# KPAK Project Scope Joe Bjornsen

# Managing ordering needs using EOQ and MRP:

- 32 different raw products
  - 8 different suppliers
- 32 unique preprinted bags
- 3 different sized boxes

### **Benefits:**

- More orders out on time and in full
  - Happy customer
- Less waste due to product expiration
  - Happy owner
- Better inventory transparency
  - Happy production manager

## Economic Order Quantity – Bulk product

$$EOQ = \sqrt{\frac{2 \times S \times D}{H}}$$

D = pallet demand per year

S = order cost + freight scheduling cost + hassle cost

H = pallet real estate opportunity cost + [cost of one pallet x (i + w)]

i = interest rate %

w = wasted or expired product %

Sugar free saltwater taffy

D = 18.46 pallets / year S = 20 + 20 + 20 = 60H =  $180 + [(2 \times 1800) \times (2\% + 7\%)] = 432$ 

 $EOQ_{sugar free taffy} = 2.26 pallets$ 

Round up to 3 pallets @ 1800 pounds / pallet = 5400 lbs

### Product A

# Material Requirement Planning

- Product A is made up of 9 product B and 18 product C
  - 1A = 9B + 18C
    - A = Finished case of sugar free saltwater taffy
    - B = Bulk sugar free saltwater taffy
    - C = Preprinted sugar free saltwater taffy bag

Finished case of sugar free SWT		Order quant: 142 cases				Lead time: 2	weeks		Level: 0				
Week		1	2	3	4	5	6	7	8	9	10	11	12
Gross requir	rements	142		142		142		142		142		142	
Scheduled receipts				34		142		142		142		142	
On hand	250	108	108	0	0	0	0	0	0	0	0	0	0
Planned rele	ases	34		142		142		142		142		142	

#### Product B

Sugar free SWT bulk		Order quant pounds	: 5400			Lead time: 4 weeks				Level: 1			
Week		1	2	3	4	5	6	7	8	9	10	11	12
Gross requirer	ments	306		1,278		1,278		1,278		1,278		1,278	
Scheduled reco	eipts							5,400					
On hand	3,000	2,694	2,694	1,416	1,416	138	138	6,816	6,816	5,538	5,538	4,260	4,260
Planned releas	100			5 400									

### Product C

Preprinted s	ugar free SW	T bag	Order quant bags	: 10,000			Lead time: 5	weeks			Level: 1		
Week		1	2	3	4	5	6	7	8	9	10	11	12
Gross requir	ements	612		2,556		2,556		2,556		2,556		2,556	
Scheduled re	ceipts							10,000					
On hand	7,500	6,888	6,888	4,332	4,332	1,776	1,776	9,220	9,220	6,664	6,664	4,108	4,108
Planned rele	ases		10,000										