2014 RCAS MEETING FEBRUARY 4, 2014

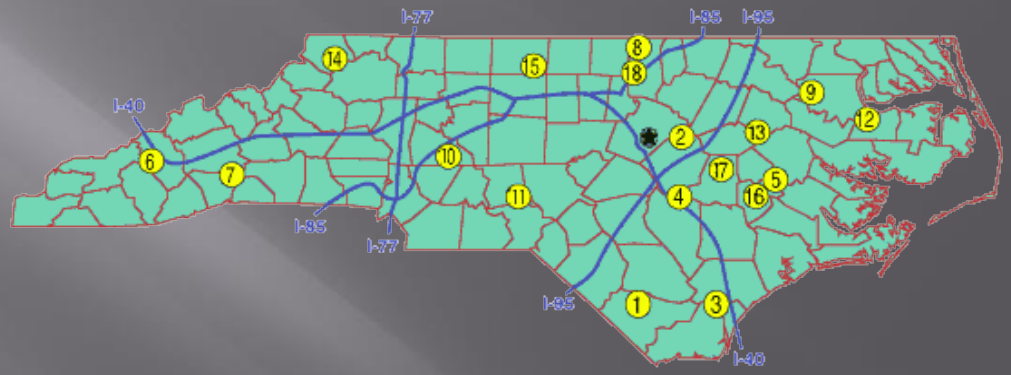
System Wide Implementation of Farm Management Software

The North Carolina Division of Research Stations

18 Locations

12 Research Stations and Research Farms owned by NCDA&CS

6 Research Stations owned by NC State University



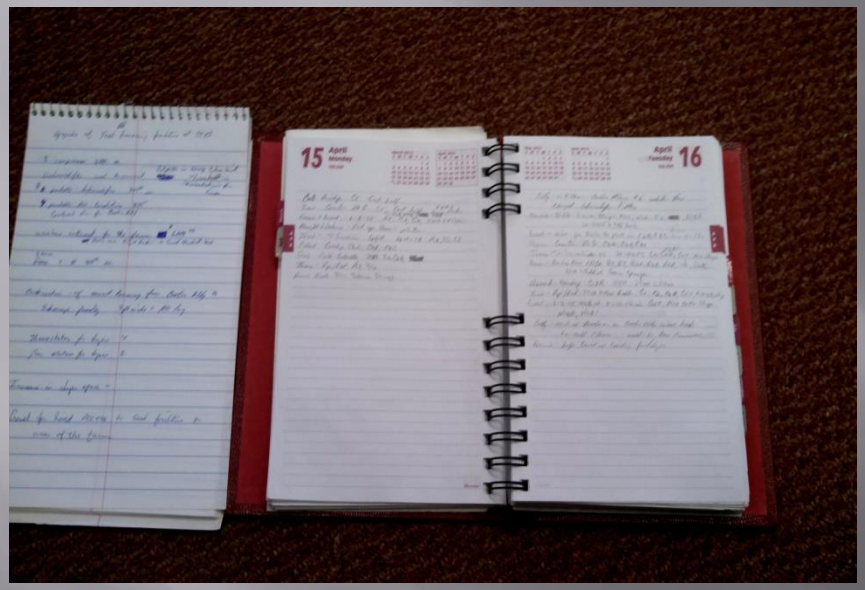
One Mission:

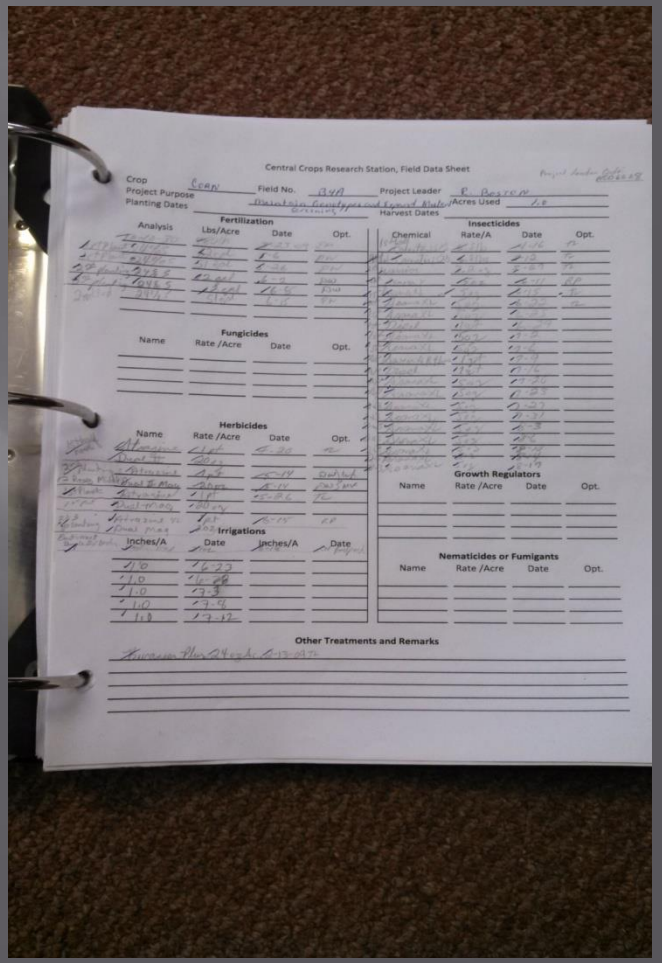
To manage crop and livestock facilities that serve as a platform for agriculture research to make farming more efficient, productive, and profitable, while maintaining a sound environment and providing consumers with safe and affordable products.

