gov/search/?hash=0b85232b4dd07a85670b99bad030705c (last visited Mar. 13, 2022) (finding a commitment of $6,977,418.23 from Jan. 1, 2022, through Feb. 28, 2022).

Good stewardship of federal funds requires that LIP payments are leveraged to the greatest advantage.[91] Fortunately, the existing structure of the program can be modified to save lives and promote climate resiliency.[92] These changes also ensure that the LIP is aligned with the goals of other federal laws, such as the National Environmental Policy Act, which requires that government agencies account for the environmental impact of federally-funded projects.[93] Modern industrial agriculture is tied to increased greenhouse gases, which contribute to global warming.[94] Global warming heightens the risk of disasters and extreme temperatures, which threatens farmed animals' lives and health.[95] Defining and enforcing best practices for the agriculture industry could reduce the risk to farmed animals as well as reducing the industry's contributions to climate change.[96]

Section A suggests a new model that links LIP payments to an incentive structure that encourages farmers to be proactive in planning for, responding to, and recovering from natural disasters. Section B proposes phasing in this new payment model over time, acknowledging both the costs of the changes and the costs of inaction. Section C examines additional benefits of implementing the new model for LIP payments, both economic and noneconomic.

a. INCENTIVISING ANIMAL WELFARE

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[91] U.S. GOV'T ACCOUNTABILITY OFF., GAO-08-93SP, A CALL FOR STEWARDSHIP: ENHANCING THE FEDERAL GOVERNMENT'S ABILITY TO ADDRESS KEY FISCAL AND OTHER 21ST CENTURY CHALLENGES 2 (2007).

[92] *Cf.* Tala DiBenedetto, *Encouraging Risky CAFOs in the Age of Climate Change*, FARM BILL L. ENTER. (Oct. 4, 2019), http://www.farmbilllaw.org/2019/10/04/cafosandclimate/ (positing that LIP and other government funding, coupled with a lack of regulations for CAFOs, currently provides "little to no incentive to adequately prepare for disaster or take measures to prevent ecological disaster").

[93] 42 U.S.C. §§ 4321–4370m; 40 C.F.R. § 1500.1 (2021).

[94] *See* Kayla Karimi, *Stopping Livestock's Contribution to Climate Change*, 36 UCLA J. ENV'T L. & POL'Y 347, 348 (2018) ("Livestock accounts for 9 percent of all anthropogenic carbon dioxide emissions, 37 percent of methane emissions, and 65 percent of nitrous oxide emissions").

[95] John N. Moore & Kale Van Bruggen, *Agriculture's Fate Under Climate Change: Economic and Environmental Imperatives for Action*, 86 CHI.-KENT L. REV. 87, 89–90 (2011).

[96] *See, e.g.*, PETER H. LEHNER & NATHAN A. ROSENBERG, FARMING FOR OUR FUTURE: THE SCIENCE, LAW, AND POLICY OF CLIMATE-NEUTRAL AGRICULTURE 89 (2021) (promoting the practice of "silvopasture," or grazing animals on land with trees that provide shade and carbon sequestration).

The next Farm Bill must propose changes that incentivize farms to take proactive steps to save animals' lives wherever possible.[97] Tying those changes to an economic benefit—LIP funds—counteracts the inertia of continuing current practices and resisting mere recommendations from animal welfare groups.[98]

Animal advocacy groups have long been concerned that LIP funds are available even where farms have taken no action to plan for the possibility of a natural disaster.[99] Because disaster plans are critically important, the first suggested change is to require farms to file a proactive disaster relief plan in order to apply for LIP funds.[100] These plans are already recommended by USDA,[101] FEMA,[102] OSHA,[103] SBA[104] and the American Veterinary Medical Association.[105] Local FSA offices, which administer the LIP and assist farms in filing LIP claims, would be an excellent repository for the plans.[106]

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[97] *See* Shauna R. Collins, *Striking the Proper Balance Between the Carrot and the Stick: Approaches to Animal Feeding Operation Regulation*, 2012 U. ILL. L. REV. 923, 924 (2012) (explaining how regulation of the agriculture industry is dependent on a lot of "carrots," or incentives, to change behaviors, although the federal government is increasingly using "stick" approaches).

[98] *See* Melea Press et al., *Ideological Challenges to Changing Strategic Orientation in Commodity Agriculture*, 78 J. MKTG. 103, 107–08 (2014) (studying how ideological differences prevent farmers from implementing economically beneficial practices, particularly when the practices are outside the farmer's beliefs in "conventional" or "organic" techniques).

