



Strategies for Summer & Fall Grazing

Sam Corcoran, Ph.D.
UMass & The New England Grazing Network
Tri-State SARE Webinar Series
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Aligning Efforts

NEW ENGLAND GRAZING NETWORK



negrazingnetwork.com



New England Grazing
Network



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MEATWORKS
THE LIVESTOCK
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OF SOUTHERN NEW ENGLAND

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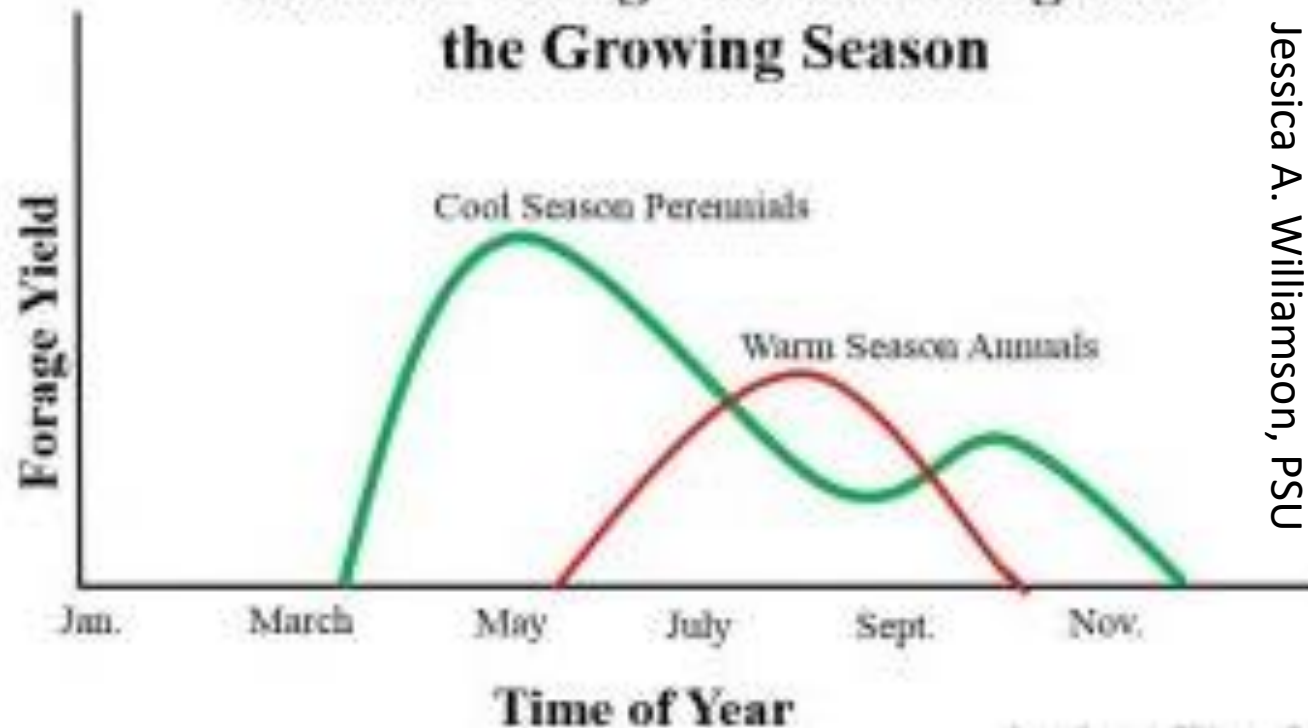


Summer Grazing Strategy: Annuals

How do summer annuals fit in?

- Compensate for Summer Slump
 - Factor of biology

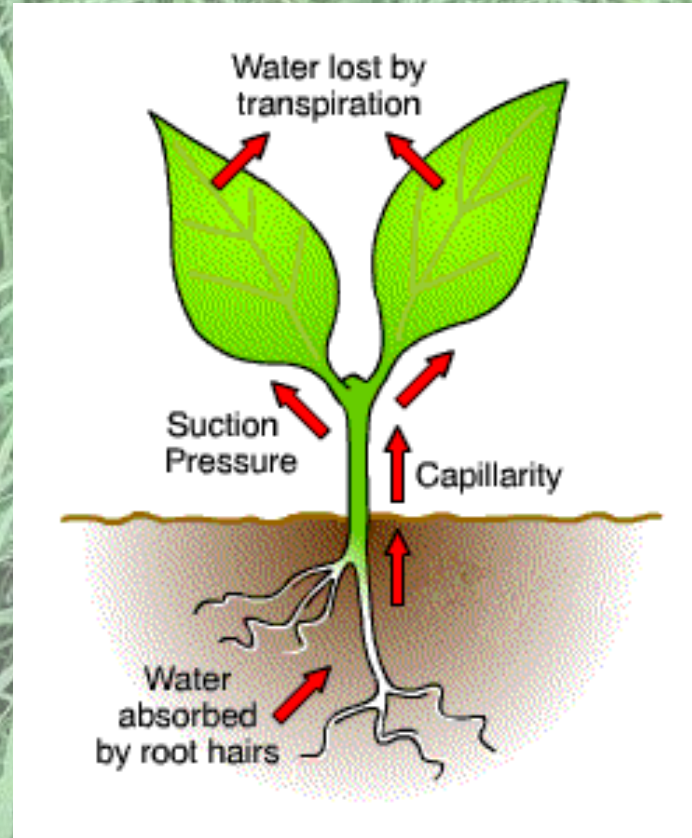
Relative Forage Yields throughout the Growing Season



