Is Resistance Futile? How Global Agri-Food Attempts to Co-opt the Alternatives

Paper presented at the XIV World Congress of Rural Sociology, Toronto, August 2016

Lawrence Busch
Department of Sociology
Michigan State University
East Lansing, MI 48823
USA

Abstract

Most Alternative Agri-Food Networks (AAFNs) have been developed to counter the mainstream agri-food network dominated by huge multinational corporations. They have attempted to challenge the mainstream network on grounds of sustainability, nutritional value, local control, fair trade and the like. However, they have largely ignored the capacity of the mainstream to absorb, mimic, re-package and otherwise co-opt the goals of the various AAFNs. Without an understanding of those processes, AAFNs become merely marketing tests for the next wave of mainstream food products. In this paper I examine how the mainstream is maintained and co-opts approaches developed initially by AAFNs. One can distinguish five components to this approach to mainstream network management: First, the de facto Tripartite Standards Regime of standards, certifications and accreditations, designed by the major actors, governs the entire network. Conformity is enforced through systems of audit that extend from the behavior of CEOs to janitors, from farm supply companies to farmers to processors to retailers. Second, assembly line technologies initially developed in animal slaughtering but perfected by Ford a century ago have been extended to much of the agrifood chain. Hence, poultry processors and fast food restaurants now share the same technical approach to production. Third, the mainstream has created a New Taylorism, in which something akin to time and motion studies has been extended to all occupations. The professions are no longer excepted. Fourth, Big Data, made possible by advances in information technologies, now permits all of this to become real by making it possible to monitor everyone and everything in real time. Finally, the mainstream agri-food companies have developed a variety of tactics for co-opting, incorporating and subverting alternative agri-food movements. In conclusion, I argue that only by understanding these tactics can AAFNs transform the current food regime.
Is Resistance Futile? How Global Agri-Food Attempts to Co-opt the Alternatives

Paper presented at the XIV World Congress of Rural Sociology, Toronto, August 2016

Lawrence Busch
Department of Sociology
Michigan State University
East Lansing, MI 48823
USA

It is frequently argued that capitalism is a chameleon-like object that morphs into different forms in response to changes in the socioeconomic environment (Gibson-Graham 2006). If this is the case, then we must ask whether capitalists cannot simply incorporate the products promoted by Alternative Agri-Food Networks (AAFNs) into their framework for operation. Alternatively, some argue that capitalism is by definition plural, that it is not a single thing to begin with but that it is a sometimes convenient summary of a multitude of organizational forms (Boyer 1997). Either way, there is little dispute that AAFNs are attempting to challenge the large-scale, multinational supply chain-based approaches used to market food by the mainstream agrifood actors (i.e., large farms, integrated processors, supermarket chains, fast food restaurants, institutional suppliers). There is also little dispute that the mainstream actors have already begun to adapt to some of the challenges posed by the AAFNs.¹

In this paper I briefly discuss five ways in which mainstream agri-food companies have been able to successfully incorporate aspects of AAFNs’ strategies into their business models. Importantly – and often unrecognized by both supporters and critics – mainstream companies have been able position themselves so as to incorporate many of the strategies used by AAFNs into their own operations. They have done this both as individual firms and by creating new governance structures built on, but largely independent of, the State. Five aspects of this process can be identified: (1) the construction and use of the Tripartite Standards Regime (TSR), (2) the incorporation of assembly lines and assembly line-like processes into agri-food supply chains, (3) embracing the New Taylorism, (4) using Big Data to control people and things, and (5) using AAFNs as testing grounds for new products and processes. I conclude by arguing that, barring a disastrous collapse of the mainstream agri-food network, AAFNs will need to better understand these tactics if they are to do more than arrange themselves around the fringes of the mainstream. Let us examine each of these in turn.

1. The Rise of Private Governance: The Tripartite Standards Regime (TSR)

¹ It should be noted that global exchange of plants and animals dates back to the so-called Columbian Exchange, i.e., the transfer of plants and animals from their regions of origin to other parts of the world. For example, potatoes from Peru make up a large portion of the Irish diet, while tomatoes from Mexico are important to Italian cuisine. In the last 50 years diets have become more global and similar as foreign trade in foodstuffs has increased (Khoury, Achicanoy, Bjorkman et al. 2016). Hence, in some sense the mainstream agrifood system emerged long after the initial globalization of diets.
Today, as part of the neoliberal turn, in most nations and globally, in addition to the governance provided by the State, a private (or sometimes quasi-private) system of governance has been established: the Tripartite Standards Regime (Loconto, Stone, and Busch 2012). The TSR (or TSRs) consist of three interrelated parts: standards, certifications and accreditations.

