

The Evolution of Feed Mill Automation

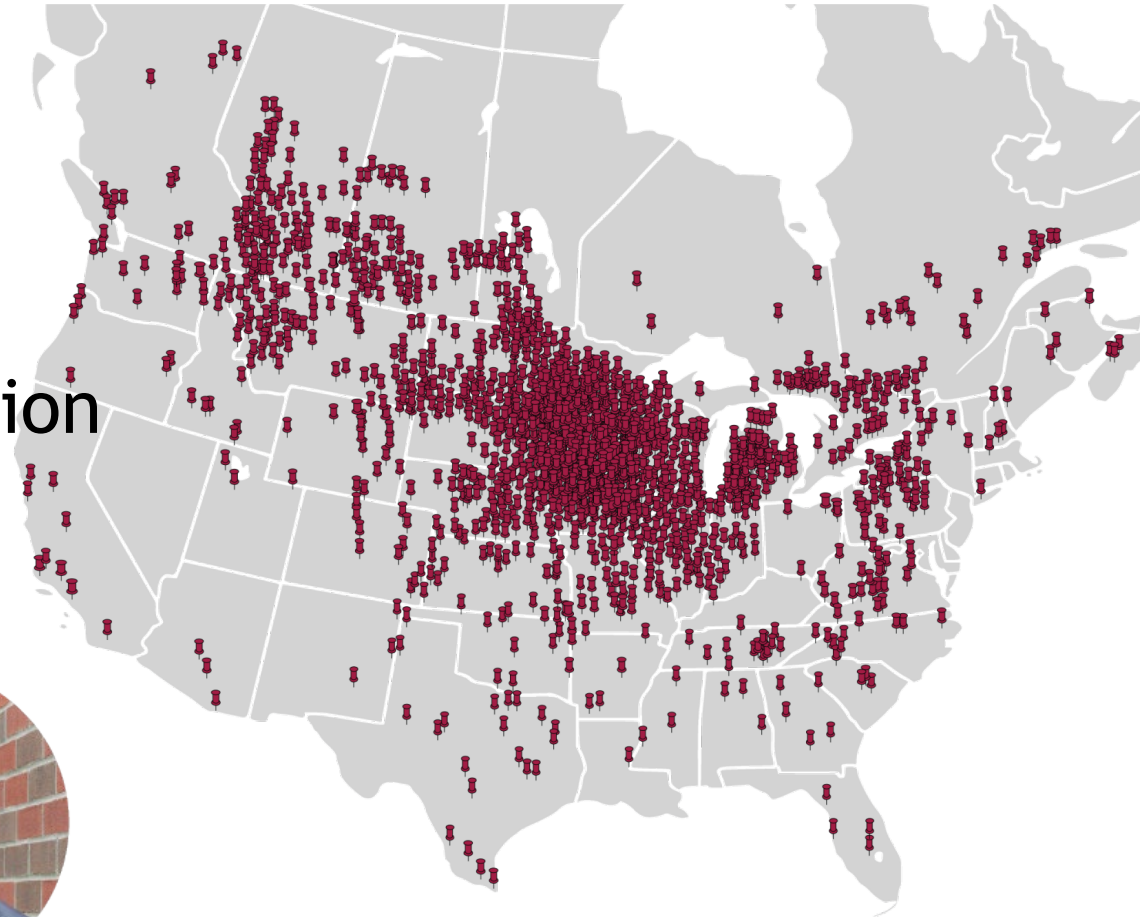
Brady Gaalswyk

CGFA Association January 2022 Conference



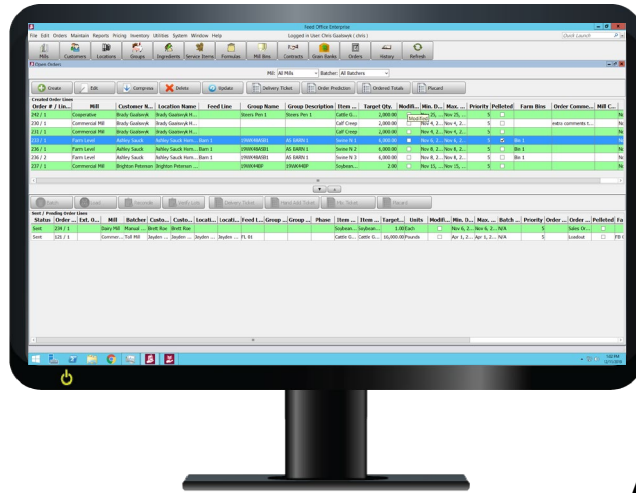
Easy Automation, Inc.

- Helping feed the world since 1986
- Family-owned and operated
- Focused on solving problems
- 24/7 service
- 1,000+ Batching systems in operation

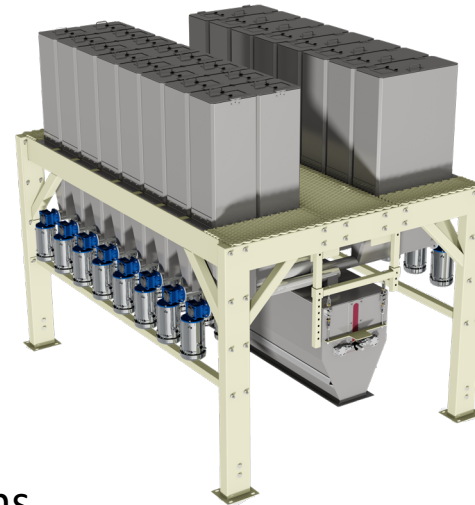


Totally Integrated Solution

Feed Milling Software



Batching Equipment



Automation Systems



Motor Starter Panels



Scott Herron, Regional Sales Manager

- Easy Automation For Over 5 years
- Over 30 Years In The Feed and Grain Industry
- California Grain and Feed Member Over 25 Years
- Operated several different feed mills
- Regionally based in the Western Region.