Jessica A. Williamson, PSU

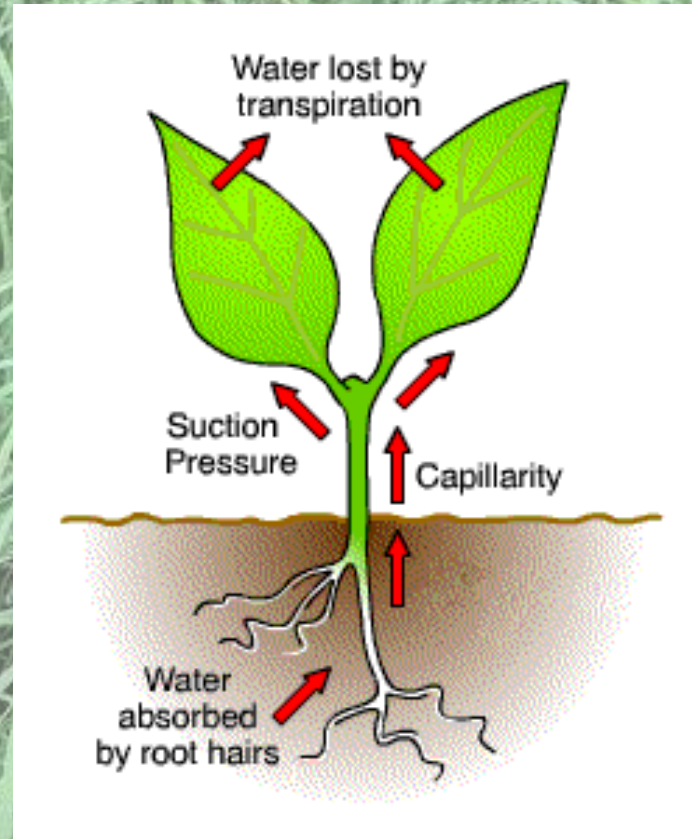
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 - Slowed root growth in warm temperatures (cool-season perennials like soils 50-65°F)
 - Results in reduced transpiration, carbon intake, and photosynthesis



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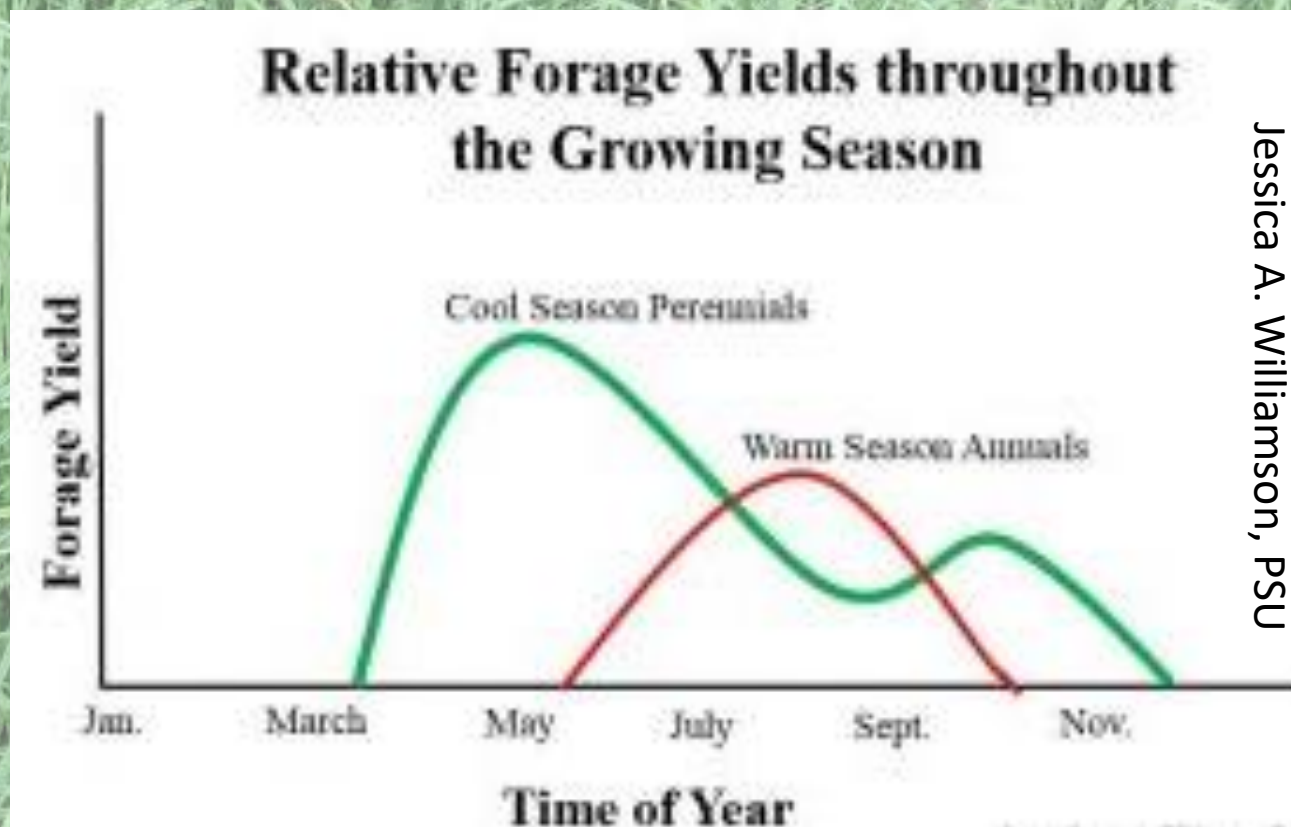
How do summer annuals fit in?

