Baleage 101

How and Why

What is baleage?

Air tight, plastic wrapped, round or square bales of forage.

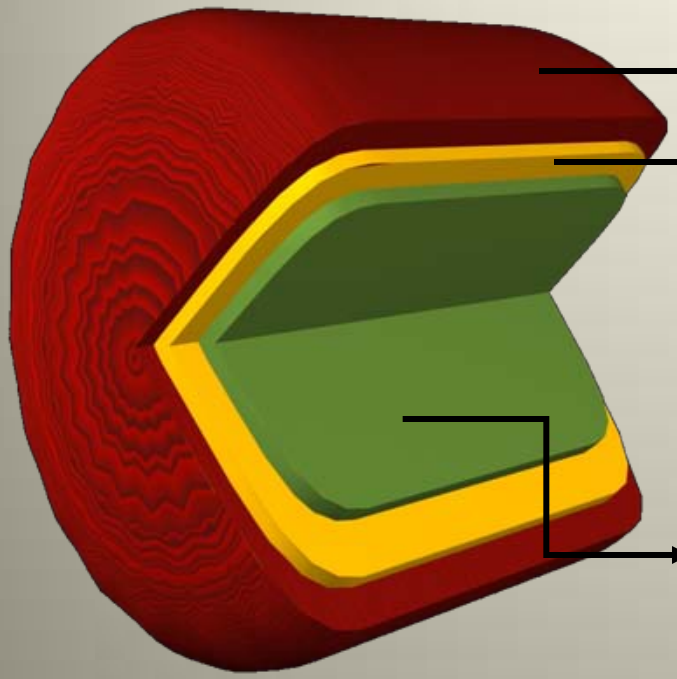
Consisting of:

- 4" to 5“ fiber length (ideal for ruminants)
- 19% + crude protein
- 30% to 60% moisture level (45% is ideal)
- 175 + relative forage quality
- 65% total digestible nutrients

Baleage advantages vs dry hay

- **Larger harvesting window/ capture more nutrients**
- **Reduced feed losses**
- **Speed up harvesting**
- **Increased milk production and Average Daily Gain (avg)**
- **Lower feed and labor costs**
- **Healthier animals**

