Helping farmers manage nutrients: A user-experience-design analysis of SnapPlus

Library Information Studies 640:

User Experience Evaluation and Testing

Evaluation Report SnapPlus

Introduction on SnapPlus

We tested SnapPlus (Soil Nutrient Application Planner), a nutrient management planning software developed by the University of Wisconsin-Madison and several other State of Wisconsin entities. It was developed to help farmers stay in compliance with Wisconsin's Nutrient Management Standard Code 590. From the SnapPlus website:

"SnapPlus can calculate:

- Crop nutrient (N, P2O5, K2O) recommendations for all fields on a farm taking into account legume N and manure nutrient credits consistent with University of Wisconsin recommendations
- A RUSLE2-based soil loss assessment that will allow producers to determine whether fields that receive fertilizer or manure applications meet tolerable soil loss (T) requirements.
- A rotational Phosphorus Index value for all fields as required for using the P Index for phosphorus management.
- A rotational P balance for using soil test P as the criteria for phosphorus management."

SnapPlus is free, downloadable software, but is only compatible with Windows computers. The expected users are farmers, agricultural representatives, and/or people interested in environmental impacts of soil nutrient application. This software is utilized by entering in crop and soil data obtained by laboratory analysis.

Our testing goals are to improve the usability of the software for new and existing users, and to streamline how users work through the program to obtain useful information. Each task should be as straightforward as possible for a new user to navigate. We then look to gain feedback on various improvements that SnapPlus could make to increase user experience.

Methods

Participants

Our intended participants were farmers or agricultural representatives. As we were unable to acquire these types of individuals, we tested UW-Madison Soil Science & Agriculture Majors. With their backgrounds, these students offered us the most similar understanding of farmers and will hopefully provide us with important insights to better develop and improve SnapPlus user experience.

We were looking for five participants, but due to recruitment issues we only tested three individuals. Their ages were 20, 21, and 22 and we had a mix of both genders. The agriculture experience of working on a farm ranged from none to 101-150 to 300+ acres. We did have an incentive for participating which was provided by our contact at the Morgridge Center.

Procedure
Greet Users

- During this step we welcome and introduce ourselves to our users, thank them for coming, try to make them feel comfortable. We give them a testing time estimate, and inform them this is voluntary and they can let us know if they need a break or have questions. We remind them there is an incentive (gift card) for completing testing.

Pretest
- In this step we ask our participants a series of questions in order to better understand their background information. Some question topic areas include: comfort level with technology and computers, ownership and if so what type of computer they own, any past experience with nutrient management software, perception of nutrient management software.

Training on SnapPlus
- Next is a brief training on SnapPlus, and offer time for clarifying questions. We give background information on what SnapPlus is, where it was created, why it was created, and the intended users. We will then give a quick explanation of SnapPlus's main functions and screens, including: *Farm, Soil Tests, SnapMaps, Fields, Nutrients, Cropping, Daily Log, and Reports.* We will then give participants time to ask any clarifying questions they might have.

Complete Task Testing
- In this step we present our scenario for the users and get them set up to complete our usability tasks. Morae will record and prompt the participants with surveys throughout their testing experience.

Post Test/Discussion
- After the users have completed their tasks we will distribute a post test survey that will be taken individually for initial feedback. After the survey there's two open-ended questions to spark discussion, along with time for additional discussion and questions. During this time we look to gain more insight into participant's thoughts and allow them to mention anything they think is important.

Give Incentive
- We end our testing session by thanking our users and providing them with their incentive.

Usability Tasks

Scenario: "You're a farmer using SnapPlus for the first time. Your farm is located in Dane County and you grow several crops and raise a few types of livestock. You'll need to "create" your farm and add your crops and livestock to the SnapPlus program. You have some basic soil test information already gathered that you can import. You'll also want to calculate how much manure your livestock produce in a given year."

Task 1: The participant is to open SnapPlus and build a new farm under the "Farm" tab. The participant will select default crops and "Dane" county. The participant will briefly describe "their" farm (name their farm).

Task 2: The participant will import some soil test data into SnapPlus. The data file is already created for participants, they just need to figure out how to correctly import the data.

Task 3: Under the "Nutrients" tab, participants have a set number of nutrient sources (four) to add. The organizers provide the type and number of livestock the participants should add.