The Push for Automation

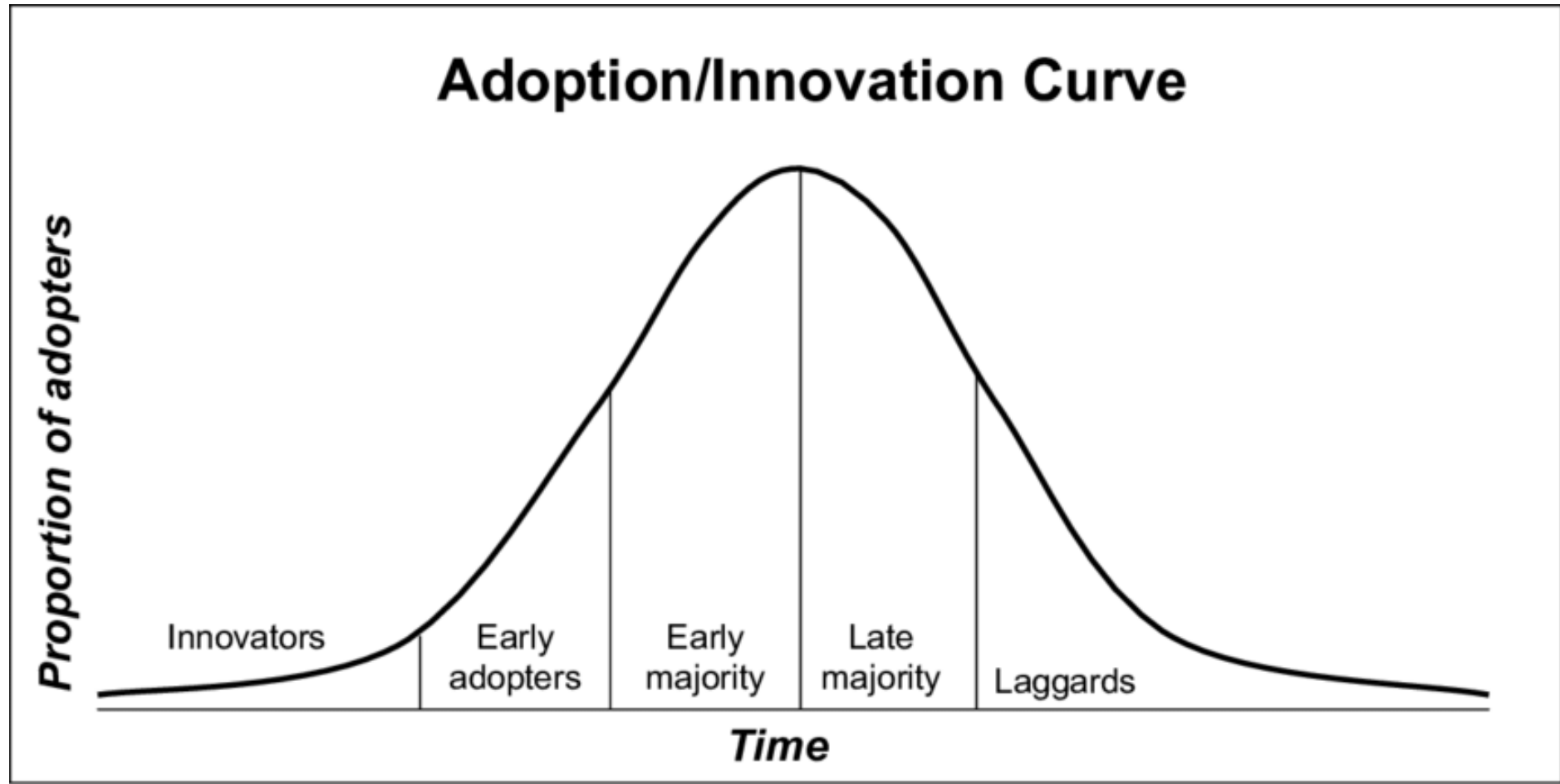
- Decrease Labor
- Increase Production
- Increase Accuracy
- Increase Traceability

Automation Requirements

Return on Investment
Practical for Location

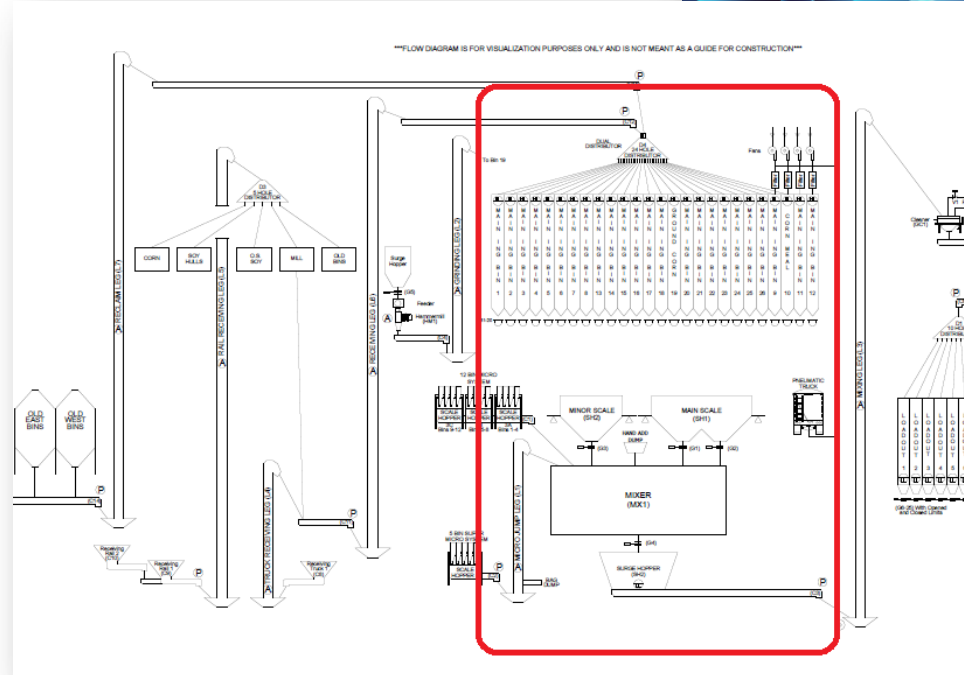


Innovation Curve



Starting at the Core - Batching

- Largest return on investment
- Impacts every single pound
- When accuracy is everything
- Seconds mean Tons



