

National Office
2717 Wentz Ave.
Saskatoon, Sask.
S7K 4B6
Tel.: (306) 652-9465
Fax: (306) 664-6226



The Farm Crisis, Bigger Farms, and the Myths of “Competition” and “Efficiency”

National Farmers Union (Canada)

Saskatoon, Sask.

November 20, 2003

Preface

Founded in 1969, the National Farmers Union directly represents thousands of Canadian farm families. NFU members believe that the problems facing farmers are common problems, and that farmers producing diverse products must work together to advance effective solutions. The NFU works toward the development of economic and social policies that will maintain the family farm as the primary food-producing unit in Canada.

The NFU believes that agriculture should be economically, socially, and environmentally sustainable. Food production should lead to enriched soils, a more beautiful countryside, jobs for non-farmers, thriving rural communities, and enriched natural ecosystems. The decimation of rural communities, growing environmental problems, declining farm numbers, and the present farm income crisis cast doubt on the sustainability of the current high-input, export-oriented, expansionist model.

The NFU is a leader in articulating the interests of Canada's family farms, in analyzing the farm income crisis, and in proposing affordable, balanced, and innovative solutions that benefit all citizens. We hope that this brief continues that tradition.

The NFU welcomes questions and comments. Please contact the NFU at:

Telephone: (306) 652-9465
Fax: (306) 664-6226
Email: qualman@nfu.ca

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The plan for Canada’s family farms

Governments and agri-business transnationals have a plan for Canadian farmers. That plan takes various forms, but its essence is this:

Driven by competition and aided by technology, Canadian farms must become larger and more efficient, though less numerous.

The embedded assumption is that open, deregulated, globalized markets will drive our farms to higher levels of efficiency, raising incomes for farmers and lowering prices for consumers. A key part of this plan to increase efficiency is to increase farm size. And increases in farm size will require a decrease in the number of farmers. (While governments have recently been less explicit about reducing the number of farmers, they were formerly very explicit, as this report will show.)

The following quotes illustrate the pervasive focus on efficiency:

To remain competitive, farmers must evolve and adopt new, more efficient production methods. . . . As . . . farmers strive to compete in a global marketplace, they continually look for new efficiencies, whether in the form of economies of scale, new technology, or vertically-integrated operations. Since the end of the Second World War, agriculture has become increasingly industrialized. This has meant fewer but more efficient farms. (Ontario Ministry of Agriculture and Food, *Discussion Paper on Intensive Agriculture Operations in Rural Ontario*, January 2000; www.gov.on.ca/OMAFRA/english/agops/discussion.html)

Today, agriculture demands improved productivity and efficiency. Cutting costs, saving time, and ensuring the entire agricultural enterprise is more efficient and accountable is essential to compete in domestic and global markets. (Trimble Navigation Limited; <http://www.trimble.com/agriculture.html>)

Efficiency will be the watchword of successful farming in the new millennium. Considering what’s going on with soybean growers in Brazil, as one notable example, you have no choice but to become ever more efficient. (Donald R.

Margenthaler, President, John Deere Foundation, National Outstanding Farmer Luncheon Address, Mobile, Alabama, February 27, 1999)

[T]here are some who don't understand modern farming and what it takes to survive in a global marketplace with low commodity prices. . . . The [farmers] who remain in full-time farming have been forced to use economies of scale. That is, they've had to become more efficient by using technological advances and raising more animals. (Bruce L. Hiatt, President, Virginia Farm Bureau Federation, *The President's View*, August 1999; www.vafb.com/opinions/1999/op_8_99.htm)

Farmers must be encouraged and assisted to compete aggressively in domestic and international markets on the basis of efficiency and quality. . . . (Bob Speller, Liberal Member of Parliament, "PM's Task Force hopes to work with Agriculture Minister, rural and farm organizations, consumer groups, to establish a vision," *Hill Times*, April 2, 2002)

[P]roducers must become more efficient and competitive in order to survive in an increasingly global marketplace. (Senator Paul Coverdell, news release, Georgia Peanut Commission, May 12, 2000)

Liberalizing trade is part of the prescription to increase the productivity and efficiency of modern agriculture and ensure technological advances and continued growth in this sector. . . . Free trade in agricultural products will make agricultural sectors in both the developed and developing worlds more resilient and thereby boost food security. Policies that are friendly to R&D and new technologies will draw capital into agriculture and enhance the sector's productivity and efficiency. . . . Together, trade liberalization and stronger support for agricultural technology—including for agricultural biotechnology—will raise farm productivity, could spark a new "Green Revolution," and form a solid base for global economic growth and development. (Alan P. Larsen, Undersecretary for Economic, Business, and Agricultural Affairs, U.S. Department of State, *Reforming the Global Food System*, remarks to the Washington International Trade Association, January 8, 2002; www.state.gov/e/rls/rm/2002/7203.htm)

The idea that farmers must become more efficient is not only widespread; its roots go deep into Canadian agricultural policy. The following three quotes are taken from the famous 1969 Federal Task Force on Agriculture report, *Canadian Agriculture in the Seventies*:

[I]n a competitive world, those who are satisfied with yesterday's standards of performance cannot expect even yesterday's income. The inexorable pressure of increasing efficiency will not let anyone rest on previous performance. . . . Being competitive entails being efficient. There is no alternative. (p. 32)

[I]ndividual farm enterprises must continuously expand and improve efficiency in order to maintain or increase incomes. Unfortunately, many farmers have too small earnings to be able to save or to justify borrowing sufficient amounts to finance the

required expansion. They fall further behind in the competitive race, even though they make some improvements in productivity. Those who fall behind tend to receive declining real and relative incomes and may either become part of the rural poor with economically 'unviable' farms or be forced out of agriculture altogether. (p. 21)

The primary worldwide force causing change in agriculture is technological development. Science[,] in the form of a never-ending cornucopia of research and development innovations, has increased and will continue to increase dramatically the production per man hour and unit of land. This trend promises not only to continue indefinitely, but also to accelerate. (p. 6)

The 1969 Federal Task Force went on to recommend that 1/2 to 2/3 of Canadian farmers be moved out of agriculture.¹ The Task Force Report criticized those who "were loathe to recognize the need for a widespread exodus from farming"² and the Report went on, in a section entitled "Goals," to state:

Increased mobility out of farming helps to achieve a higher per capita net farm income for those left in farming while at the same time obtaining better paid employment for those who leave agriculture. (p. 32)

In a 1981 report, the Canadian Department of Agriculture and Agri-Food again returned to the themes of efficiency and competition and the utility of farmer exit, stating:

Part-time farmers and those soon to retire generally may not be willing to leverage their operations to the same extent as the more technically advanced producer. As a consequence, they will not realize the advantages of economies of scale which may accrue to the more aggressive producer. . . . A number of farms fail to achieve the optimal level of efficiency. *It appears, however, that there is sufficient transference of farm ownership to facilitate long-term adjustments* (emphasis added). (Agriculture and Agri-Food Canada, *Challenge for Growth: an Agri-Food Strategy for Canada*, July 1981, p. 83)

Canada's Department of Agriculture and Agri-Food revisited these themes again in 1993, stating:

Global competition for new markets will . . . intensify, led by technological advances. This could lead to a high degree of adaptation/diversification in the Canadian farm sector, especially in the grain and oilseed industry in the west, to enhance productivity and to compete for new market opportunities. (Agriculture and Agri-Food Canada, Farm Development Policy Directorate, *Multifactor*

¹ The Task Force's "1990 model of agriculture" projected a farm population of 3% to 4% of total Canadian population (p. 9). In 1969, when the Task Force wrote its report, farmers made up between 7% (1971 Census) and 10% (1966 Census) of the Canadian population.

² Federal Task Force on Agriculture, *Canadian Agriculture in the Seventies*, Ottawa, Queen's Printers, 1969, pp. 31-32.

Productivity for Canadian Agriculture Update to 1990 with Analysis, January 1993, p. 25)

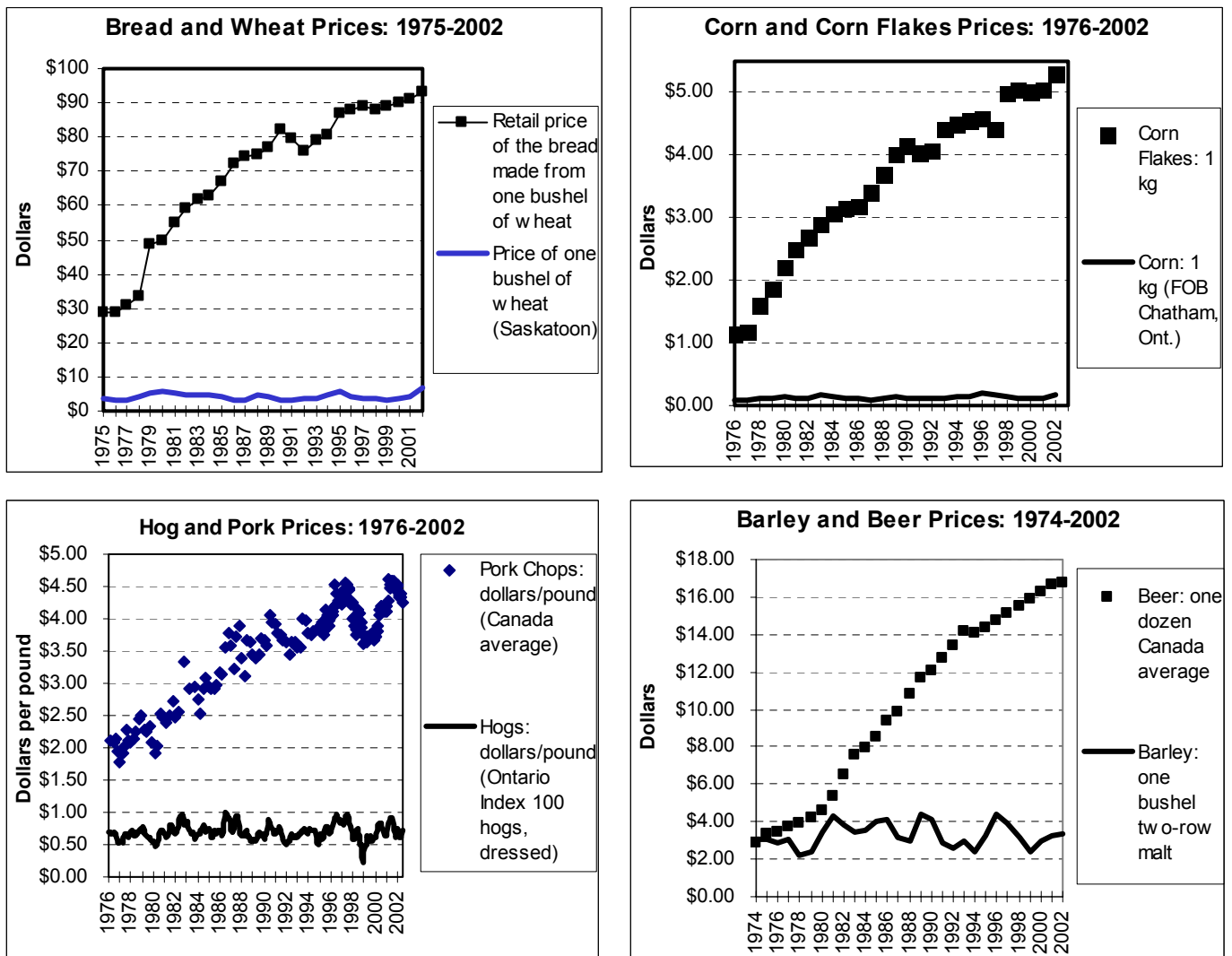
All of the above statements contain the same basic prescription: Competition (facilitated by globalization, free trade, open markets, and deregulation) combined with technological innovation will lead to higher efficiency and fewer but larger farms. However, when we analyze this prescription and look at the underlying premises, we find that this plan for restructuring agriculture based on competition and efficiency is constructed of myths and false assumptions—some would say “lies.” This report examines the damaging myths that form the foundation of Canadian agricultural policy and similar policies around the world. This report also investigates *who* is propagating these myths and *who* is benefiting by short-circuiting our attempts to understand and remedy the crisis gripping our family farms and rural communities.

