



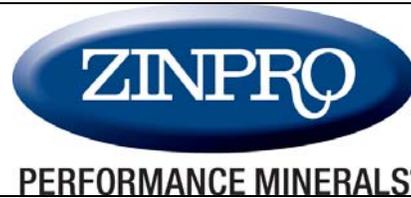
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IPadding Across Dairy Land

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Introduction

As of January 12, 2012 Apple had sold 50 million iPads since introduction in 2010. The iPad represents a truly disruptive technology, which is likely responsible for much of its enormous success. Like most smart phones the I Pad offers access to the internet in a mobile device, and a large number of downloadable applications. However the iPad offers several advantages over smart phones. First, the larger screen makes viewing documents or web pages much easier. Second, the larger screen also makes data entry easier. Third, the I Pad offers computing power similar to a traditional computer, allowing one to perform most tasks typically done on the computer on the iPad in a remote location.

Our practice has used iPads for about eighteen months. The first use was a tracking sheet, created in Numbers, a spreadsheet app available for download on the iPad. The program costs around ten dollars. A variety of other spreadsheets were created in Numbers that are specifically used in our dairy practice. This paper will describe the design and use of the tracking sheet and selected other spreadsheets. It will also discuss a few other useful apps.

Spreadsheets

The tracking sheet is a digital version of the paper tracking sheet our practice uses to record procedures performed, products sold or used, and time spent on the farm. One of the advantages of using a spreadsheet program is that spreadsheets can calculate duration between events, so the veterinarian can simply touch “now” on the on-screen keyboard when arriving on the farm, repeat when leaving, and have the program calculate the minutes of work time. This eliminates the need to physically record times and to calculate the difference between arrival and leaving. The tracking sheet lists prices for call charges medications and supplies. When a number is entered in any entry field, the spreadsheet calculates the total for any particular item, column totals, and an invoice total. While few of the practice’s customers pay at the time of the visit, this tracking sheet has served as an invoice in such cases. The invoice is emailed to the farm and to the veterinary clinic.

Having totals calculated on the tracking sheet facilitates invoice reconciliation with the tracking sheet. Once an invoice is created, the tracking sheet is printed and stapled to the invoice. The veterinarian then examines each invoice for errors. If the totals on the tracking sheet and the invoice are different, it is almost always obvious that there is a mistake on one or the other.

The second page of the tracking sheet has a list of diagnoses on the left and several open columns to the right. This is used to record any diagnosis made as well as results for BHBA or glucose testing. This information is entered into the practice’s medical records software.

Another useful spreadsheet is called the “herd visit report”. This report is used to report results of routine visits to the dairy producer. It is particularly useful when the doctor is not working with a

farm owner and would like to communicate information to the owner or owners. It also can be helpful for farms with multiple owners. Lately the practice has been using this report to communicate between different veterinarians within the practice that may routinely or occasionally provide services to the same farm. The report consists of a series of areas of observation, including cow cleanliness; stall maintenance, cow health, manure consistency, udder health, lameness, and more. Boxes are checked to indicate changes from the last visit, no change, better, worse, or not evaluated. The lower part of the first column repeats these same observational areas, but this time the check boxes are to indicate current status, including fair, good, very good, and excellent. The bottom of the report has an area to enter notes or recommendations. This report can typically be completed in a minute or two, and is then emailed to the farm prior to leaving. In the case of more than one veterinarian servicing one farm, the report is also emailed to the other attending veterinarian.

A third spreadsheet is a necropsy report. This two page report lists most common diagnosis found on a bovine postmortem, by system. For example, abomasal ulcer would be listed under gastrointestinal system. Findings are entered by checkboxes. Page two of the report has an area for history, another for gross necropsy findings, and another for diagnosis. There are checkboxes to indicate whether tissues were submitted to a laboratory, and whether the report is preliminary or final. This report is completed on the farm and emailed to the farm and to the veterinary office before leaving the premise.

