From the editor

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The complexity of the agrifood system is widely recognized by scholars, policymakers and the general public. It has also been a recurring theme in papers published in *Agriculture and Human Values*. In fact, writing in the very first issue of this journal, Kunkel (1984, p. 21) noted the following: “Agriculture has grown from a primary basic sector of the economy to a secondary technical sector with complex joint interactions with the rest of the economy.” More recently, Jaffe and Gertler (2006, p. 147) observed that the “agro-food system has become so complicated that even some actors in the chain have little understanding of what other parties are doing.”

A system is complex if it is “composed of many interconnected parts” and is “so complicated or intricate as to be hard to understand or deal with” (Dictionary.com n.d.). Our agrifood system is, without doubt, more interconnected and complicated today than it was 100 years ago. Such complexity has produced a host of difficult problems for farmers, consumers, communities and the environment. Any regular reader of this journal should be able to generate a healthy list of specific problems and concerns.

According to conventional wisdom, simple problems need only simple solutions, while complex problems require complex solutions. If the agrifood system is complex, then we may expect that problems generated by that complexity will be difficult and complicated as well, and probably even wicked (see, for instance, Whyte and Thompson 2012). Should we be critical of those who propose or who adopt simple solutions, even when such solutions omit or obscure important considerations? If we do,

then we will have to implicate ourselves, because everyone follows simple rules of behavior when more complicated options could be identified and implemented. In this context, “simple” refers to actions or behaviors that allow only a limited range of options and include “instincts, habits, routines, rules of thumb, administrative procedures, customs, norms, and so forth” (Heiner 1983, p. 567).

There are many examples within the agrifood system of decisions and behavior driven by simple rules. We define obesity by measuring body mass index (ratio of body mass in kilograms to the square of height in meters), even though a combination of weight, age, physiology, genetics and other considerations determine a person’s unique optimal body fat. We blame Wal-Mart, McDonald’s and Monsanto for our agrifood system woes, even though the agrifood system is, by definition, a combination of numerous interrelated and interdependent parts. We eat the same foods and shop in the same stores, walking the same aisles in the same pattern, even though other foods may be less expensive or other stores may provide more nutritious food options. We plant the same crops in the same fields in the same rotations each year, even though a greater variety of crops would be more environmentally friendly or provide farmers with a greater opportunity to tap new markets or expand into entrepreneurial value-added projects. For better or worse, we are creatures of habit (see Carlisle 2006).

In her excellent book, *What to Eat*, Nestle (2006) explained the effort she had to go through in order to “figure out what was going on” in the supermarket (p. 6). After spending months trying to learn how to eat well by shopping at a grocery store, she acknowledged the following:

“You need to know an amazing amount about our food system and about nutrition to make intelligent choices, but most of this information is anything but

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obvious. It is not *supposed* to be obvious. Supermarkets have one purpose and one purpose only: to sell food and make a profit, and as large a profit as possible. Your goals are more complicated: you want foods that are good for your health, but you also want them to taste good, to be affordable, to be convenient to eat, and to reflect social values that you might care about. In theory, your goals could overlap with the normal business interests of supermarkets. After all, they do sell plenty of inexpensive, convenient, tasty foods that are good for you. But in practice, you and the supermarket are likely to be at cross-purposes” (pp. 6–7; emphasis in original).

Individuals could invest the time Nestle did in studying out the best foods from the best sources, but most of us don’t, or won’t. In order to help food consumers, Nestle proposed a simple ten-word solution: “*eat less, move more, eat lots of fruits and vegetables*” (p. 8; emphasis in original). This rule of thumb strips away the confusion and complexity of purchasing and consuming food. It is a good rule to follow, although it is not perfect. A Kansas State University nutrition professor famously lost 27 pounds in 2 months eating snack cakes, cookies, chips and sugary cereals while counting calories (see, for instance, Park 2010). I don’t think this is what Nestle had in mind.

Other behavioral rules might not be good. For example, a characteristic of conventional pest control methods in farm production is to spray pesticides according to a pre-determined schedule (e.g., monthly). This is a practice that is simple to understand and implement, but one that is widely recognized as harmful to the environment and to human health and that has contributed to pesticide resistance of insects and the problem of resurgence of pest infestations (Ekström and Ekblom 2011). A more complicated but environmentally friendly approach is based on principles of integrated pest management (IPM). However, IPM adds “a degree of complexity to pesticide use” (Ekström and Ekblom 2011, p. 75) because it is difficult to learn and requires “considerable forethought and knowledge” (Hipkins 1997), including knowledge of insect biology and soil ecology.

An important question to consider is why consumers, farmers and other participants in the agrifood system continue to adhere to routines, habits and behavioral rules rather than adopt relatively more complex decision solutions when it can be shown that they and others can be better off doing so. Responding that people don’t have the time or don’t care begs the question of why not. Do we need to make people *more* aware of or give them *more* information about the consequences of their decisions? I suggest that a lack of awareness and inadequate information are not the problem.

I recently revisited a paper written by Ronald Heiner, which provides an interesting insight into this issue. I consider the paper an underappreciated classic. As a side note, I took an intermediate microeconomics class from Professor Heiner as an undergraduate student, and I remember the lectures he gave on this paper. In fact, I still have my notes from that class, which I reviewed as I worked on this essay.