Myth 1: Farmers need to become more efficient

The graphs below show that the prices farmers receive (the wavy line near the bottom of each graph) have not increased over the past 25 years. Farmers are today producing grains, oilseeds, hogs, cattle, and other foods for the same prices they received a generation ago.

Farmers' ability to continue producing without a price increase for 25 years—despite rising prices for fuel, fertilizer, and other inputs—suggests a high degree of efficiency. Few others can match farmers' performance: General Motors, Shell Oil, and Coca-Cola cannot today make and sell their products for 1975 prices. Immediately, the assertion that farmers are inefficient or in need of efficiency improvements seems suspect, perhaps false.

Figure 1: Selected farm gate and retail prices (not adjusted for inflation)



Sources: Statistics Canada, *Consumer Prices and Price Indexes*, Cat. No. 62-010 (with updates from the CANSIM database); Statistics Canada, *Livestock Statistics*, Cat. No. 23-603; Saskatchewan Agriculture and Agri-food, *StatFacts-Canadian Wheat Board Payments for No. 1 CWRS Wheat, basis Saskatoon*; Canada Grains Council, *Statistical Handbook*, various years; Retail beer price is an estimate assembled from various sources.

Myth 2: Farmers will become more efficient as farms become larger

Setting aside the question of whether farmers are or are not efficient enough already, let's examine the assumption that farmers will become more efficient if they enlarge their farms.

Economists point out the benefits from “economies of scale”: that larger operations—because of specialization, division of labour, optimized equipment, access to capital, etc.—can produce goods and services more cheaply and efficiently than smaller operations can. For many government and corporate leaders, it is an article of faith that giant transnational corporations are far more efficient than our relatively small, family-run farms. This farm inefficiency, they assert, can be solved by expanding farm size. Unfortunately, the data does not support this theory.

The four graphs in Figure 1 demonstrate that over the past generation, retail prices for cornflakes, pork chops, bread, and beer have doubled, tripled, and more. Prices for other grocery-store items have increased similarly. Since the money from these higher retail prices is not going to farmers, this extra revenue must be going to cereal makers, meat packers, food processors, and grocery retailers.

Take bread as an example. Consider a simple bread production chain made up of farmers, a grain miller that makes flour (such as Archer Daniels Midland³), a baking company (such as Maple Leaf's “Canada Bread” subsidiary⁴), and a food retailer (such as Weston's “Superstore”⁵). The retail price of a loaf of bread has risen from 43¢ in 1975 to \$1.39 today (approximately tripling). Since farmers have received none of this increase, the large and allegedly-efficient corporations that do the milling, baking, and retailing must have tripled the amounts they charge for their services. Assuming that these price increases reflect costs and, thus, efficiency, this evidence indicates that the largest firms in the bread production chain are the least efficient and the smallest firms, our family farms, are the most efficient. A look at the Figure 1 graphs on pork chops, cereal, and beer indicates that farmers may be the most efficient links in those production chains as well. While it contradicts economic doctrine, this evidence strongly suggests that Canada's family farms are the most efficient firms currently operating in the entire agri-food chain; perhaps in the entire economy. The evidence also suggests that if farms expand and adopt the corporate model, we can expect *lower* efficiency and *higher* food prices.

The agri-food chain

To understand the economic position of the family farm, one must understand the farm in its context, within the agri-food chain.

At one end of the chain are fuel, oil, and natural gas companies. At the next link, fertilizer companies turn natural gas into nitrogen fertilizer. Next come chemical and seed companies, machinery companies, and banks. In the middle sits the family farm. Continuing down the chain we find grain companies and railways, packers and processors, retailers and restaurants.

Other than the farmer link, every link of the agri-food chain is dominated by between two and ten multi-billion-dollar transnationals and, perhaps not coincidentally, every one of these links is characterized by large profits.

³ U.S.-based transnational ADM owns 47% of Canada's flour milling capacity.

⁴ Maple Leaf—owned by a branch of the McCain family—had 2002 sales of over \$5 billion and its Canada Bread subsidiary had sales over \$1.1 billion.

⁵ George Weston Ltd. had 2002 sales of over \$27 billion (double its 1997 sales). Stores and affiliates include SuperValu, Extra Foods, Fortinos, Loblaw's, Maxi, Provigo, The Real Canadian Superstore, Valu-Mart, and Zehrs.

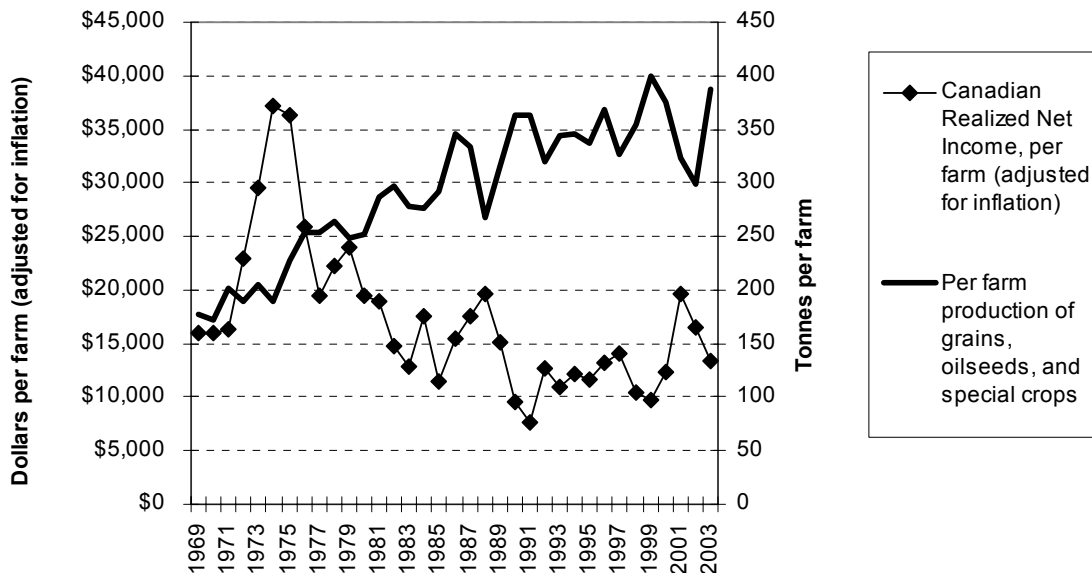
Myth 3: Farmers will benefit by becoming more efficient

In the preceding pages, this report has cast doubts on the assertion that farmers are inefficient and on the assertion that farmers would be more efficient if they had larger farms. Let’s push those doubts aside and assume, as do most of our government and corporate leaders, that farmers *are* inefficient and that they need to expand their operations to remedy this inefficiency. We should ask if that plan would work: Will farmers themselves benefit if they enlarge their farms and become more efficient? By expanding, will farmers escape the chronic farm income crises?

Fortunately, we can easily answer these questions because we have decades of experience to draw upon. Farmers *have* expanded their farms. Where there were 300- and 600-acre grain farms a generation or two ago, today we often see 3,000- and 6,000-acre farms. Some of the largest farms have surpassed 10,000, and even 20,000, acres. Dairy, potato, vegetable, cattle, and hog farmers have similarly doubled and redoubled their production. A generation ago, a big tractor had 100 or 200 horsepower; today, a big tractor has 300 or 400. Machinery is bigger and barns are bigger. Total acreage, acreage per farm, animals per farm, production per acre, production per farm, and total production are all up, and Canada’s agri-food exports have doubled in the past decade. By all measures, farm size and efficiency have increased dramatically. But getting bigger and more efficient has not helped farmers. Farmers are not enjoying prosperity. Instead, most are struggling with the worst farm income crisis since the 1930s.

Figure 2, below, demonstrates that the average per-farm output of grains, oilseeds, and special crops has doubled over the past 30 years: from less than 200 tonnes per farm per year, to nearly 400 tonnes. The average potato farm today produces twice as many tonnes as it did just 11 years ago. On hog farms, the number of pigs per farm has more than doubled in just the past five years. Cattle, vegetable, dairy and other farms have similarly increased their output.

Figure 2: Per farm grain production and net income: 1969-2003



Sources: Statistics Canada, *Agriculture Economic Statistics*, Cat. No. 21-603E; Canadian Grains Council, *Statistical Handbook*, various years.

Figure 2 also demonstrates, however, that farmers have not been rewarded for these impressive increases in size and efficiency. To the contrary, Figure 2 suggests a heretical conclusion: farm size (efficiency) and farm prosperity appear *inversely* related. While output per farm has doubled, net incomes have declined.

Even if someone believed, despite the evidence, that Canada's farms are inefficient; and even if that person believed that our farms could become more efficient by expanding; it appears that that person could reasonably doubt the assertion that farm families would *benefit* from expanded production or increased efficiency. The data on farm expansion over the past decades seems to undermine those who would urge greater expansion in the future. Returning to the question raised at the beginning of this section—“By expanding, will farmers escape the chronic farm income crises?”—the evidence forces a pessimistic conclusion: that after generations of impressive expansion, the farm crisis today seems even more intense and intractable. Moreover, for reasons that this report will explore in subsequent sections, the *ways* in which farmers have pursued expansion and efficiency may actually be helping to *fuel* that crisis.

RNI ≠ Profit

Realized Net Farm Income is not the same as profit. Corporate net income (profit) is calculated after everyone—workers, managers, and the CEO—gets paid. In contrast, net farm income is calculated before any allowance is made for the labour and management contributions of farm family members.

Myth 4: Economies of scale are the only way to gain efficiency

In the name of “efficiency,” corporate and government policies push farmers to expand. Economists endorse this prescription, pointing to “economies of scale.” Here is just one example of this pervasive prescription:

Since the Depression, there have been continuing and clear trends of a decrease in the numbers of farms and increases in farm size. Increases in acres or animal units were required to increase efficiency and allow producers to compete in a climate-dependant environment and in frequently volatile markets. The response, for many producers, was to expand their operations in order to take advantage of economies of scale and to improve profitability. Notwithstanding this, margins remained very thin, particularly for traditional commodities such as beef, grains, and oilseeds. At the same time, smaller producers were finding it even more difficult to compete without these economies of scale. Many of these enterprises were not able to survive. The result was a primary production component of the industry with fewer farming operations that were bigger in size. (Alberta Agrivantage Team, *Agrivantage Report: Building Tomorrow Together*, Report for the Alberta Government, Nov. 2002, p. 20; [www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/webdoc6544/\\$FILE/building_report.pdf](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/webdoc6544/$FILE/building_report.pdf))

In promoting economies of scale as the path to efficiency, economists and policymakers often forget that there are at least two ways to wring out increased efficiency: getting larger—gaining economies of scale—is one way; competition is the other. And these two paths to efficiency are (outside of a rapidly-expanding sector) mutually exclusive: pursuing economies of scale requires larger and fewer operations and, thus, it reduces the level of competition; increased competition requires more-numerous and, thus, smaller operations.