- Compensate for Summer Slump
 - Factor of biology
 - Some annuals have a different biology
 - Do well in warm soils and warm air temps
 - Have water use adaptations to keep stomata open
 - Don't have the pressure of needing to survive to next year



How do summer annuals fit in?

- Compensate for Summer Slump
 - Offers summer grazing
- Sets you up to extend the grazing season in fall
- Helps compensate in fall for longer resting periods in perennial pasture



Summer Annuals: The Pitch

- Highly customizable
- “Practice” grazing or get a baseline.
- Great band-aid for bald spots if you accidentally overgraze a pasture, animals tear it up when wet, or for pastures that experience winter kill.
- Really anywhere you have “accidental” bare ground.
- Safety net for stored feed.
- Forage benefits and ecosystem services (dual-purpose).
- A part of your pasture renovation plan.
- If they don’t do well, no love lost.
Worst case scenario = serve as a cover crop.



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Summer Grazing

- Buckwheat (early May)
- Millets (starting late May)
- Field peas (early May)
- Sorghum x Sudan (late May)
- Forage soybean (mid May)
- Spring barley, wheat, and oats (late April – mid May)
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FALL: 9/22-12/21

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When do you want to plant? When do you want to harvest?

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Summer Annuals: Where & When to Use

- Spring/summer to prepare a pasture before seeding or reseeding in the fall
 - Weed suppression
 - Erosion control
 - Seedbed prep – compaction alleviation
 - Add fertility
 - Kick-start microbial activity



Summer Annuals: Where & When to Use

- Spring/summer to prepare a pasture before seeding or reseeding in the fall
 - Weed suppression
 - Erosion control
 - Seedbed prep – compaction alleviation
 - Add fertility
 - Kick-start microbial activity
- Don't have to lose an effective production season



Summer Annuals: Where & When to Use

- Stored feed without committing to hayfields
- Safety net for stored feed reserves
- Maybe you'll have extra hay to sell



Summer Annuals: Where & When to Use

- Stored feed without committing to hayfields
- Safety net for stored feed reserves
- Maybe you'll have extra hay to sell
- Can make stored feed if the plants get ahead of you



Summer Annuals: Where & When to Use

- Fallow/resting
- Conversion to organic
 - Ask your veg neighbor to graze their field (ex: alfalfa & dairy farmer)
 - Ex: Kashi “transitional land”
- Disease/insect pressure
 - Crop rotation
 - Sorghum x sudan, sunn hemp, brassicas all have nematode suppression effects
- Just got to it too late
 - Keeps land in production
 - Capitalizes on the ecosystem service benefits of these crops



Summer Annuals: Where & When to Use

- After a cash crop that comes off in the summer (i.e. garlic, beans, grains)
- Before a fall planted cash crop (garlic)
- Can be a great part of veg + livestock operation of any scale
- Manure + legumes = fertilizer
- Every nook and cranny of time
- Picture: millet and buckwheat



Summer Annuals: Where & When to Use

- Pop up where it's torn up
- Sometimes we “screw up”
 - Accidental sacrifice areas
 - Areas near the barn that have become too muddy
 - Overwintered in a larger space than intended
 - Accidentally let out/got out when it was too wet



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 - Areas near the barn that have become too muddy
 - Overwintered in a larger space than intended
 - Accidentally let out/got out when it was too wet
- Overgrazing
- Can minimize damage until the appropriate time to seed perennials
- If torn up again, no love lost