[99] *Congress Directs USDA to Help Farmers Develop Disaster Plans*, *supra* note 83. *But see* Barbara J. King, *As Florence Kills Pigs and Millions of Chickens, We Must 'Open Our Hearts'*, NPR (Sept. 24, 2018), https://www.npr.org/sections/thesalt/2018/09/24/650437498/opinion-as-florence-kills-pigs-and-millions-of-chickens-we-must-open-our-hearts (pointing out that evacuation plans for "millions of animals" simply may not be feasible).

[100] *See, e.g.*, Betty Goldentyer, *USDA Announces Requirement for Contingency Plans to Protect Animals During Emergencies*, USDA (Dec. 2, 2021), https://www.usda.gov/media/blog/2021/12/02/usda-announces-requirement-contingency-plans-protect-animals-during (requiring disaster plans for zoos and similar licensed facilities).

[101] U.S. DEP'T AGRIC., DO YOU HAVE A PLAN FOR YOUR LIVESTOCK SHOULD DISASTER STRIKE? (Oct. 2016).

[102] *Preparing Farm Animals for Disaster*, FEMA (June 17, 2021), https://www.fema.gov/blog/preparing-farm-animals-disaster.

[103] U.S. DEP'T LABOR, OSHA AGRICULTURAL SAFETY FACT SHEET: EMERGENCY PREPAREDNESS FOR FARMWORKERS (2016).

[104] *Preparedness Checklists*, U.S. SMALL BUS. ASS'N, https://www.sba.gov/document/support-preparedness-checklists (last visited Mar. 15, 2022).

[105] *Large Animals and Livestock in Disasters*, AM. VETERINARY MED. ASS'N, https://www.avma.org/resources/pet-owners/emergencycare/large-animals-and-livestock-disasters (last visited Mar. 15, 2022).

[106] Disaster Assistance Fact Sheet, *supra* note 43, at 3.

Guidance abounds for creating a disaster plan that addresses the unique challenges related to livestock safety in the event of a disaster.[107] Special considerations include transporting animals, particularly when adverse weather presents extra challenges related both to animal handling and road conditions; ensuring adequate supplies of clean water and food are available, even with possible electricity outages; and determining when animals would be safer inside a structure, such as a barn or pen, and when they would be safer outside.[108] Thinking through these factors ahead of a disaster event increases the likelihood that the best choices will be made during a moment of crisis.[109]

Filing a comprehensive, reasonable disaster plan with the FSA would be a minimum threshold requirement to apply for LIP funds. Farms then build on the plan by implementing mitigation measures that are based on lifesaving practices.[110] Each completed action is worth a certain percentage of the reimbursement rate for a farmed animal's death.[111] The more steps a farm takes to reduce animal losses, the greater the per-animal LIP reimbursement in the event of a qualifying loss.[112]

This building-block system allows farms to customize their actions based on their farming system and the type of farmed animals they are trying to protect. For example, adequate

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[107] *How to Create an Emergency Disaster Plan for Your Ranch or Farm*, FARM BUREAU FIN. SERV. (Feb. 28, 2022), https://www.fbfs.com/learning-center/how-to-create-an-emergency-disaster-plan-for-your-ranch-or-farm; *Taking Precautions for Protecting Livestock*, HUMANE SOC'Y U.S., https://www.humanesociety.org/resources/taking-precautions-protecting-livestock (last visited Mar. 15, 2022).

[108] *How to Create an Emergency Disaster Plan for Your Ranch or Farm*, *supra* note 107; *Large Animals and Livestock in Disasters*, *supra* note 105.

[109] U.S. DEP'T LABOR, *supra* note 103, at 1, 3.

[110] *Cf.* Kayda Norman, *Your Guide to Car Insurance Discounts*, NERDWALLET (Feb. 17, 2022), https://www.nerdwallet.com/article/insurance/car-insurance-discounts (noting that car insurance policies often offer discounts for defensive driving courses and vehicle safety features such as antilock brakes).

[111] *See* Table 1, *infra*.

