

MODELING A DAIRY PRODUCTION PLANT

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Run	Clear Output	Clear Input	Error Check																			
28/02/15 Sat 00:00																						
3/03/15 Tue 00:00				Show	Show	Show	Show	Show											Show	Show		
Shrink	Ingredient 1		Ing2	Ing 3	Process	Product Classification 1						Storage 1		Storage 2								
Date	Load in	Balance	Balance	Balance	Product	Ing 1 in	Product	Ing 3	Ing 4	Ing 5	Process	Ing 3	Ing 4	Ing 5	Ing 6	Product	Balance	Product	Balance			
28/02/15 Sat 00:00	70,000	170,000	20,000	5,000							0	0	0	0	0		0		0			
28/02/15 Sat 01:00		170,000	25,000	5,000	Spec1	50,000	Item Code 1				Process 1	40,000	2,046	1,497	135	Code 1	43,678		0			
28/02/15 Sat 02:00	70,000	240,000	30,000	5,000	Spec1	50,000	Item Code 1				Process 1	40,000	2,046	1,497	135	Code 1	43,678		0			
28/02/15 Sat 03:00	70,000	310,000	35,000	5,000	Spec1	50,000	Item Code 1				Process 1	40,000	2,046	1,497	135	Code 1	43,678		0			
28/02/15 Sat 04:00																						
28/02/15 Sat 05:00																						
28/02/15 Sat 06:00	50,000	360,000	40,000	5,000	Spec1	50,000	Item Code 2				Process 2	40,000	1,340	614	242		0	Code 2	42,196			
28/02/15 Sat 07:00	45,000	405,000	45,000	5,000	Spec1	50,000	Item Code 2				Process 2	40,000	1,340	614	242		0	Code 2	42,196			
28/02/15 Sat 08:00	45,000	405,000	50,000	5,000	Spec1	50,000	Item Code 2				Process 2	40,000	1,340	614	242		0	Code 2	42,196			

The user input page detailing the production details for the specified time frame.

Background

- Dairy industry is changing; focus on varied, high quality product over commodities
- Milk comes in each day, must be processed quickly to a marketable product
- Orders change every day, production schedule must adapt to changing milk composition and factory conditions (e.g. breakdown)

Goals

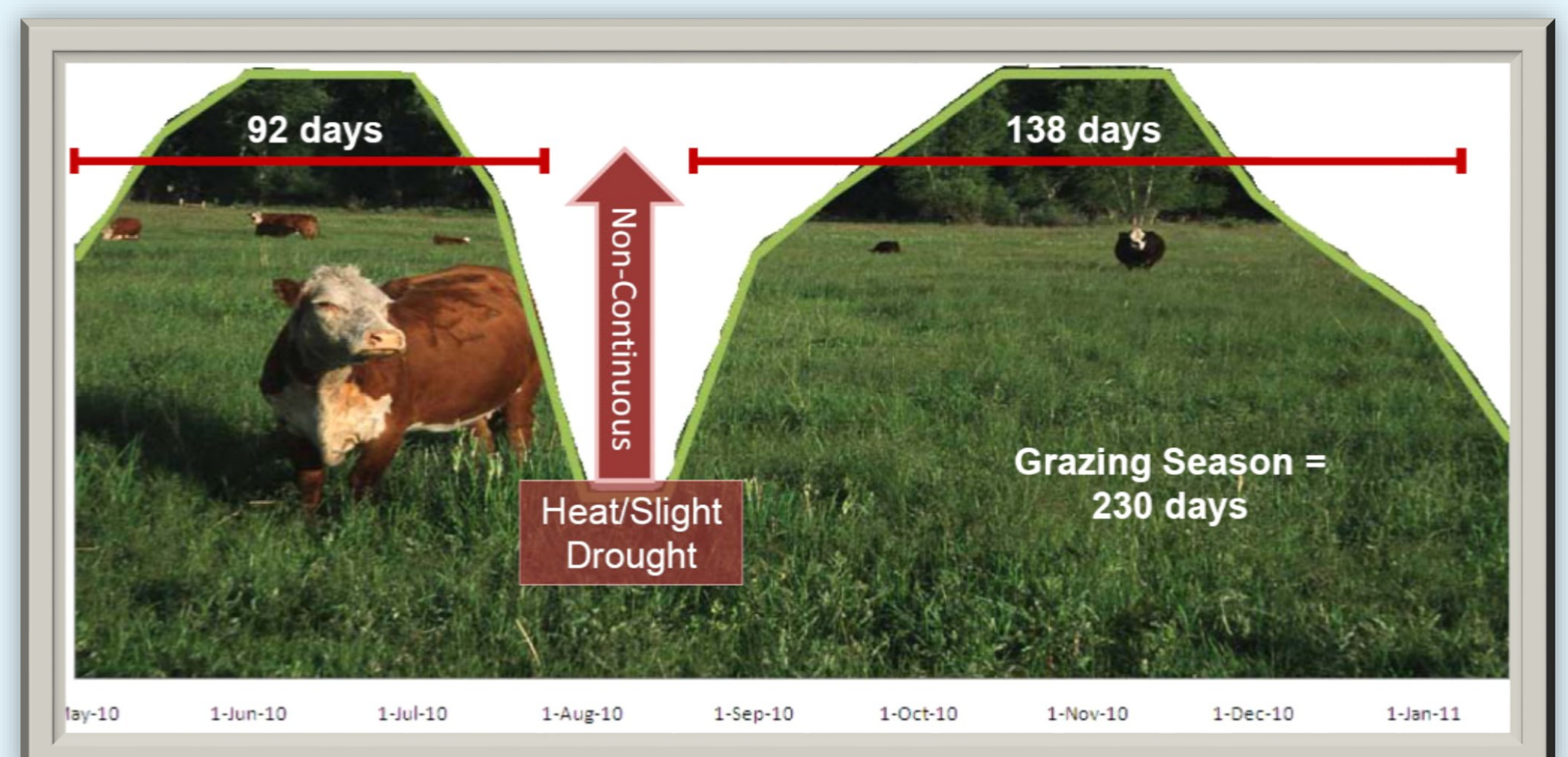
- Produce a scheduling tool that tracks ingredients on hand and the state of the factory hour by hour
- Document all rules/constraints regarding production (e.g. cleaning times, maximum silo capacities), and have the scheduling tool take these into account

