HARVEST MANAGEMENT

WHAT WE USED TO DO

GETTING BETTER

WHAT WOULD YOU RATHER DO

WHAT'S ACTUALLY "BEST"

AMAZING HOW ADVANCED WE ARE

LONG DAY

NOT MANY OF THESE BEING USED

MAJORITY OF HAY HARVESTED THIS WAY

Alfalfa Harvest

1. Harvest forage as rapidly as possible to reduce the chance of rain damage.
2. Capture maximum forage yield at the optimum forage quality.
3. Reduce in harvest loss in putting up the forage.

HARVEST CONSIDERATIONS

- Cutting Height
  - Lower the cut
    - the more stem yield
    - Slows down drying time
    - Decreases stand life
    - Decreases forage quality
  - 2.5 – 4 inches
- Equipment
  - Mowers
  - Conditioners
  - Raking
  - Wheel Traffic

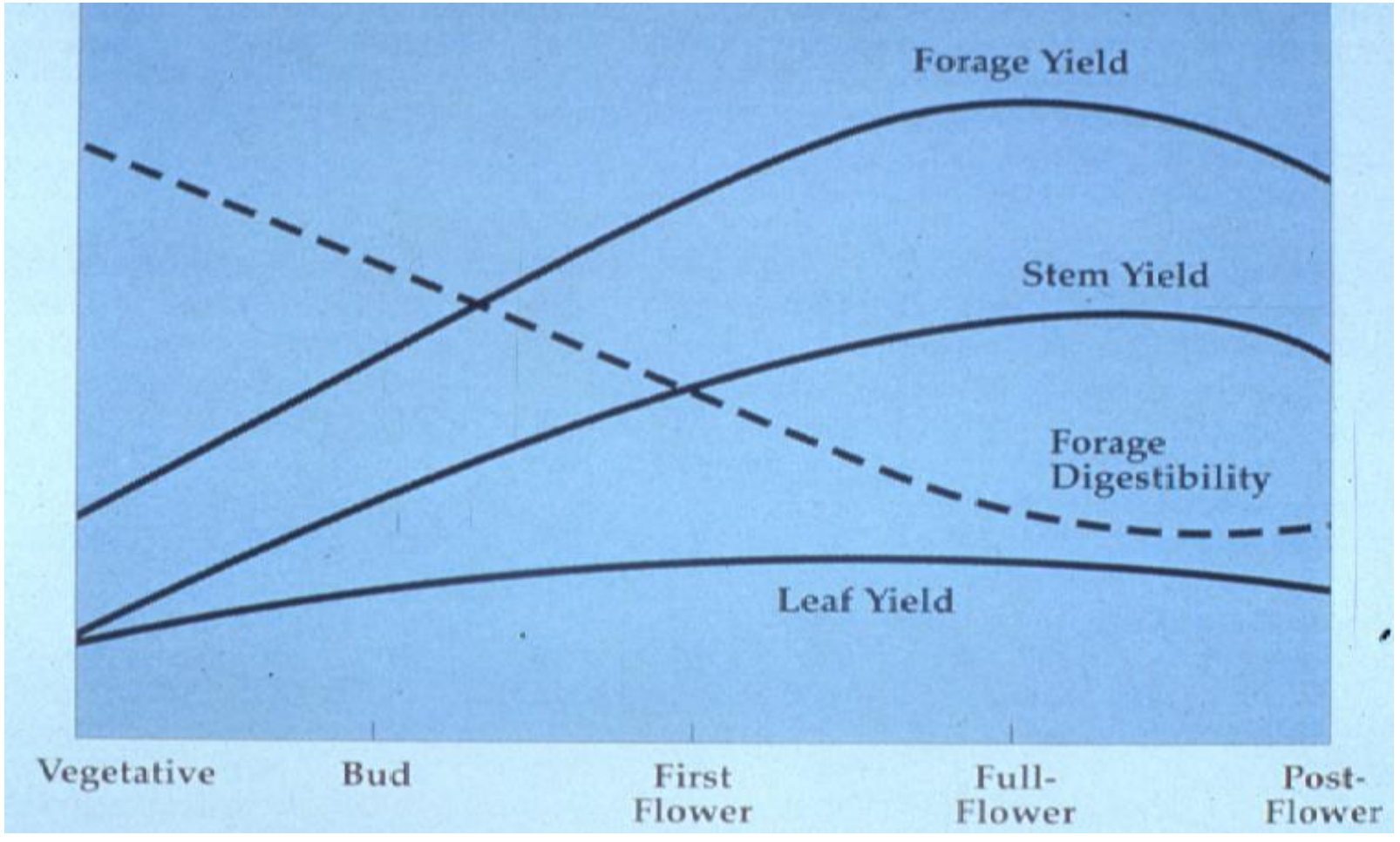
Wide swaths

- To maximize drying time, cut as wide as possible. At least 80% of cutter bar width. (only if it can be harvested efficiently enough to keep up with drying)
- Avoid big slugs of hay laying next to each other.
- Adjust cutter bar to keep hay off the ground. Need air flow under the windrow. Consider cutting at 3 inches instead of 2.
- Merge hay at 60% moisture to make haylage.

HARVEST MANAGEMENT

- Cutting Schedule
  - Aggressive Cutting
  - Extended Harvest
  - Flexible Harvest

- Forage Quality
  - Leaf : Stem
  - Rain Damage
  - Afternoon Harvest
  - Variety Differences



