

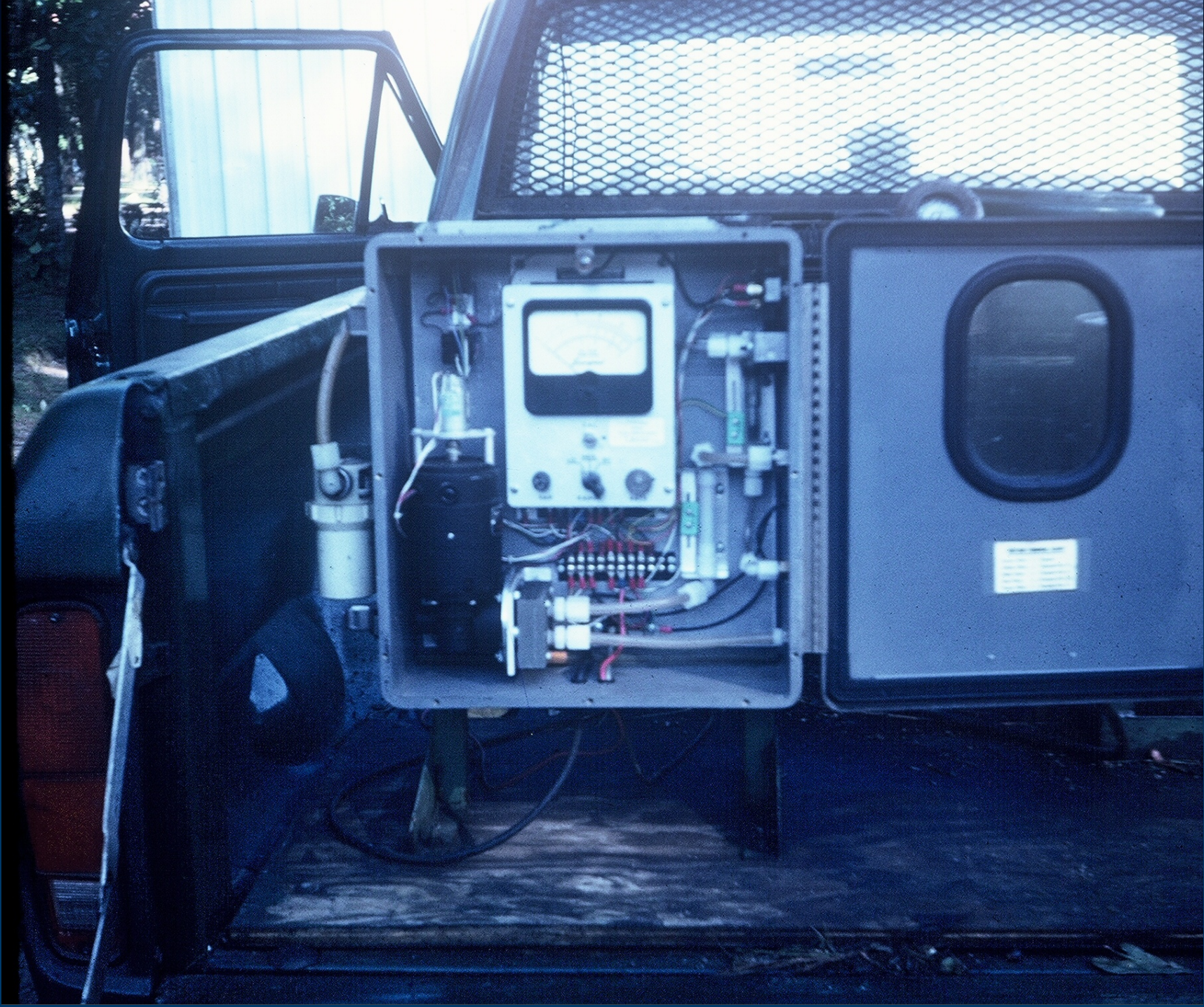
“Sentinel GIS”- Software for Tracking, Mapping and Reporting All Mosquito Control Operations