Goals

- The goals for the system wide implementation of farm management software are:
- To encourage better interaction between project leaders and research station personnel
- To improve research management
- To facilitate the transfer of data and information from research stations to project staff

The Old Way


15 April Monday
16 April Tuesday


Central Crops Research Station, Field Data Sheet
Crop
Project Purpose
Planting Dates
Field No.
Project Leader
Acres Used
Harvest Dates
Fertilization
Analysis
Lbs/Acre
Date
Opt.
Insecticides
Chemical
Rate/A
Date
Opt.
Fungicides
Name
Rate /Acre
Date
Opt.
Herbicides
Name
Rate /Acre
Date
Opt.
Growth Regulators
Name
Rate /Acre
Date
Opt.
Irrigations
Inches/A
Date
Inches/A
Date
Nematicides or Fumigants
Name
Rate /Acre
Date
Opt.
Other Treatments and Remarks

Transfer of Information

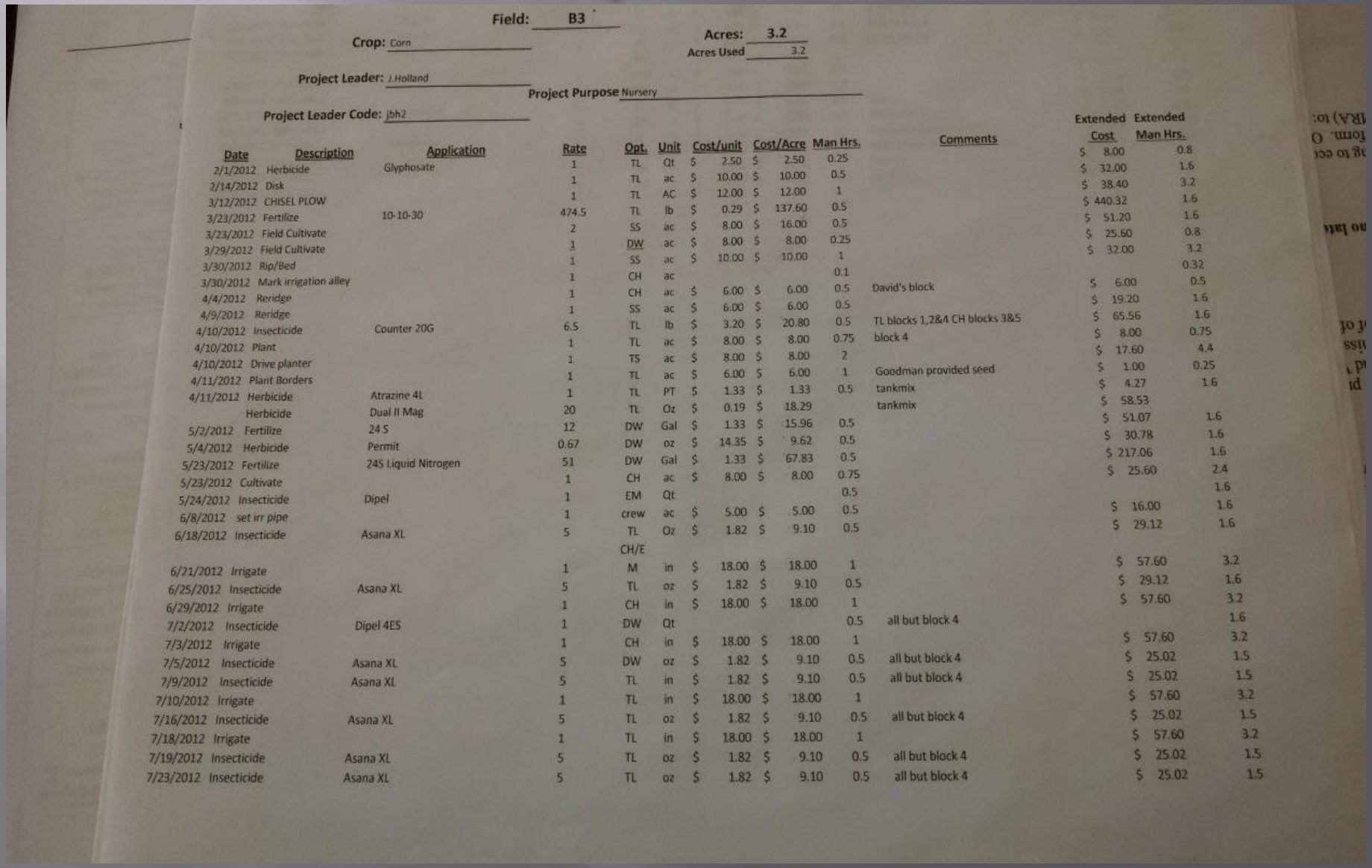
The information recorded on the field sheets was entered into the Land Management System.

