

A SCIENCE-BASED INDUSTRY

We often state with pride that the fertilizer industry is science-based. At PPI, we strive to contribute to the reality of that statement. But what does it really mean to be “science-based”? Prior to the 17th century, the primary tools of science were logic and what was perceived as rational thinking. Scientific progress was made through academic debate by scientists with truth being defined by the winning debate.

However, in the early 1600s Sir Francis Bacon, an English philosopher, contributed greatly to the development of the scientific method as we know it today. He insisted that new ideas be tested by experimentation due to psychological barriers that interfere with logic and rational thinking. He identified four types of barriers and referred to them as “idols.”

In Bacon's system, *idols of the cave* involve biases deeply engrained in each of us due to our unique pasts that distort how we process facts. An agronomic example might be what we call our “fertilizer recommendation philosophy.” Some subscribe to a sufficiency philosophy while others to a corrective-maintenance philosophy and still others to something in between. Which philosophy an individual follows can have a huge impact on fertilizer rates recommended, even when basing the recommendation on the same crop response data. The philosophy we follow is largely determined by our personal pasts ... the “cave” in which we professionally grew up.

Idols of the tribe are not unique to individuals but are common to all of us, the entire tribe. They are “foibles of human thought” that limit our knowledge. When the phrase “everyone knows that ...” is used, a good potential exists for a tribe idol. Several years ago when we were publishing on field crop response to chloride (Cl) fertilization in scientific journals, reviewers would not allow us to refer to Cl deficiency because “everyone knew that Cl deficiency does not occur in the field.” The entire “tribe” agreed even though multiple studies of the time were showing that deficiency did occur in the field.

So, whether scientist, crop adviser, or captain of industry, we are all susceptible to Bacon's idols. If we are truly a science-based industry, we will test provocative new ideas with experimentation rather than squelch them with the idol-infested blanket of the status quo.



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