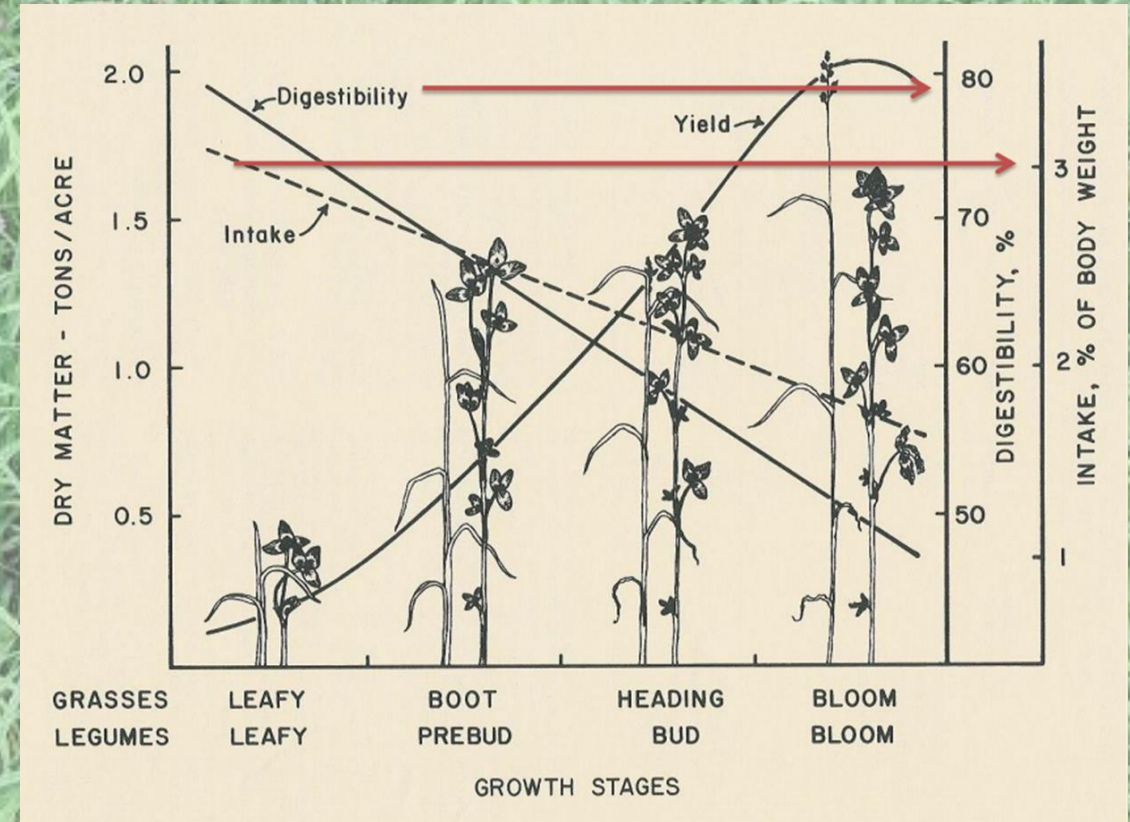
Summer Annuals: Where & When to Use

- For those working on a smaller scale or with smaller critters:
 - A handful of rabbits or chickens can mow down smaller annuals
 - Can cut and feed as needed
 - Could be a way to test drive your seeding rates, mixes, and learn the personalities of the different plants on a small scale in the kitchen garden



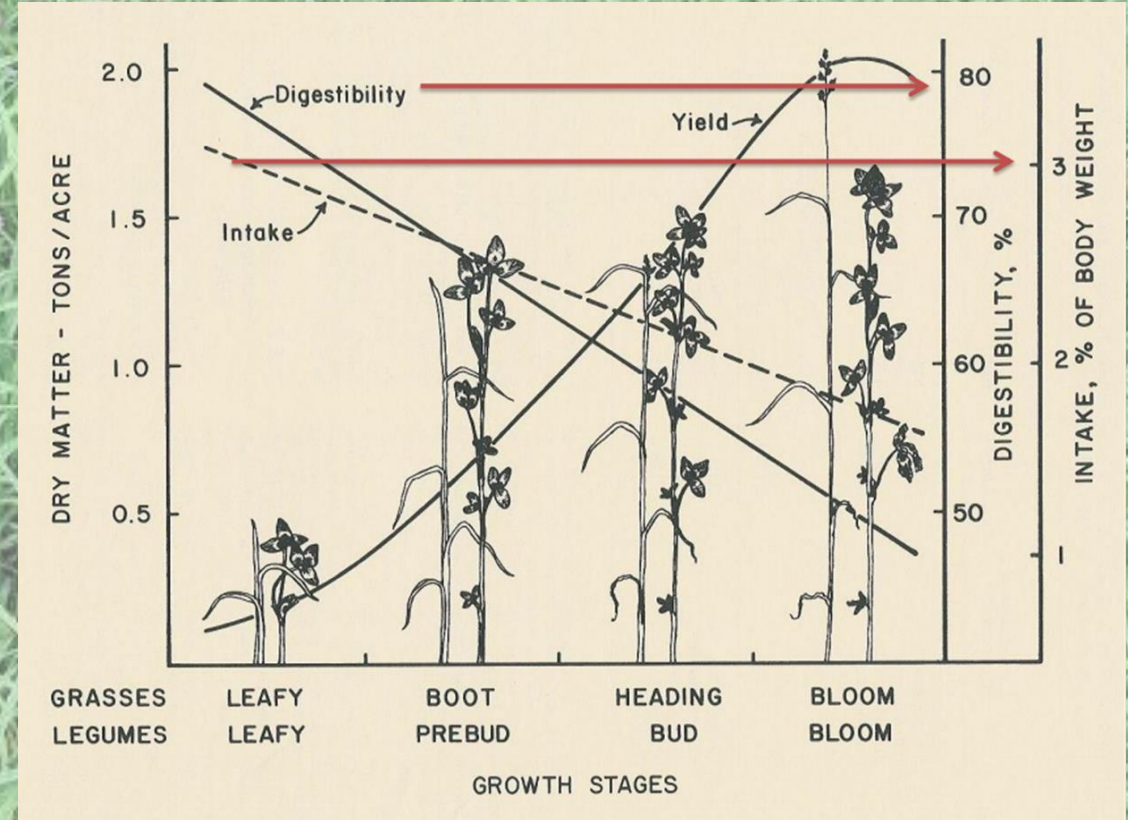
Summer Annuals: Forage Quality

- Forage quality is influenced by:
 - Species (grasses vs legumes)
 - Growth stage of the plants
- Quality isn't just about protein:
 - Palatability
 - Texture, leafiness, flavor,
 - Sugar content
 - Metabolites
 - Intake – affected by palatability
 - Digestibility – factor of age
 - Nutrient content