**Standards.** Most standards are established by Standards Development Organizations (SDOs). These organizations support themselves through the sales of their standards. They may specialize in particular products and processes (e.g., IFOAM) or they may be general organizations that establish standards across sectors (e.g., the International Organization for Standardization, ISO). In some instances, standards developed in the private sector have been written into law (e.g., Hazard Analysis and Critical Control Points, HACCP). In some other cases, governments have developed standards that are mandatory if one wishes to use a particular term (e.g., in the US, the term ‘organic’ can only be used if one conforms to standards developed by USDA). However, in most instances standards are enforced by the market. For example, standards for palm oil production are enforced through the Roundtable on Sustainable Palm Oil (RSPO), in that major buyers of palm oil now insist on these standards as a necessary condition to enter the marketplace.

Importantly, standards are usually set by the major (mainstream) actors in agricultural supply chains or by non-governmental organizations (NGOs); smaller producers and processors usually have little or no control over standards design. And, since mainstream actors often adopt NGO standards as a marketing tool for at least some of their products (e.g., Unilever’s adoption of Rainforest Alliance standards for their tea), they are able to capture what might otherwise be a market share left to AAFNs.

**Certifications.** The second element in the TSR is certification. The task undertaken by certifiers is to check regularly that various actors’ products or processes conform to the standards developed by SDOs. However, in the agri-food sector, certifiers are usually paid by those they inspect; therefore, there is a built-in conflict of interest (Busch 2011). To deny a certification is to lose a customer. Like SDOs, certifiers range from small firms that specialize in a particular type of certification to enormous multi-national firms that certify to thousands of different standards. For example, Oregon Tilth focuses entirely on organic certification, while the Société Générale de Surveillance (SGS) claims that “[w]herever you are in the world, in whatever industry, you can rely on our international teams of experts…” (SGS 2015). SGS boasts that it has 85,000 employees in 1800 offices and laboratories around the world.

**Accreditation.** The third and final element in the TSR is accreditation. Accrediting agencies certify the certifiers. In other words, they attempt to ensure that certifiers are competent to certify conformity to a given set of standards. Regional and national accreditors are themselves accredited through two private-sector international organizations: The International Laboratory Accreditation Commission (ILAC) (2015) accredits laboratories that engage in tests necessary to ensure conformity with standards while the International Accreditation Forum (IAF) (2015) accredits national accreditation bodies with respect to all other aspects of their operations.
What must be emphasized here is that TSRs allow retailers, processors and other dominant actors in agri-food supply chains to impose a variety of rules – rules that often have the force of law even though they are technically ‘voluntary’ – upon weaker actors in the chain. Thus, through the use of this relatively new form of governance (Loconto and Busch 2010), the three key groups of actors in agri-food supply chains – retailers (whether supermarkets or fast food restaurant chains), processors and institutional suppliers – are able to organize the entire mainstream agri-food sector in such a manner as to optimize their profits while squeezing other actors in the chain.

Moreover, in the days of small greengrocers, consumers who did not find a given fresh product would simply go down the street to another greengrocer’s store. Today, supermarket chains find that they lose customers if their shelves are not well-supplied with certain fresh or packaged items (e.g., tomatoes, Coca-Cola). Simply put, if a customer finds that the product in question is out of stock once, they will buy it at a competitor’s store. After several such incidents, customers will simply abandon the first store and shop elsewhere. In a highly competitive market with relatively low margins, permanently losing customers is a costly affair.

