

# Greenhouse gas exchange of a *Sphagnum* paludiculture on a former peat extraction site in the late stages of the rotation cycle

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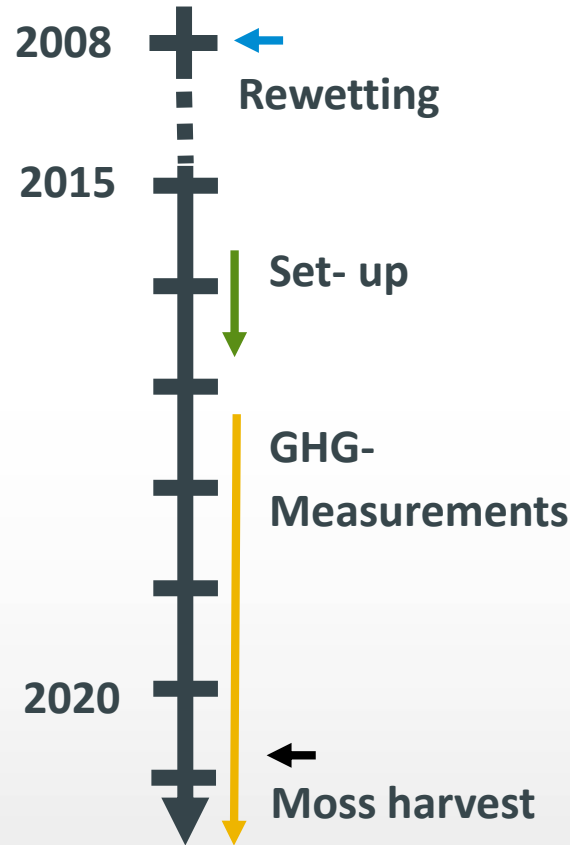
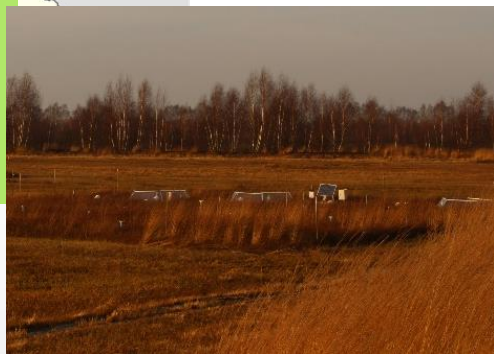


RRR 2021  
09.03.2021

# Site description



Provinzialmoor  
(Bourtanger Moor-  
Bargerveen Nature  
Park)



- 2.3 ha former peat extraction site
- 0.9 m remaining peat thickness
- Moderately to highly decomposed black peat, low hydraulic conductivities
- Site management:
  - ditch irrigation
  - Yearly mowing

