

A Review Of
The December 5, 2012 Draft Environmental Impact Statement
on
Dairy Industry Rulemaking Proposed Action
State Pollutant Discharge Elimination System (SPDES) Permits
Concentrated Animal Feeding Operations (Large dairies) Land Application &
Anaerobic Digesters

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Introduction

New York has established a model regulatory regime that still allows smaller dairies (below 200 cows) to survive. This has made it possible for 88% of the dairy farms in the state to remain in a traditional mode while still allowing the state to control the pollution generated by larger dairies that make up the remaining 12% of operations. Since small agricultural enterprises create more jobs per dollar of output and keep more money in the local region than large farms do, this regime has also been important for New York's economy.

The proposal at issue seeks to use New York's interest in attracting more yogurt production to the State as a rationale for breaking open the New York system. Chobani recently opened a new plant in my home state of Idaho, not New York, but not because of weaknesses in the New York system. Instead, Idaho paid Chobani \$58 million in subsidies to move to the state. Idaho has lower property taxes and land values than New York and it has a very poor system of pollution control, which attracts potential polluters. In addition, Idaho has a freeway across the entire southern part of the state which links most of the dairies that will supply the new Chobani plant and hence, dramatically lowers the costs of transportation. With the exception of lax pollution control, which no progressive state would choose to emulate, none of these factors is addressed in the preferred alternative in the Draft Environmental Impact Statement dated December 5, 2012, on the effect of Dairy Industry Rulemaking Proposed Action on State Pollutant Discharge Elimination System (SPDES) Permits for Concentrated Animal Feeding Operations (CAFOs) Land Application & Anaerobic Digesters ("DEIS").

Fundamental errors in the economic analysis of the DEIS

The DEIS contains nine fundamental errors, any one of which is serious enough to invalidate the economic claims or analysis in this DEIS:

1. The DEIS violates common principles of good business by not considering whether New York State could accommodate the increased demand from the yogurt industry without regulatory change.

Any well-run enterprise deals with an increase in demand by first calculating whether the increase could be handled by expanding existing operations within the prevailing regulatory structure. However, this DEIS made no attempt to survey the dairy industry to determine the amount of expansion that could be undertaken without changing the regulatory environment. By not doing so, the authors of the DEIS implicitly assume that the number of cows at each dairy in the state is at the maximum size for dairies in their class. However, the data in a source relied on by the DEIS shows the average number of cows in each dairy class is much smaller. Indeed, the DEIS source data shows that the average number of cows in dairies in the 100-199 class is 139 animals.²

Further, the fact that farms within this class average 139 cows shows there is no basis for the assumption that expansion in the class cannot occur without removal of the regulations that go into effect when the dairy reaches 200 cows. And finally, there is no basis for assuming any expansion must or would occur within the 100 to 199 class, versus in other size categories, in the first place.

Simple calculations based on the source relied on by the DEIS show that just the 204 dairy farms that were surveyed, as reflected in table 7-1 of the source document, could provide over 313 million gallons of additional milk if they expanded their herds to the maximum size within their class, and thus without changing any of the regulatory rules.³ If all 5,100 dairies in the state of New York are considered instead of the 204 in the survey, calculations show they could provide over 7.5 billions gallons of increased milk production if each farm expanded to the maximum size within its class and without changing the regulatory rules.

All these figures are very conservative because the largest class of dairy farm—900 cows and over—was not included in the above expansion calculations because the class is open-ended and those farms could theoretically add as many animals as they wanted. These largest dairies already account for a significant

percentage of milk production in New York, and they could expand at minimal cost without significant changes in regulation.

2. The DEIS only considers one, unimportant and unsubstantiated barrier to dairy expansion, and fails to mention or consider any of the actual barriers to expansion.

Barriers to entry and to expansion in the dairy industry are well known. In fact, while this DEIS was being written, the Wall Street Journal published an article that explained the actual barriers to expansion encountered by dairies in New York that were dealing with the actual problem this DEIS theoretically addresses. These barriers are⁴:

1. Farmers have little or no control over their profits
2. Rising costs of feed
3. Higher fixed costs associated with expansion
4. Cost of additional cows

In addition, research in this area has shown the following factors also inhibit both expansion and entry into the dairy market⁵:

5. Mergers between dairy cooperatives reduce competition
6. Vertical integration in the dairy industry
7. Transportation costs
8. Monopsony issues with single milk buyers

None of these important issues is addressed in the DEIS. In fact, the preferred alternative chosen by the authors of the DEIS would place the targeted farms in a cycle of rising fixed costs as they build facilities and acquire more animals. This, in turn, would create the precise risks to their operations that the New York dairy farmers interviewed for the Wall Street Journal article said they were trying to avoid. If, instead of the kind of expansion envisioned by the DEIS, farmers expanded within their classes and within their available infrastructure and land, these fixed costs could be minimized and risk to their operations would be reduced.

Even the opinions provided by Farm Credit East and Cornell Pro-Dairy found a "... major challenge to projecting any kind of financial results for a dairy farm is milk price and input volatility."⁶ And yet, the DEIS concentrates only on the cost of regulation—a cost which has, if one notes the data in the Dairy – Farm

Management chapter of the 2012 Outlook Handbook, already been successfully borne by farms responsible for 56% of the milk production in New York.⁷ And for these farms, any further expansion of production would require few to none of the hypothetical costs listed in the Farm Credit East report, and in most cases would entail only minimal increase in the cost of complying with regulations.

3. The DEIS presents digesters as a mitigation measure for pollution from large dairies but the DEIS does not include the costs of digester subsidies as a cost of the additional large dairies formed under the preferred DEIS option. Further, on page 65 of the DEIS, DEC claims “air impacts can be mitigated by...anaerobic digesters.” This is not true—burning the gas generated by digesters emits large quantities of ammonia—a greenhouse gas—unless scrubbers are employed. Nor does the DEIS (see page 8) mention that digesters neither reduce the amount of nutrients in dairy waste nor the amount of land required to properly dispose of dairy waste and thus, could not possibly mitigate dairy CAFO pollution.