[112] *Cf.* Mandy Sleight, *How to Get Home Insurance Discounts*, BANKRATE (Nov. 5, 2021), https://www.bankrate.com/insurance/homeowners-insurance/how-to-get-home-insurance-discounts/ (listing various steps homeowners can take to reduce their insurance premiums, such as installing smoke alarms, carbon monoxide detectors, or storm shutters).

ventilation and cooling systems are critical for indoor livestock as temperatures rise.[113] For range livestock, proper identification helps reunite the animals with their owners after a disaster strikes.[114] Both are best practices of good animal husbandry that could be further incentivized through a new LIP reimbursement structure.[115]

Flexible incentives also allow a farm to tailor their actions to the types of natural disasters common to their region.[116] Dairy farmers in California could focus on wildfire mitigation by ensuring there is a defensible barrier around all buildings.[117] Conversely, poultry farmers in Georgia could plan for flooding by decreasing impermeable surfaces around coops.[118] Completing these actions would then increase the reimbursement rate for farmers if their animals were killed in a subsequent fire or flood.

Additional examples of incentivized mitigation actions are listed in Table 1. A panel of experts with diverse perspectives could determine the actions most likely to save lives and weight them accordingly.[119] Under the new building-block model, farmers can mix-and-match their actions up to a reimbursement rate of 90% of the animal's market value at the time of death,

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[113] Nicola Lacetera, *Impact of Climate Change on Animal Health and Welfare*, 9 ANIMAL FRONTIERS 26, 28 (2019); Brian Hill, *1.3 Million Farm Animals Dead Due to Climate Change: What Can B.C. Do to Stop the Next Catastrophe?*, GLOB. NEWS (Dec. 7, 2021), https://globalnews.ca/news/8427762/b-c-flooding-kills-650000-farm-animals/.

[114] *Large Animals and Livestock in Disasters*, *supra* note 105.

[115] *See Livestock and Poultry Identification*, STATE VT. AGENCY AGRIC., FOOD, & MKT., https://agriculture.vermont.gov/animal-health/animal-health-regulations/livestock-and-poultry-identification (last visited Mar. 15, 2022) (explaining that Vermont state law requires livestock have proper identification for disease tracing purposes); Moore & Van Bruggen, *supra* note 95, at 91 (explaining that investment in cooling systems will be required as annual temperatures continue to climb).

[116] *See US Natural Hazards Index*, NAT'L CTR. FOR DISASTER PREPAREDNESS, https://ncdp.columbia.edu/library/mapsmapping-projects/us-natural-hazards-index/ (last visited Mar. 15, 2022) (rating the likelihood of various natural disasters for the contiguous U.S.).

[117] *Defensible Space*, CAL FIRE, https://www.readyforwildfire.org/prepare-for-wildfire/get-ready/defensible-space/ (last visited Mar. 15, 2022).

[118] Beth Baker, *How You Can Reduce Flood Risk on Your Farm*, FARMPROGRESS (Mar. 29, 2018), https://www.farmprogress.com/land-management/how-you-can-reduce-flood-risk-your-farm.

[119] *See* S. COTTON & T. MCBRIDE, COLO. STATE UNIV. EXTENSION FACT SHEET NO. 1.815, CARING FOR LIVESTOCK DURING DISASTER (revised Aug. 2013) (discussing challenges in livestock management during various types of disasters and suggesting proactive mitigation measures).

greater than the current LIP reimbursement rate of 75%. The higher possible rate reflects the likelihood of fewer disaster-related deaths because of proactive measures taken by farmers.[120] It also creates a payment structure where the more a farm tries to proactively save lives, the greater the reward in the event of deaths from unavoidable or severe disasters.[121]

Table 1: Sample mitigation actions and corresponding reimbursement rate increase

Incentive action to be completed by the farm under the new LIP model	**Increase in reimbursement rate in the event of an animal's death**
All-staff training on disaster response	10%
Installing generators to maintain feeding, temperature, and ventilation systems	25%
Structural improvements to buildings	10–30%
Adequate cooling systems	15–25%
Proper identification	5%
Fuels reduction (wildfire risk)	20%
Decrease impermeable surfaces / increase permeable surfaces (flood risk)	15–25%

How a farm responds during and after a disaster can also be built into the new LIP model.[122] Early-warning systems for disasters have saved human lives, decreasing storm mortality even as the frequency and intensity of disasters has increased.[123] Heeding early warnings about adverse weather—as when Ruzicka moved his cattle to a neighbor's higher ground—should be encouraged and rewarded.[124] As farms recover from disasters that included livestock deaths, the government can incentivize repopulating farms with hardier breeds and siting rebuilt structures

[120] *See, e.g.*, Hill, *supra* note 113 (citing a reduction in deaths of farmed animals during a "heat dome" due to upgraded cooling systems, which were installed after previous heatwaves).
[121] *See* Rook, *supra* note 11 (noting that many of Ruzicka's cows lived, largely because he "got a lot of them out" before the storm hit).
[122] UC DAVIS, FLOODING & LIVESTOCK OWNERS: PREPARING, RESPONDING, AND RECOVERING 3–6 (available at https://www.wifss.ucdavis.edu/wp-content/uploads/documents/delta_fair_livestock_FINAL_web.pdf).
[123] WMO, *supra* note 26.
[124] Genoways, *supra* note 3.