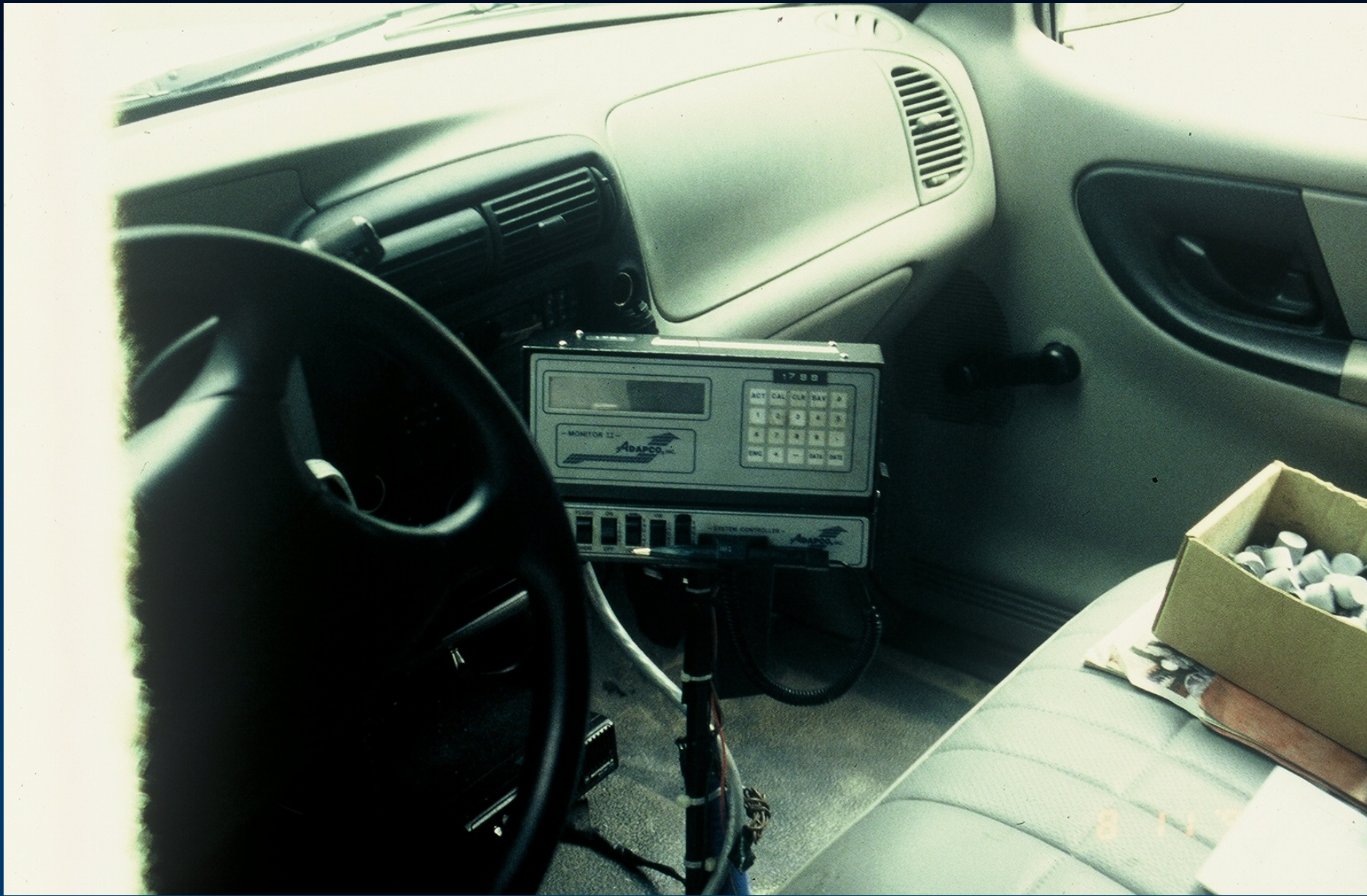
David Sykes

B&G Chemicals & Equipment Co., Inc.

Chemical Tracking Equipment- 1970-2000

- Dri-Safer
- Sangamo tachographs
- ChemTrak
- VecTrac
- ELF
- Leco Flowmeter
- Leco VF and CV
- Monitor 1, 2 and 3





Chemical Tracking Equipment- 2000 to present

- GeoFlow
- Accuflow
- Monitor 4
- SmartFlow with Datamaster II

Chemical Tracking Equipment- 2000 to present

- Store information from the ULV sprayer
- Date and time from GPS signal
- Data retrieved by downloading to a desk computer
- Limited to data retrieved from sprayer
- Can't be used for other purposes

Geographic Information Systems

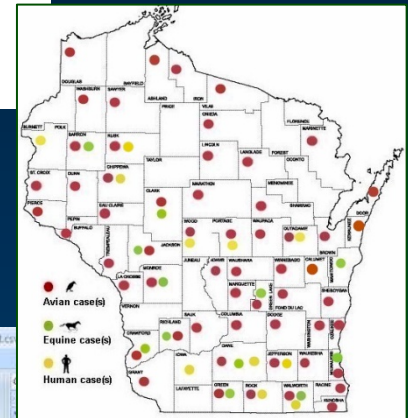
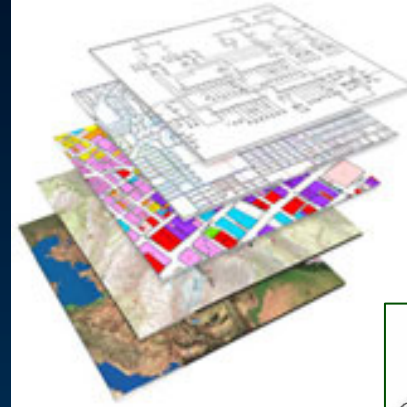
Integrate data from other sources

Produce Detailed Maps

Generate Reports

Show Correlations Between Data

ENDLESS USES!



A	B	C	D	E	F	G	H	I	J
SITEMUM	DATE	TIME	EMPLOYEE	PROD1	AMOUNT1	RATE1	PROD2	AMOUNT2	RATE2
1825676380	10/26/2006	9:37:30 AM		5 10-day altosid SBG	4		4 Agnique	15	15
1625676380	10/26/2006	9:38:51 AM		5 30-day Altosid Briquets	30	30			
9525676442	11/29/2006	1:39:48 PM		3 30-day Altosid Briquets	30	30			
6425676260	12/6/2006	2:51:58 PM		6 30-day Altosid Briquets	3		3 Agnique	15	200
425676593	12/6/2006	2:53:55 PM		6 Vectolex CG	24	300			
425676593	12/6/2006	2:54:20 PM		6 21-day Altosid XR-G	4		20 30-day Altosid Briquets	3	3
9325676500	12/12/2006	3:07:58 PM		8 Vectolex CG	15	25			
1625676380	12/14/2006	10:17:29 AM		9 Vectolex CG	12	20			
425676593	12/14/2006	10:21:11 AM		9 150-day Altosid XR Briquets	20	20	20 Vectobac CG	20	200
2629815217	12/14/2006	10:23:27 AM		9 Summit BTI Briquets	15	15			
3232250987	1/10/2007	12:58:57 PM		3 150-day Altosid XR Briquets	2	2			
832998013	1/18/2007	11:20:49 AM		6 Vectolex CG	15	200			
9525676442	1/23/2007	12:16:34 PM		7 150-day Altosid XR Briquets	10	10			
9325676500	1/25/2007	10:46:40 AM		5 Vectolex CG	16	50			
4433979191	1/29/2007	7:53:49 PM		6 30-day Altosid Briquets	6		6 Vectolex CG		
1625676380	3/22/2007	3:18:11 PM		4 Summit BTI Briquets	30	30			
6425676260	6/22/2007	11:29:09 AM		8 30-day Altosid Briquets	5	5			
425676593	6/22/2007	11:35:15 AM		8 Vectolex CG	10	10			
6425676260	7/18/2007	11:05:47 AM		9 30-day Altosid Briquets	5	5			

