



*Over 30 Years of Innovation and Service  
for the Livestock Industry 1973 -- 2005*

# Automated Livestock Management with RFID-Driven Production Systems

*15 Years of Work*

*Applying RFID Technology  
to the Real World*



**“Automate the Chores”**

**to**

**Improve Animal Care 24/7  
for Better Profit**



**Our  
Original  
Model**

**Ten  
Years  
Ago**

**A Reality  
Today**



# Osborne Offices and Factory



# The Osborne Demonstration Farm

**Built 1994**  
**RFID-Driven**



# Our Products In 1985



**Stanfield®  
Heat Pads**



**Big Wheel®  
Feeders**



**AccuARM® Scales**



**AgriAide® Ventilation**

# Information-Based RFID-Driven Products in 2005



**TEAM™ Gestation**



**e-Logging**



**FIRE® Testing**



**TEAM™ Estrous**



**TEAM™ Farrowing**



# The TEAM™ System

## Managing Reproduction in Large Sow Groups

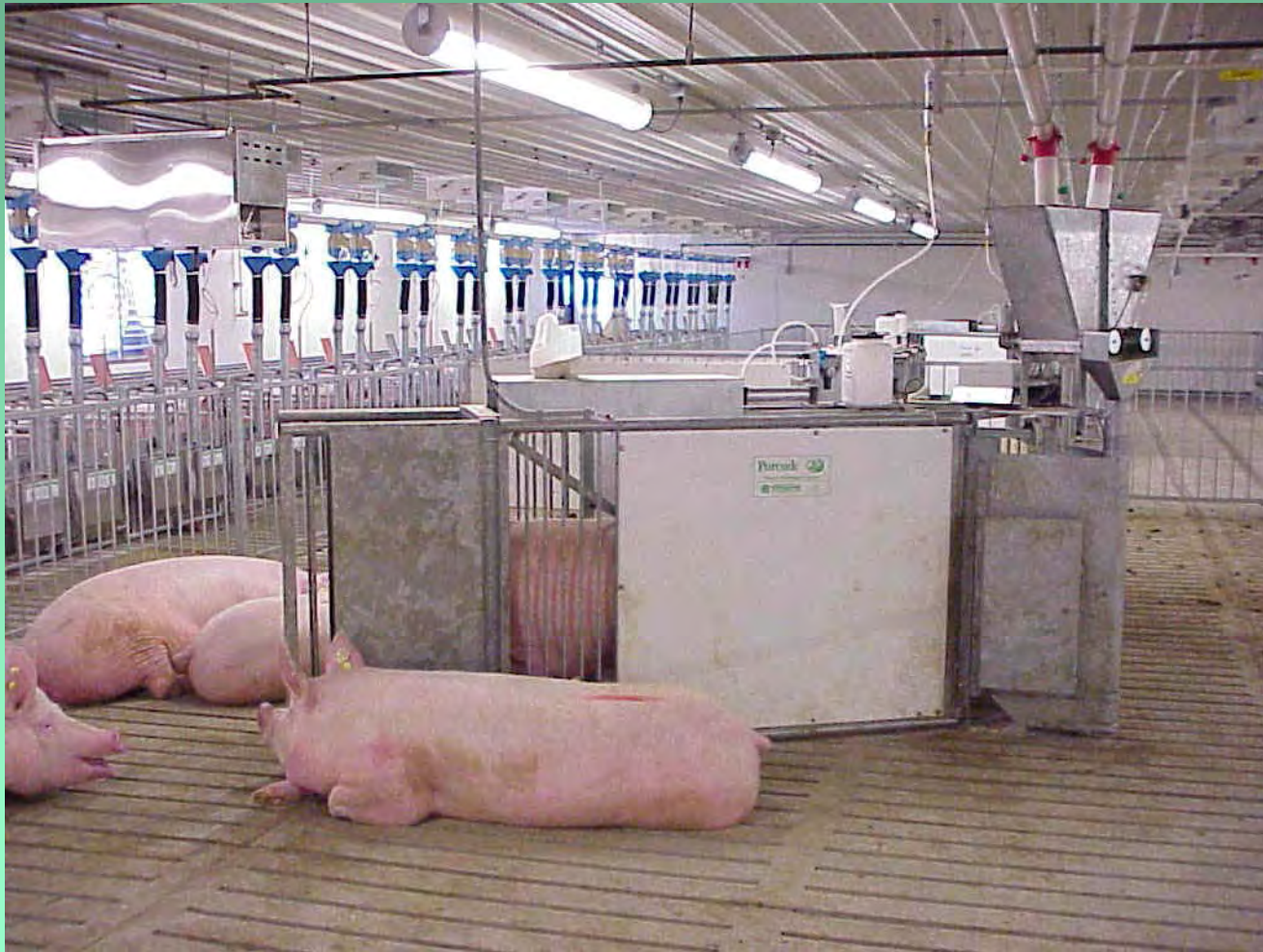
*Our First  
Automated RFID-Driven System*



Cost



# The TEAM™ System



# The TEAM™ System



# The TEAM™ System



**Location, Status, & Activity  
of all animals is known 24/7**



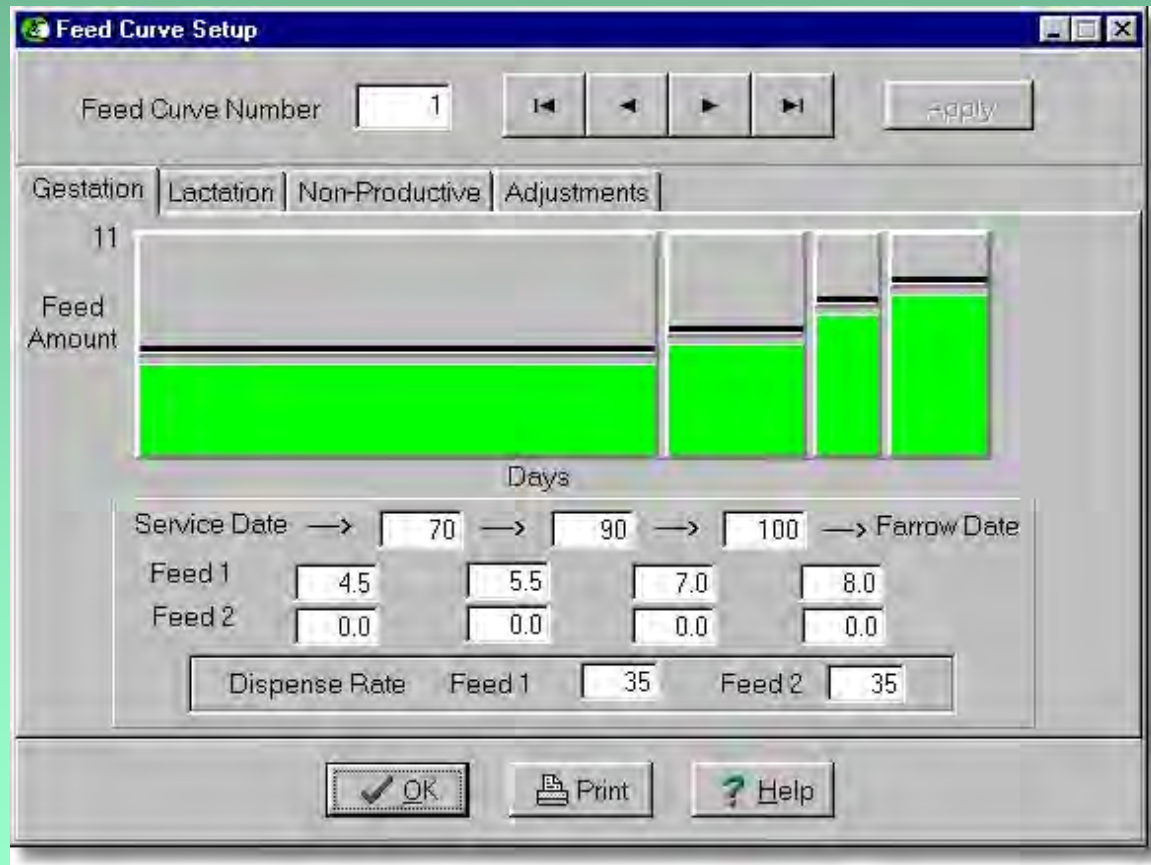
# Goals for The TEAM™ ESF System

- 1. Reduce variation in condition**
  - a. Control feed & feed waste*
  - b. Improve all sow metrics*
- 2. Manage sows in groups**
  - a. Reduce handling chores*
  - b. Automate inventory tracking*
  - c. Satisfy welfare needs*