Factory 20		PROCESSING & PACKING										CLEAR					
Max 23-Feb-15 16:18		02:00	08:00	14:00	04:00	10:00	02:00	08:00	14:00	04:00	02:00	08:00	14:00	Pallets Carry Over	Value		
28-Feb Saturday		Product 1 7,990 Process 1	Product 1 22,799 Process 1	Product 1 22,864 Process 1	Product 2 Recovery to Next CTU Run	Product 2 Recovery to Next CTU Run	Product 4 125 units Process 4 Recovery to Next CTU Run	Product 4 372 units Process 4 Recovery to Next CTU Run	Product 5 2004 units Process 5 Recovery to Next CTU Run					Pallets Produced	Value		
1-Mar Sunday							Product 5 100 units Process 4 Recovery to Next CTU Run							Pallets Dispatched	Value		
2-Mar Monday		Product 2 7,990 Process 1	Product 2 22,799 Process 1											Pallets Remaining	Value		
3-Mar Tuesday		Product 2 7,990 Process 1			Product 2 04:00									Incoming Pallets	Value		
4-Mar Wednesday					Product 2 04:00	Product 3 04:00	Product 4 125 units Process 4 Recovery to Next CTU Run	Product 4 372 units Process 4 Recovery to Next CTU Run	Product 5 2004 units Process 4 Recovery to Next CTU Run					Total Pallets	Value		
5-Mar Thursday					Product 2 04:00	Product 3 04:00	Product 5 125 units Process 5 Recovery to Next CTU Run	Product 5 372 units Process 5 Recovery to Next CTU Run	Product 42 2004 units Process 5 Recovery to Next CTU Run					Pallets Carry Over	Value		
6-Mar Friday					Product 2 04:00	Product 2 04:00								Pallets Produced	Value		
					Process 2 Method 1	Process 2 Method 1								Pallets Dispatched	Value		
														Pallets Remaining	Value		
														Incoming Pallets	Value		
														Total Pallets	Value		

The exported timetable that expresses the important details to the operation managers

Outcomes

- An accurate, industry-strength piece of software with a familiar spreadsheet interface
- Models the entire production plant down to individual silo composition, ensuring the product is produced to specification
- Allows automatic production planning based on product orders
- Exports the schedule into a human-readable timetable, pushed out to each department's production floor
- Full documentation of the tool including a user guide and technical specifications



The milk availability fluctuates on a seasonal basis