

Cover Crop Strategies for Complying with Ag Order 4.0

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Agricultural
Research Service



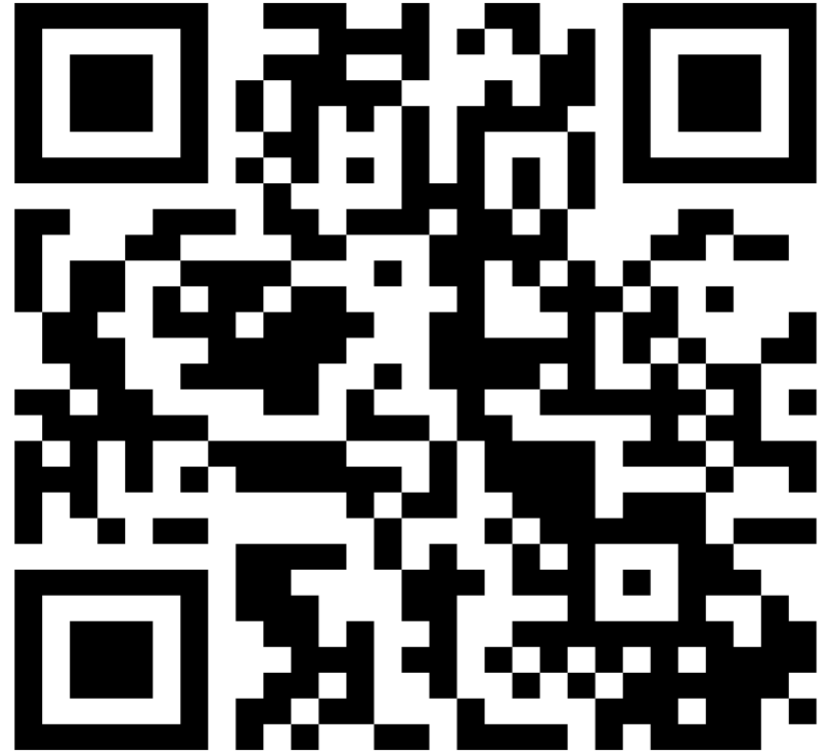
Anna Gomes & Sierra Castaneda
Stanford University

Fall terminated versus Winter Cover Crops to Reduce Nitrate Leaching in California - Part 1 (Click [here](#) to watch on Youtube)

2



Cover Cropping Quiz!



Which Rye Cover Crop has the highest risk of seed set?



Planted in Aug, grown for 60 days

Planted in Aug, grown for 90 days

Planted in Oct, grown for 90 days

Planted in Oct, grown for 120 days



Merced rye seed at **soft dough stage** (Feekes 11.2) on November (90 days after planting in August).

CAUTION: Rye seed **mature fast** when the weather is **warm**.

DON'T let cover crops get past Feekes 10.5.4 (Watery ripe stage) to Feekes 11.1 (Milk stage)





Merced rye volunteer
plants **January 9, 2024**
(58 days after cover
crop termination & .
after Lilliston
cultivation).

