



CARTAS

Horticulture at the crossroads ⁽¹⁾

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Horticulture in all cultures has long been associated with the benign activities of gardening, beautiful ornamentals, delicious fruits, nutritious vegetables, zestful spices and herbs, health promoting medicinals, and attractive landscapes. Throughout world history, all cultures have extolled gardening and horticulture: the advice from the prophets Isaiah and Micah to “*Beat your Swords into plowshares and your spears into pruning hooks and study war no more.*”; the synonymy of *Paradise and Garden* of the ancient Persians; the advice from Voltaire’s *Candide* to *Let every man cultivate his own garden*. Yet, due to a combination of circumstances our profession finds itself in the vortex of controversy and tension. These aphorisms extolling horticulture have been drowned out by choruses of unhappy epithets of a different hue altogether. The new offensive speech includes: Frankenfoods, Pesticide Poisons, Fertilizer Contamination, Environmental Desecration, Factory Farms, Drug Lords, and Plantation Exploitation to name just a few. Horticulture along with many other agricultural professions finds itself at the crossroads of controversy.

Let me briefly catalog just a few of the great controversies that face horticulture.

1. Organic vs. Conventional Horticulture

In the recent past organic horticulture was something to be avoided. Tourists were warned not to eat uncooked food, not to drink the water, and at all costs to avoid salads when visiting poor countries because of the threat of disease from “night soil.” It may still be good advice in many parts of the world. The organic movement has reversed this bias and told us instead to be wary of unblemished, thrifty produce due to the probable use of chemical pesticides and inorganic fertilizer. Wormy fruit or vegetables, instead of being a sign of poor management, have become a sign of freedom from insecticide. The world continues to be confused by the terms, organic vs. inorganic, natural vs. synthetic, and pesticide vs. medicine. Horticulture needs to navigate between these two opposing rocky shoals.

2. Subsistence vs. Corporate Horticulture

It had been conventional wisdom that subsistence horticulture is an economic sin and that scientific farming is the key to poverty reduction. Yet, modernization has often led to very large scale horticulture (hence the terms plantation horticulture and corporate farming), which is considered by many to be exploitive of labor, the decimation of the family farm, and often stained with the evils of colonialism. How does horticulture reconcile these extremes?

3. Biotechnology and Traditional Breeding

The fusion of biology and technology has been considered the crown jewel of horticultural science. One of the greatest achievements of the 20th century has been the ability to achieve genetic improvement using genes from distantly related species through sexual recombination: the ability to obtain new cultivars from old genes. Transgene technology, sometimes known as genetic engineering, has been based on the dazzling discovery that genes could be extracted from any species and inserted in another, overcoming the restrictions of sexual barriers. This was hailed as truly a wonder of science and technology and we entered the brave new world of biotechnology. To our shock we learned that there were many who considered that transgene technology was dangerous, unnatural, and an anathema and their emotional arguments seemed persuasive enough to result in a biotechnology ban in Europe and other places. Where does modern horticulture navigate?

4. Germplasm Sharing and Plant Patents

One of the common beliefs of plant breeders and traditional horticulturists was that the world’s heritage of germplasm was a common resource available to all of humanity. This assumption was shattered when various countries decided that germplasm was a natural resource that could be exploited. In addition, the concept that unique combinations of genes could be considered an invention and patentable soon initiated a conflict between national rights, farmers’ rights, and intellectual property rights. Horticulture finds itself in the center of this controversy.

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5. Herbal Medicine vs. Designer Drugs

While the medicinal effects of certain horticultural plants have been the basis of medicine for over 5000 years, and plant-derived chemicals are the basis of the majority of medicines, the relation between herbal medicine and modern medicine still is unresolved. Skeptics consider the lack of support for herbal medicine as a plot by the drug industry, while the drug industry considers herbal medicine the purview of witch doctors. There is a problem.

6. Globalization vs. National Protection

The advances in postharvest horticulture, protected culture, and intercontinental shipments have given the lie to the concept that horticultural products must be seasonal in nature. Yet, globalization of horticulture has disoriented many horticultural industries. Transcontinental shipments of fruits and flowers have become bonanzas for some and disasters for others. The fight over subsidies, tariffs, protectionism (often based on questionable quarantines), has been disorienting to many horticultural industries leading to trade wars and food fights. Whose side are we on?

7. Horticulture and Economic Development

Horticulture was long considered a luxury part of agriculture, too trivial to be taken seriously when the world was in need of calories or protein, while our claim to be the source of vitamins and minerals has long been ignored. We have insisted that horticulture is a key to economic development. Horticulture continues to fight to find its place on the table.

8. Horticulture as an Academic Discipline

The role of horticulture in academia is under attack. Where horticultural science was once considered a cornerstone of agricultural education, the very concept of agriculture as a scientific discipline is being questioned. Plant physiologists have morphed into plant biologists and horticultural scientists are being morphed into plant scientists. Do we fight or join? Public institutions have been assured that applied research will be taken over by the private sector but this trend has resulted in the decimation of public plant breeding and the destruction of once proud extension services. Horticulturists rightly feel threatened and confused. What dare we do about this trend?

Indeed, we live in interesting and exciting times. The controversies enumerated above are a sign of the politicization of science and reflect the fear of the unknown. Horticulture, after all, reflects both ancient practices and new technologies. Horticulture is conservative and radical at the same time and finds itself at the nexus of the current controversy between science and society. Our Profession and our Society must squarely face these issues and come up with appropriate answers to improve the living conditions of all people in all places. We as horticultural scientists cannot retreat from these problems. We horticulturists, by nature, would probably prefer to cultivate our own gardens and stay out of the public eye. However, if we do not get into the world and offer our professional expertise on these issues, the field will be left open to all sorts of self-appointed experts, media spin doctors, and self-serving lobby groups to influence decision makers. I suggest that horticulturists, by our training, are well positioned to offer leadership in resolving these controversies and provide a link between the scientific community and ordinary citizens. Hopefully the International Society for Horticultural Science will continue to provide a forum where people of good will, scientists seeking the truth, and humans seeking happiness, can find an appropriate solution to these seemingly insolvable controversies. The more horticultural scientists and the ISHS stay engaged on these issues, the more the real facts will be disclosed, leading to wiser and better informed decisions.