Feed Mill Automation - Early



- Weigh Buggys
- Every pound weighed and pushed by hand
- Grandpa made feed like this in the 1950's

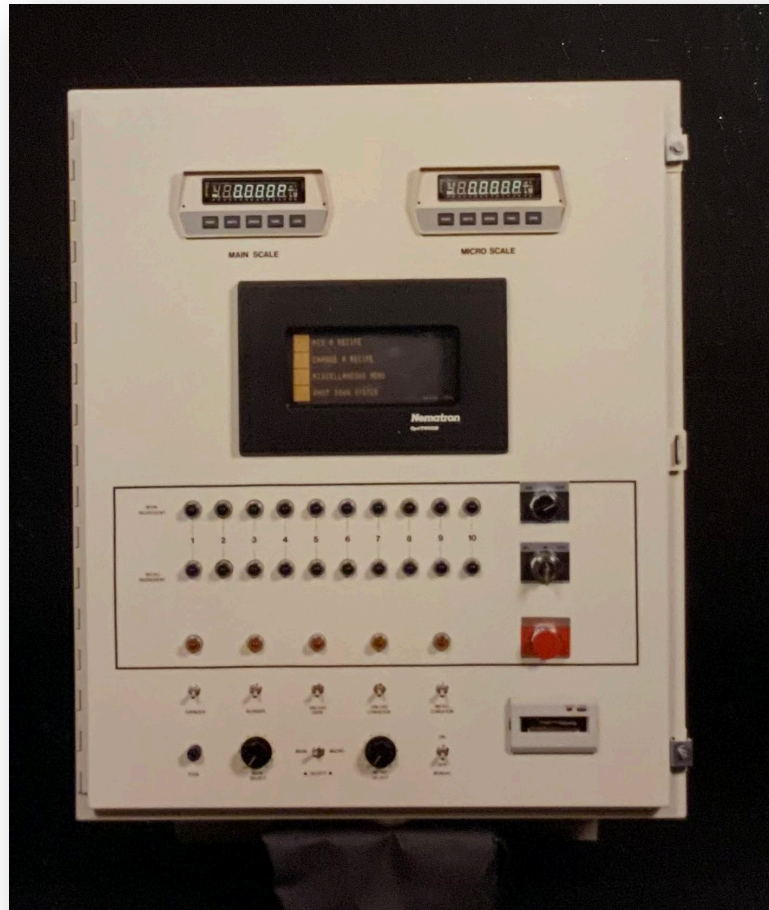


- Manual Gates on Levers
- Less Manual Labor
- Brought "Control" to Central Location

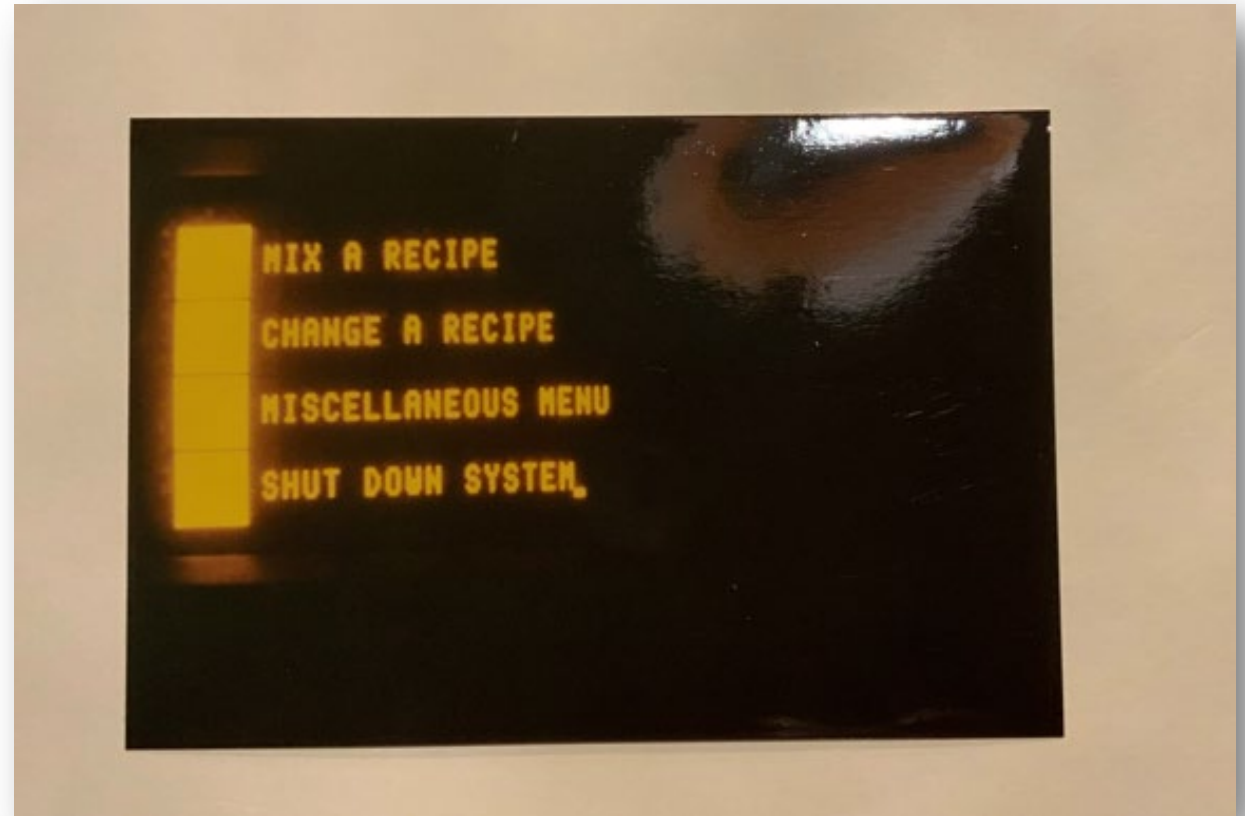


- Electrical Control Boards
- Increased Accuracy
- Could look at "inputs" and make decisions.