POOR STORAGE PRATICES CAN LEAD TO 44% REDUCTIONS IN FORAGE QUALITY

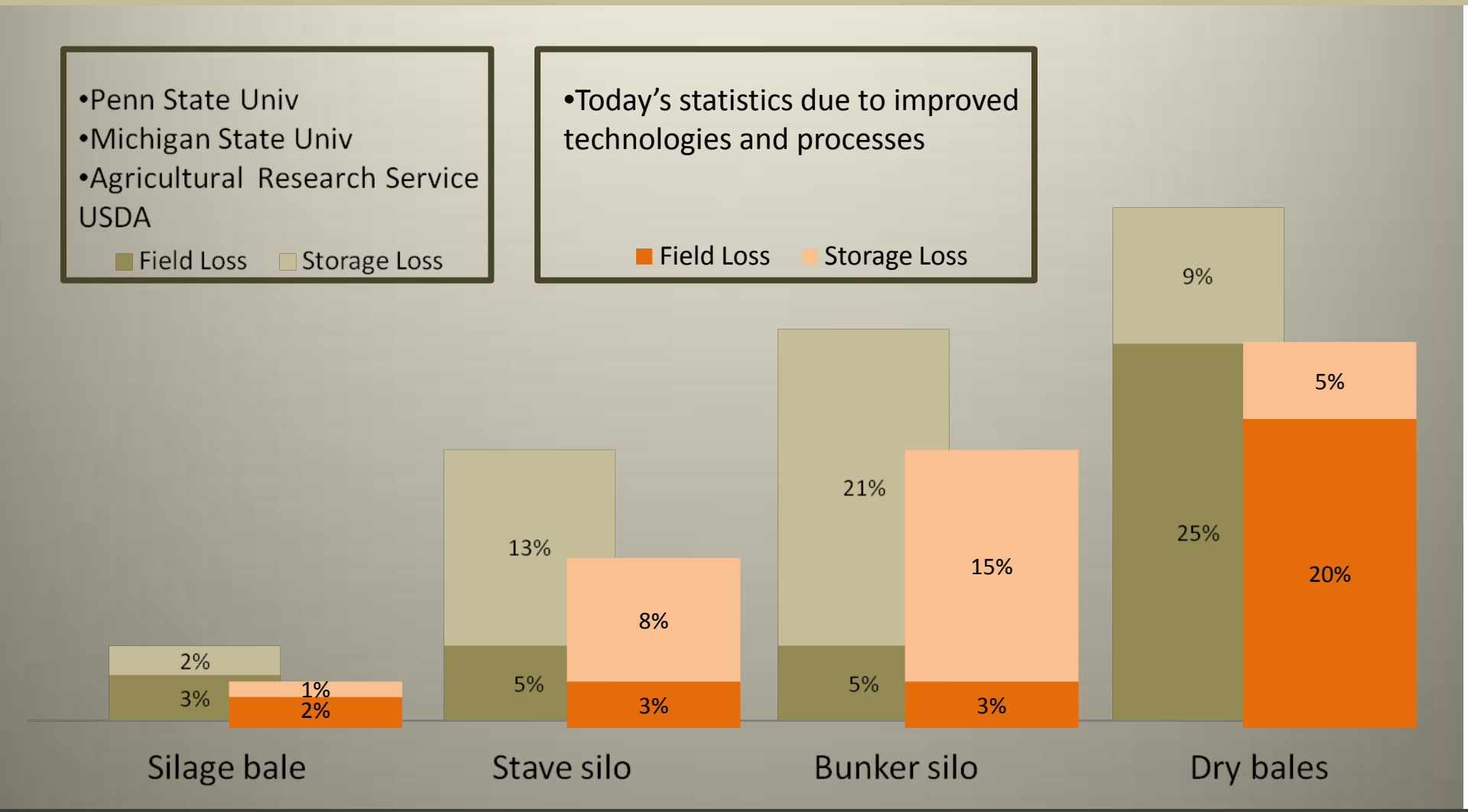


Spoiled Hay: **3” = 25%**

Transition Zone :
9% Lower Dry Matter intake

Core Zone : **56% Higher Dry Matter intake**

Combined Harvesting & Storage Losses



FEED LOSSES

Dry hay field and storage loss studies reveal 25% waste

AMOUNT OF BALES NEEDED	400
BALES MADE	533
FIELD AND STORAGE LOSS (25%)	133
BALES LEFT AFTER LOSS	400
RESULTS: 533 BALES LESS 133 BALES LOST LEAVES YOU WITH 400 BALES	

Reduced feed losses

Faster harvesting time

	Baleage	Dry Hay
Mowed	May 17th	May 20th
Tedded	n/a	May 20th
Raked	n/a	May 23rd
Baled	May 18th	May 23rd
Wrapped	May 18th	n/a
Results (min/bale)	10.9 min/bale	22.8 min/bale

Note: tedded and raked twice.

Speed up harvesting

Faster harvesting = savings

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	Number of bales for equivalent Dry Matter	Time per bale	Total Hours	Tractor Cost/Hour ($0.26/hour/HP) 100HP/hr. = $26 Labor Cost/hour= $15	Total Cost
Dry Bales	533	22.8 min.	202 hrs.	$41/hr.	$8282
Baleage	400	10.9 min.	73 hrs.	$41/hr.	$2993
			Baleage Tractor and Labor Savings		**$5289**

*Based on a farm needing 400 bales/year

Speed up harvesting

Baleage economy vs dry hay

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	Dry Bales	Baleage
Harvesting Time	202 hrs.	73 hrs.
Number of bales	533	400
Dry Bale losses (25%) at 30$ per bale (133 bales)	$3990	$0
Plastic costs ($3/bale)	$0	$1200
Tractor and Labor costs	$8282	$2993
Total Cost	**$12272**	**$4193**