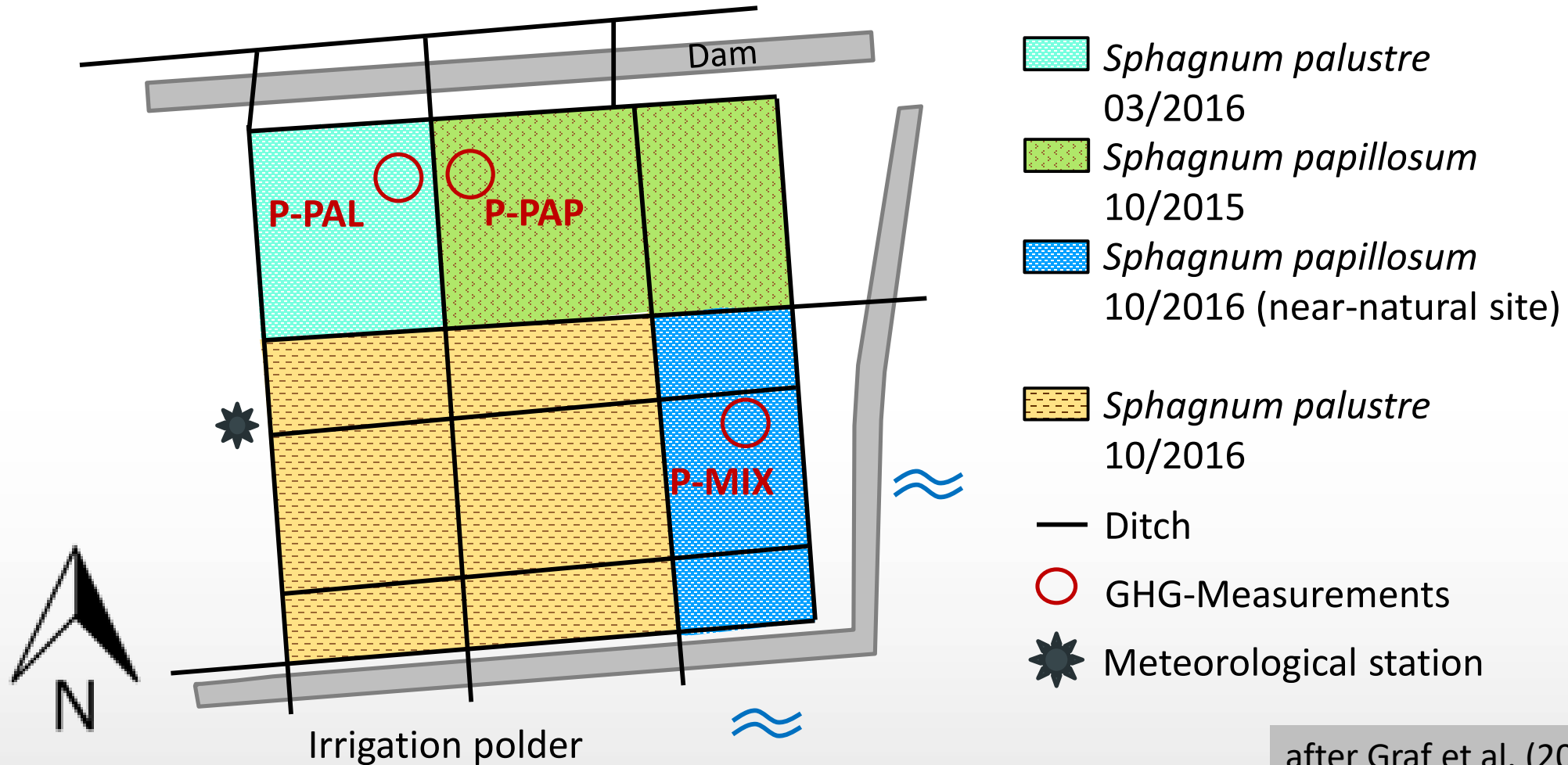
# Measurement of greenhouse- gas exchange



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