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Citations:

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George B. Frisvold, The U.S. Dairy Industry in the 20th & 21st Century, 16 J. FOOD L. & POL'y 197 (2020).

ALWD 6th ed.

Frisvold, G. B., The u.s. dairy industry in the 20th & 21st century, 16(2) J. Food L. & Pol'y 197 (2020).

APA 7th ed.

Frisvold, G. B. (2020). The u.s. dairy industry in the 20th & 21st century. Journal of Food Law and Policy, 16(2), 197-226.

Chicago 17th ed.

George B. Frisvold, "The U.S. Dairy Industry in the 20th & 21st Century," Journal of Food Law and Policy 16, no. 2 (Fall 2020): 197-226

McGill Guide 9th ed.

George B Frisvold, "The U.S. Dairy Industry in the 20th & 21st Century" (2020) 16:2 J Food L & Pol'y 197.

AGLC 4th ed.

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MLA 8th ed.

Frisvold, George B. "The U.S. Dairy Industry in the 20th & 21st Century." Journal of Food Law and Policy, vol. 16, no. 2, Fall 2020, p. 197-226. HeinOnline.

OSCOLA 4th ed.

George B Frisvold, 'The U.S. Dairy Industry in the 20th & 21st Century' (2020) 16 J Food L & Pol'y 197

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# **The U.S. Dairy Industry in the 20th & 21st Century**

George B. Frisvold\*

## **Abstract**

At the beginning of the 20th Century, the U.S. dairy industry was comprised of millions of small-scale operations producing for their own or for very local consumption. By the end of the 20th Century, the industry was dominated by large-scale producers marketing products via large cooperatives. Improvements in transportation, advances in animal breeding and feeding technologies, and scale economies have allowed the industry to be more competitive on global markets, where there is now active international trade in dairy products. Major government programs to support dairy farm income date back to Depression-era problems facing the industry. Federal programs to support dairy income led to recurring problems of overproduction. Programs initially instituted to protect dairy producers from oligopsony power of purchasers now have more questionable effects given industry concentration. Increased market concentration has led to ongoing antitrust scrutiny of the industry, while geographic concentration of production has raised concerns over water and air pollution. At the outset of the 21st Century, increased productivity has made the dairy industry less reliant on government programs and more reliant on global markets. Yet the industry faces many challenges: greater scrutiny over greenhouse gas emissions, secular declines in milk prices and U.S. per capita milk consumption, reduced viability of small-scale operations, and the rise of plant-based milk substitutes. Still, dairies and dairy products remain an important part of U.S. agriculture and U.S. household food consumption.

## **I. Introduction**

The U.S. dairy industry at the beginning of the 20<sup>th</sup> Century was characterized by diffuse production and geographically concentrated consumption.<sup>1</sup> By the end of the century, it was characterized by concentrated production, with nationally and

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<sup>1</sup> See M. R. Weimer & D. P. Blayney, *Landmarks in the U.S. Dairy Industry*, 694 AGRIC. INFORMATION BULL. 1, 3–4 (1994). The United States Department of Agriculture provides statistical data through the National Agricultural Statistics Service that may be access publicly online. See *generally Quick Stats*, NAT'L AGRIC. STAT. SERV., <https://quickstats.nass.usda.gov/> (last visited February 9, 2020).

globally diffused marketing for consumption.<sup>2</sup> Numerous technological advances enabled this transformation.<sup>3</sup> The federal and state governments have also actively intervened in U.S. dairy markets.<sup>4</sup> Many laws and programs enacted in response to income and market problems facing dairy producers at the beginning of the century and during the Great Depression remain in effect today.<sup>5</sup> Several critics have questioned the need for and value of such programs in light of modern market realities.<sup>6</sup> For example, government programs to raise dairy prices have led to waves of overproduction, which led to the slaughter of dairy herds.<sup>7</sup> As the industry became increasingly comprised of larger-scale producers and marketing cooperatives, it has faced ongoing antitrust scrutiny from the U.S. Department of Justice.<sup>8</sup> The rise of farm-level and geographical concentration has also presented problems of air and water pollution.<sup>9</sup>

At the outset of the 21st Century, increased productivity has made the dairy industry less reliant on government programs and more reliant on global markets.<sup>10</sup> Yet, the industry faces many challenges: greater scrutiny over greenhouse gas emissions, secular declines in milk prices and U.S. per capita milk consumption, reduced viability of small-scale operations, and the rise in plant-based milk substitutes.<sup>11</sup> Still, dairies and dairy products remain an

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<sup>2</sup> See Weimer & Blayney, *supra* note 1, at 5.

<sup>3</sup> See *id.*

<sup>4</sup> *Id.* at 17–18.

<sup>5</sup> ERIC M. ERBA & ANDREW M. NOVAKOVIC, THE EVOLUTION OF MILK PRICING AND GOVERNMENT INTERVENTION IN DAIRY MARKETS 14 (Cornell Program on Dairy Mkts. and Policy, EB 95-05, 1995).

<sup>6</sup> Robert T. Masson & Philip M. Eisenstat, *The Pricing Policies and Goals of Federal Milk Order Regulations: Time for Reevaluation*, 23 S.D. L. REV. 662, 663 (1978).

<sup>7</sup> See ERBA & NOVAKOVIC, *supra* note 5, at 13.

<sup>8</sup> See Masson & Eisenstat, *supra* note 6, at 674.

<sup>9</sup> JAMES M. MACDONALD ET AL., PROFITS, COSTS, AND THE CHANGING STRUCTURE OF DAIRY FARMING 31 (U. S. Dep't of Agric., Econ. Research Report No. 47, 2007).

<sup>10</sup> See DANIEL A. SUMNER, DAIRY POLICY PROGRESS: COMPLETING THE MOVE TO MARKETS 9 (2018).

<sup>11</sup> NIGEL KEY & STACY SNEERINGER, CARBON PRICES AND THE ADOPTION OF METHANE DIGESTERS ON DAIRY AND HOG FARMS 3–4, 8 (U.S. Dep't of Agric., Econ. Research Serv., Econ. Brief No. 16, 2011). Hyunok Lee & Daniel A. Sumner, *Dependence on Policy Revenue Poses Risks for Investments in Dairy Digesters*, 72 CAL. AGRIC. 226, 227 (2018). HAYDEN STEWART ET AL., WHY ARE AMERICANS CONSUMING LESS FLUID MILK? A LOOK AT GENERATIONAL DIFFERENCES IN INTAKE FREQUENCY, at i (U.S. Dep't of Agric., Econ. Research Serv., Rep. No. 149, 2013). HAYDEN STEWART AND JERRY CESSNA, LIVESTOCK, DAIRY AND POULTRY OUTLOOK: SPECIAL ARTICLE ON DIFFERENT TRAJECTORIES: A LOOK AT SALES OF COW'S MILK AND PLANT-BASED MILK ANALOGS 2 (U.S. Dep't of Agric., Econ. Research Serv., LDP-M-279 SA, 2017). JAMES M. MACDONALD ET AL., PROFITS, COSTS, AND THE CHANGING STRUCTURE OF DAIRY FARMING 31 (U. S. Dep't of Agric., Econ. Research Report No. 47, 2007).

important part of U.S. agriculture and U.S. household food consumption.<sup>12</sup>

## II. The U.S. Dairy Industry at the Beginning of the 20<sup>th</sup> Century

At the beginning of the 20<sup>th</sup> Century, households produced milk primarily for home consumption, while markets for milk were not yet well developed.<sup>13</sup> While most farms had cows, production was small-scale and diffuse.<sup>14</sup> By 1920, five million US farms had dairy cows (compared to 54 thousand today).<sup>15</sup> In 1930, 70% of US farms had dairy cows, yet sale of dairy products accounted for a relatively small share of farm household income.<sup>16</sup> Among all farms with cows, dairy sales accounted for more than 40% of total farm sales on only 14%.<sup>17</sup>

The scope for marketing dairy products increased with improvements in technology and infrastructure.<sup>18</sup> Refrigerated tanker cars allowed rail shipments of milk across longer distances, allowing transportation of milk from rural areas to fast-growing urban ones.<sup>19</sup> The introduction of trucks and improved roads gave producers greater flexibility and control in milk shipping.<sup>20</sup> Production of evaporated milk, processed cheese, and butter, which were less perishable than fluid milk, all became more widespread.<sup>21</sup> There was more scope for storing and marketing these processed products over greater distances.<sup>22</sup> But, after World War I, European demand for those U.S. dairy products that could be preserved and shipped more easily dropped, leading to falling dairy prices.<sup>23</sup>

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<sup>12</sup> M. SWEITZER ET AL., FOOD-AT-HOME EXPENDITURES: COMPARING COMMERCIAL HOUSEHOLD SCANNER DATA FROM IRI AND GOVERNMENT SURVEY DATA 16 (U.S. Dep't of Agric., Econ. Res. Serv., TB-1946, 2017). NAT'L AGRIC. STATISTICS SERV., U.S. DEP'T OF AGRICULTURE, ACH17-4, 2017 CENSUS OF AGRICULTURE HIGHLIGHTS: DAIRY CATTLE AND MILK PRODUCTION 1 (2019), [https://www.nass.usda.gov/Publications/Highlights/2019/2017Census\\_DairyCattle\\_and\\_Milk\\_Production.pdf](https://www.nass.usda.gov/Publications/Highlights/2019/2017Census_DairyCattle_and_Milk_Production.pdf).

<sup>13</sup> ERBA & NOVAKOVIC, *supra* note 5, at 1.

<sup>14</sup> See Weimer & Blayney, *supra* note 1, at 4.

<sup>15</sup> For historical numbers, see *id.* at 3. For current numbers, see *Quick Stats*, *supra* note 1.

<sup>16</sup> Weimer & Blayney, *supra* note 1, at 4.

<sup>17</sup> *Id.*

<sup>18</sup> See ERBA & NOVAKOVIC, *supra* note 5, at 1–2.

<sup>19</sup> *Id.* at 1.

<sup>20</sup> *Id.*

<sup>21</sup> See Weimer & Blayney, *supra* note 1, at 7–8.

<sup>22</sup> ERBA & NOVAKOVIC, *supra* note 5, at 1 and 4.

<sup>23</sup> *Id.* at 4.