There is a good reason to suspect that as competition declines among the tiny number of transnationals that dominate each link in our agri-food chain, efficiency also declines. Alternatively, even if efficiency increases, the lack of competition will greatly reduce pressure on those corporations to pass along any benefits of efficiency to farmers, workers, or consumers.

When retail bread prices rise, as is shown in Figure 1, the reason may be that transnational millers, bakers, and retailers are becoming less and less efficient as they get larger. Alternatively, the reason may be that the large size of these companies and the low levels of competition they face allow them to take ever-larger profits and management salaries from the revenue streams within the agri-food chain. It would appear that one or the other of the preceding explanations must be true. Both cast doubt on the naive faith in automatic benefits from economies of scale.

Economists confirm that as corporations merge and become larger, there is not just one effect—increased efficiency due to economies of scale—but also a second and countervailing effect:

increased oligopoly power.⁶ These researchers note that when increases in efficiency are smaller than increases in oligopoly power, prices will rise regardless of efficiency effects. Given the opportunity to charge less, but also the power to charge more, corporations will act predictably.

Researchers Rigoberto Lopez, Azzeddine Azzam, and Carmen Lirón-España have studied 32 U.S. food-processing industries including meat packing, cereal production, soybean oil milling, and coffee roasting.⁷ Lopez et al calculated the magnitude of the efficiency effects and the oligopoly-power effects that would result from mergers and increased concentration. They conclude: “[A]lthough cost-efficiency effects from concentration are important in one-third of the industries, in nearly every case the oligopoly-power effects dominate[,] or reinforce cost inefficiencies, resulting in higher output prices.” In other words, in the 32 food processing industries that they studied, these researchers found that mergers and increased concentration would lead to higher prices in nearly every case, despite any efficiencies that may result from economies of scale. Appendix B details the findings by Lopez et al.

In contrast to the agribusiness giants, farmers face very high levels of competition as nearly one billion farmers worldwide are forced to compete to supply grains and meats and other foods to highly-concentrated traders and processors. This intense and forced competition among farmers not only spurs rapid increases in efficiency, it also compels farmers to pass all the benefits of that increased efficiency into the system, to the benefit of others: most often to traders, processors, and retailers. But as retail prices continuously climb, it appears that traders, processors, and retailers are not only declining to pass the benefits of *their* increased efficiency on to consumers, these transnationals are also absorbing the financial benefits from efficiencies created on family farms. The oligopoly power effects mentioned earlier are now so large that they give the corporations the power to pocket their own efficiency gains *and farmers’ gains as well*. Why would we destabilize and torment our farm families, ceaselessly pushing them toward ever-larger economies of scale, making them live in insecurity and worry, breaking farms and emptying communities, if, in the end, any efficiency gains will simply be pocketed by powerful transnationals?

To maximize benefits to the economy as a whole and to ensure that benefits are fairly and properly divided among all participants, efficiencies and economies of scale created by large size, on the one hand, and competition levels, on the other, must be properly balanced.

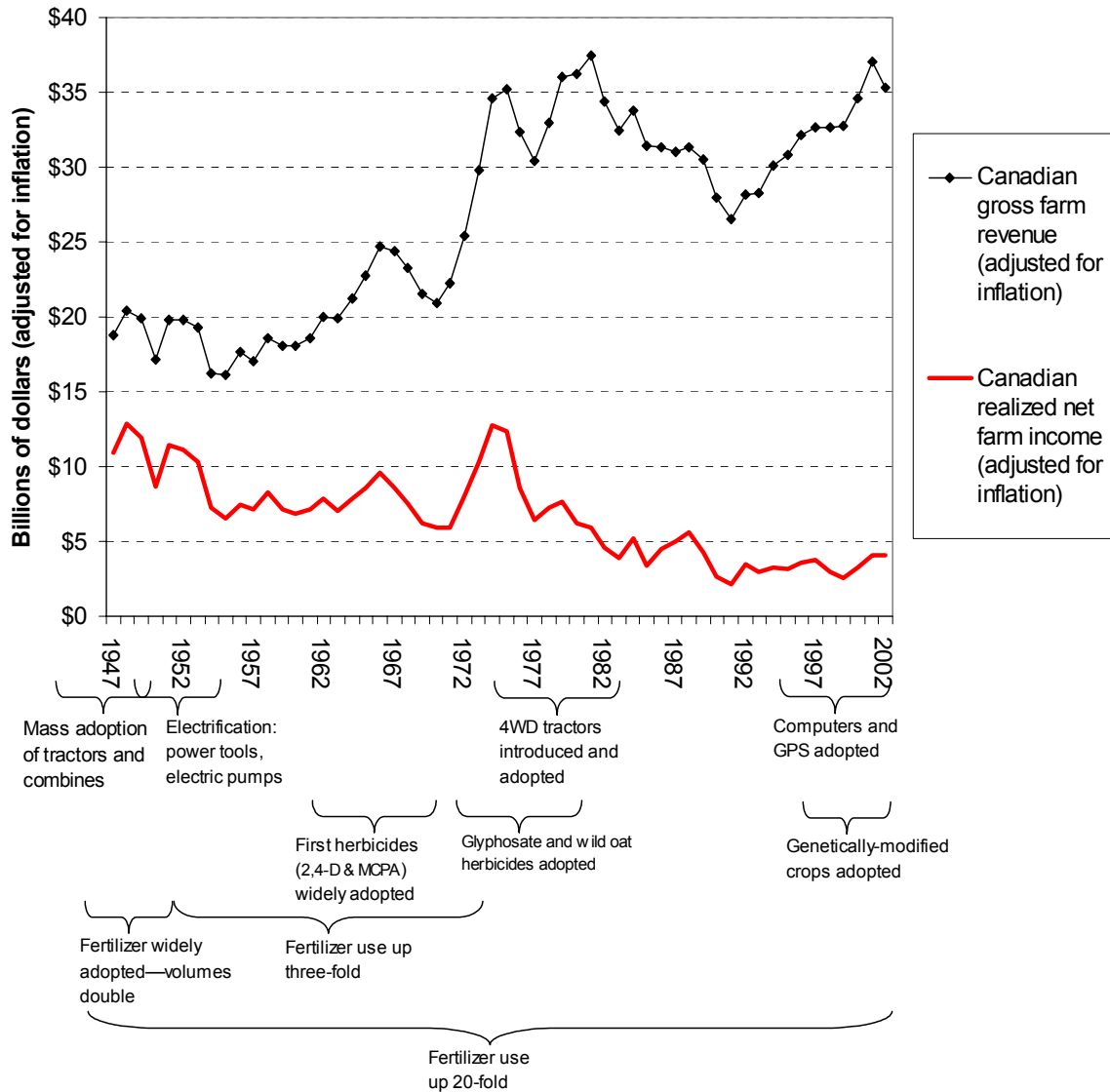
⁶ “Oligopoly”: A market situation with only a few sellers, each anticipating the others’ reactions. (John Black, *A Dictionary of Economics*, Oxford University Press)

⁷ Lopez, Rigoberto A.; Azzam, Azzeddine M.; and Lirón-España, Carmen, “Market Power and/or Efficiency: A Structural Approach,” *Review of Industrial Organization*, v. 20, i. 2, March 2002, pp. 115-126.

Myth 5: Technology will make farmers more efficient and prosperous

Based on the preceding evidence, bigger farms won't solve farmers' problems. But surely new technologies offer hope. Or do they?

Figure 3: Farmers' gross revenue, net income, and technology adoption: 1947-2002



Sources: Statistics Canada, *Agriculture Economic Statistics*, Cat. No. 21-603; Statistics Canada, *Canadian Economic Observer*, Cat. No. 11-210. Technology adoption periods are estimates based on a range of sources and are for illustrative purposes only.

Figure 3, above, demonstrates that new technologies have helped Canadian farmers double their (inflation-adjusted) gross revenue⁸—from about \$17 billion in the late 1940s to over \$35 billion today. Farmers' net income, however, fell. Net income fell in the 1940s when many farmers were buying their first tractors and electrifying their tools, pumps, and barns. It fell

⁸ "Net income" and "gross revenue" (each without an "s") refer to aggregate numbers (measured in billions of dollars). "Net incomes" and "gross revenues" will be used later in this brief to refer to per-farmer revenues and incomes.

as farmers doubled and redoubled their fertilizer use. It fell as farmers adopted new chemicals to control insects and weeds. Adjusted for inflation, overall net farm income today is one-third its 1940s level. While there are fewer farms today among which to share the net income “pie,” even calculated on a per-farm basis, net income today is far below its 1940s level. On a per-farm basis, adjusted for inflation, farmers’ net income over the past decade has been lower than at any time since the 1930s.⁹ To stay on the land, most families must now rely on off-farm jobs.

Perhaps a brief disclaimer is needed: The preceding dismissal of technology as a farm-income enhancer is not a Luddite position. Nor is it a blanket condemnation of technology. Most Canadian grain farmers do not want to go back to using hoes or oxen. Despite the romance, the majority of cattle farmers do not want to go back to spending long days on horseback and nights under the stars. Potato and dairy farmers do not want to go back to doing their work by hand. This report’s intent is not that farmers and policymakers should reject technology outright, but that everyone should move beyond the simplistic assumption that the financial benefits from technology-enlarged production will automatically flow to farm families.

Figure 3 shows that while farmers retained (in net income) about one dollar out of every two that they generated in the late 1940s, today farmers retain just one dollar in ten. The graph also shows that while new technologies and inputs have helped farmers increase production by about \$18 billion (from about \$17 billion in the 1940s to about \$35 billion today), the corporations that sold those inputs and technologies to farmers swallowed up not only the entire \$18 billion in increased production revenue, but an additional \$8 billion as well—driving farmers’ net income *down*. Farmers increased their output and gross revenue, but input and technology makers captured 144% of that additional revenue. Over the past fifty years, for every dollar that new technologies and inputs have contributed to farmers’ revenues, farmers have been made to pay \$1.44.

This analysis—that farmers have been made to pay far too much for technologies and inputs—is borne out by current research showing that farmers who minimize purchased inputs reap higher net returns. Dr. Martin Entz is a University of Manitoba plant scientist. He also leads the Glenlea Long-Term Crop Rotation Study.¹⁰ For twelve years, Entz and his team have used test plots to compare costs and yields for conventional, low input, pesticide-free, and organic crop production systems. Their findings: farmers achieve their highest net returns per acre when they use no purchased crop inputs—when they farm organically. Further, farmers earn these superior returns even if they do not take advantage of premium prices for their organic crops.