Yet, paradoxically, the continued existence of actors who do not meet the standards that supermarket chains impose on upstream actors actually allows them to grapple more effectively with shortages or oversupply of fresh produce (Raymond 2013). For example, when faced with a shortage, a supermarket chain may purchase the needed produce either in the ‘telephone market’ or by direct purchase in wholesale wet markets that normally serve smaller supermarkets and grocery stores as well as chefs in upscale restaurants. In contrast, when for whatever reason the supermarket chain is faced with an oversupply, the telephone and wet markets offer places to offload the unneeded product. At the same time, the continued existence of such markets allows the large chains to avoid violation of the anti-trust laws. In short, the existence of TSRs allows larger, better-capitalized actors to govern much of the food supply chain and to do so in a manner that offers them substantial flexibility even as it limits flexibility to suppliers.

2. Assembly Line and Continuous Process Technologies

Although Henry Ford is usually given credit for the creation of the first assembly line, it was the food industry that was in the forefront. As early as 1833 biscuits were manufactured in Britain using assembly lines (Giedion 1975 [1948]). Pork processing in Cincinnati was also subject to (dis)assembly line technology during the nineteenth century. But, importantly, assembly line technologies only work well when the inputs to the process are standardized. Today, one finds assembly line technologies throughout the mainstream agri-food sector, made possible in large part by standardized plants, animals and equipment.

In his pioneering work, Friedland (1975) noted how tomato harvesting is now accomplished by moving the disassembly line through the field. At the other end of the agri-food supply chain, fast food restaurants have developed the technologies necessary to make for rapid assembly line-like production of entire meals. Subway, the world’s largest fast food restaurant chain with nearly 45,000 restaurants in 112 countries, even allows customers to watch the assembly of the sandwiches as they wait for their meal. Indeed, it makes that into a selling point for its products. For more complex meals, McDonalds and other hamburger restaurants have developed
specialized equipment that allows them both to cook and compile meals through a complex assembly line process.

Continuous process technologies can be found at about the same time in the history of food and agriculture. Oliver Evans (1795) had developed a continuous process grain mill by 1785. The first “perpetual” oven (a tunnel oven with a mesh conveyor belt) was developed as a means of baking ‘sea biscuits’ in 1810 by one Admiral Sir Isaac Coffin of the British Navy (Giedion 1975 [1948]). Today, nearly all harvesting of grain and oilseeds as well as some fruits and vegetables for the mainstream agri-food sector is done through continuous process harvesting equipment. Breakfast cereal manufacturers similarly use continuous process approaches to the manufacture of breakfast cereals. A significant segment of the food industry uses Tetra Pak packaging which allows the construction of factories in which there are no production workers; instead, the product flows in a continuous process from raw material to final consumer packaging. All that is required are several maintenance personnel who remain ever ready to respond to alarms that stop the production process if a malfunction occurs.

At the retail level, supermarkets have made considerable inroads in using Radio Frequency Identification (RFID) chips to reduce the need for handling and to maintain records of inventories. In addition, fully automatic checkouts are now commonplace in supermarkets. And, recently a former CEO of McDonalds warned that the move to a $15 minimum wage would provide an incentive to that company to replace workers with robots (Haworth 2016).

Both assembly line and continuous process technologies require standardized inputs so as not to slow the production process. They require standardized equipment as well. Both contribute to minimizing production costs, thereby helping mainstream agri-food companies to compete successfully with AAFNs.

At the same time, more and more, food processors and retailers are able to use those ‘Fordist’ technologies to differentiate their products rather than merely to standardize them (Allaire and Wolf 2004). Despite standardized production processes, products can be differentiated with respect to appearance, packaging, taste and texture among other things. But they can also be differentiated with respect to class, status, ethnicity and other demographic characteristics of consumers. Euromonitor notes that consumer complaints about wastage of ‘ugly’ produce – produce that does not meet uniformity standards usually insisted upon by supermarkets – has been met with supermarket purchase and sales of such produce at discount prices. Again, AAFNs provide the mainstream actors with useful ‘tests’ of the marketability of various products. Mainstream actors have three paths open to them: First, successful AAFN products can be purchased in bulk by mainstream firms. Hence, Costco can purchase vast volumes of feta cheese made from a mixture of sheep and cow milk from an Israeli firm. Second, they can purchase those small firms that have successful products and scale up the production to meet mainstream demands. Consider the purchase of Odwalla, what was a small fruit juice startup operating out of a backyard shed, by Coca-Cola. Finally, mainstream actors can imitate successful products and market them under a private label. Whole Foods has been particularly successful with this approach with its 365 label for organic packaged products.
Finally, it is important to note that the growth areas for supermarkets today are to be found in the global South. As Reardon and his colleagues (Berdegue, Reardon, Balsevich et al. 2007; Reardon, Timmer, Barrett et al. 2003; Weatherspoon and Reardon 2003) have noted, supermarkets are making rapid inroads in Africa, Asia and Latin America. In those places, the mainstream approach they offer is often seen by middle class consumers as a massive improvement over traditional markets, offering greater safety, higher quality and lower prices. Indeed, Reardon (2016, 39) argues that “[s]upermarket chains using distribution centers can reduce transaction costs by 30 to 40 percent, thereby reducing food prices to consumers.” In many instances, that means bypassing smaller producers and introducing mainstream practices on larger scale farms.