Feed Mill Automation - Early Computers

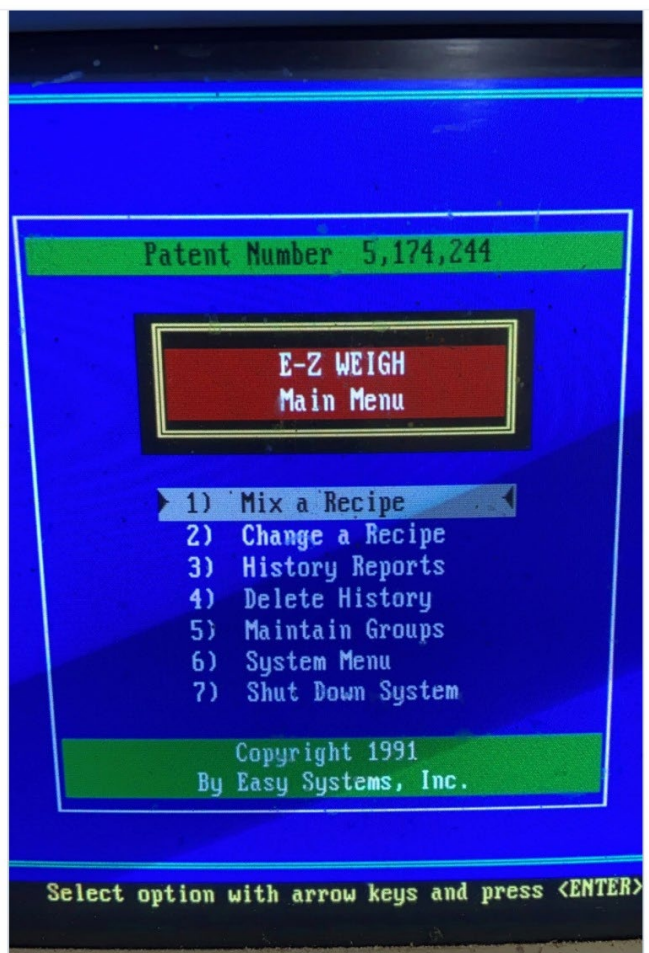


Circuit Boards and Computers

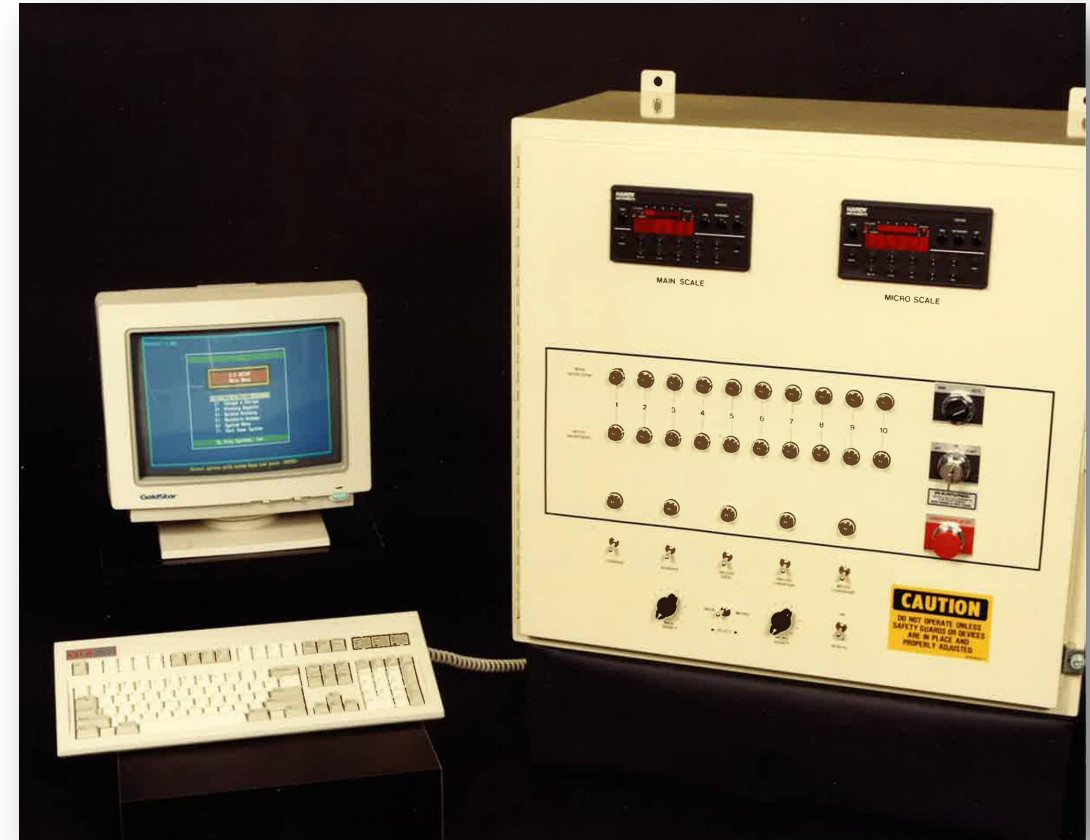


Two or Three Times The Capacity
Start of Electronic Formulas

Feed Mill Automation - Additional Data



Additional Information Stored