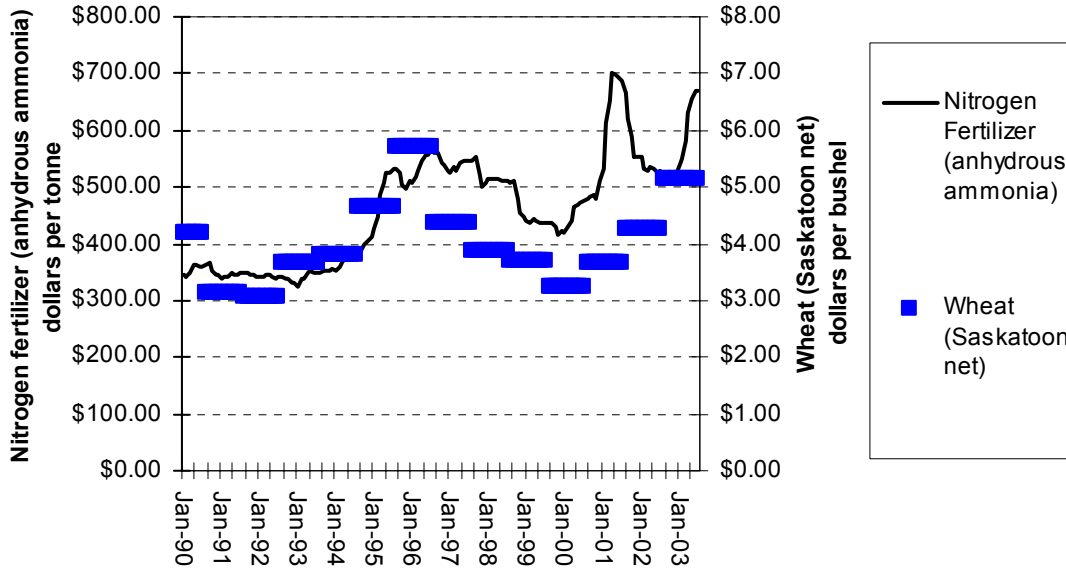
Agricultural technologies and purchased inputs *could* help farmers increase their net income, but not when the corporations that sell those products have such overwhelming market power relative to farmers. In the current system, these corporations use their market power to price according to what the market will bear. This pricing power means that these corporations will capture nearly all the economic benefits of increased production or, as Figure 3 suggests, these corporations will capture and extract *even more* than their technologies and inputs actually contribute.

⁹ For data on per-farm net incomes, see Appendix A.

¹⁰ Please see www.umanitoba.ca/faculties/afs/plant_science/glenlea/glenlea.html

Figure 4, below, provides an example of predatory pricing by input manufacturers. The graph shows the correlation between Canadian wheat prices and fertilizer prices.

Figure 4: Canadian wheat and fertilizer prices: 1990-2003



Sources: Alberta Agriculture, Food, and Rural Development, *Alberta Farm Input Prices*; Saskatchewan Agriculture and Agri-food, *StatFacts-Canadian Wheat Board Payments for No. 1 CWRS Wheat, basis Saskatoon*.

During the first half of the 1990s, wheat prices rose and fertilizer prices tracked those increases. In the second half of the 1990s, wheat prices fell and, with a lag, fertilizer prices tracked wheat prices downward. In 2001, wheat prices again began an ascent, as did fertilizer prices. When grain prices rise, fertilizer companies raise their prices to snatch any additional revenue right out of farmers' pockets. Such pricing tactics are impossible in markets with real competition.

Fertilizer companies themselves confirm that they price according to what the market will bear. The graph at right is taken from the 2001 Annual Report of Agrium Corporation, a leading fertilizer manufacturer. Agrium's title states that "Nitrogen Prices Follow Grain Prices" and the company helpfully graphs the correlation between the prices of U.S. corn and urea (nitrogen) fertilizer.

Leading fertilizer companies such as Agrium and Potash Corporation of Saskatchewan have parlayed this pricing power into explosive growth. Agrium is seven times larger (on a revenue basis) than it was nine years ago. Potash Corp. is almost ten times larger, over the same period.

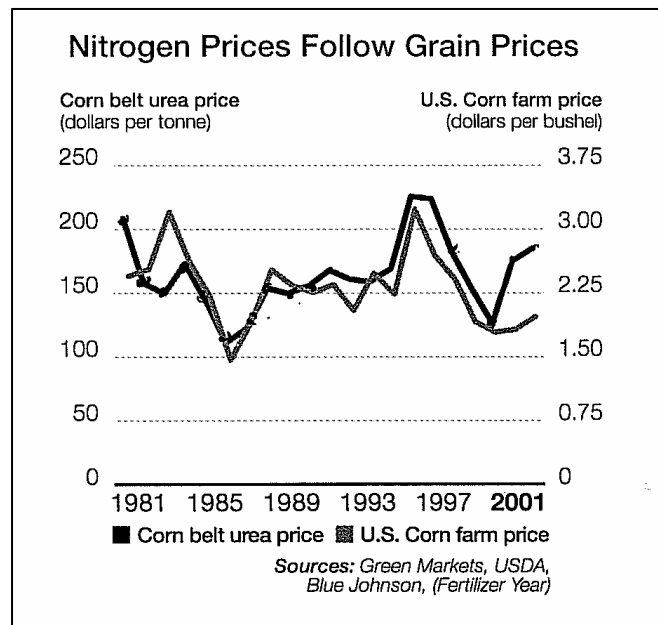


Figure 3, above, yields one final insight: The relationship between farmers' gross revenue and net income changes over time. Figure 3A, below, reproduces Figure 3, and also highlights these changes.

Figure 3A: Farmers' gross revenue, net income, and technology adoption, with changing income relations highlighted: 1947-2002

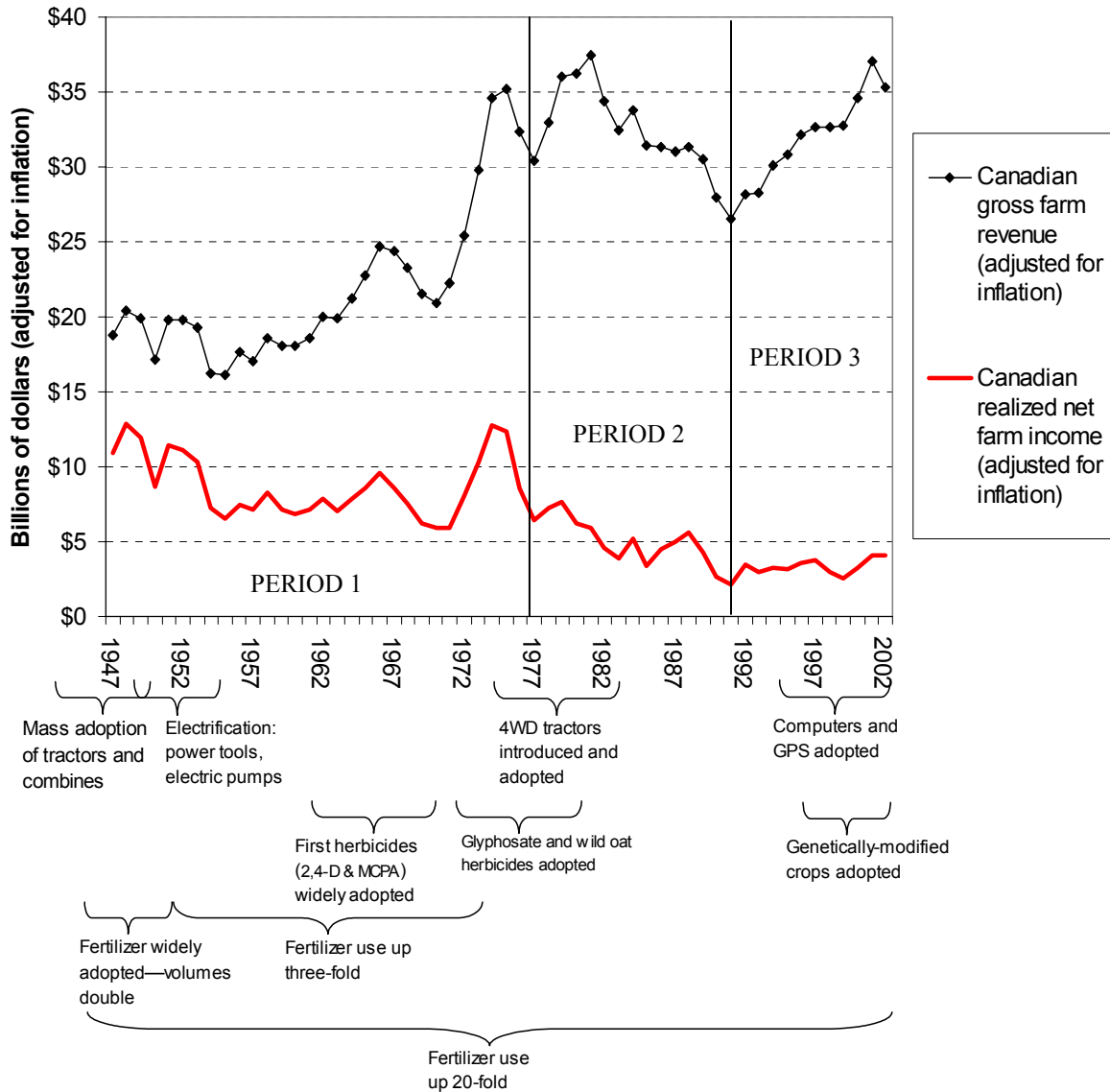


Figure 3A is divided, somewhat arbitrarily, into three periods. Period 1 ends roughly at the end of the mid-'70s boom (1977). Period 2 runs from 1977 until the 1991 trough in farmers' gross revenue. Period 3 runs from 1991 to the present.

In Period 1, while gross revenue and net income diverge, they correspond—the lines move up and down in unison and the spikes and troughs in one line correspond to spikes and troughs in the other. In Period 2 this correspondence persists, but it is weaker. In Period 3, the current period, gross revenue and net income have become unhooked, with no correlation between the two lines' spikes and troughs.

Moreover, farmers increased their gross revenue significantly in Period 3—up 42% between 1991 and 2001. This increase, while occurring over a longer period of time, is comparable to the increase in gross revenue between 1970 and 1975. But in the current period, there is no corresponding increase in net income, let alone a repeat of the mid-'70s boom.

The three periods delineated above coincide with very different levels of corporate concentration and power. The disconnect between gross revenue and net income in the current period reinforces the assertion that input and technology manufacturers are now manipulating their prices to snatch away any farm profits that might result from higher prices or production. And this disconnect between gross and net further undermines those who would urge farmers toward increased productivity and efficiency as a way of increasing their net incomes and escaping the farm crisis.

Myth 6: The rest of the economy is seeking efficiency through competition

Governments tell farmers that markets will continue to become more and more competitive. Recall from this report's introduction the Ontario Ministry of Agriculture's recommendation:

To remain competitive, farmers must evolve and adopt new, more efficient production methods. . . . As . . . farmers strive to compete in a global marketplace, they continually look for new efficiencies. . . .¹¹

And recall Canadian Member of Parliament Bob Speller's recommendation:

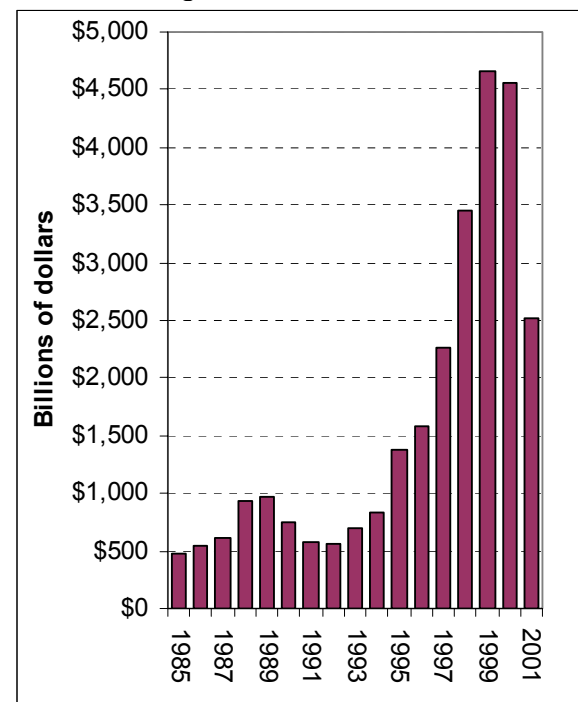
Farmers must be encouraged and assisted to compete aggressively in domestic and international markets on the basis of efficiency and quality. . . .¹²

But is "competition" really the guiding principle of today's economy? Are the transnational corporations that dominate the rest of the agri-food chain striving to "compete aggressively"? Or are they rapidly merging in order to *reduce* the level of competition they face and to increase their market power?