out of floodplains wherever possible.[125] To move farmers towards these goals, the new LIP model would require farms to demonstrate at least one from a list of best practices when filing subsequent LIP claims. As with the table of incentives, experts in agriculture, animal welfare, climate change science, and disaster relief would collaborate to determine what best practices to include; early warning systems, breed selection, and siting concerns are simply three examples.[126]

b. TRANSITIONING TO THE NEW MODEL

As discussed in Part I, the LIP is a relatively recent addition to government-supported farm insurance programs. It has already undergone significant changes, such as removing the initial cap on annual payments and limiting the program to individuals and entities that are not millionaires.[127] A new model that places animal welfare, disaster mitigation, and climate change response at the forefront is critical for the future of U.S. agriculture.[128]

To implement the new model, the LIP can allow for a transition period to replace the current model with the building-block structure proposed above. Farmers then have time to plan for the changes and begin implementing measures that will save lives in the event of a disaster.[129] Further, as some proactive measures call for significant upgrades to structures or mechanized

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[125] Hill, *supra* note 113; Friedlander, *supra* note 74; *Animal Agriculture in a Changing Climate*, USDA CLIMATE HUBS, https://www.climatehubs.usda.gov/animal-agriculture-changing-climate (last visited Mar. 15, 2022); WORLD SOC'Y FOR PROT. ANIMALS, LIVESTOCK PRODUCTION AND CLIMATE CHANGE 4, 5 (2012) (available at https://unfccc.int/resource/docs/2012/smsn/ngo/194.pdf).

[126] *See, e.g.*, *Public Policy*, COMPASSION WORLD FARMING, https://www.ciwf.com/public-policy/ (last visited May 7, 2022) (advocating for multi-disciplinary collaboration by "animal advocates, conscious consumers, planet protectors, and concerned citizens from all walks of life" to restructure global food systems).

[127] U.S. S. COMM. ON AGRIC., NUTRITION & FORESTRY, AGRICULTURAL ACT OF 2014 (2014); SCHNEPF & STUBBS, *supra* note 46, at 15 n.43.

[128] *See, e.g.*, Jen Fifield, *Farmers Push Back Against Animal Welfare Laws*, PEW CHARITABLE TR. (Nov. 29, 2016), https://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2016/11/29/farmers-push-back-against-animal-welfare-laws (describing some of the ongoing legal conflicts between the agriculture industry, animal advocacy groups, and consumer demands across the U.S.).

[129] *E.g.*, JOHN R. WEIR ET AL., OKLA. COOPERATIVE EXTENSION SERV. E-1048, WILDFIRE: PREPARING THE RANCH AND FARM (July 2018) (outlining steps to prepare for wildfire, from simple and inexpensive to complex and costly).

systems, the transition period provides time to evaluate current farm conditions, decide which changes are most appropriate, and arrange financing or apply for grants.[130] The Farm Bill already provides many different grant options, and the USDA has other funding options as well.[131]

To begin, the existing LIP payment structure can be tied to a sunset provision in the 2023 Farm Bill.[132] Although sunset provisions in the U.S. often result in Congress reauthorizing the law as it approaches its expiration date,[133] climate change activists have used phase-out techniques to push for decreased use of fossil fuels while scaling up renewable alternatives.[134] A sunset provision places the burden of renewal on those who would keep the law active after the sunset date.[135] Phase-out periods signal to the impacted industry that a change in the law is coming.[136] As the industry moves towards compliance with the new regime, reverting back to the former system becomes increasingly unlikely.[137]

As the existing structure expires, the new model can be fully developed with input from stakeholders. Final lists of incentives, their relative increase to the overall reimbursement rate, and required best practices for subsequent LIP claims will require multidisciplinary collaboration