3. The New Taylorism

But the efficient operation of assembly line and continuous flow technologies also requires that labor be organized in certain ways. Meat and (especially) poultry processing plants (Gray 2014), as well as large-scale vegetable production (Friedland, Barton, and Thomas 1978) employ Taylorist practices of the sort used in industrial production a century ago. The speed of production is set by the pace of the machinery. Workers must adapt to the line speed or risk being fired. Worker health is also often compromised by this style of production (e.g., Lloyd and James 2008). But, more and more, the mainstream agri-food industry has also adopted the New Taylorism. That is, they have applied Taylor’s dictums not only to line workers but to those engaged in other types of tasks, reducing worker autonomy as much as feasible in an attempt to enhance standardization, reduce costs and increase efficiency. Consider some aspects of the New Taylorism across the mainstream agri-food industry:

Fast food managers. Managers of individual fast food outlets at one time had considerable latitude in running the restaurant. Today, it is usually the case that hourly sales of each product, volume of inputs from hamburgers to napkins, and number of employees on each shift are monitored from a central office. Inadequate sales, hiring more than the centrally-determined number of workers at a given time, and nonconformity to other minutiae of store operation can be grounds for dismissal.

Truck drivers. In the past, truck drivers in the employ of mainstream agri-food companies could to a great extent determine their route and the time it took to move goods from warehouses to supermarkets. Today, in contrast, much of that autonomy has been removed. Trucks are commonly outfitted with both Geographical Positioning Systems (GPS) and Geographical Information Systems (GIS) that allow the central office to keep track of each vehicle, determining if it is on time, whether it has remained on the assigned route, whether the driver has maintained the speed limit, and in some instances monitoring the condition of the vehicle.

Cashiers. Sixty years ago supermarket cashiers had to examine the price tag on each item and enter it in the cash register. They had to separate taxable from non-taxable items. And, they had to calculate the change to be given to each customer. And, in some instances, cashiers bagged the sold items for the customer. Today, cashiers greet the customer with a ‘Have you found
everything you wanted?’ Then, they merely wave products over a bar code reader (Hicks 1975) that (1) automatically registers the price (which likely is no longer written on the item’s packaging), (2) determines if it is taxable and (3) sums up the cost of the overall order. The machine also calculates the change due to the customer automatically. In some instances cashiers continue to bag the items, while in others that task is left to the customer. When the customer leaves, they likely recite the phrase: ‘Have a nice day.’ Moreover, managers can determine how many items were entered in the register in a given period of time, thereby determining if cashier number 6 is working more slowly than cashier number 10. They also use closed circuit television to determine if the cashier is stealing from the store. Based on that information, managers can determine if someone should be warned of their transgressions or fired.

Consumers. Furthermore, even if consumers are not themselves directly subject to the New Taylorism directly, they are encouraged in a variety of ways to make their way quickly through the store as well as to undertake much of the work once done by employees. A century ago, before Clarence Saunders invented the self-service store (Hicks 1975), consumers would provide a list to store employees who would gather the desired goods and package them for the consumer. The self-service store encouraged the customer to do the work of collecting the goods from the shelves and bringing them to a cashier. Today, customers are even encouraged to ‘ring up’ their own purchases and pay through the use of a machine. Indeed, it is possible to do one’s entire grocery shopping without ever interacting with a store employee other than the ‘greeter’ who stands at the front door providing a kind of artificial friendliness. The result is a significant cost reduction and higher profits for the supermarket chain as well as lower prices for the consumer. Of course, customers now do much of the work. However, since that work is not seen as such, it is the lower prices that attract customers.