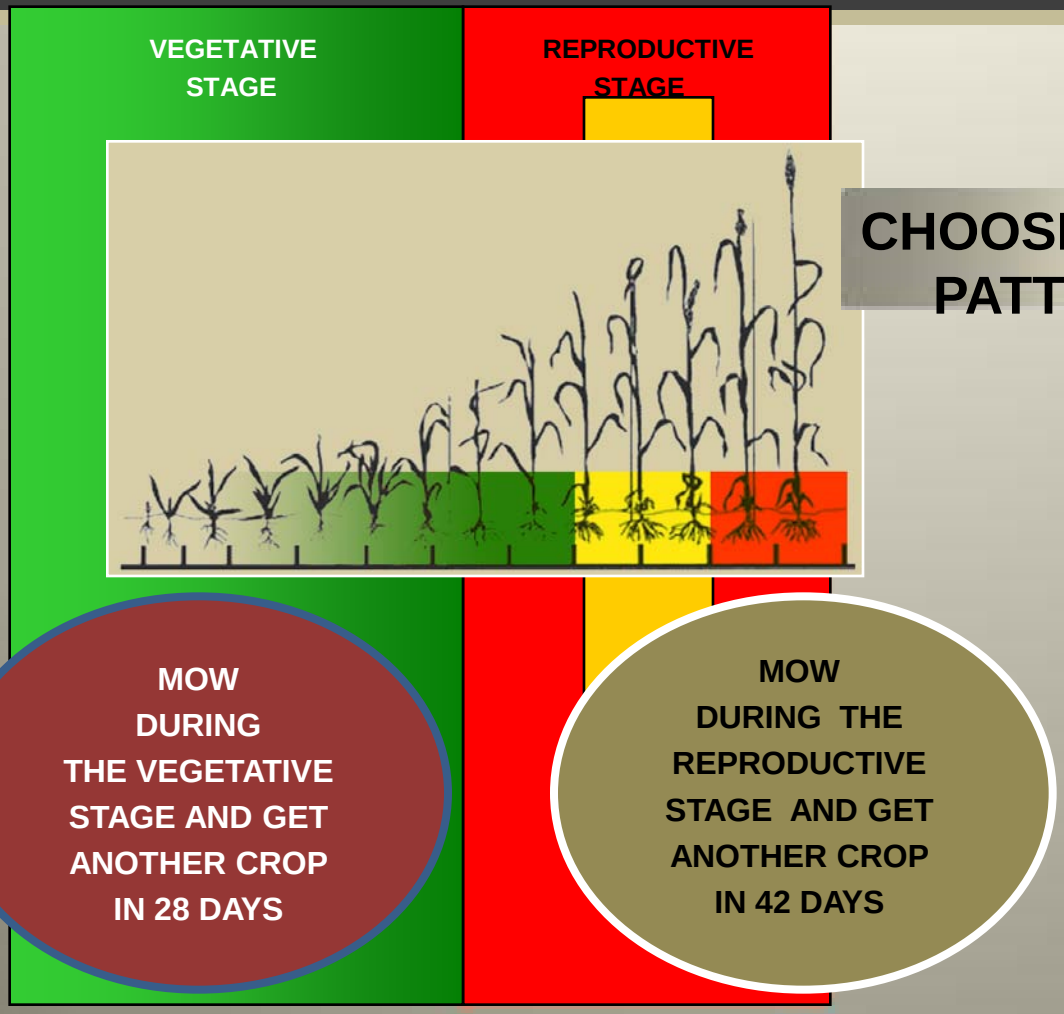
PAY FOR YOUR WRAPPER IN 3 YEARS

SAVE $8079/YEAR

*Based on a farm needing 400 round dry bales/year

Speed up harvesting

WHEN TO CUT YOUR CROP?
HARVEST DURING THE VEGETATIVE STAGE



CHOOSE YOUR GROWTH PATTERN FOR:

- OPTIMUM FEED VALUE
- GREAT RESALE VALUE
- TIME FOR EXTRA CROP

Larger harvesting window/capture more nutrients

Effects of stage of harvesting on hay quality and animal gain

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Effects of stage of harvesting on hay quality and animal gain.*