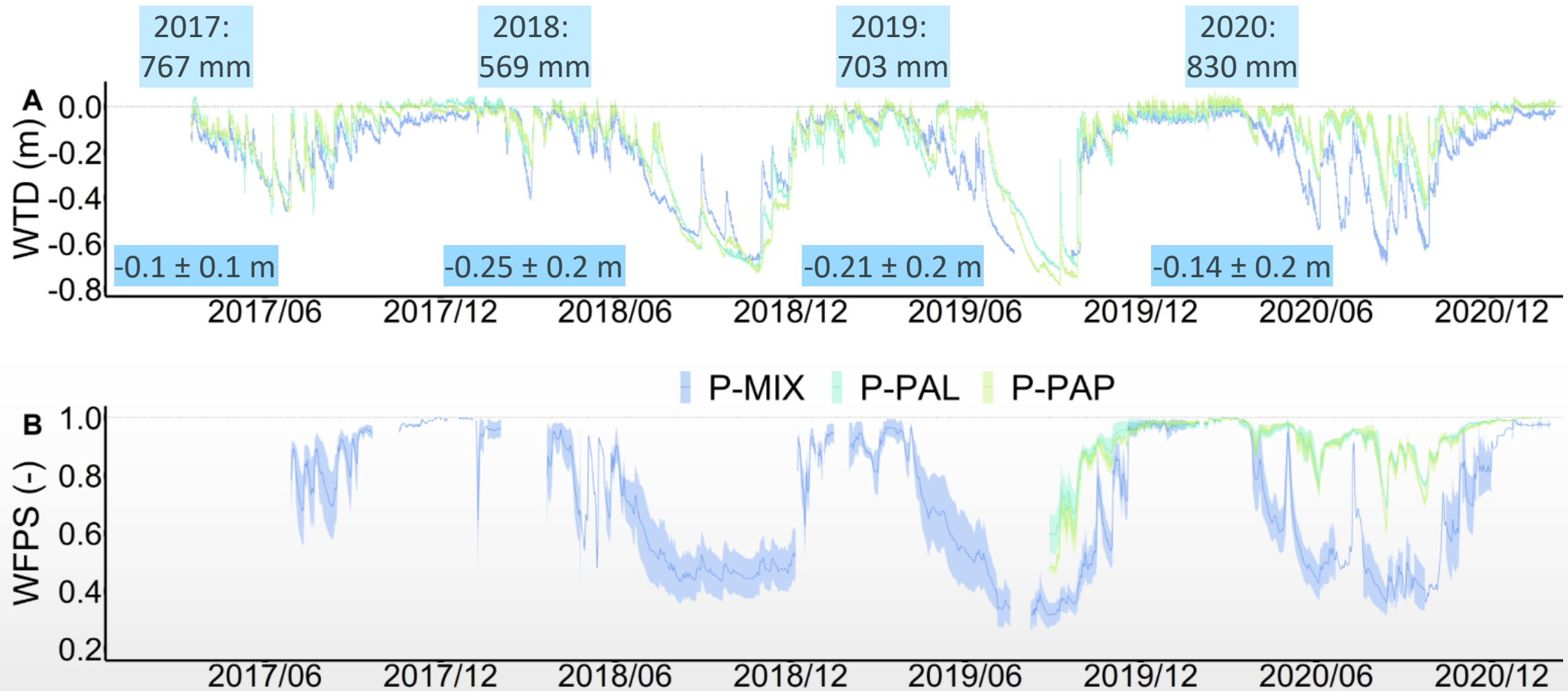
Laura Panitz  
GHG- exchange of a *Sphagnum* paludiculture