Digesters are attractive to dairies because they are heavily subsidized by the federal government even though dairy waste contains too much liquid to be suitable for digestion and requires expensive manure pressing just to be prepared for digester use. While digester subsidies initially produce a favorable economic impact on the dairies, they also create a considerable cost for the taxpayer when used as a mitigating technology. Thus, an accurate accounting of the costs and benefits of the proposed DEIS course of action should include as a cost all digester subsidies awarded to farmers who follow the alternative suggested by the DEIS.

Aside from the failure to properly account for the digester costs associated with the DEIS preferred alternative, additional fundamental errors occur when the DEIS fails to mention that digesters mitigate none of the pollution for which they are being suggested—and indeed, they cause pollution in other areas. The cost of the additional pollution caused by digesters should also be included in the costs of the preferred DEIS alternative. For example: While digesters consume none of the nutrients present in dairy waste and reduce none of the acreage requirements for the spreading the manure, digesters also produce significant amounts of ammonia along with methane. The methane burns at such a low temperature that the ammonia is allowed to escape directly to the atmosphere, making the digester a point source for greenhouse gas emissions unless the gas is scrubbed for ammonia.⁸ Since the cost and primitive nature of most dairy digesters makes scrubbing highly unlikely, the DEIS should discuss the mechanism DEC believes

would insure scrubbing was used on every digester, what methods they would use to insure the scrubbers were properly maintained, and the cost of installing, using and maintaining the scrubbers. In addition, the DEIS should have compared all these costs with the purported benefits of using digesters.

4. The DEIS ignores 65 years of research that shows larger farms lower employment from agriculture in the region around the large dairies and lowers the economic activity in rural communities around large dairies.

This DEIS contains the unstated assumption that large dairies that expand to sell milk to the yogurt industry will provide economic development for the rural regions in which they are located. Even setting aside the obviously problematic attributes of a plan to expand one's operation based on the demands of a single industry, this plan could not and will not create economic development because large dairies are specifically designed to limit the number of workers hired, the amount of local purchases, and the amount of local taxes they pay. Each of these factors severely limits their local economic impact. Large dairies also add both air and water pollution to a region and this reduces the opportunity for development of other economic sectors (such as tourism.)

For example, on page 5 the DEIS claims deregulating dairies of between 200 and 299 cows "could create 500 to 625 new on-farm jobs." It reaches this conclusion by using an estimate that for every 40 to 50 cows added to a dairy farm, one on-farm job is created. However, the DEIS cites a source (Schmit/Bills) that does not show these levels of employment per cow are associated with larger dairies, it provides another source (Knoblauch, et al.) that shows employment per cow drops as dairy size increases, and it presents a data set from New York that shows that 88% of dairy farms have 199 or fewer cows. Thus the data behind the estimate in the DEIS only apply to a dairy system dominated by similar small farms. The DEIS then uses the job numbers for small farms to calculate the effect of adding 25,000 cows to larger dairies that have fewer workers per cow. The employment effect will be significantly smaller and the secondary jobs that are created in processing will be located at a yogurt plant far away from the pollution of the expanded dairies.

Since 1946 research has consistently shown that the presence of large enterprises reduces the economic growth and health of rural regions.⁹ Large dairies are designed to use as little labor as possible and fewer jobs are created by larger dairies than would have been available at the traditional dairies they replace. In addition, large dairies do not spend the same amounts of money locally

as traditional dairies so few additional jobs are created in the local economy.¹⁰ Buildings on large farms are normally built from materials brought into the region from the outside, often by a crew brought into the region from the outside. Feed is imported from the cheapest source and most major purchases come from the outside. The money made by the large dairies (and the yogurt industry) goes out of the region and waste generated by the dairies is deposited in the region. The result is negligible economic stimulus for the region.¹¹

Thus, to claim, as this DEIS does, that promoting larger dairies is a good way to create jobs in a rural agricultural region requires those who make this claim to show that: (a) larger dairies create more jobs in a region than they destroy, (b) larger dairies create more direct employment at the dairy site than traditional dairies with the same number of cows would create, and (c) dairy workers at larger dairies spend their money locally and by so doing, create indirect jobs in the region. The authors of this DEIS have made no effort to show that any of these claims is true, and that is likely for a very good reason: large dairies create fewer jobs than the traditional activity they replace.¹²

Even when new dairy jobs are not created, it is commonly claimed that larger dairies aid the local economy by increasing the price paid for local feed grain and hay. For that to be true, the large dairy would have to pay local producers more than the market rate for feed. Of course, larger dairies are not charitable institutions. They will pay no more than the market rate for grain and local producers will receive the market rate unless the large dairies buy every bushel of grain or bale of hay produced in the region. Thus, the price of grain in the region will remain unchanged and although more hay and straw may be sold locally based solely on transportation advantages, that is the only money local producers may be able to recoup. Larger dairies will shop for grain in the national and international market and will only buy local grain when the price it pays is less than it would pay elsewhere.

5. The DEIS fails to discuss or acknowledge the likelihood that voluntary programs will fail to mitigate the pollution caused by larger farms.

The voluntary regulatory and mitigation scheme proposed by this DEIS assumes, at its core that the altruistic actions of dairy CAFO owners will fill the gap where regulations are not written or are not sufficient. This way of protecting property owners from the pollution that could result from the deregulation proposal is suggested without any evidence to show it would work in practice. Meanwhile, there is a large body of evidence from actual experience in areas all

across the U.S. that shows voluntary, altruistic acts are highly unlikely in this industry and that the costs of pollution from large operations are generally shifted to neighboring property owners in the form of reduced value for their real estate, among other effects.