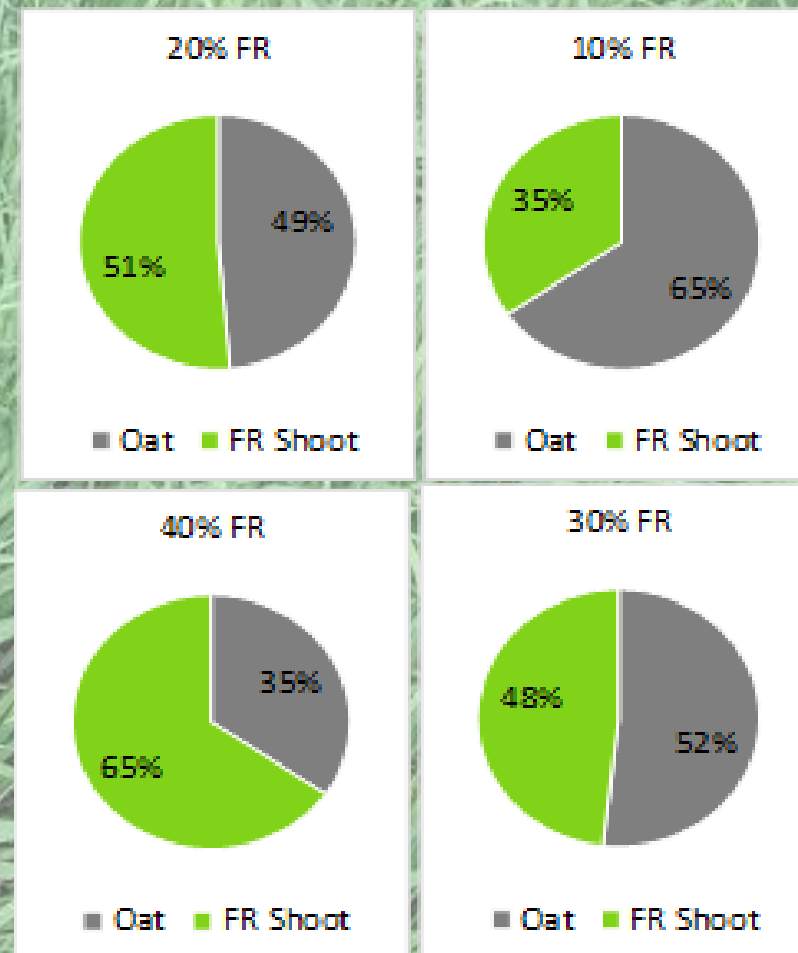
Summer Annuals: Forage Quality

- Highly recommend sending out a forage sample to be analyzed
- Err on the side of getting a wet chemistry analysis instead of NIR (personal opinion)
- If you have a nutritionist, share the results
- Introduce animals slowly
- Use your forage test & monitor animal weights/milk production to determine success
- Start small, experiment



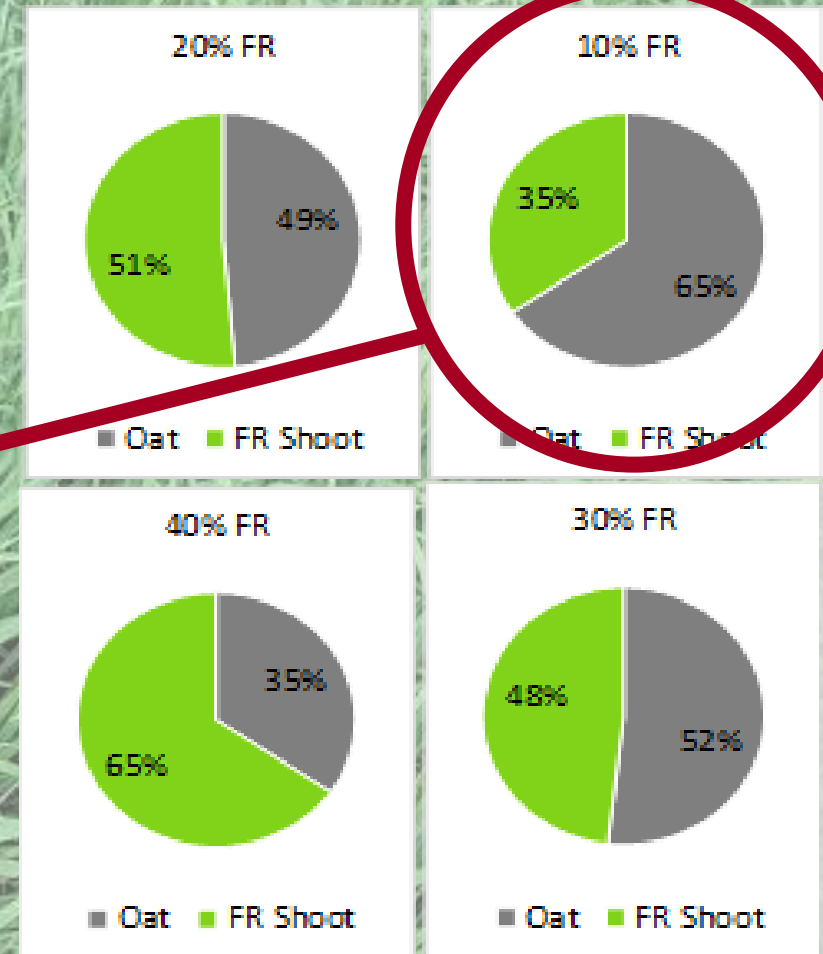
Summer Annuals: Seeding Rates

- Seeding rates can be slippery
- 100% Forage radish = 8 lbs/A
- 100% Oat = 110 lbs/A
- Figure: final crop composition by dry weight relative to seeding rate (3 years of field data)



Summer Annuals: Seeding Rates

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- 100% Forage radish = 8 lbs/A
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- Figure: final crop composition by dry weight relative to seeding rate (3 years of field data)
- 1.4 tons DM/A in ~10 weeks (planted 9/5)
- 17% CP, 180 RFV
- 92 lbs. N/A; 20 lbs. P/A
- ~\$85 seeds/A, i.e. \$30/1000 lbs.



Summer Annuals: A Few Last Notes


- Buckwheat: don't let it go to seed
- Brassicas: make glucosinolates/isothiocyanates, don't let them dominate
- Sorghum x sudan and sorghum: let reach ~2 feet before grazing to avoid prussic acid poisoning; cows will happily strip leaves off 5' tall plants
- Summer annuals need a good seed bed, broadcasting can be hit or miss
- Plants still need fertility and a reasonable pH
- Every grazing removes ~50 lbs. N – how will you put it back?
- Things like sorghum x sudan need supplemental nitrogen
- Can graze in a field with high P levels to remediate/mitigate accumulation

Summer Annuals: Know What Comes Next

- Plant pasture?
- Winter barley?
- Garlic?
- Overwintering cover crop?
- If you don't have a plan, then don't overgraze so that the residue can regrow/remain alive and function as a cover crop.

