Intermediate wheatgrass tiller and rhizome origination

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In collaboration with
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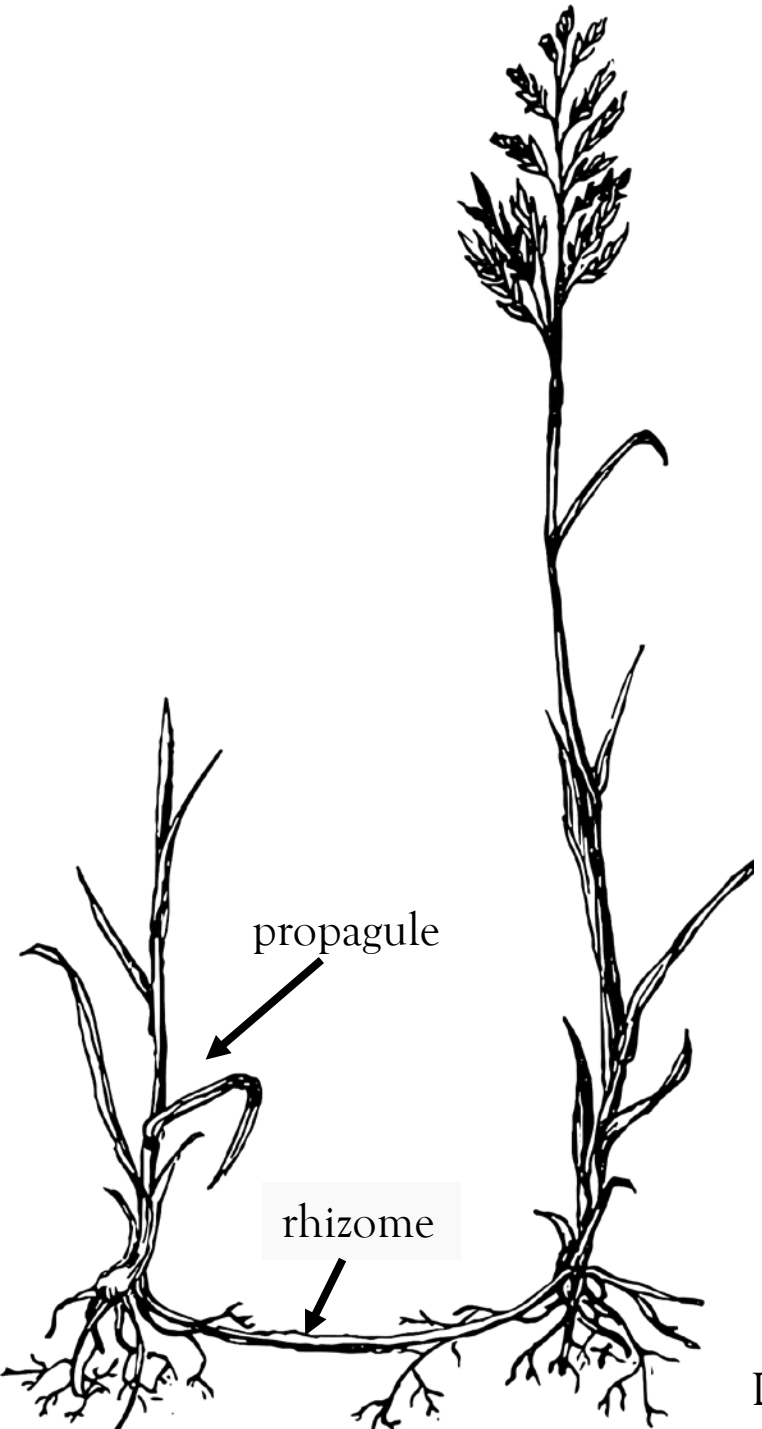
Crown vs. rhizome growth

Crown growth– formation of *tillers on crown*; original plant gets bigger

Drawing by Maureen Kahn

Crown vs. **rhizome** growth



Rhizome growth– *formation of rhizomes*; genetically identical plants (propagules) are formed

Drawing by Maureen Kahn

My objective was to understand **when** and **how** intermediate wheatgrass **forms tillers** and **rhizomes**

Experimental Design

Two fields in Rosemount, MN

- 1 year old stand
- 2 year old stand
- Same seeding rate, germplasm, soil type, row spacing