Task 4: Still under the "Nutrients" tab, participants use the livestock information they've already added to do a manure production estimate. This is done under the "Manure production estimator" tab.

Instruments

Data Collection

Data collection will primarily be done through Morae and through observation. Morae allows us to set clear-cut goals and allow the participant to provide simple feedback on whether they thought the task was simple, quick, etc. Morae allows projection and playback of screen recording and analysis of the testing period. Collected data includes heatmaps and the amount of time spent on each task. We anticipated the most important information collected will most likely be how the users rate the ease of use (qualitative via survey), time it takes them to complete tasks (quantitative), and how quickly they can pick up the program (subjective, survey).

UX Metrics
Metric #1: Task Completion Time
- Time needed in this study is defined as the amount of time required to complete a task or action on SnapPlus. It is measured based on the time, including minutes and seconds, that it takes a user to start and finish our tasks on SnapPlus.
- We collected time duration data by using Morae, which automatically calculates this standard metric with a timer that runs from start to end of a task. (User clicks button to start and stop task.)
- This is an important metric because, given the nature of the agriculture industry that SnapPlus is meant for, timeliness is important for our users. We want to make sure the average farmer can complete the tasks in a reasonable amount of time, otherwise they may be less inclined to use SnapPlus in their day-to-day activities. Additionally, the longer it takes to import the information, the more likely it is that a user will quit using a product.

Metric #2: Task Completion Rate
- Task completion rate in this study refers to the number of tasks completed by a participant divided by the total number of tasks. It's easy to come up with measurement by calculating the number of tasks completed divided by the total number of tasks given. A higher completion rate can indicate a high effectiveness of the system.

- The data is also easily gathered. The researcher simply observes whether the participants are able to finish each task and count the number of tasks completed and the total number of tasks. Tasks completed divided by total number of tasks will give the percentage of completion.
- We measure the number of tasks completed "successfully"--basically if the participants manage to do the task presented to them. It's possible for someone to complete the task, but not do it successfully. For example--if you're given a few steps in a task, but miss one of the steps, you fail the task as a whole. (It will be possible to continue to a new task even if a previous task is failed.)
- Although the developers of SnapPlus aimed at helping farmers' easily log their data, it's not clear whether the users can record their data successfully in this system. This metric can help us better understand if there are obvious flaws in the system that hinder the completion of tasks. This metric seems simple and we may assume that the tasks completion rate should be 100%. Many users, however, find it difficult to know how to accomplish a task in many systems. If users cannot even accomplish an important task, there must be major shortcoming(s) in the system.

Metric #3: Cursor tracking
- By utilizing Morae's ability to map cursor actions and produce a heat map, we can see how a user interacts with a program. This may link with where user's eyes may go, what actions they believe they can take to produce a desired result, and can also tell how intuitive a system may be.
- In addition to this, analysis of cursor tracking can also tell us what aspects of the program may be working well, and what aspects may not be. If a user spends a lot of time in one particular section of the program, this may tell us that this section is important, and more focus may be placed here as opposed to a section that a user doesn't spend time on.

Metric #4: Overall Satisfaction of the system
- Morae has the ability to display surveys after each task completed. We ask user satisfaction questions and have participants gauge the difficulty of each task after they complete it. We use this to determine how well the user was able to comprehend each individual task.
- We use a post-test survey to determine user satisfaction and task difficulty. We also did an open-ended comment session with the participants.
- By asking users their overall opinion of the system including satisfaction on a 1-5 scale and verbal inquiry, we can see how this system may work overall for somebody who is just starting to use it. It also allows us to see what aspects may be improved and which were especially strong in the new users' eyes.

Roles of Team Members
- **Trainer for SnapPlus tasks**: CM
- **Facilitator (prompting through tasks, answering questions, greeting, etc.)**: CMXJ

- **Technical support for testing/data collection:** XCJM
- **Observer/note-taker:** CM

For the purpose of our project, we wanted each team member to be trained and prepared to handle any role.

In terms of the evaluation plan Mira worked on the procedure, training, participants, roles of team members, and part of the metrics. Joe worked on part of the introduction, the data collection, part of the metrics, and recommendations. Carolyn worked on part of the introduction, the tasks, the metrics, and recommendations/reflection. Xiaofei worked on part of the metrics, the results, and recommendations. We all worked on editing the document and the conclusion.