A wide-angle photograph of a lush green pasture. In the foreground and middle ground, a large herd of black cattle is scattered across the field, some standing and some grazing. The pasture is enclosed by a simple wooden post-and-rail fence. In the background, a line of trees with varying shades of green and brown stretches across the horizon under a bright, slightly overcast sky. The overall scene depicts a healthy, active farm environment.

Fall Grazing: Getting the Most Out of Your Pastures

A wide-angle photograph of a lush green pasture. In the foreground and middle ground, a large herd of black and brown cows is scattered across the field, grazing. The background features a line of trees with varying shades of green and brown, suggesting an autumn setting. The sky is bright with some light clouds. A semi-transparent green rectangular box with a white border is centered over the image, containing white text.

Fall Grazing: ~~Getting the Most Out of Your Pastures~~

A wide-angle photograph of a lush green pasture. In the foreground and middle ground, a large herd of black and brown cows is scattered across the field, some grazing and others standing. The field is enclosed by a simple wooden post-and-rail fence. In the background, a line of trees with varying shades of green and brown stretches across the horizon under a bright, slightly overcast sky. A semi-transparent green rectangular box is overlaid on the middle of the image, containing white text.

Fall Grazing: Don't be Tempted

Fall Grazing: Have a Rotation Plan

- Follow the rules of rotational grazing
 - Will give you a longer grazing season
 - Results in higher utilization of the available forage
- The problems with continuous grazing
 - Lower forage quality and yield
 - Lower stocking rate
 - Reduced utilization
 - Uneven manure distribution
 - Weeds often a serious issue

*Stay tuned for an October
fencing clinic*

Fall Grazing: Rest Periods

- Simple rotational grazing plan
 - ~30 day rest period
- Intensive grazing management plan
 - Average monthly rest period

Month	Avg. Rest Period
April	15 days
May	18 days
June	24 days
July	30 days
August	36 days
September	42 days
October	50+ days

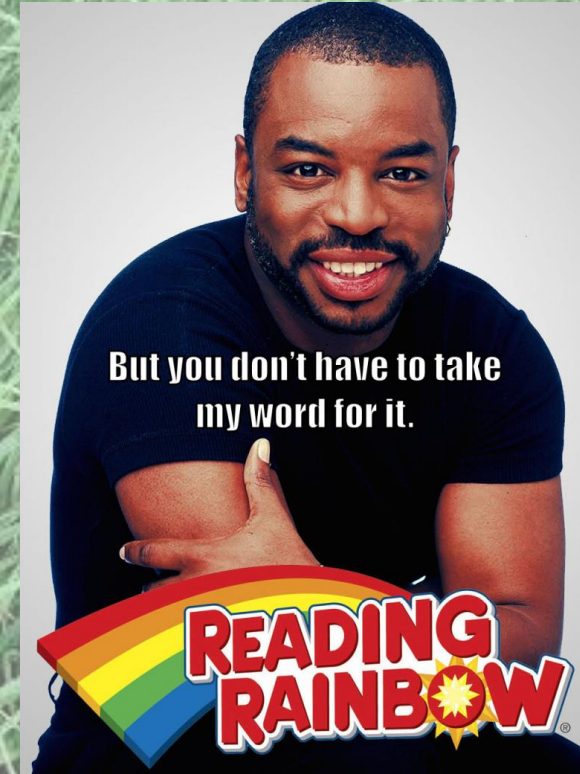
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 - Figure = average, regional rest periods
 - Using a 30 day rest period year round short-changes you in the spring, sets you up to overgraze in the spring.

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Fall Grazing: Rest Period

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 - ~30 day rest period
- Intensive grazing management plan
 - Average monthly rest period
 - Figure = average, regional rest periods
 - Using a 30 day rest period year round short-changes you in the spring, sets you up to overgraze in the spring.
 - Let's look at the numbers...



Fall Grazing: Calculating Need

- To calculate “need”, use % of body weight as daily forage intake +1% waste/trample
- Let’s say you have 20 cows, 1200 lb. avg. (ex: adult, female belty)
- (# of animals) * (weight)*(daily utilization)
- = (20)*(1200)*(2.25%+1% ie 0.0325)
- = 780 lbs. forage/day/herd

DM demand (as % body weight)	%
Dry dairy cow	1.80
Dairy heifers (6-24 months)	2.50
Beaf cattle (> 1 year of age)	2.25
Beaf cattle (weaned, < 1 year of age)	2.75
Goats (brood or milking animals)	4.00
Goats (weaned, slaughter or replacement stock)	2.25
Sheep	3.5-4.0
Horse	2.0-3.0

Two-part workshop on “pasture math” at NOFA MA Summer 2020

Fall Grazing: Calculating Need

- 780 lbs. forage/day/herd **NEEDED**
- How often do you want to/need to move animals? Every 7 days?
 - Relative to animal type
 - Lactating animals every 1-1.5 days
 - Lower activity beef, max of every 7
- If every 7 days, = $7 * 780 = 5640$ lbs. DM/7 day rotation (**NEED**)



Fall Grazing: Calculating Need

- Now let's say you let your pastures grow to 10" tall before grazing, and you will leave 4" of residue.
- $10 - 4 = 6$ inches of grazable material
- You've used your lovely pasture stick from NRCS and have mostly orchard grass and clover. Your pasture stick tells you there are 275 lbs. DM/inch/acre



Note: Some materials say, “graze half, leave half”, 4 inches is fine.