Average of 292 plants
per m²



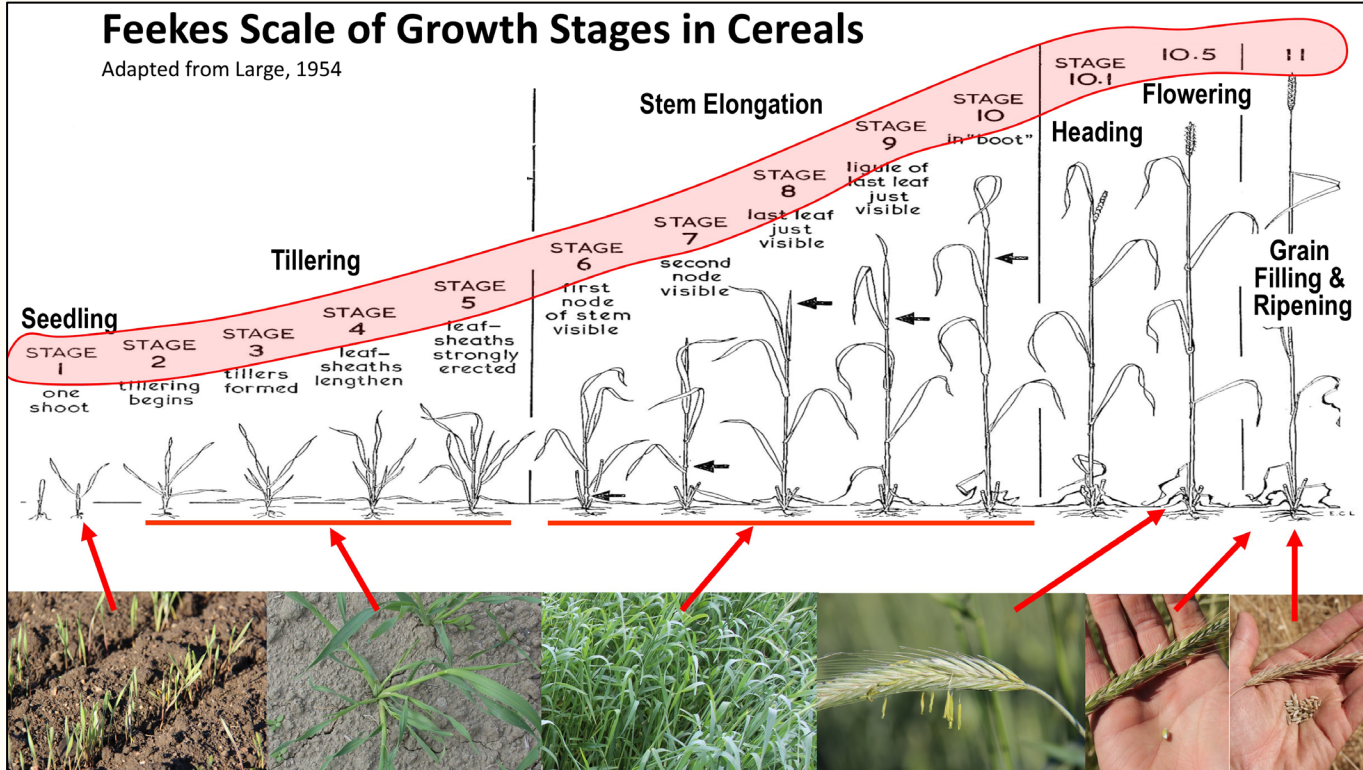


Merced rye volunteer
plants **February 6, 2024**
(86 days after cover
crop termination)

Know Feekes = No Freaking Out

Feekes Scale of Growth Stages in Cereals

Adapted from Large, 1954



My web site has publications to learn Feekes (See Ag. Order section)

Which Rye Cover Crop would produce the most biomass after the first 30 days of growth?

