Steve Hoffman InDepth Agronomy
Kevin Erb UW Extension

March 22 and 23, 2016 – Tile Drainage on Agricultural Lands, UW Extension
START WITH MULTIPLE LAYERS OF AERIAL IMAGERY AND A GIS PROGRAM
SAME AREA - DIFFERENT YEAR
IMAGERY IS BECOMING WIDELY AVAILABLE TO THE PUBLIC - GOOGLE EARTH 2015
EXAMPLE TILE FEATURES MAP
THERE ARE SEVERAL GOOD REASONS TO DEVELOP A MAP OF DRAINAGE TILE FEATURES
THERE ARE A LOT OF CONCRETE AND CLAY TILE SYSTEMS THAT ARE 30 TO 60+ YEARS OLD THAT NEED MAINTENANCE
BLOW-OUT MARKED BY THE GROWER
THE GROWER MIGHT NOT KNOW ABOUT ALL OF THE BLOWOUTS
MORE FARMERS RELY ON CUSTOM HARVEST. MORE MANURE IS SPREAD ON ALFALFA BETWEEN HARVESTS.
INITIAL SPRING GREEN-UP OF ALFALFA AND WHEAT IS A GREAT TIME TO CHECK FOR TILE BLOW-OUTS
VENTS AND INLETS NEED TO BE MAPPED
ALSO
MAINTENANCE ISSUES
OUTLET LOCATIONS NEED TO BE MAPPED
SO THEY CAN BE MONITORED
OUTLETS ARE HARD TO FIND WITHOUT A MAP
THE GROWING CROP CAN SHOW US WHERE TILE LINES ARE
TILE LOCATION CLUES CAN COME FROM YIELD MONITOR MAPS

Example: Tile Lines
TILE LINE LOCATION CLUES IN THE FIELD
SOME OF THE TOOLS YOU CAN USE TO RECORD TILE DRAINAGE FEATURES
THIS IS THE CURRENT TOOL THAT WE USE TO RECORD AND NAVIGATE MAPPED TILE FEATURES
THIS SYSTEM CAN BE USED BY THE CONSULTANT, FARMER, AND CUSTOM HAULER

- The use of a cloud-based GIS that runs on smart phones or tablets is necessary to streamline the system.
  - Farmers, scouts and custom workers have access to the same data. When a change is made, all parties will have the updated data.
  - This requires a time commitment on behalf of the consultant to update and load new features onto the cloud.
  - Each tablet has a monthly subscription fee to MapItFast.
THE SYSTEM IS READY TO GO FOR ANDROID DEVICES

- TILE DRAINAGE SYSTEM MAINTENANCE BECOMES MUCH EASIER WITH THIS SYSTEM.
- ENVIRONMENTAL RISK IS REDUCED WITH THIS SYSTEM.
- NOT ALL FARMERS WELCOME THE IDEA OF SHARING A MAP THAT SHOWS THE LOCATION OF THEIR TILE LINES.
- A CONSULTANT CAN CONTROL WHO HAS ACCESS TO EACH SET OF TILE MAPS.
WHAT THE FUTURE HOLDS

- MapItFast DOES NOT CURRENTLY RUN ON APPLE.

- AS AERIAL IMAGERY BECOMES MORE SOPHISTICATED AND MORE AFFORDABLE, TILE FEATURE MAPPING WILL IMPROVE.
  - IMPROVEMENTS IN SENSOR TECHNOLOGY SUCH AS THERMAL IMAGES ON BARE SOIL WILL LIKELY BE USEFUL.
  - HYPERSPECTRAL IMAGING HAS POTENTIAL.
  - TILE SYSTEM MAPS ARE LIKELY TO BE A REQUIRED COMPONENT OF FUTURE 590 NUTRIENT MANAGEMENT PLANS.
FUTURE IMPROVEMENTS

- WHEN THE USE OF UAV’S FOR AGRICULTURE IS APPROVED, TILE FEATURE DISCOVERY AND MONITORING WILL BE GREATLY IMPROVED.
  - UAV’S CAN BE FLOWN ON VERY SHORT NOTICE. THE FLIGHT PATH OF UAV’S CAN BE PRE-PROGRAMMED.
  - MULTI-ROTOR UAV’S CAN HOVER OVER FEATURES FOR REMOTE INSPECTION.
COMMERCIAL USE OF UAVs COULD BE LEGAL AND COMMON IN 2017
CARSTENS LAKE TILE
BLOWOUT WORKING GROUP

- ERIC COOLEY - DISCOVERY FARMS
- MATT RATAczAK - NRCS - MANITOWOC COUNTY
- JERRY HALVERSON - MANITOWOC COUNTY SOIL AND WATER DEPT.
- SCOTT GUNDERSON - UWEX MANITOWOC COUNTY
- GENE WEYER - MANITOWOC COUNTY LAKES ASSOCIATION
KEY FINDINGS OF THE WORKING GROUP

- Improper venting is a primary reason for tile-blowouts.
- No-till scenarios favor the development of blow-outs.
- Some farmers assumed that permission is required to fix a blow-out. The issue was clarified by agencies stating that permission is not needed to fix a blow-out.
- The cost to fix a blow-out can vary significantly. Contractors might be willing to fix a batch of blow-outs in a neighborhood for a reduced price.
THANK YOU

- QUESTIONS?

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