Results

Task completion success rate

The task completion rate is the number of successes divided by the number of participants completing the task. One of three participants successfully completed Task 1 (build a new farm). All participants successfully completed Task 2 (import soil data), Task 3 (add nutrition data) and Task 4 (add manure production estimate data). It's clear that "building a farm" was not as easy as it sounded for some participants. One participant missed adding the county data, another missed adding the proper amount of crops (was supposed to import "default crops").

Participants	Task 1	Task 2	Task 3	Task 4
1	√	√	√	√
2	~	√	√	√
3	~	√	√	√
Success	1	3	3	3
Completion Rate	33%	100%	100%	100%

Table 1. Task completion rate

Task Ratings

After the completion of each task, participants rated the ease or difficult of completing the task. The 5-point rating scale ranged from 1 (extremely easy) to 5 (extremely difficult). They are also asked about their frustration level after each task, and the 5-point rating scale ranged from 1 (very frustrated) to 5 (not frustrated at all). If the score is 1 or 2, then he/she agrees that the task is easy to complete. All participants agreed it was easy to do complete all the tasks, with scores always a 1 or 2 for each task. No task was perceived above a 3 or either scale.

Time on task

Task 4 required participants to do a manure production estimate and took the longest time to complete (mean = 289 seconds). Task 3 asked participants to add a set number of nutrient sources (fertilizers) and took the second longest time to complete (mean = 238 seconds). However, completion times ranged from 282 (approximately 5 minutes) to 180 seconds (3 minutes). Task 1 and Task 2 required participants to build a farm and import soil test data and both took less than 2 minutes to finish.

In this graph, Task 5 is the interview time at the end of testing--it appears as a task because we wanted Morae to serve as an an audio recording.
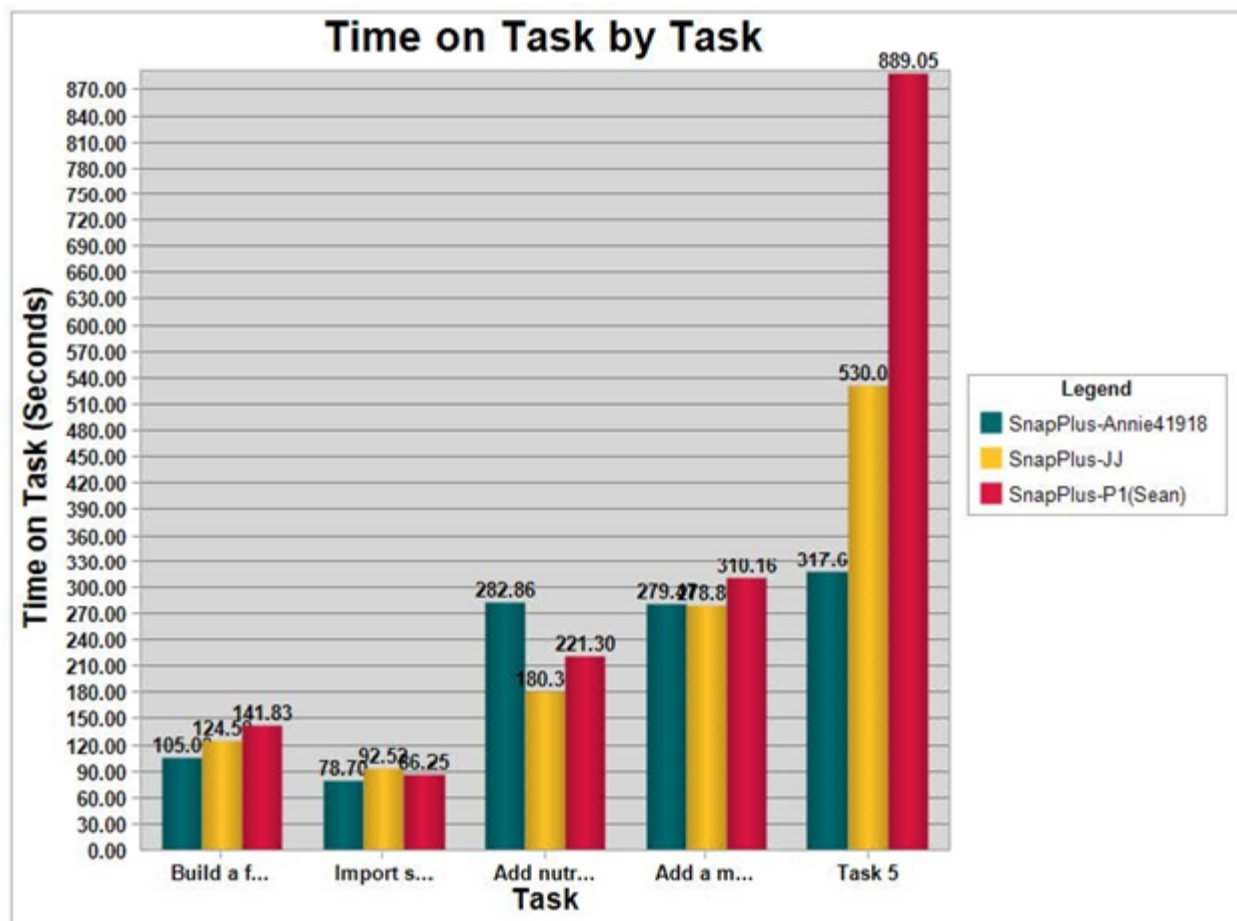

