

## THE AGRARIAN IMPERATIVE: A CONSTRUCT

### Introduction by Dr. Michael Rosmann

Recently I proposed a construct, the Agrarian Imperative, as the best explanation for why people engage in agriculture, which was published in the Journal of Agromedicine.<sup>1</sup> I offered three lines of evidence for the Agrarian Imperative: historical evidence, genetic and anthropological evidence and psychological research. In this same issue, Dr. Henry Cole, Professor of Preventive Medicine and Environmental Health at the University of Kentucky, argued that the behavior of people who engage in agriculture is to a large degree influenced by economic, cultural and social capital resources.<sup>2</sup> Dr. Steven Kirkhorn, Editor-in-Chief of the Journal of Agromedicine and the Medical Director of the National Farm Medicine Center at Marshfield, WI, suggested that the two articles raise the classical debate of nature versus nurture and whether the skills and ability to succeed in farming may be expressed in both the genotype and phenotype of those engaged in farming.

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*To farmers, land means everything.  
Ownership of a family farm is the  
triumphant result of the struggles of  
multiple generations.*

*Losing the family farm is the ultimate loss-  
bringing shame to the generation that has  
let down their forebears and dashing the  
hopes for successors.*

Rosmann MR. Behavioral healthcare of the agricultural population: a brief history. *J of Rural Mental Health*. 2008; 32:39-48.

As Dr. Kirkhorn and I both suggested, the debate about the Agrarian Imperative can help us understand the behavioral health and personality of farmers and their families. The most recent National Occupational Research Agenda, which is the strategic plan for the National Institute of Occupational Safety and Health, adopted the goal of conducting research that enhances the understanding of psychological factors that affect the well-being of people engaged in farming. This discussion about why people farm can be an important avenue of behavioral research that elucidates farmers' motives and risk-taking. We need healthy farmers to produce essentials for life: food, fiber, and increasingly, renewable energy.

### Agrarian Imperative Summary by Shari Stucker

#### Human Instinct

Humans, like most species, have developed instincts. Dr. Rosmann likes to distinguish between the “agrarian personality”, which is a set of behaviors, and the “agrarian imperative”, which is an urge that motivates people to acquire sufficient territory to produce the food and shelter required by their family and community. The Agrarian Imperative instills farmers to work incredibly hard, to endure unusual pain and hardship, and to take uncommon risks.

#### Historical Evidence

Dr. Rosmann traces the beginning of the concept of the agrarian imperative to Konrad Lorenz, Niko Tinbergen and Karl von Frisch. They were the Nobel Prize recipients in 1973 for their observations of animals' and other species' behavior in their natural environments.

The three researchers noted that the animals they studied established territories that had enough resources to expand the members of that species.

Dr. Rosmann continues by describing how the earliest humans lived in small family or kinship groups. These groups eventually found that they could band together into larger groups which would increase their ability to protect themselves and also allow them to hunt larger prey. These larger groups helped to enable the survival of the species. The groups also marked their territories through various means, with the larger kinship groups acquiring the largest territories.

Hunter-gatherers observed that some of the seeds they gathered to eat fell into the soil around their campsites and sprouted. They learned to select seeds that had the most food value, to till the soil and to hoe weeds. These were the first farmers. Other early humans captured and domesticated animals that could most easily be handled, such as sheep. Raising crops and animals gave these early humans tremendous survival advantage. They could more easily endure times when food could not be easily hunted or gathered, such as during winters and droughts.

### Genetic and Anthropologic Evidence

The agrarian imperative is not encoded in a single piece of DNA. While there are distinguishable genetic markers for many diseases, such as a single mutation which accounts for Sickle Cell Anemia, the drive to acquire agricultural territory and to produce food is not encoded in a single strand of DNA. Genetic memory for productive farming becomes strengthened each time a generation works the land as a way of life. The genetic memory recedes with each generation removed from working the land as a way of life. But, the inclinations can quickly be reintegrated. It takes only a few years for an urban person to develop the physical and behavioral characteristics (i.e., the phenotypic expression of the genotype) of a farmer after returning to work the land as a way of life. Hands enlarge, body movements such as handling a scoop shovel become efficient, the manner of a farmer becomes practical and goal-oriented. Just as a domestic pig's hair lengthens, its tusks elongate and its disposition becomes wary when it is required to fend for itself in the wild, people who return to working the land quickly assume the characteristics that were encoded into their genetic memory. As multiple generations are removed from the land, each successive generation loses its connections to the origins of food and fiber but the genetic imperative can quickly reemerge when a generation begins farming once again.

Dr. Rosmann cites the October 2009 issue of *Science* which contains a number of articles that indicate we are carrying around the genetic codes that influenced our *Australopithecus afarensis* and *Ardipithecus ramidus* ancestors. He notes that early genetic codes helped Lucy, the australopithecine whose skeleton was found by Donald Johanson, to adapt to her wild environment. Later genetic acquisitions became part of our genetic memory that defines our agrarian roots.

Dr. Rosmann then reflects on the book *The Territorial Imperative* by Robert Ardrey. In this book, the author contends that the earliest humans were shaped by their environment in Africa to develop agrarian traits, including the striving for territories. He and the anthropologists Louis and Mary Leakey discuss what structures of the human body to look for in the earliest humans. For instance, walking upright required modifications in the pelvic attachment of the hip bones. Hands needed to be changed so that they could be used better to grasp tools. The skull expanded to accommodate more brain matter to store an ever-greater fund of information and increasingly complex language. Aggressive instincts emerged not only to capture prey but also to defend territories that contained the resources necessary to nurture family clans.

### Psychological Evidence

Dr. Rosmann finds compelling evidence in the field of psychology to support the concept of the agrarian imperative. He cites a 2001 University of Queensland study which identified five personality styles of the 60 farm people studied: a capacity for hard work and perseverance; confidence in making their own decisions; great capacity to cope with adversity; comfort with solitude and self-reliance; and diminished need for companionship and a comfort level with a small circle of friends. Dr. Rosmann notes that these traits are to be expected in farmers and essential to the agrarian imperative.

In an earlier study cited by Dr. Rosmann, Joyce Willock and her colleagues at the Rural Resource Management Department at Edinburgh, UK, evaluated the attitudes, objectives, behaviors, and personality traits of 252 farmers (242 men, 10 women) in Scotland in the late 1990s. The results of this study indicated that the personality traits most predictive of success in farming included conscientiousness, risk-taking, and self-reliance. Dr. Rosmann notes that these same personality traits have survival value for working the land as a way of life.

Dr. Rosmann continues by saying that just as these agrarian imperative personality traits motivate a farmer to work the land and take risks, these traits also can make farmers more prone to depression and suicide when their efforts are not successful.

### Conclusion

Dr. Rosmann concludes his article by saying that instincts encourage patterns of behavior but do not dictate responses to events or circumstances. He says that while working the land influences the information that is absorbed into our changeable genetic material, it does not dictate our behavioral responses. He suggests that the imperative is an important factor to consider when studying the behavior of farm people and developing policy that will improve the understanding of the safety and health of the agricultural population.

<sup>1</sup> Michael R. Rosmann, The Agrarian Imperative, *Journal of Agromedicine*, 1545-0813, Volume 15, Issue 2, 2010, Pages 71 – 75.

<sup>2</sup> Henry P. Cole, Is There an Agrarian Imperative? *Journal of Agromedicine*, 1545-0813, Volume 15, Issue 2, 2010, Pages 76 – 86.

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