4. Enter Big Data

The New Taylorism is itself inextricably linked to the rise of Big Data. Without Big Data it would be impossible to monitor employees and products along the supply chain. Over the last 50 years both the cost of computing and the cost of data storage have dropped precipitously such that everyone in the mainstream agri-food chain from input suppliers to farmers to processors to supermarket chains can afford to collect and analyze such information as well as to use it in decision making. A recent survey by KPMG and the Consumer Goods Forum found that 57% of food and drug executives saw data analytics as a point of investment over the next two years in attempts to improve supply chain management, marketing, product development and procurement (Burrows 2016).

Moreover, beyond the New Taylorism, Big Data allows mainstream firms to engage in activities that are usually unavailable to smaller operators and vendors connected to AAFNs. For example, precision farming for soil sampling and fertilizer applications hold the promise of significant cost reductions for those (generally large-scale) farmers who can afford the initial investment (Boehlje 2016). Similarly, at the other end of the chain, with the introduction of bar codes in the 1970s as noted above, supermarkets were able to collect massive amounts of data about sales. Initially, larger chains used these data to engage in Electronic Data Interchange (EDI) using a Uniform Communication Standard (UCS), i.e., the exchange of electronic orders with wholesalers and manufacturers. This made it possible to submit orders electronically ‘just-in-
time’ ensuring that supermarket shelves were kept well-stocked even as better management of inventories and production became possible for suppliers.

Soon afterwards, food supply chains began to adopt Efficient Consumer Response (ECR). As one observer explained,

The ECR initiative focuses on reengineering activities and linkages in four processes that run through the entire supply chain: selection of product assortments, product replenishment, product promotions, and new product introductions. Only through system-wide changes can gains in these areas be fully realized. Cooperation across the system has been possible because potential gains should be large enough to leave all participants in the system at least as well off as they were before the initiative (King and Phumpiu 1996, 1182).

This, in turn, made what is known as ‘category management’ possible. This involves grouping products into categories and then determining, given the customers who frequent a given store, how much space should be devoted to that category and how much should be devoted to each brand within the category. Big Data can also be used to compare the effects of product placement on sales of various items (e.g., salad dressing with the condiments or with the lettuce?). In addition, the profitability of selling inexpensive items rapidly vs. expensive items more slowly can be compared. And offerings can be tailored to particular demographic groups as well as to the environmental, labor, animal welfare and other concerns of segments of customers served by each store.

In short, Big Data allows mainstream operators to engage in a variety of activities with respect to consumer, labor and product management that are simply unavailable or unattractive to AAFNs. These activities allow them to be at least as responsive to consumers as are many AAFNs.

5. How AAFNs Help Mainstream Actors to Differentiate Their Products

Finally, in addition to the advantages noted above, in an ironic move, AAFNs can and do help mainstream actors to differentiate their products so as to better compete with those very same AAFNs (as well as other supermarket chains, of course). Perhaps the most obvious of the changes instituted by supermarket chains is the introduction of organic packaged foods and of organic produce into their stores. Initially, organic products were a niche market served mostly by smaller producers and sold to a small segment of the population. In the US, Whole Foods was one of the first retailers to plunge into the organic market. It did quite well until the larger mainstream firms began to realize that this was a growing market segment. Today, Whole Foods – often known as ‘whole paycheck’ – is struggling as nearly every major supermarket chain, including Walmart, has successfully introduced organic produce and packaged products into its stores.

But this is hardly a single outstanding case. Consider that throughout Michigan one can find billboards advertising how McDonalds uses Michigan eggs in its breakfast sandwiches. Tyson (2016), a major producer of broiler chickens, notes that they “are striving to eliminate human antibiotics from our broiler chicken production by September 2017….” Sainsbury’s (2016) has
adopted fair trade standards for all of the bananas it sells, for all of its own branded tea and coffee, Kenyan roses, various nuts and some fruits and vegetables. It is now the UK’s largest retailer of fair trade flowers and sells “almost as many [bananas] as all the other major supermarkets put together.” Carrefour informs us in its 2015 annual report of the company’s commitment to preserving biodiversity and buying local foods. It claims to be the leading retailer of organic food in France (Carrefour 2016).²