Figure 5, right, shows the rapid pace of corporate consolidation and mergers. The value of mergers and acquisitions in 1999 and 2000 was over \$4.5 trillion per year. While mergers slowed in 2001, they still totalled \$2.5 trillion. This amount is more than double Canada's Gross Domestic Product (GDP).

Competition and profit are inversely related: the higher the level of competition, the lower the level of profit. Every economics textbook will concur: At one end of the spectrum, a high degree of competition will reduce prices and profits while, at the other end of the spectrum, the complete lack of competition—a monopoly—will lead to very high prices and profits. The CEOs of large corporations know: To maximize profits, minimize competition.

Figure 5: Worldwide value of mergers and acquisitions: 1985-2001



Source: Data provided on request from the Worldwatch Institute

¹¹ Ontario Ministry of Agriculture and Food, *Discussion Paper on Intensive Agriculture Operations in Rural Ontario*, January 2000.

¹² Bob Speller MP, quoted in: "PM's Task Force hopes to work with Agriculture Minister, rural and farm organizations, consumer groups, to establish a vision," *Hill Times*, April 2, 2002.

As the NFU detailed in *The Farm Crisis, EU Subsidies, and Agribusiness Market Power* (February 2000), even as farmers earn small returns and often endure large losses, the handful of corporations that dominate each of the other links in the agri-food chain earn large profits. These corporations enjoy large profits because they have consolidated to an extreme degree in order to avoid competition and its downward pressure on their prices. They have consolidated with little interference from government. Instead, Canada's Competition Bureau has granted approval for merger after merger. As an example of its acquiescence to corporate giantism and monopolism, the Competition Bureau allowed Canada's two major propane distributors—ICG and Superior—to merge to form a virtual monopoly. The Competition Bureau also seems almost certain to approve Maple Leaf Foods' bid for a near-monopoly on hog slaughter and processing in Saskatchewan and Manitoba (more on this below). Such evidence indicates that the government encourages the reduction of competition in most sectors. The government's policy prescription of aggressive competition is one that it recommends and applies almost exclusively to family farms.

Of all government policies, the ones that most affect farmers' competition levels and the levels within the rest of the agri-food chain are the policies of global integration and so-called "free trade." As trade and investment agreements have torn down the economic barriers between nations, these agreements have thrust all the world's farmers into a single, hyper-competitive market. At the same time, globalization and trade agreements have spurred the dominant transnationals to merge into ever-larger, less numerous mega-corporations. Globalization and trade agreements have increased competition levels for farmers—driving down farmers' prices and profits—and the effects for the dominant agribusiness transnationals have been just the opposite.

Other policies similarly increase the level of competition for farmers and decrease competition among transnationals. For instance, governments are dismantling farmers' marketing boards. Until the latter-1990s, hog farmers in Saskatchewan and Manitoba sold their hogs through each province's farmer-controlled marketing board. Farmers had the benefit of "single-desk selling": packers that wanted to purchase hogs in that province had to buy from a single marketing board. Single-desk selling gave farmers price transparency, equal access to the market, equal prices for products of equal value, and market power when dealing with packers. Today, those marketing boards are gone and one company, Maple Leaf Foods, owns 80% of hog processing capacity in both Manitoba and Saskatchewan.¹³ The deregulation policies of the Manitoba and Saskatchewan governments, coupled with corporate consolidation, has transformed farmers' competitive landscape from one defined by a single-desk seller to one defined by a single-desk buyer.

Two transnationals—Cargill and Tyson—kill and pack the bulk of Canadian beef. Three transnationals make most of our cereal. Five retail most of our food. Farmers have just three major tractor manufacturers to choose from—half the number that existed 15 years ago. In Canada, each link of the agri-food chain is dominated by fewer than ten (and often as few as two) multi-billion-dollar transnationals. The single exception is the farm link, where nearly a billion of the world's farmers operate in an intensely competitive sector. The dominant transnationals retain competition only as a fiction (when they apply the term to themselves) or as a prescription (to be administered to others—especially to farmers, workers, and small businesses).

¹³ Maple Leaf Foods signed an agreement in September 2003 with U.S.-based Smithfield Foods to purchase that company's Schneider's meat processing division. This deal will give Maple Leaf 80% of hog slaughter and processing capacity in Saskatchewan to complement its 80% ownership of Manitoba capacity.

Myth 7: Farmers are producing too little . . . and too much

Implicit in the criticism that farmers are not efficient enough is the criticism that they are not each producing enough: Increased efficiency requires increased production per farmer.

But this criticism runs into another: that farmers are *overproducing*, flooding the markets, and pushing down prices. Seen another way, the “inefficiency” criticism implies that farmers have not invested enough in new technology and capital equipment, but the “overproduction” criticism implies that farmers have invested too much!

Government documents state:

[T]he decline in crop prices over the last three decades . . . is itself a continuation of a trend which goes back centuries. The trend is the result of a number of factors but primarily *the sustained increase of productivity which has consistently outstripped the growth of demand* (emphasis added). (The Federal/Provincial Safety Net Working Group, *Safety Net Review Prepared for Federal/Provincial/Territorial Ministers of Agriculture*, January 2002, p. 21)

Additionally, documents explaining our governments’ recent and much-trumpeted Agriculture Policy Framework (APF) state that:

[T]echnological change has increased productivity, reduced production costs, and increased total production. One of the most significant effects of technological change and increased competition is the long-term decline in most commodity prices. (Agriculture and Agri-Food Canada, *Putting Canada First: An architecture for Agriculture Policy in the 21st Century*: “Competition and Subsidies in Global Markets”, April 2002, p. 2)

However, in the same document—a document that clearly states that “One of the most significant effects of technological change and increased competition is the long-term decline in most commodity prices”—our government says that:

In the face of declining prices, the challenge for Canadian producers is to adopt new technologies . . . to remain ahead of international competitors. (Agriculture and Agri-Food Canada, *Putting Canada First: An architecture for Agriculture Policy in the 21st Century*, “Competition and Subsidies in Global Markets”, April 2002, p. 3)

Governments are telling farmers: Technology and efficiency contribute to overproduction and declining prices; and declining prices necessitate more technology, higher efficiency, and increased production. While absurd, such a stratagem might have a tiny chance of success if powerful transnationals were not poised to skim off any benefits farmers might gain from increased production. As the system is currently structured, farmers are just the hamsters in the wheel that powers an expanding agribusiness empire. And government’s solution to the farm crisis is for the hamsters to run faster.

A variant of the preceding contradiction—that farmers are producing too much and also too little—can be found in our governments’ fixation on increasing agricultural export production. In 1993, federal and provincial ministers set the ambitious target of doubling Canadian agri-food exports to \$20 billion by 2000. Having accomplished their goal by 1996 (well ahead of schedule), those ministers pledged to redouble exports to nearly \$40 billion (4% of world agri-food exports) by 2005. To those ends, federal and provincial policies have driven rapid expansion in hog production, mostly to serve export markets. Government policies and incentives have driven an increase in beef cattle production and an increased reliance on export markets. Cattle and hog numbers have increased by 25% and 37% respectively since 1990.¹⁴

Our governments are telling us, however, that “Increasing world supply has added to the pressure on prices” and that “Increased international competition drives prices down.”¹⁵

Our governments also tell us that there is “reduced demand from traditional importing countries as they move toward self-sufficiency.”¹⁶ Their confused and confusing message: To help to deal with low prices, we must produce and export more; and increased production and exports are driving prices down.

The problem, apparently, is that farmers are both producing too little and also producing too much: We are both inefficient and overproductive. To hold both of these contradictory understandings in one’s head, even for a short time, is a profound act of cognitive dissonance. To hold both over the long term betrays an astonishing lack of curiosity about the causes of the crisis devouring farms and communities in Canada and around the world.

The lie of overproduction

“Low prices are caused by oversupply,” farmers are told. But there is no oversupply. To the contrary, the data may indicate a looming shortage.

Stocks/use ratios are the most commonly quoted measures of supply and demand. These ratios compare grain on hand at year-end (stocks) to the amount used that year (use).

This year’s world wheat stocks/use ratio will be 22.27%—the lowest level in 30 years. The world total grains stocks/use ratio will be 16.87%—the second-lowest level in 30 years.

There is little evidence of a oversupply, and *no* evidence of an oversupply so vast and burdensome that we would expect it to lead to the grinding farm income crisis that is destroying farmers around the world.

Sources: see

www.usda.gov/oce/waob/wasde/wasde.htm
and www.fas.usda.gov/psd/intro.asp

¹⁴ Agriculture and Agri-Food Canada, *An Overview of the Canadian Agriculture and Agri-Food System*, Pub. No. 2211E, June 2003, p. vii.

¹⁵ Agriculture and Agri-Food Canada, *Putting Canada First: An Architecture for Agriculture Policy in the 21st Century*, “Competition and Subsidies in Global Markets,” March 2002, p. 2.

¹⁶ Agriculture and Agri-Food Canada, *Putting Canada First: An Architecture for Agricultural Policy in the 21st Century*, May 2002, p.2. www.agr.gc.ca/puttingcanadafirst/pdf/consult2_01_e.pdf

Myth 8: Canadians and their economy will be better off if farmers compete, become more efficient, and become less numerous

While farmers have not benefited from past increases in scale, output, or efficiency and while farmers seem unlikely to benefit from future increases in those areas, perhaps others will benefit as Canada's farms become larger, more efficient, and less numerous.

Figure 1 demonstrates that increased efficiency at the farm level has not reduced retail food prices. Quite the opposite has occurred: While farmers held farm gate prices steady, processors, distributors, and retailers increased grocery store prices 300%, 400%, and 500%. Clearly, consumers will not be the winners.

Even if farmers could achieve perfect efficiency—even if they could produce and deliver food for free—Figure 1 reveals that consumers would see little benefit: perhaps a 5% to 10% reduction in food expenditures. Moreover, routine price increases by processors and retailers would erase any such savings within a few years. An illustration of the disconnect between farm gate and retail prices came in 1988. That year, the federal government terminated Canada's Two-Price Wheat Program. As a result, the price that Canadian millers paid farmers for wheat fell from about \$7 per bushel (under the Program) to about \$5. Bread prices rose.

Perhaps fewer, more efficient farms will help create employment in the Canadian food processing sector. However, the opposite has occurred so far. In recent decades employment in agri-food processing has declined,¹⁷ even as food production has increased.

Perhaps a policy that reduces the number of farmers and that increases the number of people available to work at GM or Wal-Mart (North America's largest private-sector employer) would help alleviate some labour shortage in our economy. Current unemployment rates make this seem an unlikely benefit. Moreover, some economists argue that governments and central bankers manage our economy to maintain a certain range of unemployment (to head off inflation-triggering wage hikes).

