

Complete blood tests are an important part of the Project 1870 work. This lab technician is counting the white cells in a blood sample taken from the herd of John Behrer, Spruce Creek, near State College. Behrer's herd is experiencing repeat

breeding problems. Although the cows are anemic, this condition alone doesn't seem to be causing the repeat breeding. The Project 1870 group is trying to get at the root of Behrer's difficulties.

Working For

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receive from their veterinarians and extension specialists. Project 1870 members want to find out why discrepancies exist between laboratory findings and field experience.

Along with Guss and other members of the group, we visited two of the project herds, a healthy one and a herd with problems. Both were short drives from the Penn State campus. Driving to the problem herd, Guss said, "It's kind of unusual for extension people to get involved in a project like this. Usually, we take research findings to the farmers. Here, we've got people with practical field experience working on problems in the field to develop guidelines that are going to be used in the field. I think it's a good approach."

Dr. Richard Adams, a dairy science specialist at Penn State and another member of the research project, explained that they were trying to take into account all the factors on a farm that might affect cows. He said they were taking soil and water samples, feed and forage analyses and, most importantly, blood samples from cows in each herd.

In addition to Adams, Guss and this writer, three other project members went along that day to the farms. They were Dr. Jerry Jung, with the U.S. Pasture Research Laboratory at Penn State and a member of the university, agronomy staff, and William Stout and David Belesky, agronomy graduate students. Stout and Belesky are preparing a research paper on the micronutrient findings turned up by the study. Stout has been with the project since its inception and expects to complete his doctoral requirements later this year.

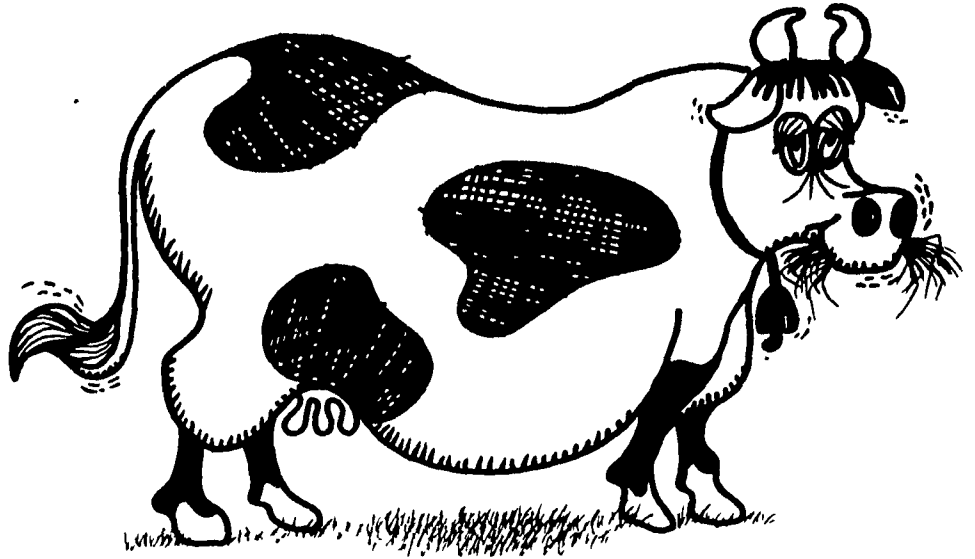
As we pulled into the lane at the problem herd farm, Jung explained his role as an agronomist in the project. "Dairy farmers are moving more and more towards feeding just one or two crops to their animals," Jung said, "and this may be the cause of some of our problems. They've gone to less pasture, and some farmers feed little or no hay."

"These practices simplify the farmer's job of growing feed, but they complicate the task of putting together a balanced ration," Jung noted.

Not only are some farmers putting all their eggs into one basket, they might even be using bad eggs, seems to be his message.

"In the 60's," Jung explained, "agronomists were concerned with boosting the persistence and production in forage crops. We weren't concerned with the composition of the plants themselves, and now we think that might have been a mistake. Much of the alfalfa grown today, for example, is deficient in potassium. We need to do more work, too, on other micronutrients like zinc and magnesium. Penn State's leading the nation in research on these micronutrients in cow health."

John Behrer's was the first farm we visited. Behrer has 50 head of Holsteins with fertility problems. Blood tests have shown that Behrer's cows have hemoglobin counts some 22 percent lower than normal, and red blood cells counts as much as a third lower. He follows Penn State recommendations on feeding. Behrer told the researchers that he tried also to follow recommended fertilizer levels for his



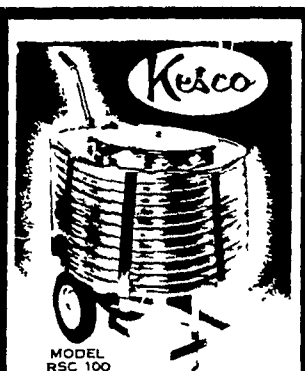
Why are some well-managed dairy herds productive, fertile and profitable, while others are plagued with milk fever, downer cows, anemia and breeding problems? Penn State's

Project 1870, financed mainly by donations from the dairy industry, is trying to answer that question. Their work might help more cows to be as contented as this bucolic critter.



Dr. Jerry Jung, left, and Dr. Samuel Guss check out a hay sample at the farm of John Behrer. Behrer has one of the problem herds in Project 1870. Problem herds were carefully chosen so that only well-managed herds with problems are represented in the study.

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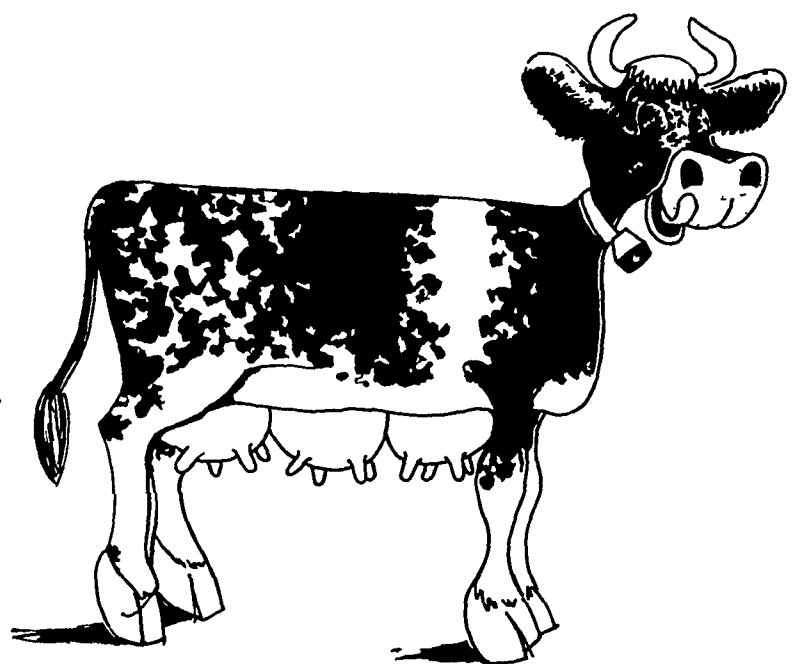
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