Fall Grazing: Calculating Need

- 6" available * 275 lbs. DM/A/inch
= 1650 lbs/A (forage HAVE per acre)
- Forage NEED for 7 days = 5460 lbs
(from previous slide)
- Forage NEED / Forage HAVE
- $5460/1650 = 3.3$ A for 7 days (this is
your paddock size)



<https://ninjacowfarm.com/category/grass/ncs-grazing/page/2/>

Note: Your paddock size stays consistent. The number of paddocks you need changes throughout the year.

Fall Grazing: Calculating Need

- How many paddocks do you NEED, relative to the monthly rest period?
- $(\text{Rest period} / \text{days on pasture}) + 1 = \#$ of paddocks you need
- May = $(18 \text{ days rest} / 7 \text{ days on}) + 1 = 3.6$ paddocks needed
- Each paddock, for 7 days, is 3.3 A in size (from previous slide). So 3.6 paddocks needed * 3.3 A each = 12 A

Month	Avg. Rest Period
April	15 days
May	18 days
June	24 days
July	30 days
August	36 days
September	42 days
October	50+ days

Fall Grazing: Calculating Need

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- Each paddock, for 7 days, is 3.3 A in size (from previous slide). So 3.6 paddocks needed * 3.3 A each = 12 A needed in May.
- Sept. = (42 days rest / 7 days on) + 1 = 7 paddocks needed * 3.3 A each = 23 A needed in September.

Month	Avg. Rest Period
April	15 days
May	18 days
June	24 days
July	30 days
August	36 days
September	42 days
October	50+ days

Point One: You need more paddocks (and land) in Fall than Spring.

Fall Grazing: Calculating Need

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Point Two: Depending on your goals, will you make a grazing plan based on your fall or your spring pasture availability? Will you include annuals to make your fall pasture go further? Can be key to more fall grazing, longer fall grazing, and the ability to stockpile.

Fall Grazing: Calculating Need

- 12 A in May
- 23 A in September
- Using a 30 day rest period from a “simple rotation grazing plan”:
 - $(30/7)+1 = 5.3$ paddocks * 3.3 A paddock size (remember, this is now consistent) = **17.5 A needed all year.**
 - You will undergraze in spring
 - You will overgraze in fall

Month	Avg. Rest Period
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May	18 days
June	24 days
July	30 days
August	36 days
September	42 days
October	50+ days

Point Three: “Don’t take my word for it”, IGM vs Simple Rotation

Fall Grazing: Calculating Need

- The next step would be to create a forage balance sheet to develop a year-long grazing plan.
 - Accounts for changing regrowth rates throughout the season
- Time does not allow today....

Forage balance sheet:

				Monthly Forage Requirements (lbs. × 1000)						
Animal Type	Animal #	Avg. wt.	Daily Utilization (lbs.)	May	June	July	Aug	Sep	Oct	Total
Beef/calf	10	1100	385	11.9	11.5	11.9	11.9	11.5	11.9	70.6
Bull	1	2000	90			2.7	2.7	2.7	2.7	10.8
Total	11			11.9	11.5	14.6	14.6	14.2	14.6	81.4
DM Production x 25 acre				10 x 275 x 25 = 68.7	6 x 275 x 25 = 41.2	3.5 x 275 x 25 = 24.1	2.5 x 275 x 25 = 17.2	3 x 275 x 25 = 20.6	1.5 x 275 x 25 = 10.3	182

* 0.04 daily utilization rate (includes forage waste)

Summer MA NOFA – UMass Fact Sheet & “Plug and Chug” Spreadsheet Coming Soon!

Fall Grazing: A Note on Resting Periods

- Variable relative to location and the growing conditions in your field
- Temperature, growing degree days, day length, species