Moreover, many barriers remained to permit orderly marketing of milk.<sup>24</sup> First, farm households lacked many basic resources: only 58% had cars, 25% had telephones, and 33% had electricity.<sup>25</sup> Few farms then had refrigeration.<sup>26</sup> Fluid milk is produced daily on dairies.<sup>27</sup> Yet, it is highly perishable even with refrigeration (which most farms still lacked).<sup>28</sup> Without phones, it was difficult for farmers to find and negotiate with buyers.<sup>29</sup> Prices were based on weight and butterfat content, but farmers could not know if their milk that was shipped more distantly was being weighed and tested fairly by milk purchasers.<sup>30</sup> On the other side, handlers were not assured the milk they contracted for in advance was not soured or tainted.<sup>31</sup>

Fluid milk was bulky and difficult to transport over long distances.<sup>32</sup> It is also highly perishable, greatly limiting the space and time over which it may be transported and consumed.<sup>33</sup> In urban centers, there were a relatively small number of large milk buyers (called handlers) purchasing milk from a large number of small, unorganized producers.<sup>34</sup> This market structure gave handlers oligopsony power to push down milk purchase prices below competitive levels.<sup>35</sup>

To countervail this oligopsony power, dairy producers began to organize collectively in cooperatives to bargain over the prices of dairy products they received.<sup>36</sup> Handlers countered this collective action in court, arguing that such explicit cooperation by sellers violated the Sherman Antitrust Act of 1890.<sup>37</sup> The Clayton Act of 1914<sup>38</sup> explicitly exempted non-stock agricultural associations from antitrust laws, but did not address some of the vague wording of the Sherman Act that left the status of cooperative marketing

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<sup>24</sup> Masson & Eisenstat, *supra* note 6, at 668–69.

<sup>25</sup> MARYANNA S. SMITH & DENNIS M. ROTH, CHRONOLOGICAL LANDMARKS IN AMERICAN AGRICULTURE 63 (U.S. Dep't of Agric., Agric. Info. Bulletin No. 425, 1990).

<sup>26</sup> Weimer & Blayney, *supra* note 1, at 3.

<sup>27</sup> SUMNER, *supra* note 10, at 5.

<sup>28</sup> *Id.*; see Masson & Eisenstat, *supra* note 6, at 670.

<sup>29</sup> See Masson & Eisenstat, *supra* note 6, at 670.

<sup>30</sup> *Id.*

<sup>31</sup> *Id.*

<sup>32</sup> *Id.*

<sup>33</sup> *Id.*; see SUMNER, *supra* note 10, at 5.

<sup>34</sup> ERBA & NOVAKOVIC, *supra* note 5, at 2.

<sup>35</sup> See Masson & Eisenstat, *supra* note 6, at 670.

<sup>36</sup> ERBA & NOVAKOVIC, *supra* note 5, at 2.

<sup>37</sup> See Sherman Antitrust Act of 1890, 15 U.S.C. §§ 1–38 (2019); see ERBA & NOVAKOVIC, *supra* note 5, at 2.

<sup>38</sup> Clayton Act of 1914, 15 U.S.C. §§ 12–27, 29 U.S.C. § 52 (2019).

associations ambiguous.<sup>39</sup> To partially address this ambiguity, Congress annually passed “riders” on appropriations for the Department of Justice, prohibiting it from prosecuting cooperating farmers.<sup>40</sup> Dairy producers began organizing large-scale “milk strikes” withholding milk to cities.<sup>41</sup>

To address these ongoing issues, the 1922 Capper-Volstead Act<sup>42</sup> allowed farmers limited exemptions from antitrust controls of the Clayton and Sherman Antitrust Act, allowing them to organize to collectively set product prices.<sup>43</sup> Passage of Capper-Volstead was controversial at the time, with concerns that the antitrust exemption would give dairy cooperative marketing associations too much power to raise prices, at the expense of consumers.<sup>44</sup> Senator Atlee Pomerene of Ohio argued, “There is nothing in this bill to prevent a combination of men who are dealing in food products – and I refer to the dairymen – from getting the most exorbitant prices, and doing so at the expense of the babes of the country.”<sup>45</sup> Capper-Volstead prohibited “undue price enhancement” by cooperatives, but did not specify what constituted “undue.”<sup>46</sup> Further, authority to monitor and temper agricultural cooperative pricing behavior was given to the U.S. Department of Agriculture (USDA) rather than the Department of Justice.<sup>47</sup> USDA was perceived at the time to be more sympathetic to farm interests (and less likely to restrict their behavior).<sup>48</sup>

In the 1930s, while court decisions restricted cooperatives from interstate marketing of dairy products, courts tended to uphold cooperative intrastate marketing.<sup>49</sup> California, a major dairy state, adopted an intrastate marketing organization in the early 1930s, which is still in effect today.<sup>50</sup> Despite Capper-Volstead, cooperative marketing associations were largely unsuccessful in raising dairy product prices, for two reasons.<sup>51</sup> First, because milk is highly perishable, its value falls dramatically over a short time.<sup>52</sup> The threat by dairies of withholding milk supplies was less credible than for

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<sup>39</sup> James L. Guth, *Farmer Monopolies, Cooperatives, and the Intent of Congress: Origins of the Capper-Volstead Act*, 56 AGRIC. HIST. 67, 68 (1982).

<sup>40</sup> *Id.*

<sup>41</sup> *Id.*

<sup>42</sup> Capper-Volstead Act, 7 U.S.C. §§ 291–92 (2020).

<sup>43</sup> *Id.*; see Guth, *supra* note 36, at 82.

<sup>44</sup> Guth, *supra* note 36, at 75.

<sup>45</sup> *Id.* at 78.

<sup>46</sup> 7 U.S.C. § 292.

<sup>47</sup> Guth, *supra* note 36, at 82.

<sup>48</sup> *See id.*

<sup>49</sup> ERBA & NOVAKOVIC, *supra* note 5, at 7.

<sup>50</sup> *Id.*

<sup>51</sup> *See* ERBA & NOVAKOVIC, *supra* note 5, at 5.

<sup>52</sup> *See id.* at 3.

more easily storable agricultural commodities.<sup>53</sup> Second, because the associations were voluntary, producers were not compelled to join them, and those not in associations often sold into the urban markets (acting as "strikebreakers").<sup>54</sup>

In the wake of the Great Depression, the Agricultural Adjustment Act of 1933 (AAA) was passed, giving the Secretary of Agriculture authority to impose production controls to reduce commodity surpluses and raise prices.<sup>55</sup> The AAA provided for the establishment of marketing orders.<sup>56</sup> Unlike cooperative associations, marketing orders had aspects of mandatory compulsion.<sup>57</sup> Growers within a designated region could vote on whether to form a marketing order, with the referenda requiring a super-majority to assent.<sup>58</sup> Once approved by the Secretary of Agriculture, however, the rules of the order applied to all producers in the region.<sup>59</sup> Thus, producers were no longer able to free ride and undercut arrangements negotiated by the order.

In 1935, however, the U.S. Supreme Court ruled that the National Industrial Recover Act was an unconstitutional delegation of power.<sup>60</sup> The AAA was amended in 1935 to address the Court's ruling, but in 1936 the Supreme Court ruled that the 1935 AAA violated the Tenth Amendment of the U.S. Constitution.<sup>61</sup> To address the Court's ruling, Congress passed the Agricultural Marketing and Agreement Act of 1937 (AMAA), which among other things specified the Secretary's powers over establishment and enforcement of marketing orders more clearly.<sup>62</sup> The AMAA also brought all handlers (buyer processors) in an approved marketing order area under the authority of the order.<sup>63</sup> Minimum prices for different types of dairy products were set for all handlers in an order.<sup>64</sup>

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<sup>53</sup> See ERBA & NOVAKOVIC, *supra* note 5, at 2. Swantz, Alexander. "How we came to have federal milk marketing orders: What they are and what they do." *Journal of Dairy Science* 45, no. 11 (1962): 1397-1402, at 1398.

<sup>54</sup> *Id.* at 5.

<sup>55</sup> See Paul L. Murphy, *The New Deal Agricultural Program and the Constitution*, 29 AGRIC. HIST. 160, 160-69 (1955).

<sup>56</sup> *Id.* at 161.

<sup>57</sup> See *id.* at 160-62.

<sup>58</sup> See *id.*

<sup>59</sup> See *id.*

<sup>60</sup> *Schechter Poultry Co. v. U.S.*, 295 U.S. 495, 550-51 (1935); Murphy, *supra* note 51, at 160.

<sup>61</sup> *United States v. Butler*, 297 U.S. 1, 77-78 (1936); Murphy, *supra* note 51, at 160-61.

<sup>62</sup> Agricultural Marketing Agreement Act of 1937, Pub. L. No. 75-137, 50 Stat. 246 (codified as amended in scattered sections of 7 U.S.C.); Murphy, *supra* note 51, at 163.

<sup>63</sup> Agricultural Marketing Agreement Act of 1937, Pub. L. No. 75-137, 50 Stat. 246; see Murphy, *supra* note 51, at 163-64.

<sup>64</sup> See Murphy, *supra* note 51, at 163.

When some processors refused to pay assessments under and order, the United States filed a complaint against them in October 27, 1938.<sup>65</sup> The processors countered that the marketing order and the AMAA of 1937 was unconstitutional, infringing on their Fifth Amendment rights to due process, their property rights under the Fourth Amendment, and on rights reserved only for states under the Tenth Amendment.<sup>66</sup> The District Court concurred, and the United States appealed to the U.S. Supreme Court.<sup>67</sup> The Court upheld both the AMAA and the Milk Order in a 5 to 4 decision, citing both Congress' authority to regulate economic activity through the Interstate Commerce Clause and under its power to authorize regulatory powers it deemed necessary, even if this granted powers to the Executive Branch (i.e., the Secretary of Agriculture).<sup>68</sup>

The AMAA and subsequent legislation in the 1940s solidified key aspects of U.S. dairy policy.<sup>69</sup> These included:

- Establishment of Federal Milk Marketing Orders (FMMO) across different regions and states;<sup>70</sup> the FMMOs allowed dairy producers to coordinate to increase their sales revenue;<sup>71</sup>
- Government price supports for dairy products carried out by direct government purchases of dairy products;<sup>72</sup>
- Dairy product import controls;<sup>73</sup>
- Disposal of "surplus" dairy products by channeling them to foreign relief, the School Lunch Program, and other outlets.<sup>74</sup>

The Steagall Amendment of 1941 established a support price for dairy products promoted by government purchases of butter (which could be stored).<sup>75</sup> Under the Agricultural Act of 1949, government purchases of dairy products to support farm income was

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<sup>65</sup> *United States v. Rock Royal Cooperative, Inc.*, 307 U.S. 533, 540 (1939); see 9 NEIL E. HARL & CHARLES F. CURTISS, *AGRICULTURAL LAW* § 70.01[3] (2007).

<sup>66</sup> *Rock Royal Cooperative, Inc.*, 307 U.S. at 541, 568; see HARL & CURTISS, *supra* note 61, at § 70.01[3].

<sup>67</sup> HARL & CURTISS, *supra* note 61, at § 70.01[3]; see *Rock Royal Cooperative, Inc.*, 307 U.S. at 539–41.

<sup>68</sup> *Rock Royal Cooperative, Inc.*, 307 U.S. at 568–71, 577–78; see HARL & CURTISS, *supra* note 61, at § 70.01[3].

<sup>69</sup> See generally SUMNER, *supra* note 10.

<sup>70</sup> *Id.* at 8, 10.

<sup>71</sup> *Id.*

<sup>72</sup> *Id.* at 8–9.

