MOBILE WEB TOOLS FOR AGRONOMY

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Abstract

Mobile internet use is changing how global and local agriculture operate and expand their businesses. This presentation will demonstrate how the University of Wisconsin Nutrient and Pest Management (NPM) program and the UW Integrated Pest Management (IPM) program are working with a 'mobile first' attitude to help Wisconsin's agricultural community benefit in this changing environment.

Background

Gone are the days when a grower needed to turn on a radio or television at a specific time of the day to listen to an agricultural commodities report. Now, this task can be done at any time in any location using a smartphone or a text message. Coming are the days when growers and consultants will not need to shuffle stacks of paper, hand written field records, or piles of reference booklets from desktop to the pickup truck and back and forth again. These tasks will be done faster and easier with a smartphone or a tablet device either in standalone mode or connected to a cloud server directly from the field. There will not be a need to "hold that thought" when a question or information need arises during any part of the day or night.

Using new technologies that the mobile internet provides appears poised to make farm management less time consuming and more profitable. Farmers are using the mobile internet to connect with the university, consultants and other farmers, without being tied to their desktops. Read, chat, buy, sell, order parts, check remote machinery operation, access GPS, use location based weather data, setup new international markets; all these tasks and more can be accomplished from a mobile situation. To adapt to this new mobile internet trend which is becoming widely prevalent, the NPM and IPM programs have set out moving forward with mobile internet technologies of their own. The programs are making sure, however, to maintain their traditional communication methods ranging from face-to-face meetings to printed handout materials. Some of the specific technology tools the programs are looking at include YouTube, Twitter, and WordPress websites, iPhone, iPad and Droids apps, eBook format publications, and Blackboard webinar virtual meeting rooms. (Product names are not an endorsement or rating.)

Results and Discussion

A 'mobile first' attitude means that each time work is done on a communication project, a program considers the possible mobile internet issues first, and then looks at traditional methods. This allows a program to build in mobile connection from the start, and saves time and money doing future adaptations.

Videos: F or the past three years IPM and NPM have been recording videos in the field and posting them on YouTube using UWEX's video channel. These are short 3- to 5-minute videos that can be played back at any time in full high definition on laptops and mobile devices. You can

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see our playlists at http://youtube.com/uwipm . In total, the videos have received thousands of viewings.

Websites: Beginning this year, the Wisconsin Crop Manager (WCM) newsletter will be using a WordPress website optimized for both traditional desktop and mobile device access. In addition, all news articles will be linked in a Twitter list for additional mobile access.

Wisconsin Crop Manager website -- http://ipcm.wisc.edu/wcm

Wisconsin Crop Manager on Twitter -- http://twitter.com/WisCropMan

Apps: NPM has developed two iPhone and iPad apps that are available in the iTunes store for free download.

http://itunes.apple.com/app/n-price-calculator/id455090088?mt=8

The N Price calculator app (Fig. 1) allows you to compare the price of various forms of nitrogen fertilizer products in terms of their price per pound of nitrogen. Nitrogen fertilizers such as anhydrous ammonia, urea, and urea ammonium nitrate (UAN) vary in their nitrogen content and are sold on a price per ton basis. This app converts the price of each fertilizer product from price per ton to price per pound of nitrogen — allowing for "apples to apples" comparisons. By comparing the price per pound of nitrogen from multiple fertilizer sources on the N Price Calculator's Price List, the cheapest source of nitrogen can be identified.

http://itunes.apple.com/us/app/corn-n-rate-calculator/id455298473?mt=8

The MRTN guidelines in the Corn N Rate app (Fig. 2) are designed to assist producers in selecting an N rate that improves profitability when N and corn rates fluctuate. Maximum return to N (MRTN) is the N rate that will be most profitable for a particular N:Corn ratio. The MRTN rate is the LARGE number expressed in lbs N/acre (total to apply) including N in starter. Below that number is the range of N rates that result in profitability within $1/acre of the MRTN rate.

A third app soon to be released by the UW IPM program is the 'IPM Toolkit" for iPhone and iPad. This app will feature a mobile connection to all the IPM YouTube videos, a listing of current WCM newsletter articles, as well as a select list of IPM related picture and publication references.

The hope is to also make these three applications available for Android version smartphones as soon as possible.

eBooks: Different from PDF publications, ePub formatted documents allow for dynamic changes in font size and page layout making reading on a smartphone or tablet easier. This year, NPM has begun to publish documents in both formants. A good demonstration is to look at the NPM publication, "*Frost Seeding Red Clover in Winter Wheat*".

Webinars: Lastly, IPM recently held a series of online webinar training sessions that are helping participants prepare for an upcoming Wisconsin CCA exam. This webinar series broadcast UWEX state specialist and their PowerPoint presentations via live internet connection. Participants were able to ask questions online, and view the recorded presentations at any later date of their choosing. Instead of paper handouts, reference materials were provided as web links to online document files. One noteworthy comment from a participant was that they were happier

with online-only content because of its portability for access anywhere and everywhere the internet reached. Another advantage on the webinar format was that it allowed one of the specialists to provide a live presentation directly from a location in Canada, thus avoiding a scheduled conflict.

Conclusions

A 'mobile first' attitude has saved the NPM and IPM programs time and money in providing important communication avenues allowing Wisconsin's agricultural community and the university to work together regardless of location.

