Grass Physiology

&

Grazing Management

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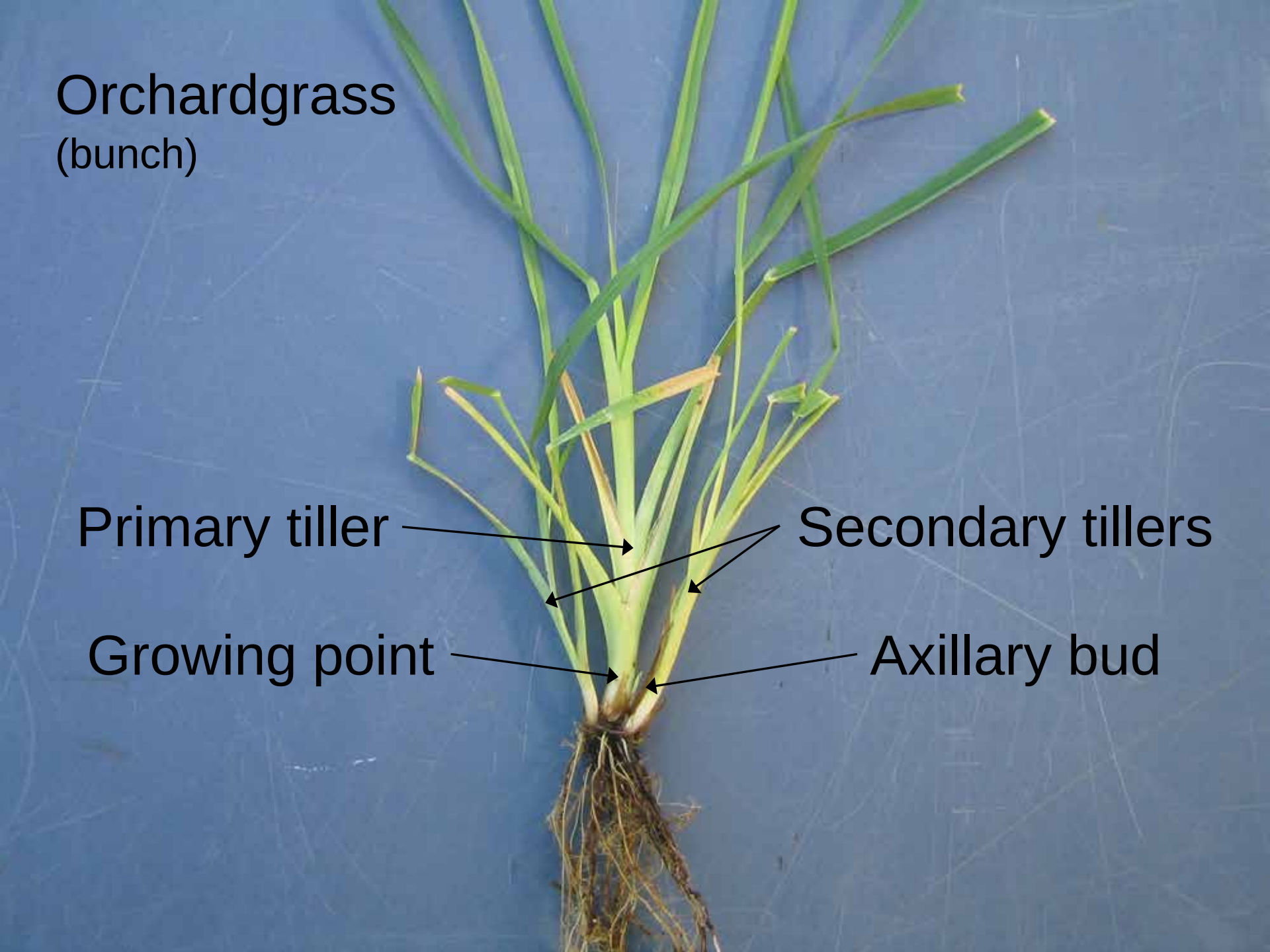
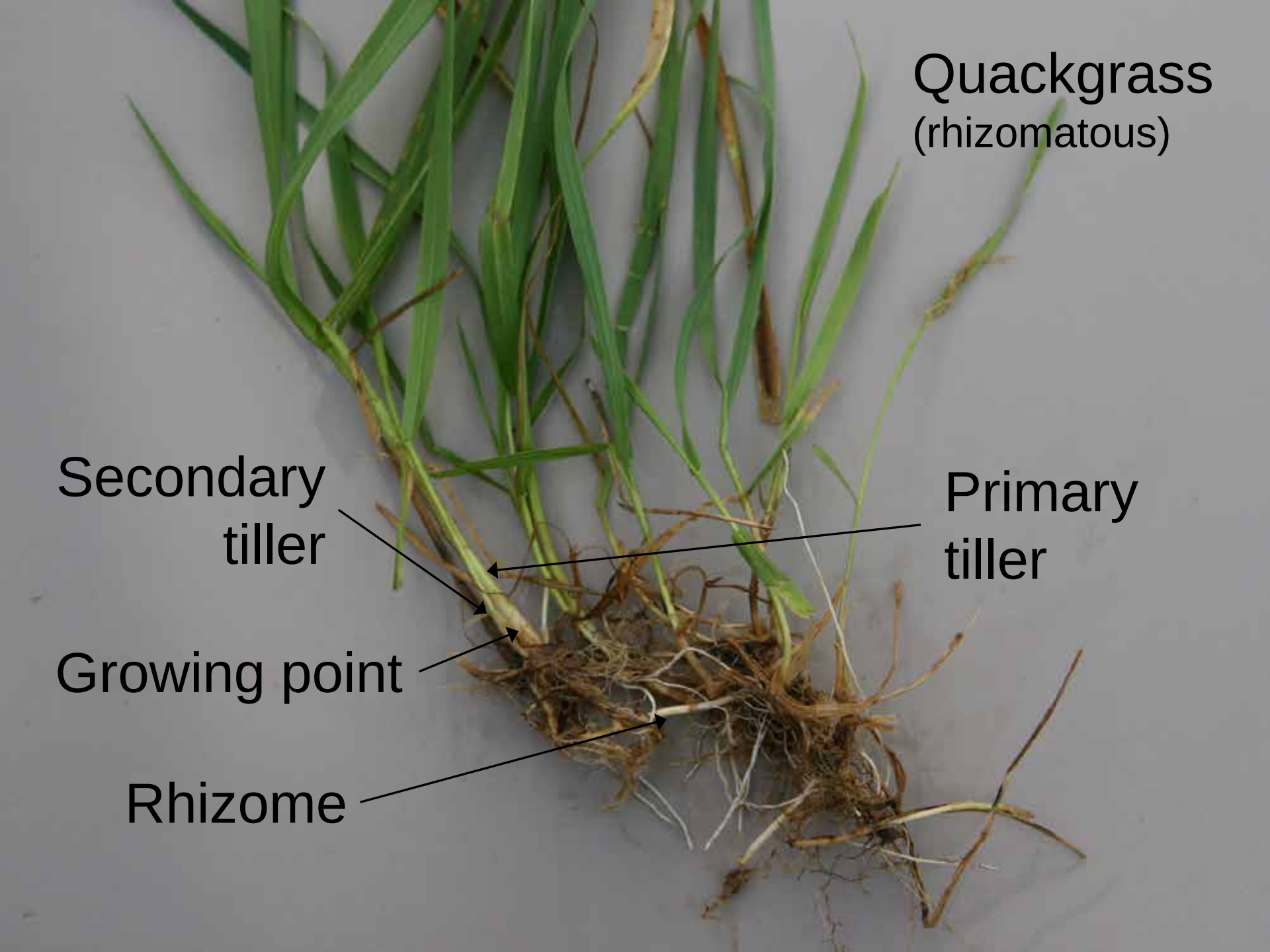