<sup>73</sup> *Id.*

<sup>74</sup> *Id.*

<sup>75</sup> ERBA & NOVAKOVIC, *supra* note 5, at 8.



formalized as a central policy.<sup>76</sup> Section 22 of the original, 1933 AMAA included provisions for import controls.<sup>77</sup> These were first applied with implementation of the Trade Agreements Extension Act of 1951.<sup>78</sup> Imported products were typically limited to 3% or less of U.S. milk production.<sup>79</sup> Import restrictions were another means to maintain the government support price.<sup>80</sup>

These policies sought to address a host of problems facing dairy farming in particular, and U.S. agriculture in general, in the 1930s. First, there were certain aspects of agriculture that led to what was called “the farm problem.”<sup>81</sup> Both the demand and supply of dairy products was inelastic – both consumption and production changed relatively little in response to changes in market prices.<sup>82</sup> Related to this feature, small changes in consumer demand or production could cause large fluctuations in milk prices.<sup>83</sup> Next, demand for dairy products was growing slowly, while technological innovations were causing supply to increase faster.<sup>84</sup> As production outstripped demand, this placed downward pressure on prices.<sup>85</sup> A related problem was what Cochrane called the “agricultural treadmill.”<sup>86</sup> Farmers adopting cost-reducing technologies or improved practices could sell at lower prices than non-adopters.<sup>87</sup> This downward price pressure induced other operators to adopt cost-cutting technologies and practices in order to survive in the market.<sup>88</sup> This, in turn, increased supply further, starting another cycle of price reductions.<sup>89</sup>

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<sup>76</sup> *Id.*

<sup>77</sup> *Id.* at 9.

<sup>78</sup> *Id.*

<sup>79</sup> *Id.*

<sup>80</sup> *See id.*

<sup>81</sup> John M. Crespi & Richard J. Sexton, *Concurrence, Coopératives de Producteurs et Marketing Orders aux États-Unis [Competition, U.S. Farmer Cooperatives, and Marketing Orders]*, 277–78 *ÉCONOMIE RURALE* 135, 135 (2003) (Fr.), *English translation available in RESEARCHGATE*, [https://www.researchgate.net/publication/289527129\\_Crespi-Sexton-EconRurale-ENGLISH](https://www.researchgate.net/publication/289527129_Crespi-Sexton-EconRurale-ENGLISH); Bruce L. Gardner, *Changing Economic Perspectives on the Farm Problem*, 30 *J. ECON. LITERATURE* 62, 62 (1992).

<sup>82</sup> Gardner, *supra* note 77, at 63.

<sup>83</sup> *Id.*

<sup>84</sup> *Id.*

<sup>85</sup> *Id.*

<sup>86</sup> WILLARD W. COCHRANE, *FARM PRICES: MYTH AND REALITY* 96–97 (1958).

<sup>87</sup> *See id.* at 95.

<sup>88</sup> *Id.* at 96.

<sup>89</sup> *Id.* at 95.

Marketing orders and dairy cooperatives were also supposed to address the oligopsony power of milk handlers.<sup>90</sup> Collective action by dairy producers was intended to provide countervailing power to such buyer market power.<sup>91</sup> Economic theory suggests that buyers who exercise oligopsony power restrict purchases and lower prices for the inputs they purchase.<sup>92</sup> In the case of milk, this would lead to lower prices dairies received for milk and lower volumes of milk purchased.<sup>93</sup> This latter would also reduce the supply of milk available to final consumers.<sup>94</sup> Theory also suggests that if sellers coordinate action in this type of market, they can increase both the price they receive and sales.<sup>95</sup> This raises both overall economic welfare and benefits final milk consumers because greater production lowers consumer prices.<sup>96</sup> While the 1937 Act established programs to raise dairy farm income, policies to raise farm prices were to, “be in the public interest.”<sup>97</sup>

Finally, the marketing orders were intended to use coordination to overcome a host of communication, transportation, and technological impediments to marketing milk.<sup>98</sup> An explicit goal of legislation was to promote “orderly marketing” of products.<sup>99</sup>

Further, dairy legislation was drafted in the context of rural poverty and nutrition concerns during the Great Depression.<sup>100</sup> For example, there was concern that if a large share of dairy operations went out of production, it would take years to rebuild production capacity.<sup>101</sup> This would lead to price spikes later, once consumer demand recovered.<sup>102</sup> But, such price spikes would harm consumers. Further, rural poverty (as illustrated by popular literature such as Steinbeck’s *The Grapes of Wrath* and by Dorothea Lange’s iconic photographs of the rural poor for the Farm Security Administration) was a major macroeconomic problem.<sup>103</sup> Then, a large share of the

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<sup>90</sup> David L. Baumer et al., *Curdling the Competition: An Economic and Legal Analysis of the Antitrust Exemption for Agriculture*, 31 VILL. L. REV. 183, 185 (1986).

<sup>91</sup> *Id.* at 185 & n.8.

<sup>92</sup> *Id.* at 197 & n.46.

<sup>93</sup> *See id.*

<sup>94</sup> *Id.* at 198.

<sup>95</sup> *Id.* at 196; see Roger D. Blair et al., *A Pedagogical Treatment of Bilateral Monopoly*, 55 S. ECON. J. 831, 831–41 (1989).

<sup>96</sup> Baumer et al., *supra* note 86, at 198.

<sup>97</sup> Masson & Eisenstat, *supra* note 6, at 662–63.

<sup>98</sup> *See id.* at 670.

<sup>99</sup> *Id.* at 662.

<sup>100</sup> *See id.* at 678.

<sup>101</sup> *Id.*

<sup>102</sup> *Id.*

<sup>103</sup> *See generally* SUSAN LEVINE, SCHOOL LUNCH POLITICS: THE SURPRISING HISTORY OF AMERICA’S FAVORITE WELFARE PROGRAM 40, 46 (2008).

U.S. population still resided on farms.<sup>104</sup> A motivation of providing milk for the School Lunch Program and dairy products as foreign aid, aside from supporting farm income, was to improve nutrition of low-income, vulnerable populations.<sup>105</sup>

### III. The Dairy Industry in the Latter Half of the 20<sup>th</sup> Century

Throughout the latter half of the 20<sup>th</sup> Century, the dairy industry and federal dairy policy faced several challenges. While the USDA intervened significantly to increase dairy prices, these myriad market interventions often had unintended negative consequences, which led to a cascade of new interventions (with their own contradictions).<sup>106</sup> Protected from antitrust limits by the Capper-Volstead Act, and encouraged by economies of scale, dairies and marketing cooperatives grew larger and larger.<sup>107</sup> Various tactics by large cooperatives to increase their market power led to greater Justice Department scrutiny and initiatives to limit what was characterized as their anti-competitive behavior.<sup>108</sup> This has raised various legal questions about the appropriate limits of cooperative and marketing order behavior under Capper-Volstead.<sup>109</sup> Finally, programs to “dispose of” surplus milk via foreign aid and federal nutrition programs sought to simultaneously (a) raise farm income and (b) improve nutrition of the economically vulnerable.<sup>110</sup> Some commentators began to question whether the farm income support goal of these programs was promoted at the expense of nutrition and anti-poverty goals.<sup>111</sup>

#### *A. Difficulties Maintaining Federal Price Supports*

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<sup>104</sup> See U.S. DEP'T OF COMMERCE, BUREAU OF THE CENSUS, ANALYZING THE SMALL CITY AND RURAL MARKET AREA 3 (1933).

<sup>105</sup> LEVINE, *supra* note 99, at 46.

<sup>106</sup> *Id.* at 46; E. Dale Odom, *Associated Milk Producers, Incorporated: Testing the Limits of Capper-Volstead*, 59 AGRIC. HIST. 40, 46 nn. 10–11 (1985).

<sup>107</sup> See Odom, *supra* note 102, at 47–48.

<sup>108</sup> *Id.* at 50.

<sup>109</sup> *Id.* at 52–53.

<sup>110</sup> LEVINE, *supra* note 99, at 46.

<sup>111</sup> J. Amy Dillard, *Sloppy Joe, Slop, Sloppy Joe: How USDA Commodities Dumping Ruined the National School Lunch Program*, 87 OR. L. REV. 221, 223 (2008); Michael T. Belongia, *The Dairy Price Support Program: A Study of Misdirected Economic Incentives*, 66 FED. RES. BANK ST. LOUIS REV. 5, 14 (1984); see Michael Correll, *Getting Fat on Government Cheese: The Connection Between Social Welfare Participation, Gender, and Obesity in America*, 18 DUKE J. GENDER L. & POL'Y 45, 46 (2010).

The Agriculture Act of 1949 established the Milk Price Support Program (MPSP).<sup>112</sup> Under the MPSP, USDA would purchase less perishable dairy products, such as cheddar cheese, nonfat dry milk, and butter at a pre-determined, government set price.<sup>113</sup> USDA would commit to purchasing as much of these products as the dairy industry could supply at these support prices.<sup>114</sup> The law also required the Secretary of Agriculture to set a minimum price support for fluid milk as well as these manufactured dairy products.<sup>115</sup> Because fluid milk is an input into manufactured dairy products, government purchases of manufactured products bid up the price of milk.<sup>116</sup> The MPSP did not, however, place any limits on the quantity of milk that dairies could produce.<sup>117</sup>

The intention of the program was to take dairy products off the market in times when prices were low and then make them available when prices recovered.<sup>118</sup> The government sent nonfat dry milk abroad as food aid through Food for Peace programs.<sup>119</sup> Some cheddar cheese and butter was distributed to the School Lunch Program, by other federal nutrition programs, by Veterans Administration hospitals, and by federal prisons.<sup>120</sup> The rest was stored in warehouses or underground caverns.<sup>121</sup>

The post-World War II period saw a series of technological innovations that reduced the costs of dairy production.<sup>122</sup> In the 1950s, producers began adopting antibiotics and sulfa drugs to combat mastitis and other diseases.<sup>123</sup> This increased milk production per cow.<sup>124</sup> The use of mathematical linear programming techniques allowed researchers to develop least-cost feed rations.<sup>125</sup> Use of mainframe computers in the 1960s made it easier for feed companies

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<sup>112</sup> Katherine Lacy et al., *Government Cheese: A Case Study of Price Supports*, 2 APPLIED ECON. TEACHING RESOURCES 14, 17 (2020).

<sup>113</sup> *Id.*

<sup>114</sup> *See id.*

<sup>115</sup> *Id.*

<sup>116</sup> *See* CONG. BUDGET OFFICE, CBO-42-823, CONSEQUENCES OF DAIRY PRICE SUPPORT POLICY 15 (1979).

<sup>117</sup> Lacy et al., *supra* note 108, at 17; *see* Jeffrey LaFrance & Harry de Gorter, *Regulation in a Dynamic Market: The U.S. Dairy Industry*, 67 AM. J. AGRIC. ECON. 821, 821-32 (1985).

<sup>118</sup> *See* CONG. BUDGET OFFICE, *supra* note 112, at 22-24.

<sup>119</sup> *See* Seth King, *Dairy Support Prices to Increase on April 1*, N.Y. TIMES, Mar. 12, 1978, at 19.

<sup>120</sup> *See* Lacy et al., *supra* note 108, at 20.

<sup>121</sup> *See id.*

<sup>122</sup> Weimer & Blayney, *supra* note 1, at 10-11

<sup>123</sup> Weimer & Blayney, *supra* note 1, at 4.