Stage of harvest	Dry Matter Intake lbs./day	Percentage of digestibility	Percentage of protein	Pounds of hay fed per lb. gained	Pounds of hay per acre, 1st cut	Pounds gained per day
Late boot to head	13.0	68	16.8	10.1	1334	1.39
Early bloom stage	11.7	66	10.2	13.5	1838	.97
Mature stage	8.6	56	7.6	22.5	2823	.42

***Holstein heifers were used, average weight: 500 pounds.**
Source: Monty Montgomery, University of Tennessee.

Increased milk production and Average Daily Gain (ADG)

FORAGE QUALITY=$$$

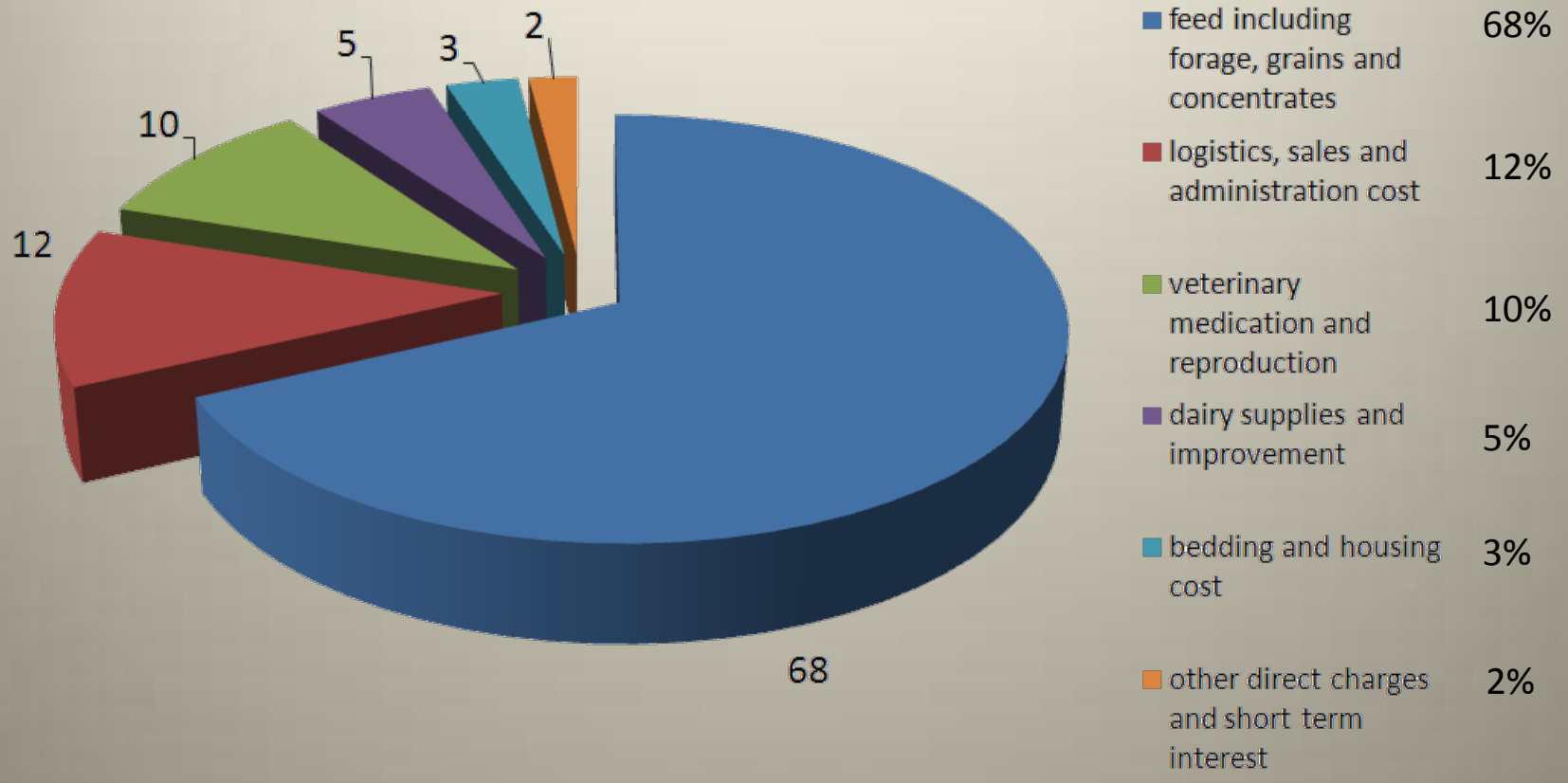
Forage quality	Protein	TDN	Lbs./Milk/Ton	Lbs./Milk/Acre	$/Acre
• LOW	10%	49%	1894	11,364	$1,931.00
• HIGH	17%	59%	2625	15,750	$2,677.00
• DIFF	7%	10%	731	4,386	$ 745.00

