
Heat Treatment Workshop
K-State
May 13 - 15, 2009
RONZONI
Bistro
Ready to Enjoy Entree!
New World Pasta

New World Pasta

SAN GIORGIO

RONZONI

Prince

Creamette
Hometown Favorite Since 1912

RONZONI SmartTaste

SKINNER

RONZONI Bistro
Ready to Enjoy Entree!

Light 'n Fluffy

RONZONI Healthy Harvest

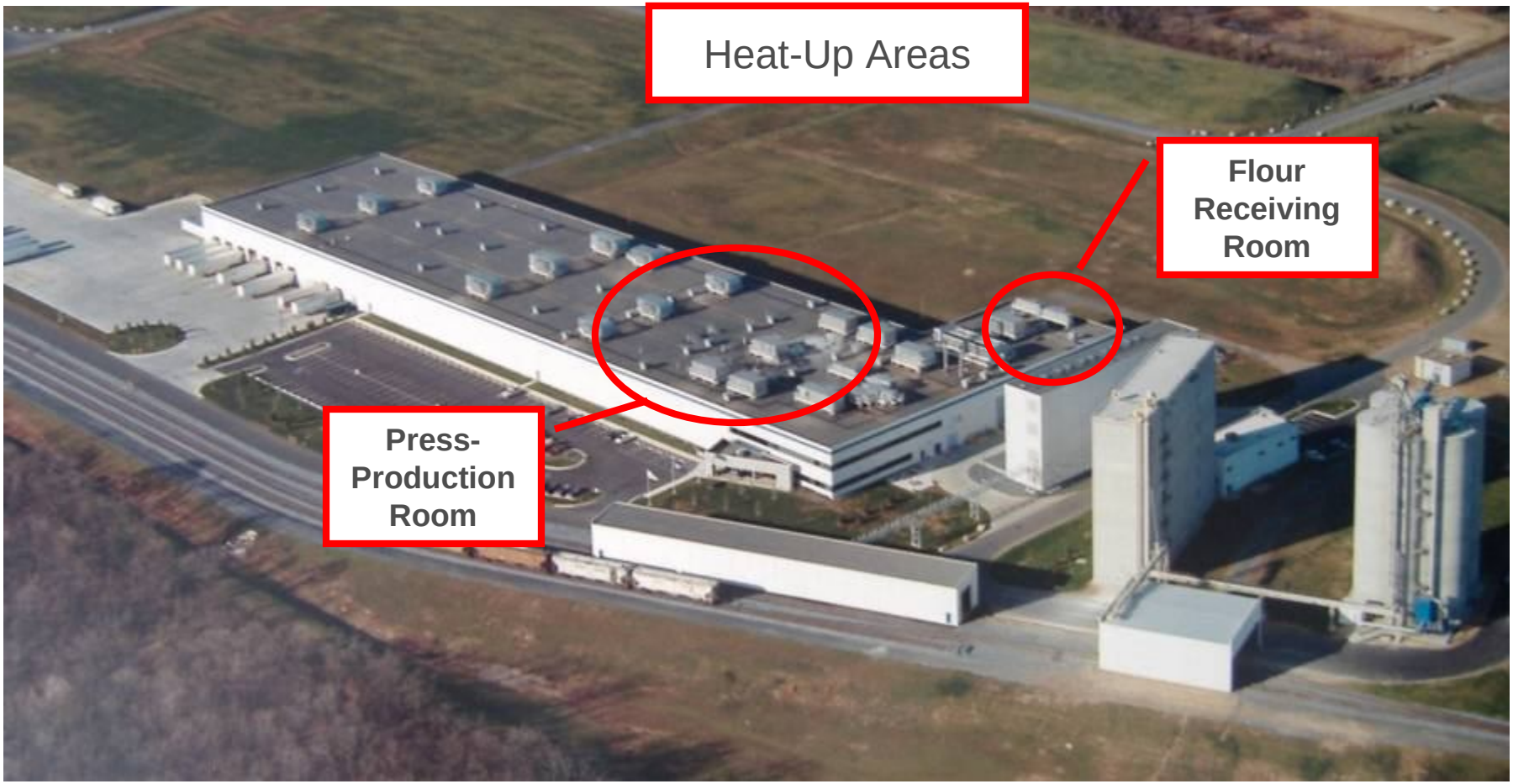
AMERICAN BEAUTY

Ebro PULEVA GRUPO

New World Pasta

Winchester VA Plant

Winchester VA Plant



Ebro PULEVA GRUPO

New World Pasta

Winchester Plant Facts

- **Began operations in February 1993**
  - Hershey Foods (1993-1999)
  - NWP (1999-Present) Ebro Puleva Ownership since 2006
- **186,000 square feet on 41 Acres**
  - Plant building, separate silo building, rail unloading shed
- **Flour System**
  - Mill connected to plant by pipeline
  - Five (5) interior silos, Three (3) outside silos
- **7 Processing Lines**
  - Two (2) Long cut
  - Three (3) Short Cut
  - Two (2) Lasagna
- **13 Packaging Lines**