<sup>124</sup> Weimer & Blayney, *supra* note 1, at 4.

<sup>125</sup> *See* I. Katzman, *Solving Feed Problems Through Linear Programming*, 28 J. FARM ECON. 420, 420 (1956).

and Cooperative Extension to quickly develop and disseminate information about these least-cost rations.<sup>126</sup> By the late 1970s, artificial insemination was widely used for dairy cow breeding.<sup>127</sup> These innovations all acted to push down costs and increase supplies of dairy products.<sup>128</sup> These growing supplies made it more difficult for the government to support prices above market levels.<sup>129</sup>

Government price supports were trimmed in the Nixon and Ford administrations under the tenure of Secretary of Agriculture, Earl Butz.<sup>130</sup> In attempts to control inflation in the early 1970s, the Nixon Administration relaxed certain dairy product import quotas.<sup>131</sup> Increased imports and expansion of domestic production led to subsequent price collapses.<sup>132</sup> In response, farmers lobbied Congress and pushed 1976 presidential candidates for more government support.<sup>133</sup> Newly-elected President Carter signed the Food and Agricultural Act of 1977, which increased the milk support price by 11% in 1978 and another 14% in 1979.<sup>134</sup>

With guaranteed higher prices, dairy production expanded, inducing the USDA to stockpile even more products to support prices.<sup>135</sup> Each year, though, dairies had an economic incentive to over-produce, which only increased government acquisitions further to support prices.<sup>136</sup> Dairies produced 10% more milk per year than the private market demanded at support prices.<sup>137</sup> From 1977 to 1981 alone, the USDA bought up and stored more than 560 million pounds of cheddar cheese alone.<sup>138</sup> Government dairy program spending rose above \$2 billion per year.<sup>139</sup> By 1981, government stocks of dairy products were growing by 20 million pounds per week.<sup>140</sup> The Reagan Administration attempted to reign in dairy program spending

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<sup>126</sup> See generally *id.*

<sup>127</sup> Weimer & Blayney, *supra* note 1, at 5.

<sup>128</sup> Weimer & Blayney, *supra* note 1, at 4-5, 10.

<sup>129</sup> Katherine Lacy et al., *Government Cheese: A Case Study of Price Supports*, 2 APPLIED ECON. TEACHING RESOURCES 14, 17 (2020). de Goiter, H., Nielson, D. J., & Rausser, G. C. (1995). The determination of technology and commodity policy in the US dairy industry. In GATT Negotiations and the Political Economy of Policy Reform (pp. 253-274). Springer, Berlin, Heidelberg.

<sup>130</sup> See ERBA & NOVAKOVIC, *supra* note 5, at 11-12.

<sup>131</sup> *Id.* at 12.

<sup>132</sup> See *id.*

<sup>133</sup> See *id.* at 19.

<sup>134</sup> See *id.* at 12.

<sup>135</sup> Lacy et al., *supra* note 108, at 18.

<sup>136</sup> See *id.* at 17-22.

<sup>137</sup> See *id.* at 21.

<sup>138</sup> See *id.* at 14.

<sup>139</sup> ERBA & NOVAKOVIC, *supra* note 5, at 13; Lacy et al., *supra* note 108, at 20.

<sup>140</sup> Associated Press, *A Big Dairy Surplus Grows, So Do U.S. Wishes to Shed It*, N.Y. TIMES, Oct. 4, 1981, at 74; Lacy et al., *supra* note 108, at 20.

and accumulation of dairy product stocks, without much success initially.<sup>141</sup> The 1981 Agriculture and Food Act, slowed the rate of support price increases.<sup>142</sup> The Administration authorized the release of what became known as “government cheese” – stockpiled cheese distributed to low-income people via food banks, food pantries, and other non-profit organizations.<sup>143</sup> Yet, because dairies could sell to the government at high prices, supply continued to expand as producers adopted output-expanding technologies and practices.<sup>144</sup> Stocks continued to accumulate.<sup>145</sup>

The 1983 Dairy Production Stabilization Act established the Milk Diversion Program (MDP) to control the supply of milk.<sup>146</sup> The federal government offered dairy farmers \$10-per-hundredweight to reduce their sales below their historical production.<sup>147</sup> More than 2 billion pounds of these reductions, however, were only “air” as many producers had already reduced their production prior to signing contracts.<sup>148</sup> Thus, a significant portion of program funds went to producers who were planning to reduce their production anyway. There was further slippage as dairy producers who did not sign up for the MDP increased *their* production.<sup>149</sup> Total U.S. milk production increased to record levels, again triggering even more government dairy purchases.<sup>150</sup>

The Dairy Production Stabilization Act did, however, set in place reductions in the support price.<sup>151</sup> The USDA also instituted the Dairy Termination Program (DTP) to control supplies.<sup>152</sup> Under the DTP, the federal government bought out entire dairy herds, with farmers committing to forego dairying for five years.<sup>153</sup> The government slaughtered or exported animals from purchased herds.<sup>154</sup> Operating from April, 1986 to September 1987, the program cost more than \$1.8 billion,<sup>155</sup> with more than 1.4 million animal

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<sup>141</sup> See Lacy et al., *supra* note 108, at 20–21.

<sup>142</sup> *Id.* at 21; see ERBA & NOVAKOVIC, *supra* note 5, at 13.

<sup>143</sup> Lacy et al., *supra* note 108, at 21.

<sup>144</sup> See Associated Press, *Surplus Cheese Goes to Poor as President Signs Farm Bill*, N.Y. TIMES, Dec. 23, 1981, at 12.

<sup>145</sup> See Lacy et al., *supra* note 108, at 21.

<sup>146</sup> ERBA & NOVAKOVIC, *supra* note 5, at 13.

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

<sup>148</sup> *Id.* at 14.

<sup>149</sup> *Id.*

<sup>150</sup> *Id.*

<sup>151</sup> *Id.*

<sup>152</sup> ERBA & NOVAKOVIC, *supra* note 5, at 15.

<sup>153</sup> *Id.*

<sup>154</sup> HARRY KAISER & ANDREW NOVAKOVIC, RESULTS OF THE DAIRY TERMINATION PROGRAM AND IMPLICATIONS FOR NEW YORK MILK PRODUCTION I (Cornell Univ. Dep’t of Agric. Econ. Ser. No. A.E. Ext. 86-20, 1986).

<sup>155</sup> *Id.*

slaughtered.<sup>156</sup> Originally authorized under the Food Security Act of 1985,<sup>157</sup> the Dairy Export Incentive Program provided subsidies to exporters shipping dairy products abroad.<sup>158</sup> The Dairy Production Stabilization Act<sup>159</sup> also created the National Dairy Board (NDB), which from 1984 to 1987 spent more than \$100 million in television and radio advertising to promote dairy products.<sup>160</sup> There is some evidence that the advertising and promotional programs succeeded in increasing the demand for milk.<sup>161</sup> Through this combination of reduced price supports, export subsidies, increased demand via advertising, and animal slaughter, dairy over-supply problems began to ebb.<sup>162</sup> USDA stocks of dairy products began to fall steadily starting in 1984.<sup>163</sup>

Since the late 1980s, structural and technological change in the U.S. industry has dramatically reduced the cost of U.S. production.<sup>164</sup> This had the effect of making U.S. products more competitive on global markets.<sup>165</sup> The early 1980s were characterized by U.S. export subsidies and tight import restrictions keeping competing products out of U.S. markets.<sup>166</sup> As U.S. production became more competitive, world prices rather than government support prices served as a price floor for U.S. dairy commodities.<sup>167</sup> By the 1990s, government support prices were rarely in effect.<sup>168</sup> The 2014 Farm Bill (Agricultural Act of 2014) eliminated price supports and export subsidies altogether.<sup>169</sup> The U.S. still has what Sumner has called a “mind-boggling array of TRQ regulations.”<sup>170</sup> TRQs (tariff rate quotas) essentially act as import quotas, and the United States still maintains many of these for dairy products.<sup>171</sup> Yet, Sumner has assessed these have relatively little

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<sup>156</sup> John M. Marsh, *The Effects of the Dairy Termination Program on Live Cattle and Wholesale Beef Prices*, 70 AM. J. AGRIC. ECON. 919, 919 (1998).

<sup>157</sup> 15 U.S.C. § 713a-14 (1985) (repealed 2014).

<sup>158</sup> *Id.*

<sup>159</sup> 7 U.S.C. §§ 4501-14.

<sup>160</sup> *Id.*; Lacy et al., *supra* note 108, at 9.

<sup>161</sup> Ronald W. Ward & Bruce L. Dixon, *Effectiveness of Fluid Milk Advertising since the Dairy and Tobacco Adjustment Act of 1983*, 71 AM. J. AGRIC. ECON. 730, 738-39 (1989).

<sup>162</sup> See Lacy et al., *supra* note 108, at 9.

<sup>163</sup> *Id.* at 6 fig.5, 9.

<sup>164</sup> J. CESSNA ET AL., GROWTH OF U.S. DAIRY EXPORTS: REPORT FROM THE ECONOMIC RESEARCH SERVICE 10 (U.S. Dep't of Agric., Econ. Res. Serv. Ser. No. LDPM-270-01, 2016); see SUMNER, *supra* note 10, at 1, 7-9.

<sup>165</sup> SUMNER, *supra* note 10, at 9.

<sup>166</sup> *Id.* at 8.

<sup>167</sup> See *id.* at 9-10.

<sup>168</sup> *Id.* at 9.

<sup>169</sup> *Id.* at 16.

<sup>170</sup> *Id.* at 10.

<sup>171</sup> *Id.*

effect, favoring a few companies, but with little effects on larger markets.<sup>172</sup>

Two major remaining components of U.S. dairy policy are the Federal Milk Marketing Orders (FMMOs) and a relatively new Margin Protection Program (MPP), which, on the surface, operates as a revenue insurance program.<sup>173</sup> Producers can take out (highly subsidized) insurance policies that protect them when the price of animal feed rises relative to milk prices.<sup>174</sup> Like US crop insurance programs, payments can be more than actuarially fair.<sup>175</sup> In other words, indemnity payments can regularly exceed payment premiums (i.e., some can regularly make money from their insurance).<sup>176</sup> Similar to crop insurance, when MPP constitutes essentially a disguised federal income payment. In cases where signing up does not provide producers such assured returns, producers have either not signed up at all or have signed up at the minimum level of coverage, which requires zero premiums.<sup>177</sup>

### *B. Nutrition Programs*

The distribution of government-purchased dairy products as domestic or international food aid dates back to the AAA of 1935.<sup>178</sup> Surplus dairy products were distributed under the School Lunch Programs, first established in 1935.<sup>179</sup> The Agricultural Act of 1954 established the Special School Milk Program to use USDA funds to increase fluid milk consumption in schools.<sup>180</sup> The program was extended in 1956 to include “nonprofit summer camps, orphanages, and other child-care institutions.”<sup>181</sup> The national Food Stamp Program was approved and made part of permanent agricultural legislation in 1964.<sup>182</sup> Implementation of USDA nutrition programs have not been without

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<sup>172</sup> *Id.* at 5, 10.