# The TEAM™ System

*Feed Curves Automate Feed Changes*

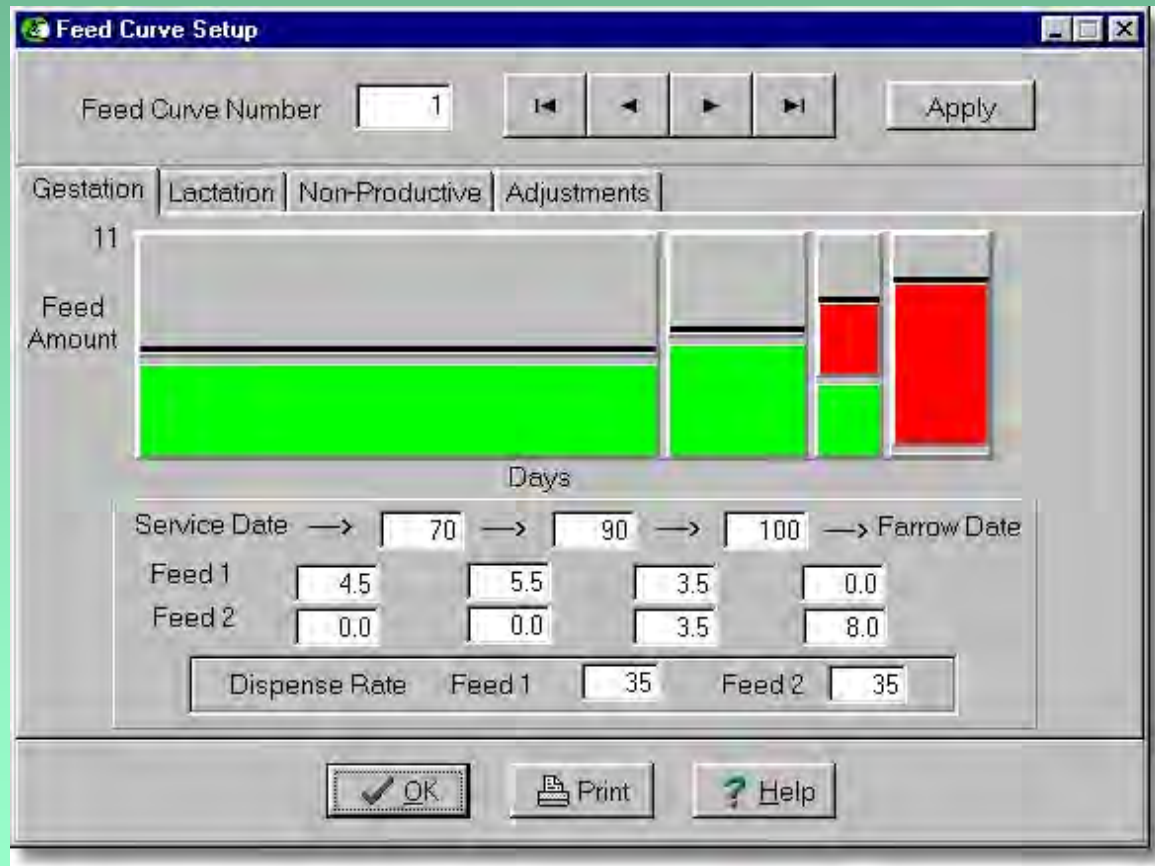


***One Feed, Four Steps***



# The TEAM™ System

*Feed Curves Automate Feed Changes*

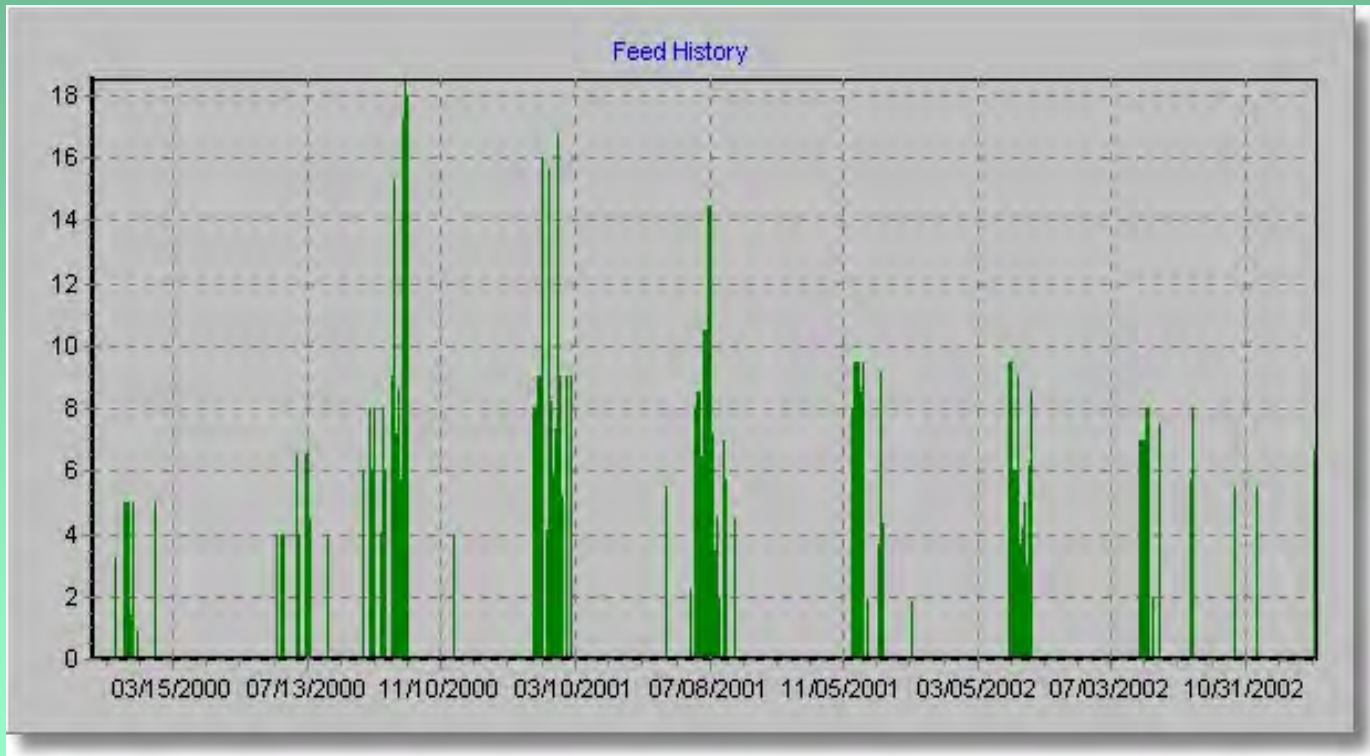


*Two Feeds*



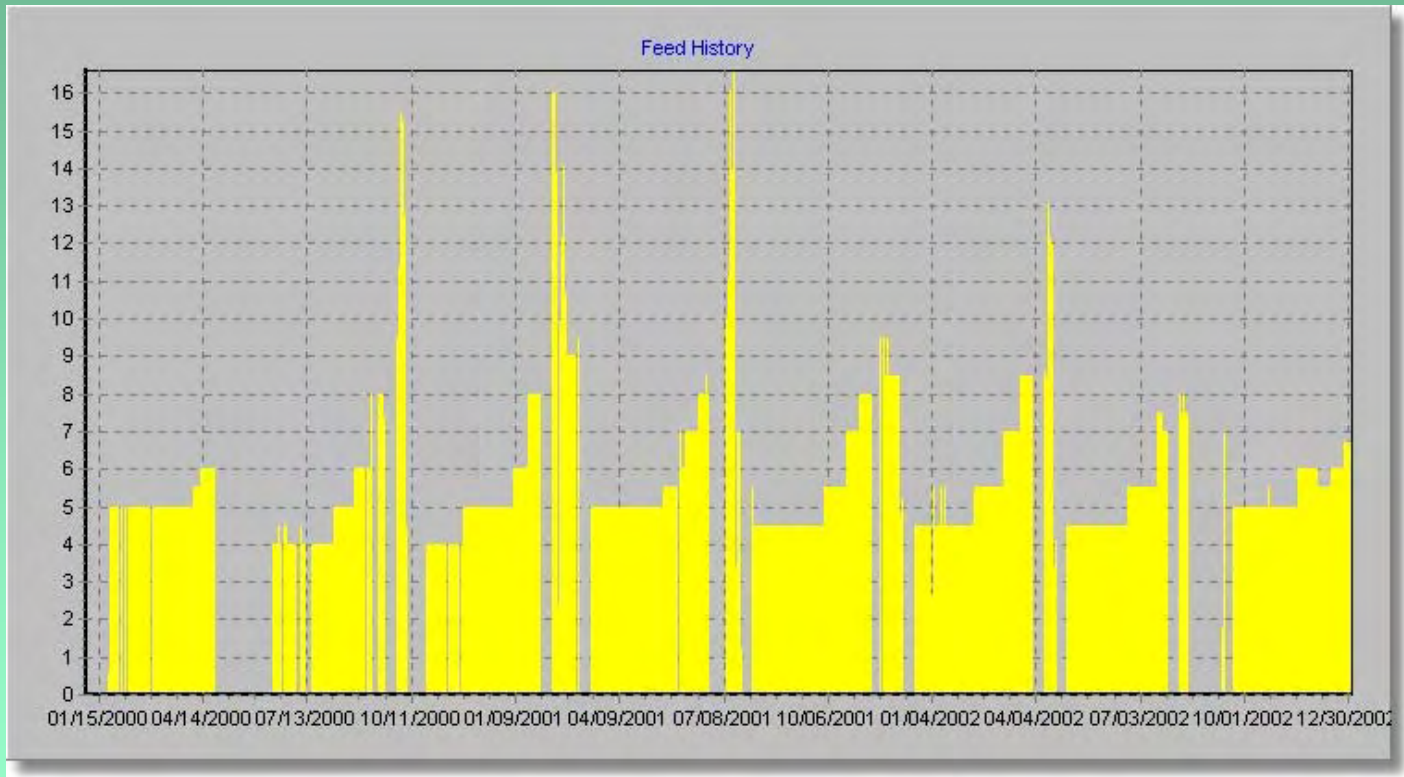
# The TEAM™ System

## *Visual Feed Balances*



# The TEAM™ System

## *Visual Feed Consumption*



# Results for The TEAM™ ESF System

## Comparison of Sow Performance TEAM Groups vs. Gestation Crates *A Three-Year Study\**

	TEAM	Crates	Diff.	P-Value
Return to estrus, %	94.5	91.7	+2.8	< 0.05
Return to estrus, 7 days post-weaning	72.0	68.4	+3.6	< 0.05
Farrowing rate, %	94.3	89.4	+4.9	< 0.05
Litter birth wt (lbs)	39.0	36.8	+2.2	< 0.001
Litter wean wt (lbs)	125.8	123.8	+2.0	< 0.001

\*Ref: Bates, Edwards and Korthals, 2003, *Lvstk. Prod. Sci.* 79, 29-35



# The TEAM™ System

## Automatic Estrous Detection for Gilts and Sows

*A Second  