# Measurement of greenhouse- gas exchange

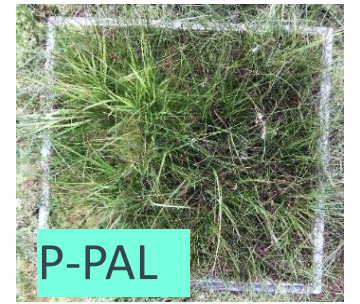
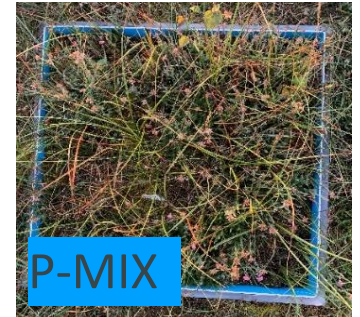
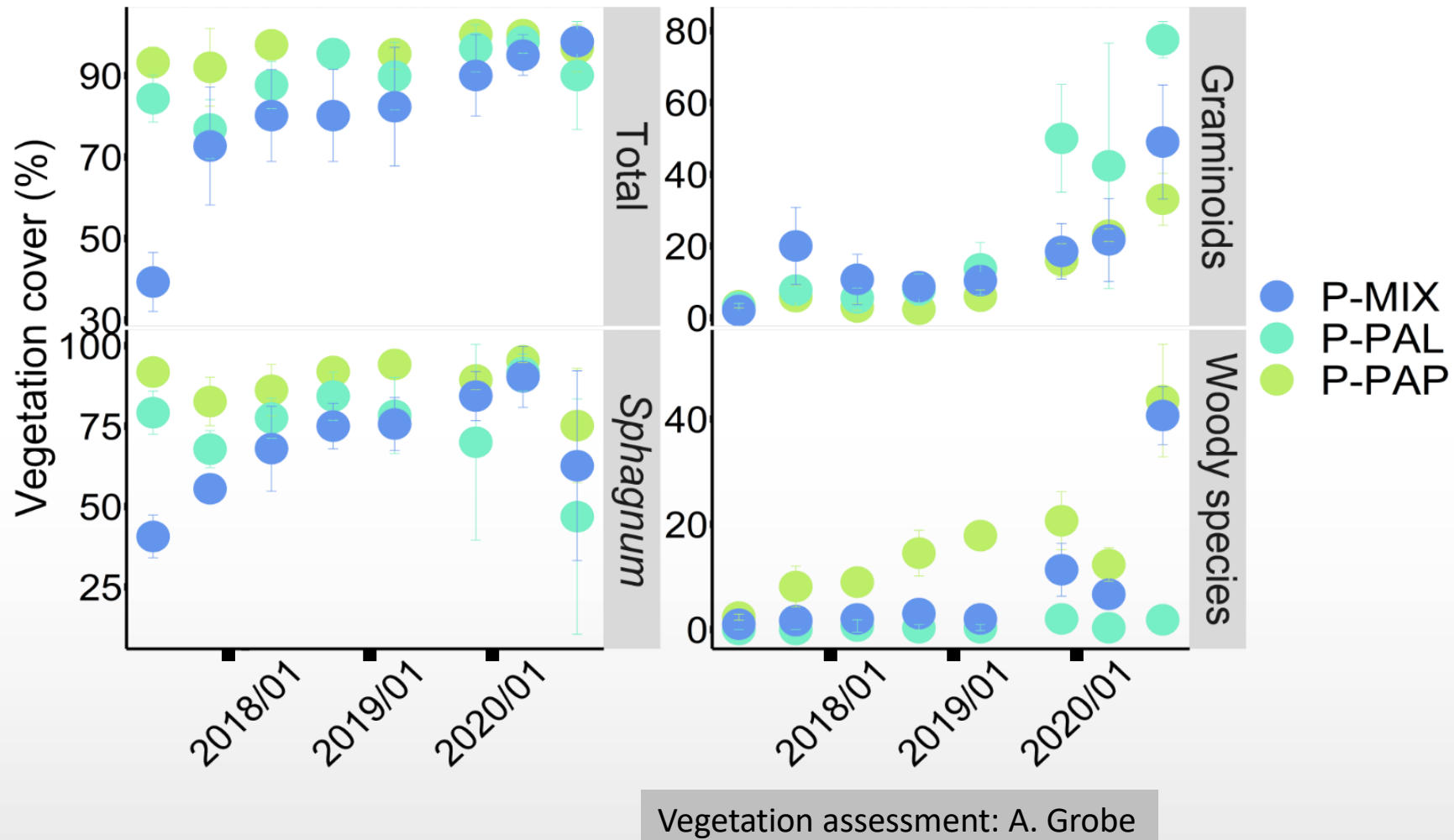