Recipes/Formulas, Groups/Flocks,
Reporting History

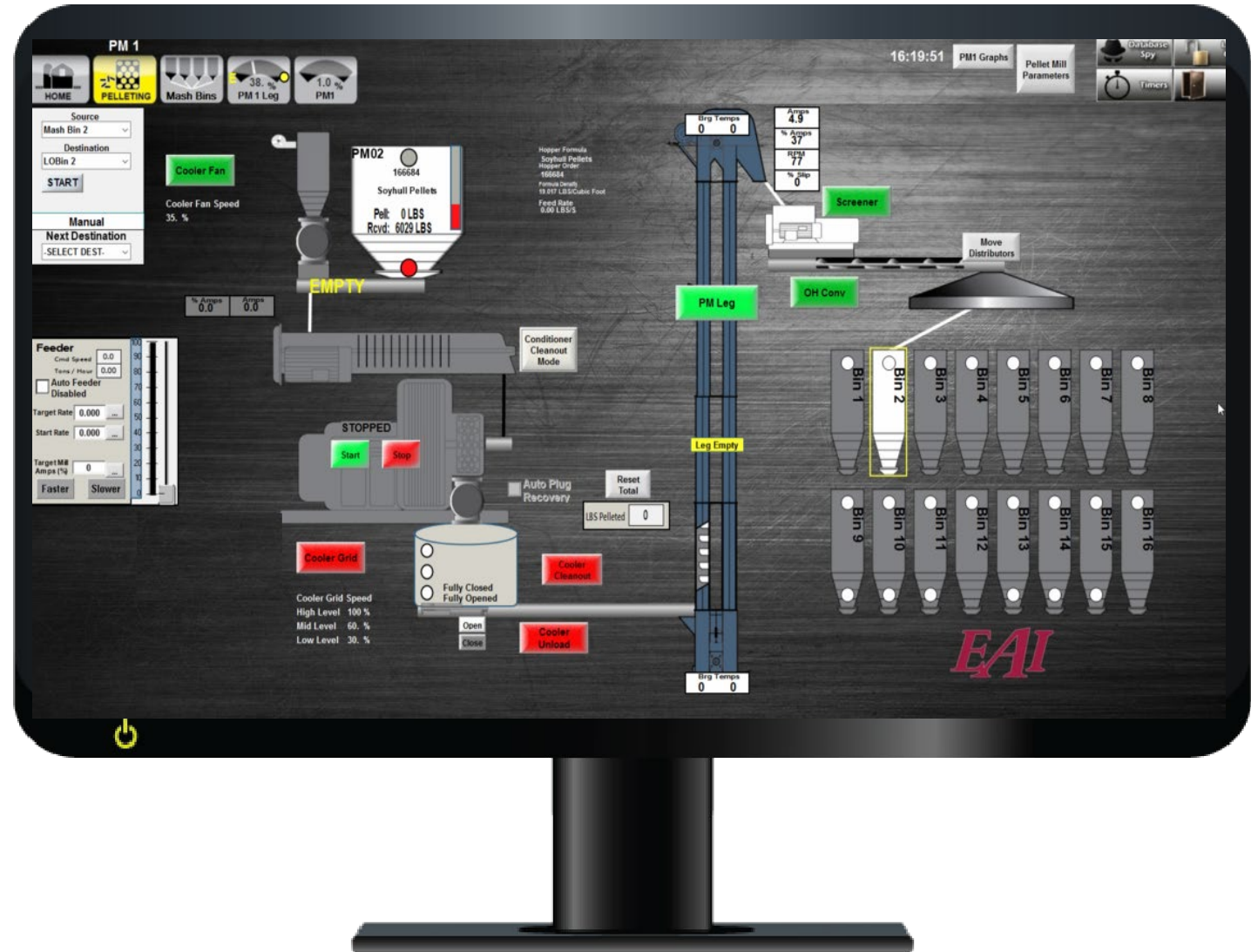


Ability to add more ingredients per formula
Addition of Micro Ingredient Systems

Feed Mill Automation - Pellet Mills

Pellet Mills

- Continuous Operation
- Ability to run on cruise control
- Safely push equipment