Four samplings

- Green-up (early May)
- Anthesis (mid June)
- Harvest (mid August)
- Dormancy (late October)

Observed plants and vegetative tissue

- Dug up 3 15cm x 33 cm sections/ plot
- Identified plant as rhizome propagule, seed propagule, or original plant
- Counted tillers and rhizomes on every plant

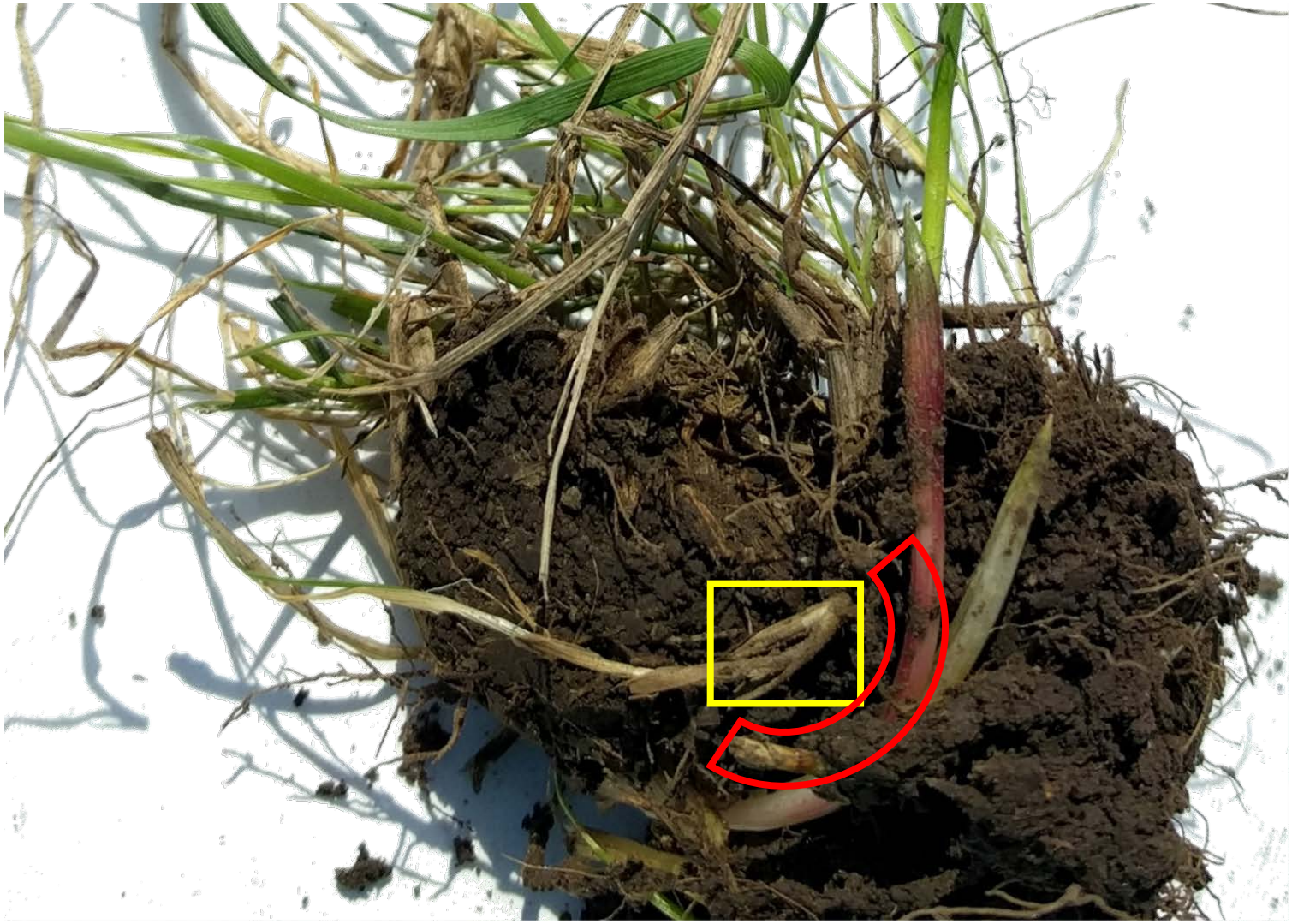
Tillers & rhizome

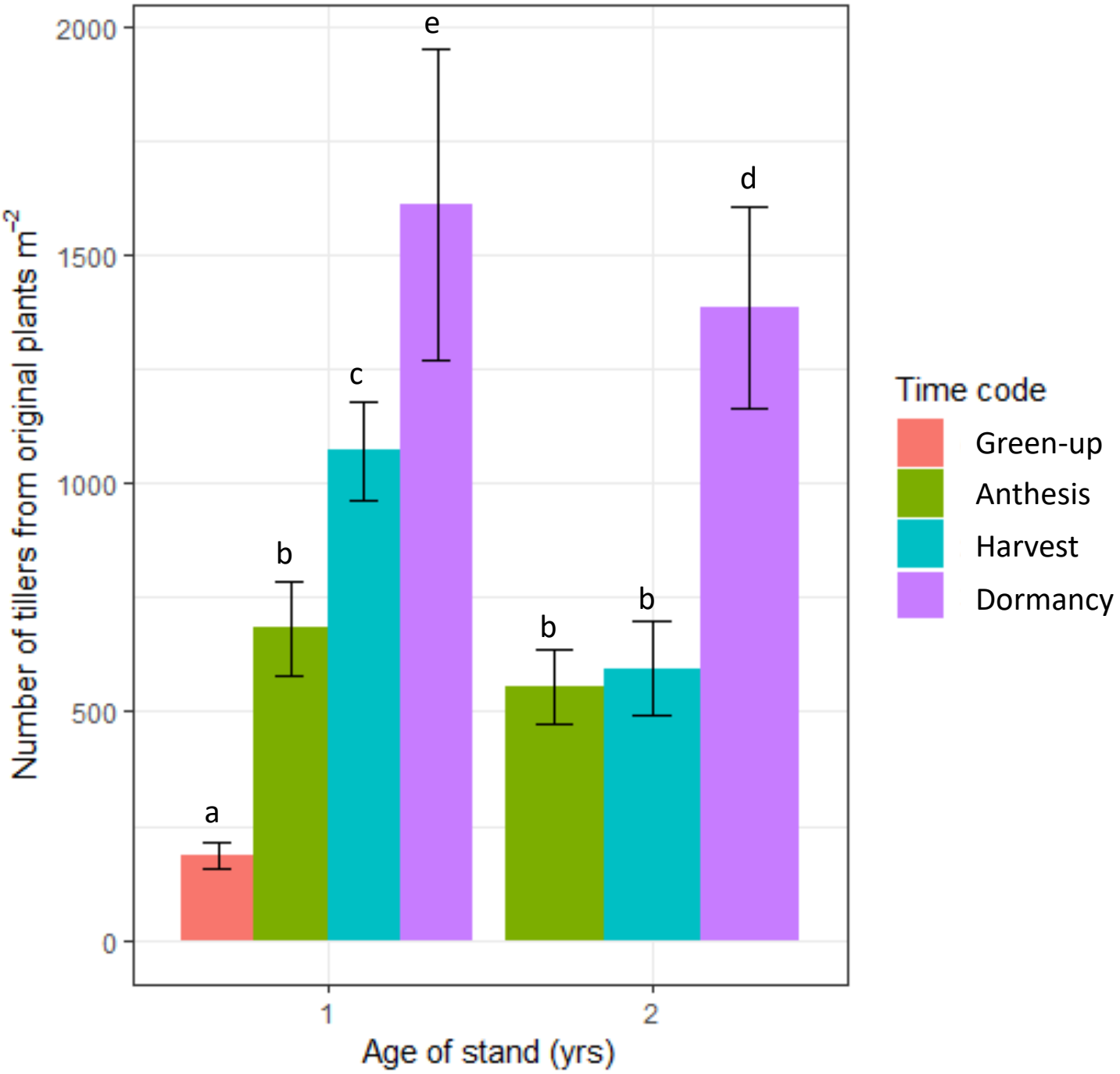
Two small rhizome propagules

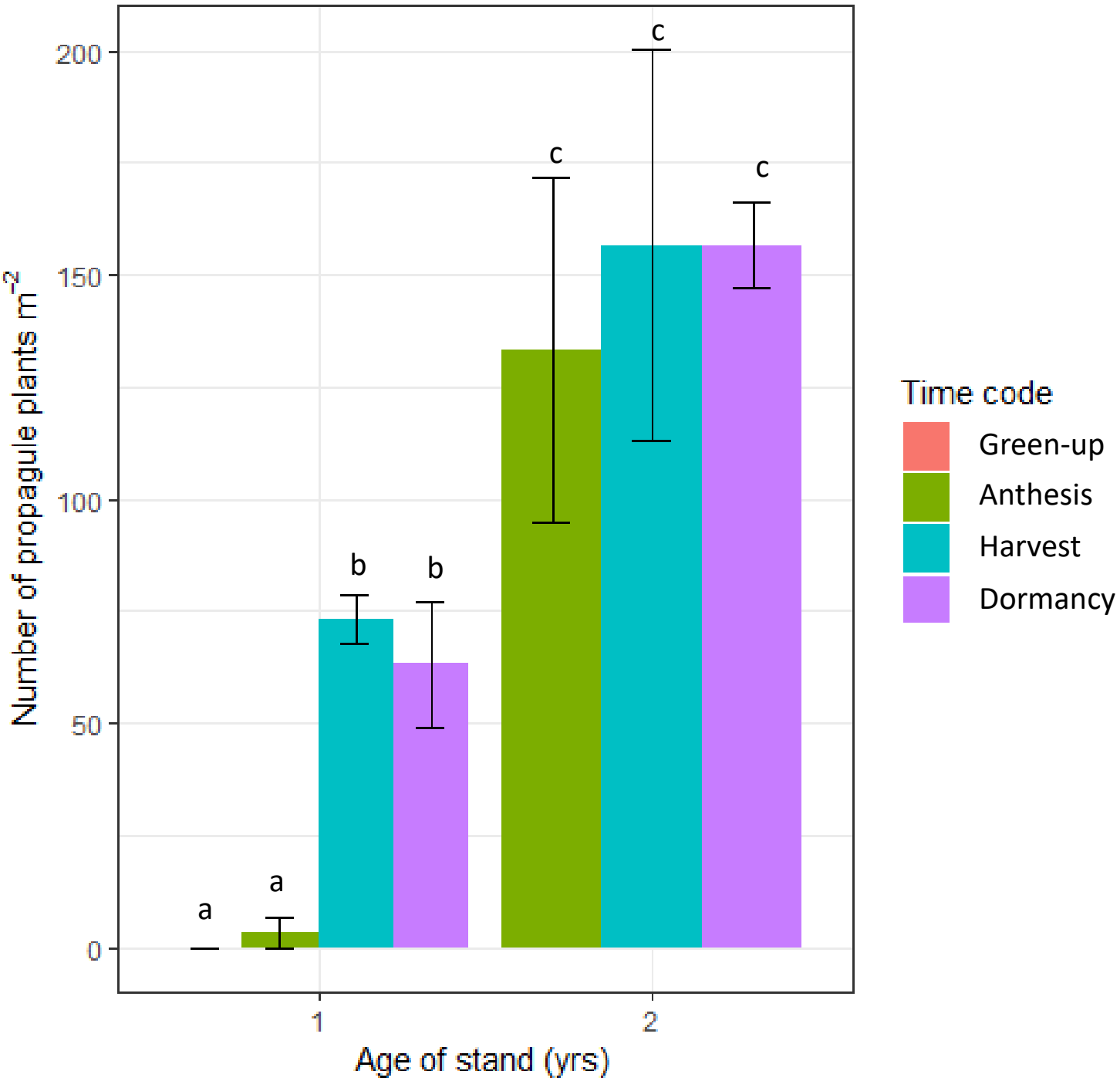
Several meristems from one crown

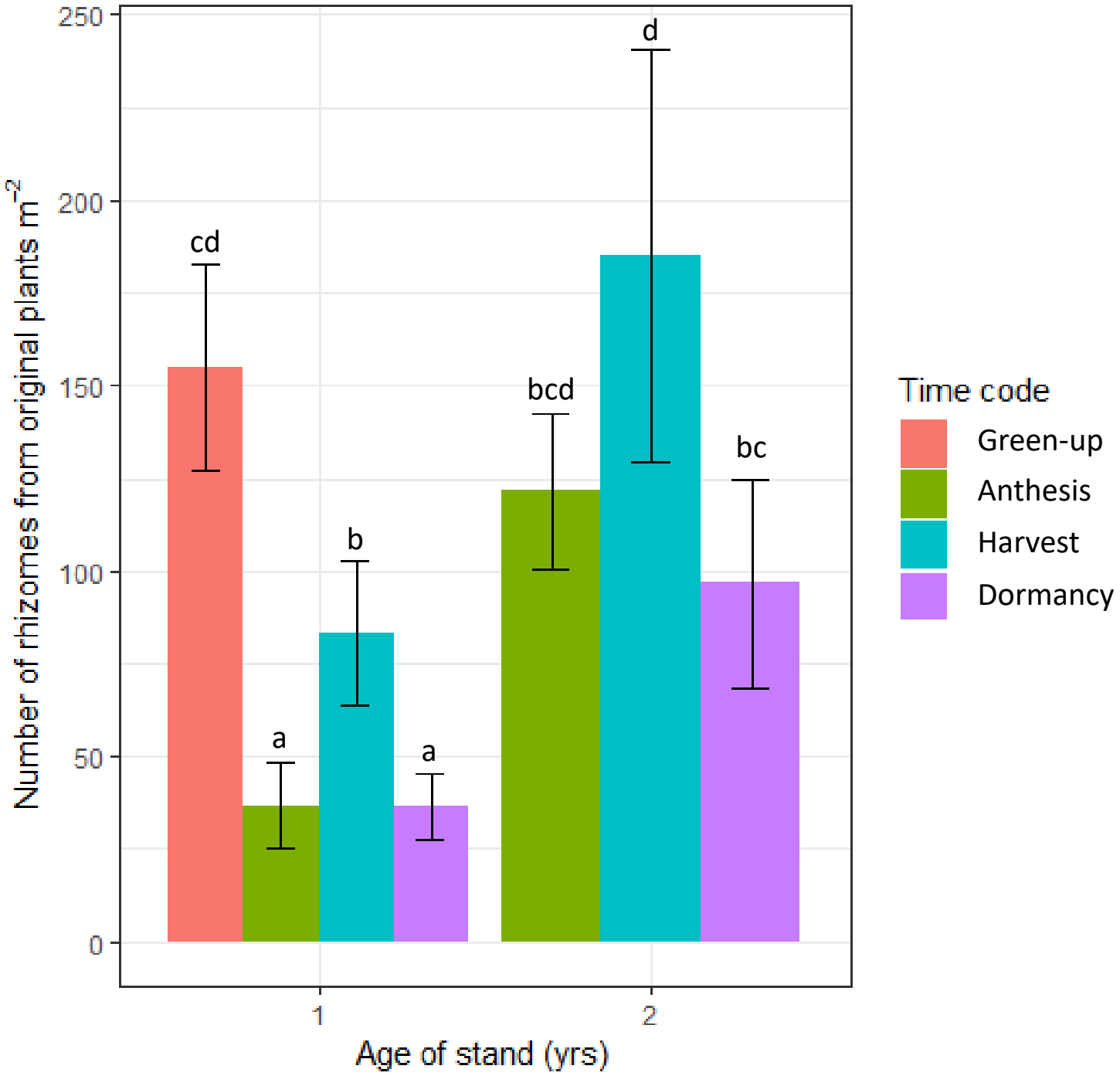
Extreme rhizome growth

Seedling & rhizome propagules




2000
1500
1000
500
0
Number of tillers from original plants m-2
a
b
c
e
b
b
d
1
2
Age of stand (yrs)
Time code
Green-up
Anthesis
Harvest
Dormancy


200
150
100
50
0
Number of propagule plants m-2
a
a
b
b
c
c
c
1
2
Age of stand (yrs)
Time code
Green-up
Anthesis
Harvest
Dormancy


250
200
150
100
50
0
Number of rhizomes from original plants m^{-2}
cd
a
b
a
bcd
d
bc
1
2
Age of stand (yrs)
Time code
Green-up
Anthesis
Harvest
Dormancy

Crown growth intra-annually

Rhizome growth inter-annually

Rhizome growth => sod bound?

How to control rhizome growth?


Forever
Green
Thank You
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