Standard GIS Software from ESRI, the World Leader in GIS:

Database to Store Information

Generate Custom Reports

Modify and Print Maps

Common Format

Can be Customized and Updated

Advantages of ESRI Software

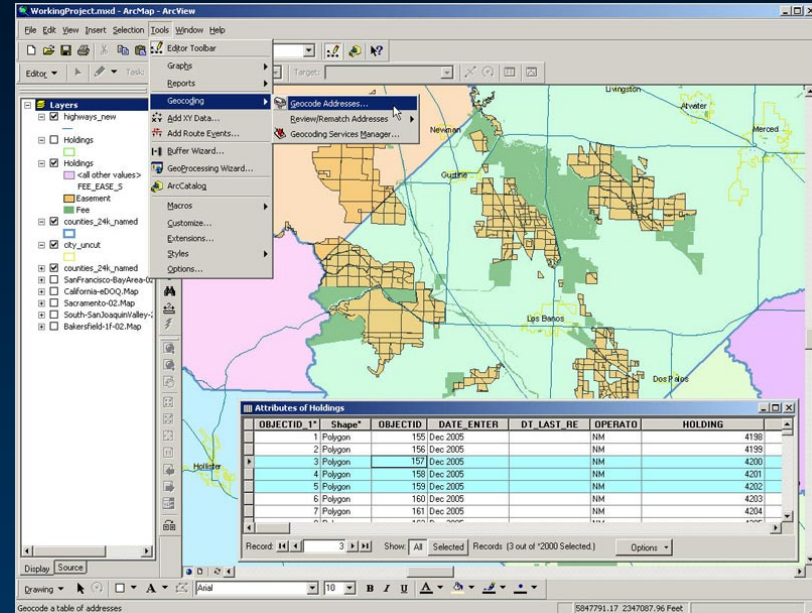
Easy to Use “Out of the Box”

Create Custom maps

Create Reports

Data Analysis

Customizable



Date	Charles wood	River Heights	Transco na	West Kildonan	Windsor Park	Fort Richmond	River Bend	Garden City
2-Jul	98.00	424.00	58.00	848.00	364.00	60.00	128.00	214.00
3-Jul	11.00	39.00	18.00	71.00	49.00	no data	30.00	32.00
4-Jul	2.00	0.00	1.00	4.00	2.00	no data	1.00	no data
5-Jul	10.00	35.00	3.00	41.00	7.00	11.00	6.00	7.00
6-Jul	8.00	54.00	9.00	20.00	45.00	9.00	11.00	6.00
11-Jul	24.00	75.00	23.00	174.00	23.00	no data	25.00	41.00
12-Jul	40.00	304.00	9.00	532.00	112.00	76.00	31.00	42.00
13-Jul	8.00	28.00	2.00	29.00	12.00	11.00	4.00	13.00
14-Jul	19.00	90.00	15.00	57.00	81.00	52.00	14.00	12.00
15-Jul	17.00	57.00	13.00	63.00	37.00	27.00	4.00	12.00
20-Jul	7.00	134.00	10.00	288.00	142.00	31.00	32.00	56.00
21-Jul	1.00	18.00	7.00	144.00	76.00	4.00	12.00	26.00
22-Jul	1.00	10.00	5.00	9.00	19.00	4.00	1.00	6.00
23-Jul	0.00	7.00	1.00	2.00	7.00	2.00	0.00	1.00
24-Jul	2.00	8.00	1.00	41.00	19.00	0.00	0.00	7.00

