

SMART

Mobile maps and application records for better manure management

Laura Ward Good, Jim Beaudoin, and Elizabeth Asendorf
Department of Soil Science



Project Summary

Wisconsin's manure management guidelines designate certain areas as off-limits for manure application due to the high risk of contamination of either groundwater or surface water. Some of the restrictions are based on soil type and some are based on proximity to surface features like wells or streams. The SnapPlus nutrient management planning software used throughout the state has a companion on-line GIS map in the SnapMaps GIS system that displays these manure-restricted areas.

Consulting agronomists working with dairy farms have told us that identifying these restricted areas for manure applicators in the field is a real problem. In addition, they have told us that producers often have difficulty maintaining the manure application records needed for good nutrient management planning. The SnapPlus Manure Application Realtime Tracker (SMART) app addresses both of these issues.

SMART allows farms to download field restriction maps to an iOS or Android mobile device and displays the application path on the device. The application path maps and records can also be uploaded to SnapMaps and the records imported into the farm's nutrient management plan.

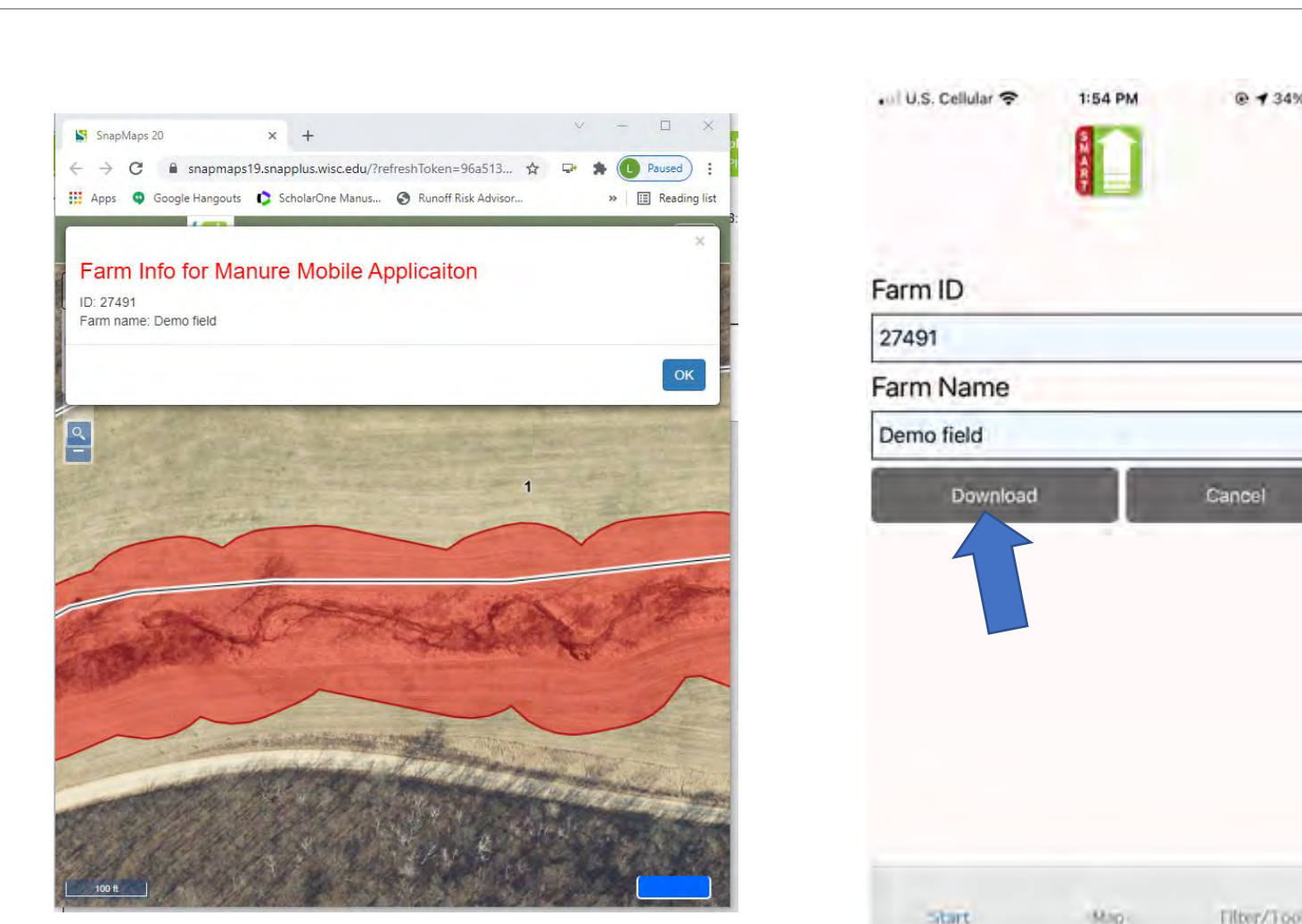
No-spread areas



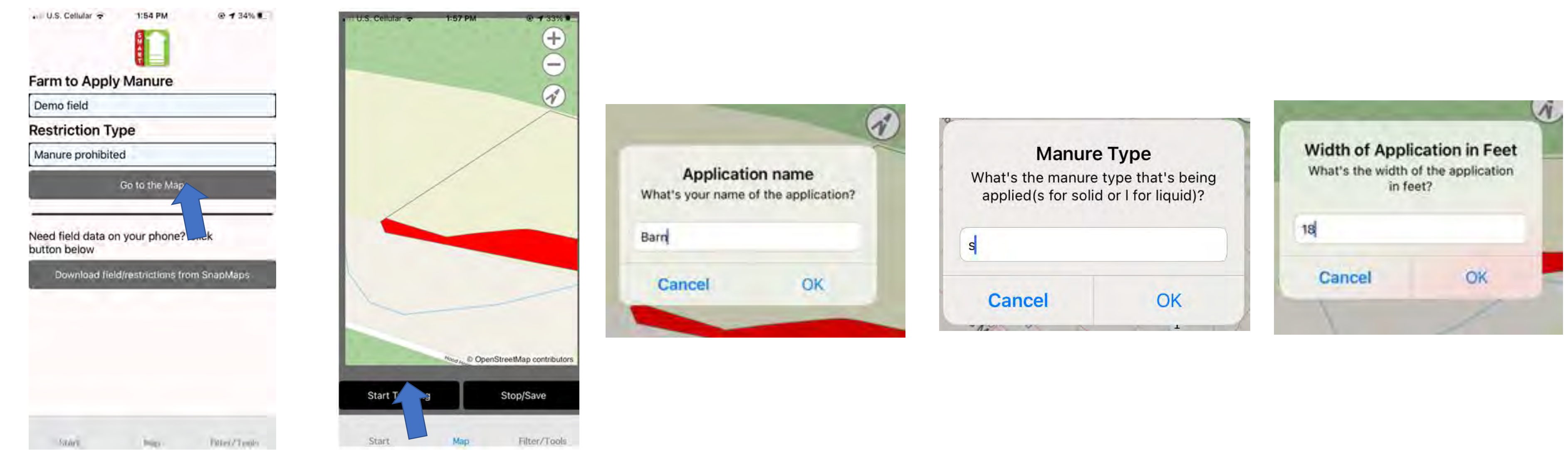
SnapMaps restriction map used for manure application planning. The red pattern shows where manure can not be applied.