Ebro PULEVA GRUPO

New World Pasta

Winchester Plant Facts

- **Sanitation by Design**
  - Concrete pre cast walls
  - Interior and exterior design (floors, doors, temperature, overheads etc…)
- **Flour transfer is all under vacuum**
  - Minimizes flour leaks and spills
- **Central Vacuum system for all in house cleaning**
- **Annual training and audits**
  - Responsibility & Accountability!
- **Buy-in by <u>ALL</u> Management and Operators on Good Sanitation Practices a must!**

Ebro Puleva Grupo

New World Pasta

Controlling/Eliminating Pest By Heat-Up

- Plant has never been fumigated in 16+ years of operations due to the success of our heat-up program!
- Project 365 schedule requires effective control of insects to minimize down time and maximize up time of production lines.
- All equipment in press room and flour room needs to be able to withstand **70+°C/ >150 °F**
- **Effective heat-up is only going to work with good cleaning and a solid sanitation program!**

Ebro Puleva Grupo

New World Pasta

Stored-Product Insect Responses at Higher Temperatures*

Temp. ºC (ºF)	Effect
25 – 32 (77 - 89.6)	Optimum for development
33 – 35 (91.4 – 95)	Upper limit for reproduction for most stored-product insect
36 – 42 (96.8 – 107.6)	Populations die out, mobile ins seek cooler zones
45 – 49 (113 – 120.2)	Death within a day
50 – 60 (122 – 140)	Death within hours to minutes
Above 62 (> 143.6)	Death within a minute

Press/Flour Room Normal Temp 85

ter Banks and Fields, 1995.

Controlling/Eliminating Pest By Heat-Up

Typical Heat Up Prep and Execution

- **Thorough cleaning of all machines and area involved prior to heat up (ENTIRE PLANT not just heat up areas)**
  - Two solid days of cleaning on both shifts
- **Some machinery disassembled for heat-up**
  - Flour room tanks opened and brushed down, sifters disassembled, pipes pulled apart, press spreader and cooler doors all left open for heat-up
- **Crack and Crevice spraying**
- **Cover roof exhaust units (16) with plastic**
- **Remove Roof Unit Filters**
- **Fan Rental and placement**
  - 25 Fans
- **RFB and Larva purchase and placement**
  - 30 each Adult RFB and Larva

Ebro Puleva Grupo

New World Pasta

Remove & Protect Items

SAFETY 1st

Follow detailed checklist prior to heat-up. This includes removal of items from hot zones to shutting off air to sealing off doorways.