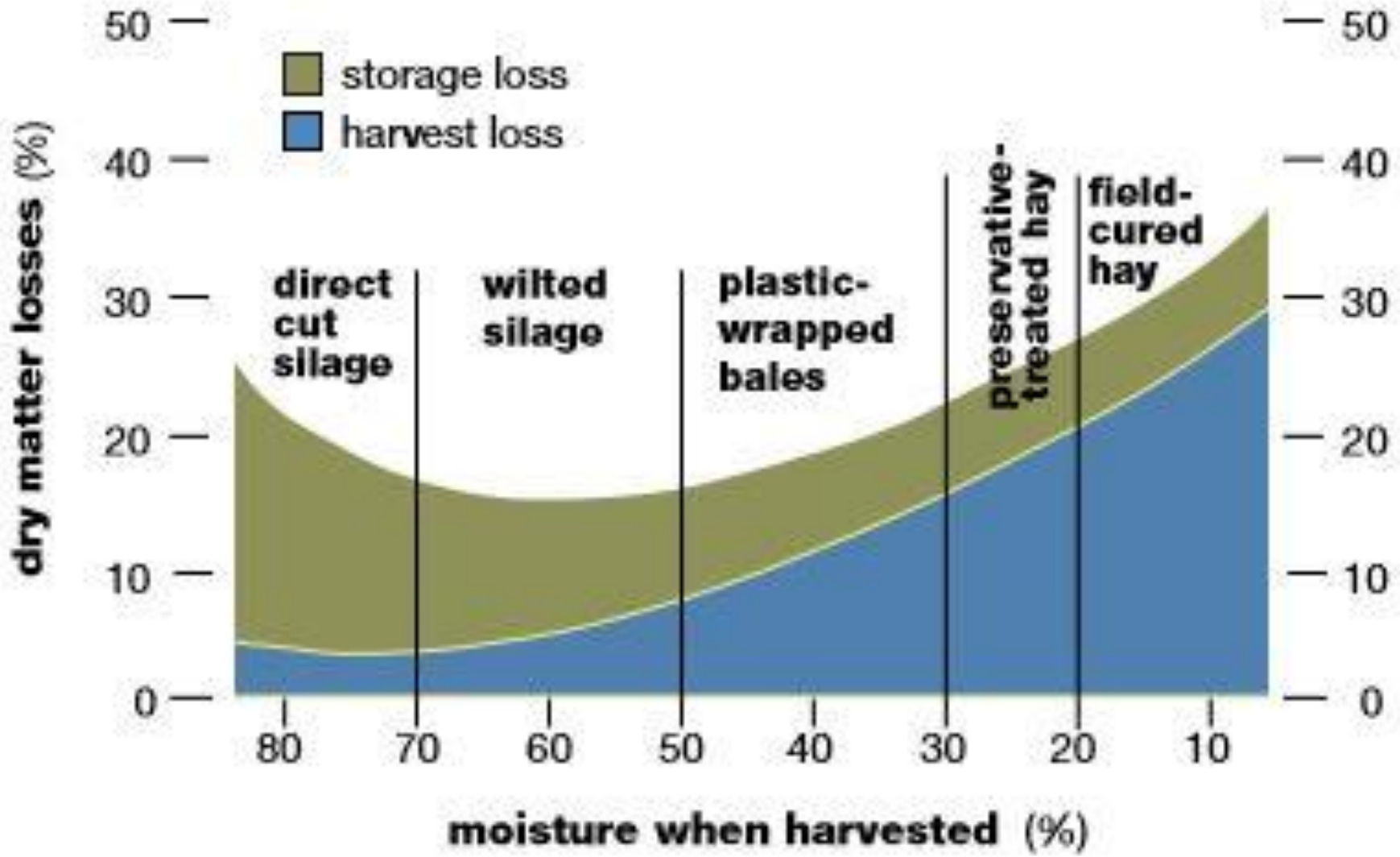
HARVESTING FOR YIELD AND QUALITY

- The first two harvests need to be timely.
- Calendar Date vs. Stage of Maturity vs. GDU's.
  - You should be able to feel the buds.
- Second cut taken in mid-bud around 28 or less days.
- Third and fourth cuts can be harvested on a longer interval.
- The industry has established that ideal timing for most efficient yield and quality is mid to late bud