Today, farmers make up about 3% of the Canadian workforce. This does not seem like an unreasonable portion of our number to devote to food production: it leaves 97% of Canadians to build cars, run banks, play hockey, launch dot-com companies, and manage adult-video stores. At one time, the portion of the Canadian population working on farms was large. Moving most of those people to the cities allowed Canada to industrialize and may have increased our standard of living (less certain is whether this change has increased our quality of life). Given the tiny fraction of the population that farms today, however, it is unlikely that Canadians or our economy would reap any similar benefits by moving a portion of that small remaining population into the urban workforce.

Forcing more farm families into cities will create no benefits, but such a forced move will create

¹⁷ Numbers based on Statistics Canada's Labour Force Survey. Available on request from Agriculture and Agri-Food Canada. See also: Agriculture and Agri-Food Canada, *A Profile of Employment in the Agri-Food Chain*, April 1999.

costs for all Canadians. Expelling more farm families from the land will kill even more rural communities—leading to an emptier, lonelier, uglier rural Canada. Reducing the number of people living in rural Canada will increase the cost of utilities and other services for all those who remain. Displacing more farmers will mean the erosion of rural culture and the destruction of a rich and irreplaceable educational system: that of growing up on a family farm. Reducing the number of farmers will increase environmental degradation because fewer people will be left to care for the land and those who remain will be forced to operate in an increasingly industrial fashion, relying more heavily on chemical fertilizers and pesticides. As farmers enlarge their farms and become ever more imbedded into corporate, industrial food production, the transnationals that manufacture farm inputs will extract more and more of the wealth generated on those farms, with predictably negative results for local economies. And fewer farmers will mean reduced food security, as our food system becomes less resilient and adaptable and as it falls increasingly under the control of alien transnationals. Rural and urban citizens alike will suffer negative effects without any offsetting economic or social benefits.

Hogs: a case study

The hog sector provides a valuable test case to measure the benefits of reducing the numbers of farmers. The following compares statistical indicators for 1988 to those in 2002.¹⁸

	<u>1988</u>	<u>2002</u>
<i>Number of hog farmers in Canada</i>	33,760	11,565

Of the farms that were raising hogs in 1988, corporate and government policies have since forced 66% out of production.

<i>Pork chops: grocery store price</i>	\$6.88/kg	\$9.54/kg
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While corporate and government policies have reduced the number of Canadian hog farmers by 2/3, packers and retailers have increased grocery store pork chop prices by 39%.

<i>Hogs: farm gate price</i>	\$1.44/kg	\$1.46/kg
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While grocery store pork chop prices are up 39%, farm gate prices are up only 2%. Seen another way, while hog farmers are still receiving about the same \$1.44/kg, packers and retailers have increased their *margin* (the difference between the price they pay to farmers and the price they charge consumers) by a whopping \$2.64/kg.

<i>Packing plant pay (representative starting wage)</i>	\$9.38/hour	\$9.65/hour
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When adjusted for inflation, starting wages at many plants are down sharply. Packers are using their growing market power to push up prices to consumers, push down prices to farmers, and push down wages to workers.

If reducing the number of farmers produces benefits for the economy, those benefits should be apparent in the hog sector where we have expelled 2/3 of our farmers in just half a generation. No such benefits exist, however: Consumers are paying more for pork and workers are getting less for packing it.

¹⁸ These statistical indicators taken from the NFU's *Free Trade: Is it working for farmers?* published in July 2002. That publication lists sources for the statistics in the boxed section, above.
www.nfu.ca/briefs/1988vs2002FINAL.bri.pdf

The truth about farmer efficiency: the data

The preceding will convince most people that “farmer inefficiency” is a ruse. The unconvinced need only look at the data. In 2001, Statistics Canada published *Productivity Growth in Canada*.¹⁹ This report calculates multifactor productivity measures for Canadian industries. Multifactor productivity growth is synonymous with increasing efficiency (see sidebar).

Figure 6, below, is reprinted from *Productivity Growth in Canada*. The middle set of bars (the lightest grey) show that for the 23-year period 1973 to 1996, the largest increases in multi-factor productivity—the largest increases in “efficiency”—were in Agriculture and Related Services.²⁰ This is also true for the 35-year period 1961 to 1996 (Figure 6, far right set of bars).

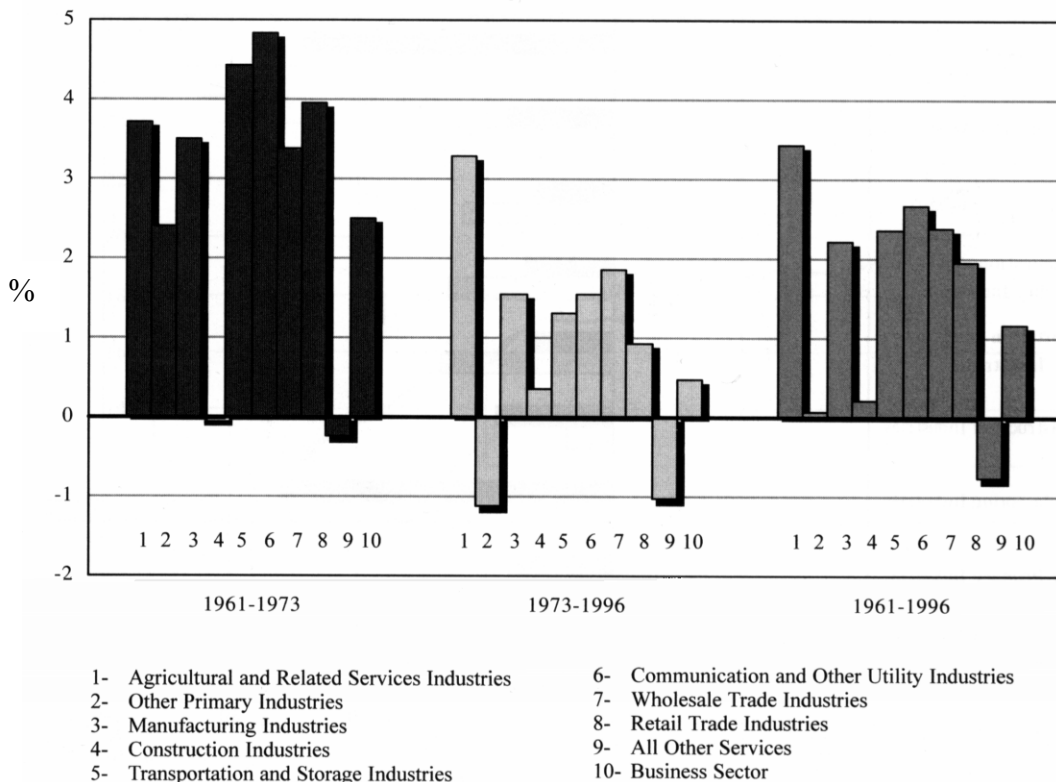
Between 1961 and 1996, agriculture’s multi-factor productivity increased by 3.4% per year. The average increase for all businesses (the “Business Sector” in Figure 6) was just 1.2% per year. *Since the early 1960s, farmers have increased their efficiency at a rate unmatched by other sectors and at a rate almost triple that of the Canadian business sector as a whole.*

"Productivity is a measure of the productive capability or efficiency of an economy. It can be defined in terms of . . . how much output is produced per level of input (e.g., output per worker)."

"Multifactor productivity is the increase in output relative to the increase in a bundle of inputs that includes labour and capital."

—Productivity Growth in Canada. 2001. p. 13.

Figure 6: Multifactor productivity by industry group, annual growth rates, selected periods



¹⁹ Statistics Canada, *Productivity Growth in Canada*, January 2001, Cat. No. 15-204-XPE.

²⁰ “Agriculture and Related Services” is made up primarily of farmers but also includes custom applicators, veterinarians, and agricultural consulting. For a detailed listing, see Appendix C.

In previous pages, this report broached the heresy that relatively small operations such as family farms may be much more efficient than the very large transnationals that dominate most of the economy. According to data from Statistics Canada, this is not heresy, but truth.

Another study, *Multifactor Productivity for Canadian Agriculture*,²¹ produced in 1992, reached a conclusion similar to that of Statistics Canada. For the 28-year period 1962 to 1990, the growth rate in multifactor productivity—the growth rate in “efficiency”—for primary agriculture exceeded the growth rate in every other sector listed in that report and exceeded productivity increases in the Canadian business sector as a whole by a factor of 2½.

Most recently, in June 2003, Agriculture and Agri-Food Canada's report *An Overview of the Canadian Agriculture and Agri-Food System* lists the multi-factor productivity growth of agriculture and related industries at 3.0% per year for the years 1981 to 1997—10 times the growth rate for food processors and 30 times the growth rate for the Canadian business sector as a whole.²²

Non-governmental sources reach similar conclusions. A report prepared by the Centre for the Study of Living Standards in 1998 entitled *Productivity: Key to Economic Success*²³ found that between 1984 and 1995, the average annual growth rate in agriculture's total factor productivity was 4.62% per year—far surpassing any other sector and 13½ times the average rate of productivity growth for the business sector as a whole.

Those who would attribute farmers' low profitability to low efficiency should ponder this: According to the Centre for the Study of Living Standards, our unprofitable farms had annual productivity growth rates of 4.62% while our retail trade had a productivity growth rate of *negative* 1.24% per year and the food processing sector managed a growth rate of just 0.17% per year. Our remarkably profitable banking, insurance, and real estate sector had a growth rate of *negative* 2.59% per year.²⁴ Correlations between efficiency and profitability are elusive. Respected rural sociologist Dr. William Heffernan has observed of our agri-food system that “Economic power, not efficiency, predicts survival in the system.”²⁵ Power, and not efficiency, also seems to be the primary determinant of profitability.

²¹ Agriculture and Agri-Food Canada, Policy Branch, *Multifactor Productivity for Canadian Agriculture: Update to 1990 with Analysis*, September 1992.

²² Agriculture and Agri-Food Canada, *An Overview of the Canadian Agriculture and Agri-Food System*, June 2003, pp. 8 and 45.

²³ Centre for the Study of Living Standards, *Productivity: Key to Economic Success*, prepared for the Atlantic Canada Opportunities Agency, March 1998.

²⁴ All figures in this paragraph from: Centre for the Study of Living Standards, *Productivity: Key to Economic Success*, March 1998, Table A4.

²⁵ William D. Heffernan, “Concentration of Ownership and Control in Agriculture,” in Fred Magdoff, John Bellamy Foster, and Frederick H. Buttel, Eds., *Hungry for Profit*, New York, Monthly Review Press, 2000, p. 61.

Myth 9: We are actually pursuing efficiency

Judged within the analytical framework used by economists, corporations, and governments, farmers seem to be among the most efficient producers in the entire Canadian economy. There is simply no justification, in an economy where teachers, bankers, doctors, landlords, and managers can all expect to make a reasonable living, to deny that same benefit to farm families on the spurious claim that they are “inefficient.” To do so is to stand reality on its head, to call black white.

But what if we go beyond the narrow efficiency definitions of government econocrats and corporate CEOs? What if we expand our analysis of efficiency and look more critically, not just at our farms and food system, but at our entire economy and its industrial production systems? Perhaps the confusion over farm efficiency is embedded in a larger confusion surrounding efficiency in general.