Figure 1. Time on Task

Mouse clicks

Similar to task completion time, participants clicked the mouse most in task 3 (mean = 64) and task 4 (mean = 61); they clicked mouse around 15 times in task 1 and task 2. It interesting to notice that it took less time to finish task 3 than task 4 (238 seconds vs. 289 seconds), but users click the mouse 3 times more in task 3. Considering the nature of the two tasks, task 3 required users to add lots of data, thus the mouse click count make sense. Task 3 had participants add several types of livestock and fertilizers from drop-down lists.
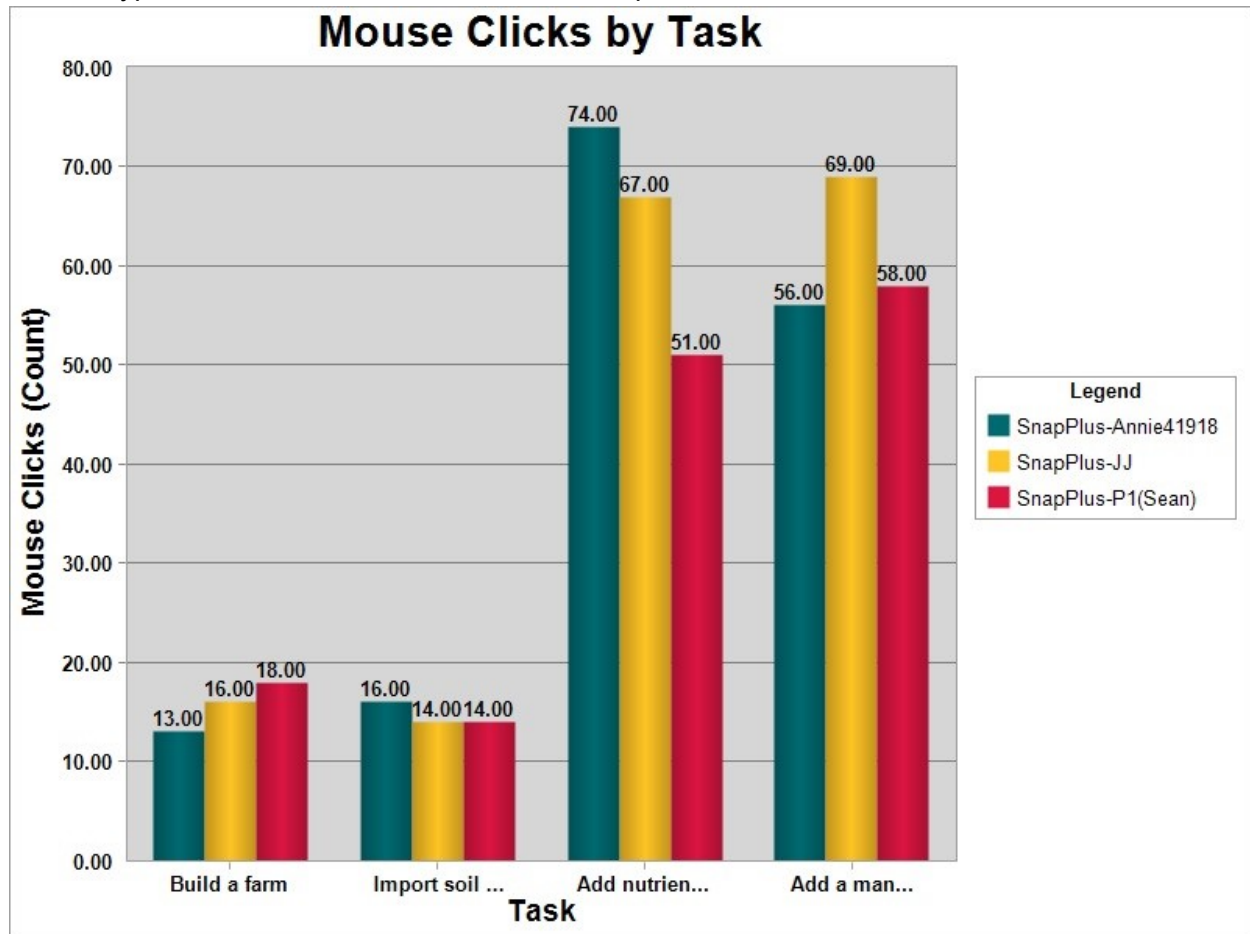