Tedding Alfalfa

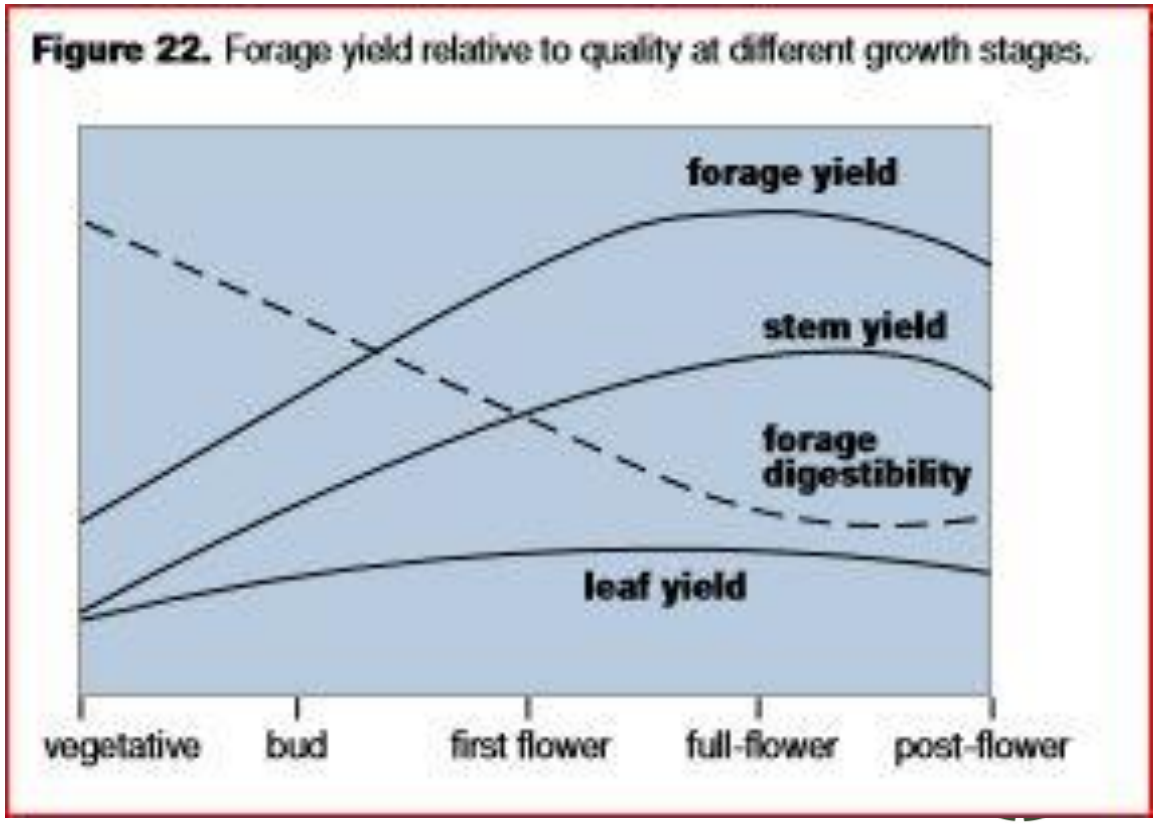
Rakes and Mergers

Figure 25. Dry matter losses during harvest and storage relative to forage moisture content at harvest.



Leaf Yield verses Stem Yield

- Once you get past bud stage, forage yield increases due to stem yield.
- Forage quality declines based on the ratio of stem to leaves.



Harvesting for Yield and Quality

- The first two harvests need to be timely.
- First cut should be Mid to late May in upper Midwest. You should be able to feel the buds.
- Second cut taken in mid-bud around 28 or less days.
- Third and fourth cuts can be harvested on a longer interval.

Balers, Putting it in a package your customer wants.

Wrappers

Ash in Forages

Abby Neu

University of Minnesota

Goal ash content

- Goal should be 10% or less
- Grasses average 6% natural ash
- Alfalfa contains 8% natural ash
- Forage test adds natural ash and soil ash together

University of Wisconsin's Soil and Forage Analysis

Laboratory Results (1000 samples)

- Haylage samples averaged 12.% with a range of 5.7 to 18%.
- Hay samples averaged 10.3% with a range of 8.8 to 17.6%
- Both grass and alfalfa averages about 4% surface ash contamination

Consumption

Animals eating forage were consuming about 1# of dirt in each 5# of hay or silage.

Mergers

Mergers showed the least amount of soil contamination.

Wheel Rakes

Wheel Rakes tended to collect more ash because they are ground driven.

Rake forage off of the stubble instead for scraping the ground.

Pay attention to ground speed.

Sidebar Rakes

Keep teeth from scalping the soil.

Rotary Rake

Need to keep teeth from scalping the soil

Mower

- Raise cutter bar to 3+” to keep forage off of the ground.
