
In the right hands, PocketMeter is indispensable

B.L. Winters¹ & J.S. Clay²

¹*DHI Cooperative, Inc., Columbus, Ohio, USA*

²*Dairy Records Management Systems, Raleigh, North Carolina, USA*

DHI service providers must utilize modern technology whenever it enables them to deliver improved dairy management information and systems. Although handheld computers have been part of everyday experiences for many in modern societies for years, it is only in the past five or six years that the hardware capabilities and cost have enabled DHI to embrace it in the milking parlor or stanchion barn. Technician software for rapid and efficient collection of data from the milking process has enhanced the performance and image of DHI. Additionally, it has improved the quality of the work life for the technician workforce as it has improved the quality of data collected.

Key words: Handheld, Technology, DHI, Management.

Recording on-farm data on test day is one of the core functions of DHI businesses. During milkings, the technician must quickly and efficiently record cow identities, milk weights and other data in the parlor with minimal disruption of the dairy's employees. Additionally, workers must focus on data integrity to ensure positive cow identity and accurate milk weights. PocketMeter, the software for handheld computers from Dairy Records Management Systems (DRMS), empowers the technician to perform his/her test day responsibilities in a manner that enables the DHIA system to deliver the highest quality management reports and data to clients.

PocketMeter operates on handheld computers with either Palm, Inc. or Microsoft's PocketPC operating systems. Although some DHIA's are tempted to deploy ruggedized handheld computers, most PocketMeter users purchase consumer grade computers from local electronic supply stores. The two advantages of ruggedized hardware are longer battery life and built-in protection of sensitive electronics. However, a cost ratio of 1:2 or better and the ready availability of computers are obvious reasons for most DHIA's to use consumer grade hardware.

Summary

Introduction

Equipment can be consumer grade or ruggedized

Consumer grade computers become more ruggedized when they are protected from drops on hard surfaces and water sprays by the use of sealed plastic cases such as the OtterBox® from Online Fitness. These relatively cheap protectors increase the expected lifetime of handheld computers. Modest priced commercially available extended life batteries allow consumer grade computers to function during milking shifts that last as long as 10 hours. When both of these features are added to consumer grade computers, the package can favorably compete in cost, battery life and durability with ruggedized units.

PocketDairy operating features

1. Herd Setup
 - a. Herd number and date of test
 - b. Barn type
 1. Stanchion
 - a. Enter all data for each cow before entering data for the next cow
 - b. Enter cow ID, milk weight, batch number and Condition Affecting Record (CAR)
 2. Parlor
 - a. Enter cow ID as cows enter the parlor
 - b. Enter milk weights, batch number and CAR as cows finish milking
 - c. Number of cows per side (one side for rotary parlors)
 - c. Confirm milk weights upon entry (Yes/No)
 - d. Minimum and maximum acceptable milk weight
 - e. Backup
 1. Length of interval can be chosen by user (default = 3 minutes)
 2. To memory card
 - f. Radio Frequency Identification Device (RFID) for certain cow ID
 - g. Size of number pad: small, medium or large
 - h. Split Entry for basement parlors with two handhelds
 - i. Optionally interface with desktop software PCDART from DRMS, SuperV from DHI-Provo and Dairy Comp from Valley Agricultural Services
2. Data entry
 - a. Cow ID can be either cow number or barn name
 - b. Conditions Affecting Record
 1. Customized for desktop software (see item 1.i above)
 2. Example from PCDART: A=abnormal, H=heat on test day, E=milk weight missed, I=injected on test day and F=sample missed
 - c. Sample numbers
 1. None
 2. Entered manually by technician
 3. Automatically incremented as cow IDs are entered
 4. Automatically incremented as milk weights are entered
 - d. Batch/Pen/Temporary String numbers
 1. None
 2. Identify location or pen number
 3. Change with each pen change
 4. Used to quickly confirm cow location on test day
 - e. RFID
 1. "Wand" cows as they enter the parlor
 2. Faster and easier than tapping cow IDs
 - f. Split Entry for basement parlors with two handhelds
 1. Enter cow ID upstairs in one handheld