<sup>173</sup> *Id.* at 3.

<sup>174</sup> *Id.*

<sup>175</sup> *See id.* at 18–19.

<sup>176</sup> *See id.*

<sup>177</sup> *Id.* at 17–18.

<sup>178</sup> Agricultural Adjustment Act Amendment of 1935, ch. 641, 48 Stat. 750 (1935); *see* Daniel A. Sumner & Joseph V. Balagtas, *United States' Agricultural Systems: An Overview of U.S. Dairy Policy*, in *ENCYCLOPEDIA OF DAIRY SCIENCES* 20, 20–25 (H. Roginski et al. eds., 2002).

<sup>179</sup> HERMAN M. SOUTHWORTH & MAXWELL I. KLAYMAN, *THE SCHOOL LUNCH PROGRAM AND AGRICULTURAL SURPLUS DISPOSAL* 1–2 (U.S. Dep't of Agric., Misc. Pub. No. 467, 1941).

<sup>180</sup> Weimer & Blayney, *supra* note 1, at 15.

<sup>181</sup> SMITH & ROTH, *supra* note 22, at 75.

<sup>182</sup> MILTON C. HALLBERG, *POLICY FOR AMERICAN AGRICULTURE: CHOICES AND CONSEQUENCES* 316 (1992).



controversy.<sup>183</sup> Programs have been tasked with achieving multiple goals, disposing of government purchased surpluses, increasing demand for competing commodities (and pleasing competing commodity groups), and improving nutrition of low income or other target populations.<sup>184</sup> Controversies have arisen when farm income support and nutrition objectives have not coincided.<sup>185</sup> Some critics have argued that the farm income support objectives have taken precedent over nutrition goals.<sup>186</sup>

### *C. Challenges to Capper-Volstead Exemptions*

Federal Milk Marketing Orders (FMMOs) increase dairy producer incomes through price discrimination.<sup>187</sup> FMMOs divide the country into geographic regions.<sup>188</sup> There have been as many as 42, but that has been reduced to 11.<sup>189</sup> Milk and dairy product processors in each region are required to pay farmers at least a minimum price for four classes of milk defined by the Federal government.<sup>190</sup> Class I is the milk used for fluid beverage products.<sup>191</sup> The price of fluid milk is relatively inelastic – the quantity that consumers demand changes little relative to changes in the price of milk.<sup>192</sup> Conversely, if the quantity available of milk falls, the price increases more proportionally than the quantity reduction.<sup>193</sup> So, limiting supplies increases sales revenues. Demand for fluid milk is inelastic because it is highly perishable and expensive to transport, so fluid milk in a particular area faces little competition from outlying areas.<sup>194</sup> Demand for manufactured milk products (e.g. cheese, butter) can be stored longer and transported less expensively.<sup>195</sup> These products face more regional and even global

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<sup>183</sup> Dillard, *supra* note 107, at 244–45; see LEVINE, *supra* note 99, at 68, 108–09, 130.

<sup>184</sup> See generally SUMNER, *supra* note 10.

<sup>185</sup> Correll, *supra* note 107, at 62–65; Dillard, *supra* note 107, at 244–45; see LEVINE, *supra* note 99, at 68, 108–09, 130.

<sup>186</sup> Correll, *supra* note 107, at 62–65; Dillard, *supra* note 107, at 244–45; Belongia, *supra* note 107, at 9.

<sup>187</sup> SUMNER, *supra* note 10, at 12.

<sup>188</sup> *Id.* at 11.

<sup>189</sup> Hayley H. Chouinard et al., *Milk Marketing Order Winners and Losers*, 32 APPLIED ECON. PERSP. & POL'Y 59, 59–60 (2010). US Department of Agriculture (USDA) Office of Budget & Program Analysis. 2020 USDA Budget Explanatory Notes. Agricultural Marketing Service. At 21-9. <https://www.usda.gov/sites/default/files/documents/21ams2020notes.pdf> (accessed 12/8/2020)

<sup>190</sup> SUMNER, *supra* note 10, at 12.

<sup>191</sup> *Id.* at 13.

<sup>192</sup> *Id.*

<sup>193</sup> *Id.* at 21.

<sup>194</sup> *Id.* at 21–22.

<sup>195</sup> Richard A. Ippolito & Robert T. Masson, *The Social Cost of Government Regulation of Milk*, 21 J. L. & ECON. 33, 56 (1978); Masson & Eisenstat, *supra* note 6, at 670.

price competition.<sup>196</sup> Because of this, demand for these products is more price elastic.<sup>197</sup> Changes in the amount supplied have a relatively small impact on the price producers receive.<sup>198</sup>

Marketing orders increase producer income by setting a high price for fluid milk and reducing its supply below competitive levels.<sup>199</sup> At the same time production is shunted toward manufactured products.<sup>200</sup> As output of manufactured products increases, their prices fall only a little bit.<sup>201</sup> When the supply of fluid milk is reduced, though, its price rises a lot.<sup>202</sup> Dairy producers receive a blend price that is a weighted average of fluid milk and manufactured dairy product prices.<sup>203</sup> Compared to a competitive market outcome, more milk is produced overall, but less actually is sold as fluid milk, while more is sold in the form of manufactured products.<sup>204</sup> How individual consumers are affected overall by the price changes depends on their relative expenditures on fluid milk versus processed dairy products.<sup>205</sup> Consumers, on the whole, are made worse off, though, as consumer losses from higher fresh milk prices outweigh gains from lowered prices of manufactured products.<sup>206</sup>

The economic welfare effects of marketing orders depend on one's reference point. Gardner (1984) characterized competing views of U.S. dairy policy.<sup>207</sup> One was of "market failure" story, where dairy policy is designed to counter anti-competitive behavior of milk processors.<sup>208</sup> The Capper Volstead Act was passed at a time when technological and institutional constraints presented severe problems for dairy producers.<sup>209</sup> In the 1920s on-farm refrigeration was limited

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<sup>196</sup> SUMNER, *supra* note 10, at 9; see ERBA & NOVAKOVIC, *supra* note 5, at 9; see Ippolito & Masson, *supra* note 187, at 35-36.

<sup>197</sup> Masson & Eisenstat, *supra* note 6, at 666.

<sup>198</sup> *Id.* at 667.

<sup>199</sup> Robert T. Masson & Philip M. Eisenstat, *Welfare Impacts of Milk Orders and the Antitrust Immunities for Cooperatives*, 62 AM. J. AGRIC. ECON. 270, 271 (1980) [hereinafter *Welfare Impacts*].

<sup>200</sup> *Id.*

<sup>201</sup> See Masson & Eisenstat, *supra* note 6, at 666 n.17, 667.

<sup>202</sup> See *id.*

<sup>203</sup> Ippolito & Masson, *supra* note 187, at 35.

<sup>204</sup> *Id.* at 51.

<sup>205</sup> See Masson & Eisenstat, *supra* note 6, at 688.

<sup>206</sup> John E. Kwoka, Jr., *Pricing under Federal Milk Market Regulation*, 15 ECON. INQUIRY 367, 380 (1977).

<sup>207</sup> Bruce L. Gardner, *Price Discrimination or Price Stabilization: Debating with Models of U.S. Dairy Policy*, 66 AM. J. AGRIC. ECON. 763, 763 (1984) [hereinafter *Price Discrimination*].

<sup>208</sup> *Id.*; Gardner, *supra* note 77, at 92.

<sup>209</sup> Baumer et al., *supra* note 86, at 204; see Masson & Eisenstat, *supra* note 6, at 669.

as was transportation infrastructure.<sup>210</sup> Dairies were captive to a small number of buyers in the nearest urban centers to their farms.<sup>211</sup> Dairies marketed their wares individually and so had little bargaining power.<sup>212</sup> In contrast, handlers had great scope to exert monopsony power.<sup>213</sup> Capper Volstead allowed dairies to organize to set prices, but the intent was to countervail monopsony power.<sup>214</sup> The Agricultural Marketing Act of 1937 and subsequent legislation supported formation of milk marketing orders and marketing cooperatives.<sup>215</sup> At the time, dairy production was small-scale and marketing largely uncoordinated.<sup>216</sup>

A competing perspective was one of “capture” where dairy producers were able to influence USDA policy to their benefit at consumer and taxpayer expense.<sup>217</sup> As dairy marketing became more consolidated, sentiment, particularly by the Federal Trade Commission and the Department of Justice began to shift toward the capture perspective.<sup>218</sup> In the post-World War II era, technological and institutional change fundamentally altered how dairy products were marketed.<sup>219</sup> First, improvements in roads, refrigeration, and shipping technology meant that dairies could sell their product to more distant markets, lessening the need to only sell to the most local processors.<sup>220</sup> Also, dairy marketing cooperatives began to consolidate, increasing their geographic scope and market power.<sup>221</sup> The large cooperative, American Milk Producers Incorporated (AMPI) formed in 1969 out of several mergers of smaller cooperatives in 1967.<sup>222</sup> Over the next three years AMPI merged with 54 more cooperatives<sup>223</sup> until it stretched from Texas to the Canadian Border.<sup>224</sup> By the mid-1970s, AMPI produced about one eighth of all milk sold in the United States and had become the largest cheese producer in the world.<sup>225</sup> Around this time, two other large cooperatives were formed via merger: Mid-America Dairymen (Mid-Am) and Dairyman, Inc. (DI).<sup>226</sup> In many markets, AMPI, Mid-

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<sup>210</sup> Masson & Eisenstat, *supra* note 6, at 670.

<sup>211</sup> ERBA & NOVAKOVIC, *supra* note 5, at 1.

<sup>212</sup> *Id.* at 2.

<sup>213</sup> Ippolito & Masson, *supra* note 187, at 34.

<sup>214</sup> Baumer et al., *supra* note 86, at 193.

<sup>215</sup> *Id.* at 206; see Ippolito & Masson, *supra* note 187, at 37.

<sup>216</sup> Masson & Eisenstat, *supra* note 6, at 669–70.

<sup>217</sup> *Price Discrimination*, *supra* note 199, at 763.

<sup>218</sup> See Baumer et al., *supra* note 86, at 204; see Kwoka, *supra* note 198, at 380.

<sup>219</sup> ERBA & NOVAKOVIC, *supra* note 5, at 9; Lacy et al., *supra* note 108, at 9.

<sup>220</sup> See ERBA & NOVAKOVIC, *supra* note 5, at 9.

<sup>221</sup> Baumer et al., *supra* note 86, at 220.

<sup>222</sup> *Welfare Impacts*, *supra* note 191, at 275..

<sup>223</sup> *Id.*

<sup>224</sup> Baumer et al., *supra* note 86, at 220.

<sup>225</sup> Odom, *supra* note 102, at 44.

<sup>226</sup> Baumer et al., *supra* note 86, at 220.