- Using YouTube allows easy remote viewing and inclusion of videos in mobile apps. Videos that are not on YouTube, have no native mobile connection; they need to be converted.
- Using mobile formatted websites and eBooks similarly provide a native mobile connection for display on smartphones and tablets. Content for the websites and for the publications only has to be entered once at the beginning, and then flows to either traditional or mobile formats. Also, the new mobile website has a built in link to Twitter.com allowing our news stories to achieve a wider reach with little extra work.
- Using native iPhone and iPad apps provides the users will an interface that is optimized beautifully for mobile use. Distribution worldwide is handled by the iTunes market place.

The NPM and IPM programs will continue to work on and improve a "mobile first" attitude to advance its connection with Wisconsin's agricultural community's needs. The goal will be to facilitate communication at any time and in any location, using both traditional and new mobile internet methods.

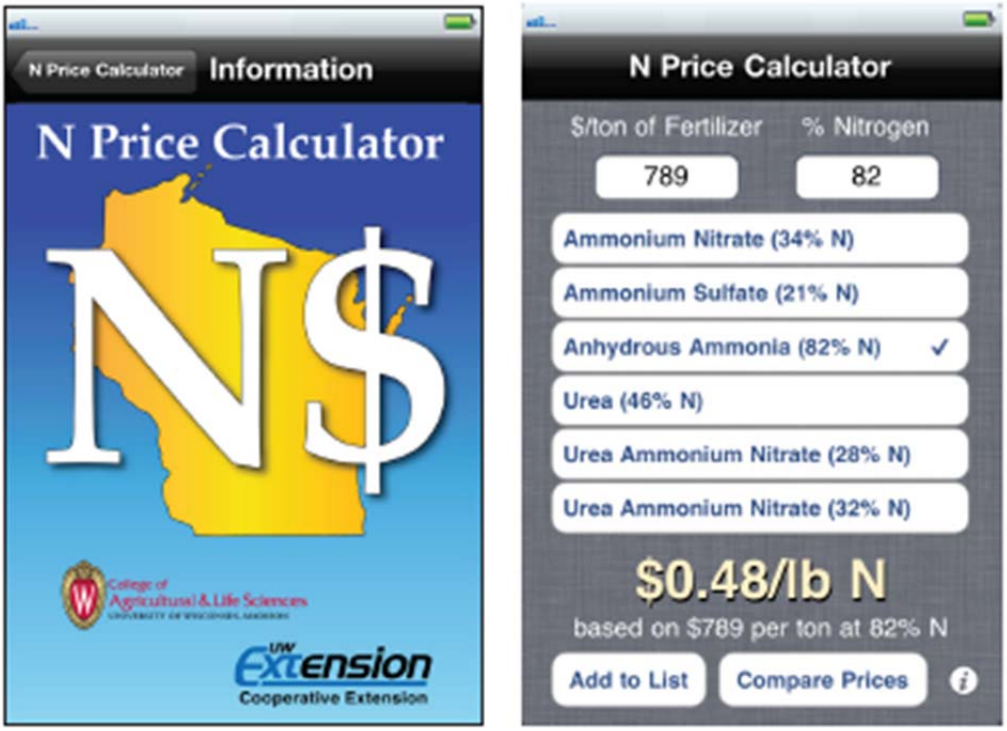

Figure 1. N fertilizer price app home screen and data entry/response screen.

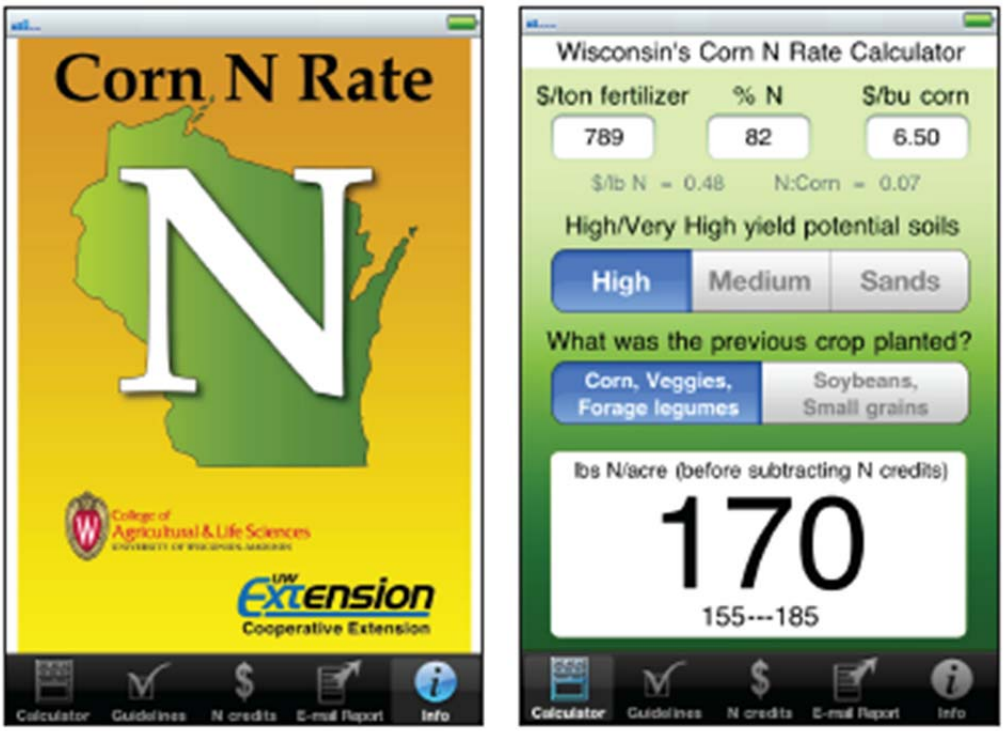

Figure 2. Corn N rate app home screen and data entry/response screen.