Feed Mill Automation-Present

Equipment Advancements

Roller Mills

- Roll Gap Adjustment
- Auto Paralleling
- Increased Grind Consistency

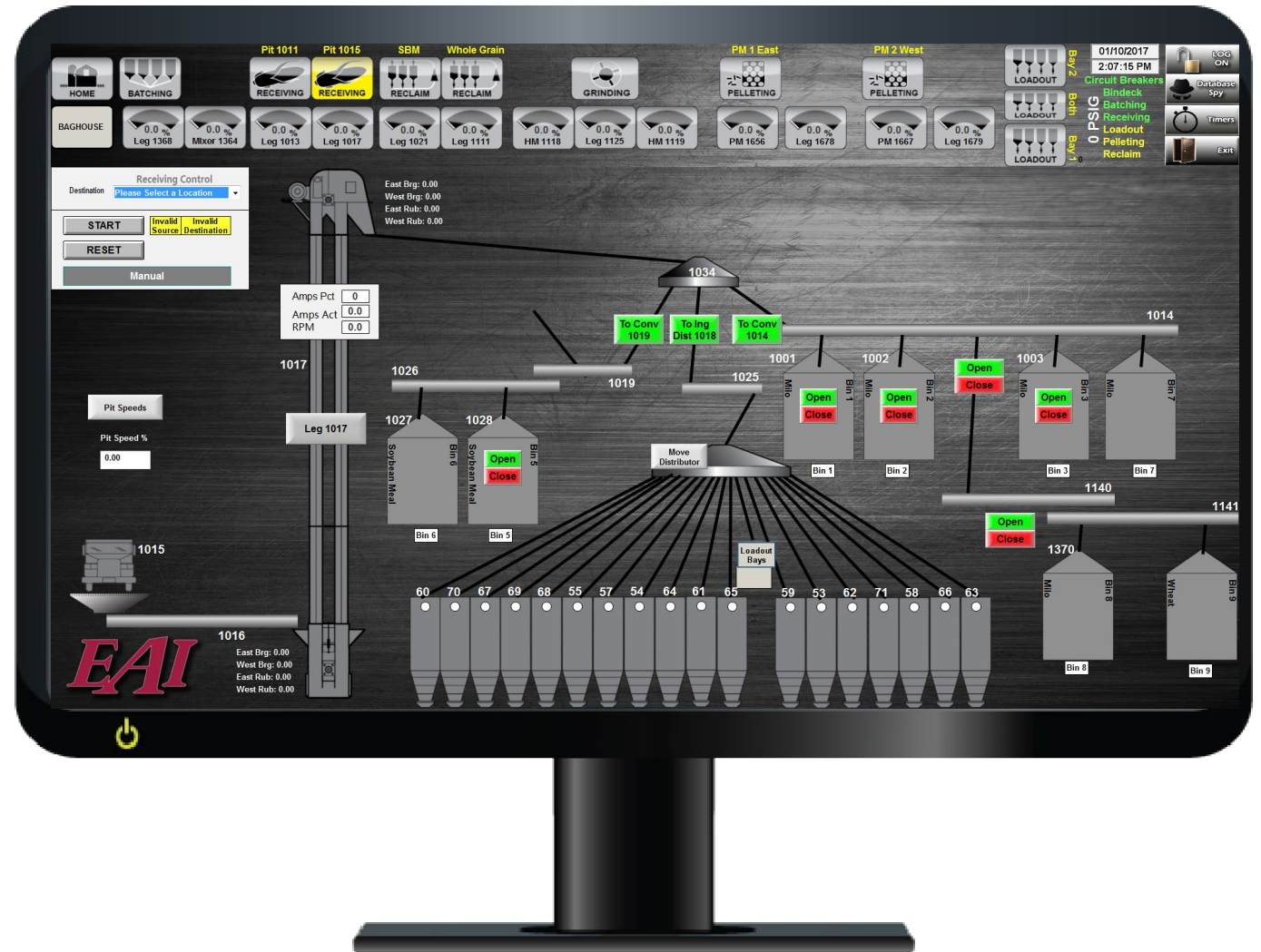
Pellet Mills

- Remote Roll Adjustment
 - Safer
 - Easier Ramp Up
 - Fewer Stops



Feed Mill Automation - Full Facility

Automation has taken over processes further from the “core” mill and help improve equipment control from receiving through loadout.



Feed Mill Automation - Present

- Inventory Management & Visibility
- Decrease Operator Error
- Streamlined Order Processing
- Data & Reporting



Feed Mill Automation - Inventory

- Live Inventory
- Allocated Inventory
- Future Inventory

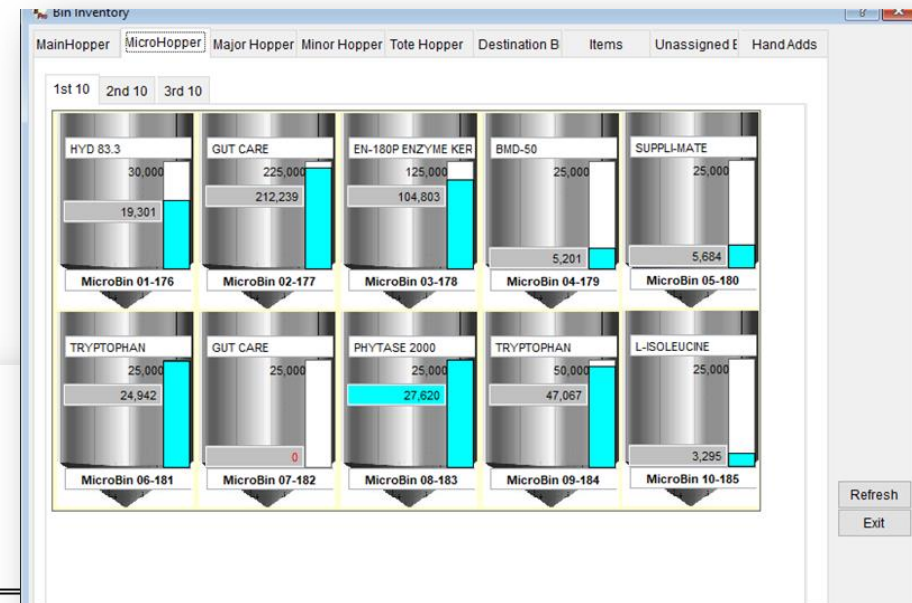


Inventory Forecast

Mill Name = 'Commercial Mill'

Mill: Commercial Mill

Item Desc	Unit	On Hand	Allocated	Available	On PO	Available + PO
50# Brown Bag	Each	2,490.00	0.00	2,490.00	0.00	2,490.00
Aureo 90	Pounds	6,685.085	6.00	6,679.085	0.00	6,679.085
Banminth	Pounds	5,487.90	0.00	5,487.90	0.00	5,487.90
Beet Pulp	Tons	202.315	0.05	202.265	0.00	202.265
Biolys	Pounds	48,412.99	0.00	48,412.99	0.00	48,412.99
Blood Meal	Tons	80.995	0.00	80.995	0.00	80.995
BMD	Pounds	6,000.00	0.00	6,000.00	0.00	6,000.00
Canola Meal	Tons	79.077	0.00	79.077	0.00	79.077
Cereal	Tons	49.93	0.00	49.93	0.00	49.93
Choline Chloride	Pounds	9,500.00	0.00	9,500.00	0.00	9,500.00
Copper Chloride	Pounds	3,920.771	1.20	3,919.571	0.00	3,919.571
Corn Whole	Pounds	865,334.113	3,027.40	862,306.713	90,000.00	952,306.713
Cotton Seed	Tons	0.00	0.00	0.00	0.00	0.00
Denegard 10	Pounds	7,169.055	6.50	7,162.555	0.00	7,162.555
Distillers Grain	Pounds	208,147.466	0.00	208,147.466	0.00	208,147.466
Fat	Pounds	29,840.00	0.00	29,840.00	0.00	29,840.00
Fibrozyme	Pounds	0.00	0.00	0.00	0.00	0.00



Feed Mill Automation - Decrease Errors

Start button disappears if the commodity of truck does not match the commodity of bin selected.

Bin: Soybean Meal

Truck: Wheat Midds

The screenshot displays the Feed Mill Automation software interface. At the top, there are navigation buttons: HOME, BATCHING, RECEIVING, and a 'B Pro' logo. The date and time are 11/05/2021 12:31:55. On the right, there are status indicators for 'Mix Leg L2' (0.0 %) and 'Rcv Leg L1' (34. %), along with 'Database Spy', 'LOG ON', and 'Timers' buttons.

The central control panel includes a 'START' button (circled in red), a 'RESET' button, a 'Finish' button, and a 'No Valid Destination' message. Below these are dropdown menus for 'Source' (Truck Receiving Pit) and 'Destination' (Main Bin 08-157 SOYBEAN MEAL). A red arrow points from the 'START' button to the text box on the left.