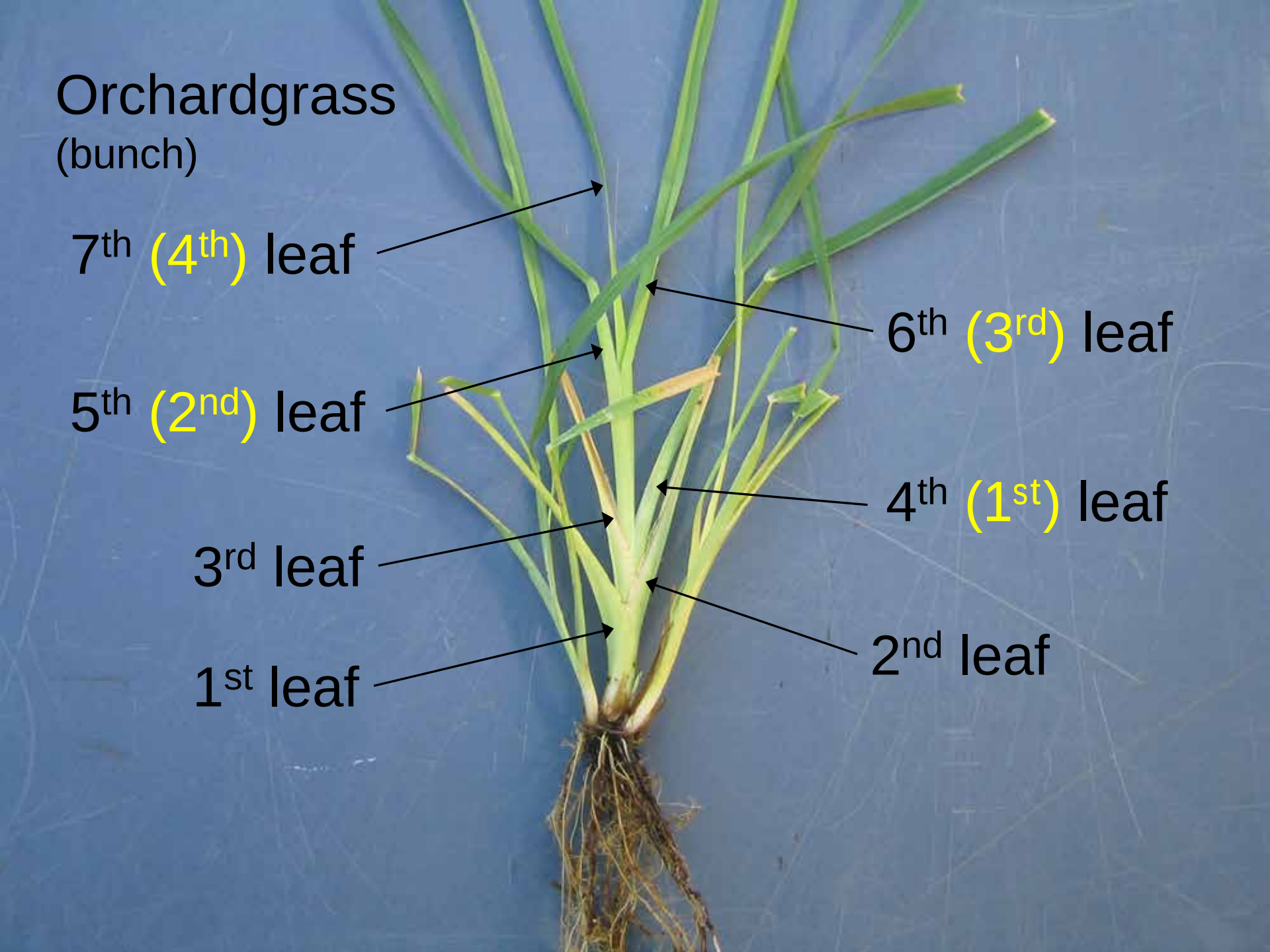
Bunch	Rhizomatous
Orchardgrass	Reed canarygrass
Tall fescue	Smooth bromegrass
Meadow fescue	Kentucky bluegrass
Timothy	Quackgrass
Festulolium	Meadow bromegrass
Ryegrasses	