- This system allowed you to only record direct inputs such as fertilizer and pesticides, irrigation was optional.
- This program does not track employee man hours required to complete a task or equipment required.
- The Land Management system was designed to track station direct input needs, provide project staff access to field input data and to track this information across the entire division.
- Most project staff did not utilize the system , they continued to call the station and ask that the information be sent to them via fax or email.

Tracking Inputs and Costs

- Some stations designed and utilized excel spreadsheets to track cost, equipment and man power required in addition to the direct inputs. The information required to be entered into the Land Management system was taken from the spreadsheets.

Excel Spreadsheet



Field: B3

Crop: Corn

Acres: 3.2

Acres Used 3.2

Project Leader: J.Holland

Project Purpose Nursery

Project Leader Code: jbh2

Date	Description	Application	Rate	Opt.	Unit	Cost/unit	Cost/Acre	Man Hrs.	Comments	Extended Cost	Extended Man Hrs.
2/1/2012	Herbicide	Glyphosate	1	TL	Qt	$ 2.50	$ 2.50	0.25		$ 8.00	0.8
2/14/2012	Disk		1	TL	ac	$ 10.00	$ 10.00	0.5		$ 32.00	1.6
3/12/2012	CHISEL PLOW		1	TL	AC	$ 12.00	$ 12.00	1		$ 38.40	3.2
3/23/2012	Fertilize	10-10-30	474.5	TL	lb	$ 0.29	$ 137.60	0.5		$ 440.32	1.6
3/23/2012	Field Cultivate		2	SS	ac	$ 8.00	$ 16.00	0.5		$ 51.20	1.6
3/29/2012	Field Cultivate		1	DW	ac	$ 8.00	$ 8.00	0.25		$ 25.60	0.8
3/30/2012	Rip/Bed		1	SS	ac	$ 10.00	$ 10.00	1		$ 32.00	3.2
3/30/2012	Mark irrigation alley		1	CH	ac			0.1			0.32
4/4/2012	Reridge		1	CH	ac	$ 6.00	$ 6.00	0.5	David's block	$ 6.00	0.5
4/9/2012	Reridge		1	SS	ac	$ 6.00	$ 6.00	0.5		$ 19.20	1.6
4/10/2012	Insecticide	Counter 20G	6.5	TL	lb	$ 3.20	$ 20.80	0.5	TL blocks 1,2&4 CH blocks 3&5	$ 65.56	1.6
4/10/2012	Plant		1	TL	ac	$ 8.00	$ 8.00	0.75	block 4	$ 8.00	0.75
4/10/2012	Drive planter		1	TS	ac	$ 8.00	$ 8.00	2		$ 17.60	4.4
4/11/2012	Plant Borders		1	TL	ac	$ 6.00	$ 6.00	1	Goodman provided seed	$ 1.00	0.25
4/11/2012	Herbicide	Atrazine 4L	1	TL	PT	$ 1.33	$ 1.33	0.5	tankmix	$ 4.27	1.6
	Herbicide	Dual II Mag	20	TL	Oz	$ 0.19	$ 18.29		tankmix	$ 58.53	
5/2/2012	Fertilize	24 S	12	DW	Gal	$ 1.33	$ 15.96	0.5		$ 51.07	1.6
5/4/2012	Herbicide	Permit	0.67	DW	oz	$ 14.35	$ 9.62	0.5		$ 30.78	1.6
5/23/2012	Fertilize	24S Liquid Nitrogen	51	DW	Gal	$ 1.33	$ 67.83	0.5		$ 217.06	1.6
5/23/2012	Cultivate		1	CH	ac	$ 8.00	$ 8.00	0.75		$ 25.60	2.4
5/24/2012	Insecticide	Dipel	1	EM	Qt			0.5			1.6
6/8/2012	set irr pipe		1	crew	ac	$ 5.00	$ 5.00	0.5		$ 16.00	1.6
6/18/2012	Insecticide	Asana XL	5	TL	Oz	$ 1.82	$ 9.10	0.5		$ 29.12	1.6
6/21/2012	Irrigate		1	CH/E M	in	$ 18.00	$ 18.00	1		$ 57.60	3.2
6/25/2012	Insecticide	Asana XL	5	TL	oz	$ 1.82	$ 9.10	0.5		$ 29.12	1.6
6/29/2012	Irrigate		1	CH	in	$ 18.00	$ 18.00	1		$ 57.60	3.2
7/2/2012	Insecticide	Dipel 4ES	1	DW	Qt			0.5	all but block 4		1.6
7/3/2012	Irrigate		1	CH	in	$ 18.00	$ 18.00	1		$ 57.60	3.2
7/5/2012	Insecticide	Asana XL	5	DW	oz	$ 1.82	$ 9.10	0.5	all but block 4	$ 25.02	1.5
7/9/2012	Insecticide	Asana XL	5	TL	in	$ 1.82	$ 9.10	0.5	all but block 4	$ 25.02	1.5
7/10/2012	Irrigate		1	TL	in	$ 18.00	$ 18.00	1		$ 57.60	3.2
7/16/2012	Insecticide	Asana XL	5	TL	oz	$ 1.82	$ 9.10	0.5	all but block 4	$ 25.02	1.5
7/18/2012	Irrigate		1	TL	in	$ 18.00	$ 18.00	1		$ 57.60	3.2
7/19/2012	Insecticide	Asana XL	5	TL	oz	$ 1.82	$ 9.10	0.5	all but block 4	$ 25.02	1.5
7/23/2012	Insecticide	Asana XL	5	TL	oz	$ 1.82	$ 9.10	0.5	all but block 4	$ 25.02	1.5