Automated RFID-Driven System*



Cost



# The TEAM™ System

## *Heat Detection E-Station*



# Goals for The TEAM™ EED System

1. Improve breeding efficiency
2. Reduce breeding labor
3. Select for efficiency



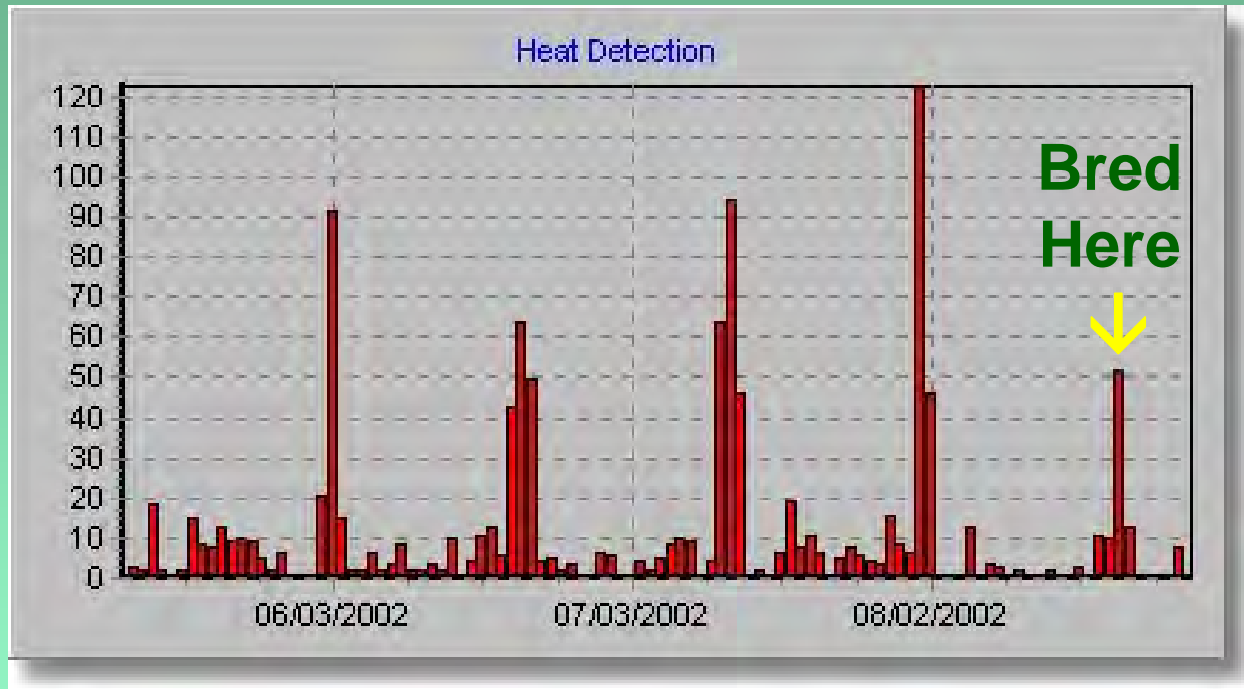
## Results

- a. Identify estrus 24/7
- b. Find estrus in weaned sows
- c. Find all returns to estrus
- d. Automate “availability” of gilts





# The TEAM™ System



*Heat Detection Charts*



# The e-LOG™ System

## Information and Inventory Automation

*A Third  
Automated RFID-Driven System*



# The e-LOG™ System

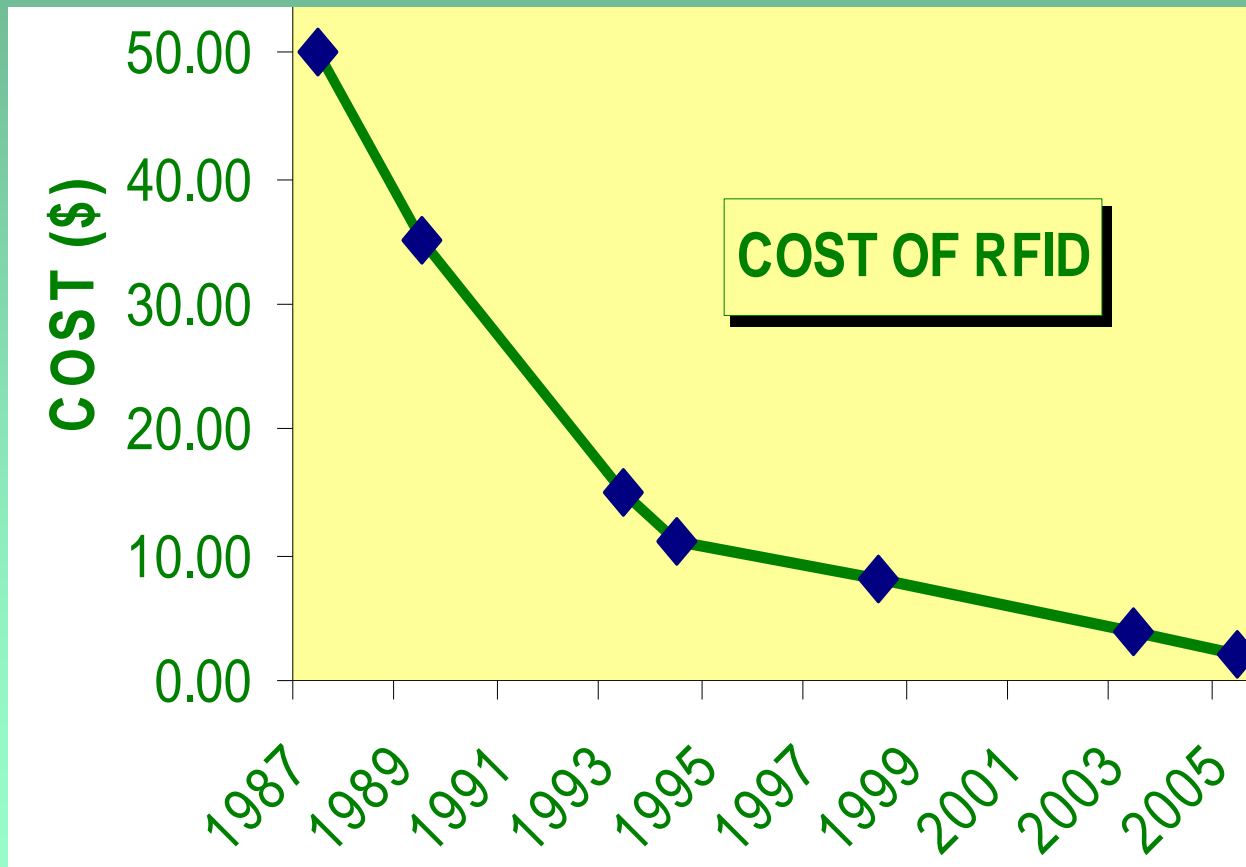


**A combination of ID Loggers,  
RFID, readers, and antenna**



# The e-LOG™ System

## Ten Years of Using RFID



# Goals for The e-LOG System

1. Eliminate data entry errors
2. Acquire & use data in the barn
3. Make data collection robust
4. Put informed supervision in the barn to benefit the animals