Similarly, Mars has pledged to use only fair trade certified cocoa by 2020 (Sustainable Cocoa Initiative 2016). Starbucks (2016) has developed its own Coffee and Farmer Equity (C.A.F.E.) standards for social responsibility and environmental leadership in coffee production. They are certified by a third party. Campbell’s has recently decided to label any and all of its products that contain genetically modified ingredients. And, Chipotle (2016) has committed itself to sourcing directly from local farms, cooking products directly in their restaurants, using only non-genetically modified ingredients and incorporating animal welfare and avoidance of nontherapeutic antibiotics into their meat purchases.

Recently, the food marketing and data firm, Euromonitor, unveiled newly collected data that claim to show that ‘ethical labels’ are worth €709 billion (~ $795 billion) globally. Their data are meant to guide manufacturers in choosing which labels will add the most value to a given product in a given nation. For example, they estimate that Rainforest Alliance and Fairtrade-certified goods will experience considerable growth by 2020 in Britain, while in France a decrease in value is expected (Michail 2016a). Hence, by carefully selecting the labels that bring the highest return on investment, manufacturers and retailers can increase their profits, even as they squeeze AAFNs.³

Of course, each of the achievements described above is subject to debate. Critics argue that much of what is claimed by mainstream chains is questionable at best. But, irrespective of what some impartial outside observer might see, the claims of mainstream agri-food have consistently followed on the more successful claims made by AAFNs. Put differently, the mainstream has shown itself capable of adopting ideas, products and processes initially advanced by AAFNs. Furthermore, the mainstream actors appear to understand the role of class better than the AAFNs do.

The upper middle and upper classes often want and usually have access to AAFN products, from participation in CSAs (which require time and a vehicle) and farmers markets to upscale restaurants that specialize in locavore, organic, and other types of foods (Johnston, Szabo, and Rodney 2011). In contrast, the middle and lower classes, who often desire AAFN foods, are largely stuck with mainstream products. They have neither the time to cook from scratch nor the money needed to buy what are usually more expensive AAFN products.

² What is local is a non-trivial question. It has two dimensions. First, there is the question of how far the food has traveled to get to the final consumer. Second, there the question of the origin of a particular food. A recent paper suggests that about 69% of national food supplies currently consist of foreign crops (Khoury et al. 2016); in short our diets have become quite globalized.

³ It appears that processors already do this with respect to food quality, selling poorer quality but more expensive foods to Eastern Europeans. See: Michail (2016b).
Yet, the kinds of foods offered by AAFNs are attractive to lower income consumers in part because of the values they espouse, but also because they offer prestige and demonstrate upward mobility. The mainstream firms understand this and know that by pursuing (some of) the goals that AAFNs espouse, they can bring those local, environmentally friendly, organic, fair trade and other aspects of ‘ethical consumption’ into the purchases of the middle and lower classes (Johnston, Biro, and MacKendrick 2009). Some of the medium to small mainstream supermarket chains have actually set up farmers markets in their parking lots (Harper 2015). They do this by investing in new technologies, sourcing locally and globally, re-organizing supply chains and, ultimately, lowering costs to consumers. Others have introduced coffee shops into their stores so as to provide a certain gemütlichkeit lacking in the rest of the store.

In addition, mainstream actors have latched onto ideas developed at the margins to restructure their supply chains. For example, the term ‘circular economy,’ refers to an economy in which ideally all waste is recycled as inputs into other industrial processes and energy use is minimized, thereby detaching resource consumption from increased prosperity (e.g., Preston 2012). FoodDrinkEurope (2016), an association that represents national federations of food companies (e.g., Food and Drink Federation (UK)), sectoral organizations (e.g., European Fruit Juice Association) and individual companies operating in Europe (e.g., Coca-Cola, Danone, DuPont, General Mills, Mars, Kellogg's, Nestle and Unilever), has begun promoting the concept of a circular economy in mainstream agrifood settings. Similarly, Walmart recently successfully pressured General Mills “to fit its Hamburger Helper noodles into a smaller box. General Mills replaced curved noodles with straight ones, which lie flatter” (Economist 2016). As a result, 500 fewer trucks were needed and shelf space was freed up. Quite clearly, only the largest food companies can perform this kind of transformation and only those companies can benefit sufficiently to make it worth the trouble.