Am or DI controlled 90% or more of all raw milk sales.<sup>227</sup> By 1982, these three cooperatives, along with Land O'Lakes were all Fortune 500 companies.<sup>228</sup>

Justice Department economists began to argue that actions of the larger cooperatives went beyond just countervailing the market power of milk purchasers.<sup>229</sup> They argued that the largest cooperatives were exercising supervailing power.<sup>230</sup> While countervailing power would lead to greater milk sales (and lower prices) to consumers, the exercise of supervailing power was meant to increase cooperative profits at the expense of consumers, raising prices above competitive levels.<sup>231</sup> Economists at the Federal Trade Commission and Justice Department conducted econometric market studies estimating the effects of cooperative behavior on prices and consumer welfare.<sup>232</sup> Kwoka estimated that marketing orders raised milk prices 7-15% above competitive levels and created a deadweight loss to the economy of \$55 to \$180 million per year.<sup>233</sup> Ippolito and Masson estimated that U.S. milk marketing orders, by increasing fluid milk prices, transferred \$210 million from consumers to producers.<sup>234</sup> Masson and Eisenstat estimated that U.S. dairy cooperatives succeeded in raising retail fluid milk prices by \$0.07 - \$0.10 per gallon, costing consumers of \$71 million per year from 1967-1975.<sup>235</sup>

In addition to such studies, the Department of Justice (DOJ) also began to take a more aggressive stance to reign in what was perceived as excessive anticompetitive behavior.<sup>236</sup> The DOJ sued the three large cooperatives, AMPI, Mid-Am and DI in 1972.<sup>237</sup> DOJ alleged the cooperatives engaged in "predatory pricing, price squeezes, and foreclosure of nonmembers from customers through contracts and mergers with nonfarmer milk processors."<sup>238</sup> DOJ signed a consent decree with AMPI in 1975 and one with Mid-Am in 1977.<sup>239</sup> In the AMPI consent decree, AMPI did not admit to any wrongdoing, but agreed to desist from specific "predatory and

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<sup>227</sup> *Id.*

<sup>228</sup> *Id.* at 184 & n.1.

<sup>229</sup> Masson & Eisenstat, *supra* note 6, at 662, 670.

<sup>230</sup> Baumer et al., *supra* note 86, at 185.

<sup>231</sup> *Id.* at 198-201.

<sup>232</sup> Ippolito & Masson, *supra* note 187, *passim*; Kwoka, *supra* note 198, *passim*.

<sup>233</sup> Kwoka, *supra* note 198, at 380.

<sup>234</sup> Ippolito & Masson, *supra* note 187, at 37.

<sup>235</sup> See Masson & Eisenstat, *supra* note 6, at 668 n.22.

<sup>236</sup> Ananth N. Madhavan et al., *Cooperation for Monopolization? An Empirical Analysis of Cartelization*, 76 REV. ECON. & STAT. 161, 161-75 (1994).

<sup>237</sup> *Id.* at 163.

<sup>238</sup> *Id.*

<sup>239</sup> *Id.*

exclusionary" practices.<sup>240</sup> AMPI also lost that part of the major private case charging conspiracy to monopolize.<sup>241</sup> In 1976, the suit against DI went to trial in 1976 and was eventually resolved in 1985, partially in the DOJ's favor.<sup>242</sup> Studies found that after the consent decrees, cooperatives were less able to exercise market power to push fluid milk prices significantly above minimum government support prices.<sup>243</sup> In other cases, courts have ruled that cooperatives attempting to further monopoly power by acquiring investor-owned firms, engaging in predatory practices, or forming joint ventures with non-cooperative businesses are not protected by Capper Volstead exemptions and are subject to prosecution under the Sherman Antitrust Act.<sup>244</sup>

#### IV. The U.S. Dairy Landscape Today

Dairy production is important to US farm and food systems. In 2018, the United States produced more than 200 billion pounds of milk, 13 billion pounds of cheese, 840 million gallons of ice cream, and 50 million gallons of frozen yogurt.<sup>245</sup> Dairy farming, product processing, and wholesaling employed more than 290,000 workers, who received more than \$15 billion in wages in 2018.<sup>246</sup> According to the most recent, 2017 *Census of Agriculture*, farms sold nearly \$37 billion of milk, accounting for about 9% of total U.S. farm sales.<sup>247</sup> U.S. households spend roughly \$8 per week on dairy products on average, with spending ranging from \$4 per week for low income households to nearly \$12 per week for high income ones.<sup>248</sup> Households with lower incomes, children, or both tend to have a higher share of dairy spending in the form of fresh milk.<sup>249</sup>

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<sup>240</sup> *Id.* at 164 n.17.

<sup>241</sup> *Id.*

<sup>242</sup> *Id.* at 163.

<sup>243</sup> *Id.* at 164 n.18, 174.

<sup>244</sup> *Maryland & Virginia Milk Producers Ass'n v. U.S.*, 362 U.S. 458, 471–72 (1960); *U.S. v. Borden Co.*, 308 U.S. 188, 203–07 (1939); *U.S. v. Maryland Co-op. Milk Producers, Inc.*, 145 F. Supp. 151, 154–55 (D.D.C. 1956).

<sup>245</sup> *Quick Stats*, *supra* note 1.

<sup>246</sup> *Quarterly Census of Employment Wages*, U.S. BUREAU OF LAB. STAT., <https://www.bls.gov/cew/> (last visited Feb. 9, 2020).

<sup>247</sup> NAT'L AGRIC. STATISTICS SERV., U.S. DEP'T OF AGRICULTURE, ACH17-4, 2017 CENSUS OF AGRICULTURE HIGHLIGHTS: DAIRY CATTLE AND MILK PRODUCTION 1 (2019), [https://www.nass.usda.gov/Publications/Highlights/2019/2017Census\\_DairyCattle\\_and\\_Milk\\_Production.pdf](https://www.nass.usda.gov/Publications/Highlights/2019/2017Census_DairyCattle_and_Milk_Production.pdf).

<sup>248</sup> M. SWEITZER ET AL., FOOD-AT-HOME EXPENDITURES: COMPARING COMMERCIAL HOUSEHOLD SCANNER DATA FROM IRI AND GOVERNMENT SURVEY DATA 16 (U.S. Dep't of Agric., Econ. Res. Serv., TB-1946, 2017).

<sup>249</sup> *Id.* at 32, 34; Chouinard et al., *supra* note 181, at 74.

Milk production is characterized by concentration regionally and across operations.<sup>250</sup> Five states – California, Wisconsin, Idaho, New York, and Texas – account for more than half of all U.S. milk production.<sup>251</sup> The top eight states (adding Michigan, Pennsylvania, and Minnesota) account for two-thirds.<sup>252</sup> In 2017, there were more than 9.5 million milk cows on more than 54,000 U.S. farm operations.<sup>253</sup> About 15,000 operations had no milk sales.<sup>254</sup> These were comprised almost entirely of operations with herds of 19 or fewer cows.<sup>255</sup> Of farms that did have sales, those with herds of fewer than 100 cows accounted for nearly two-thirds of operations, but only 11% of sales.<sup>256</sup> In contrast, just 5% of farms had dairy herds of 1,000 or more cows, but these farms accounted for more than half of all milk sales.<sup>257</sup> About 84% of milk sold in the United States is marketed by dairy farmer-owned cooperatives.<sup>258</sup> The four largest of these – Dairy Farmers of America, Land O’Lakes, Dairy Farmers Incorporated, and Darigold Inc. – market about 40% of all U.S. milk.<sup>259</sup>

From 1980 to 2018, the total U.S. dairy herd size has declined about 12%, but milk produced per cow has more than doubled.<sup>260</sup> The average number of milk cows per farm with cows rose from about 50 in the 1987 *Census of Agriculture* to about 175 in the 2017 *Census*.<sup>261</sup> Another measure of dairy scale is the midpoint herd size – the size for which half of all milk cows are in herds of that size or larger.<sup>262</sup> This midpoint has risen from 80 cows in 1987 to 900 cows in 2012, and to more than 1,000 cows by 2017.<sup>263</sup>

The United States has become a major exporter of some dairy products, especially dry milk powder, while still being a significant importer of others, particularly cheese.<sup>264</sup> From 2004 to 2014, U.S. dairy product exports more than quadrupled.<sup>265</sup> Overall,

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<sup>250</sup> NAT’L AGRIC. STATISTICS SERV., *supra* note 239, at 1–2.

<sup>251</sup> *Id.*

<sup>252</sup> *Id.*

<sup>253</sup> U.S. DEP’T OF AGRIC., NAT’L AGRIC. STATISTICS SERV., AC-17-A-51, 2017 CENSUS OF AGRICULTURE 7 tbl.1 (2019) [hereinafter 2017 CENSUS].

<sup>254</sup> *Id.* at 23 tbl.17.

<sup>255</sup> *Id.*

<sup>256</sup> *Id.*

<sup>257</sup> *Id.*

<sup>258</sup> SUMNER, *supra* note 10, at 5.

<sup>259</sup> *Id.*

<sup>260</sup> *Id.* at 6; *Quick Stats*, *supra* note 1.

<sup>261</sup> 2017 CENSUS, *supra* note 245, at 7 tbl.1.

<sup>262</sup> ROBERTO MOSHEIM ET AL., CHANGING STRUCTURE, FINANCIAL RISKS, AND GOVERNMENT POLICY FOR THE U.S. DAIRY INDUSTRY 7 (U.S. Dep’t of Agric., Econ. Research Serv., Rep. No. 205, 2016).

<sup>263</sup> *Id.* at 7–8; *Quick Stats*, *supra* note 1.

<sup>264</sup> CESSNA ET AL., *supra* note 156, at 22.

<sup>265</sup> *Id.* at 1.

the United State is the third largest global exporter of dairy products, following New Zealand and the European Union (EU).<sup>266</sup>

What can we glean from this dizzying array of dairy facts and figures? First, the U.S. dairy industry remains a central part of U.S. agriculture, while dairy products remain an important part of consumer diets. It is a technologically dynamic sector, demonstrating impressive and sustained productivity growth. A driving factor behind this growth are scale economies that have allowed producers to lower average costs by increasing operation size.<sup>267</sup> Today, the U.S. dairy industry is dominated by large-scale operations, with marketing dominated by large-scale marketing cooperatives.<sup>268</sup> Productivity growth has made U.S. dairy production more competitive in international markets.<sup>269</sup> This has shifted the U.S. policy stance away from protectionism to a more outward looking export orientation.<sup>270</sup> The United States has abandoned dairy product export subsidies and moved away from import controls and tariffs (although this has been incomplete).<sup>271</sup> The industry has moved toward less government intervention in general (although substantial involvement remains).<sup>272</sup>

#### *A. Technological and Structural Change*

Larger dairy farms have been able to take better advantage of a range of technologies and practices (Table 1).<sup>273</sup> Larger operations make greater use of artificial insemination as well as services of veterinarians and nutritionists.<sup>274</sup> They are also far more likely to use computers to deliver feed to cattle and for milking.<sup>275</sup> As operations have grown, dairies have relied less on producing their own feed and raising their own heifers (as replacements) and more on purchasing them from other operations.<sup>276</sup> While smaller operations produce more of their own feed, larger operations are more specialized, purchasing it from others.<sup>277</sup> Larger farms are also more likely to enter into forward pricing contracts for inputs (primarily feed).<sup>278</sup> This reduces their risks against unexpected

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<sup>266</sup> *Id.* at 2.