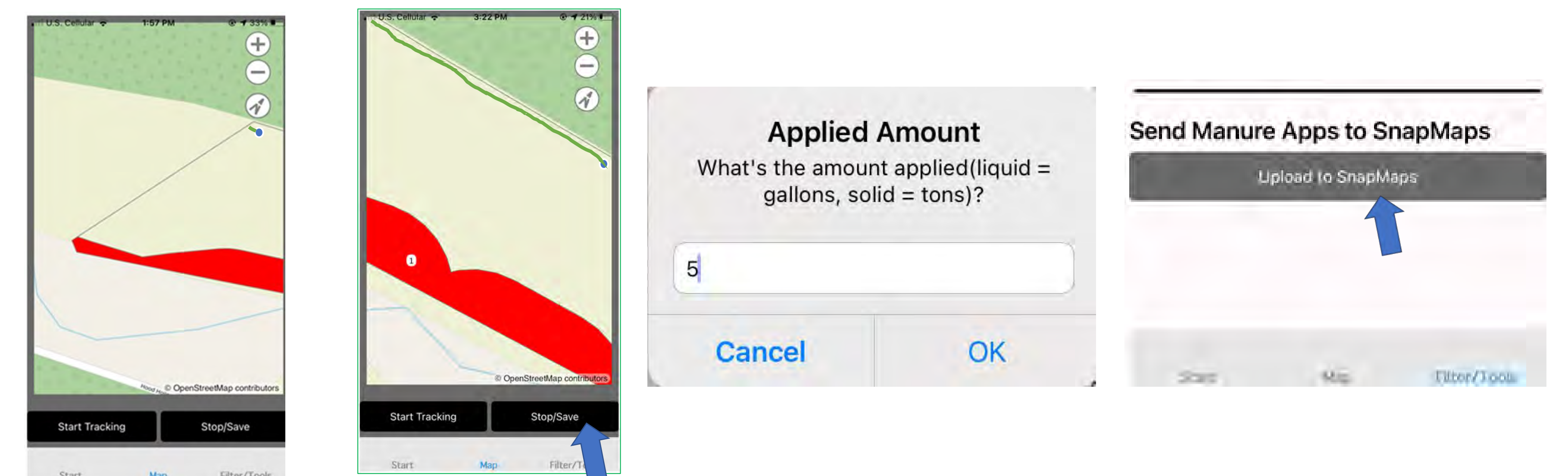
How SMART works



1. Download field maps from SnapMaps prior to heading out to the field.



2. In the field, go to the maps and fill in a name, the type of manure (solid or liquid), and the spreading path width.



3. Spread the manure. When load is empty, save the application and enter how much was applied.

4. Finally, upload the application to SnapMaps

SMART application records in SnapMaps

After applications are uploaded to SnapMaps, the application paths can be displayed on the map.

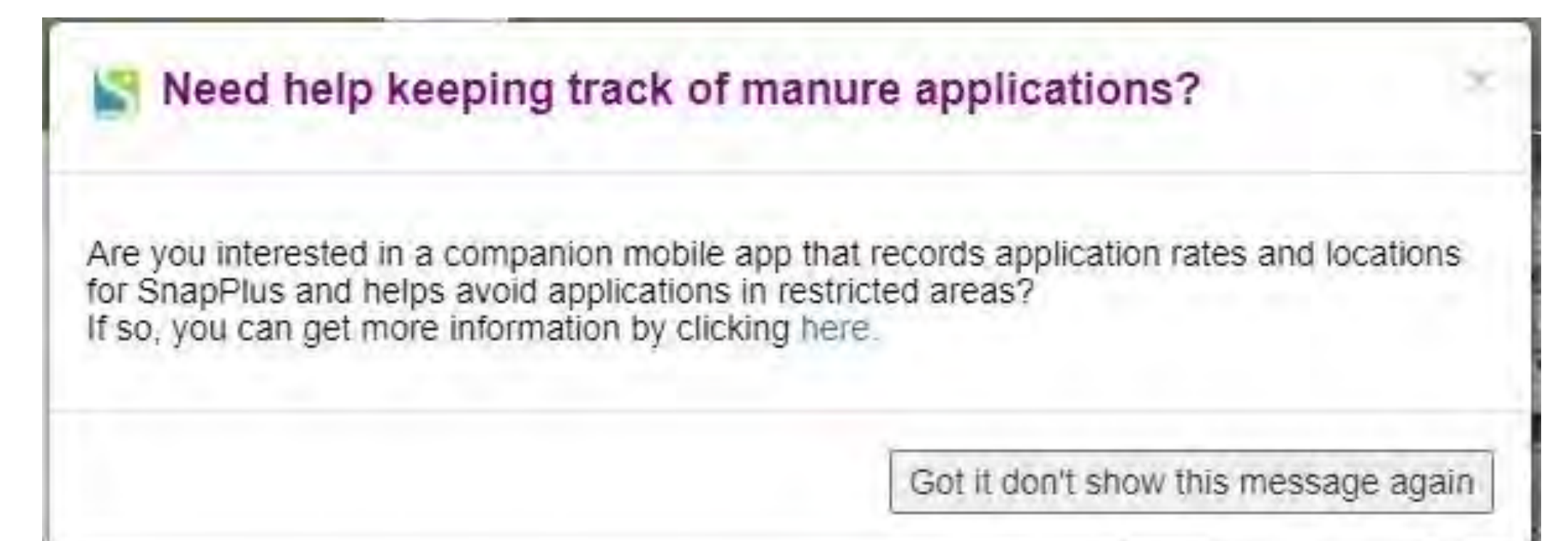


	A	C	D	E	F	G
	Application Date	Field ID	Acres Applied	Manure/Process Wastewater Source	Amount applied	Rate (units/ac)
1	10/14/2021	1	0.23	Barn	5	21.7
2	10/15/2021	1	0.2	Barn	5	25

SnapMaps generates a spreadsheet with the date, location, acres, amount applied and calculated application rate for each application.

What's next

The SMART project is now in a phase of on-farm testing that will last through the fall of 2021. We want to give ample time for testing on a variety of operations. Currently we have nine testers with the app installed and are actively seeking more through a variety of methods. A message that pops up in SnapMaps has gotten the most response from potential testers:



This testing should result in identification of usability issues and ideas for improvements. These will be addressed in spring 2022, with another round of field testing prior to the release in summer 2022. We anticipate that the repeated on-farm testing will lead to an app that truly fits the needs of dairy farms striving for economically and environmentally sound manure management.