# Weight Watcher™ System

Automatic Daily Weighing  
Growing Pigs in Large Groups

*A Fourth Example  
of an  
Automated RFID-Driven System*



# Weight Watcher™ System



**OSBORNE  
SURVEY SCALE**



# Weight Watcher™ System



Typical Grow-Finish Pen of 600 Pigs



# Goals for Weight Watcher™ System

## 1. Reduce Weight Variation

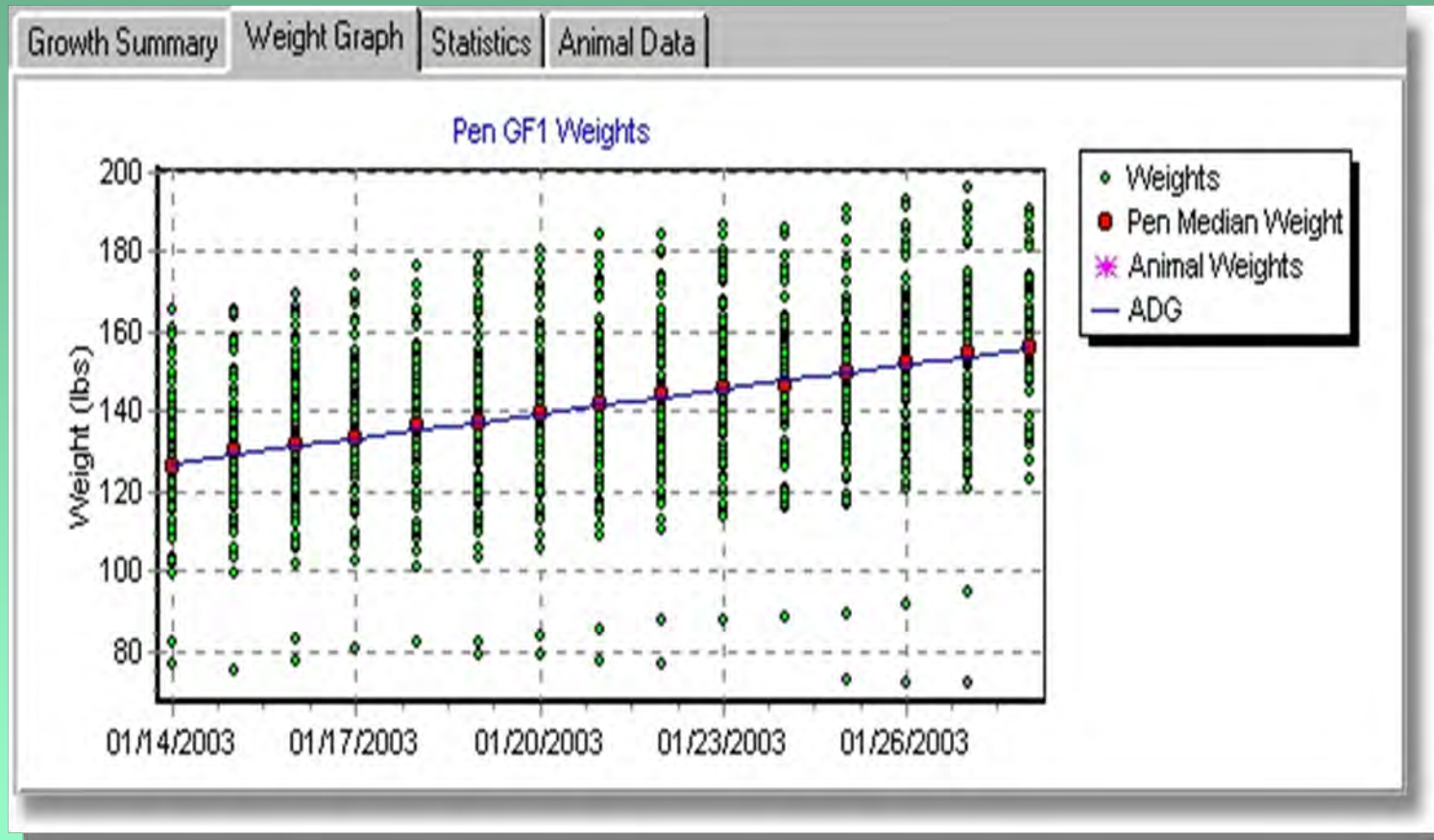
- a. Autosort daily to size*
- b. Auto-phase feed to size*
- c. Screen out unthrifty pigs*