<sup>267</sup> *Id.* at 10.

<sup>268</sup> *See id.*

<sup>269</sup> *Id.* at 2, 10.

<sup>270</sup> *Id.*

<sup>271</sup> *Id.* at 1.

<sup>272</sup> *Id.* at 2.

<sup>273</sup> MOSHEIM ET AL., *supra* note 254, at 16.

<sup>274</sup> *Id.*

<sup>275</sup> *Id.*

<sup>276</sup> *Id.*

<sup>277</sup> *Id.* at 7.

<sup>278</sup> *Id.* at 16.

increases in feed prices.<sup>279</sup> Larger farms can also use their size to increase their bargaining power, negotiating input prices, rather than accepting them as given.<sup>280</sup>

**Table 1. Comparison of dairy practice adoption for three different herd sizes**

Practices	Herd Size (number of cows)		
	<50	200-499	>1,999
Percent of Farms Adopting Practice			
Artificial insemination	75	80	99
Routine veterinary service	43	89	96
Nutritionist service	59	87	95
All feed purchased	2	5	21
Most feed purchased	36	54	95
Heifers off-farm	1	10	31
Forward contract inputs	7	49	69
Negotiate for inputs	17	63	93
Computers for feed delivery	1	16	69
Computers for milking	1	24	33

Source: MacDonald et al., 2016<sup>281</sup>

Thus, larger farms have split off several functions that smaller operations still engage in. This has allowed them to greatly reduce their average production costs (Figure 1).<sup>282</sup> One can see dramatic reductions in production costs as the scale of operation increases.<sup>283</sup> The dramatic shift in the average scale of dairy operations is not surprising in light of these cost advantages.

<sup>279</sup> *Id.*

<sup>280</sup> *Id.*

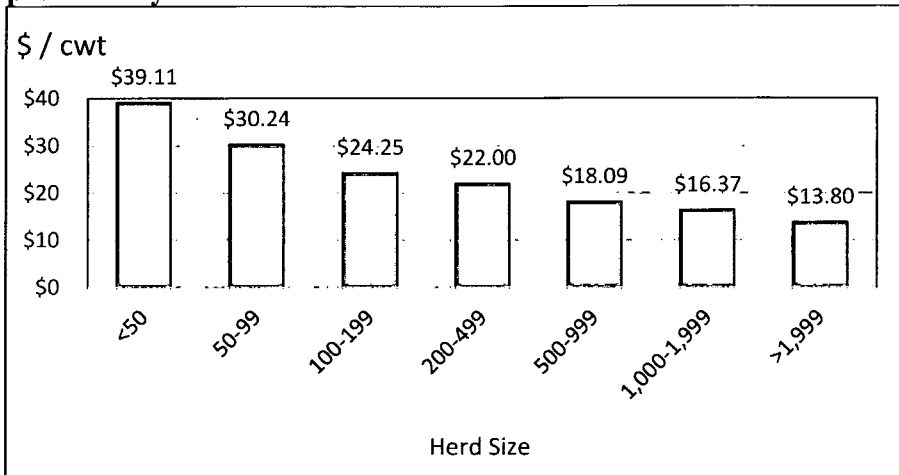
<sup>281</sup> *Id.*

<sup>282</sup> *Id.* at 18.

<sup>283</sup> *Id.*



**Figure 1. Average cost per cwt (hundredweight) of milk produced by herd size**



Source: MacDonald et al., 2016<sup>284</sup>

### *A. Dairy Antitrust Issues in the 21<sup>st</sup> Century*

Economists have continued to find evidence of dairy policies redistributing income from consumers to producers.<sup>285</sup> One study examined effects on different types of households.<sup>286</sup> It found that marketing orders reduced wellbeing for families with young children, but benefited couples without children.<sup>287</sup> This was because they reduced prices of processed products (such as cheese or yogurt), but raised prices of fluid milk.<sup>288</sup> It also estimated that the program was more costly to lower income than high income households.<sup>289</sup> Another study found that in markets regulated by Federal Milk Marketing Orders, cooperatives are able to exert market power to raise the price of milk 9% above marginal cost, transferring more than \$70 million per year from final consumers.<sup>290</sup>

Dairy cooperative and marketing order activity has continued to receive antitrust scrutiny.<sup>291</sup> In 2010, the DOJ and several states filed a civil antitrust suit against Dean Foods alleging that its purchase of processing plants owned by the Wisconsin cooperative, Foremost

<sup>284</sup> *Id.*

<sup>285</sup> See Chouinard et al., *supra* note 181, at 59.

<sup>286</sup> *Id.*

<sup>287</sup> *Id.*

<sup>288</sup> *Id.* at 74.

<sup>289</sup> *Id.* at 74–75.

<sup>290</sup> Metin Cakir & Joseph V. Balagtas, *Estimating Market Power of U.S. Dairy Cooperatives in the Fluid Milk Market*, 94 AM J. AGRIC. ECON. 647, 657 (2012).

<sup>291</sup> DENNIS A. SHIELDS, CONG. RESEARCH SERV., R41224, CONSOLIDATION AND CONCENTRATION IN THE U.S. DAIRY INDUSTRY 18–20 (2002).

Farms, violated Section 7 of the Clayton Act.<sup>292</sup> DOJ asserted the acquisition would eliminate price competition from Foremost Farms, raising milk prices paid by schools, grocery chains, restaurants, and other retail outlets.<sup>293</sup> Various cooperatives have been the defendants in class action suits, often settling out of court.<sup>294</sup>

### *B. Emerging Environmental and Consumer Challenges*

As the U.S. population has shifted westward, so has dairy production, with significant growth in California, Idaho, New Mexico, and Arizona.<sup>295</sup> Western operations also tend to be larger on average.<sup>296</sup> Although U.S. milk production continues to grow, that production has been concentrated in fewer counties over time.<sup>297</sup> In 1969, 71 counties had one-quarter of all dairy cows, while half of all cows were in 247 counties.<sup>298</sup> By 2017, a quarter of U.S. dairy cows were in just 16 counties (with all but one in the West), while half of all cows were in just 50 counties.<sup>299</sup>

This concentration and westward movements present certain environmental challenges.<sup>300</sup> First, this concentrates manure wastes on a smaller land area.<sup>301</sup> As noted above, larger operations have moved away from feed and forage crop production, which means

<sup>292</sup> *Id.* at 18–19.

<sup>293</sup> *Id.* at 18.

<sup>294</sup> *Id.* at 19–20; John C. Monica, Jr., *Agricultural Antitrust Liability: What about the Reasonable Farmer*, 22 *DRAKE J. AGRIC. L.* 1, 2; Jessica Fu, *Milk Co-Ops Slaughtered 500,000 Cows via a “Retirement” Program. Now They’ll Pay \$220 Million in a Price-Fixing Lawsuit*, *THE COUNTER* (Dec. 5, 2019, 4:23 PM), <https://thecounter.org/dairy-cooperatives-herd-retirement-cow-slaughter-antitrust-price-fixing-retailer-lawsuit-settlement/>; Carol Dumas, *National Milk Settles CWT Lawsuit for \$220 Million*, *CAPITAL PRESS* (Dec. 10, 2019), [https://www.capitalpress.com/ag\\_sectors/dairy/national-milk-settles-cwt-lawsuit-for-220-million/article\\_566e01f4-1b6b-11ea-98a1-0b954157be31.html](https://www.capitalpress.com/ag_sectors/dairy/national-milk-settles-cwt-lawsuit-for-220-million/article_566e01f4-1b6b-11ea-98a1-0b954157be31.html); Melinda Burton, *Not Everything is Settled in the Allen v. Dairy Farmers of America Antitrust Class Action – The Fight Over Allocating Fees to Class Counsel*, *FARUKI* (Jan. 25, 2019), <https://www.ficlaw.com/blog/class-actions/archives/not-everything-is-settled-in-the-allen-v-dairy-farmers-of-america-antitrust-class-action-the-fight-over-allocating-fees-to-class-counsel>; see Yuliya V. Bolotova, *Agricultural Supply Control: Lessons from the U.S. Dairy and Potato Industries*, *CHOICES*, 4th Quarter 2015, at 1, 1.

<sup>295</sup> *MACDONALD ET AL.*, *supra* note 9, at 1.

<sup>296</sup> *Id.*

<sup>297</sup> *Id.* at 23.

<sup>298</sup> *Id.*

<sup>299</sup> See NAT’L AGRIC. STATISTICS SERV., *supra* note 239; see 2017 *Census Ag Atlas Maps: Milk Cows – Inventory*, NAT’L AGRIC. STATISTICS SERV., [https://www.nass.usda.gov/Publications/AgCensus/2017/Online\\_Resources/Ag\\_Atlas\\_Maps/17-M209g.php](https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/Ag_Atlas_Maps/17-M209g.php) (last modified Feb. 1, 2019).

<sup>300</sup> See *MACDONALD ET AL.*, *supra* note 9, at 23.

<sup>301</sup> *Id.* at 23–24.

there are fewer crop acres where manure might be applied as fertilizer.<sup>302</sup>

This excess manure can lead to various types of water and air pollution.<sup>303</sup> Nitrogen and phosphorus from manure can end up in surface and groundwater.<sup>304</sup> One study of public wells in California found that one in ten of those sampled exceeded the maximum concentration level (MCL) of nitrate permissible under the Safe Drinking Water Act.<sup>305</sup> Fertilizers on cropland of which dairy manure was a significant part, were the dominant factor accounting for the contamination.<sup>306</sup> An EPA study of Washington found one in five sampled wells exceeding the nitrate MCL, with dairy manure again being a significant contributor.<sup>307</sup> This same study also found a group of dairies in the Yakima Valley were the primary source for pharmaceutical contamination in the majority of dairy source water samples.<sup>308</sup> Dairy production can also contribute to air pollution in the form of carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and oxides of nitrogen (NO and NO<sub>2</sub>), ammonia (NH<sub>3</sub>), hydrogen sulfide (H<sub>2</sub>S), and volatile organic compounds (VOCs) as well as particulate matter.<sup>309</sup> Many of these are criteria pollutants regulated under the U.S. Clean Air Act.<sup>310</sup> In addition, Section 304 of the Emergency Planning and Community Right-to-Know Act (EPCRA) requires farms to report NH<sub>3</sub> and H<sub>2</sub>S emissions if 45.3 kg or more of either are emitted in any given 24-hour period.<sup>311</sup>

In the mid-1970s, EPA established effluent limits for large feedlots (including dairies) under its Clean Water Act authority.<sup>312</sup> In April 2003, EPA established regulatory requirements for concentrated animal feeding operations (CAFOs).<sup>313</sup> After a legal challenge to the 2003 rule, EPA was remanded to revise some

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<sup>302</sup> *Id.* at 3.

<sup>303</sup> *Id.* at 23–24; M. A. G. von Keyserlingk et al., *Invited Interview: Sustainability of the US Dairy Industry*, 96 J. DAIRY SCI. 5405, 5415 (2013).

