

Bias

by Ellen Bergfeld



in Scientific Disciplines, and in particular, Agricultural Science

Research indicates that unconscious assumptions about women's roles and abilities play a major role in the lack of advancement of women in the engineering and scientific disciplines. Valian (1999) implies that slight, but statistically significant, disadvantages in many contexts, such as hiring, communication, and publication, accumulate over time to create a mountain of disadvantage for women and minorities.

Survey data from a *Harvard Business Review* Research Report titled *The Athena Factor: Reversing the Brain Drain in Science, Engineering, and Technology* indicate that 41% of the highly qualified scientists, engineers, and technologists on the lower rungs of corporate career ladders are female. However, the female dropout rate is stunning. The report shows that, over time, fully 52% of females working for science, engineering, and technology (SET) companies quit their jobs, driven out by hostile work environments and extreme job pressures (Hewlett et al., 2008)

Some of the ways unconscious biases and assumptions about gender can negatively affect women and minorities include (Xie and Shauman, 2003):

- Hostile cultures: Women in SET are marginalized in cultures that are often exclusionary and predatory (63% have experienced sexual harassment).
- Isolation: Women working in the SET area are often the lone

woman on a team or site, making it difficult to find support or sponsorship (45% lack mentors and 83% lack sponsors).

- Stalled career paths: Women in SET feel "stalled" in their career paths because of hostile cultures and isolation.
- Extreme work pressure: SET jobs are often time intensive and, because of their global scope, involve working in multiple time zones. In addition, women with children experience a distinct disadvantage in the SET labor market with their dedication to the job often being questioned. (Bielby and Baron, 1986).

Similar types of disadvantages affect other minority groups, such as racial/ethnic minorities, in similar ways (Bielby and Baron, 1986).

While considerable research and programs have focused on women and minorities in the academic sector, the challenges for these groups in the private sector of the SET area have been largely ignored and are poorly understood (Xie and Shauman, 2003; Hewlett et al., 2008). This is extremely apparent in the agriculture sector (McIntosh and Simmons, 2008).

Overall, when compared with other similar scientific disciplines such as the biological sciences, the number and percentages of doctorates awarded to women and minorities in the agricultural sciences is disappointingly low. According to the National Science Foundation's *Survey of Earned*

Doctorates, only 18% of doctorates were awarded to women in agronomy/crop science compared with 49% in the biological sciences (Women in Science and Engineering Leadership Institute, 2004)

Even after more than a century of existence and following the first membership of a woman to the Societies in 1937, less than 15% of the current professional membership is female (McIntosh and Simmons, 2008). Board representation and executive level leadership representation by women and minorities continues to be less than 1% (McIntosh and Simmons, 2008).

Therefore, cultural transformation through the increased participation of women and other underrepresented groups at all levels of agricultural science and research leadership is needed. According to previous work, such diversification of science leadership subsequently leads to increased diversification of the entire scientific and engineering workforce through: increasing access to role models for women and minority students; more positive workplace climates for underrepresented groups; more effective mentors for women and minority students; and exposure to diverse perspectives during the educational experience (Biernat and Manus, 1994; Turner, 2002; Women in Science and Engineering Leadership Institute, 2004).

Please consider how you can contribute to the increased participation

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to be engaged—at state, national, and international levels.

On a personal note, this spring and early summer period has been one of transition for me. On 12 May, we lost my dad, James W. Quesenberry, to leukemia at age 92. Over the last few months of his life, he and I had a number of conversations about the early years of his life. As I've been reflecting on some of those conversations, I've really come to appreciate how well he handled "transition." Here was a man who remembered the first Model T cars on the roads and how they spooked the horses pulling a buggy and yet lived to see men walk on the moon and repair a telescope in outer space. As a farmer, he went from using saved OP corn seed to double-cross hybrids to single crosses to seeing the use of stacked GM trait hybrids. I have good memories of his keen interest in those new corn hybrids in the 1960s as I was a young teenager on the family farm.

He was a man who only finished the 9th grade of high school but knew the value of education and fostered a son to obtain a Ph.D. He loved his native Kentucky but was equally interested in learning from me about all the different agricultural areas I've had the privilege to visit and study. Perhaps the best quality he passed on to me was his desire to be flexible and a lifelong learner. And perhaps that is what change and transition is all about: learn the lesson of yesterday, see where it takes us today, and seek opportunities to effect change to make tomorrow better for all mankind.

So, enjoy your summer—whether it's baseball or football (aka soccer), hotdogs or steaks, apple pie or homemade ice cream (why not both?), and families. And whether you are in the field with sweat dripping in your eyes or in the lab poring over too many gels, keep striving for that next giant leap forward in crop science and be ready for the next transition. I'd still like to hear from you—clover@ufl.edu.

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based on the challenge or issue at hand. They also indicated that they felt greater confidence in their abilities, a greater understanding of others, and a more active engagement with others. Additionally, many indicated that through being more aware of other styles and abilities, they have been able to adapt their own behavior to achieve positive results. Additionally, we have seen a related benefit of diversifying membership and leadership representation as additional committee appointments have been made based on the interactions that occurred between early career members and executive committee members during these workshops.

The workshops will be offered again at this year's Annual Meetings (see www.acsmeetings.org/tours-workshops). The facilitator will be Teri Balser, an associate professor of soil and ecosystem ecology in the Department of Soil Science, director of the Institute for Cross-College Biology Education, and faculty associate in human resource development at the University of Wisconsin–Madison. Dr. Balser is also the ASA leadership development coordinator.



Teri Balser

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of women and underrepresented groups in our Societies. We encourage all of our members to consider volunteering for committee service and appointments, to contact us with your concerns and recommendations, and to participate in our Leadership Development Workshops. We are finding that through these workshops, we are beginning to effect change and encourage both participation and leadership from such underrepresented groups.

Activities in the Leadership Workshops provide an opportunity for women and minorities to see a pathway to higher leadership that we anticipate will result in a larger number of women and minorities in leadership positions in our scientific Societies. Further, we believe that providing a venue where senior leaders can listen to and learn from those underrepresented in the Societies will result in a lessening of bias and a climate that promotes/supports increased numbers of women and minorities in leadership positions. We also believe that we can effect greater cultural change across the agricultural community by providing such outreach and education to similar scientific societies with whom we collaborate.

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