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Forage Management Training Session.

Forage Harvest Management: A Compromise Between Yield, Quality, and Persistence

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Goals

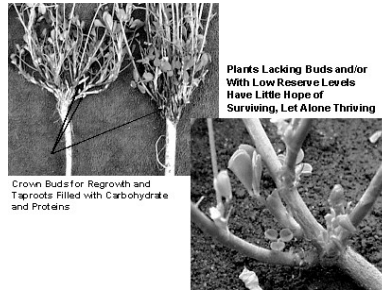
- Explain why forage plants are adapted to grazing and haying
- Provide an understanding of how cutting management influences yield, quality, and persistence of forages.
- Explain why forages respond as they do to mis-management

What is Unique About Forages That Allows Them to Tolerate Close Cutting or Grazing, to Survive, and Even to Thrive?

Click on pictures to enlarge, use back button to return
Meristems and Stored Reserves

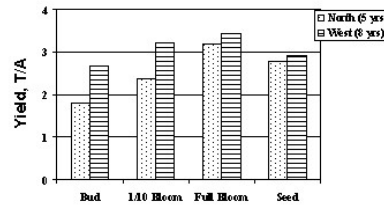


Crown Buds



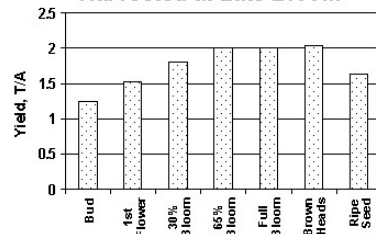
Forage Yield is Greatest when Alfalfa is Harvested at Full Bloom

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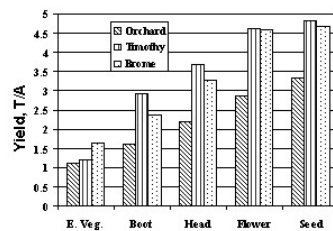
Red Clover Yield is Greatest when Harvested at Late Bloom

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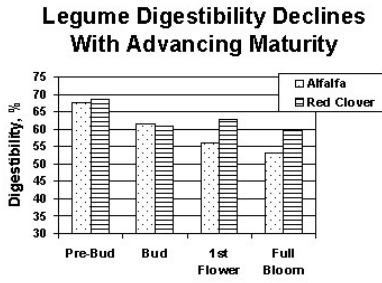


Grass Yield Increases with Maturity at Harvest 1

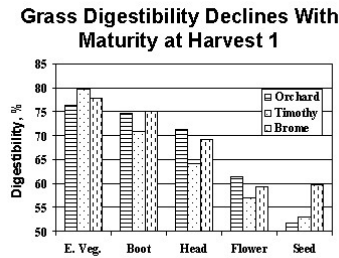
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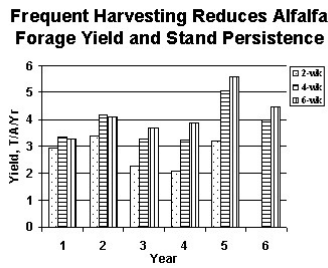
Legume Digestibility Declines with Advancing Maturity



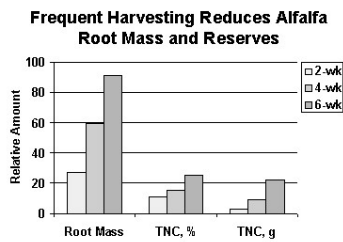
Grass Digestibility Declines with Maturity at Harvest 1



Frequent Harvesting Reduces Alfalfa Forage Yield and Stand Persistence



Frequent Harvesting Reduces Alfalfa Root Mass and Reserves



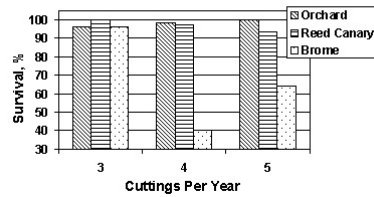
Persistence is Associated with High Stem Base Total Nonstructural Carbohydrate (TNC) levels in Forage Grasses