Orchardgrass
(bunch)
Primary tiller
Secondary tillers
Growing point
Axillary bud


Quackgrass
(rhizomatous)
Secondary tiller
Primary tiller
Growing point
Rhizome

Growing point – the leaf producing “engine”


Orchardgrass
(bunch)
7th (4th) leaf
6th (3rd) leaf
5th (2nd) leaf
4th (1st) leaf
3rd leaf
2nd leaf
1st leaf

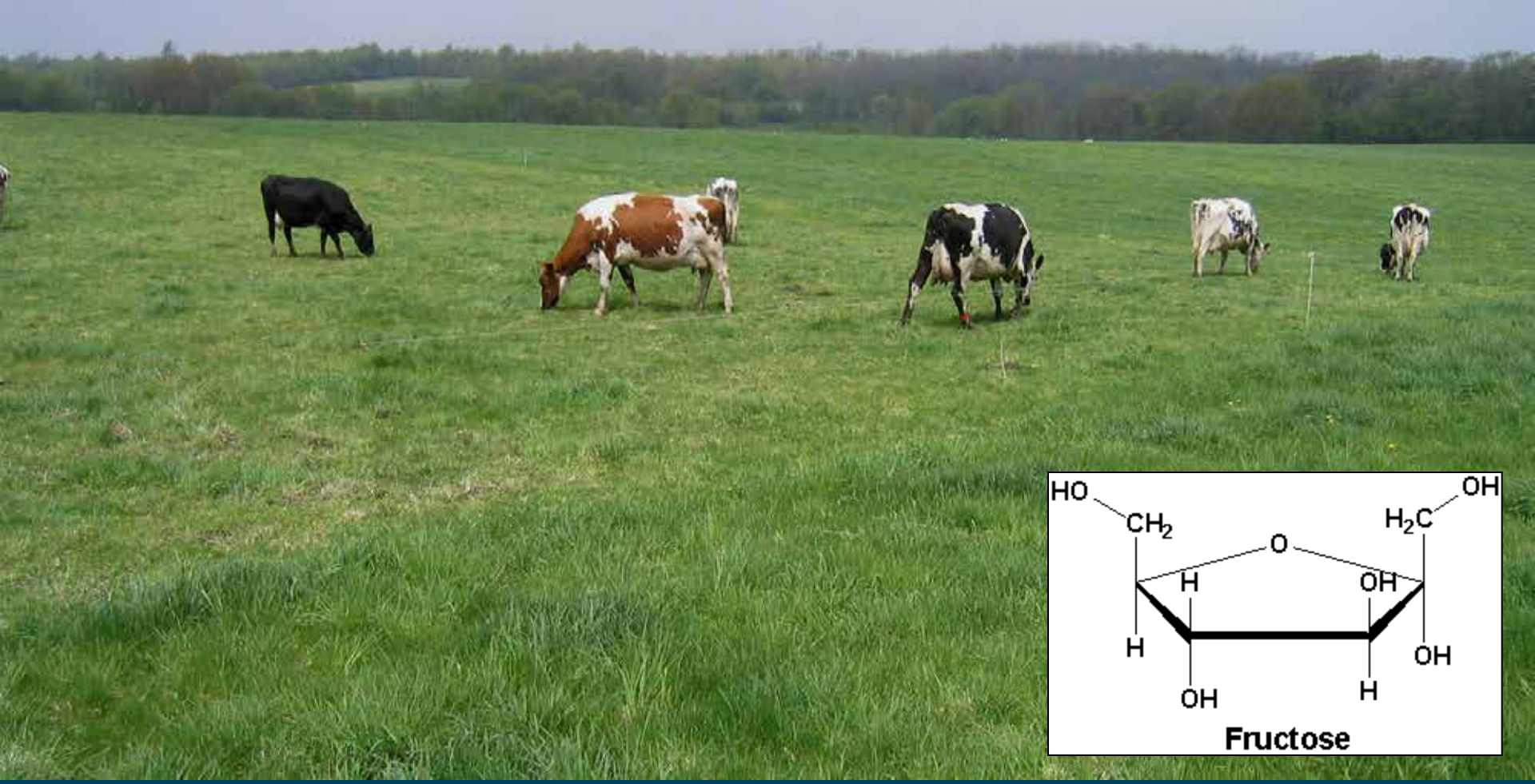
Vegetative stage
10 – 16 in. tall
3 – 4 leaves
(max photosynthesis)

Pasture production

0 10 20 30 40 50 60

Days of growth

Mature stage
> 20 in. tall
4 – 5 leaves
(senescence)
Pasture production
0
10
20
30
40
50
60
Days of growth