The DEIS presents no evidence that larger dairies will voluntarily control pollution from their livestock because there is no evidence to cite. To the contrary, a study by Poe et al. of New York dairies found

[a] wide divergence...between actual and recommended manure management practices on individual dairy farms..., the apparent ability of farms to divert financial resources to environmental practices [was] mixed, and the willingness to participate in voluntary programs at various annual costs per cow was low.¹³

Any suggestion that something different will arise from the deregulation proposal in this DEIS is completely without basis.

6. The DEIS fails to consider or mention that without proper regulations to control and limit pollution, the effect of pollution in the locale of the newly expanded larger dairies is to lower property values and property tax receipts.

The economic loss suffered by the neighbors of a CAFO can be significant. Costs shifted to the residents of the region by a CAFO lower the sales and taxable value of neighboring properties. In Iowa, large animal operations decreased the value of homes in a half-mile radius of the facilities by 40%, within 1 mile by 30%, 1.5 miles by 20% and 2 miles by 10%. In addition, an Iowa study found that while some agricultural land values increased due to an increased demand for “spreadable acreage,” total assessed property value, including residential, fell in proximity to large animal operations.¹⁴

An eighteen month study of other large animal operations in Putnam County, Missouri conducted by the departments of Agricultural Economics and Rural Sociology at the University of Missouri found an average \$58 per acre loss of value within 3.2 kilometers (1.5 miles) of the facilities. These findings were confirmed by a second study at the University of Missouri-Columbia by Mubarak, Johnson, and Miller that found that proximity to a hog CAFO does have an impact on property values. Based on the averages of collected data, loss of land values within 3 miles of a hog CAFO would be approximately \$2.68 million and the

average loss of land value within the 3-mile area was approximately \$112 per acre (Mubarak, Johnson and Miller, 1999).

A compilation by the Sierra Club of tax adjustments by county assessors in eight states documented that lower property taxes follow these decreases in property value. Local property tax assessments were lowered in Alabama, Illinois, Iowa, Kentucky, Maryland, Michigan, Minnesota and Missouri by ten to thirty percent due to their close proximity to the large animal operations. Real estate appraisers have also noted the problems associated with property values and large animal operations. In an article in the July, 2001 Appraisal Journal, and in a 2012 paper, John Kilpatrick found that large animal operations drive down the value of surrounding residences and cause commensurate decreases in tax revenues from those properties.¹⁵ He noted that

[w]hile the appraisal profession has only begun to quantify the loss attributable to CAFOs.....diminished marketability, loss of use and enjoyment, and loss of exclusivity can result in a diminishment ranging from 50% to nearly 90% of otherwise unimpaired value.¹⁶

These losses not only diminish the value of homes around the dairy--often a major part of a rural resident's retirement savings--but they also diminish the property taxes collected by the county, reduce the funding available for schools and social services, and shift future tax and bond burdens to the remaining residents.

7. The DEIS fails to account for the costs of the trucking and other operations required by large dairies on regional infrastructure and the necessity of using public expenses to pay for these items.

To claim, as this DEIS does, that larger dairies will increase the available tax revenue in regions where the larger dairies develop, one must be able to show not only that a larger dairy pays taxes in that region, but also that a larger dairy will not cause other taxes (like the property taxes of neighbors) to decrease and that it will not cause greater infrastructure costs to the region.

However, the documented additional costs associated with hosting a larger animal operation include increased health costs, schooling costs, road cost, traffic, accidents, and repairs. One Iowa community estimated that its gravel costs alone increased by about 40% (about \$20,000 per year) due to truck traffic to a large CAFO. Annual estimated costs of a 20,000 head feedlot on local roadways were \$6,447 per mile due to truck traffic.¹⁷ Colorado counties that have experienced

increases in livestock operations have also reported increases in the costs of roads.¹⁸ All these data point to the rising costs for the host county that accompany increases in the size of large animal operations in the area.

Larger dairies, like all other business entities, attempt to pay as few taxes as possible. But larger dairies can often file as either agriculture or industry, depending on which designation allows them to pay less taxes at any given time. They drive up the cost of infrastructure maintenance and repair in the region.¹⁹ In most cases, regions with larger dairies will see a decrease in total property tax revenues while incurring larger charges for road and infrastructure maintenance and repair.²⁰ As a result, existing residents of the region face higher property taxes to retain the same level of services and potential in-migration of other residents and industries to the region may be depressed by its higher level of taxation.

8. The DEIS fails to provide any mechanism to protect, with certainty, the residents of a region where dairies expand without regulation.

The DEIS goes to considerable length to promote the use of voluntary mitigating programs in place of the mandatory regulations the preferred alternative would replace. There are a number of obvious problems with this strategy:

First, the DEIS treats the money for the proposed mitigation programs as though it was costless and will always be available. The use of mitigation strategies would not be necessary if there was nothing to mitigate, i.e., if the dairies were not generating more nutrients than the land can absorb. So the cost of the mitigating strategies must be regarded as one of the costs of large dairies that could result from the suggested alternative and should be offset against benefits of the preferred alternative. This has not been addressed in the DEIS.

Second, mitigation money is not costless; it comes from increasingly scarce tax revenues. And this money addresses a cost that ought to be covered by the dairy CAFO itself—the cost of responsibly handling the pollution the dairy creates. These sources of funding are likely to be sharply curtailed as budget problems are addressed by the state and federal governments. In fact, such cuts have already been suggested for most of the federal programs.

Third, one of the mitigation suggestions, anaerobic digesters, covered in point 3 above, would provide no mitigation, would increase air pollution, and would be simply an expensive subsidy to the dairies using taxpayer dollars.