2. Enter milk weights, sample number, batch number and CAR downstairs in another handheld
 3. At the conclusion of the milking shift
 - a. Sync the first handheld with cow IDs
 - b. Sync the second handheld with milk weights, sample numbers, batch and CAR
 - c. Data files will be merged
 - g. Allow entry of multiple cows at the end of a parlor "side"
 - h. Notes for tasks to complete can be entered at any time during the milking shift
3. Error checking options
 - a. Duplicate cow IDs
 1. Resolve immediately: technician must enter non-duplicated ID before proceeding
 2. Resolve later: technician must enter non-duplicated ID before syncing to PCDART
 - b. Warn if user unintentionally taps a replacement ID or milk weight
 - c. Verified cow ID for users linked to PocketDairy
 4. Closeout at the end of milking
 - a. Resolve duplicate cow IDs
 - b. Sync with PocketMeter Link
 1. Make data corrections
 2. Create file to import into desktop software
 5. Lookup, lists and reports
 - a. Find cows by cow ID, milk weight or sample number
 - b. Lists can be sorted by cow ID, milk weight or sample number
 - c. Print to infrared printer
 6. Use PocketDairy for greater access to cow's data
 - a. Quick lookup of cow's status, history and/or recent changes
 - b. Input of status changes for cows calving, dry or left herd

The portability of a handheld computer and PocketMeter enables the technician to tap cow IDs or milk weights into the software at cowside. This flexibility eliminates the need to write data on notepads for keying later. Probably just as importantly, the cow IDs are checked to be certain that the cow exists and milk weights are checked for validity and the proper range.

Cowside entry not only improves efficiency by reducing the number of steps in the parlor but the computer works well in cramped parlors where often there is insufficient space for a notebook computer. Technicians are free to move throughout the parlor and are not tied to a single location where their notebook computer is stationed.

Because the PocketMeter data is edited when entered, the close-out process at the end of milking is quick. Technicians devote less time to tasks such as identifying cow IDs missing milk weights, cow IDs with milk weights but not in the herd and cow IDs with multiple weights. Therefore, personal time for the technician can increase because the workday shrinks.

Advantages of PocketMeter for the technician

Advantages of PocketMeter for the producer

Producers benefit because PocketMeter eliminates errors resulting during transcribing milk weights, reduces parlor disruptions and enables a quicker test day. But, PocketMeter's cow-side checks for valid and duplicate cow IDs during milking are probably its most important features for producers because they help ensure that milk weights will be credited to the correct cow.

A shorter test day results in the management reports and data being delivered sooner. Often finishing the test day duties just a few hours sooner can make the difference between a herd's samples being processed by the laboratory on test day or the next day. As a producer with 240 cows and whose daughters milk all cows stated "My daughters were very happy with our first test on PocketMeter. There were no errors or duplicate cows and the tester left an hour sooner than before."

Advantages of PocketMeter for the DHIA management

Although there might be hesitance to invest in additional hardware, DHIA managers have embraced PocketMeter because:

1. PocketMeter eliminates more expensive and fragile notebook computers from barns and parlors. With PocketMeter in use, the notebook computer becomes a command center relegated to the dairy office for access to telecommunications at the end of the milking shift. Ruggedized and water proofed handheld computers are more durable and easier to protect than notebook computers.
2. In most cases, PocketMeter reduces the number of technicians in large parlors. For example, prior to PocketMeter, a 3 200 cow dairy needed three technicians plus a data entry person for each of the two milking shifts (eight people total). With PocketMeter, two technicians worked each milking shift – a reduction of four people. This PocketMeter solution reduced both fatigue for the technicians and cost for the producer.
3. The milking process is not slowed down as much by DHI technicians using PocketMeter so the producer is more satisfied with the service.
4. Technicians realize that they portray a more modern image than when they were using paper and pencil, and, many of them enjoy using the technology. "Cool hardware" becomes a central component of their work day.
5. Training is relatively easy for technicians of all ages and there is little or no follow-up training.

Conclusions

PocketMeter and similar handheld software for DHI technicians have changed the DHIA service such that technicians are more satisfied with their jobs, producers receive better management information, and DHIA management can minimize costs and employ a workforce that delivers a higher quality service.