Farmworks

- In late 2012 into early 2013 the North Carolina Division of Research Stations provided Farmworks software for all the research stations.

- The goal is to move toward a system that facilitates stations and project staff working more closely together planning research, tracking inputs, transferring data and providing information to project leaders.

Implementation

- Across North Carolina the 18 Stations are at different stages of implementation of the program.
- One station is not currently using the software. (due to staff reductions)
- Several of the stations have experienced some issues with access codes and therefore have not utilized the record keeping aspect of the software.
- Precision mapping of stations has begun. This will take time due to limited equipment.
- Two stations have grid sampled there facilities planning to utilize this information to correct issues in fields.
- Multiple stations utilize the software to track crops planted in fields and determine if space is available for proposed new research.

- Several stations are utilizing the software to tract direct inputs, field activities, equipment utilized and man hour required.
- Some stations are using the software to determine application needs i.e. how much spray solution to mix, amount of fertilizer needed or amount of product to purchase.
- One station is starting to retrieve harvest data and make maps for precision application of inputs based on field data.

Cherry Research Farm Goldsboro, NC

Started using Farmworks in 1999 to keep records, both in research projects and general crop.

- Tracking employees hours to perform task
- Application records i.e. pesticides, fertilizer, seed and lime.
- Starting to track input cost

- Farmworks has increased efficiency and effectiveness by allowing reports to be produced for project leaders in a more timely manner.

- Have precision maps of the station.

Central Crops Research Station Clayton, NC

- Obtained Farmworks software in the fall of 2012

  It is utilized for record keeping including:

  - Tracking direct inputs; pesticides, fertilizer, lime, seed, irrigation
  - Cost of inputs
  - Time required to complete the task
  - Equipment required
  - First GPS equipped tractor on the station this past season.

Future Plans

- Record scouting information in field records.
- Incorporate soil and nematode sampling information into field data tracked.
- Combine data collected on fields into overlay maps in order to better identify problem areas. Utilize this information in research project design and plot layout in an effort to enhance project success.
- Syncing GPS equipment with office computers in order to transfer data from equipment to the Farmworks program on office computers.

Challenges

- Records for multiple small test within a large field.
- Setting up a server in order for the software to be available to more than one manager or supervisor per station.
- Availability of equipment with GPS and precision ag capabilities.
- Key operators and supervisors need additional training.
- Time and labor shortages.

Results

- Farmworks provides the ability to record various types of data as it pertains to individual fields. Enabling managers to make better decisions as to the stations ability to properly conduct purposed research.
- Farmworks has increased efficiency and effectiveness by allowing reports to be produced for project leaders in a more timely manner.
- Ability to collect and track field information more effectively.
- Improved accuracy in long term records.
- Working toward implementation of the software has led to more communication and sharing of ideas among the stations.

Questions