Heiner’s (1983) paper seeks to explain why people adopt and follow routines and other simple behavioral rules when faced with complex problems and environments. In particular, he wonders why anyone would adopt a rule that limits their flexibility or restricts the options they can pursue or directs their actions without conscious thought when greater flexibility and wisdom in decision-making may be needed in order to solve problems. Heiner’s insight is that individuals adopt simple behavioral rules, not in an attempt to solve complex problems but in order to cope with them. In some cases individuals may even be better off actively *constraining* their ability to be flexible in decision-making—that is, ignoring actions “which are actually preferred under certain conditions” (p. 568). When faced with complexity, limited choice and rule-governed behavior might actually be better than flexibility and an expanded option set.

Heiner’s argument is as follows: When faced with a difficult and complex problem, the search for and the implementation of a complex solution assumes that decision-makers are equally competent in identifying the solution and carrying it out. In reality, however, there is usually a gap between the difficulty (D) of the problem and the competence (C) of individuals seeking its solution. When the gap between C and D is small—that is, when the competence of individuals is comparable to the level of difficulty of the problem—then it makes sense for individuals to have maximal freedom to identify and implement what they perceive to be the best option, because, at least by assumption, they should be capable not only of identifying the right solution at the right time but also of anticipating likely consequences from implementing it. However, when the gap between C and D is large or when, for a given C-D gap, the level of environmental complexity is extensive, then there will be greater uncertainty as to what the right action is, so that individuals who have a lot of options to choose from will be at greater risk of selecting the wrong one at the wrong time. If the consequent loss resulting from such misjudgments is too large, then it might make sense for them to have a restricted ability to choose or a limited number or types of actions or decisions they can make. Greater complexity or a more difficult problem “will both reduce the chance of correct selections and increase the chance of mistaken selections,” according to Heiner (p. 565). In these situations, the resulting

uncertainty of what the right action or behavior is will induce individuals to seek out simpler rules of behavior or to desire that others impose restrictions on them.

Rule-governed behavior, including behavior governed by norms, habits and routines, is not inherently bad, but it could impede efforts to affect change within complex systems. Agrifood scholars have recognized this problem. For instance, Johnston and Szabo (2011) observed that complexity can be difficult for consumers, who often have limited information and training to make effective and prudent decisions, stating that “it is vitally important to question the utility of expecting reflexive consumers to regulate a complex food system, particularly given that they often make choices in a corporate context where they possess imperfect information” (p. 317).

Compounding the problem is the fact that, over time, food consumers have become less competent in making food and cooking decisions. According to Heiner, a reduction in competence, holding constant the level of difficulty of the problem to be solved, will increase the likelihood that individuals will adopt rule-governed behavior as a coping mechanism. And overly-rigid, habitual food-buying behavior is precisely what we don’t want. Jaffe and Gertler (2006) recognized this problem:

“There is *prima facie* evidence that consumers are deskilled or, at the very least, that they lack the knowledge and know-how to defend many of their fundamental interests with respect to provisioning activities. The most glaring evidence is the choices that are made at the supermarket and in the food service sector. Consumers are selecting foods and drinks that contribute to increased morbidity and mortality for themselves and their families” (2006, p. 148; emphasis in original).

According to Jaffe and Gertler, the “food-eating public [consists of] amorphous consumers” (p. 146)—that is, consumers too naïve and inflexible to be aware of or concerned about where their food comes from and what the consequences of their food-buying decisions are. Moreover, agrifood marketing has created “illusions of choice”—that is, a false impression that consumers have a lot of flexibility in the food choices they have. Agrifood marketing is not about empowering consumers or changing their buying behavior but about solidifying it. Again, increasing rigidity in our food consumption (and production) behaviors will not help.

Reducing the complexity of our agrifood system might be one way of facilitating the identification and implementation of specific solutions to specific problems. In systems that are less complex, a given gap between competence and difficulty is less likely to result in misjudgments by individuals and, as a result, will be less likely to

induce simplifying rule-governed behavior. Alternatively, we can seek to improve the competence of all participants in the agrifood system, scholars and non-scholars alike. Competence requires more than raising awareness or increasing knowledge and information, however. Competence requires active engagement and experience, and a willingness to learn from our mistakes and to have the courage to make changes when necessary. And in the context of the agrifood system, competence requires a cultural shift as well.

Fortunately, this issue of *Agriculture and Human Values* presents a collection of articles that substantially increases our collective competence about the agrifood system. It begins with a paper by Ofstehage, who examines how Bolivian quinoa farmers respond to changing economic conditions, create and influence marketing channels, and thereby “shape their own economic reality.” Sbicca presents a case study of a California food justice organization in order to understand the tensions that can exist between food justice activism and efforts to resolve problems of local food insecurity and inequality. Zepeda and Nie identify characteristics, attitudes and behaviors of different types of consumers of local and organic foods. Zhou et al. study food flows in a metropolitan region in northern China in order to determine the extent to which the area could become self-sufficient in food production. Ganning, Flint, and Gasteyer review the history and purpose of a Midwest university agricultural experiment station within the context of evolving policy, economic, technology, and social environments. Drescher et al., evaluate the relationship between consumer trust of food processors and their consumption behavior of processed meats, focusing particularly on perceptions of food safety. Schreinemachers et al., report on the effectiveness of good agricultural practices (GAP) standards on farmer use of pesticides in rural Thailand. Valiente-Neighbours shows how definitions of “local” and “good” food are culturally and geographically dependent. Finally, the presidential address given by Jim Bingen at the 2012 meetings of the Agriculture, Food and Human Values Society, and book reviews, round out this issue of the journal.

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