Fourth, across the country there is already heavy use of federally subsidized “mitigation” programs by large animal operations that seek subsidies for everything from the federal Environmental Quality Incentives Program (“EQIP”) to digesters. Like EQIP, many of these programs have been used to subsidize the costs of dealing with large amount of animal waste from larger dairies, feedlots and hog farms.²¹

This behavior provides a cautionary note for those who suggest that voluntary actions and “best management practices” will solve the problems inherent in larger dairies. This hasn’t worked in the past and there is no indication it will work better in the future. Larger dairies are profit-driven industries and the profit margins are small. Decisions about any activity are made with the bottom line in mind, and no larger dairy will spend money to control pollution unless the regulations state specifically that they have to.

9. The DEIS does not consider the cost of externalities.

The DEIS includes 28 pages of environmental externalities associated with the preferred alternative—without a single reference or comment on how these potential costs compare to the benefits of the proposed alternative. While the intentional omission of the costs of deregulating dairies with 200 to 299 cows invalidates this entire DEIS from an economic perspective, it should be noted that the unstated assumptions that underly this DEIS also undermine its conclusions. For example:

- (a) One of the assumption, already noted in above paragraphs, is that any farm in a given size category already has the maximum number of animals in that category.
- (b) In the case of pollution costs, while the authors of the DEIS were willing to estimate the benefits of the preferred alternative, the DEIS estimates no costs for dealing with externalities ranging from odor, water pollution, air pollution and property value degradation, assuming instead the cost of each of these externalities was zero. In this case, figures for the lower limit of these costs were readily available: the cost in mitigation subsidies to get the dairy farms to even address the various sources of pollution emanating from their operations is an obvious lower limit on the actual costs of the externalities.

- (c) Unfortunately, even that method of costing was not considered due to the unstated assumption that if the cost of an externality is mitigated by spending public tax revenues, the cost of that mitigation was zero.
- (d) Throughout the DEIS, there are claims that many benefits accrue from the use of liquid animal manure as a crop nutrient. These claims rest on the assumption that liquid manure is applied to the land at agronomic rates—rates that adequately nourish the crops without providing more fertilizer than crops can use. However, on page 8 the DEIS says that “as farms grow [they] cannot effectively apply the large amount of nutrients they generate.”

A 2003 study by USDA found many owners of large animal operations knowingly over-applied liquid manure to lands closest to their operations—leading to runoff into waterways, odor problems, well contamination and eutrophication of waterways to reduce the transportation costs of moving heavy tanks of liquid to distant fields.²² By over-applying manure close to the large operations and by reducing hauling distances, the owners of large operations increased their profits. Historically, the incentive of higher profits has trumped any voluntary activity to mitigate pollution in the dairy industry. The DEIS offers no data that contradict this USDA study but nonetheless it assumes voluntary acts will take place.

In sum, all four of these additional assumptions are without basis and should be rejected.

Conclusion

The DEIS disregards and misrepresents data about the dairy industry in an apparent attempt to justify a pre-ordained conclusion. Instead of acting to preserve a functioning system that has successfully controlled pollution and promoted small farms and dairies, the authors of the DEIS have attempted to show that having larger, heavily subsidized dairy farms is so important that all the externalities associated with this change should be ignored. And further, that the faint hope of gaining a small number of jobs is worth any cost to residents of the region, the property values of their homes, and environment in which they live.

If larger dairies run industrial operations in agricultural settings—without complying with the rules governing industrial pollution—they are able to produce cheap milk by avoiding costs of pollution that they should be paying. When

animals are involved, the ability to cut costs is significantly limited to shortcuts taken in the handling and disposal of waste and the state can facilitate these polluting activities by creating loopholes in the permitting process and by writing reports that promote the constant denial of the obvious.

This problem is not that difficult. The state of New York already has a functioning system. It needs to remember that its job is to protect the population of the rural areas. Because when larger dairies are involved, there is one best management practice of paramount importance—no dairy should generate more waste than the land can absorb without overloading the nutrients in the soil. Permitting agencies and residents of rural regions ignore this fact at their peril.

¹ I hold a Bachelor of Science in engineering from the U.S. Air Force Academy, an MBA from UCLA, and a Doctorate in Econometrics and Operations Research from the University of Colorado. I was a member of the Economics Department at the U.S. Air Force Academy for 11 years, the last two of which I was chair. I was an economist at the Office of the Secretary of Defense for three years and retired from the Air Force as a Colonel in 1985. I was Chair and Professor of Economics and Business at The Colorado College, Colorado Springs, CO, where I specialized in regional economics, statistics, and econometric modeling. I have published a large number of articles, written four books, and contributed chapters to four others – all of which deal with regional economic impacts. I was President of the Socially Responsible Agricultural Project (sraproject.org) from 2008 until 2012 and previously served for six years as Director of the GRACE Factory Farm Project. My full c.v. is attached. These comments rely on my familiarity and expertise in economics and a review of relevant materials, including the Draft Environmental Impact Statement on Dairy Industry Rulemaking Proposed Action SPDES Permits for CAFOs Land Application & Anaerobic Digesters (“DEIS”).

² Wayne A. Knoblauch, George C. Conneman & Linda D. Putnam, *Dairy – Farm Management*, in *New York Economic Handbook 2012 Outlook* 7-1, 7-1 to 7-3 (2011).

³ *Id.*

⁴ Andrew Grossman, *Yogurt Boom Leaves Dairy Farmers Behind: As Greek-Style Product's Popularity Takes Off, New York State Milk Producers Can't Keep Up With Escalating Demand*, Wall Street Journal, June 26, 2012.

⁵ Hiromitsu Miyakawa, The American Antitrust Institute, *Competitive Issues in the Dairy Industry: The Pending DFA/NDH/Hood Transaction 1-20* (2004).