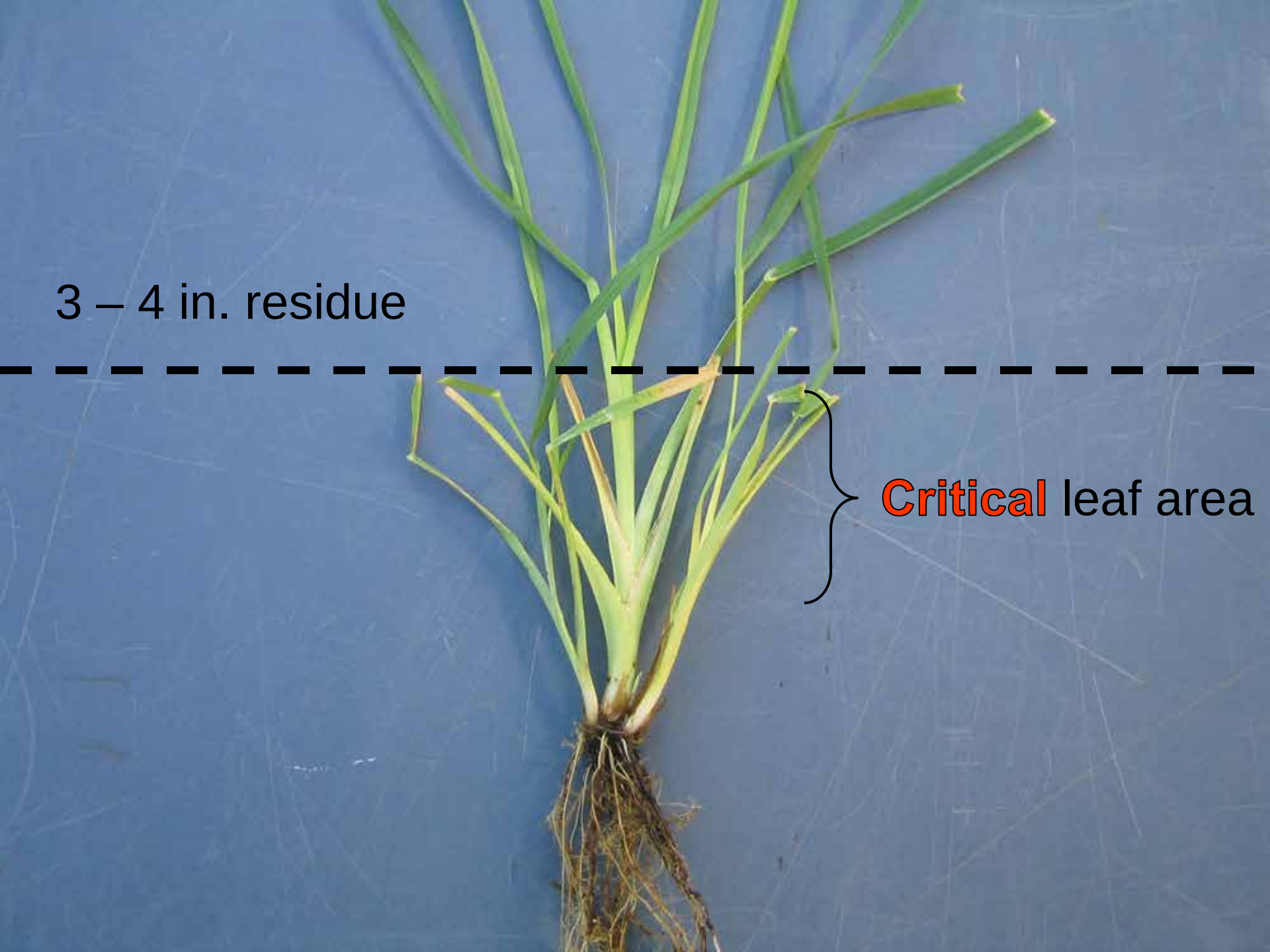


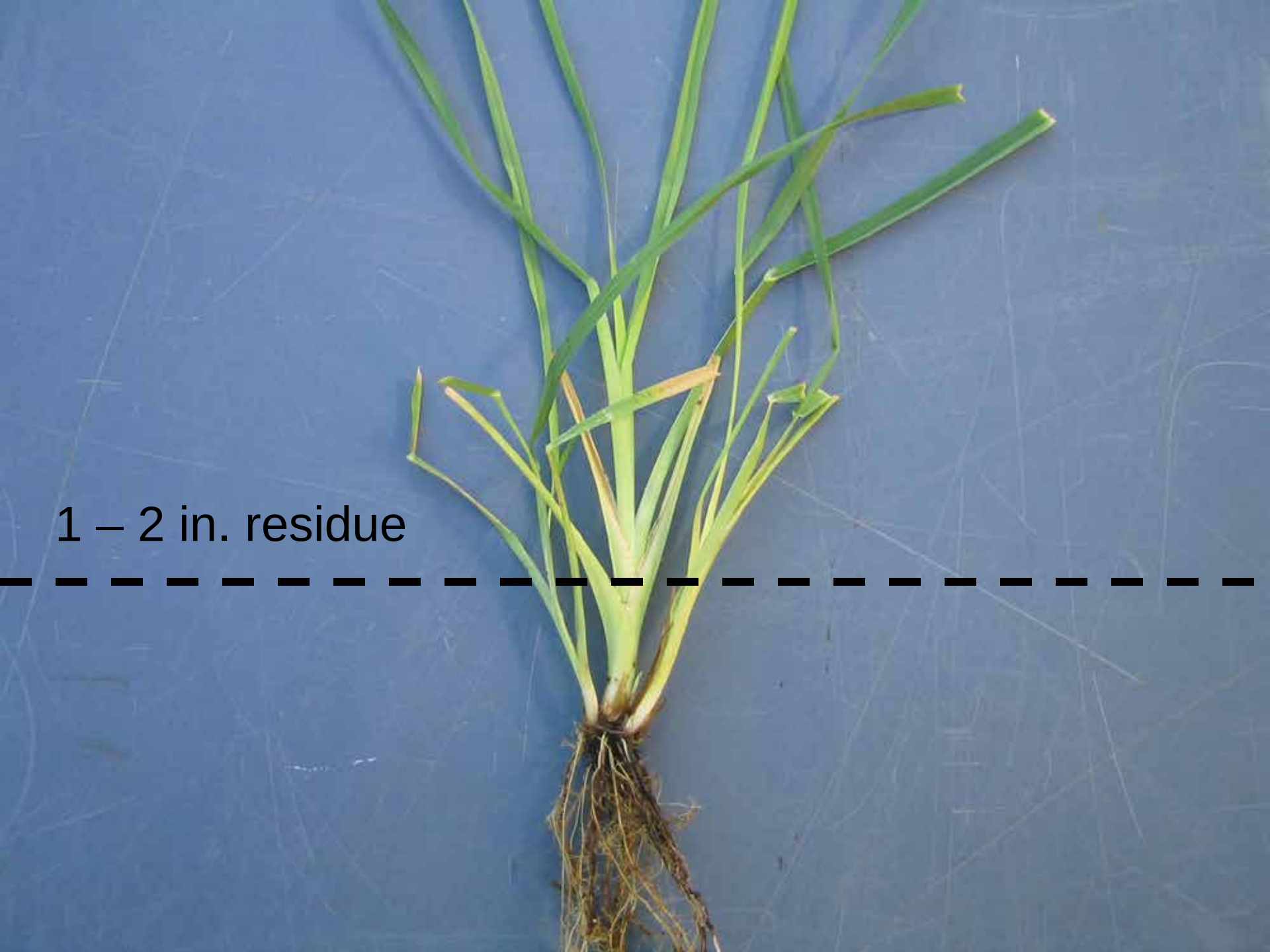
Carbohydrates

Produced by leaves; stored in stem bases, rhizomes, and roots.

- Keep plant alive during stress (after grazing, night, drought, winter).
- Needed to grow new leaves, tillers, roots.


The plant’s “to-do list” after grazing
1. Produce new leaves
2. Replace fine roots
3. Grow new tillers