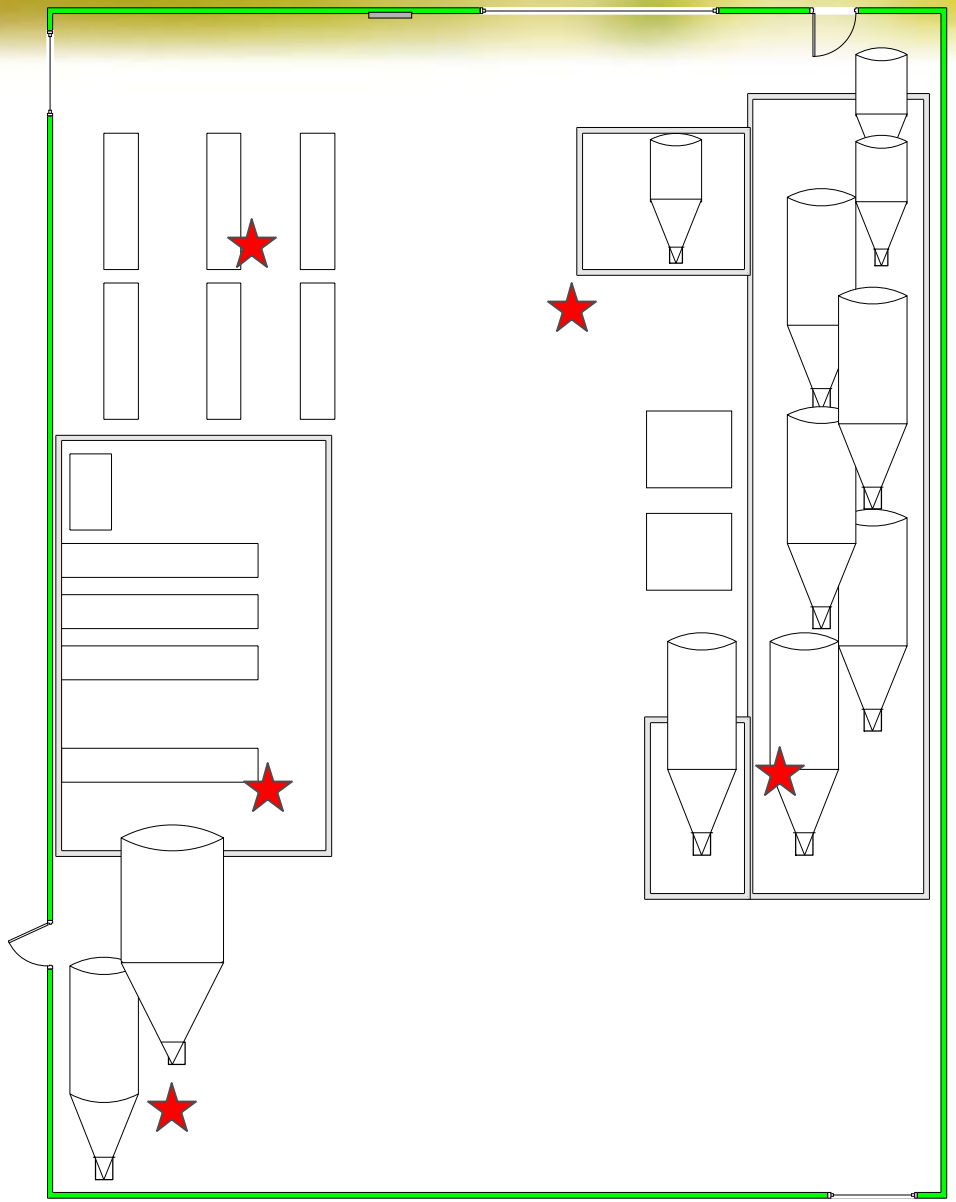
Ebro PULEVA GRUPO

New World Pasta

Flour Room

Flour Room:
Volume: 120,000 cu ft (3,396 cu m)
Surface area: 3,600 sq ft (334.4 sq m)
Wt of steel: 750,000 lb (340,500 kg)

Bug Placements Flour Room

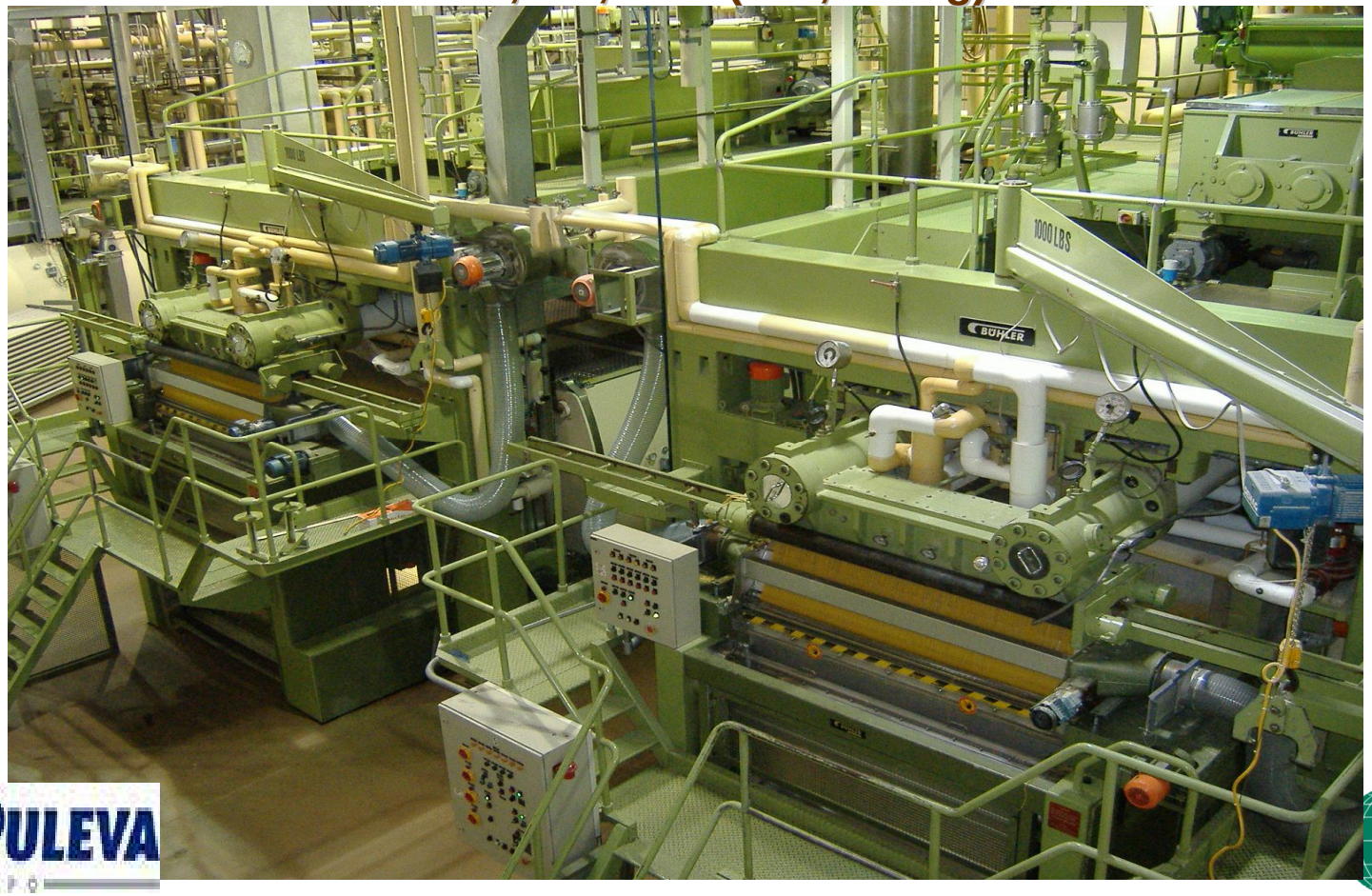


Larva & Adult RFB Sample Packs

Press Room

Press area:

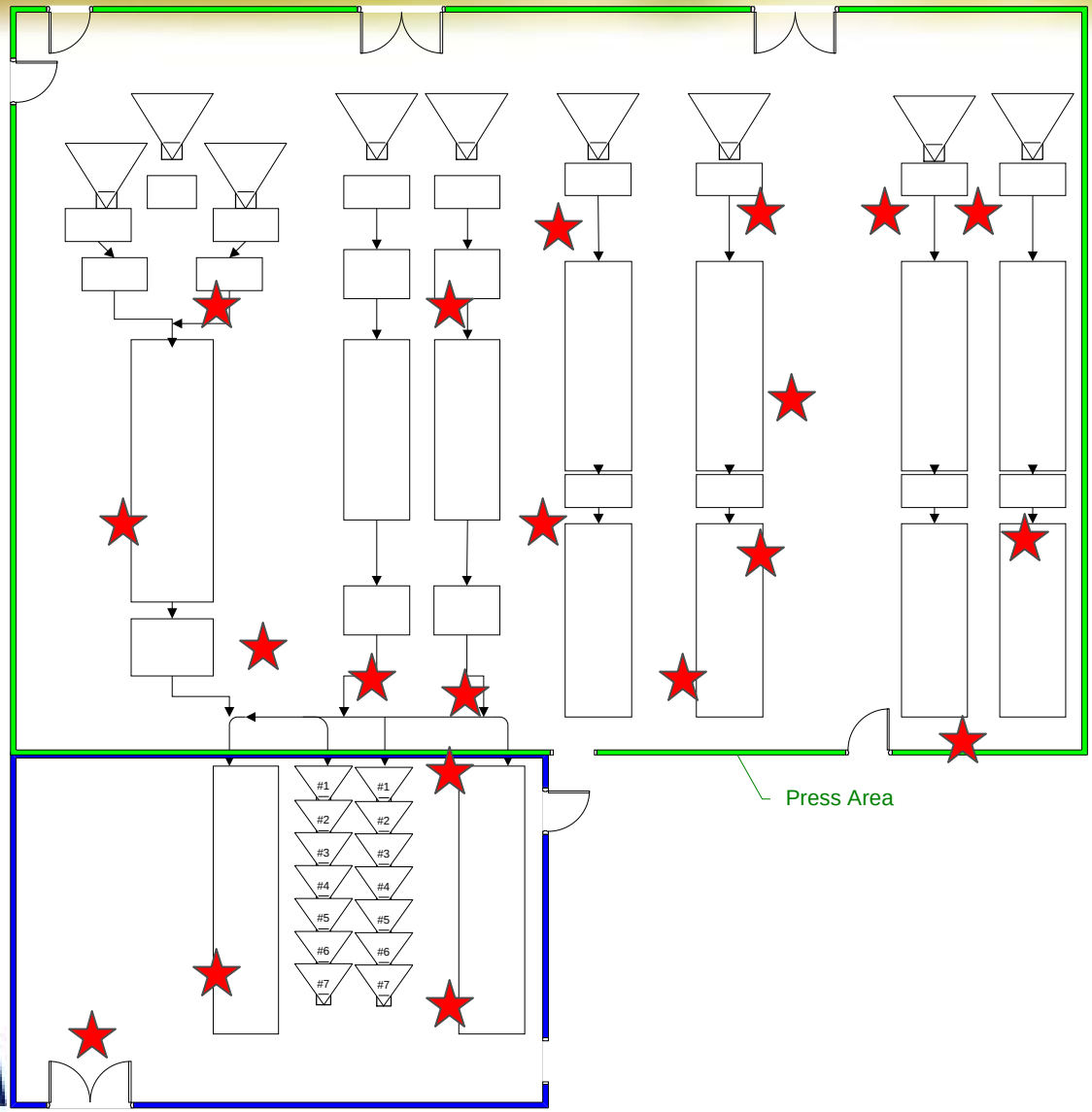
Volume: 1.55 million cu ft (43,865 cu m)
Surface area: 46,750 sq ft (4,343.1 sq m)
Wt of steel: 9,710,00 lb (440,834 kg)



Ebro PULEVA GRUPO

New World Pasta

Bug Placements Press Room



★ **Larva & Adult RFB Sample Packs**

Ebro Puleva Grupo

New World Pasta

Control Room

Ebro PULEVA GRUPO

New World Pasta

Turn On the Heat!

- Heat-Up operation is handled in the operations control room.

- Literally just push the **<u>BUGS HEAT UP OVRD</u>** button and the heat starts
  - Temperatures push 180+°F out of the units with a goal of 125+°F at the floor

Ebro PULEVA GRUPO

New World Pasta

Roof Units

10 Units for Processing Room

1 Unit for Flour Room

Ebro PULEVA GRUPO

Turn On the Heat!