## 2. Market Optimization

- a. Autosort to a weight window*
- b. Automate marketing strategy*



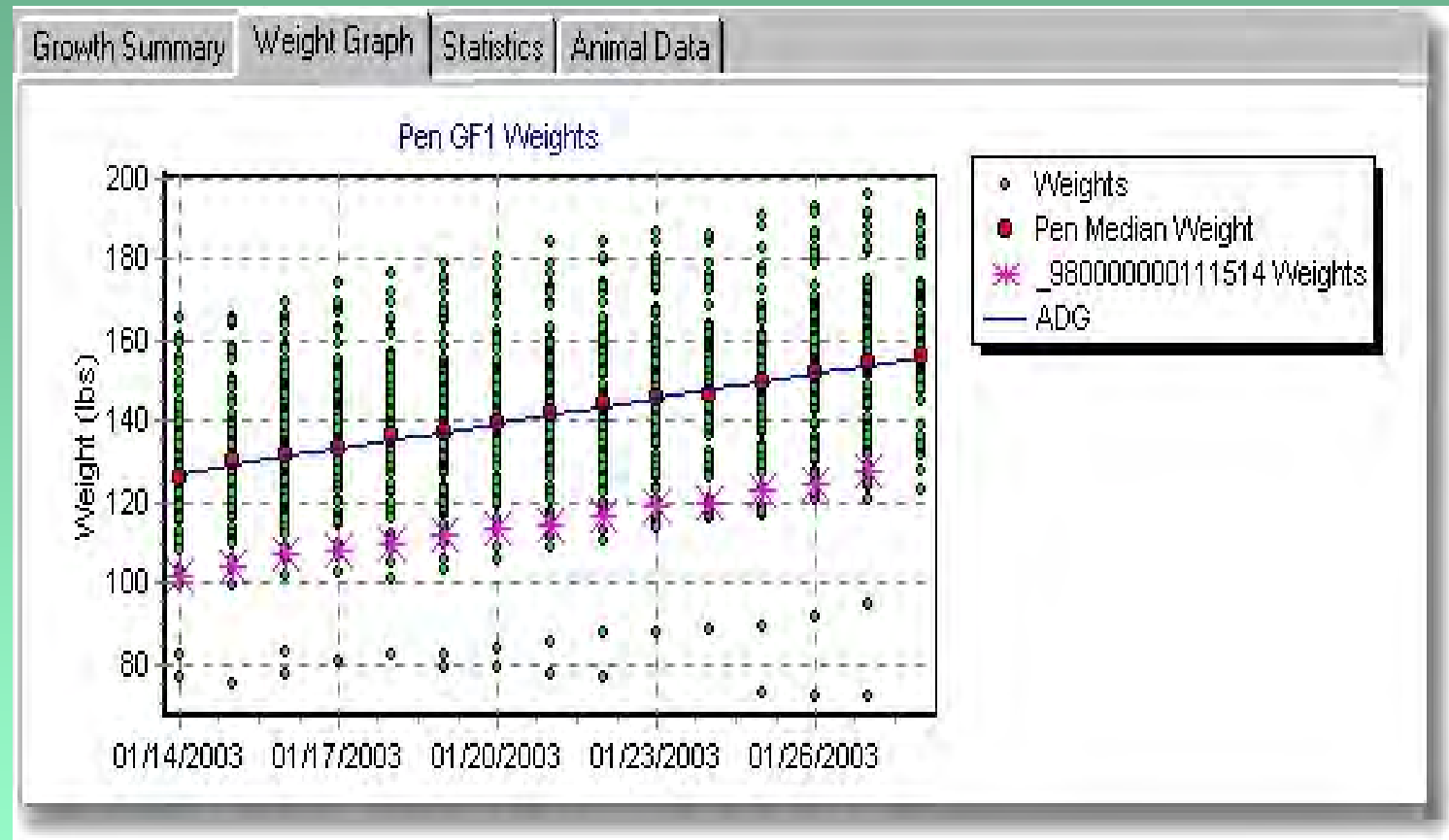
# Weight Watcher™ System



Weight Graph



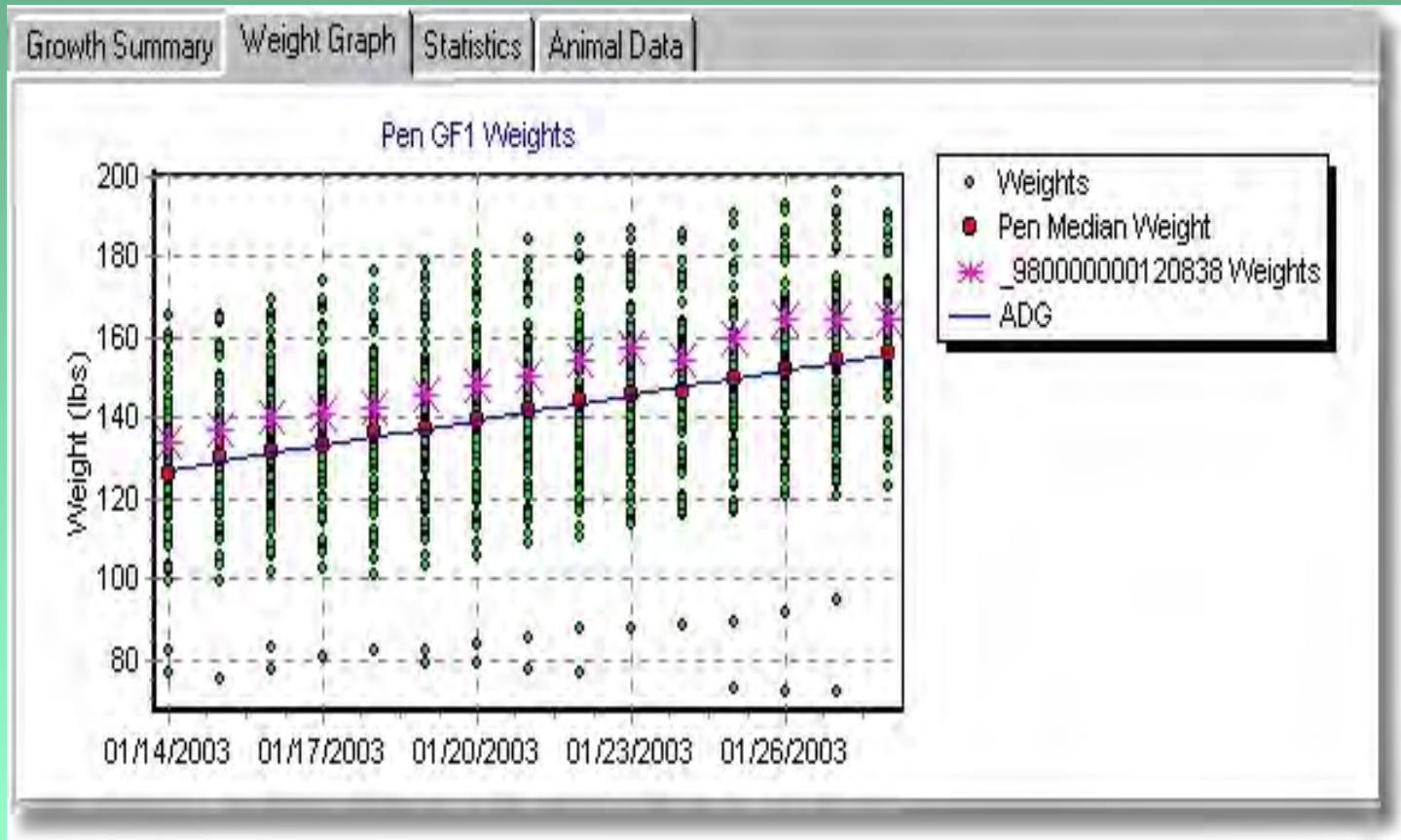
# Weight Watcher™ System



**Small Pig**



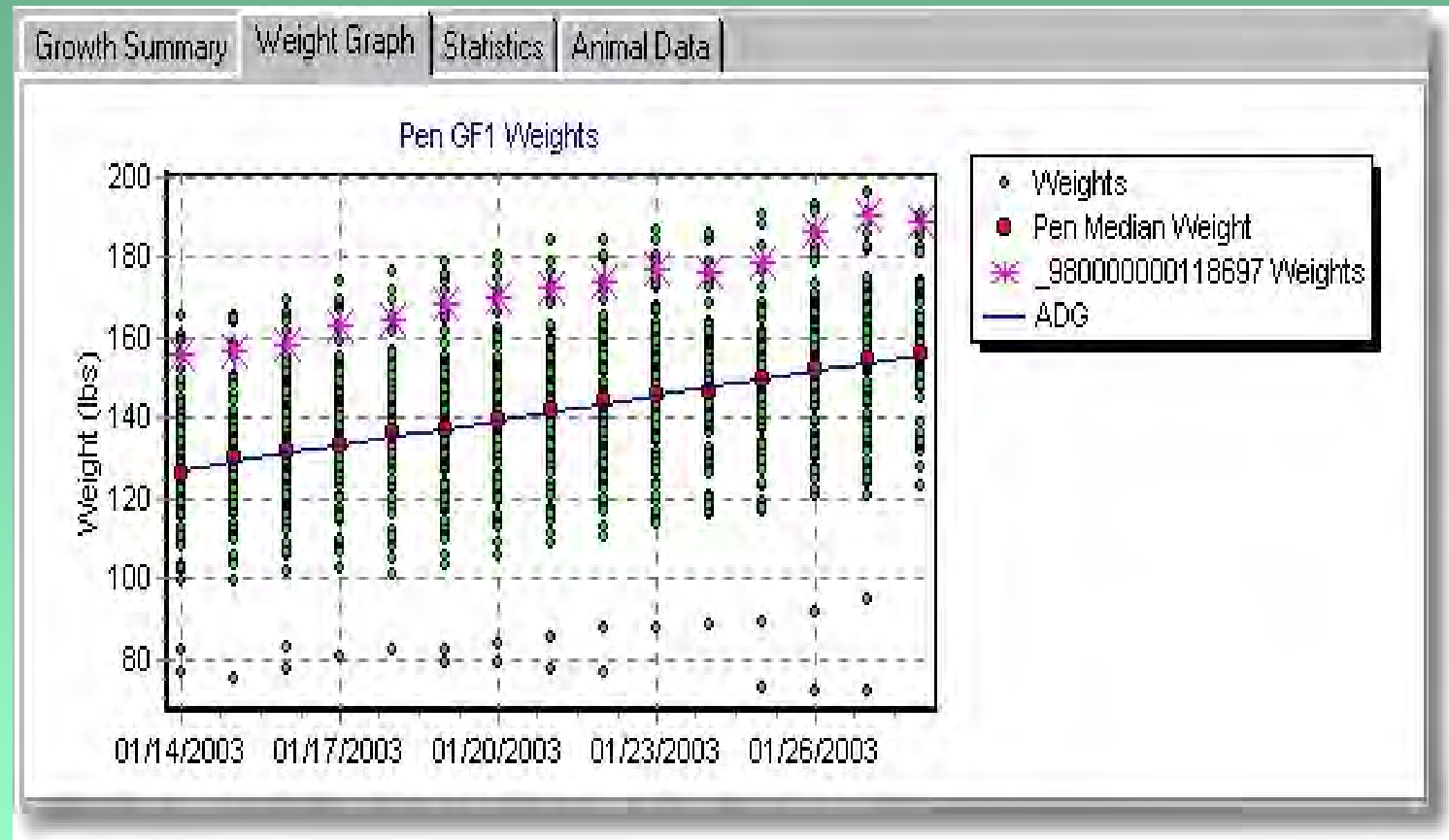
# Weight Watcher™ System



**Better Pig**



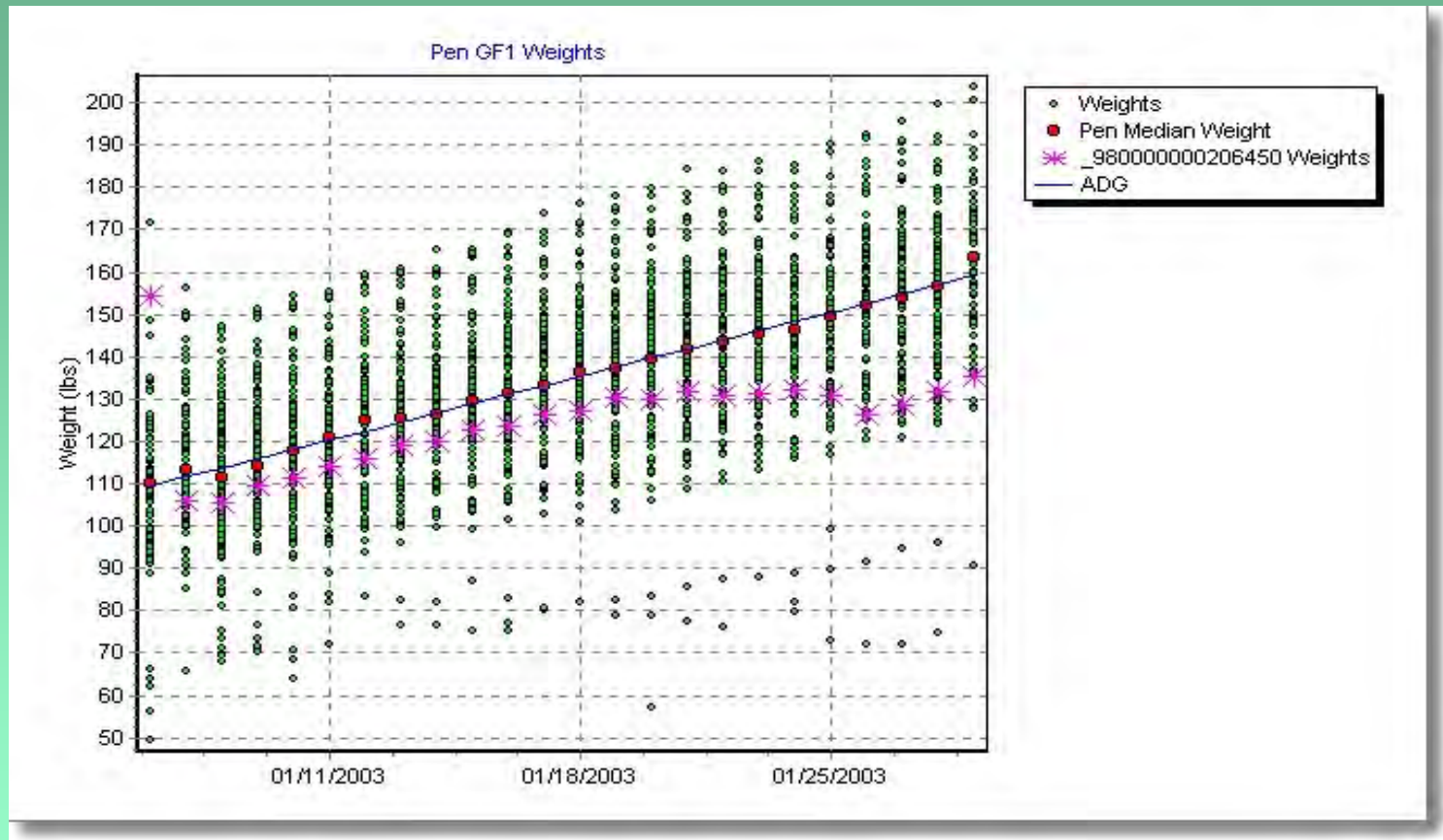
# Weight Watcher™ System



**Best Pig**



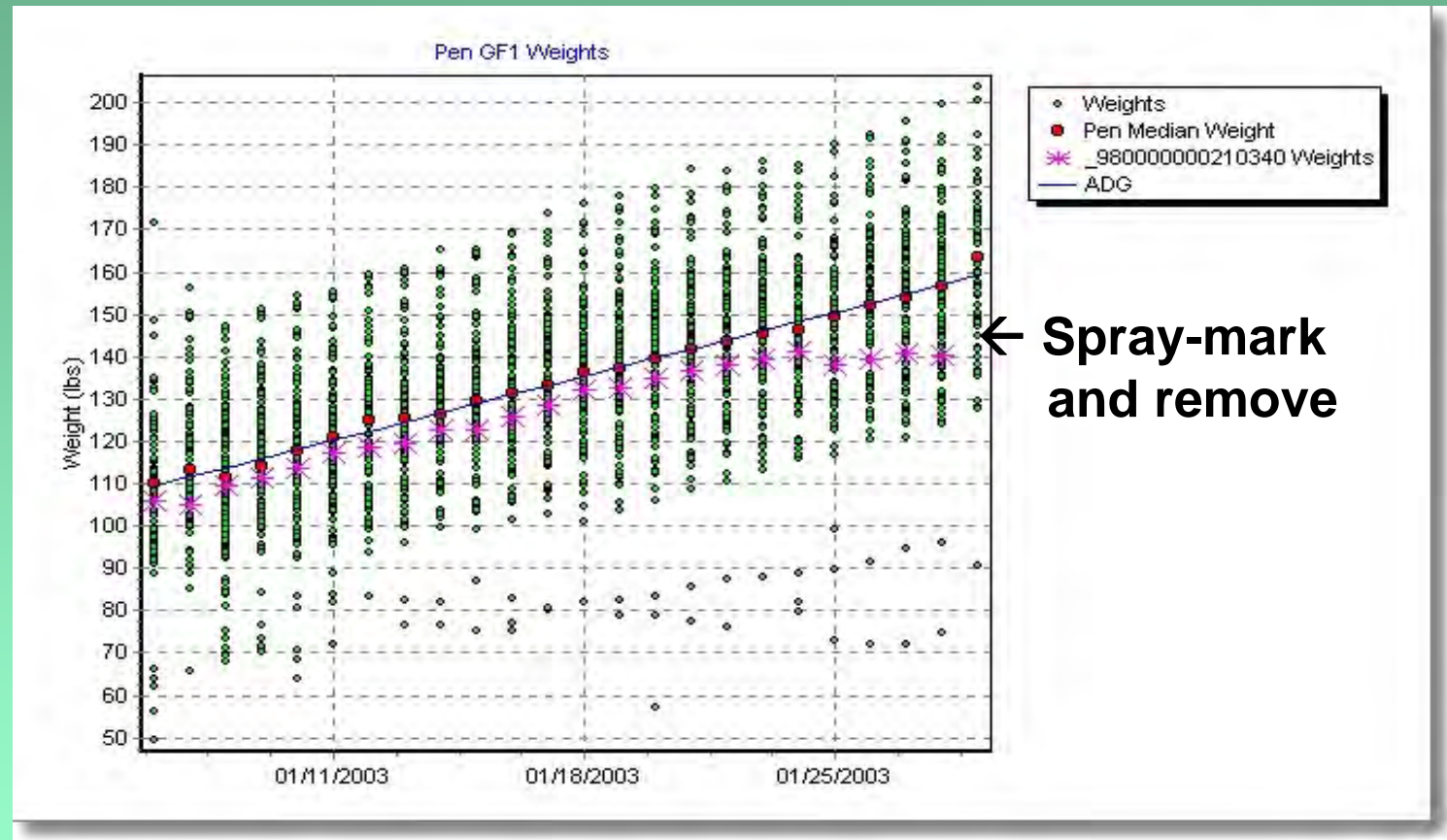
# Weight Watcher™ System



Recovery for “Flat Line” Pig



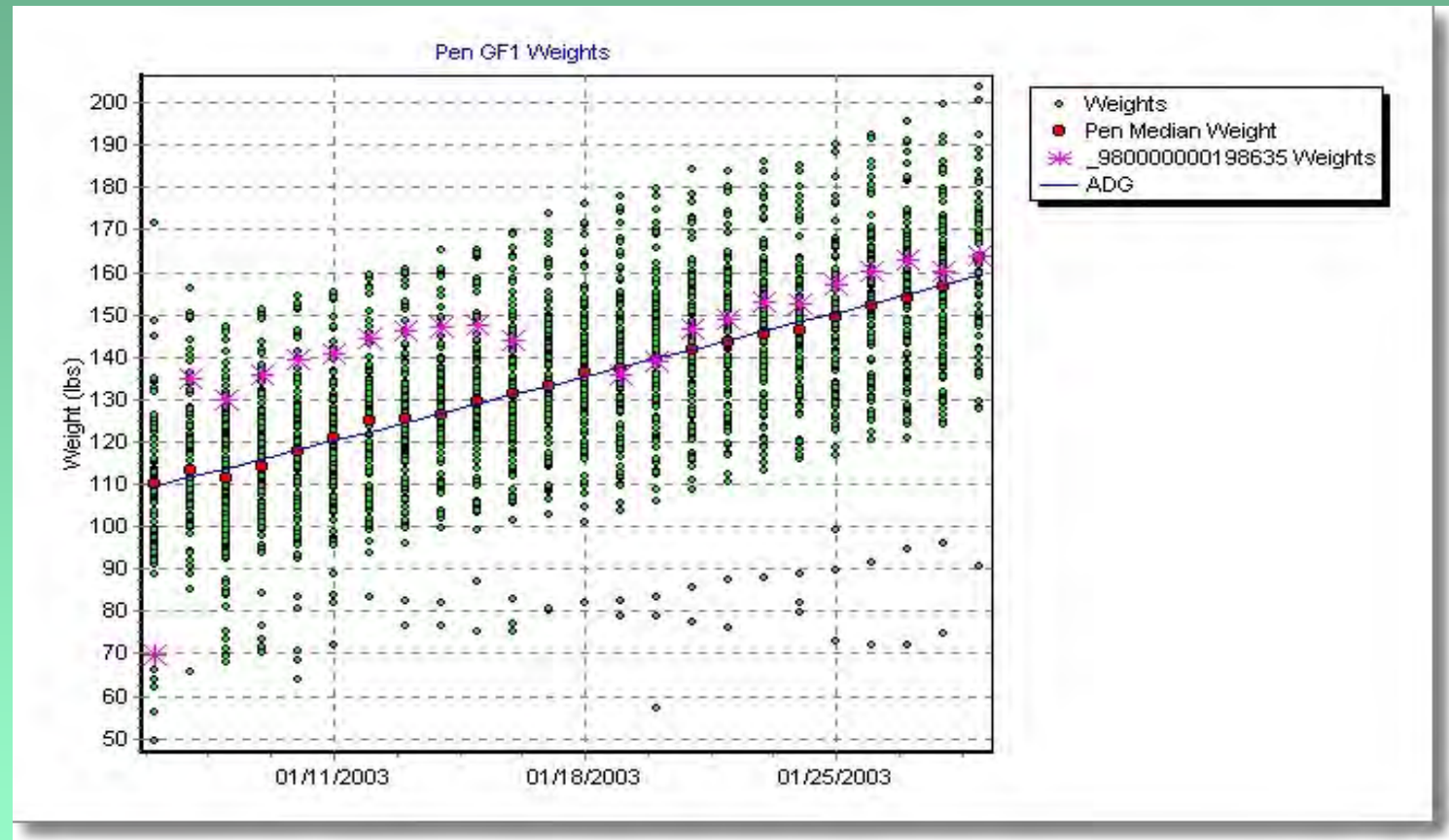
# Weight Watcher™ System



Auto-cull “Flat Line” Pig



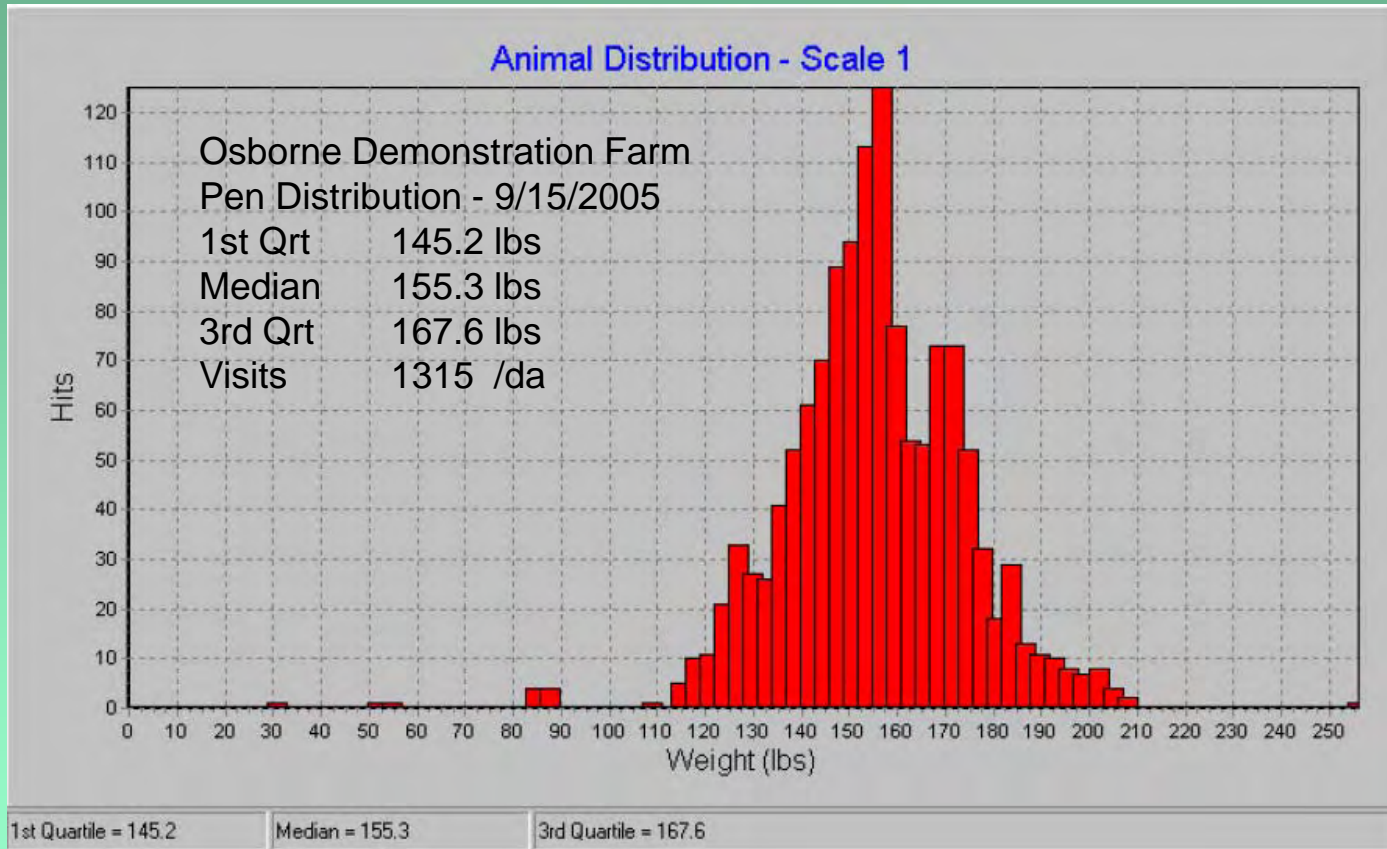