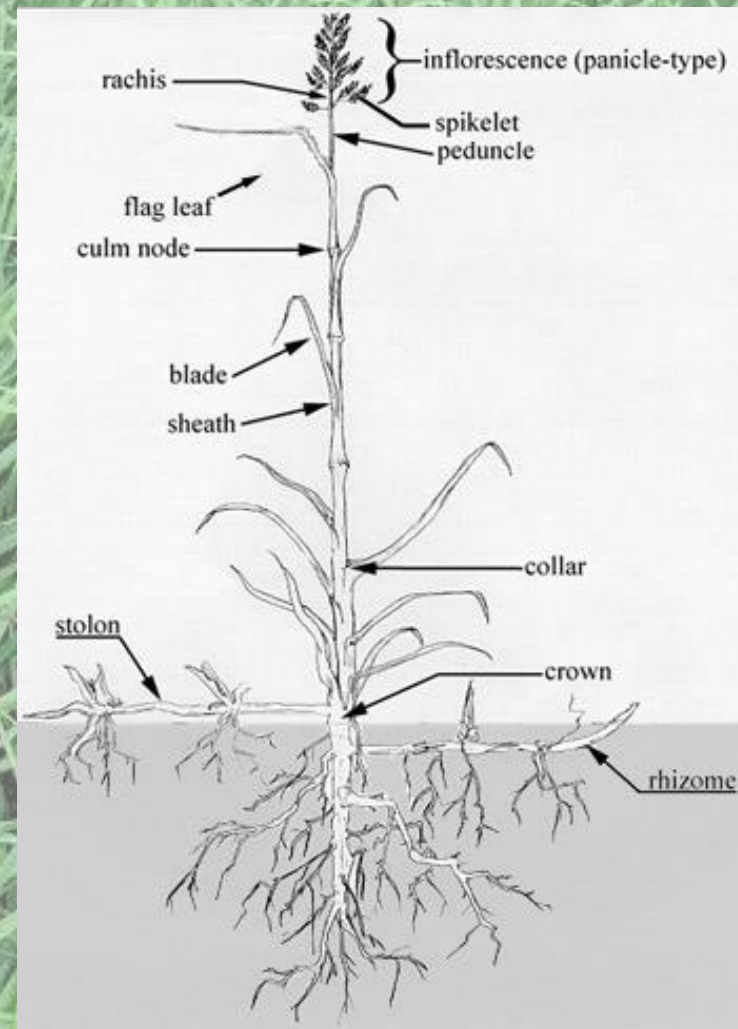
Fall Grazing: Grazing Height

- As previously noted, grazing to four inches is okay
- Be extra cautious not to graze too short in fall
- In fall, plants have minimal opportunity to recover from overgrazing
- In fall, plants have the extra “responsibility” of preparing to overwinter



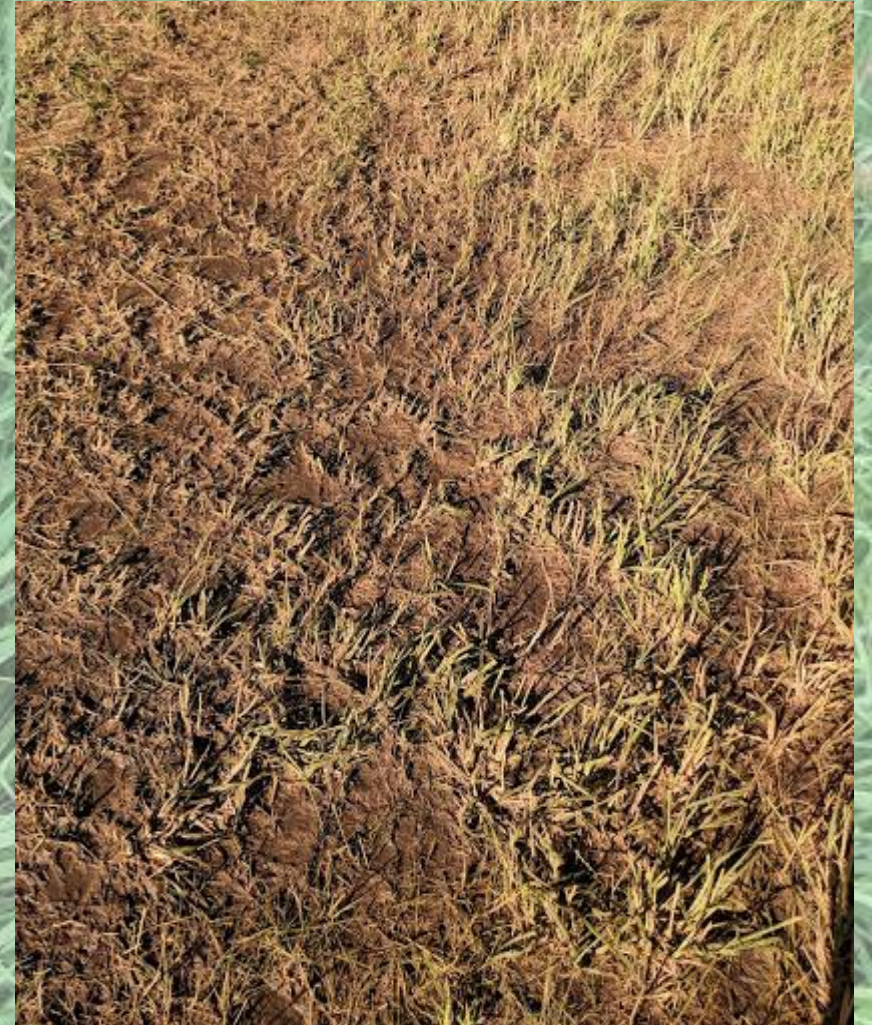
Fall Grazing: Cold Acclimation

- Preparing to overwinter...
- Sending energy to crown (the regrowth structure) means plants need time to do photosynthesis and prepare
- Cold acclimation process means plants eventually need to shut down photosynthesis
- Fall overgrazing leads to:
 - Slow spring regrowth
 - Increased likelihood of winterkill
 - Reduced biomass to capture snowfall, which serves as an insulator
 - Can mitigate the effect of a de-acclimation event i.e. a thaw and freeze



Fall Grazing: Don't be Tempted

- Getting the most out of your pastures can quickly become overgrazing
- Fall grazing management sets you up for spring success or failure
- If you have grazed through all your pasture in October, and the paddocks haven't adequate time to regrow, you are done grazing (unless you have been stockpiling).
- Don't let a little regrowth tempt you. The regrowth is more valuable to you if left on the plant than if you graze it in fall when you shouldn't (comes back to dormancy/overwintering/spring regrowth)



Fall Grazing: Final Thoughts

- Lime whenever
 - Preferably right before it rains
 - Animals can go back on
- Anecdotally, low pH and overgrazing are the two biggest pasture problems in New England
- If you graze in early September and you have Fescue, then when you graze again in October it's going to be mostly fescue
 - Quality vs quantity trade off
 - Inherently faster growing
 - Legumes have slow regrowth anyways so next grazing will also be more grass heavy (i.e. lower protein)



Contact Info & Things to Look For

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978-855-3242

negrazingnetwork.com (find us on FB or IG)

thelivestockinstitute.org

Fall Fencing Clinic

UMass Grazing Factsheet and Calculator

NOFA MA 2020 “Pasture Math” Workshop

NEGN/TLI pasture walks & workshops