- Monitor heat every hour
- Use temp-infrared pointer reader
  - Flour room takes about ten minutes to check 5 locations
  - Press room takes over twenty five minutes to check 20 locations

Ebro Puleva Grupo

New World Pasta

Heat-Up Temp Record

PROCEDURE:

1. **LOG THE DATE & TIME HEAT-UP WAS STARTED AND COMPLETED.**
2. **DOCUMENT TEMPERATURE READ-OUT AT THE DIFFERENT LOCATION OF BUG CHEKS HOURLY USING INFRA RED TEMPERATURE READ-OUT**. ** Do not direct infra red on metal or floor with direct heat from overhead due to possible "false temperature" read-out may result to this. Locate an "object" (plastic) close to bug check that is not a heat conductor.**
3. **CIRCLE TEMPERATURE WHEN LARVA KILL IS 100%.**
4. **EXTEND HEAT-UP FOR A MINIMUM OF 8 HOURS AFTER 100% LARVA KILL IS ACHIEVED AT ALL LOCATIONS.**

LOCATION		PRESS AREA				DATE & TIME STARTED:						DATE & TIME COMPLETED:							
		TEMPERATURE READ-OUT (HOURLY) FOR EACH LOCATION																	
DATE	TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
		97	102	105	109	112	117	120	125	129	128	130	133	133	135	133	134	133			

Ebro PULEVA GRUPO

New World Pasta

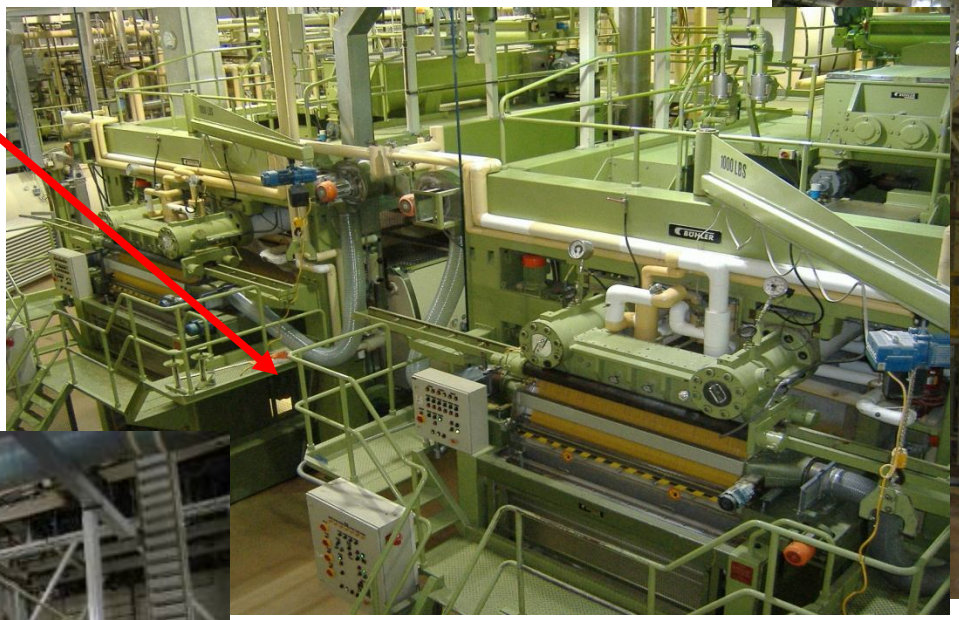
Trouble Spots (must get hot!)

Trouble Spots in Heat Areas:

Under platforms

Spreaders

Coolers



New World Pasta

Negatives Of Heat

Negatives in Heat Areas:

Pipe Insulation

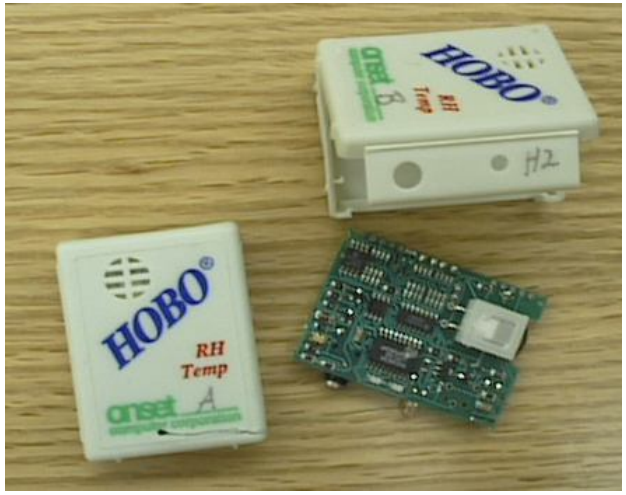
Computers

Airlines

Ebro Puleva Grupo

New World Pasta

K-State Study July 2006



Ebro PULEVA GRUPO

New World Pasta

K-State Study July 2006
Temp & Time

Flour Room

Target temp. reached: 63.3ºC
Starting temperature: 30ºC
Rate: 4.16ºC/hour
Rise phase: 8 hours
Hold phase: 8 hours

Press Room

Target temp. reached: 57ºC
Starting temperature: 30ºC
Rate: 3.0ºC/hour
Rise phase: 9 hours
Hold phase: 8 hour

Data from K-State Study

Ebro Puleva Grupo

New World Pasta

K-State Study 2006

Area	Heat requirements (in million BTU)			BTU/cubic foot/hour			Natural gas usage (in Therms)		
	Hourly		Total	Rise	Hold	Total	Hourly		Total
	Rise	Hold					Rise	Hold	
Flour Room	1.6	0.7	18.24	13.4	5.8	9.6	21.5	9.8	250.4
Press Room	11.53	4.9	142.6	6.3	2.7	4.6	165	70	2041

Total estimated heat required: 160.8 million BTU. Estimated fuel cost: $2498

Heat generated at 70% efficiency: **155 million BTU**
Natural gas used during heat treatment: **2212 Therms**
Cost of fuel used during heat treatment: **$ 2411**

Benefits!!!!