after Graf et al. (2017) (modified)

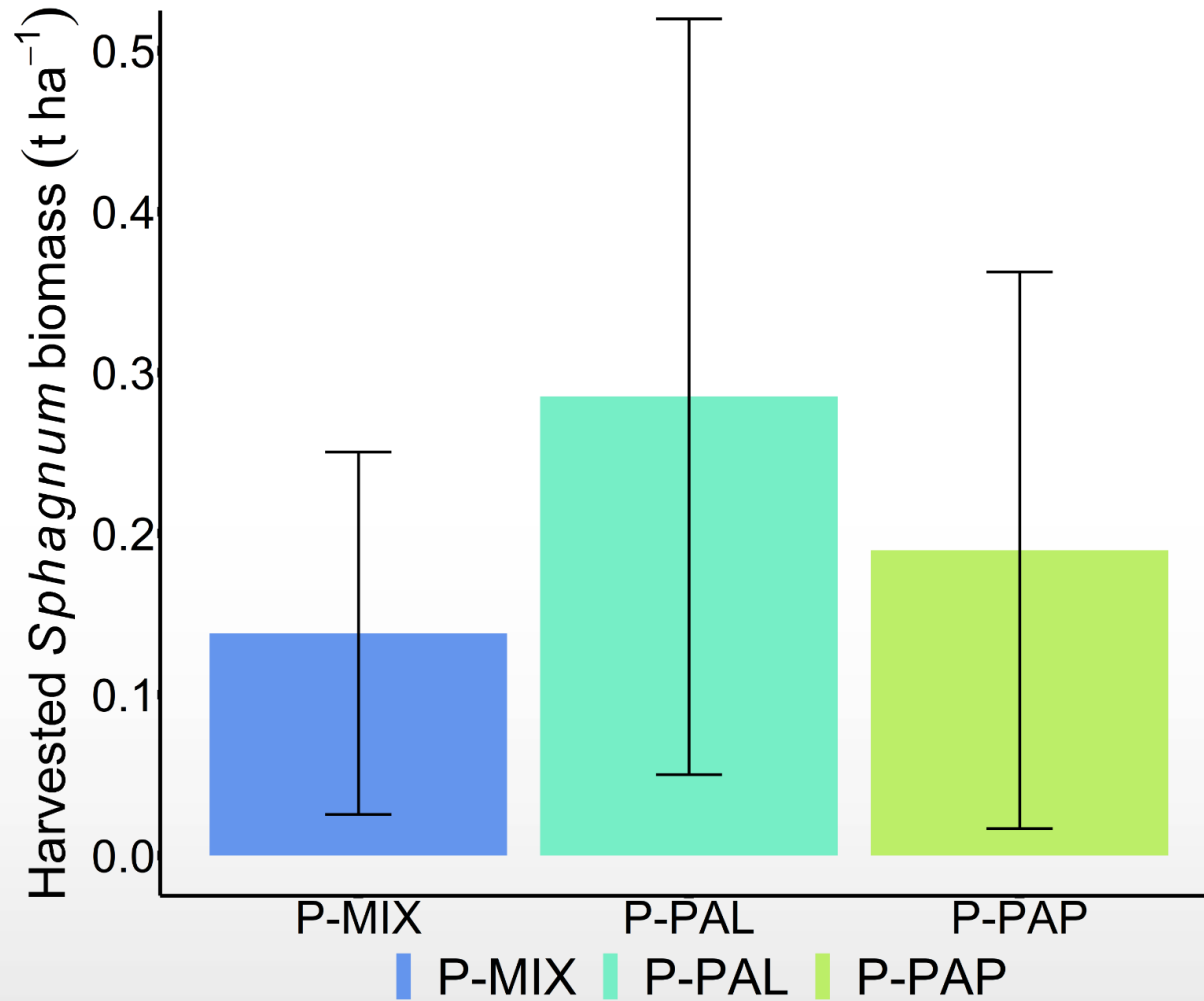
# Environmental conditions – water table depth