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[130] *See Overview: Farm Bill Programs and Grants*, NAT'L SUSTAINABLE AGRIC. COAL., https://sustainableagriculture.net/publications/grassrootsguide/farm-bill-programs-and-grants/ (last visited Mar. 15, 2022) (listing a variety of farm funding opportunities, including for conservation and sustainability projects).
[131] *Id.*; *Grants and Loans*, USDA, https://www.usda.gov/topics/farming/grants-and-loans (last visited May 7, 2022).
[132] *See* Chris Mooney, *A Short History of Sunsets*, LEGAL AFFAIRS (Jan./Feb. 2004), https://www.legalaffairs.org/issues/January-February-2004/story_mooney_janfeb04.msp (defining a sunset provision as a clause that results in a law "expir[ing] after a fixed number of years").
[133] *Id. Cf.* Sharon Bradford Franklin, *Rethinking Surveillance on the 20th Anniversary of the Patriot Act*, JUST SEC. (Oct. 26, 2021), https://www.justsecurity.org/78753/rethinking-surveillance-on-the-20th-anniversary-of-the-patriot-act/ (reviewing the history of congressional renewal of the Patriot Act as sunset clause end dates approached).
[134] *See End of Coal in Sight at COP26*, U.N. CLIMATE CHANGE (Nov. 4, 2021), https://unfccc.int/news/end-of-coal-in-sight-at-cop26 (outlining how countries and international financing organizations are using a phase-out technique to transition from coal to renewable energy).
[135] Kristen Underhill & Ian Ayres, *Sunsets Are for Suckers: An Experimental Test of Sunset Clauses*, 59 HARV. J. LEGIS. 101, 105 (2022).
[136] *Cf.* Cal. Exec. Order No. N-79-20 (Sept. 23, 2020) (ordering the phase-out of gasoline- and diesel-burning vehicles in California and setting out intermediate steps to develop the necessary infrastructure).
[137] *See, e.g.*, Lynn Wagner & Jennifer Allan, *The U.S. Has Exited the Paris Agreement. Does it Matter?*, INT'L INST. FOR SUSTAINABLE DEV. (Nov. 4, 2020), https://www.iisd.org/articles/us-has-exited-paris-agreement-does-it-matter (noting that "the energy transition will continue" in spite of the U.S. withdrawal from the Paris Agreement).

and must not be fully determined by the agriculture industry alone.[138] Once finalized, the new LIP model can be implemented, initially as an alternative to the current model. Farmers can choose which of the two models they would like to apply to their LIP claims, in much the way that the IRS allows taxpayers to take a standard or itemized federal deduction.[139] In time, as the existing model terminates, farmers would only be able to use the new model to reimburse livestock losses.

c. BENEFITS BEYOND SAVING LIVES

Beyond saving the lives of farmed animals, the new LIP model would have additional benefits.[140] Actions that keep farmed animals safe could save human lives too, as many people do not evacuate in a timely fashion because they are trying to save livestock or companion animals.[141] Farmers would be spared the financial and emotional toll of collecting and disposing of animal carcasses.[142] Carcasses and regular farm waste can be vectors of disease in the aftermath of a disaster, particularly when flooding occurs.[143] Limiting farmed animal deaths and generally preparing farms for disasters could reduce the spread of diseases.[144]

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[138] *Cf.* Gross, *supra* note 63 (explaining how the agriculture industry has successfully lobbied lawmakers to avoid accountability and oversight for environmental harms).
[139] 26 U.S.C. Subch. B.
[140] *See, e.g.*, King, *supra* note 99 (noting that the aftermath of natural disasters poses health and safety risks for clean-up crews and the people who live near CAFOs).
[141] Amy Quinton, *Protecting Animals When Disaster Strikes*, UC DAVIS (Aug. 2, 2021), https://www.ucdavis.edu/news/protecting-animals-when-disaster-strikes; *see also Animals in Disasters: Hearing Before the Subcomm. on Econ. Dev., Pub. Bldg., & Emergency Mgmt. of the H. Comm. on Transp. & Infrastructure*, 116th Cong. (2020)https://www.govinfo.gov/content/pkg/CHRG-116hhrg42576/html/CHRG-116hhrg42576.htm ("44% of those who failed to evacuate [during Hurricane Katrina] did so because they did not want to leave behind their pets").
[142] Claire Hamlett, *Climate Breakdown Is Killing Farmed Animals*, SURGE (Aug. 4, 2021), https://www.surgeactivism.org/articles/climate-breakdown-is-killing-farmed-animals.
[143] *Id.*; Hill, *supra* note 113; Leyland Cecco, *'Heartbreaking' Clean-up of Animal Corpses as Canada Floodwaters Ebb*, GUARDIAN (Dec. 3, 2021), https://www.theguardian.com/world/2021/dec/03/british-columbia-floods-animal-corpses-clean-up.
[144] Christine Navarre, *Potential Livestock Disease Problems Following Disasters*, LSU AGCENTER (Apr. 17, 2020), https://www.lsuagcenter.com/portals/communications/publications/publications_catalog/disaster%20information/disaster%20information%20resources%20series/crops_and_livestock_disaster_information_resources_series/potential-livestock-disease-problems-following-disasters.