Another spreadsheet was created to aid in scoring. Cows can be scored for hygiene, lameness, teat condition, body condition, and really anything else that uses a scale of five or less. The spreadsheet is called “Score Monster”, and is simply five columns of checkboxes. Each column corresponds to a score, one, two, three, four, or five. The spreadsheet calculates the percentage of each column and enters the result into one of several graphs on page two. There is a graph to correspond to every one of the common parameters for which scoring are undertaken for dairy cows in the practice. The spreadsheet can easily be modified to add or remove columns if the scoring system has less than five choices. It is very simple to carry the iPad in the parlor or barn and record scoring results in this fashion.

“Parlor Mate” is a spreadsheet created to conduct time and motion studies in milking parlors. One can record just about any event associated with milking, such as opening the entry gate to beginning of preparation, milking duration, parlor throughput and more. Because the program calculates duration it is easy to time any particular part of the milking process. Page two shows the results of the various calculations. Since I first created Parlor Mate, Lauren Agrisystems has made their IPrep app available to the iPad. Previously this was only available, as Parlor Pro, to dedicated mobile devices like the Palm Pilot, for example. IPrep is very simple to use when doing time and motion studies in milking parlors. I find it easier to use than the spreadsheet. It does allow for timing of as many different parameters concurrently however, so there are times where Parlor Mate is still useful.

“Protocol Builder” is a spreadsheet that is used to list treatment protocols. For example, it can be used to define treatment protocols for culture-based mastitis therapy. Numbers allows an alternative method of data entry that uses a one page form for each area of interest. For example, if *Strep. uberis* is listed, a form comes up where the veterinarian enters recommended treatment, duration of treatment, and milk and slaughter withhold. A page is completed for each organism. The program transfers this to a table format, so all recommendations are listed in columns on a

single page. This spreadsheet has also been used to list treatment protocols for all common diseases found on a farm.

There are a number of other spreadsheets that are used less frequently, and there are others in the process of development. Numbers is a fairly simple program to learn and use, and most users should be able to easily create their own spreadsheets tailored to their own needs.

One can also use spreadsheets, to some degree that are not in numbers format. For example the teat scoring spreadsheet available from the University of Wisconsin comes in an XLS format, but works when downloaded into numbers. For spreadsheets that do not work in numbers, one can use one of several apps that are specifically designed for using Microsoft Office documents, such as Quickoffice Pro HD, for example. One can also access spreadsheets from Google Docs although they sometimes do not work entirely correctly within Numbers. Opening them in Quickoffice Pro HD, or a similar Microsoft-based program would be a better idea.

PDF Readers

PDF readers are programs that can open PDF and other file types. Typically they can open files directly from an email message, from the internet, or from cloud storage services like Google Docs. They are useful for storing documents for future access. For example, I store a variety of documents that show and describe scoring criteria for several different indices. Currently my iPad has the following scoring references stored: calf health, hocks, hygiene, including lower leg, upper leg, and udder, lameness, and teat condition. If one is scoring udder hygiene in a dairy herd, for example, and cannot remember the difference between a two and a three, it is very simple to scroll over to the pictures of udders stored in the PDF reader to refresh one's memory. This is also useful to show to the dairy producer. Since the iPad has one or more cameras, it is easy to take actual photographs of the cows on the dairy at the same time to incorporate into a report. This technique is also useful for documenting observations when doing milking time analysis in milking parlors. The PDF readers are also useful for storing other reference documents. For example I have a document with current recommendations for free stall dimensions in my iPad. Because the iPad does not need to boot up, one can quickly access all kinds of stored documents in seconds. I have the entire National Dairy Farm Animal Care Manual on the device, and I can quickly access any section to review with a client. Most commonly, I use a reader called GoodReader; I also have Awesome Reader, and IPDF on my iPad. There are many versions available in the App Store; most are free.

Google Mobile

Google is an app that allows easy access to Google's entire suite of free, cloud-based services. Of course these can also easily be accessed through the iPad's internet browser, but the app makes access a bit simpler and faster. Probably the most commonly used piece of the Google suite is Gmail, and nearly everyone is likely at least somewhat familiar with it. Our practice makes great use of Google Docs as well. Docs are a cloud-based document storage site. It is akin to the folders and files that store documents on your computer, except that the documents are accessible from any internet-connected browser. This can be extremely useful because one does not need to locate the particular computer on which files are stored. At Northern Valley Dairy Production Medicine Center, all laboratory results are stored on Google Docs. For example, reporting results for an individual cow mastitis culture for Farmer John works like this: Results are entered into a template form stored in Excel format in an office computer. The form is