GOOD QUALITY FORAGE = 38% INCREASE IN MILK OR BEEF/ACRE!

***University of Wisconsin Milk 2000 based on forage production 6 tons/acre milk price $17.00/cwt**

Increased milk production and Average Daily Gain (ADG)

FEED REPRESENTS 2/3 OF OVERALL COST



To lower overall costs: LOWER FEED COSTS

2004 AgCensus

HEALTHIER ANIMALS

How?

Mowing

Baling

Hauling

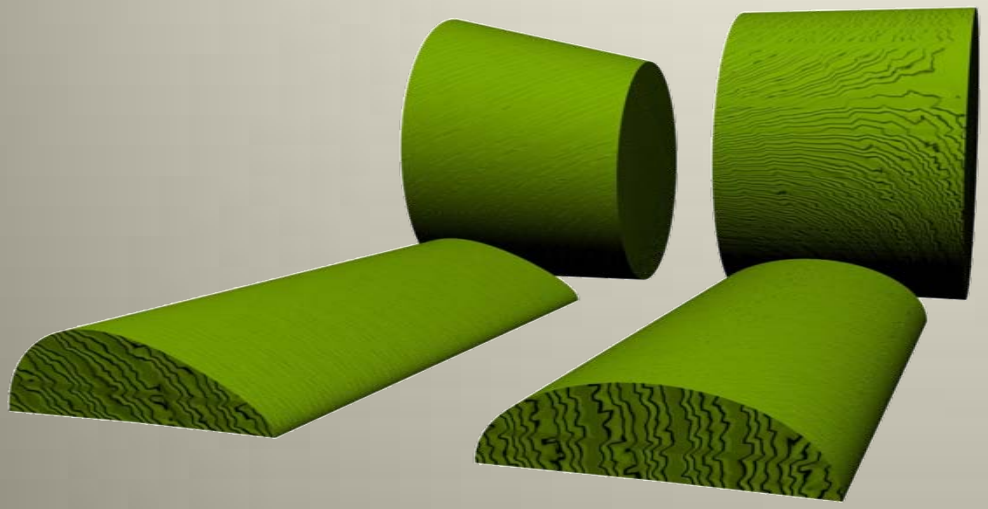
Wrapping

CUTTING HAY TODAY?

Mowing

- Young shoots
- New growth
- 3 to 4 cuts per season
- Mow 4" to 5" from the ground
- After dew