The diagram shows a conveyor system with a truck at the bottom left. A green line connects the 'START' button to a 'To Mills' button. A 'Reclaim Conv' button is also visible. The system includes a 'Grain Bin 1 Whole Corn' and a series of bins labeled 'Main Bin 01-150' through 'Main Bin 11-160'. The 'Main Bin 08-157 SOYBEAN MEAL' bin is circled in red. A table at the bottom right shows a list of loads with columns for PO #, Ticket #, BOL #, Load #, Vendor, Tare Wgt, Gross Wgt, UOM, Commodity, Trucking, and Driver.

PO #	Ticket #	BOL #	Load #	Vendor	Tare Wgt	Gross Wgt	UOM	Commodity	Trucking	Driver
14	9906			Northeast Grains...	0.00	88920.00	lbs	CORN	Northeast Gr...	Kaleb
16	44602N			Bergen Bulk Pro...	0.00	76300.00	lbs	WHEAT MIDDS	Bergen Bulk ...	Jake
17				Northeast Grains...	0.00	86650.00	lbs	CORN	Northeast Gr...	Bill S.

Feed Mill Automation - Present

Order Management

- Why do the animals need more feed on Mondays and Fridays?
- Inefficient Production
- Increased Overtime
- Frustrated Employees



Feed Mill Automation - Present

Order Prediction

BIN SCALE/RADAR READINGS

- Pull in readings automatically from multiple vendors.

ORDER PROJECTIONS

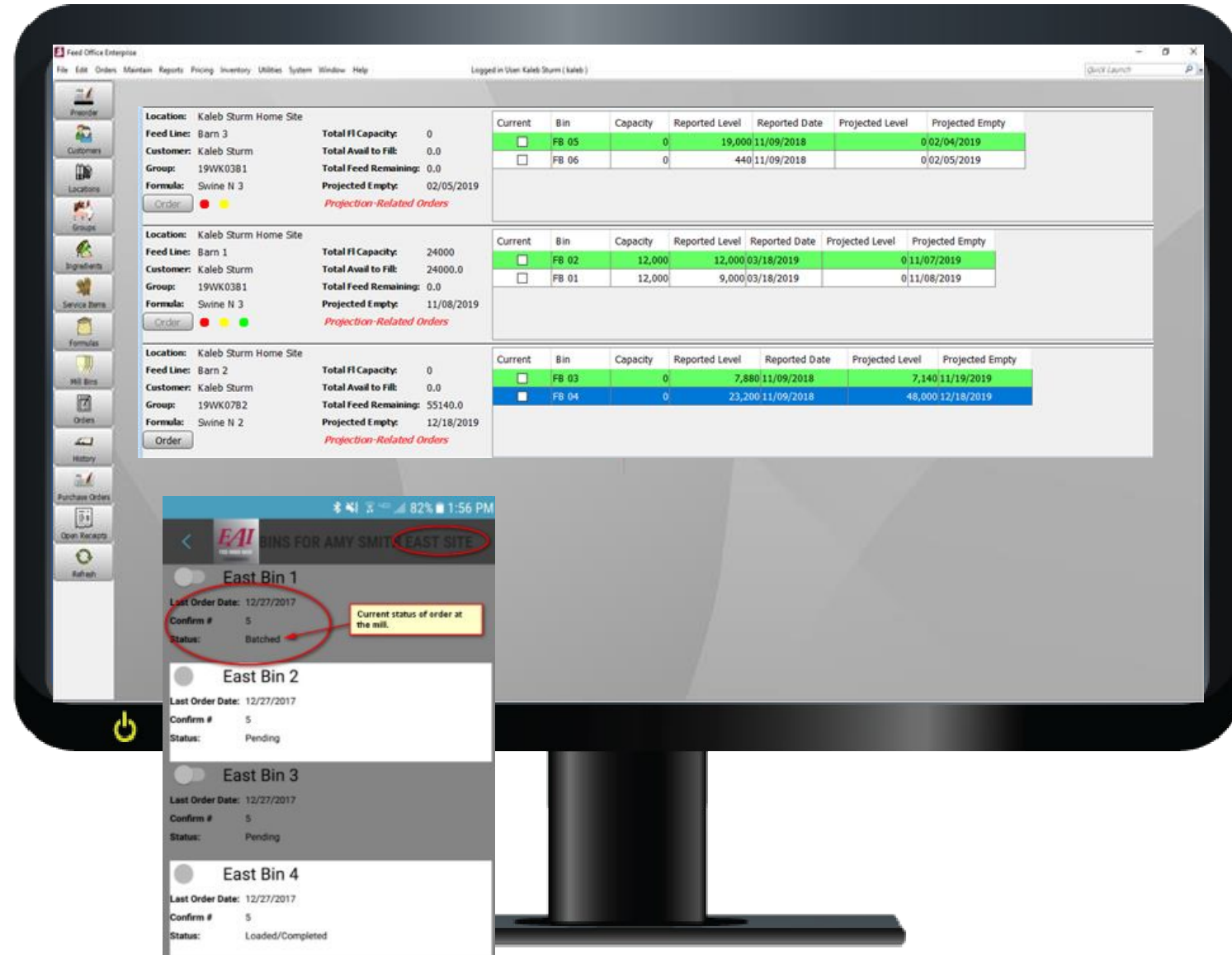
- Predict when the ranch or customer will need an order

RANCH BIN LEVEL PROJECTIONS

- Software can project when a bin will go empty to prevent last minute orders.