Figure 2. Mouse clicks on task

Perception of the usefulness of nutrient management software

Before the test, the participants were asked about their perception of the usefulness of a nutrient management software; after the test, the participants were asked about their perception of the usefulness of SnapPlus. The 5-point rating scale ranged from 1 (not useful at all) to 5 (extremely useful). Only one out of three participant changed perception after using SnapPlus. It's interesting to notice that participant 1 did not think SnapPlus was useful (3 means neutral) after using SnapPlus. In comparison, participant 1's verbal feedback was primarily positive.

Participants	Pre-test	Post-Test
1	3	3
2	4	5
3	4	4

Table 2. Perception of the usefulness of nutrient management software

Recommendations

Participants were primarily interested in seeing aesthetic changes to SnapPlus. While the overall color scheme and layout were generally perceived in a positive or neutral manner, users often mentioned there was considerable "white space" that could be better utilized. Some recommendations from participants include:

- Add clearer labels on buttons within first few tabs
  - Users often had considerable pauses over certain buttons, especially if they aren't overly familiar with what the symbol is meant to convey.
  - Examples: "+" frequently means "add", yet it often took a while for a user to recognize this; ">>" and "<<" are a "move all" from one column to another
- Add clearer headings and descriptions of sections
  - Users noted some headings and descriptions were too far away from the areas they should correspond with, and the text was small or blended in with other text.
  - Make text bigger and bolder (and maybe another color) to draw attention to important areas.
  - Example of vague label columns on the "Farm" screen: the "selected crops" and "unselected crops"
- Add some color on important buttons or tasks (an accent color)
  - Primary example--in the import data task, users often spent 10 seconds or more looking for how to add the data. The data window would pop up… but they couldn't find the "import data" button at the bottom of the window, because it blended in!
- Remove the "move all" functions--it's not often (if ever) someone needs to add all livestock, all counties, all crops, etc.
- One user was confused by the "add default crops" button--what constitutes default crops in Wisconsin? Should there be a description of what crops that button will add? Perhaps eliminate the button altogether if the description is so vague.
- Users recommend making SnapPlus into a Windows-friendly app and/or ensuring it is compatible with tablets--they say farming technology trends have moved toward tablet and cloud-based systems as farmers (and others) are out in the fields and on the go.

To help combat some of the confusion over symbols, buttons, and headings, users recommend a "first-time user" tutorial to point out areas of interest and guide users on where to start. It's possible a training session could help users establish this knowledge, but that relies on the user

being able to attend a training or use an outside system to watch a training video. Integrating training within the software is the easiest way to engage and keep the interest of a user. Training can ensure icons are identified earlier in the tasks, so users will remember what they mean for future tasks and uses of the software. Even within our own testing, user speed for adding crops, fertilizers, livestock, etc. increased significantly throughout the four tasks. Once a learning curve was met, users were highly successful in all of their tasks.