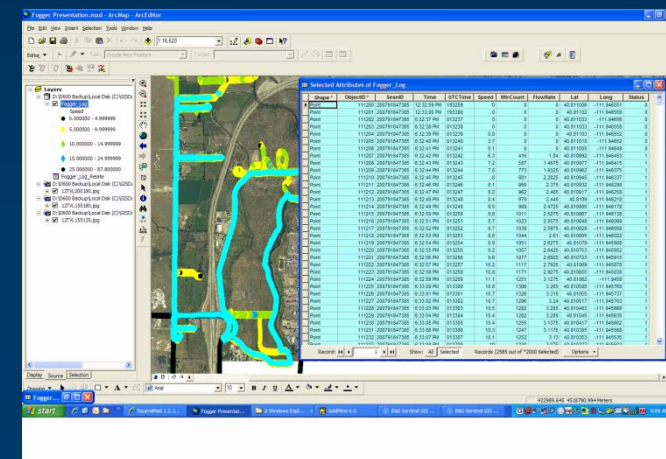
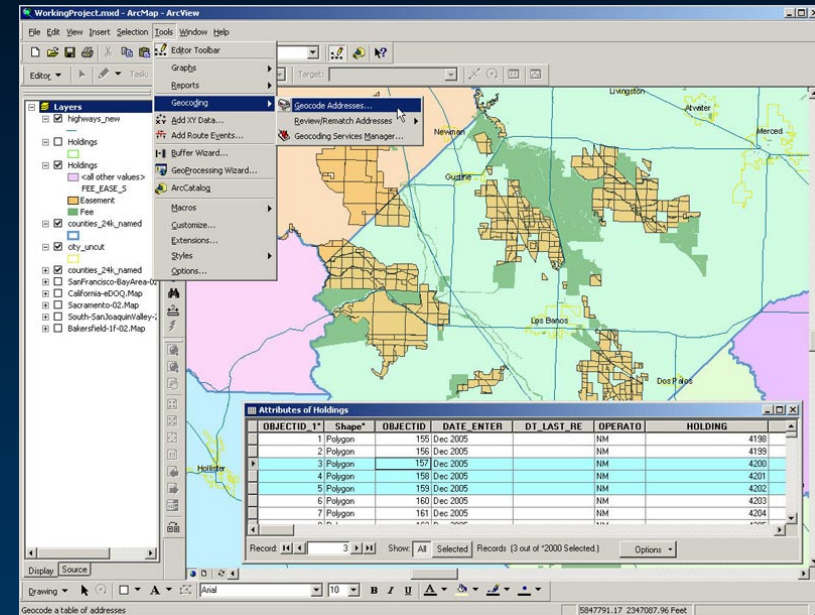
no data = fogged that morning
 * = trap malfunction (i.e. burnt out light bulb, fan not working, power supply disrupted, trap plugged by debris)

Advantages of ESRI Software

Easily Print Reports

Print Detailed Maps

Easily Update Database



Advantages of ESRI Software

Already Owned Software

Maps Already Being Produced in ArcView
Most counties have ArcView licensing



Most Common GIS in World

Map Data Available Free

Easily Customized

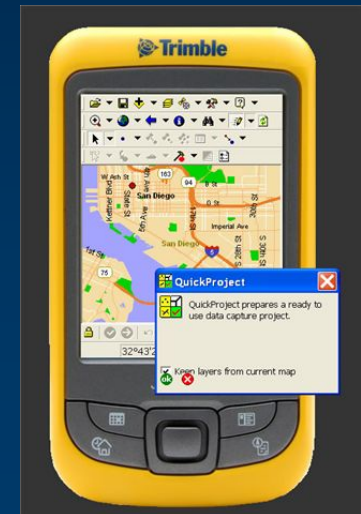
Report Wizards

Very Powerful

Expands to Meet Growing Needs

Non-Proprietary

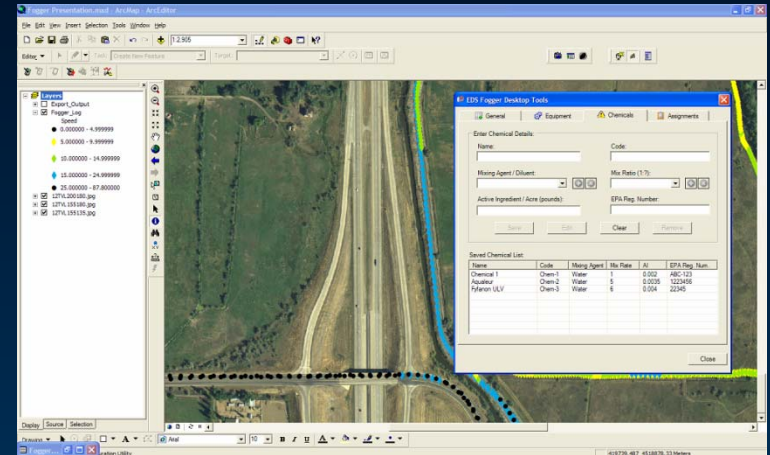
Open Database, Open Interface



Administrative Tools Wizard- examples

Create Pick Lists for Field Computer

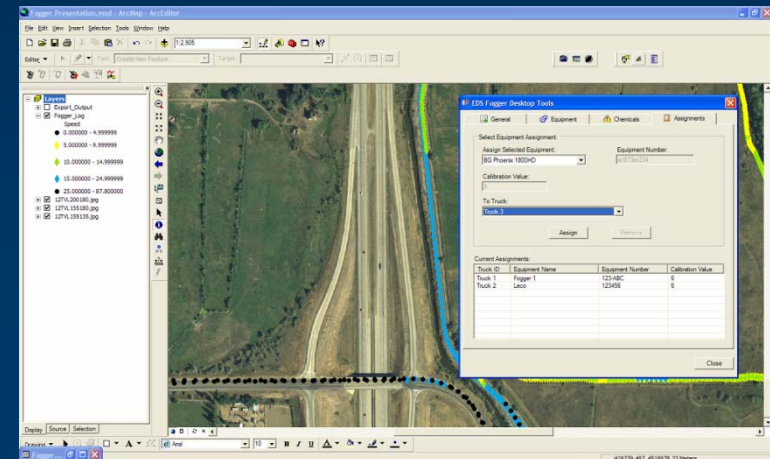
- Add or change Drivers
- List Chemicals to be Used
- Make List of Areas to be sprayed



Create Pick Lists for Vehicle

- Add Vehicles
- Assign sprayer to vehicle
- Track Fogger & Calibration rate by Vehicle

Easy to Use!