⁶ Farm Credit East & Cornell Pro-Dairy, *Financial Implications of a Dairy Farm Expansion – 190 cows to 290 cows* (2012).

⁷ Knoblauch, Conneman & Putnam, *supra* note 2, at 7-3.

⁸ See Leo Horrigan, Robert S. Lawrence & Polly Walker, *How Sustainable Agriculture Can Address the Environmental and Human Health Harms of Industrial Agriculture*, 110 *Environmental Health Perspectives* 445, 445-456 (2002); David E. Rosenbaum, *Senator Looks to Home with Bill on Manure Use*, New York Times, July 29, 2001; James C. Barker, North Carolina Cooperative Extension Service, *Methane Fuel Gas from Livestock Wastes: A Summary*, North Carolina State University, http://www.bae.ncsu.edu/programs/extension/publicat/wqwm/ebae071_80.html (last updated March 14, 2001); Michael Howie, *Manure Covers*, 74 *Hog Industry Insider* (July 8, 2002); Marlene Halverson, Institute for Agriculture & Trade Policy, *The Price We Pay for Corporate Hogs* 55 (2000); Robin Marks, Natural Resources Defense Council & Clean Water Network, *Cesspools of Shame* 42 (2001); James Poehling, *Anaerobic Farm Digesters—Fact and Fiction* (2004); Water Environment Federation, *Anaerobic Digester Technology Applications in Animal Agriculture – A National Summit* (2003), http://mie.esab.upc.es/ms/informacio/compostatge_digestio_anaerobia/digestio_anaerobia/DA_fems_USA.pdf; National Research Council, *Air Emissions from Animal Feeding Operations: Current Knowledge, Future Needs* (2003), *available at* <http://books.nap.edu/books/0309087058/html>.

⁹ In 1946, anthropologist Walter Goldschmidt used a number of social indicators to demonstrate that rural communities in California surrounded by large farms did not do as well as similar communities in areas where smaller farms were the rule. See Walter Goldschmidt, *Small Business and the Community: Report of the Smaller War Plants Corporation to the Special Committee to Study Problems of American Small Business* (1946). As the number of large animal operations increased, a substantial body of literature expanded, tested and generally confirmed Goldschmidt's work. See Frederick H. Buttel, Olaf F. Larson & Gilbert W. Gillespie Jr., *The Sociology of Agriculture* (1990); E. Paul Durrenberger & Kendall Thu, *The Expansion of Large Scale Hog Farming in Iowa: The Applicability of Goldschmidt's Findings Fifty Years Later*, 55 *Human Organization* 409, 409-15 (1996); Linda Lobao, *Locality and Inequality: Farm Structure, Industry Structure, and Socioeconomic Conditions* (1990); Thomas A. Lyson, Robert Torres & Rick Welsh, *Scale of Agricultural Production, Civic Engagement and Community Welfare*, 80 *Social Force* 311, 311-27 (2001); Rick Welsh & Thomas Lyson, *Anti-Corporate Farming Laws, the Goldschmidt Hypothesis and Rural Community Welfare* (2001).

¹⁰ A USDA report published in 2000 found that "animal industries tend to move to areas with a lax environmental regulatory structure....[T]he more a state spends on environmental enforcement, the less likely a given firm will locate in that state. Differences in level of enforcement among nearby states, especially if competitors already operate in the area, may also

affect location decisions...Location decisions, while important at the state level, also have an international context, with concerns about large production companies shifting investment outside the U.S.” John Sullivan, Utpal Vasavada & Mark Smith, USDA, *Environmental Regulation & Location of Hog Production* 22-23 (2000).

¹¹ A study of 1,106 rural communities by Gómez and Zhang of Illinois State University found that large farms tend to hinder rural economic growth at the local level. All models in this study indicated an inverse relationship between production concentration and retail spending in local communities. Miguel I. Gómez & Liying Zhang, *Impacts of Concentration in Hog Production on Economic Growth in Rural Illinois: An Econometric Analysis* (2000).

¹² Community attempts to recruit large dairies are usually based on fallacious assumptions about the potential of large dairies to replace the economic activity lost through rural agricultural depopulation. Gale has noted that as rural residential areas have become more economically independent of rural agricultural areas, “[r]ural communities that can attract service jobs will be the best positioned to grow...the key to survival and growth for rural communities is to develop and attract service-sector businesses.” Fred Gale, USDA, *Farming’s Role in the Rural Economy*, *Agricultural Outlook*, June-Jul 2000, at 21-22. Much research has demonstrated the adverse effect of large farms on economic development. See, e.g. Lee Beasley, *Cumberland Hog Facility May Affect Clark County Homeowners Property Values* (2001); Frederick H. Buttel, Olaf F. Larson & Gilbert W. Gillespie Jr., *The Sociology of Agriculture* (1990); John W. Chism & Richard A. Levins, *Farms Spending and Local Selling: How Do They Match Up*, 676 *Minnesota Agricultural Economist* 1, 1-4 (1994); Marvin R. Duncan, Richard D. Taylor, David M. Saxowsky & Won W. Koo, *Economic Feasibility of the Cattle Feeding Industry in the Northern Plains and Western Lakes States*, *Agricultural Economics Report No. 370* (1997); E. Paul Durrenberger & Kendall Thu, *The Expansion of Large Scale Hog Farming in Iowa: The Applicability of Goldschmidt’s Findings Fifty Years Later*, 55 *Human Organization* 409, 409-15 (1996); Walter Goldschmidt, *Small Business and the Community: Report of the Smaller War Plants Corporation to the Special Committee to Study Problems of American Small Business* (1946); Miguel I. Gómez & Liying Zhang, *Impacts of Concentration in Hog Production on Economic Growth in Rural Illinois: An Econometric Analysis* (2000); Dermot J. Hayes, *Iowa’s Pork Industry Dollars and Scents: What Rural Iowans Think About Hogs* (1997); David Henderson, Luther Tweeten & Dean Schreiner, *Community Ties to the Farm*, 5 *Rural Development Perspectives* 31, 31-35 (1989); Jason R. Henderson, *Will the Rural Economy Rebound with the Rest of the Nation?* *The Mainstreet Economist* (Jan. 2002); David A. Hennessy & John D. Lawrence, *Contractual Relations, Control, and Quality in the Hog Sector*, 21 *Review of Agricultural Economics* 52, 52-67(1999); John E. Ikerd, *Sustainable Agriculture: An Alternative Model for Future Pork Producers*, in *The Industrialization of Agriculture: Vertical Coordination in the U.S. Food System* (Jeffrey S. Royer & Richard T. Rogers, eds.1998); Iowa State University and The University of Iowa Study Group, *Iowa Concentrated Animal Feeding Operations Air Quality Study Final Report* (Feb. 2002); John A. Kilpatrick, *Concentrated Animal Feeding Operations and Proximate Property Values*, *The Appraisal Journal* 306 (July 2001); John D. Lawrence, et al., Iowa State University Department of Economics, *A Profile of the Iowa Pork Industry, Its Producers, and Implications for the Future* (1994); Linda Lobao, *Locality and Inequality: Farm Structure, Industry Structure, and Socioeconomic Conditions* (1990); Thomas A. Lyson, Robert Torres & Rick Welsh, *Scale of Agricultural Production, Civic Engagement and Community Welfare*, 80 *Social Force* 311, 311-

