

## Stockpiling Revisited

*Laura Paine, Columbia County Crops and Soils Agent; and Dan Vosberg*

January, 2002

In a column late last summer, I reviewed a comprehensive study on stockpiled pasture. The research was conducted by a student with Dr. Dan Undersander when I was working in his lab back in the mid-1990s. Since the column came out, Dan Vosberg and I have been having a friendly debate on differences between the research results and his experience with stockpiling as well as on the merits of research versus on-farm observation.

Dan's primary concerns with the study and my summary of it are that it gives the impression that stockpiling doesn't work. Based on the research results, protein levels would be too low to maintain milk production. Dan and others who've been using stockpiling know that this isn't necessarily true. It is because I agree with his concerns that we've written this column.

Dan feels that stockpiling is a key to his family's profitability and quality of life. Winter feeding is a time consuming chore on a grass farm. His successful use of stockpiling and the resulting reduction in workload have allowed Dan to increase the number of cows he milks and improve profitability.

Keeping milk production up on stockpiled pasture is the only way stockpiling can be effective. The results of the study, Dan's experience, and what we've learned since last August suggest that, like most grazing practices, management is the most important factor in how well stockpiling works.

In my experience, the forage quality values we observe in research samples tend to be lower, sometimes considerably lower, than what farmers report (the opposite of what we see in research on other forages, like alfalfa and corn silage). Frankly, it's something I've puzzled over for years. Why do our studies routinely show crude protein values for pastures in the mid-teens (or even lower in the case of the stockpiling study) while graziers report values up to 25 or even 30%? And more importantly, which figures are right?

The answer, unfortunately, is that both are. I'm convinced that the differences are not in the accuracy of the measurement, but in how the samples were taken and handled, and more importantly, how the pastures were managed.

As a result of these discrepancies, Dan and I did our own little experiment. We went out into his stockpiled pastures and collected samples side by side. From this exercise, I realized that not only do we collect forage samples differently, but we have very different goals that guide how we evaluate stockpiled pasture. My goals were to accurately represent the averages for the pasture, and to provide a generalize idea of forage quality levels in stockpiled pasture. Dan's goal was to determine the forage quality of what he expects his cows to readily consume based on his observation of their grazing behavior. Because he uses a leader-follower system, he's able to allow the cows to selectively graze the best of the forage from a paddock, then move them on, with a cleanup herd with lower nutritional requirements finishing what's left.

The primary difference in our sampling methods was in what we collected. I collected samples at randomly chosen places in the pasture, a minimum of 3 per paddock. Each sample was collected the same way, the same amount, clipped at the same height (3-4"). Dan selected sampling places based on what he knows his cows will

eat. He tore his samples from clumps of grass with his hands, simulating what a cow might get in a mouthful or two of pasture and did not include material that he thought the cows would avoid. I think this is a very insightful, and completely valid, approach. It fits his management system. His samples may not be an accurate reflection of the average forage quality of the pasture, but they are probably a good measure of what his milking animals are consuming (which is what matters to him, after all).

The quality results that we got back were somewhat surprising. As I expected, my samples reflected the variability inherent in pastures, with crude protein levels varying from 21.9% to 28.5%. Dan's sample at 23.8% was very close to the average crude protein of my samples at 24.33%. Although his single sample was fairly accurate this time, we advise producers to collect samples from multiple locations in a pasture to get a better sense of that variability (which Dan usually does).

More importantly, the protein levels we measured were stunningly different from the study results. Although RFVs were similar between the study and Dan's pastures, our average protein levels were more than twice the average of 11% crude protein obtained in the study.

So which numbers do we believe? Certainly Dan should believe the numbers we obtained on his own farm. He has his bulk tank to substantiate that they are accurate. But can we generalize his numbers or the results of the study any further? As misleading as the research results seem to be in this case, I would also caution against accepting our 'anecdotal' results without reservation. The samples we took (one farm, one date, one year) are not necessarily more accurate than the study is.

We've probably simply framed the range of possibility. The research station study provides the low end with relatively little management applied. Dan's stockpiled pasture provides an example of what can be achieved when you apply experience and management skills. As long as we can see this bigger picture, the results of either project can be put into context. Either one alone can be misleading.

The research process often starts with this type of one farm, one time event. The problem with accepting such information at face value is that it usually has no context and is not necessarily repeatable. The role of science is to validate how things work and to sort out why things work the way they do. The problem with research is that, if it isn't designed right, the answers we come up with may not be very useful to farmers either.

It's not because we're doing things wrong scientifically. The challenge is that pasture systems don't lend themselves well to the research process, at least not the standard procedures used in agricultural research. We can't accurately simulate what's going on on-farm, as we can when we're comparing corn hybrids. There are too many variables and the key to success is how we manage those multiple, site specific, and frequently changing variables day to day.

Agronomists conduct small plot research on research stations because it is easier to control all those variables. As long as all the variables are accounted for and controlled as much as possible, the results should be repeatable anywhere. The problem with the stockpiling study is that we didn't account for all the variables that are critical to quality stockpiling. In fact, we didn't necessarily even identify them all.

The flip side of this is that we can't necessarily repeat the success that Dan had with his stockpiled pasture this year, because what we did there didn't identify the critical variables either. Dan knows what worked this year, and over the years he's drawn conclusions as to what he needs to do to make it work, but even that can't necessarily be transferred to another farm. That's the role research is supposed to play, to document what works and why. Practices that are not documented are likely to be forgotten and have to be reinvented at a later date, which has already happened once with grazing.

The research community has been criticized for being way behind when it comes to pasture management

research. From the beginning, the grazing movement has been a farmer-led effort. University support was slow getting started and continues to lag behind. Today, the University of Wisconsin has begun to address some of the many questions that need answering, but it is clear that we need to get much better at doing pasture research. We need good, on-farm research and it needs to be managed by farmers who understand and believe in the value of the scientific process. Good grazing research requires an investment of dollars and patience, but it is worth it.

Laura Paine is University of Wisconsin-Extension Crops and Soils Agent for Columbia County and has worked with grazing networks and done on-farm grazing research for 7 years with the University of Wisconsin-Madison. She can be contacted at: PO Box 567, Portage, WI 53901, 608/742-9682, [laura.paine@ces.uwex.edu](mailto:laura.paine@ces.uwex.edu). She's always interested in feedback and ideas for future articles.

Dan Vosberg farms with his wife, Ruth, near South Wayne, WI. Dan and Ruth operate a grass-based, seasonal dairy, milking 150 cows. They have a total of 200 acres of managed pasture. Their stockpiling goal is to extend the grazing season into early December.