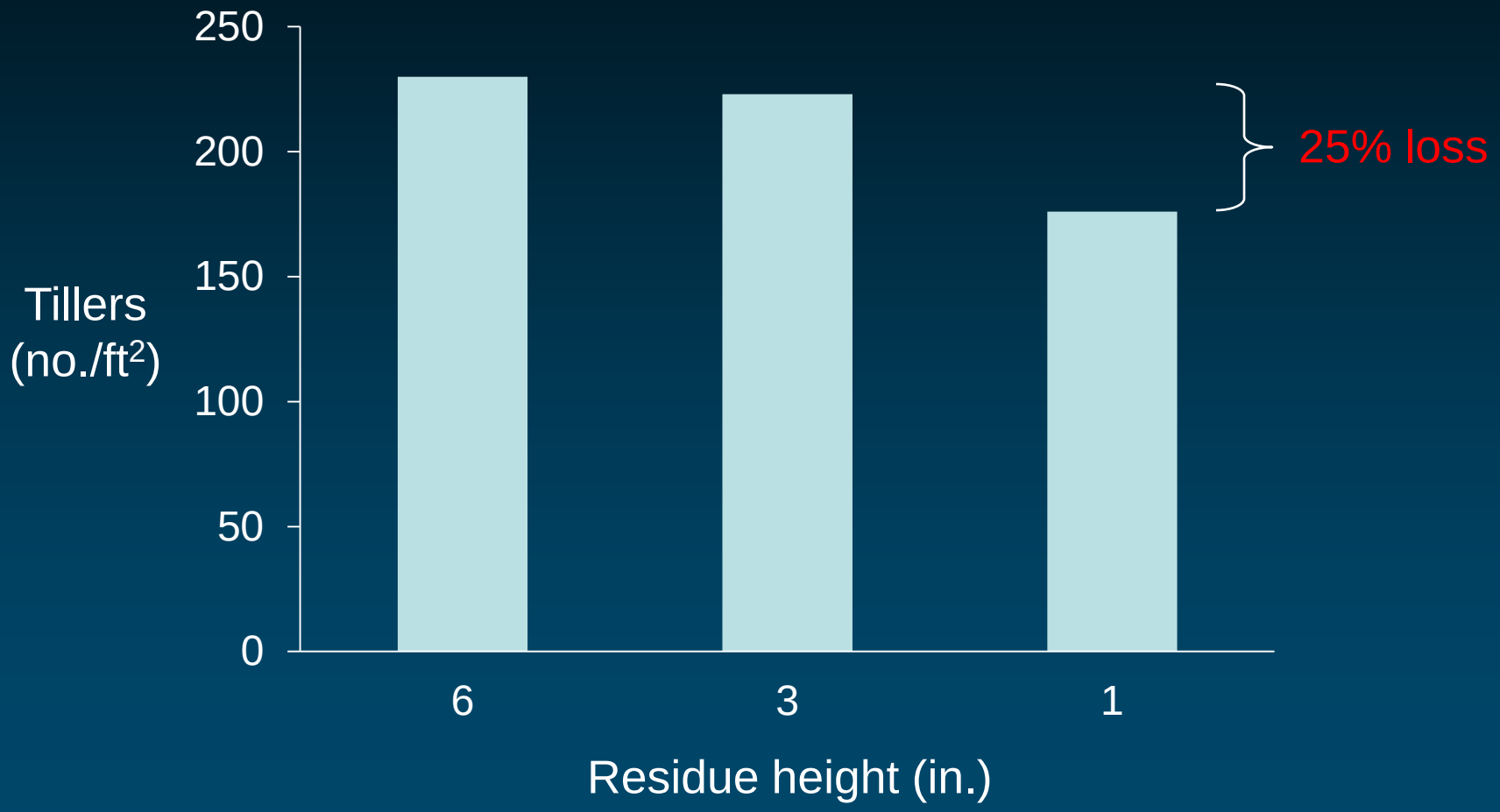

3 – 4 in. residue
Critical leaf area


1 – 2 in. residue

Residue effects on vegetative orchardgrass

Residue (in.)	No. grazing events	Average rotation time (days)	Average rotation yield (lb/acre)	Annual yield (lb/acre)	Date grass reached 12 in. next year
1½	4	44	1250	5000	May 11