In short, the mainstream agri-food network is quite capable of adopting many of the ideas (and ideals?) found in AAFNs once it is demonstrated that they have staying power with a significant segment of the population. Moreover, once those decisions are made, the mainstream producers, processors and supermarkets are able to use their access to capital and already existing supply chains to underprice the AAFNs even as they produce similar products.

Conclusions

In the near future we can expect that the mainstream agri-food sector will adopt a wide range of new technologies which will lower their costs even further. Already, firms such as John Deere are selling self-driving tractors. Such vehicles will further reduce the need for labor as well as the cost of growing grains and oilseeds, although they are not ready to use with fruits and vegetables as yet. The meat and poultry processing industries are busily exploring the use of robots to do much of the disassembly now done by workers (e.g., McMurray 2013). Similarly, self-driving tractor trailers that eliminate the need for truck drivers are in the development phase and will surely hit the road within the next decade. The mainstream agri-food companies will be among

---

4 Safeway and Albertsons have actually set up simulated farmers markets in their parking lots. See Warner (2010).
those first in line to purchase these items, while AAFNs will be less likely to have the capital or scale necessary to make their use profitable.

The mainstream processing industry will also be well-placed to take advantage of new technologies that cut costs. The new CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats) technologies – if they work as expected – will allow modification of plants and animals without transferring genetic material across species lines. This should allow the selection of plants and animals that have characteristics of particular interest to processors and packers.

Food retailers will doubtless find new ways of using technologies to cut their labor costs and reduce waste. The nearly fully automated supermarket is already being tested (Kalyanam, Lal, and Wolfram 2006). RFID technologies have the potential to fully automate the most annoying part of the checkout process, such that consumers merely push their carts through a hoop and view the bill. But other technologies will likely reduce the cost of shelving products, make inventory control more efficient, and keep labor needs to a minimum. In addition, new competitors with supermarkets offering home delivery will make at least some supermarkets unnecessary. For example, as companies like Amazon and Walmart (Economist 2016) turn their attention to home delivery of even fresh products, they will be able to use the technologies they have already developed to retrieve and package goods requested while doing away with expensive supermarket retail space. And, supermarkets are responding to consumer demand for more local foods by closing down some of their superstores and replacing them with smaller format stores.

In addition, economic concentration in the mainstream agri-food sector continues unabated. Walmart’s annual sales now dwarf the gross domestic product of many nations. And, economies of scale are such that smaller chains continue to be gobbled up by the giants. Each acquisition increases the ability of the largest firms to squeeze their suppliers, to better integrate with those same suppliers, to rapidly adopt new technologies that cut costs and to be on the alert for new issues rising among AAFNs. This will allow them to expand the market to lower income consumers for the reasons noted above.

Of course, it is possible that the mainstream food industry will suddenly be faced with a major calamity, e.g., a shortage of a particular key ingredient, difficulties in maintaining the supply chain, the collapse of the global economy, etc. It is also possible that new disease vectors for humans, animals or plants will emerge that threaten the just-in-time supply chains that support the mainstream food system. Energy costs may rise sufficiently so as to threaten global sourcing.

Moreover, the very tactics that some AAFNs and NGOs use, such as pressuring supermarkets and fast food firms to make changes to certain of their practices (e.g., animal welfare, fair trade, organic, ending the prophylactic use of antibiotics) can be and are being responded to by mainstream processors and retailers by incorporating the demands of those very AAFNs and NGOs. Thus, while the food industry may well change such that the primary products are bought differently, that consumers get an improved selection of goods from which to choose, at the same time the mainstream will remain just that – the mainstream. It will morph to meet those demands,
but at the same time it will remain capitalist, oligopolistic and dominant. It is merely that what constitutes capitalism, oligopoly and dominance will have changed.

In short, as of now, the AAFNs and related NGOs provide no clear vision of how to move from the mainstream to an alternative. Their focus on changing specific food qualities and work practices while largely avoiding the larger political economy of the mainstream food industry has in many ways made them the (perhaps grudgingly) handmaidens of the mainstream.

6. References