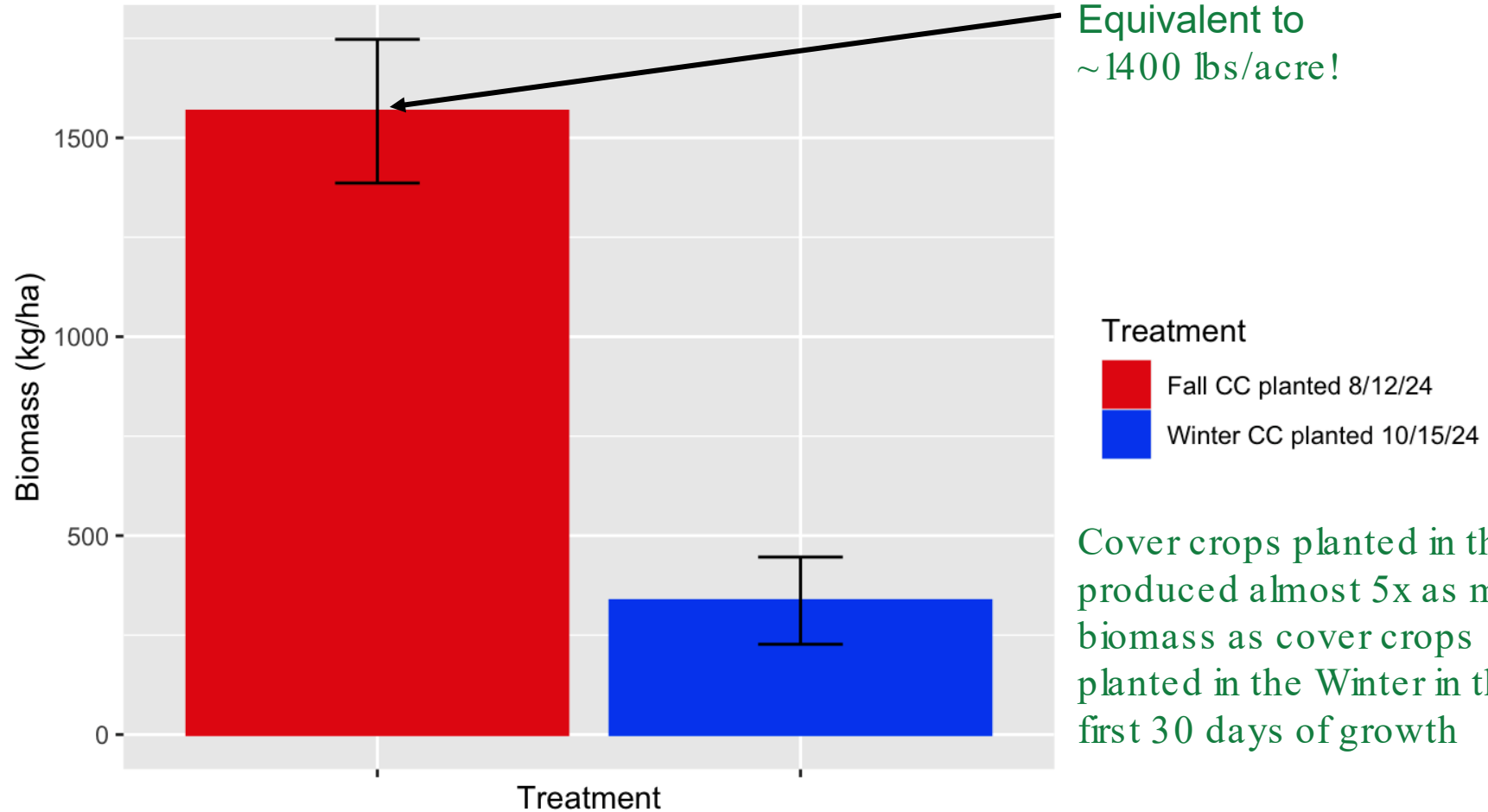


Fall CC planted Aug 12

Winter CC planted Oct 15

They would produce roughly the same biomass after 30 days of growth

Rye Cover Crop Oven Dry Shoot Biomass Accumulation after approx. 30 days of Growth