“*Sentinel GIS*” Software

- Developed by Electronic Data Solutions
- Based on ESRI “ArcView” GIS software
- Provides for Tracking, Mapping and Reporting all mosquito control operations
- Adulticiding, Larviciding and Surveillance
- Uses handheld computers for data collection
- Easy to Use

With *Sentinel GIS*

Record Adulticiding Activity

Integrated Directly with Fogger Control Box

Record Application Rate, Speed, Vehicle, Fogger ID, Chemical used,

Map new roads, update fog maps.....

Record Larviciding activity

Map treatment site including new breeding sites

Chemical used, how much

Calculate acreage

Record Surveillance activity

light traps, sentinel chickens, landing counts

Mosquito ID, mosquito pools, blood samples.....

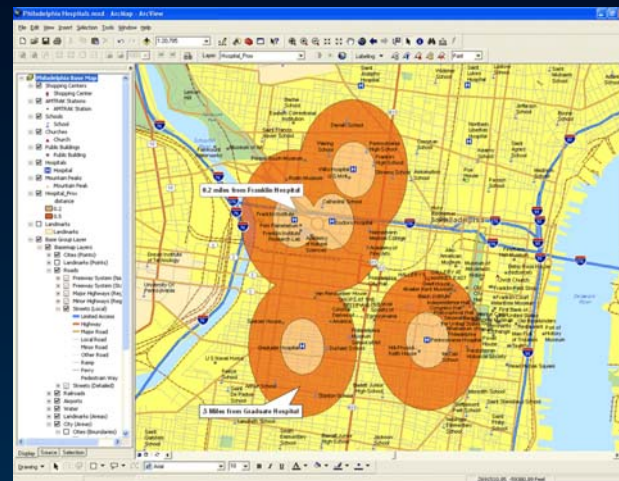
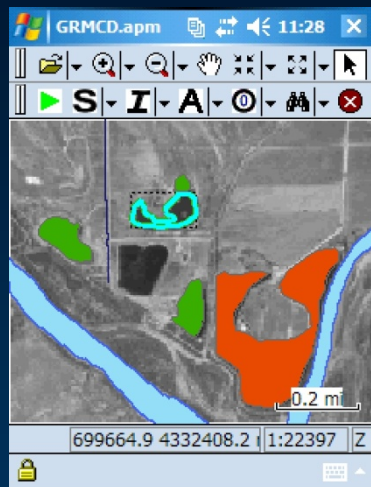
Record other activity—Weed Control

What You Need!!

Software for Office & Field

ArcPad and Datalink

“Sentinel GIS” software



Field Computer

Trimble GeoXM Field PC

Archer handheld

Dell Axim

Any Windows Mobile Device!!!!



ULV Fogger

B&G Phoenix Fogger

Digital Control Box with GPS

Any Sprayer with Retrofit Kit



Adulticiding Example

Take GeoXM to ULV Vehicle

Connect to Phoenix Fogger Control Box

Start ArcPad Software On GeoXM

Create Fogging Session

Start the Phoenix Fogger

Drive the Fogging Routes

Track Vehicle

View speed, output and location

Complete area

Close ArcPad Software

Synchronize Handheld



6.2 oz/min

15 mph

Data Transfer & Office Process

Connect GeoXM to PC

Use Datalink GIS

View Map

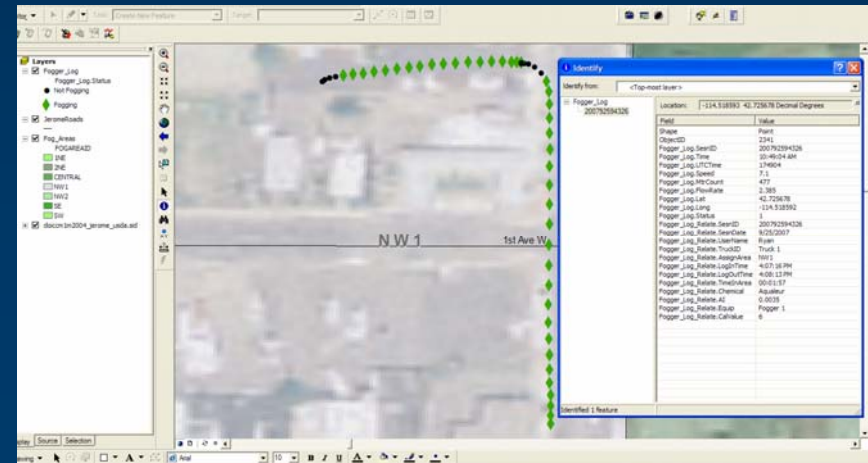
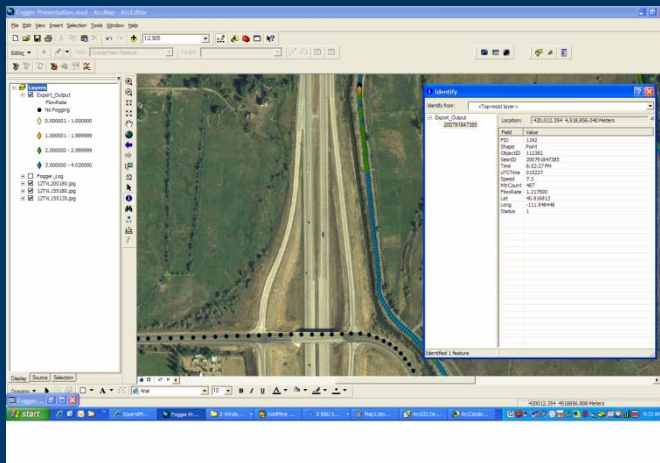
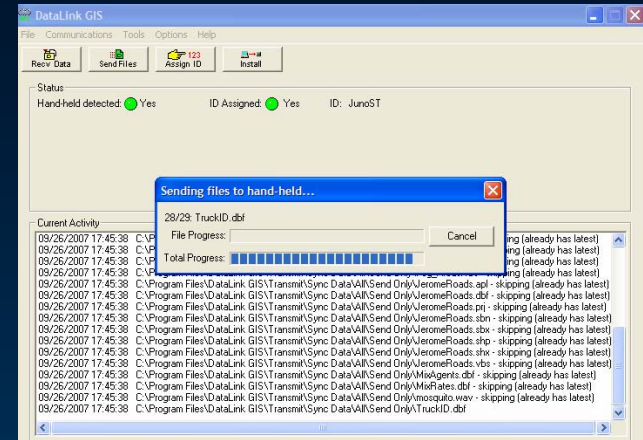
Automatically Updated