<sup>304</sup> MACDONALD ET AL., *supra* note 9, at 24.

<sup>305</sup> THOMAS HARTE ET AL., ADDRESSING NITRATE IN CALIFORNIA'S DRINKING WATER WITH A FOCUS ON TULARE LAKE BASIN AND SALINAS VALLEY GROUNDWATER 11, 35 (2012).

<sup>306</sup> *Id.* at 11.

<sup>307</sup> U.S. ENVTL. PROT. AGENCY, EPA-910-R-13-004, RELATION BETWEEN NITRATE IN WATER WELLS AND POTENTIAL SOURCES IN THE LOWER YAKIMA VALLEY, WASHINGTON, at ES-6 (2012), <https://www.epa.gov/sites/production/files/2017-12/documents/lower-yakima-valley-groundwater-report-2013.pdf>.

<sup>308</sup> *Id.* at 23–24.

<sup>309</sup> See Keyserlingk et al., *supra* note 295, at 5415.

<sup>310</sup> *Id.*

<sup>311</sup> *Id.*

<sup>312</sup> MACDONALD ET AL., *supra* note 9, at 26.

<sup>313</sup> *Id.*

portions of the regulations.<sup>314</sup> The original 2003 regulations required all CAFOS to apply for National Pollutant Discharge Elimination System (NPDES) permits.<sup>315</sup> This designated all CAFOs as point sources of pollution.<sup>316</sup> The revised rule only required CAFOs discharging (or proposing to discharge animal wastes) into U.S. water to obtain NPDES permits.<sup>317</sup>

One potential technology for dealing with dairy wastes are anaerobic digesters, which use the methane in manure to produce electricity.<sup>318</sup> Methane has 28-36 the global warming potential of carbon dioxide.<sup>319</sup> Adoption of digesters, however, is less than nine percent on very large operations and nearly nonexistent for smaller operations.<sup>320</sup> Digesters can reduce dairy electricity costs and potentially be a source of revenue through the sale of excess electricity.<sup>321</sup> Another source of revenue is the sale of carbon offsets, but markets for such offsets has been slow to develop, with low prices.<sup>322</sup>

In California, the dairy industry is a major source of methane emissions.<sup>323</sup> Under Senate Bill 1383, signed into law in 2016, livestock operations will be required to reduce methane emissions starting in 2024, with a requirement to reduce emissions by 40% by 2030.<sup>324</sup> Using anaerobic digesters to produce electricity in California can be problematic, though, because the process can generate other air pollutants.<sup>325</sup> Many dairies are already located in air pollution nonattainment areas regulated by the EPA.<sup>326</sup> An alternative is to use the process to produce pipeline-injectable renewable natural gas that could potentially be used as transportation fuel.<sup>327</sup> To be economically viable, even large dairies would have to operate cooperatively to achieve the needed scale economies. The

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<sup>314</sup> *Id.*

<sup>315</sup> *Id.*

<sup>316</sup> *Id.*

<sup>317</sup> *Id.*

<sup>318</sup> *Id.* at 29.

<sup>319</sup> Nicolas Sanchez & David C. Mays, *Effects of Methane Leakage on the Greenhouse Gas Footprint of Electricity Generation*, 133 CLIMATE CHANGE 169, 172, 176 (2015).

<sup>320</sup> NIGEL KEY & STACY SNEERINGER, CARBON PRICES AND THE ADOPTION OF METHANE DIGESTERS ON DAIRY AND HOG FARMS 3-4, 8 (U.S. Dep't of Agric., Econ. Research Serv., Econ. Brief No. 16, 2011).

<sup>321</sup> *Id.* at 1.

<sup>322</sup> *Id.*

<sup>323</sup> Hyunok Lee & Daniel A. Sumner, *Dependence on Policy Revenue Poses Risks for Investments in Dairy Digesters*, 72 CAL. AGRIC. 226, 227 (2018).

<sup>324</sup> *Id.* at 226.

<sup>325</sup> *Id.* at 229.

<sup>326</sup> *Id.*

<sup>327</sup> *Id.*

California Low Carbon Fuel Standard (LCFS) Program has a tradable credit system that allows to producers of eligible low-carbon transportation fuels to sell emission reduction credits.<sup>328</sup> In December 2015, the California Air Resources Board announced it would allow LCFS credits for vehicle fuel produced from biogas that counts toward avoided dairy methane emissions.<sup>329</sup> Lee and Sumner warn however that the viability of dairy production of biogas for vehicles depends on a raft of assumptions about future regulations and incentives facing transportation, air pollution, and energy production.<sup>330</sup>

Another resource concern deals with water scarcity. Much dairy production has expanded in the arid Western United States.<sup>331</sup> With limited water supplies and continued population growth, water scarcity has grown acute.<sup>332</sup> Prolonged drought and the potential lower precipitation under climate change exacerbates this scarcity problem.<sup>333</sup> A future challenge for dairies will be the water requirements for feed and forage crops needed to support their herds.<sup>334</sup> Such crops like alfalfa and corn silage tend to be relatively water intensive.<sup>335</sup> In the future, dairies may have to rely on feed and forage from more distant markets.

The dairy industry also faces challenges on the consumer side.<sup>336</sup> US per capita milk consumption has been declining with each successive generation consuming less fluid milk than the generation before.<sup>337</sup> Increases in cheese and yogurt consumption partially offsets this downward trend.<sup>338</sup> Another challenge to the dairy industry is the rise of plant-based milks (e.g. soy milk, cashew milk,

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<sup>328</sup> *Id.* at 230.

<sup>329</sup> *Id.*

<sup>330</sup> *Id.*

<sup>331</sup> George B. Frisvold et al., *Agriculture and Ranching*, in ASSESSMENT OF CLIMATE CHANGE IN THE SOUTHWEST UNITED STATES: A REPORT PREPARED FOR THE NATIONAL CLIMATE ASSESSMENT REGIONAL TECHNICAL INPUT REPORT SERIES 218, 220–21 (Gregg Garfin et al. eds., 2013).

<sup>332</sup> Jonathan Overpeck et al., *Summary for Decisionmakers*, in ASSESSMENT OF CLIMATE CHANGE IN THE SOUTHWEST UNITED STATES: A REPORT PREPARED FOR THE NATIONAL CLIMATE ASSESSMENT REGIONAL TECHNICAL INPUT REPORT SERIES 1, 15 (Gregg Garfin et al. eds., 2013).

<sup>333</sup> Margaret Wilder et al., *Climate Change and U.S.-Mexico Border Communities*, in ASSESSMENT OF CLIMATE CHANGE IN THE SOUTHWEST UNITED STATES: A REPORT PREPARED FOR THE NATIONAL CLIMATE ASSESSMENT REGIONAL TECHNICAL INPUT REPORT SERIES 340, 341 (Gregg Garfin et al. eds., 2013).

<sup>334</sup> Frisvold et al., *supra* note 323, at 222.

<sup>335</sup> *Id.* at 224.

<sup>336</sup> HAYDEN STEWART ET AL., WHY ARE AMERICANS CONSUMING LESS FLUID MILK? A LOOK AT GENERATIONAL DIFFERENCES IN INTAKE FREQUENCY, at i (U.S. Dep't of Agric., Econ. Research Serv., Rep. No. 149, 2013).

<sup>337</sup> *Id.*

<sup>338</sup> *Id.* at 1.

almond milk, rice milk, oat milk, etc.).<sup>339</sup> These plant-base products now represent nearly 7% of the combined animal and plant milk sales.<sup>340</sup> The dairy industry has attempted legal action to prevent these products from using the term “milk” but, in a set of cases, it has been turned back (*Ang v. WhiteWave Foods Co.*; *Gitson v. Trader Joe’s Co.*; *Painter v. Blue Diamond Growers*).<sup>341</sup> In 2017, Senator Tammy Baldwin (D-Wisconsin) introduced the Dairy Pride Act, which would prohibit plant-based products from using terms such as “milk,” “yogurt” or “cheese” on their labels.<sup>342</sup> The bill, however is “languishing in committee.”<sup>343</sup> Interestingly, it has no co-sponsors from major nut producing states such as California, New Mexico or Georgia.<sup>344</sup> The first two are also major dairy states.<sup>345</sup> Neither does the bill have any Senate cosponsors from major soybean producing states.<sup>346</sup>

## V. Conclusions

The U.S. dairy industry has transformed itself from one isolated from world markets and highly dependent on government programs to an industry more globally and market oriented.<sup>347</sup> Impressive productivity growth and industry concentration has made this possible.<sup>348</sup> Yet, such concentration (including geographical concentration) has certain negative environmental implications.<sup>349</sup> A future challenge facing the industry will be compliance with environmental laws while navigating changes in global dairy markets. Increased consolidation of dairy cooperatives has also brought increasing challenges to the Capper Volstead exemptions for agricultural cooperatives to antitrust action.<sup>350</sup> The rise of plant-

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<sup>339</sup> HAYDEN STEWART AND JERRY CESSNA, *LIVESTOCK, DAIRY AND POULTRY OUTLOOK: SPECIAL ARTICLE ON DIFFERENT TRAJECTORIES: A LOOK AT SALES OF COW’S MILK AND PLANT-BASED MILK ANALOGS 2* (U.S. Dep’t of Agric., Econ. Research Serv., LDP-M-279 SA, 2017).

<sup>340</sup> *Id.* at 3.

<sup>341</sup> Iselin Gambert, *Got Mylk: The Disruptive Possibilities of Plant Milk*, 84 *BROOK L. REV.* 801, 812–17 (2019).

<sup>342</sup> *Id.* at 803.

<sup>343</sup> Elaine Watson, *NMPF Hails Victory over Plant-Based “Milks” in Spending Bill, PBFA Says Claims Have “Zero Legal Significance”*, *FOOD NAVIGATOR* (Mar. 23, 2018, 15:23 GMT), <https://www.foodnavigator-usa.com/Article/2018/03/23/NMPF-hails-victory-over-plant-based-milks-in-spending-bill-PBFA-says-claims-have-zero-legal-significance>.

<sup>344</sup> *Cosponsors: S.130 – 115th Congress (2017-2018)*, *CONGRESS.GOV*, <https://www.congress.gov/bill/115th-congress/senate-bill/130/cosponsors?searchResultViewType=expanded> (last visited Oct. 25, 2020).

<sup>345</sup> *Id.*

<sup>346</sup> *Id.*

<sup>347</sup> See *supra* notes 1–2 and accompanying text.

<sup>348</sup> See *supra* notes 9–10 and accompanying text.

<sup>349</sup> See Frisvold et al., *supra* note 323.

<sup>350</sup> See *supra* notes 199–208 and accompanying text.

based milk substitutes and declining per capita U.S. milk consumption threaten domestic demand.<sup>351</sup> Yet, income growth (and increased demand for dairy products in developing countries) represents a market opportunity.<sup>352</sup>

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<sup>351</sup> See *supra* notes 328–333 and accompanying text.

<sup>352</sup> SUMNER, *supra* note 10, at 9–10.