3	6	32	900	5400	May 4
6	6	24	750	4500	April 28

Residue effects on meadow fescue survival



Residue effects on mature orchardgrass.

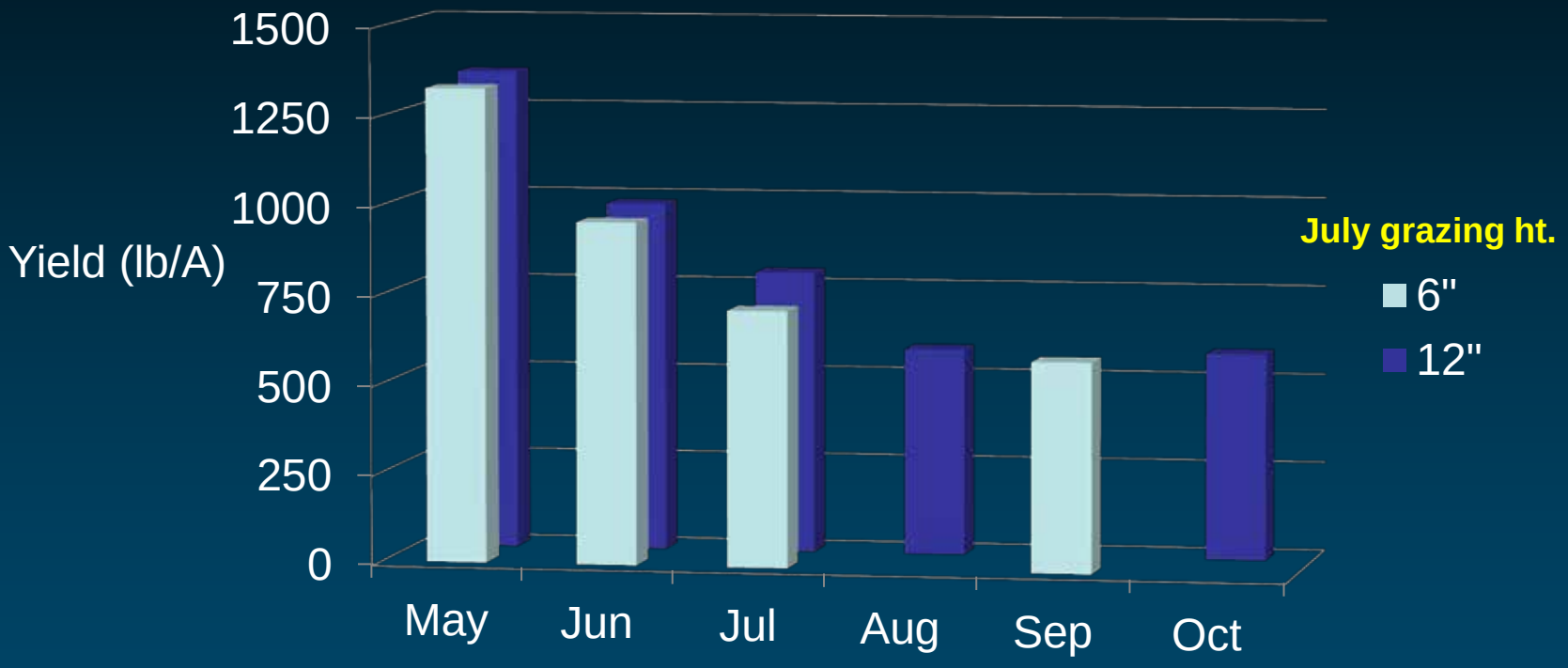
Residue (in.)	No. grazing events	Average rotation (days)	Annual yield (lb/acre)
3	**3**	**73**	**6400**
6	**3**	**62**	**5700**
12	**3**	**60**	**5500**