27 (2001); Paul Milgrom & John Roberts, *Economics, Organization, and Management* (1992); Hamed Mubarak, Thomas G. Johnson & Kathleen K. Miller, Community Policy Analysis Center, *The Impacts of Animal Feeding Operations on Rural Land Values* (1999); Raymond B. Palmquist, Fritz M. Roka & Tomislav Vukina, *The Effects of Environmental Impacts from Swine Operations on Surrounding Residential Property Values* (1995); Raymond B. Palmquist, Fritz M. Roka & Tomislav Vukina, *Hog Operations, Environmental Effects, and Residential Property Values*. 73 *Land Economics* 114, 114-124 (1997); Dooho Park, Kyu-Hee Lee & Andrew Seidl, *Rural Communities and Animal Feeding Operations*, in *Report on Animal Feeding Operations and Rural Colorado Communities* (Andrew Seidl & Jessica Davis eds. 1999); Loic Sauvee, *Toward an Institutional Analysis of Vertical Coordination in Agribusiness*, in *The Industrialization of Agriculture: Vertical Coordination in the U.S. Food System* (Jeffrey S. Royer & Richard T. Rogers, eds. 1998); Frank Snare, *The Concept of Property*, 9 *American Philosophical Quarterly* 200 (1972); Thomas L. Sporleder, Ohio State University, *Ohio Farm Income Enhancement Program* (1997); George Stigler, *Law or Economics?* 35 *Journal of Law and Economics* 455, 455-469 (1992); John Sullivan, Utpal Vasavada & Mark Smith, USDA, *Environmental Regulation & Location of Hog Production* 2000); Luther G. Tweeten & Cornelia B. Flora, Council for Agricultural Science & Technology, *Vertical Coordination of Agriculture in Farming-Dependent Areas* (2001); Rick Welsh & Thomas Lyson, *Anti-Corporate Farming Laws, the Goldschmidt Hypothesis and Rural Community Welfare* (2001).

¹³ Gregory L. Poe, et. al., *Will Voluntary and Educational Programs Meet Environmental Objectives? Evidence from a Survey of New York Dairy Farms*, 23 *Review of Agricultural Economics* 473, 473-491 (2001).

¹⁴ Dooho Park, Kyu-Hee Lee & Andrew Seidl, *Rural Communities and Animal Feeding Operations*, in *Report on Animal Feeding Operations and Rural Colorado Communities* (Andrew Seidl & Jessica Davis eds. 1999).

Large dairies are point sources of both water and air pollution that falls unevenly across the area surrounding the CAFO. Air pollution generally imposes the most significant costs on surrounding residents, and lowers the sales and taxable value of neighboring properties. See Raymond B. Palmquist, Fritz M. Roka & Tomislav Vukina, *The Effects of Environmental Impacts from Swine Operations on Surrounding Residential Property Values* (1995); Raymond B. Palmquist, Fritz M. Roka & Tomislav Vukina, *Hog Operations, Environmental Effects, and Residential Property Values*. 73 *Land Economics* 114, 114-124 (1997).

¹⁵ For the most recent work in this area, see John A. Kilpatrick, Greenfield Advisors, *Memo Concerning Jarden v. Delta County* 1-18 (Aug. 22, 2012).

¹⁶ John A. Kilpatrick, *Concentrated Animal Feeding Operations and Proximate Property Values*, *The Appraisal Journal* 306 (July 2001).

¹⁷ Marvin R. Duncan, Richard D. Taylor, David M. Saxowsky & Won W. Koo, *Economic Feasibility of the Cattle Feeding Industry in the Northern Plains and Western Lakes States*, *Agricultural Economics Report No. 370* (1997).

¹⁸ Dooho Park, Kyu-Hee Lee & Andrew Seidl, *Rural Communities and Animal Feeding Operations*, in *Report on Animal Feeding Operations and Rural Colorado Communities* (Andrew Seidl & Jessica Davis eds. 1999).

¹⁹ Federal, state, provincial and local taxes are levied on taxable amounts calculated on federal returns. Numerous tax write-offs are possible because large dairies are sometimes treated as industries and, at other times, treated as farms. These write-offs significantly decrease the amounts of taxes paid locally. The local government, in turn, must rely on increased taxes to pay these CAFO-induced costs--and this can decrease other economic activity in the region.

