A major goal for researchers is to tell our colleagues (and others) about our work. This is formally done through the publishing of our findings in the peer-reviewed literature, but for many of us this is a daunting task. How do we take our data and tell the story that will result in publication? In this talk, we provide some simple steps to help ease the process. The work starts with the formulation of an interesting and important research question. This question needs to be situated within the current literature, building upon existing ideas, and helping to fill a recognized gap. A clear research question may also help in identifying predictions that inform experimental design and what is measured, allowing you to focus on a few well-reasoned ideas, and avoid including measures simply because they are easy to collect. Before starting data collection, try to write a first draft of the Introduction and Methods sections of your paper, using the format of your target journal. This will force you to clearly describe your research question and to link your proposed methods with the main ideas. The Methods section should also describe your proposed statistical analysis and the power analysis you used to calculate sample size, and follow one of the reporting guidelines specified by the journal (such as ARRIVE). As you begin data collection, you can revise the Methods to reflect any changes you have made. Before you begin statistical analysis, carefully scrutinize the raw data, using plots to check for outliers. Take special effort to develop the figures and tables describing your main findings—these will be the stars of your paper. Before you start, try to develop an eye for what types of graphical reporting you find most helpful, and use these ideas when presenting your results. The discussion should carefully integrate your results into the literature, identify new ideas and gaps for future research, and end with a clear and specific conclusion. A high-quality paper requires many drafts, so be prepared to take the time needed to polish your efforts, including seeking out critical comments from readers whose work you admire.

Key Words: authorship, publishing, scientific writing

Organization, planning, and inclusive communication among co-authors are the keys to success. Collaboration in writing, presenting, and publishing will flow a bit differently for review papers versus research papers, but the basic principles are the same. In both cases, the co-authors need to agree on the target journal and who will be the corresponding author. For review papers, each co-author is normally responsible for a section(s) and the lead author will do the integration. For original research papers, the sequence is a bit different. The manuscript development and planning has to start with clear and measurable objectives, an experimental design, and a plan for statistical analysis of the data. This should be done before you do the research. In writing, start with a title page, an introduction section with only the last sentence(s) written (i.e., the objectives of the research), and descriptive first-level and second-level section titles for the remainder of the paper. Step 1: Write the materials and methods in complete detail (best if this is done while doing the research). Step 2: Analyze data and make final form data tables and figures with all statistical analysis included. Have all co-authors agree on the main messages from each table and figure. You are not ready to start writing the results and discussion section until step 2 is complete. This is the step where people waste too much time writing before the data (and co-authors) are ready for them to write. Step 3: Write your story about your data (don’t worry about the literature yet). Have all co-authors review and provide input before going to step 4. Step 4: Next, bring in appropriate discussion of literature citations to compare with your story. Some previous work may agree and some may differ. Provide a balanced perspective. Step 5: Write a short conclusion about your results, not the literature. Stick to facts that are statistically significant. Have all co-authors review and revise. Step 6: Write the introduction including only background references that are necessary to understand the topic and to logically lead the reader to your objective statement that was written earlier. Step 7: Write the abstract with the objective(s), a brief experimental approach, and then add the conclusions that match step 5.

Key Words: writing, publishing, presenting

A good paper starts with a good experiment, which in turn starts with a clearly stated hypothesis. The introduction must end with this hypothesis, and the final paragraph of your paper must say what you conclude about that hypothesis. Write a draft introduction before you start your experiment. You will update this before submission, but your hypothesis should not change. As you do your research, start writing sentences for your methods. Make sure they describe exactly what you are doing. This means you have read the original methodology, even if citing it through another paper. If you are also keeping track of the references you will cite, that makes 3 big parts of your paper that you have drafted before finishing your study. I prefer combining results and discussion text in one section and put most of my results in either a table or figure. Some reviewers want discussion of every result, but I submit papers that contain “minor” results in some table rows that I do not discuss. If a reviewer asks, add text to the discussion about these results. The less you say in a discussion, the more you focus on the core objective. I write for my reviewers, so I would rather have to add distracting discussion text at their request after they have read my focused discussion. Certainly, anything else interesting that comes up is worth mentioning but don’t elaborate or speculate on ideas beyond the scope of your experiment. Do know how your results compare with the existing literature to make sure something is not way off—you do have to discuss anything that seems unusual. A good paper comprises unambiguous, direct, short, minimally complicated sentences that each convey a single idea. Integrate related ideas using paragraphs of simple sentences. Have others read your paper, especially people outside your immediate research group. Writing is an iterative process, so expect to modify your precious writing in response to reviewers. Respect the input of all your reviewers, and if you failed to make them understand something, rewrite your paper so that anyone reading the final version is not similarly misled. Know the journal guidelines.

Key Words: journal submission, manuscript, peer review
Will your research impact dairy farmers? C. Geiger*, Hoard's Dairyman, Fort Atkinson, WI.

Scientists do a marvelous job conducting research and sharing those findings in scientific journals. However, will that work ultimately change how dairy producers care for cows and produce nutritious dairy products for consumers? Writing for a lay audience, including dairy farmers and their consultants, is a far different proposition than authoring material for scientific journals. To be successful, authors need to convert detailed research into an easy-to-read article while still maintaining the integrity of the technical work. When writing, remember your reader is a busy person who puts in more work hours than the average American. When you write, outline your article, marshal your facts, and tell your story with personal candor. Express yourself simply and concisely. Keep your sentences short and uncomplicated. Short paragraphs add to readership comprehension. Present just one idea per paragraph. Highly technical acronyms are readership busters. To improve comprehension, consider commonly used vernacular. If the sentence cannot be comprehended the first time, it needs further editing. Anticipate practical reader questions, and answer them in the article; if you cannot, say so and why. Get to the meat of your message immediately. Tell the reader something in the first paragraph. Unless historical background is essential, omit it. Too many readers will flip the page if the first few paragraphs don’t have anything to offer. Word counts should not go over 1,100 to 1,200 words. Put action in your title. Avoid label-type titles such as, “Breeding cows.” Compelling titles, 48 characters or less, and strong subtitles add to readership. That review-type subtitle will stimulate curiosity in your material and can help the reader know what you think is important about the material. Keep titles to one line and move all details to footnotes. Also, inserting subheads in the article can call out important points between paragraphs. A theme setter-type photograph can add tremendously to the presentation of the article. That photo should be related to the material presented and clarify points made in the article. Graphics also aid readership. Good charts, graphs, and tables can help the author break up the text and make the page more pleasing to the eye.

Key Words: research, dairy farmers