- **<u>No plant fumigation in 16 years of running!</u>**
- Plant personnel (Maintenance) can still work around hot areas while heat-up is taking place
- Minimal cleanup required to get the plant running
- Cost savings are significant over 16 years by not having plant fumigations
- **#1 Reason: NO BUGS!**

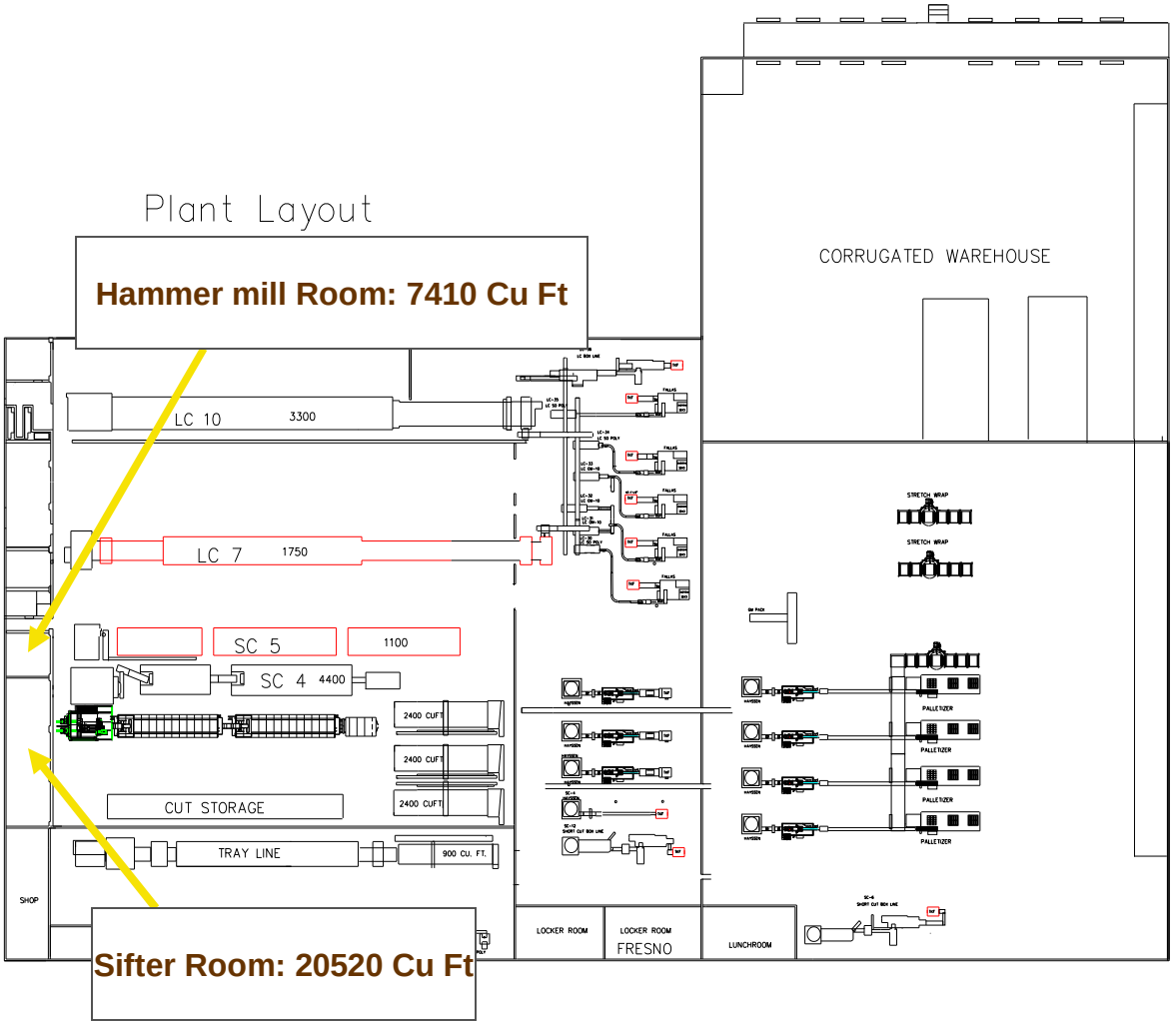
Ebro Puleva Grupo

New World Pasta

NWP Fresno Plant


Map
Satellit
Area of heat up activity

Plant Layout



Fresno Plant Facts

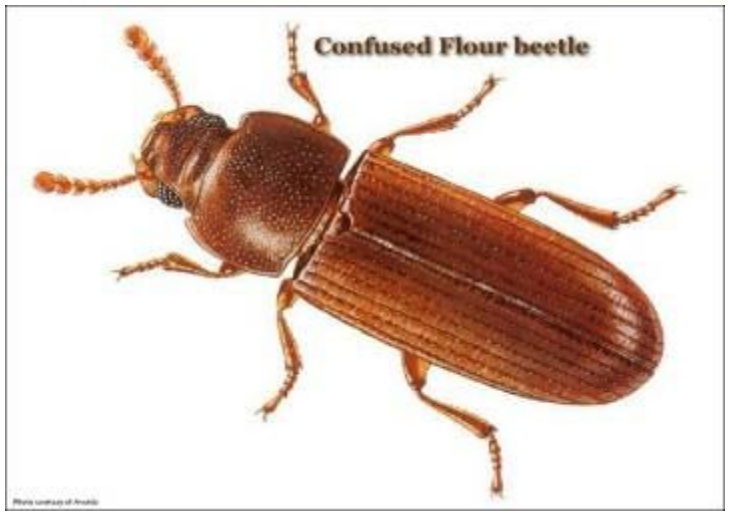
- **Began operations in 1968**

- **153,000 square feet on 19 Acres**