Other recommendations from our observations:
- In our third task, there's a set of double columns when adding livestock--for some reason the column on the right (with the livestock drop-down) needs to be completed before the column on the left (which is a blank text field). The right column auto-populates the left column when a type of livestock is selected, but if the user has input anything into the left column, it will not auto-populate.
  It's recommended to either switch the order (make the right column into the left column and vice versa--logical Western-style reading flow) or eliminate the left column. If the intended use for the left column is to add a "nickname"/alternate name, that can be done in a field underneath (or the right) of the first step.
- If an error window pops up (like with the above mentioned task), the software is unable to point out exactly what the error is. One user supposedly had some sort of odd character that wouldn't allow an input. After several attempts to figure it out, using a single word fixed the error. We deduced a space counts as a single character in this circumstance.
  If it's possible to create a "smarter" pop-up that can more accurately identify the error, that would be helpful.
- Some users wanted to be able to add one or two options from a column to the other--but could only use the single (">/<") or all (">>/<<") tool. Having a multi-select option (like in Excel) would allow faster input. A few seconds saved can add up to a lot!

Conclusion
In conclusion, participants had a fairly easy time completing tasks but had to overcome learning curve with buttons (adding, moving.) Users often were tripped up by headings and labels, meaning some tasks were failed because the user didn't notice the section they were supposed to complete (aesthetics/layout issue.) Tasks were all completed quickly (testing itself less than 25 minutes).

Users know the potential/value of SnapPlus and would recommend using it; overall they positive feelings toward the system and incurred little to no frustration during testing.

Our study was unfortunately limited by small sample size and a different sample group than we had originally anticipated. While gathering more individuals is an easy solution to sample size, we wanted to ensure our participants had some general agriculture or soil science experience so they could understand what SnapPlus is (conceptually) and why it might be useful. Doing user testing with someone from other disciplines could help find more aesthetic issues and maybe a few other bugs, but having a deeper understanding of *why* a software exists and what

it's truly used for was very important in our testing. Potentially appealing directly to some agricultural or soil science professors (maybe even attending a class?) could gather additional participants, should farmers themselves not be available.

It would be interesting to do further testing with SnapPlus by having experienced and inexperienced users do similar tests, and see results. In that situation, it would be most interesting to increase the number of qualitative questions asked--how did users feel before and after testing? What were their feelings on nutrient management software? For quantitative data: what was the difference in mouse click between the two groups? What about the difference in task completion rate and task completion time?

It could also be useful to have one group of users test SnapPlus and another, similar type of nutrient planning software program. This could help SnapPlus developers identify what advantages SnapPlus might have over other software and in what areas it needs improvements.

Ultimately, SnapPlus was perceived as a useful software and the tasks we created within it were completed fairly easily and quickly. The primary recommendations for changes were aesthetic and a few process changes. It is important to note we did not complete testing on some of the more complex functions of SnapPlus (like farm mapping), which could serve as future areas for user experience testing.

APPENDIX

Intro Script

Hi, (participant). My name is (us), and I'm going to be walking you through this session today.

Before we begin, I have some information for you and I'm going to read through it to make sure that I cover everything.

You probably already have a good idea of why we asked you here, but let me go over it again briefly. We're asking people to try using SnapPus (Soil Nutrient Application Planner) to understand whether it works as intended. The session should take about 45 minutes to an hour.

The first thing I want to make clear right away is that we're testing SnapPlus, not you. You can't do anything wrong here.

As you complete the tasks on SnapPlus, you will see a brief survey, please answer to your best ability as your feedback is will be a big help to us. If you have specifics about what you like or did not like in terms of the system, we want to know. If you are experiencing any emotions or thoughts, we want to know.

You may have noticed the microphone. With your permission, we're going to record what happens on the screen and our conversation. The recording will only be used to help us figure out how to improve the site, and it won't be seen by anyone except the people working on this project.

Also, please don't worry that you're going to hurt our feelings. We're doing this to improve the site, so we need to hear your honest reactions. If you have questions as we go along, just ask them. I may not be able to answer them right away, since we're interested in how people do when they don't have someone sitting next to them, but if you still have any questions when we're done I'll try to answer them then. And if you need to take a break at any time, please let us know.

Now we will begin with a pre-test survey.