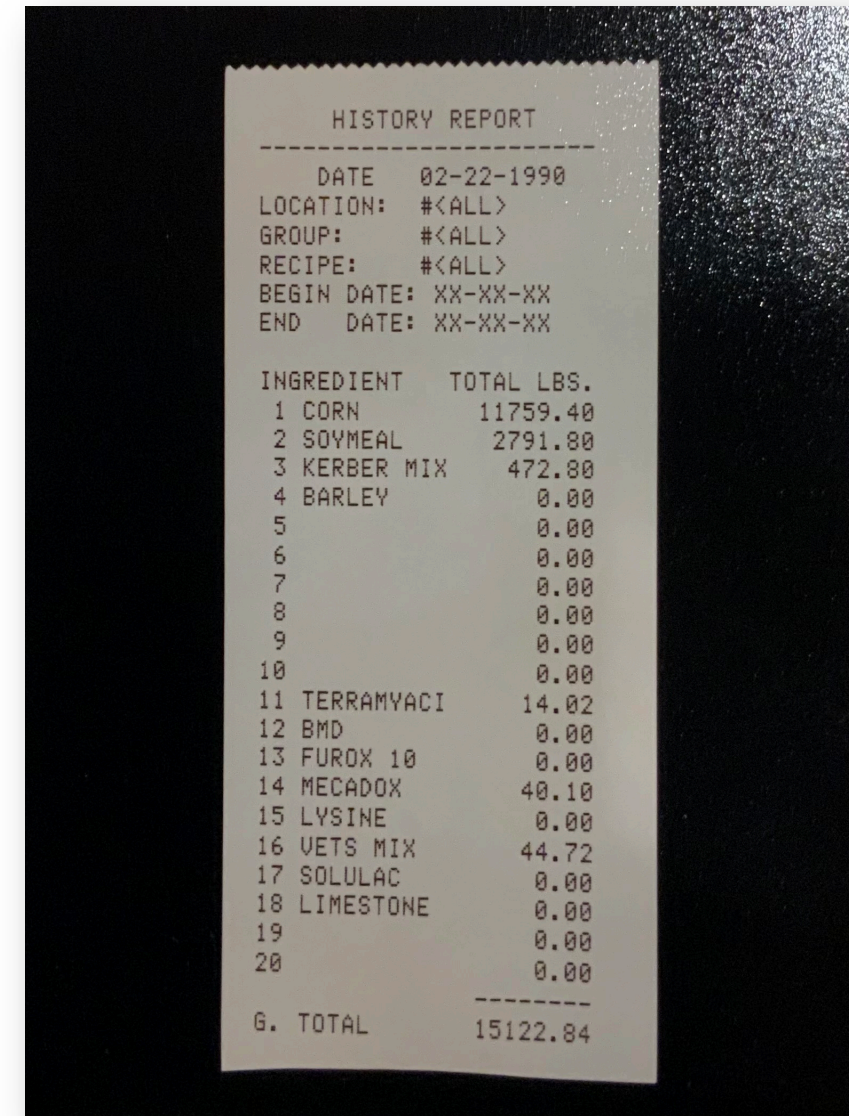
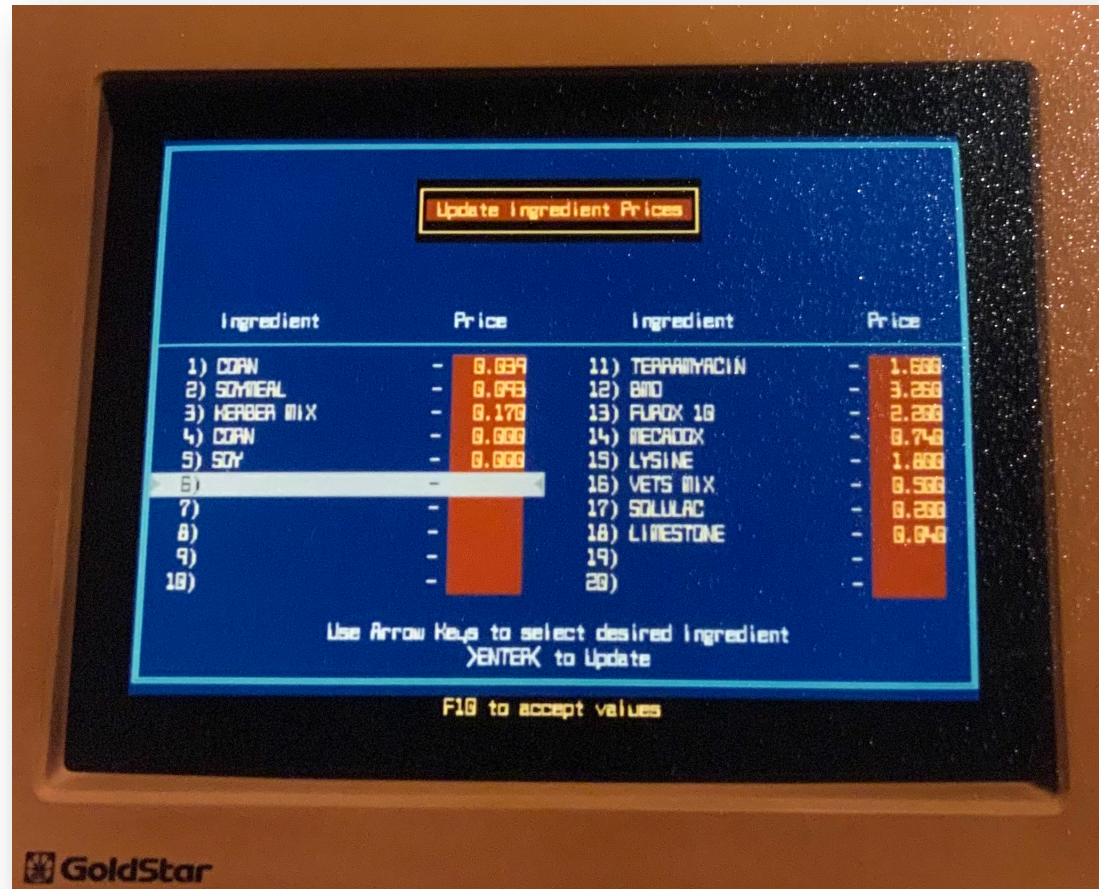
PHONE AND WEB ORDERING

- Fast and convenient



Feed Mill Automation - Present

Data and Reporting



Feed Mill Automation - Present

Data and Reporting

- Easily Accessible
- Machine specific history reporting
- Relevant and Informative
- Ability To Dig Deeper If Needed
- Remote diagnostics and programming



Feed Mill Automation - Present

Data and Reporting

- Increased Accountability For Feed
- Additional Reporting Requirements
- Increased Inspections



Feed Mill Automation - Future

Four Goals

- Decrease Labor
- Increase Production
- Increase Accuracy
- Increase Traceability



Future Possibilities

- Increased Mobile
- AI/Machine Learning
- Block Chain Tracking and Tracing

Thank you!