Because factory farms have long externalized the true costs of their business practices, the new LIP model may look costly at first glance.[145] Preparing for disasters, upgrading facilities, and reconsidering industrial farming practices will require significant investment.[146] As with the transition to clean energy, modifying the LIP to save lives is about realigning government spending with shared values: treating all animals humanely, including those raised for meat, dairy, and eggs; reducing human and animal deaths, along with property loss, when disaster does strike; and spending government funds proactively to ensure food security, rather than spending funds retroactively on deaths outside of the food supply chain.[147]

The importance of food security as the entire world adapts to climate change cannot be overstated.[148] Historically marginalized and vulnerable groups are the most likely to face food insecurity and the least likely to be able to absorb market fluctuations related to climate change and other disasters.[149] As the COVID-19 pandemic showed us, supply chain interruptions can have significant impacts on the U.S. food system.[150] Global disruptions in the supply chain impact both consumers, who may face higher prices and shortages, and farmers, who may suffer

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[145] *See generally* DOUG GURIAN-SHERMAN, *Externalized Costs of CAFOs*, *in* CAFOS UNCOVERED: THE UNTOLD COSTS OF CONFINED ANIMAL FEEDING OPERATIONS (2008) (noting there are both quantified and unquantified costs associated with CAFOs, such as water, air, and land pollution; public health risks; and economic harm to nearby communities).

[146] *Animal Agriculture in a Changing Climate*, *supra* note 125. *Cf.* Timothy Luetkemeyer, *Fighting Climate Change in Post-Paris Agreement America: Reducing Livestock Emissions*, 94 DENV. L. REV. ONLINE 418 (2017) (proposing a methane tax that would be reinvested in agriculture).

[147] *Compare Extreme Weather*, *supra* note 82 (calculating that nearly $500 million has been spent on LIP from 2008–2021), *with Fossil Fuel Subsidies Prevent Transition to Renewable Energy Sources Finds New IISD Report*, INT'L INST. FOR SUSTAINABLE DEV. (Dec. 9, 2014), https://www.iisd.org/articles/press-release/fossil-fuel-subsidies-prevent-transition-renewable-energy-sources-finds-new (declaring that subsidizing fossil fuels "mean[s] that taxpayers are effectively paying to prevent a transition to a sustainable electricity sector").

[148] Liza Guerra Garcia, *"Free the Land": A Call for Local Governments to Address Climate-Induced Food Insecurity in Environmental Justice Communities*, 41 WM. MITCHELL L. REV. 572, 579–80 (2015).

[149] *Id.* at 594.

[150] Ying Chen, *Protecting the Right to Food in the Era of COVID-19 and Beyond*, 49 GA. J. INT'L & COMPAR. L. 1, 4, 8 (2021); Melissa Repko & Amelia Lucas, *The Meat Supply Chain Is Broken. Here's Why Shortages Are Likely to Last During the Coronavirus Pandemic*, CNBC (May 7, 2020), https://www.cnbc.com/2020/05/07/heres-why-meat-shortages-are-likely-to-last-during-the-pandemic.html.

economic losses if export restrictions are applied to meat, dairy, and eggs.[151] Global food insecurity is predicted to rise as global warming makes farming untenable in many places and natural disasters destroy crops and livestock.[152]

A final benefit of the new LIP model is that it counteracts climate change.[153] Agriculture contributes an estimated 14.5% of greenhouse gas emissions worldwide.[154] In the U.S., the agriculture industry contributes approximately 9% of domestic greenhouse gas emissions.[155] However, agriculture holds great potential as a carbon sink.[156] In particular, keeping grazing