- Lay in wide swath in a dense stubble to eliminate harvesting a layer of soil.
- We don’t need more ASH!

Tedding

- Reduce drying time by allowing sunlight to dry more of the forage.
- Do not scalp the soil.

Ash in storage

- Bags
  - Store bags on concreate or asphalt in reduce the risk of contamination.

Quality loss Plant sugars (Carbohydrate

Rainfall reduces soluble carbohydrates in two ways:

1. Direct leaching out of plant tissues depends on:
    - Moisture content of wilted hay
    - Amount of rain
    - Intensity of the rain
    - Duration of the rain

Quality loss

- Intensity and short duration is more damaging than same amount of rain over a longer period of time.
- Less leaching early in the wilting process when plant is at the high moisture rather than ready to bale.

Quality loss

2. Effect of rainfall on drying hay is simply that the forage is rewetted

- Rain on wilted hay is simply re-wetting the forage which can re-activate plant respiration. This will cause additional plant sugars to be lost.
- Respiration occurs in plants until moisture levels drop below 50%.

Results of rained on hay

1. Lost plant sugars from leaching or through respiration
2. Higher NDF
3. Lower NDFd
4. More ash
5. Lower RFQ
6. Higher protein ?

Fermentation

- When forage is chopped for high-moisture feed, rain during wilting will negate it potential fermentation qualities.

Yield Losses

- Leaf shatter decreases yield
- Need for additions windrow manipulation with equipment
- Yield losses range for minimal to 34% in research trials
- Rain damage also discolors or bleaches the hay.

Questions?

Alfalfa Management Guide

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