Perfectly shaped round bales



UNEVEN WINDROW WIDTH AND SHAPE LEADS TO UNEVENLY SHAPED BALES

EVEN WINDROW WIDTH AND SHAPE LEADS TO EVENLY SHAPED BALES

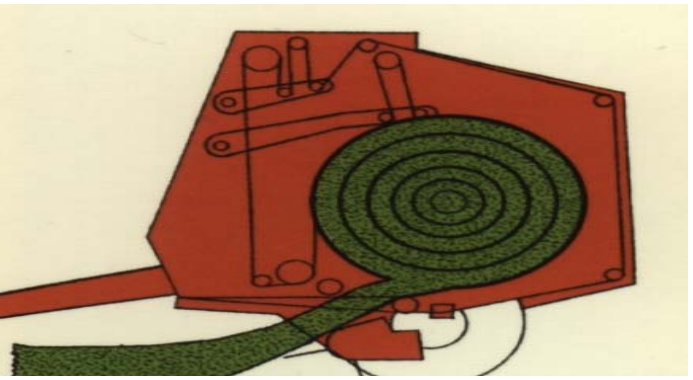
EVEN AND DENSE BALES

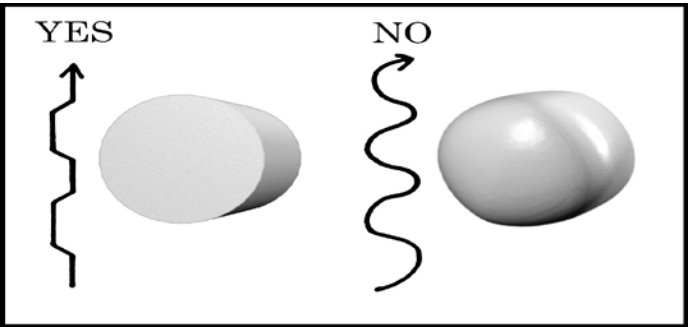
- **ARE EASIER TO WRAP**
- **ASSURE BETTER BALEAGE QUALITY**
- **ELIMINATE POTENTIAL WASTE**

Baling

- **RIGHT MOISTURE CONTENT**
  - baleage: 40% to 60%
  - dry hay: 20%
- **TIGHTLY PACKED : OXYGEN SQUEEZED OUT**