# Weight Watcher™ System



## Recovery for Sick Pig



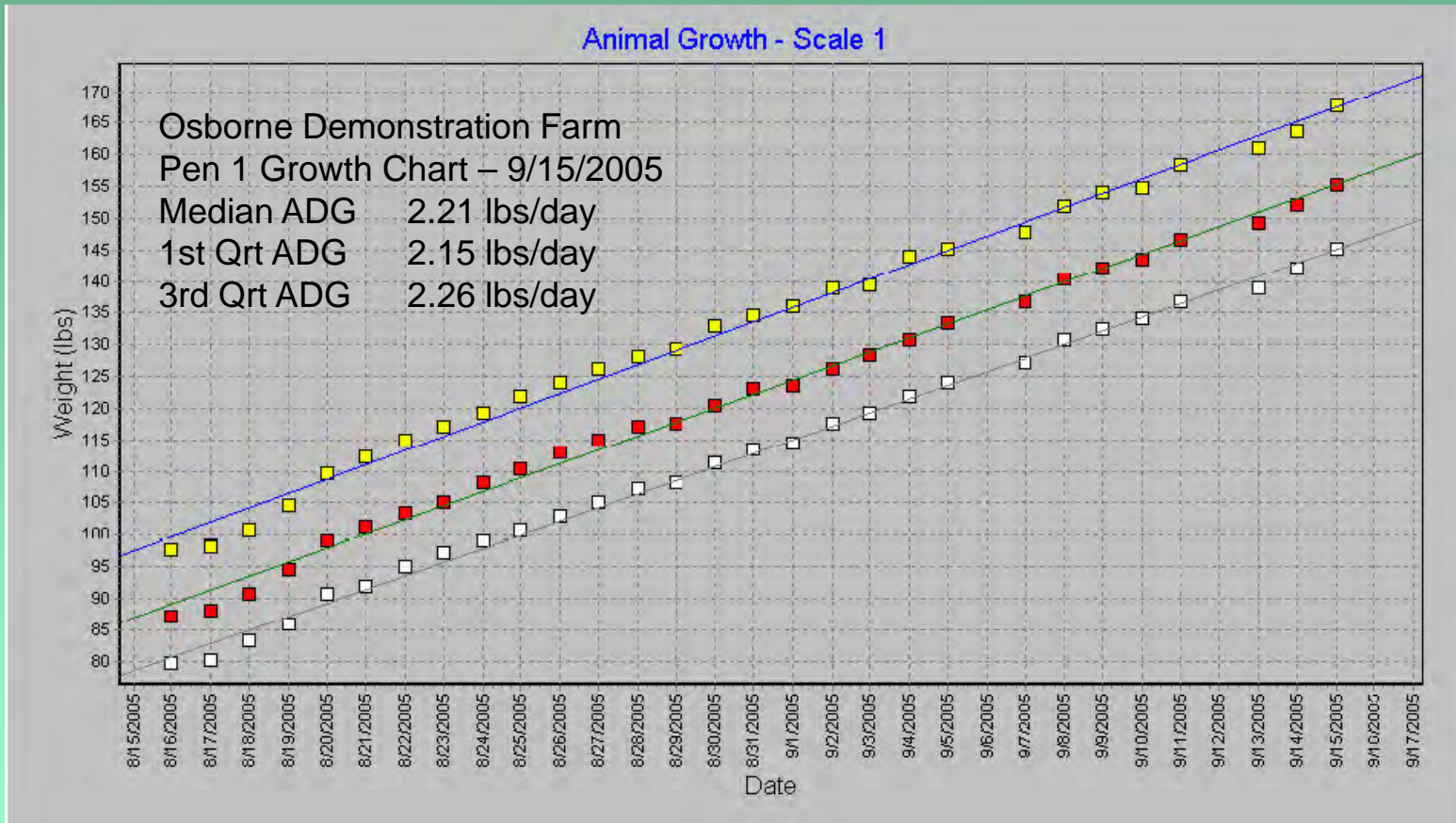
# Weight Watcher™ System



Typical Pen Weight Distribution



# Weight Watcher™ System



Typical Pen Weight Distribution



# The FIRE<sup>®</sup> System

## Genetic and Nutrition Performance Testing

*A Fifth  
Automated RFID-Driven System*



Cost



# The FIRE<sup>®</sup> System



# Goals for the FIRE<sup>®</sup> System

*For each animal:*

1. Daily feed intake
2. Daily weight
3. Number of meals
4. Time and duration for each meal
5. Accurate growth curve



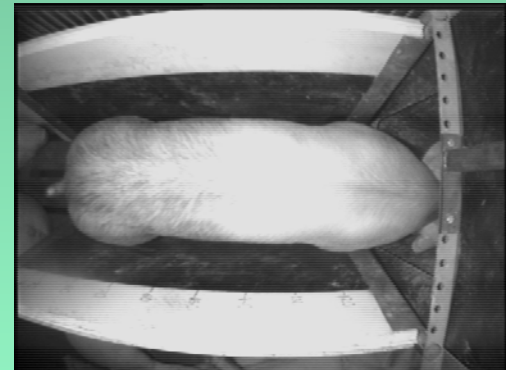
**Pigs • Sheep • Goats • Cattle**



# RFID-Driven Accessories for FIRE Systems

## → VIA™ Visual Image Analysis

- ❖ *Measures body growth characteristics*