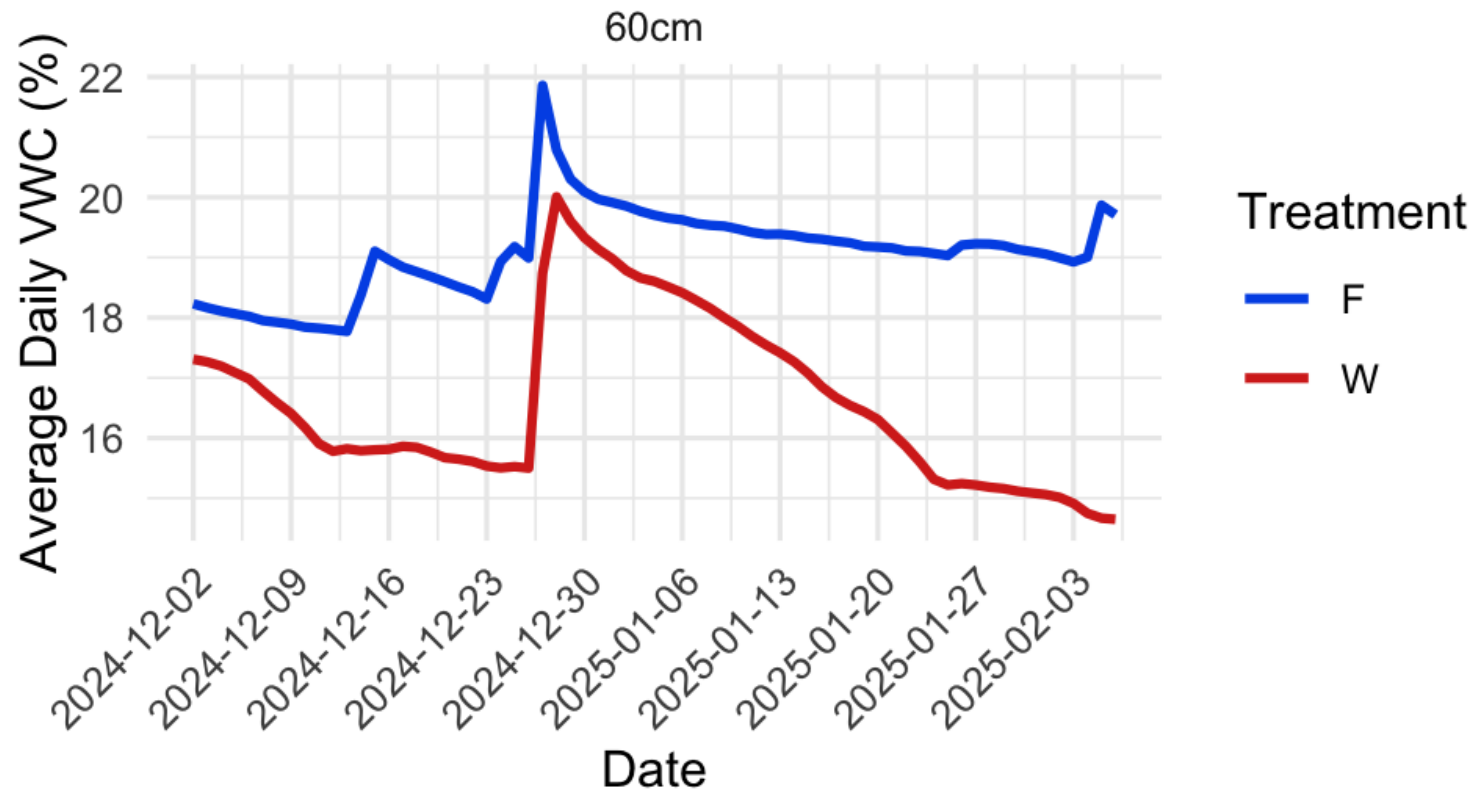
Which field would have higher moisture over the winter?



A winter cover cropped field

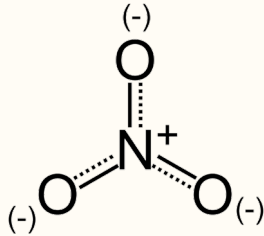
They are the same

Avg Soil Moisture Over Time

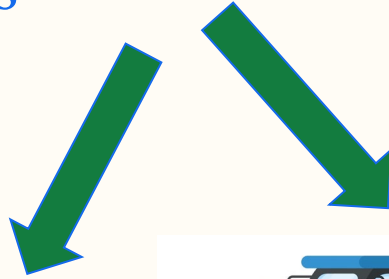




Less soil moisture in
winter cover cropped
systems



Reduce
Nitrate
Leaching &
Runoff
Risk



Ability to
get into the
field sooner



Come to our Field!

Today -> 1:30-3pm

Bonus: Runoff Nitrate
Recovery
Technology!

Thanks to:

Our Funders

- USDA-ARS (“the people’s department”)
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- Stanford’s Woods Institute, Environmental Ventures Program
- Univ. of California Sustainable Agriculture Research Small Grants

Our Research Team & Helpers

Jim Leap, Richard Smith, Diego Gutierrez, Jack Lamb, Dean Miller, Scott Fendorf, Rob Jackson, Heracleo Perez, Rogelio Fuentes, & numerous interns

Our On-Farm & Ag. Industry Collaborators

- Mark Mason (Huntington Farms)
- Nathan Dorn, Andrea Tinajero, (Farm-ng)
- Dynasty Farms (Pacific International Marketing)



QR code to my web site
to learn more about
cover crops, Ag. Order &
other aspects of my
research