# Environmental conditions – vegetation development



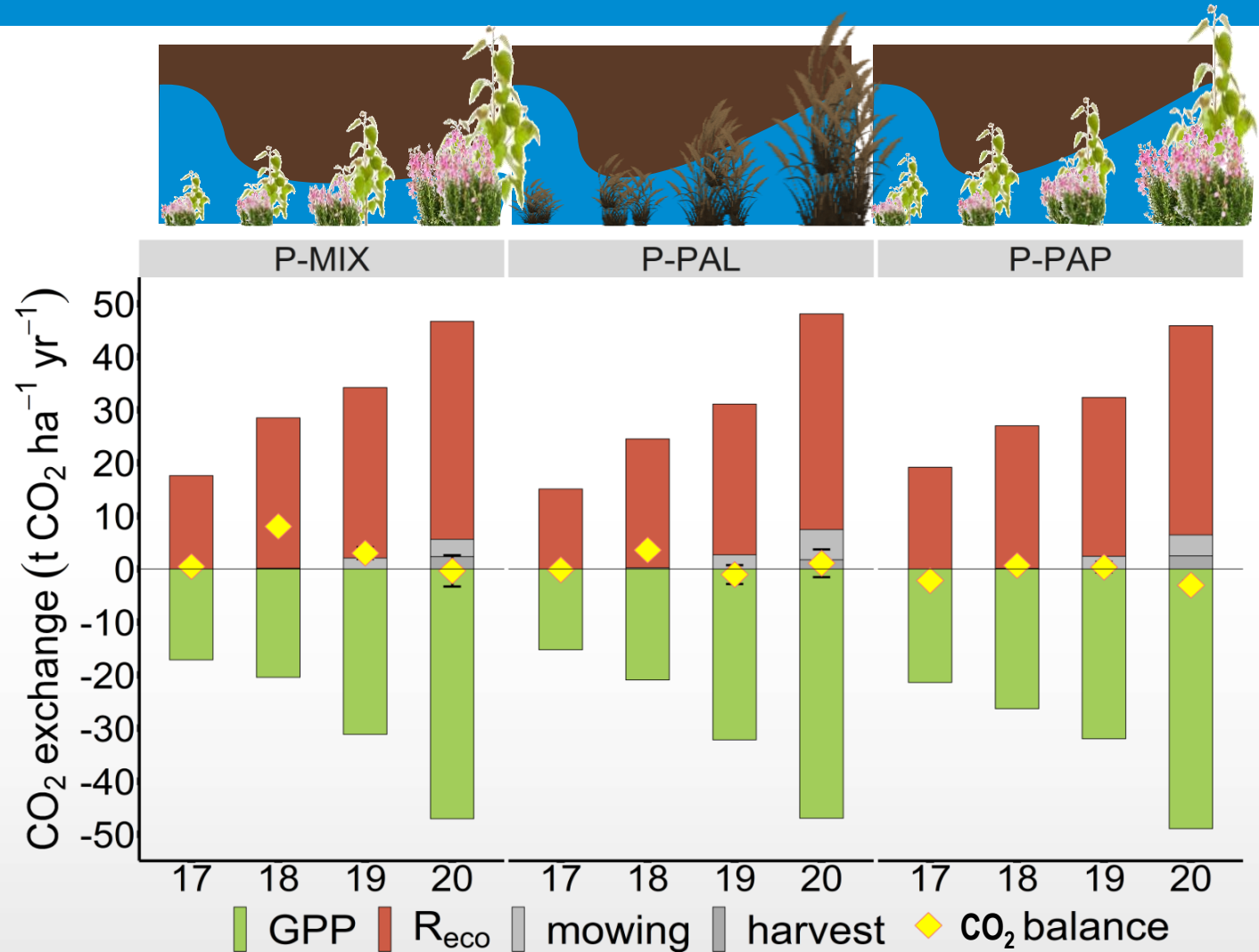
# Sphagnum harvest 2020



# Exchange of CO<sub>2</sub>

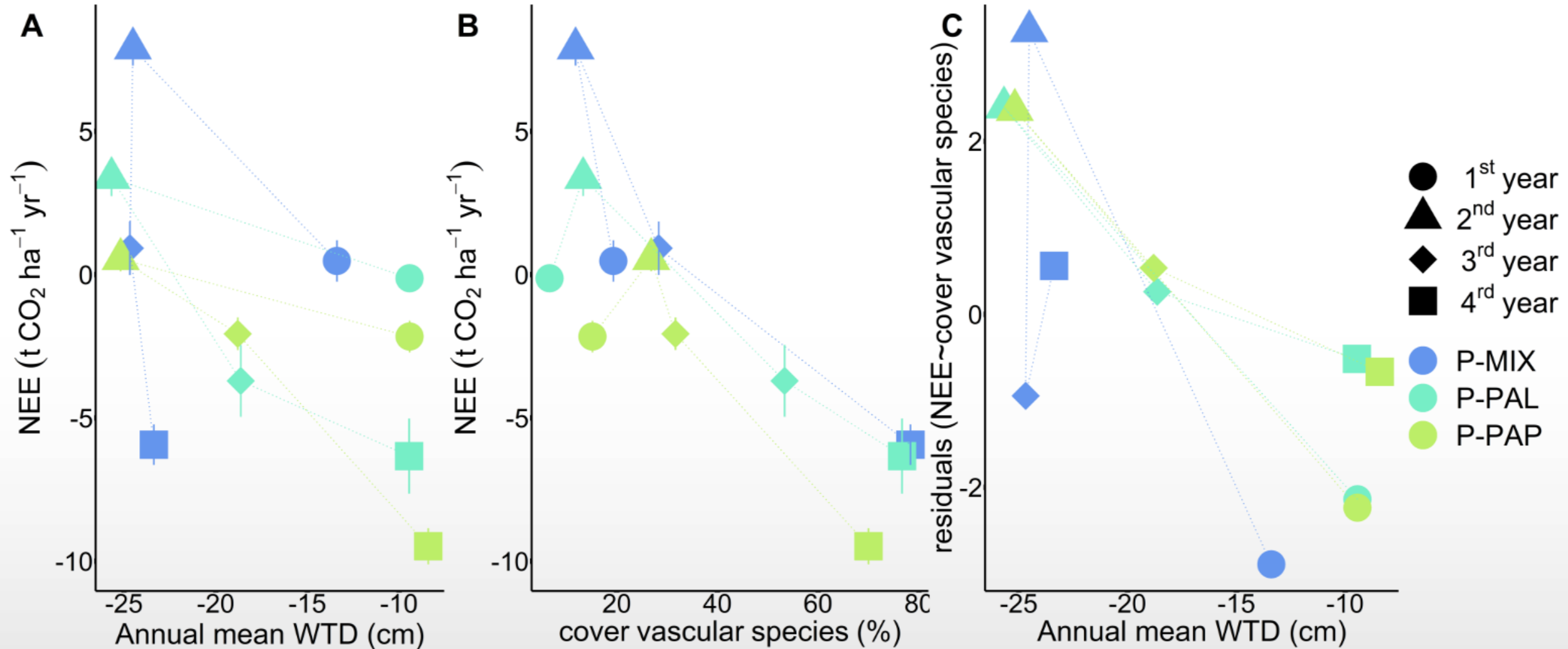
Mean annual CO<sub>2</sub> balance  
(NEE + removed biomass):