- ❖ *Correlates meat value to body shape*
- ❖ *Tracks shape change with intake and weight*



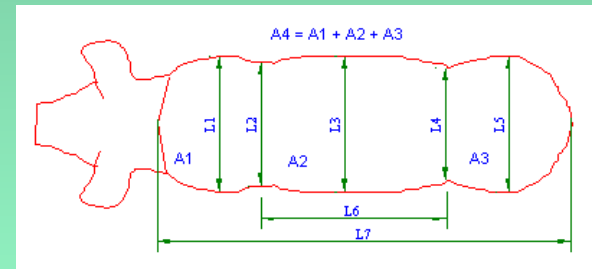
**Top View**



# RFID-Driven Accessories for FIRE Systems

## → VISTA™ Visual Image System for Pen Monitoring

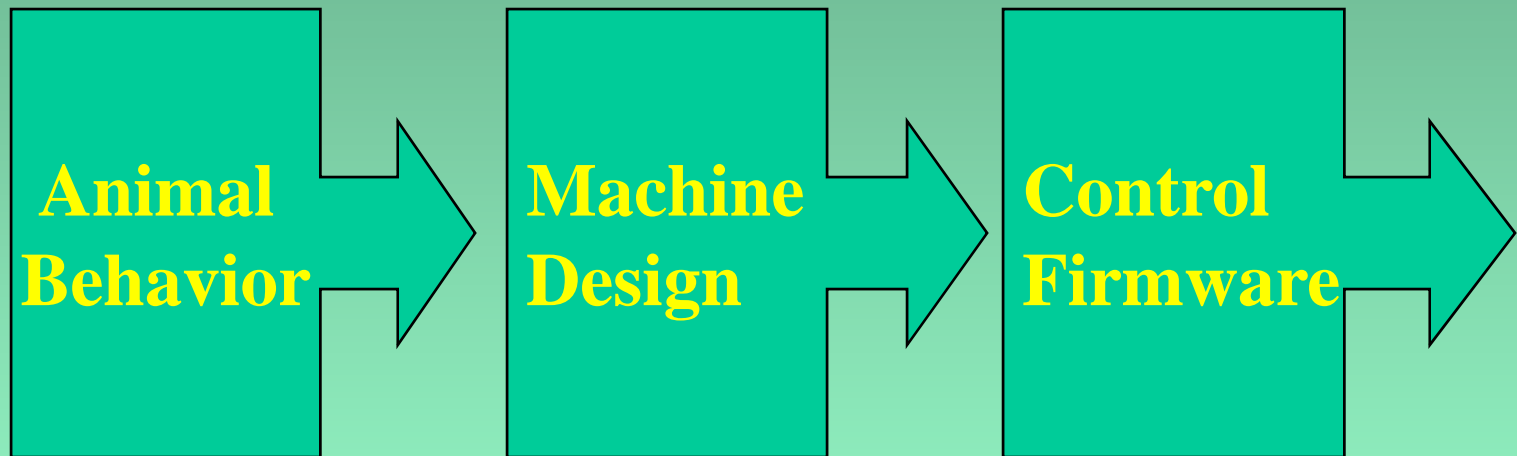
- ❖ *Stand-alone capable*
- ❖ *Image processing*
- ❖ *Weighing estimation*
- ❖ *Visual autosorting*



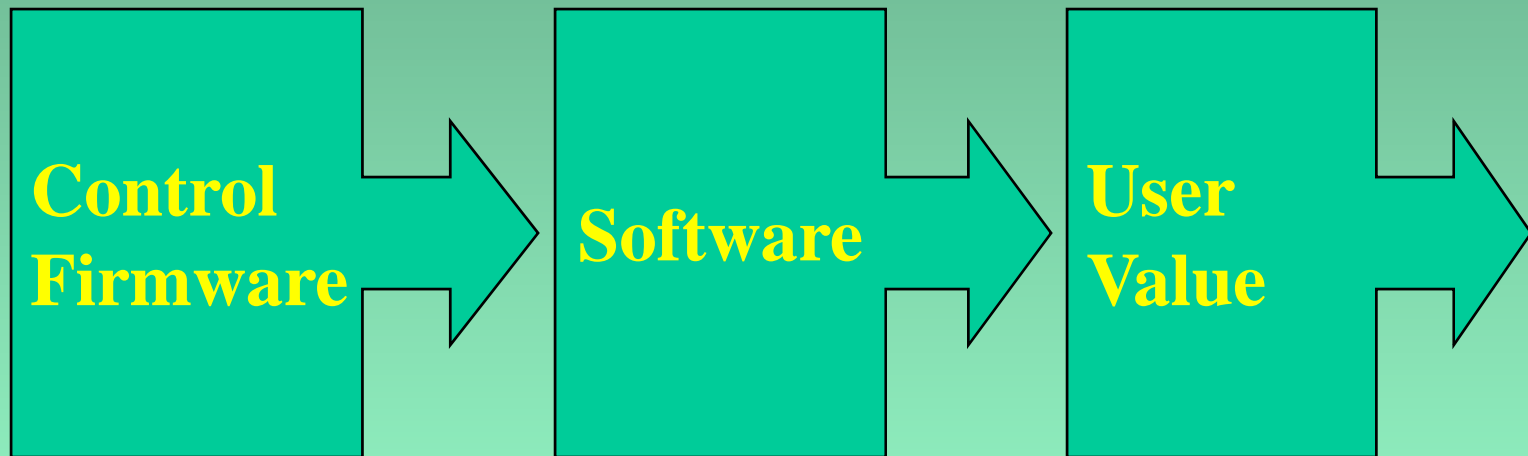
**Measured View**



# RFID-Driven Automation



# RFID-Driven Automation



**Cost**



# RFID-Driven Automation



Cost



# RFID-Driven Automation Predictions

- More applications yet to come.
- The future will be automated!
- Livestock production and care is changing and improving fast.



# RFID-Driven Automation

- ✓ Viewed as fringe novelties at first
- ✓ Appear complex in the beginning
- ✓ Become standard technologies
- ✓ Adopted in phases
- ✓ Cause great change
- ☒ Only timing is uncertain



# In the Information Age

Nothing stays the same for long.

*The Winners  
in the Information Age  
automate the acquisition and use  
of more and better information  
for competitive advantage  
and they do it **FIRST**.*



**THANK YOU**  
***For Your Kind Attention***

***Copies of our published  
research is available by request.***



***Over 30 Years of Innovation and Service  
for the Livestock Industry 1973 -- 2005***