Baling Guidelines

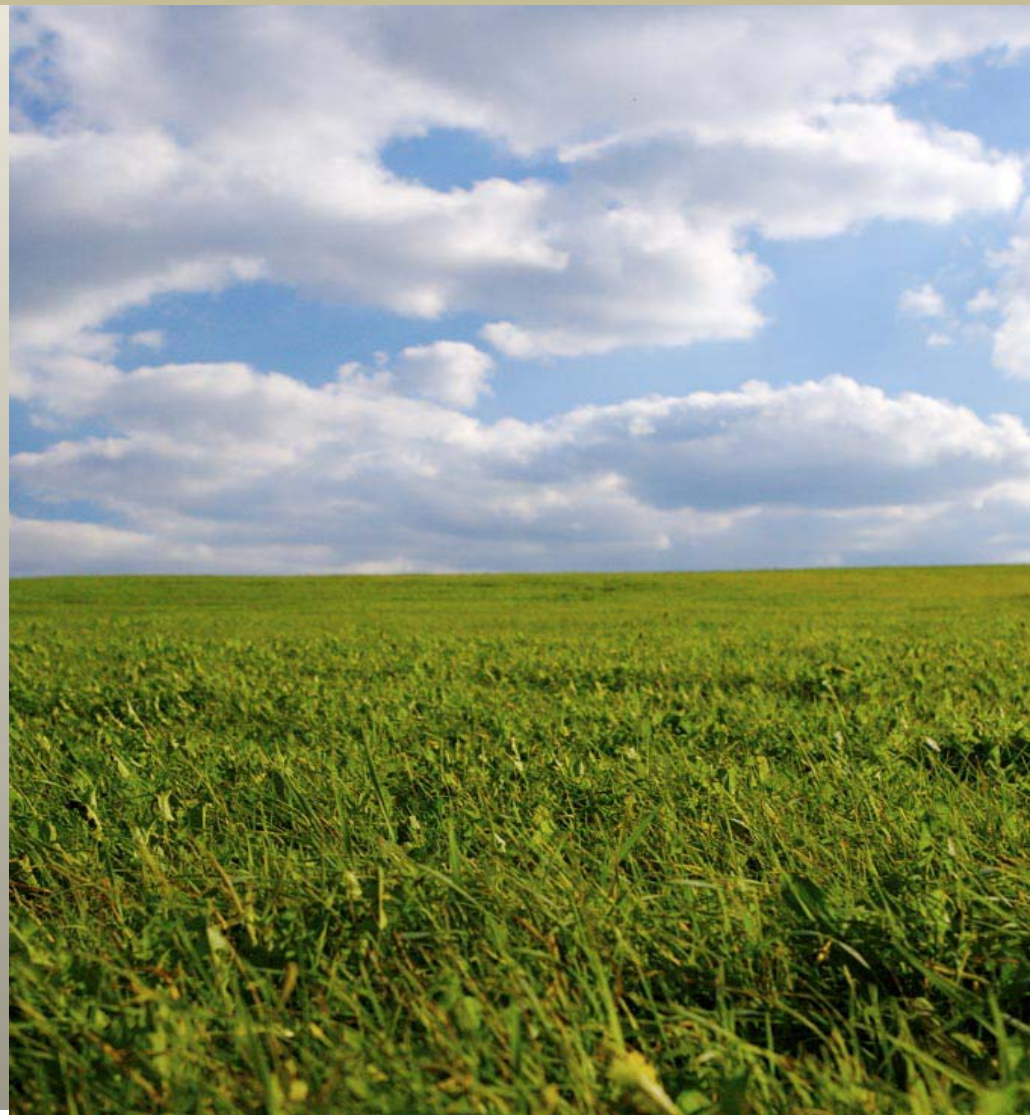




- **A** Adjust baler density to its maximum allowable position. The baler is a packer.
- **B** Avoid use of excessive forward speed
- **C** Make even-shaped bales

Crop Management

- 20% - 30% moisture:
  apply more wrap
- 30 to 40% moisture :
  feed before 6 months
- 40 to 60% moisture:
  stores up to 1 year
- 60% + moisture:
  feed before 3 months



Carrying & Hauling

Denser bales make for less bales to transport and wrap

Bales should be removed from the field as soon as possible

With a self loading trailer this is a one-man operation

Self-loading trailers are 40% faster

SAVE TIME AND LABOR

Wrapping

40% less film than individual wrapper

- **Within 6 hours of baling on average**
- **Wrap tightly with 6-8 layers**
- **Run rows North to South**
- **Consider in-line or individual wrapper**
- **Production yields:**

  100 to 150 bales/hour with in-line wrapper

  40 to 45 bales/hour with individual wrapper

“Keep nutrients in, oxygen out.”

Individual Bale Handling

Use only front or rear tractor mounted specialized handling equipment to transport wrapped bales.

Do not carry wrapped bales on a spike as it is impossible to reseal the bale.

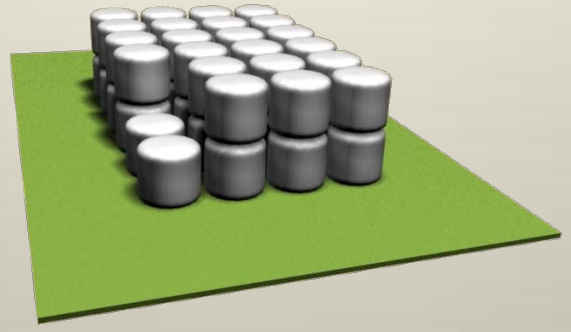
Storage process

Minimize damage to bales during storage and transportation.

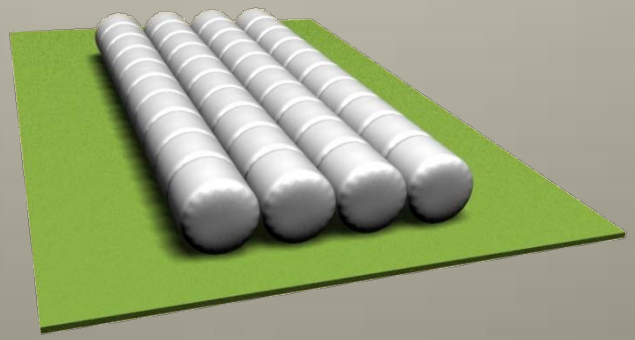
Store bales:

- **on a level, smooth surface free of vegetation and trash**
- **in a dry area for easy pick up in winter and wet periods**
- **close to feeding area**
- **avoid storage near woods or in remote areas**

Label bales and map storage location.



YES



NO

TIPS

- Limit bale diameter to 54”
- Make bales as even as possible with square shoulders
- Wrap everything ASAP
- Use sufficient plastic to ensure a good oxygen barrier
- Poor quality plastic = poor results
- Maximize production, don’t take chances with feed

More Milk

"I switched, and milk production increased."

John Martwezak
Bentleyville PA
Dairy operation:
95 milk cows

"It's 3 times faster, and I cut down on fuel consumption, and got rid of a lot of costly equipment. Compared to chopped silage, I feed less grain and less supplement, save about 30%, and get 7% increased milk production."