²⁰ For tax benefits to accrue, the impact of a facility on a region should be at least tax-neutral and, hopefully, tax positive.

²¹ See Environmental Quality Incentives Program, USDA,
<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/>.

Tom Laskawy, *Stop the environmental subsidy for factory farms*, Grist, Apr. 17, 2009.

²² Marc Ribaud, et al., USDA, Manure Management for Water Quality: Costs to Animal Feeding Operations of Applying Manure Nutrients to Land (June 2003).

CURRICULUM VITAE

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EDUCATION

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M.B.A., Management Theory, UNIVERSITY OF CALIFORNIA AT LOS ANGELES, 1966
B.S., Engineering, UNITED STATES AIR FORCE ACADEMY, COLORADO, 1965

PROFESSIONAL EXPERIENCE

Aug. 2008 July 2012	Director, Socially Responsible Agricultural Project, Emeritus Professor, Dept. of Economics, The Colorado College, Colo. Springs, CO
Sept. 2002 July 2008	Director, Factory Farm Project, Global Resource Action Center For The Environment Emeritus Professor, Dept. of Economics, The Colorado College, Colo. Springs, CO
Jan. 1997 Aug. 2002	Project Director, Global Resource Action Center For The Environment and Professor, Dept. of Economics, The Colorado College, Colo. Springs, CO
May 1993- Dec. 1996	National Director, Community Education Campaign, Nuclear Site Cleanup and Conversion, Economists Allied for Arms Reductions and Professor, Dept. of Economics, The Colorado College, Colorado Springs, CO
June 1990- June 1993	Professor and Chair, Department of Economics & Business, The Colorado College, Colorado Springs, CO
Aug. 1985- May 1990	Professor and Co-Chair (1988-1990), Assoc. Prof. (1985-1988) Dept. of Economics & Business, The Colorado College, Colorado Springs, CO
Mar. 1982- July 1985	Director (1984-1985) and Asst. (1982-1984) for Econ Policy and Analysis OASD/ISA, International Economic and Energy Affairs, Pentagon Formulated Department of Defense policy on international economic and energy issues including security assistance, burdensharing, sanctions and economic warfare trade restrictions, energy and defense trade.
Feb.-Sept. 1983	Economist, Blue Ribbon Commission on Security & Economic Assistance Economic analysis of security assistance matters including alternative methods of financing, the economic impact of loan payments on LDCs, and U.S. agreements and treaties that determine assistance amounts.
U.S. AIR FORCE ACADEMY, COLORADO, Department of Economics	
June 1981- Mar. 1982	Professor and Acting Head Responsible for curricula, pedagogy, budget and administration of economics faculty. Taught courses in macro and micro economics, statistics and econometrics.
June 1978- May 1981	Associate Professor and Director of Instruction Responsible for faculty and courses in economics and quantitative management. Director, Operations Research major. Tenured June 1978. (Ten percent of faculty tenured.)
Jan. 1975- May 1978	Assistant Professor and Director of Research, USAF Academy Director, USAF Procurement Research Office, USAF Academy.

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June 1972-
Jan. 1975 Doctoral Candidate, University of Colorado

Jan. 1970-
June 1972 Instructor, U.S. Air Force Academy Department of
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June 1965-
Jan. 1971 Professional assignments as an U.S. Air Force officer
and combat pilot in Vietnam.

RESEARCH AND PUBLICATIONS

Selected journal articles: "General Weapon Expenditure Forecasting with Risk as a Determinant of Development Time," *The Journal of Technology Transfer*, 1981, "Military Weapon Systems Expenditures and Risk: Theory and Evidence," *International Journal of Social Economics*, 1985 (with Dr. Frank L. Gertcher), "The Ethics and Economics of Foreign Sales of U.S.-Made Weapons," *International Journal of Social Economics*, London, 1986.

Books: Playing for Weapons: The Politics and Economics of Offsets and Countertrade, Frost and Sullivan, 1986; The Political Economy of National Defense, Westview Press, 1987 (with Dr. Frank L. Gertcher); Beyond Deterrence: The Political Economy of Nuclear Weapons, Westview Press, 1990 (with Dr. Frank L. Getcher); Substituting Employment From Environmental Cleanup Of Defense Facilities For Jobs Lost Through Disarmament, in Jurgen Brauer and Manas Chatterji, (ed.), Economic Issues of Disarmament, MacMillan Co., December, 1992; The Political Economy of Nuclear Weapons and Economic Development after the Cold War, in Akira Hattori, ed., Disarmament and Restructuring of the World Economy After The End Of The Cold War, Tokyo, Japan, May 20, 1994; Nuclear Weapons and Economic Development, in Chatterji, Fontanel and Hattori, eds., Arms Spending, Development and Security, Ashish Publishing House, New Delhi, India, May, 1996. Regaining Security--A Guide to the Costs of Disposing of Plutonium and Highly Enriched Uranium, Avebury Press, London, 1997, The Economic Implications of Nuclear Weapons in Schwartz, Steven I., ed., Atomic Audit--The Costs and Consequences of Nuclear Weapons Since 1940, Brookings Institution, Washington, DC, 1998.

SELECTED CONSULTING

Air Force Systems Command Cost Analysis Group: 1979-1982 Assistant Secretary of the Air Force (Manpower, Reserve Affairs and Logistics): 1979-1981
Assistant Secretary of the Air Force (Financial Management): 1980
National Association of Church Business Administrators: 1979-1983
Atlantic Richfield Corporation: 1982-1983
Commission on Security and Economic Assistance: 1983
Sears World Trade, Inc: 1983-1985
Department of Defense: 1985-1988
Offset Managers Group: 1985-1988
Georgetown Center for Strategic and International Studies: 1985-1987
American Numismatic Association: 1990
Greenpeace: 1988-1991
Natural Resources Defense Council: 1987-1992
Shoshone-Bannock Tribes: 1991-1992
Ferrellgas, 1992
Economic Development Corporation, Colorado Springs, CO: 1991-1992
Alliance for Nuclear Accountability (40 Regional Organizations): 1991-Present
Legal Consulting on Statistical and Economic Issues--1988-Present--including:
Subway, Delta Dental, Prudential, NBA Ventures, Los Alamos National Laboratory, United Airlines, Benson Pump, Cotter Corporation.