Print Reports

Using Predefined Report Formats

Custom Formats

Use Wizard Interface



Example Maps and Data

Create Maps with preferred symbols

Search Fogging Data

Complete Information about Fogging

Select Data Based on

Driver or Vehicle

Date / Time

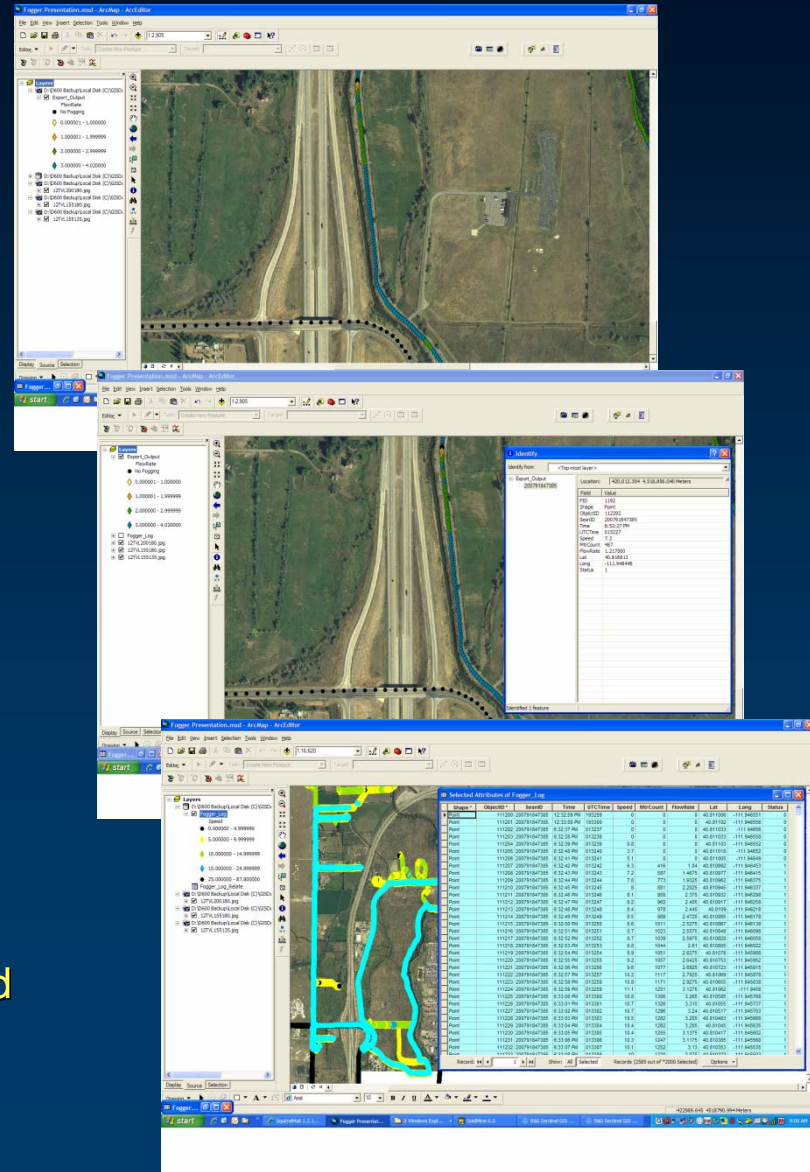
Chemical Used

Fogging Area or Location

Output to Other Formats if Needed

Compatible with Most Software if Required

Submit Data to Other Agencies



Examples of Reports

Using Report Wizard, Create:

Chemical Usage Reports

Daily, Weekly, Monthly, Annually, etc

Driver & Vehicle Reports

Daily, Weekly, Monthly, Annually, etc

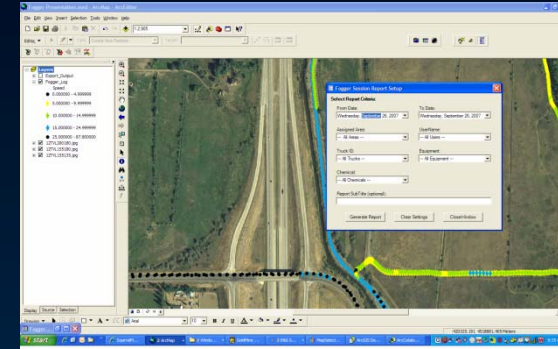
Acreage Treated Reports

Meet EPA Label Guidelines

Reports by Fogging Area, Date Range,
Driver, Chemical Used....

Print Aggregate Reports....