More Butterfat

"I switched, and got higher butterfat content."

Kevin High
Wolcott NY
Dairy operation:
140 milk cows

"We were feeding chopped silage from a bunker, I was losing a minimum of 15% of feed and the quality wasn't there. Since feeding baleage, we have increased the butterfat content in our milk. By baling myself, I gain in production and feed quality."

More Beef

"I switched, and my herd now has more daily weight gain."

Ernie Haehnel
Motley, MN.
Beef producer:
200 head herd

"The quality of the feed helps reduce the cost of mineral and supplement. My herd maintains a better body condition score, and the cows are breeding back more easily."

WHAT IS HIGH MOISTURE BAGGED CORN?

Rolled, shelled corn packed in an airtight plastic bag at 25% to 40% moisture content.

ADVANTAGES

- No drying required
- No transport costs
- Can be harvested earlier
- Bag a complete trailer (35 tons) in 1 hour
- Low capital investment
- Unlimited storage options
- Limited risk of loss

MORE ADVANTAGES

- Easier to market (no time constraints)
- Less expensive than dry corn
- Be more self sufficient in grain supplies
- High moisture rolled corn is easily digested, therefore, gives higher protein levels and energy value than dry corn

BEST FEEDING SYSTEM

- Baleage combined with High Moisture Rolled corn is the perfect blend of fiber, protein and energy

- Baleage and High Moisture Rolled Corn is the least costly feeding program today

HERE'S HOW WE DO IT...

- Bag must be at least 8mm. thick
- Store on high ground, level surface with good drainage
- Run rows North to South
- Adjust hydraulic brakes to assure high compaction to keep air out
- For ideal stretch, keep an eye on the bars on the bag

FEED COSTS

DAIRY RATION IS $400/TON

FARM BLEND IS $297/TON

FARM BLEND CONSISTS OF:

70% HIGH MOISTURE CORN + 26% ROASTED SOYA BEANS + 4% MINERAL PREMIX

AND HAS EQUAL OR HIGHER PROTEIN AND ENERGY VALUE THAN A 16% DAIRY RATION

		FARM BLEND	DAIRY RATION	SAVINGS/TON
H.M.C. ($200/TON)	**1400 LBS.**	**$140**		
R.S.B. ($450/TON)	**520 LBS.**	**$117**		
PREMIX ($1 000/TON)	**80 LBS.**	**$40**		
TOTAL/TON	**2 000 LBS.**	**$297**	**$400**	**$103**

SAVINGS PER YEAR

DAIRY CATTLE CONSUME 3.75 TONS OF DAIRY RATION PER COW/YEAR, 25LBS. PER MILKING DAY

DAIRY COWS	FARM BLEND	DAIRY RATION	TOTAL SAVINGS/YEAR
50	$55 687	$75 000	**$19 313**
75	$ 83 531	$112 500	**$28 969**
150	$167 062	$225 000	**$57 939**

FARM BLEND SAVES YOU $386 PER COW/YEAR

WITH 75 DAIRY COWS, PAY FOR YOUR GRAIN BAGGER IN 1 YEAR

SAVINGS PER YEAR

BEEF CATTLE CONSUME 1/2 TON OF RATION PER HEAD/YEAR, BASED ON 5LBS./DAY FOR 200 DAYS

BEEF CATTLE	FARM BLEND	RATION	TOTAL SAVINGS/YEAR
100	$14 850	$20 000	**$5 150**
150	$22 275	$30 000	**$7725**
200	$29 700	$40 000	**$10 300**

FARM BLEND SAVES YOU $51.50 PER HEAD/YEAR

WITH 100 HEAD, PAY FOR YOUR GRAIN BAGGER IN 6 YEARS

YIELD

- 200’ X 6’ BAG HOLDS 115 TONS
- MINIMUM DAILY GRAIN REQUIREMENT IS 286 LBS. TO KEEP GRAIN FRESH
- 286 LBS./DAY IS EQUAL TO FEEDING 60 BEEF COWS OR 12 DAIRY COWS

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