Residue height and hay harvest

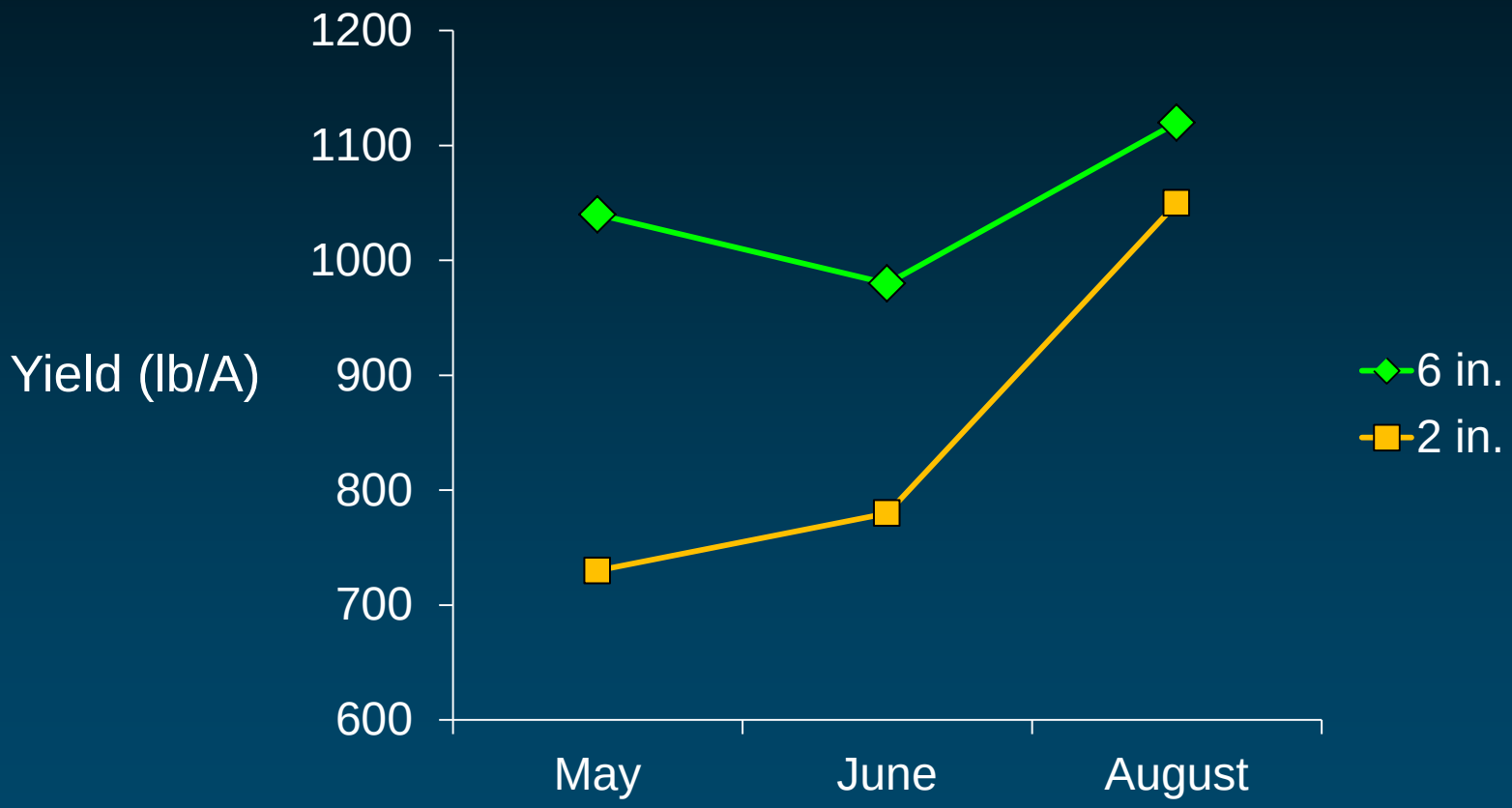

Meadow fescue after cutting for hay for 2 years.
4 in. residue
2 in. residue


The dog days of summer,
and the perils of winter.

Grazing frequency effects on orchardgrass yield



Residue height of last grazing (October) and orchardgrass yield in 2012.




Too often
Too short
Wrong time
Poor productivity and persistence

A prescription for grazing:

- Pasture productivity and persistence of vegetative grass will likely be reduced in the current season and/or the next by grazing to a short residue.

- The negative effects of grazing vegetative grass to a short residue will be amplified when grass is stressed (previous grazing, drought, winter).