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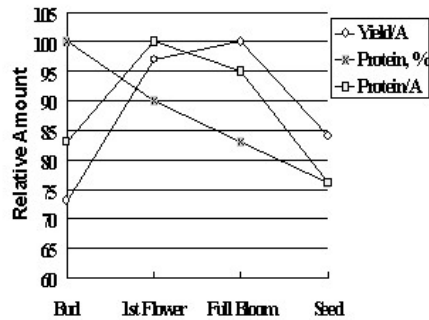
Frequent Cutting or Grazing at Immature Stages Reduces Persistence of Some Forage Grasses

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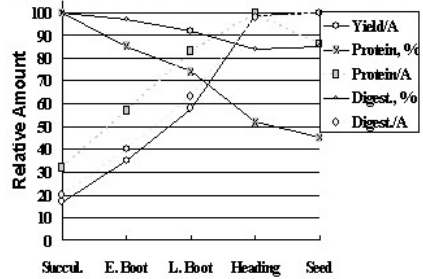
Highest Protein Yield/A of Alfalfa is Obtained at 1st Flower

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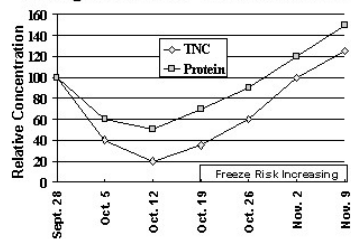
Highest Yield/A Nutrients for Bromegrass is Obtained at Heading

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Late Harvesting Increases Risk of Plants Going into Winter Low Reserves

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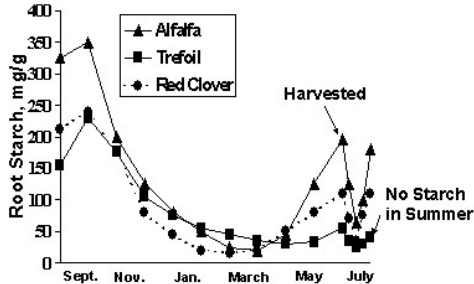


Untimely Fall Harvesting Reduces Spring Alfalfa Densities, Vigor, and Yield

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Date of Final Harvest	Plants/3 sq. ft. no.	Plant Ht. in May in.	Yield in May T/A
Not Cut	21	4.7	2.8
Sept. 3	20	3.5	2.6
Sept. 10	16	3.3	2.4
Sept. 17	11	2.8	2.2
Sept. 24	14	3.2	2.3
Oct. 1	18	3.5	2.5

Comparison of Alfalfa, Trefoil, and Red Clover Root Starch

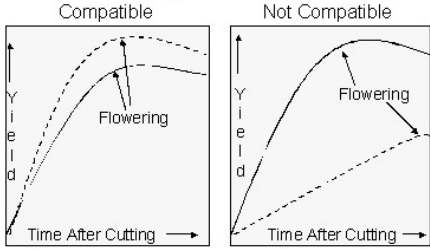


Species Compatibility in a Mixture Depends Upon Several Traits

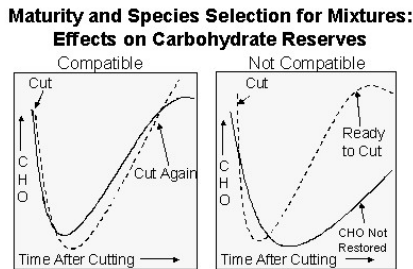
- Initiation of Growth in Spring/Cessation of Growth in Autumn
- Maturity, Especially First Harvest
- Synchrony of Reserve Accumulation
- Palatability Differences if Grazed

Maturity and Species Selection for Mixtures: Flowering and Yield Effects

Maturity and Species Selection for Mixtures: Flowering and Yield Effects



Maturity and Species Selection for Mixtures: Effects on Carbohydrate Reserves



Conclusions

- As Maturity Advances Yield and Persistence Improve, While Forage Quality Declines
- Assessing Digestible Nutrients and Protein on a Per-Acre Basis Insightful
- Maximum Production of Nutrients/A Generally Occurs at 1st Flower for Legumes and at Heading in Grasses
- Acceptable Persistence Requires Adequate Reserve Levels be Present at Harvest