Intuitively, efficiency means trying to maintain or maximize production of something while trying to minimize the use of some or all inputs. So, what inputs are we trying to minimize in food production? While production is up, so is agriculture’s use of surface water and groundwater; so is the use of chemical fertilizers and pesticides. Fossil-fuel use is up. The use of these inputs is up, both in absolute terms and in terms of use per unit of food produced.²⁶ And an identical escalation of resource use can be seen in nearly every sector of our economy.

In addition to more resources, farmers are using more capital and more technology. Canadian farmers possess \$188 billion in capital assets (machinery, equipment, livestock, land, and buildings), up three-fold since the early 1950s (adjusted for inflation). And farmers’ use of borrowed capital—debt—has doubled since the early 1970s (adjusted for inflation).

So, in what area is modern agriculture pursuing its efficiencies? What input is the current system working to minimize? Only one: the use of farmers. In just five years—between 1996 and 2001—corporate and government policies expelled 11% of Canadian farm families.²⁷

Energy use in agriculture

Approximately 20% to 25% of the energy used in agriculture goes into making fertilizer. In a modern nitrogen fertilizer plant, a big natural gas pipeline goes in one side and a big ammonia (nitrogen fertilizer) pipe comes out the other side. In a fairly direct way, we are transforming natural gas into fertility; energy into food.

“Efficiency,” in Canadian agriculture, means reducing only the number of farmers. This is important to remember when government ministers and corporate managers claim that efficiency can help solve the farm crisis. If the farm crisis is defined (at least partly) as the loss of family

²⁶ While the assertions of increased per-unit use of water, fertilizer, and chemicals are non-controversial, some might question the assertion that per-unit use of energy is up. Energy use studies are rare that that cover an adequate time period (40+ years) and that calculate energy use per unit of food equivalent. Among other sources, the authors of this report have relied on an unpublished manuscript: Bob Stirling, *Energy Trends for Saskatchewan Farming, 1936-1991: A Research Note*.

²⁷ Statistics Canada’s 1996 Census of Agriculture reported 276,548 farms in Canada. Its 2001 Census of Agriculture reported 246,925 farms.

farms, then efficiency (meaning, predominantly, the reduction in the number of family farms) cannot be a solution. Because, to state the obvious, the problem and the alleged solution are identical: fewer farmers. The proposed cure is just a veiled restatement of the disease—the antidote is just more of the poison.

In addition to using more capital, technology, fertilizer, chemicals, water, and energy, high-tech, high-input agriculture is also creating “externalities” that economists and governments fail to take into account when calculating efficiency. The following are a few examples of environmental externalities.

Nearly 8,000 square miles of the Gulf of Mexico has become a “dead zone.” Nitrogen and phosphate fertilizers wash off U.S. farm fields, flow down the Mississippi River, collect in the Gulf, and cause hypoxia: a depletion of oxygen and the near-total destruction of sea life. This hypoxia not only destroys habitat for thousands of marine species and birds; it also damages Louisiana’s \$1 billion fishery. These environmental and economic costs are not taken into account when policymakers calculate the “efficiency” of modern agriculture.

Closer to home, in Manitoba there is a growing concern that nitrogen and phosphate from the province’s intensive livestock operations (ILOs) pose a serious risk to surface water and groundwater.²⁸ As an example, Lake Winnipeg—the tenth-largest body of fresh water in the world—is starting to show warning signs of ecological collapse, probably as a result of nutrient loading. Nutrient sources seem to include urban sewage and runoff from agricultural land. The latter problem has been exacerbated by the destruction of wetlands and riparian zones, and by a concentration of animal production and manure spreading. Increased irrigation coupled with increased use of tile drainage systems has the potential to very quickly wash chemical fertilizers and pesticides directly through the soil and into waterways. In 2003, a combination of these problems resulted in beach closures and these problems also pose a serious threat to the future viability of the lake’s commercial and recreational fisheries.

Prince Edward Island has experienced numerous fish kills from pesticide runoff incidents that have not only damaged fish species, but also threaten the island’s multi-million-dollar tourist industry. Problems with pesticide runoff have been exacerbated by pressure to expand potato acreage.

Finally, in addition to the creation of externalities in our environment and the increased use of resources on the farms, we are also using more resources after our food *leaves* the farm. Numerous studies²⁹ document how North American food travels thousands of kilometers to get to our plates. Jets loaded with lobsters, chile peppers, tomatoes, and many other perishable foods daily cross oceans and continents. Giant food retailers have centralized their distribution centres so that food is trucked back and forth needlessly. Throughout our food system, we are multiplying our consumption of fossil fuels. Would an efficient food system ship vegetables

²⁸ Fred Tait, “Pork, Politics, and Power,” *Beyond Factory Farming: Corporate Hog Barns and the Threat to Public Health, the Environment, and Rural Communities*, Ervin, Holtlander, Qualman, and Sawa, Eds., Saskatoon, Canadian Centre for Policy Alternatives—Saskatchewan Branch, 2003.

²⁹ See, for instance: The Leopold Center for Sustainable Agriculture, *Food, Fuel, and Freeways: An Iowa perspective on how far food travels, fuel usage, and greenhouse gas emissions*, June 2001.

thousands of kilometers by ship, truck, and plane when much of that food could be grown locally? Would an efficient system transport lamb meat from New Zealand to Toronto while it simultaneously bankrupts Ontario lamb farmers? A food system that ships wheat from Saskatoon to Montreal to make flour for bread and bagels and that makes bagels in Montreal and ships them back to Saskatoon: Could anyone call this system efficient? Wouldn't an efficient system just fax the Montreal recipe to Saskatoon and make the bagels there?

In the face of accelerating climate change and binding Kyoto commitments, is it efficient to drive farmers off the land and replace them with increased carbon-fuel use? In the face of polluted rivers and dead zones in our oceans, is it efficient to uproot third-generation farm families from their homes and replace them with megatons of nitrogen and phosphate fertilizers? With expanding slums of unemployed and starving people already encircling many cities in the developing world, is it efficient to displace several hundred million farmers in poor countries and replace those farmers with tractors, Roundup, and genetically-modified crops?

None of this is efficient. That we are pursuing real efficiency—in our food system or in our larger economy—is a myth, a lie. Economists simply create the illusion of efficiency by refusing to factor in resource depletion, biodiversity loss, habitat destruction, water use, pollution, climate change, the degraded nutritional value of some foods, and a host of other “externalities.”

Under the pretext of “efficiency,” corporate and government policies are simply replacing a farmer-based system with an input-based system. Agribusiness corporations are eager to foster this structural adjustment. If the food wealth from the land goes to pay a large number of people (a large number of farm families), then corporations cannot easily capture and extract that wealth. But if the people are driven out and their contributions to food production replaced by purchased inputs, then the opportunities for transnationals to extract wealth multiply.

Figure 3 shows that farmers in Canada and other developed countries now retain just one dollar from every ten they generate in sales—the transnationals that produce farm inputs and technologies take the other nine. Those transnationals can prosper only if our industrial, input-based agricultural system is ever-intensified and reproduced on more and more of the world's land. This restructuring of agriculture may masquerade as a drive toward efficiency but the actual result is clearly the opposite. And this shift away from efficiency is completely predictable: The energy, fertility, seed, chemical, machinery, transport, and technology corporations that increasingly dominate our food system have no interest in seeing us craft a system that *minimizes* the use of their products (as efficiency dictates). Rather, these corporations want a system where the use of their products is *maximized*. And if their restructuring of the food system minimizes the use of farmers, so much the better. But we must cease to call input-maximization “efficiency.”

A *truly* efficient agriculture and food system would be immensely beneficial for farmers, society, and our environment. Such a system would use a minimum of resources while striving to deliver optimum food and nutrition to the maximum possible number of people, causing the least possible damage to the environment, and preserving and enhancing our land and water for food production for future generations. Actually working toward efficiency, actually working to minimize the use of chemicals, fertilizer, and energy would have the additional benefit of helping unhook farmers from profit-draining input manufacturers.

Conclusion

Inefficiency rhetoric is nothing more than a smokescreen: a propaganda tactic deployed against farm families, workers, and rural communities while corporate and government policies extract the vast wealth we create. When this extraction impoverishes those farms and rural areas, the corporations who purloined the wealth deceitfully proclaim that the problem is farmer inefficiency. All the while, governments are pursuing policies—deregulation, market integration, destruction of marketing boards, seed patenting—that supercharge the corporations’ extractive capacities. And then our governments join the corporate chorus of “farmer inefficiency.”

There are other lies told by the powerful. These include blaming the farm income crisis on oversupply or on foreign subsidies. These lies include the promises of salvation that governments cynically hold up: In the 1990s, salvation was to come from high-value crops and exotic livestock—elk, emus, ostriches, llamas. Today, our elected and business leaders tell us that corporate hog barns and ethanol plants will save our farms and communities. Our leaders point to salvation through value-added processing. And all the while, no one dares utter the notion that the farm and rural crisis is caused by a too-aggressive bleeding of rural wealth by agri-food giants. No one dares suggest that farmers are making too little because others are taking too much.

The problem isn’t too little value-added. The problem is too much value theft.

That agribusiness corporations would rob farmers should be no surprise. But that our democratic governments would so betray us should surprise many Canadians. Not only have our governments told lies that obscure the mechanisms behind the rural crisis; our governments have pushed through laws that have armed the pillagers and weakened farmers and rural communities.

Only by peeling away the myths and lies can we understand the rural crisis. And by so doing, we can begin to see *who* has designed, supported, and implemented the dysfunctional and extractive marketplace that rural people today struggle within. By peeling away the lies, we can begin to see *who* is destroying our farms. To paraphrase the words of folk singer Utah Phillips:

*The family farm is not dying—it is being killed.
And the people who are killing it have names and addresses.*

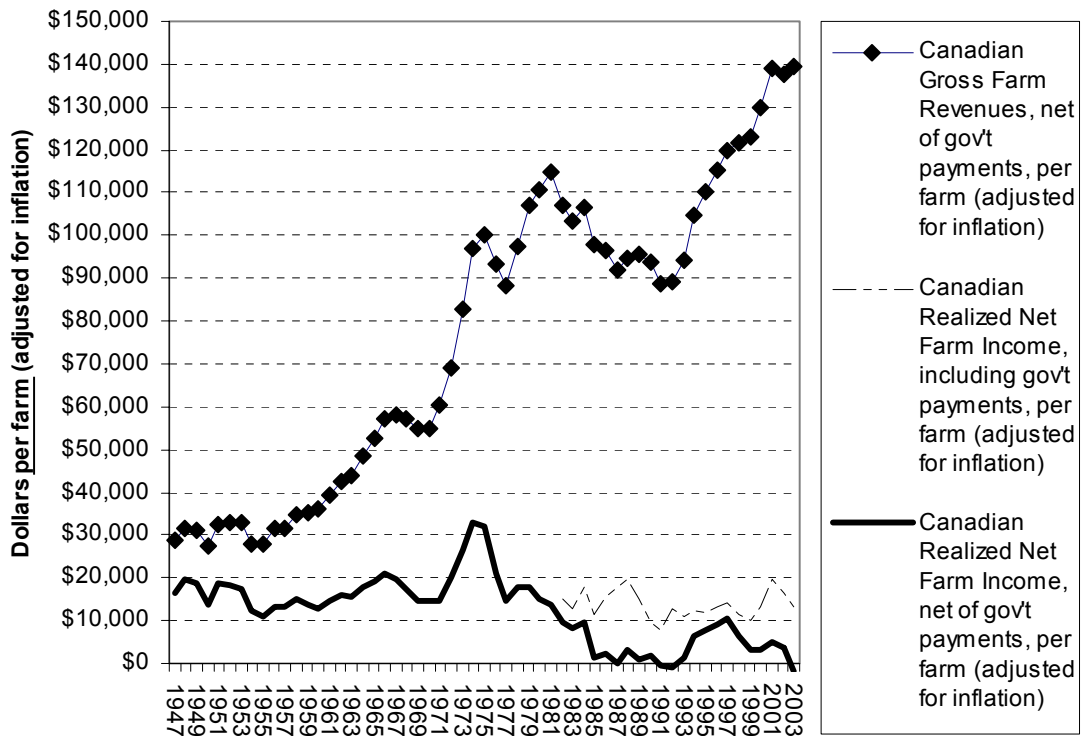
It is time that family farmers learned those names and addresses so that a united resistance can begin in earnest.