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[151] Jamie Lutz & Caitlin Welsh, *High Prices, Empty Shelves*, CTR. FOR STRATEGIC & INT'L STUD. (Jan. 27, 2022), https://www.csis.org/analysis/high-prices-empty-shelves. *Compare USDA Outlines New Program at NMPF, USDEC Supply Chain Webinar*, U.S. DAIRY EXP. COUNCIL (Jan. 31, 2022), https://www.usdec.org/newsroom/news-releases/news-releases/news-release-1/31/2022-x15414 (discussing steps to alleviate supply chain issues for U.S. dairy products), *and* Joseph Balagtas & Joseph Cooper, *The Impact of Coronavirus COVID-19 on U.S. Meat and Livestock Markets*, USDA OFF. CHIEF ECONOMIST WORKING PAPER 11 (2021) (available at https://www.usda.gov/sites/default/files/documents/covid-impact-livestock-markets.pdf) (discussing the possible implications of export restrictions, although the U.S. did not implement such bans), *with Robust Overseas Demand for U.S. Meats, Led by Pork and Poultry, Drove Trade Surplus in 2020*, USDA ECON. RSCH. SERV. (last updated May 24, 2021), https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=101251 (detailing U.S. exports of beef, pork, and poultry), *and* Jennifer Whitlock, *'Egg-ceptional Poultry, Egg Exports so far in 2021*, TEX. FARM BUREAU (Sept. 16, 2021), https://texasfarmbureau.org/egg-ceptional-poultry-egg-exports-so-far-in-2021/ (reporting record high numbers for egg and poultry exports in early 2021).

[152] Chen, *supra* note 150, at 15–16; *see also* Christopher Flavelle, *Climate Change Threatens the World's Food Supply, United Nations Warns*, N.Y. TIMES, Aug. 8, 2019 (noting an expert's estimate that global warming above 2°C would place an additional 100 million people at risk of hunger).

[153] Jacqueline Mills, *Factory Farming: The Real Climate Culprit*, WORLD ANIMAL PROT. (Oct. 29, 2021), https://www.worldanimalprotection.org/blogs/factory-farming-real-climate-culprit; Moore & Van Bruggen, *supra* note 95, at 101.

[154] PIERRE GERBER ET AL., TACKLING CLIMATE CHANGE THROUGH LIVESTOCK: A GLOBAL ASSESSMENT OF EMISSIONS AND MITIGATION OPPORTUNITIES 15 (2013); *see also* Debra L. Donahue, *Livestock Production, Climate Change, and Human Health: Closing the Awareness Gap*, 45 ENV'T L. REP. NEWS & ANALYSIS 11112, 11113 (2015) (explaining that estimates typically vary from 14–18% of global greenhouse gas emissions).

[155] *Compare* Jan Suszkiw, *Study Clarifies U.S. Beef's Resource Use and Greenhouse Gas Emissions*, USDA AGRIC. RSCH. SERV. (Mar. 11, 2019), https://www.ars.usda.gov/news-events/news/research-news/2019/study-clarifies-us-beefs-resource-use-and-greenhouse-gas-emissions/ (stating that "general agriculture" accounts for 9% of U.S. greenhouse gas emissions), *with* Donald Stotts, *Carbon Sequestration: A Positive Aspect of Beef Cattle Grazing Grasslands*, OSU DIV. AGRIC. SCI. & NAT. RES., http://www.dasnr.okstate.edu/Members/donald-stotts-40okstate.edu/carbon-sequestration-a-positive-aspect-of-beef-cattle-grazing-grasslands (last visited Mar. 15, 2022) (citing an EPA estimate that the beef industry is responsible for 1.9% of greenhouse gas emissions in the U.S.), *and* Ag Future Podcast, *Livestock's Environmental Impact*, ALLTECH (July 27, 2020) (transcript available at https://www.alltech.com/podcast/dr-frank-mitloehner-livestocks-environmental-impact-misinformation-about-greenhouse-gases) (claiming 3% of U.S. greenhouse gas emissions are from beef and 2% are from dairy).

[156] WORLD SOC'Y FOR PROT. ANIMALS, *supra* note 125, at 5; Stotts, *supra* note 155; Carmen G. Gonzalez, *Climate Change, Food Security, and Agrobiodiversity: Toward a Just, Resilient, and Sustainable Food System*, 22 FORDHAM ENV'T L. REV. 493, 513–14 (2011).

lands as they are, instead of converting them to residential use or planting crops, allows the land to absorb and store more carbon than the activities on the land may emit.[157] Best practices in animal husbandry and land management could save lives and lessen agriculture's contribution to climate change.[158]

Many animal rights advocates and climate change activists have called for consumers to reduce or eliminate meat in their diets.[159] Such proposals at the federal government level have met strong resistance.[160] There have been top-down and bottom-up campaigns to encourage Americans to eat less meat, but the U.S. is still second in the world for per capita meat consumption.[161] More importantly, scientists are divided about the real impact meatless diets would have on climate change,[162] and some have raised significant concerns about the nutritional impact of such a shift.[163] Moving towards a safer and more humane farming system will require multiple strategies on both the demand and supply sides.[164] The proposed changes to the LIP represent one change on the supply side, shifting the existing program to better align with desired