Pre-test session: questionnaire
I. General Information.
1. How old are you? _____
2. What's your gender? _____
3. Are you a...
  ● Undergraduate student
  ● Graduate student (master)
  ● Doctoral student
4. What type of farm do/ did you work on?
  ● Arable farming (crops)
  ● Pastoral farming (livestock)
  ● Mixed farming (both)
  ● I do not/have not work/ed on a farm.
5. How large of a farm do you own or work on?
  ● 50 acres or less
  ● 51-100 acres
  ● 101-150 acres
  ● 151-200 acres
  ● 201-300 acres
  ● 300+ acres
  ● I do not/ have not work/ed on a farm

II. Computer use experience.
6. Which statement do you best identify with?
  ● I own a Mac computer
  ● I own a PC
  ● I own both Mac and PC
  ● I do not own a computer
7. How often do you use a computer?
  ● Never
  ● Once to several times a day
  ● Once to several times a week
  ● Once to several times a month

III. Nutrient management planning software usage experience.
8. How long have you used a nutrient management planning software?
  ● Never
  ● Less than once month
  ● 1-6 months
  ● 7 months-2 years
  ● Over 2 years
9. How often do you use the nutrient management software?
  ● Never

- Once to several times a day
- Once to several times a week
- Once to several times a month
- Once to several times a year

10. How many hours do you spend every time you use the nutrient management software?
- Never
- Less than an hour
- 1-2 hours
- 3-5 hours
- 6 or more hours

IV. Perception of nutrient management

11. On a scale of 1-5 how useful do you think a nutrient management system is?

Not useful at all   Extremely useful

1	2	3	4	5

If you answered NEVER for questions 8-10, please answer

12. Would you be interested in using a nutrient management software in the future?
- Yes
- Maybe
- No

Training

SnapPlus is a nutrient management planning software developed by the University of Wisconsin-Madison and several other State of Wisconsin entities. It was developed to help farmers stay in compliance with Wisconsin's Nutrient Management Standard Code 590. "SnapPlus can calculate:
- Crop nutrient (N, P2O5, K2O) recommendations for all fields on a farm taking into account legume N and manure nutrient credits consistent with University of Wisconsin recommendations
- A RUSLE2-based soil loss assessment that will allow producers to determine whether fields that receive fertilizer or manure applications meet tolerable soil loss (T) requirements.
- A rotational Phosphorus Index value for all fields as required for using the P Index for phosphorus management.
- A rotational P balance for using soil test P as the criteria for phosphorus management."

SnapPlus is software that can be downloaded for free, but is only compatible with Windows computers. The expected users are farmers, agricultural representatives, and/or people

interested in environmental impacts of soil nutrient application. This software is utilized by entering in crop and soil data obtained by laboratory analysis.

SCREEN OPTIONS:
Farm, Soil Tests, SnapMaps, Fields, Nutrients, Cropping, Daily Log, and Reports.

Scenario: "You're a farmer using SnapPlus for the first time. Your farm is located in Dane County and you grow several crops and raise a few types of livestock. You'll need to "create" your farm and add your crops and livestock to the SnapPlus program. You have some basic soil test information already gathered that you can import. You'll also want to calculate how much manure your livestock produce in a given year."

Task 1: The participant will open SnapPlus and build a new farm under the "Farm" tab. The participant will select default crops and "Dane" county. The participant will briefly describe "their" farm.

- You're going to create a new farm (hint: "File") within Dane County. Name your farm "[Your name] farm test."
- Your farm has the "default" crops, and then add two other crop types that weren't included in the default bundle. You'll have a total of ten (10) crops.

End of task survey:
1) Overall, on a scale of 1-5 how difficult was it to complete this task?

Not difficult at all   Extremely difficult

1	2	3	4	5

2) Overall, on a scale of 1-5 how frustrated, stressed, discouraged or annoyed were you with this task?

Not frustrated/discouraged   Extremely frustrated/
                                                                                      discouraged

1	2	3	4	5

3) Please add any comments, thoughts, observations you have about completing this task, below.

Task 2: The participant will import some soil test data into SnapPlus. The data file will already be created for participants, they'll just need to figure out how to correctly import the data.
- Go to the Soil Test tab. You will import some pre-created soil test data.

1) Overall, on a scale of 1-5 how difficult was it to complete this task?