Unlimited Reporting Options



B&G Sentinel GIS

Multiciding Report
Chemical Usage: 9/1/2007 to 9/26/2007

Report Created On: Wednesday, September 26, 2007

Date	Area	User Name	Truck ID	Session ID	Duration	Chemical	AI	Equipment	Usage (oz)
9/1/2007									
9/1/2007	All								
9/12/2007	All	Jason Hardin	Truck 2	2007919591	02:43:54	Pyrethroid	0.00	B&G 800	237.54
									Daily Chemical Usage: 237.54
9/6/2007									
9/6/2007	All	Andy Madser	Truck 2	20079088063	00:00:00	Pyrethroid	0.00	B&G 800	292.43
									Daily Chemical Usage: 292.43
9/11/2007									
9/11/2007	All	Andrew Deem	Truck 2	200791124007	00:00:28	Pyrethroid	0.00	B&G 800	0.00
9/11/2007	All	Andrew Deem	Truck 2	200791137879	00:01:58	Pyrethroid	0.00	B&G 800	0.00
9/11/2007	All	Andrew Deem	Truck 2	200791149568	00:03:04	Pyrethroid	0.00	B&G 800	0.00
9/11/2007	All	Andrew Deem	Truck 2	200791150687	00:04:52	Pyrethroid	0.00	B&G 800	0.00
9/11/2007	All	Andrew Deem	Truck 2	200791153704	00:01:51	Pyrethroid	0.00	B&G 800	0.00
9/11/2007	All	Andrew Deem	Truck 2	200791178664	00:00:00	Pyrethroid	0.00	B&G 800	0.00
									Daily Chemical Usage: 0.00
9/14/2007									
9/14/2007	All	Andrew Deem	Truck 2	200791434664	00:20:24	Pyrethroid	0.00	B&G 800	3.84
									Daily Chemical Usage: 3.84

B&G Sentinel GIS Aerial-Ciding Report

9/20/2007	All	Andrew Deem	Truck 2	200792094710	00:03:08	Pyrethroid	0.00	B&G 800	0.00
									Daily Chemical Usage: 0.00
9/22/2007									
9/22/2007	All	Andrew Deem	Truck 2	200792215961	00:00:28	Pyrethroid	0.00	B&G 800	0.00
9/22/2007	All	Andrew Deem	Truck 2	200792216807	00:01:59	Pyrethroid	0.00	B&G 800	0.00
9/22/2007	All	Andrew Deem	Truck 2	200792248934	00:06:35	Pyrethroid	0.00	B&G 800	0.00
9/22/2007	All	Andrew Deem	Truck 2	200792248424	00:28:17	Pyrethroid	0.00	B&G 800	7.5
9/22/2007	All	Andrew Deem	Truck 2	200792250409	00:04:48	Pyrethroid	0.00	B&G 800	0.00
9/22/2007	All	Andrew Deem	Truck 2	200792251508	00:01:19	Pyrethroid	0.00	B&G 800	0.00
9/22/2007	All	Andrew Deem	Truck 2	200792255845	00:03:35	Pyrethroid	0.00	B&G 800	0.00
9/22/2007	All	Andy Madser	Truck 2	200792229394	00:01:45	Pyrethroid	0.00	B&G 800	0.00
9/22/2007	All	Jason Hardin	Truck 2	200792248449	01:28:51	Pyrethroid	0.00	B&G 800	151.75
									Daily Chemical Usage: 196.50
9/23/2007									
9/23/2007	All	Andy Madser	Truck 2	200792355839	01:14:47	Pyrethroid	0.00	B&G 800	131.47
9/23/2007	All	Andy Madser	Truck 2	200792386317	00:20:41	Pyrethroid	0.00	B&G 800	0.00
									Daily Chemical Usage: 131.47
9/24/2007									
9/24/2007	All	Jason Hardin	Truck 2	200792474836	02:12:27	Pyrethroid	0.00	B&G 800	203.19
									Daily Chemical Usage: 203.19
									Total Chemical Usage: <u>611.16</u>

Larvacide Activities

- Map Breeding Sites
- Inspection Reports
- Application Reports
 - Chemical Treatments
- Review History
- Do Work Reports
- Navigate with GPS
- Unlimited Users



Larvacide Activities

- Field Mapping Tools

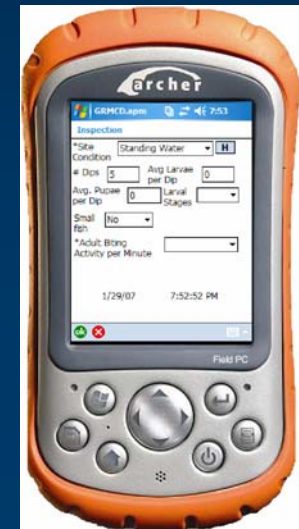
- Map Breeding Sites
- GPS Site location
- Field Navigation
- Easy to use Toolbar
- Rugged Field PC
 - Water & Chemical Proof
 - Shock Proof
- Makes Record-Keeping easy
- Dependent Symbology
 - Red & Green Symbols that Indicate Priority of Treatment and Inspection