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[157] Stotts, *supra* note 155.
[158] WORLD SOC'Y FOR PROT. ANIMALS, *supra* note 125, at 4; GERBER ET AL., *supra* note 154, at 48.
[159] Donahue, *supra* note 154, at 11123.
[160] Lauren Dezenski, *Here's the Beef with Dems' Climate Crisis Solutions*, CNN (Sept. 5, 2019), https://www.cnn.com/2019/09/05/politics/2020-democrats-beef-green-new-deal-climate-crisis/index.html.
[161] *About Meatless Monday*, MEATLESS MONDAY, https://www.mondaycampaigns.org/meatless-monday/about (last visited Mar. 15, 2022); U.S. DEP'T AGRIC. & U.S. DEP'T HEALTH & HUM. SERV., DIETARY GUIDELINES FOR AMERICANS, 2020-2025 34 (9th ed. Dec. 2020); Donahue, *supra* note 154, at 11117–18.
[162] *Compare* Frank Mitloehner, *What if the United States Stopped Eating Meat?*, CLARITY & LEADERSHIP FOR ENV'T AWARENESS & RSCH. UC DAVIS (Dec. 4, 2020), https://clear.ucdavis.edu/blog/what-if-united-states-stopped-eating-meat (claiming that if the U.S. stopped eating meat, U.S. greenhouse gas emissions would be reduced a mere 2.6%), *and* Robin R. White & Mary Beth Hall, *Nutritional and Greenhouse Gas Impacts of Removing Animals from US Agriculture*, 114 PROCEEDINGS NAT'L ACAD. SCI. E10301, E10306 (2017) (explaining the modeling process that resulted in the findings that Dr. Mitloehner cited), *with* Ker Than, *Replacing Animal Agriculture and Shifting to a Plant-based Diet Could Drastically Curb Greenhouse Gas Emissions, According to New Model*, STANFORD NEWS (Feb. 1, 2022), https://news.stanford.edu/2022/02/01/new-model-explores-link-animal-agriculture-climate-change/ (claiming that if the world phased out animal agriculture over the next 15 years, it would halt atmospheric increases of greenhouse gases for 30 years, "pausing" climate change).
[163] *Major Cuts of Greenhouse Gas Emissions from Livestock Within Reach*, FAO (Sept. 26, 2013), https://www.fao.org/news/story/en/item/197608/icode/; White & Hall, *supra* note 162, at E10303.
[164] Karimi, *supra* note 94, at 349; *see also* King, *supra* note 99 (suggesting consumers try a "reducetarian" approach if they are unable to completely eliminate animal products in their diet all at once).

outcomes—saving animals' lives, decreasing losses due to disasters, and mitigating climate change.

V. CONCLUSION

Following the 2019 flood, Ruzicka's community rallied to help him rebuild his farm.[165] The family considered leaving, but like many multi-generational farmers, they feel connected to the land despite the tragedy.[166] Ruzicka's response highlights an important factor in designing agricultural policy: market forces play a role but are rarely the only consideration in farmers' decisions. Those other considerations can be harnessed to implement the new LIP model.

First, the new model increases the reimbursement rate from 75% of an animal's market value to a possible 90%. The model includes simpler "incentives" that farms may already be practicing, such as adequate livestock identification, as well as long-term investments in structures and climate resiliency. Farmers will have the opportunity to increase their eligibility and test out the new model as the current LIP payment structure phases out.

Second, as Ruzicka's story illustrates, many farmers are committed to protecting their livestock in adverse weather events. Whether because of the economic loss or the emotional toll caused by the deaths of farmed animals, U.S. agriculture funding should reward actions that are humane and preserve the stability of the domestic food supply chain. Disposing of farmed animals upon their death is an additional emotional, environmental, and economic burden that is alleviated when preserving life is prioritized.

Finally, steps to preserve animals' lives also make farms more resilient to climate change and natural disasters. Farmers are uniquely positioned on the front lines of climate change, and their

[165] Neb. Farm Bureau, *Willard Ruzicka Thanks Donors to the NEFB Disaster Relief Fund*, FACEBOOK (Mar. 15, 2020), https://www.facebook.com/watch/?v=2600097260099397; *Operation Haylift*, *supra* note 1; Boyer, *supra* note 10.
[166] Magnuson & Duerig, *supra* note 20.

very livelihoods have already been impacted by the increase in adverse weather events. Any movement towards a resilient and more sustainable future—whether in the name of animal welfare, climate science, or good business—is a vital investment the government must make.