uploaded to Google Docs. At that time the author has the option to share the document with viewers and collaborators, to email the document, or both. When sharing, one chooses whether the recipient can only view, or view and edit the document. Sharing is accomplished by entering the client, and doctor's email addresses. Farmer John and his attending veterinarian will both receive an email indicating that a document has been shared. When they click on the link, the document will open. If the veterinarian is listed as a collaborator, he or she can make changes or additions to the report. For example, Farmer John's veterinarian might suggest not treating this particular cow, and culling her instead. He could write this directly on the document, then share it again with Farmer John. Alternatively, the veterinarian can leave the document as is, but include an email message to Farmer John telling him that the cow should be culled. Using Google Docs means we no longer have a paper report that has to find its way to the doctor's desk, the farmers mailbox, and ultimately to each of their brains. If the paper document is lost, one sometimes wonders if there is another copy available somewhere. One also wonders if all parties have been notified by some sort of method. Google Docs greatly simplifies this process.

It is simple to create folders within Google Docs, so every farm can have a folder into which reports can be placed. If the veterinarian is on the farm and Farmer John cannot find or remember what the report said, either of them can simple log onto Google Docs and locate the report very quickly. Once again, since the iPad needs no time to boot up, almost no waiting is necessary. In my experience Google Docs works better if the viewer has a Google account, although one can share documents with other email addresses. There is much more to Google's collection of cloud based products, and interested readers are encouraged to explore them.

The Cloud

Using cloud-based programs and documents is becoming extremely common, and as a result new applications seem to be developed daily. Key to any of these being useful is having a simple interface with which they can be accessed. The iPad seems to be a nearly ideal device for many such applications. The potential applications of the iPad and cloud based services are unlimited. Most readers of this document have probably used at least one cloud based program or service.

Other Apps

There are an incredible amount of apps currently available for the iPad. More are added daily. The vast majority of apps on my iPad were downloaded for free. The most expensive app I have purchased cost ten dollars. Just like the commercial says, "There's an app for that."

Cameras

Finally, the newer versions of the iPad have one or more cameras. The camera is surprisingly useful to record and document happenings on farms. The camera on the back side of the new iPad seems to be of very high quality and correctly captures images in low light, shows close-ups in focus, and also has the ability to record videos.

Accessories

There are of course, many available accessories for the iPad. There are a few that I have found useful in dairy practice. Apple makes a nice keyboard which also holds the iPad in view so it can be used like a monitor. When the keyboard is plugged into a charger, the iPad will charge while stored on the keyboard. I also carry a portable keyboard that communicates via Bluetooth. This is useful for taking notes at continuing education meetings such as the Minnesota Dairy Herd

Health Conference. I have a bracket in my car that is attached to the floor of the car that holds the iPad above and to the right of the gearshift so it is easily viewed from the driver's seat. The iPad quickly snaps into this device. When using the iPad in a milking parlor, one might worry about manure and urine splashing. One can purchase clear sleeves, called Chef Sleeves that seal, much like a sandwich bag, and allow one to still use the iPad's haptic input screen with a finger. The sleeves are disposable and inexpensive. I also purchased an open-fronted case that has four elastic straps on the back that allow me to hold the iPad with the palm of one hand. This is useful when quickly making observations like in a milking parlor or out in the barn scoring cows or facilities. A stylus is also handy for data entry in some cases. Some sources for these accessories are:

Keyboard (and much more): store.apple.com, Zagg.com, Amazon.com

Ram car mount bracket: Amazon.com (many others available)

Boxwave Apple Case: Amazon.com (many other cases available)

Chef Sleeves: chefsleeve.com

Stylus: Amazon.com

Summary

Because the iPad is mobile, powerful, simple to use, connected to the internet, and comes with a gorgeous screen it has many potential uses in dairy practice. Available spreadsheet apps make designing practice-specific forms easy. A variety of forms have been developed for mobile use. The iPad is also useful for storing documents and allows quick access to them. It allows easy access to cloud-based storage as well. Having a still and video camera available allows observations to be easily recorded on the farm.