  - Plant building
  - Ceiling height 24 feet clear
- **Raw Material**
  - Local milling company delivers raw materials by truck
  - Rail & truck unloading are available
- **5 Processing Lines**

- **13 Packaging Lines**

New World Pasta

The Enemy!



© Agriculture Western Australia

New World Pasta


I FEAR
NO WEEVIL

Key Equipment

Modine 36” Vertical Delivery Heater

Modine 36” Horizontal Delivery Heater


Cleaver-Brooks

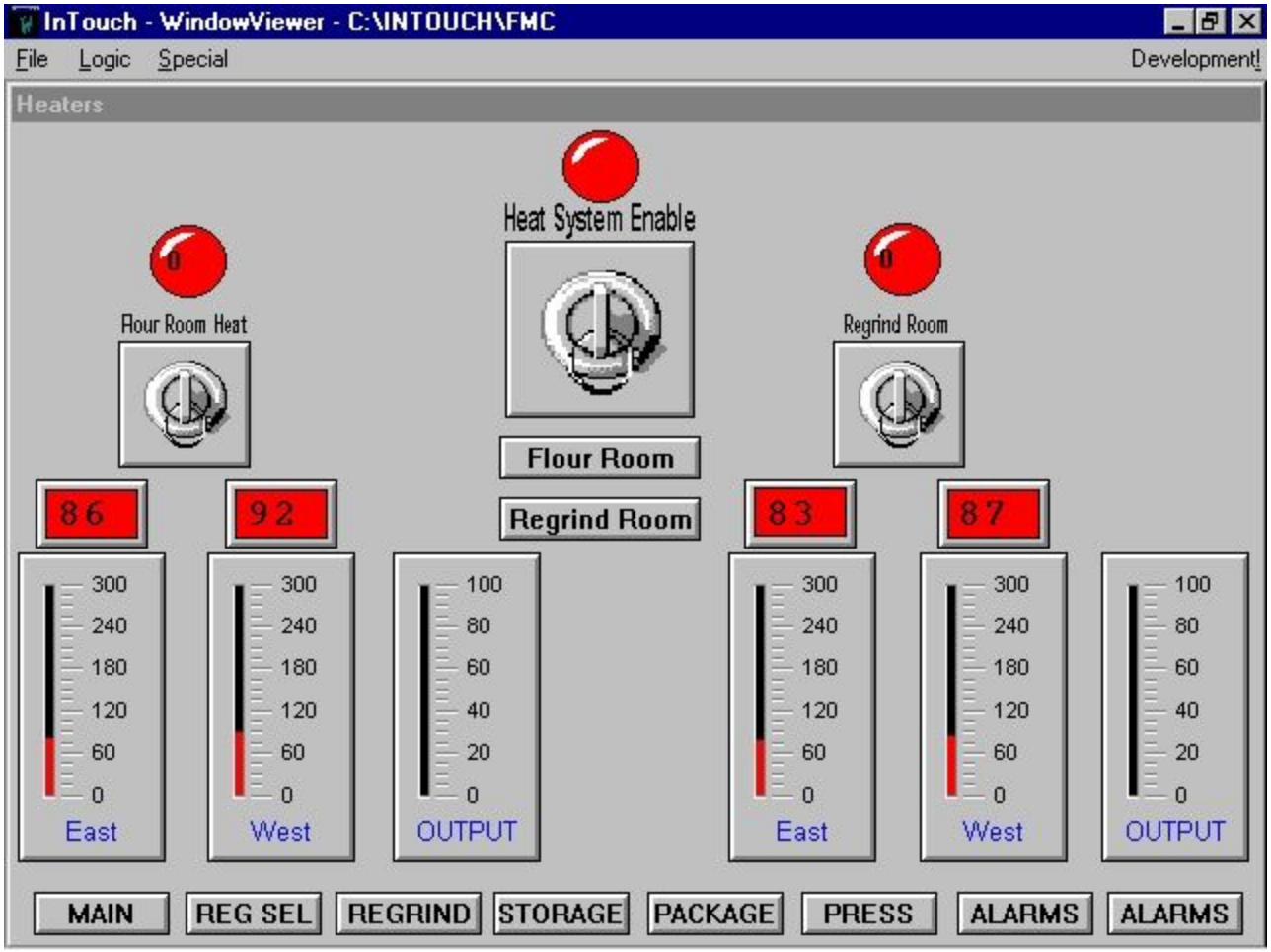
Equipment Descriptions

There are two types of Modine Hot Water Unit Heaters used in each room:

1 - 28.1 X 10^6 BTU Boiler	**Outside**	**Hot water supply**
2 - Horizontal Delivery Units	**Motor Enclosed**	**Entering Water Temp: 255 F**
2 - Vertical Delivery Units	**Motor Enclosed**	**Entering Water Temp: 255 F**

New World Pasta

HMI Modine Heater Control



New World Pasta

Heat Up Procedure

Check list developed for heat treatment

- **Spray floor / wall junctions with crack and crevice treatment**
- **Turn off air to rooms**
- **Secure exit doors, including roof access. Pull down roll doors and secure.**
- **Placard the outside doors during heat treatment**
- **Turn off electrical breakers and close the panel.**
- **Close and secure Electrical control room**
- **Remove all tailing containers**
- **Deploy bug checks**
- **Turn off the lights**

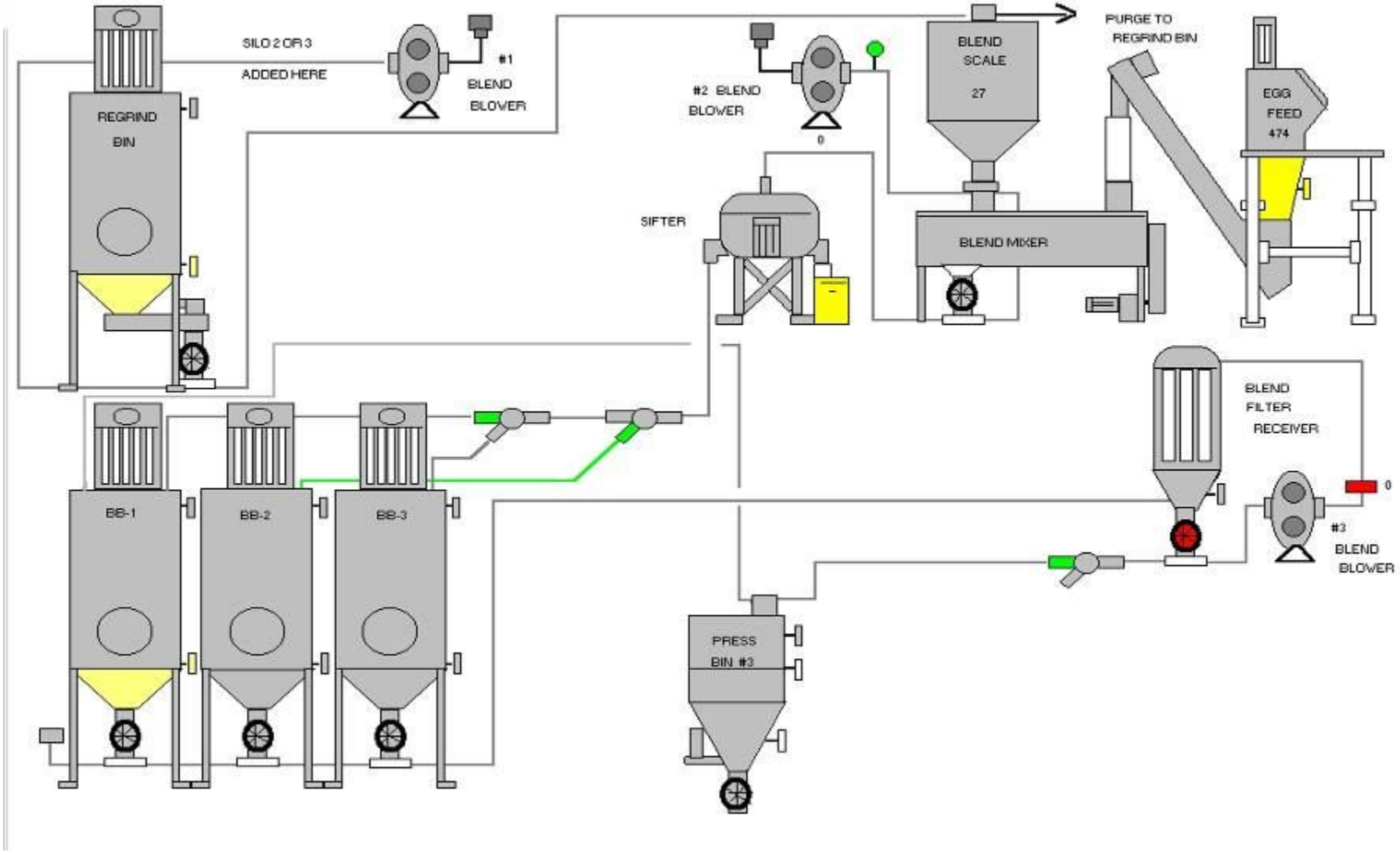
New World Pasta

Typical Event

- The time required to heat up the surrounding material in this environment is targeted at 3 hrs.
- At 120 F the Heat Up clock begins. We schedule 12 additional hours
- The next slide depicts the level of activity that is going on as our Heat Treatment progresses.

New World Pasta

Flour Bin Room




Questions?
RONZONI
Bistro
Ready to Enjoy Entree!
New World Pasta