Not difficult at all   Extremely difficult

1	2	3	4	5

2) Overall, on a scale of 1-5 how frustrated, stressed, discouraged or annoyed were you with this task?

Not frustrated/discouraged   Extremely frustrated/
                                                                                                              discouraged

1	2	3	4	5

3) Please add any comments, thoughts, observations you have about completing this task, below.

Task 3: Under the "Nutrients" tab, participants will have a set number of nutrient sources to add. The type and number of livestock the participants should add will be provided.
- Go to the Nutrients tab. Select the "Nutrient sources" tool. You will need to add these types of manure sources (aka your livestock types):
    - Dairy: dry cow 1400 lbs
    - Dairy: lactating cow 1400 lbs
    - Dairy: heifer 750 lbs
    - Swine: grazing
    - Goat: liquid
- You'll then add four types of fertilizer sources under "dry fertilizer sources":
    - Diammonium phosphate (DAP)
    - Potassium chloride
    - Calcium nitrate (CN)
    - Urea
- You'll add one type of fertilizer source under "liquid fertilizer sources":
    - Ammonium polyphosphate liquid
- Once you've finished adding all the fertilizer sources, you've completed the task.

1) Overall, on a scale of 1-5 how difficult was it to complete this task?

Not difficult at all   Extremely difficult

1	2	3	4	5

2) Overall, on a scale of 1-5 how frustrated, stressed, discouraged or annoyed were you with this task?

Not frustrated/discouraged

Extremely frustrated/
discouraged

1	2	3	4	5

3) Please add any comments, thoughts, observations you have about completing this task, below.

Task 4: Still under the "Nutrients" tab, participants will use the livestock information they've already added to do a manure production estimate. This is done under the "Manure production estimator" tab.

- Still under the umbrella Nutrients tab, you will now select the "Manure production estimator" tool. You will need to add these types of livestock:
    - Dairy: dry cow 1400 lbs
    - Dairy: lactating cow 1400 lbs
    - Dairy: heifer 750 lbs
    - Swine: grazing
    - Goat: liquid
- You'll want to add the "No. of heads" and % collected and spread as [solid or liquid].
    - Dairy: dry cow 1400 lbs → No. of heads = 10 ; 100% solid
    - Dairy: lactating cow 1400 lbs → No. of heads = 5; 100% liquid
    - Dairy: heifer 750 lbs → No. of heads = 10; 100% solid
    - Swine: grazing → No. of heads = 5; 100% solid
    - Goat: liquid → No. of heads = 5; 100% liquid
- In the bottom two tables, add 1 year storage for the liquid manure and add a 5 ton spreader (10 tons an acre).

1) Overall, on a scale of 1-5 how difficult was it to complete this task?

Not difficult at all

Extremely difficult

1	2	3	4	5

2) Overall, on a scale of 1-5 how frustrated, stressed, discouraged or annoyed were you with this task?

Not frustrated/discouraged

Extremely frustrated/discouraged

1	2	3	4	5

3) Please add any comments, thoughts, observations you have about completing this task, below.

Post-Test Questionnaire

1. Overall, on a scale of 1-5 how useful do you think SnapPlus is?

Not useful at all   Extremely useful

1	2	3	4	5

2. On a scale of 1-5 how difficult do you think SnapPlus is to use?

Extremely difficult   Extremely easy

1	2	3	4	5

3. Of the 4 tasks rank the order of ease of completion, 1 being the easiest and 4 being the most difficult.

    a. __ Task 1- farm tab
    b. __ Task 2 - soil test tab
    c. __ Task 3 - nutrients tab - add nutrient sources
    d. __ Task 4 - nutrients tab - manure production estimate

Open Discussion Time

Is this software something you would use if you were a farmer? Why or why not?

What are the strengths and weaknesses of SnapPlus?

(Ask to demonstrate areas of improvement, as needed)

About UniverCity Year

UniverCity Year is a three-year partnership between UW-Madison and one community in Wisconsin. The community partner identifies sustainability and livability projects that would benefit from UW-Madison expertise. Faculty from across the university incorporate these projects into their courses with graduate students and upper-level undergraduate students. UniverCity Year staff provide administrative support to faculty, students and the partner community to ensure the collaboration's success. The result is on-the-ground impact and momentum for a community working toward a more sustainable and livable future.

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