PUBLICATIONS--WILLIAM J. WEIDA

Books:

The Political Economy of National Defense, published January, 1987, by Westview Press, Boulder, Colorado. (With Dr. Franklin Gertcher)

Paying For Weapons: The Politics and Economics of Offsets and Countertrade. Published by Frost and Sullivan, New York, August, 1987.

Beyond Deterrence: The Political Economy of Nuclear Weapons, Westview Press, Boulder, Colorado, January, 1991. (With Dr. Franklin Gertcher)

Regaining Security--A Guide To The Costs of Disposing of Plutonium and Highly Enriched Uranium, Avebury Press, England, 1997.

Book Chapters

The ILO and Depopulation of Rural Agricultural Areas: Implications for Rural Economies in Canada and the U.S. in Alexander Ervin, Cathy Holtslander, Darrin Qualman, and Rick Sawa, eds., Beyond Factory Farming, Canadian Centre for Policy Alternatives, Saskatoon, SK., 2003.

Using Employment Created By Environmental Cleanup of Defense Facilities As A Substitute for Jobs Lost Through Disarmament. in Jurgen Brauer and Manas Chatterji, (ed.), Economic Issues of Disarmament, New York University Press, New York, NY., published January, 1993.

The Political Economy of Nuclear Weapons and Economic Development after the Cold War, in Akira Hattori, ed., Disarmament and Restructuring of the World Economy After The End Of The Cold War, ECAAR Japan, Tokyo, May, 1994.

The Political Economy of Nuclear Weapons and Economic Development After the End of the Cold War, Arms Spending, Development and Security, Chatterji, Fontanel and Hattori, eds., Ashish Publishing House, New Delhi, India, May, 1996.

The Economic Implications of Nuclear Weapons in Steven I. Schwartz, ed., Atomic Audit--The Costs and Consequences of Nuclear Weapons Since 1940, Brookings Institution, Washington, DC, 1998.

Nuclear Energy/Nuclear War, Encyclopedia of Political Economy, 1999.

Procurement: Nuclear Weapons Industry, The Oxford Companion to American Military History, Oxford University Press, New York, 1999.

Selected Papers

A Comparison of Conversion Experience at Lowry Air Force Base and Rocky Flats, Colorado, Presented to the American Economic Association Conference, Anaheim, California, January 5, 1993.

Research, Teaching and Policy on the Military Industrial Economy, Journal of Peace Economics, Peace Science, and Public Policy, Volume 2, No. 3, Spring, 1995. (with Ann Markuson)

An Alternative to the Galvin Report on Futures for the DOE Nuclear Weapons Laboratories, Working Paper No. 87, Center for Urban Policy Research, Rutgers University, 1995. (with Ann Markuson)

Research, Teaching and Policy on the Military Industrial Economy, Working Paper No. 89, Center for Urban Policy Research, Rutgers University, 1995. (with Ann Markuson)

Plutonium & HEU Disposal and Disposition Options, American Economic Association, 7 January, 1996.

The Disposition of Weapon-grade Plutonium: Costs and Tradeoffs, Proceedings of the International Conference on Military Conversion and Science, Volume 1, Como, Italy, June, 1996.

Other Selected Publications

Raising, Cutting Military Spending for the Wrong Reasons, The Denver Post, May 31, 1987.

Editor, *Monetary Policy and Inflation*, the Hon. Wayne D. Angell, Colorado College Study, April, 1987.

Editor, *Restoring American Competitiveness*, Dean Lester Thurow, Colorado College Study, September, 1987.

The use of offsets in the Middle East, Middle East Executive Report, December, 1987.

Editor, *Fundamental Reasons for America's Competitiveness Problems*, John Knight, Colorado College Study, February, 1988.

Editor, *U.S. Trade Policy: The Path to Competitiveness*, Jay Bruns, Colorado College Study, March, 1988.

Editor, *Divestiture and Competition in the U.S. telephone Industry*, Joseph T. Dwyer, Colorado College Study, April, 1988.

Editor, *The Worst Kept Secret in the World: Managing Total Quality*, William H. Hudson, Colorado College Study, November, 1988.

From SDI Setbacks Arise New Opportunities for Defense Department, Colorado Springs, The Rocky Mountain News, January 11, 1991 with Jim Wilson,.

Service Academy Cuts, Not Nice, But Necessary, The Wall Street Journal, June 11, 1991.

The Faustian Economics of Nuclear Weapon Production in South Carolina, The Christian Science Monitor, December 9, 1991.

Restarting The K-Reactor: Weighing The Risks, The Christian Science Monitor, April 26, 1992, with Laura Ludwick.

Privatizing the Labs, Positive Alternatives, Volume 6, Number 1, Fall, 1995.

Four Trillion Dollars and Counting, The Bulletin of the Atomic Scientists, Vol. 51, No. 6, November/December 1995. (with David Albright, Bruce Blair, Tom Blanton, Bill Burr, Steve Kosiak, Arjun Makhijani, Bob Norris, Kevin O'Neill, George Perkovich, John Pike, and Steve Schwartz--The Nuclear Weapons Cost Study Project Committee of the Brookings Institution)

The Stockpile Stewardship Charade, Issues in Science and Technology, Vol. XV, No. 3, Spring, 1999. (with Greg Mello and Andy Lichterman)