***ON BEHALF OF THE 450,000 CANADIAN FARMS UPROOTED
SINCE THE SECOND WORLD WAR AND THE 250,000 THAT REMAIN,
RESPECTFULLY SUBMITTED BY THE NATIONAL FARMERS UNION***

Appendix A: Per-farm gross revenues and net incomes

Figures 3 and 3A, above, chart farmers' gross revenue, net income, and technology adoption. Gross revenue doubles while net income falls by two-thirds. Some people who saw drafts of this report pointed out that the number of farms is decreasing. These people wanted to see a graph of revenue and income on a per-farm basis. Others pointed out that the revenue and income lines in Figures 3 and 3A included government subsidies. These people wanted to see a graph of revenue and income from the market alone—net of subsidies. Figure 7, below, graphs Gross Revenue and Realized Net Income, per-farm, net of subsidies, adjusted for inflation. For comparison, Figure 7 includes a partial graph of net income that includes subsidies (the light, dotted line at the lower right).

Figure 7: Canadian per-farm gross revenues and net incomes: 1947-2003



Sources: Statistics Canada, *Agriculture Economic Statistics*, Cat. No. 21-603; Statistics Canada, *Canadian Economic Observer*, Cat. No. 11-210;

There are reasons to not use per-farm numbers. One is: As farmers are expelled, indicators such as per-farm net incomes actually improve. To explain: If agribusiness drives down net farm incomes and, at the same time, drives farm families off the land, per-farm net incomes may remain the same—fewer dollars will be divided among fewer families. Income numbers on a per-farm basis obscure both negative effects.

Setting aside the preceding reservation, Figure 7 is revealing. On the average farm, Realized Net Farm Income—which hovered between \$10,000 and \$20,000 through most of the '40s, '50s, '60s, and '70s—is now essentially zero. The average Canadian farm increased its production, its gross revenues, almost five-fold: from less than \$30,000 to more than \$140,000. Transnational input and technology manufacturers took it all.

Appendix B: Market power and efficiency effects of concentration in selected industries: from Lopez et al

When corporations merge, two things may happen: they may gain increased efficiency through economies of scale; and they may gain oligopoly power through increased size and reduced competition. The first effect would tend to move selling prices down; the second would tend to move prices up. To determine whether prices are likely to rise or fall, we need to determine the relative magnitude of the two effects.

Researchers Rigoberto Lopez, Azzeddine Azzam, and Carmen Lirón-España have produced a study of 32 U.S. food-processing industries.³⁰ Their study separates the oligopoly-power effects from the cost efficiency effects that both result from increased concentration. They also calculate the relative weight of the two effects and, thus, determine whether increased concentration will move prices up or down.

They conclude: “[A]lthough cost-efficiency effects from concentration are important in one-third of the industries, in nearly every case the oligopoly-power effects dominate[,] or reinforce cost inefficiencies, resulting in higher output prices.”

Figure 8 is reproduced from Lopez et al. The column “Oligopoly power” includes a coefficient for each industry; the size of that coefficient represents the relative strength of the oligopoly-power effect that would result from additional concentration. The column “Cost efficiency” includes a coefficient that represents the relative strength of the cost-efficiency effect that would result from additional concentration. The final column, “Output price,” represents the relative balance between the two countervailing effects: if the oligopoly-power effect overwhelms the cost-efficiency effect, then prices rise.

In about half the cases, there are advantageous cost-efficiency effects (indicated by negative coefficients), but these potential price decreases are reversed by increases in oligopoly power that in nearly every case overwhelm the cost-efficiency effects.

Figure 8: Impacts of increased concentration on market power, efficiency, and price

SIC	Industry	Impact of H on		Output price			
		Oligopoly power	s.e.	Cost efficiency	s.e.		
2011	Meat packing	2.286***	0.333	-2.244***	0.564	0.042	0.257
2013	Saus. & prep. meats	7.119***	0.815	-0.175	1.294	1.944***	0.630
2015	Poultry & egg proc.	3.864***	0.599	-0.759	0.715	3.105***	0.354
2022	Cheese	1.426***	0.217	0.290	0.298	1.716***	0.167
2023	Dry cond. & evap. milk	2.848***	0.556	0.804	0.863	3.652***	0.479
2024	Ice cream & fruit desserts	2.637***	0.615***	2.863**	1.150	5.500***	0.643
2026	Fluid milk	9.373***	0.790	-6.867***	1.531	2.506***	0.835
2032	Canned specialties	0.530***	0.111	1.317***	0.193	1.847***	0.103
2033	Canned fruit & Veg.	3.613***	0.612	5.170***	1.099	8.783***	0.588
2034	Dried fruit & veg.	1.136***	0.301	3.958***	0.554	5.094***	0.299
2035	Pickles, sauces, etc.	2.459***	0.353	-1.383***	0.239	1.076***	0.182
2043	Cereal breakfast foods	0.531***	0.095	1.621***	0.159	2.152**	0.084
2044	Rice milling	7.658	0.587	-2.680**	1.201	-0.022	0.740
2045	Prep. flour & doughs	0.550	0.362	3.957***	0.773	4.507	
2046	Wet corn milling	0.423***	0.170	0.448	0.292	0.871***	0.164
2048	Prep. feeds	6.043***	0.899	-0.809	1.706	5.234***	0.864
2052	Cookies & crackers	0.946*	0.540	-0.872***	0.881	0.074***	0.638
2061	Cane sugar	2.063**	0.817	-1.721	1.453	0.342	0.771
2062	Can sugar refining	0.184	0.254	0.107	0.521	0.291	0.273
2064	Beet sugar	1.311***	0.419	-1.423*	0.834	-0.112	0.413
2064	Candy & conf. prods.	3.254***	0.512	1.135	0.826	4.389***	0.413
2066	Chocolate & cocoa	0.229	0.140	1.706***	0.252	1.935***	0.125
2074	Cottonseed oil mill	2.246***	0.375	-3.456***	0.565	-1.210***	0.303
2075	Soybean oil mill	0.329	0.224	-0.062	-0.405	0.267	0.203
2076	Vegetable oil mill	1.653**	0.635	-2.548***	0.635	-0.815*	0.354
2077	An./mar. fats & oils	10.551***	1.226	-12.099***	1.909	-1.548**	0.780
2082	Malt beverages	0.369***	0.108	0.719***	0.164	1.083***	0.074
2084	Wines & brandy	2.276***	0.239	-0.388	0.333	1.888***	0.189
2087	Food extracts & syrups	1.276***	0.134	2.193***	0.224	3.469***	0.106
2095	Roasted coffee	0.901	0.583	0.788	1.200	1.689**	0.677
2097	Macaroni & spaghetti	3.446***	0.283	-1.862***	0.370	1.584***	0.164
2099	Food preparations	9.536***	1.290	-3.415*	1.843	6.121***	1.102

Levels of statistical significance are represented by * (10%), ** (5%) and *** (1%). The standard errors (s.e.) are indicated next to the estimated coefficients. These results are based on Equation (8).

Reprinted from Lopez et al, see footnote.

³⁰ Lopez, Rigoberto A.; Azzam, Azzeddine M.; and Lirón-España, Carmen, “Market Power and/or Efficiency: A Structural Approach,” *Review of Industrial Organization*, V. 20, I. 2, March 2002, pp. 115-126.

Lopez et al conclude:

[W]e find that further increases in concentration would: (1) significantly increase oligopoly power; (2) result in cost efficiency in one-third of the industries; and (3) increase output price in nearly every case.³¹

Lopez et al note that their findings are important to authorities charged with monitoring mergers and maintaining competition. They point out:

The basic problem facing antitrust authorities is that of a tradeoff between efficiency and market power. . . . That is, whether or not concentration is in the public interest depends critically on whether or not the cost-efficiency gains through concentration offset the welfare losses from greater market power.³²

Given the predatory pricing that this report documents among fertilizer producers and other input makers, and given the huge profits of agribusiness transnationals relative to farm families, and given steady grocery-store price increases despite stable or declining farm gate prices, we are clearly far beyond the point where cost-efficiency gains through concentration might offset the welfare losses from greater market power. New mergers will drive up prices to consumers and drive down prices to farmers. Lopez et al helpfully provide the econometric analysis to back up these conclusions.

³¹ Lopez et al, p. 123.

³² Lopez et al, p. 116.

Appendix C: Industries included within “Agriculture and Related Services”

“Agriculture and Related Services” covers Standard Industrial Classification (SIC) codes 011 to 023. It thus includes:

SIC	DESCRIPTION
01	AGRICULTURAL INDUSTRIES
011	Livestock Farms (Except Animal Specialties)
0111	Dairy Farms
0112	Cattle Farms
0113	Hog Farms
0114	Poultry and Egg Farms
0115	Sheep and Goat Farms
0119	Livestock Combination Farms
012	Other Animal Specialty Farms
0121	Honey and Other Apiary Product Farms
0122	Horse and Other Equine Farms
0123	Furs and Skins, Ranch
0129	Other Animal Specialty Farms N.E.C.
013	Field Crop Farms
0131	Wheat Farms
0132	Small-grain Farms (Except Wheat)
0133	Oilseed Farms (Except Corn)
0134	Grain Corn Farms
0135	Forage, Seed, and Hay Farms
0136	Dry Field Pea and Bean Farms
0137	Tobacco Farms
0138	Potato Farms
0139	Other Field Crop Farms
014	Field Crop Combination Farms
0141	Field Crop Combination Farms
015	Fruit and Other Vegetable Farms
0151	Fruit Farms
0152	Other Vegetable Farms
0159	Fruit and Vegetable Combination Farms
016	Horticultural Specialties
0161	Mushrooms
0162	Greenhouse Products
0163	Nursery Products
0169	Other Horticultural Specialties
017	Livestock, Field Crop, and Horticultural Combination Farms
0171	Livestock, Field Crop, and Horticultural Combination Farms
02	SERVICE INDUSTRIES INCIDENTAL TO AGRICULTURE
021	Services Incidental To Livestock and Animal Specialties
0211	Veterinary Services
0212	Farm Animal Breeding Services (Except Poultry)
0213	Poultry Services
0219	Other Services Incidental To Livestock and Animal Specialties
022	Services Incidental To Agricultural Crops
0221	Soil Preparation, Planting, and Cultivating Services
0222	Crop Dusting and Spraying Services
0223	Harvesting, Baling, and Threshing Services
0229	Other Services Incidental To Agricultural Crops
023	Other Services Incidental To Agriculture
0231	Agricultural Management and Consulting Services
0239	Other Services Incidental To Agriculture N.E.C.