Larvacide Activities

- Site Reporting Tools

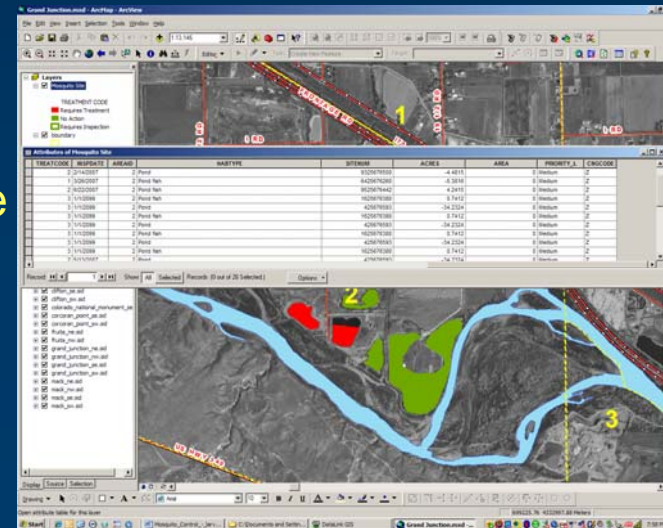
- Create / Edit Breeding Sites
- Map new Breeding Sites
- Create New Inspection Reports
- Review Previous Inspection Reports
- Access Property and Owner Information



Larvacide Activities

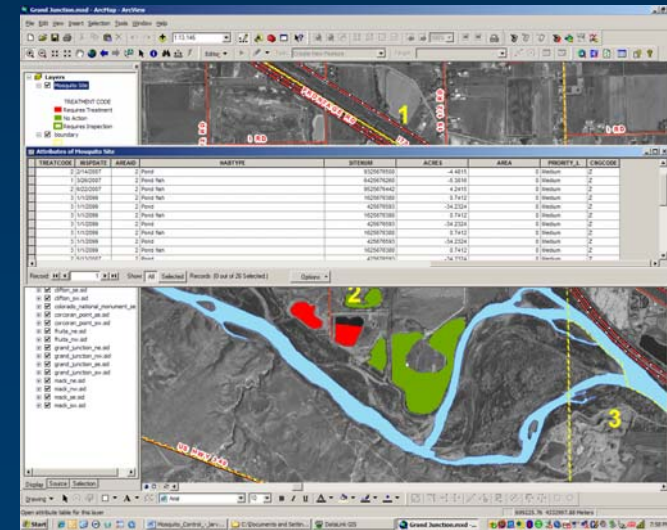
• Chemical Treatments

- Indicate Sites Needing Inspection and Treatment
- Map new sites or update sites
- Calculate acreage
- Record Chemical and Application Rate
 - Efficacy Period Affects Map
- Review Treatment History



Larvacide Activities

- Synchronize with PC
 - Automated Functions
 - Move Data To PDA
 - Retrieve Data From PDA
 - Synchronize Database
 - Update GIS
 - Generate Reports
 - Review Site History
 - Calculate acreage
 - Use Existing GIS Data



Surveillance

Navigate and Track Vehicle

Create Maps with preferred symbols

Input Data Based on

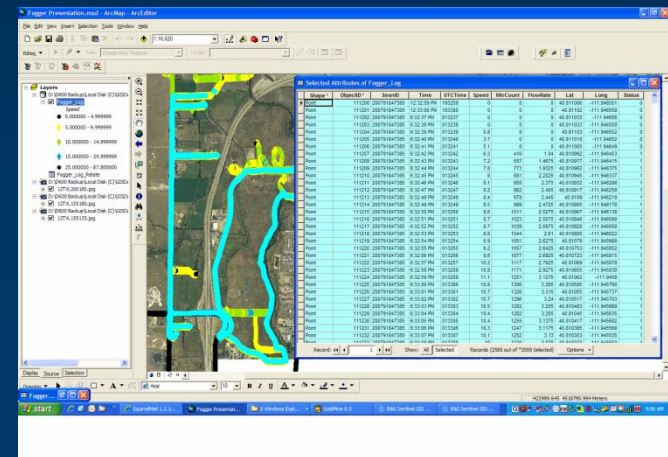
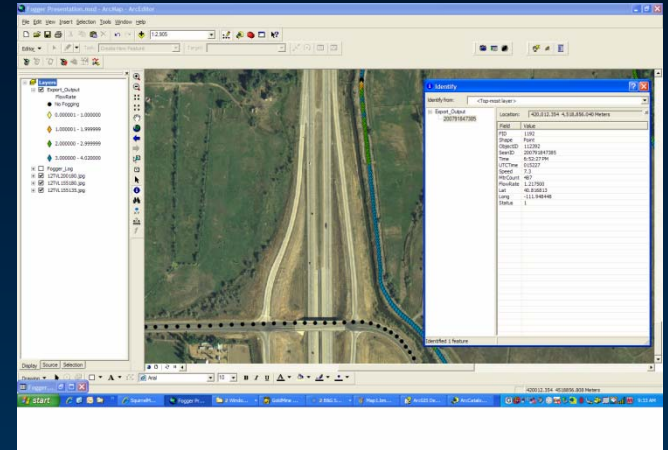
Driver or Vehicle

Date / Time

Activity

Area or Location

View History for each site



Surveillance

- Collect data for sentinel chicken flocks
- Collect blood samples and generate reports
- Do landing counts with GPS locations
- Make mosquito collections with GPS
- Track the vehicle, any vehicle

Surveillance

- ID mosquitoes from light traps
- Input Mosquito Species and Counts
- Automatically totals species
- Creates report for mosquito ID
- Has Search feature
- Create Reports Tabulated Different Ways

Other Uses: Weed Control

- Map Weed Sites
 - Record Treatments
 - Review Treatment History
 - Navigation
 - Generate Reports
 - Prioritize Work Orders
 - Update Maps / GIS
 - Unlimited Uses



Windows Mobile Computing

- One Device For All
 - Larvacide Activities
 - Mapping, Inspection, Treatments
 - ULV Fogging Activities
 - Chemical use reports and tracking
 - Invasive Weed Control
 - Surveillance
 - Vehicle Guidance or tracking

Tremendous Advantage!



Thank You!