- 2017:  $-0.60 \pm 1.4$  t CO<sub>2</sub> / ha\*a
- 2018:  $4.10 \pm 3.7$  t CO<sub>2</sub> / ha\*a
- 2019:  $0.78 \pm 2.1$  t CO<sub>2</sub> / ha\*a
- 2020:  $-0.76 \pm 2.1$  t CO<sub>2</sub> / ha\*a

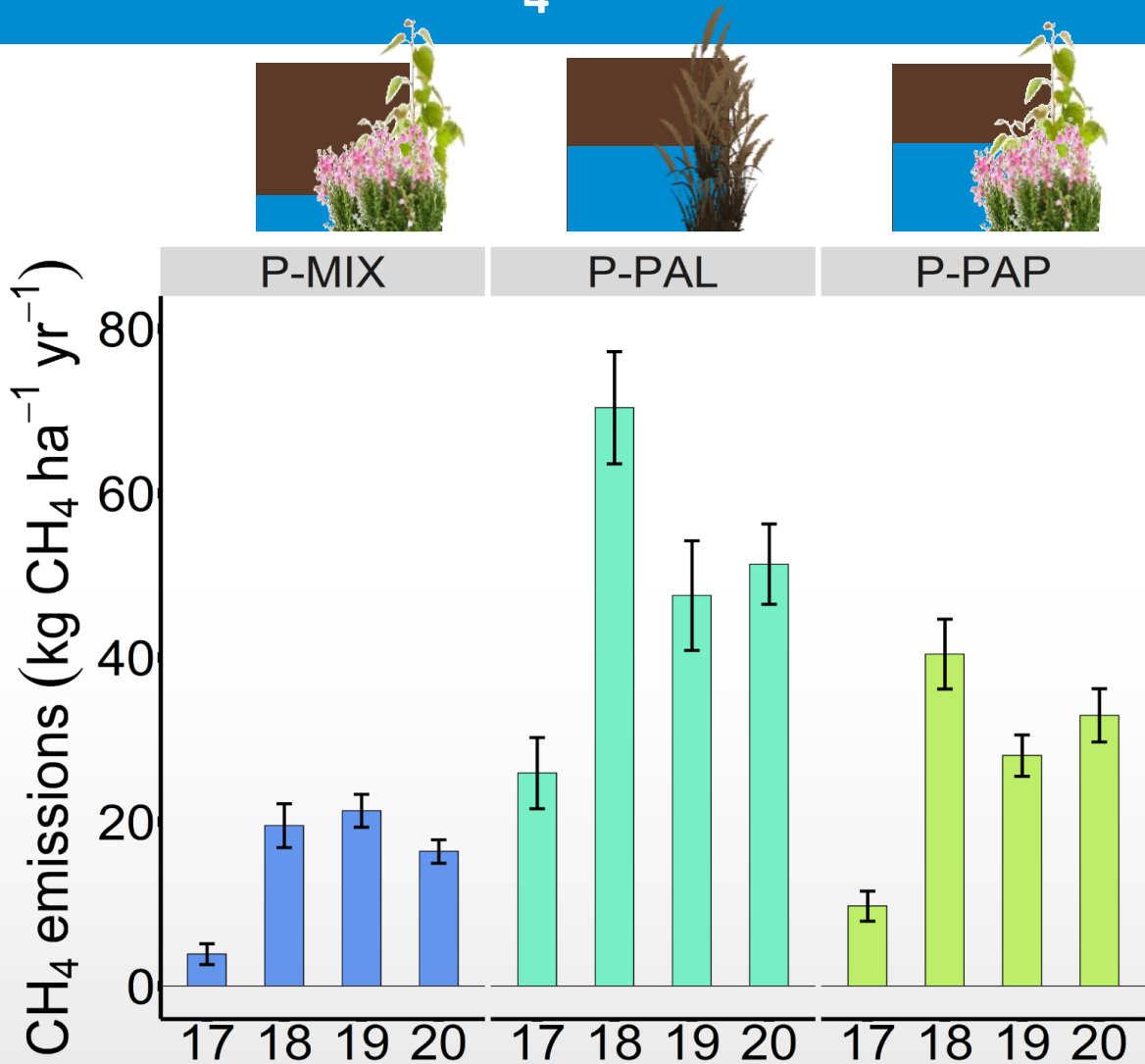




# Exchange of CO<sub>2</sub>

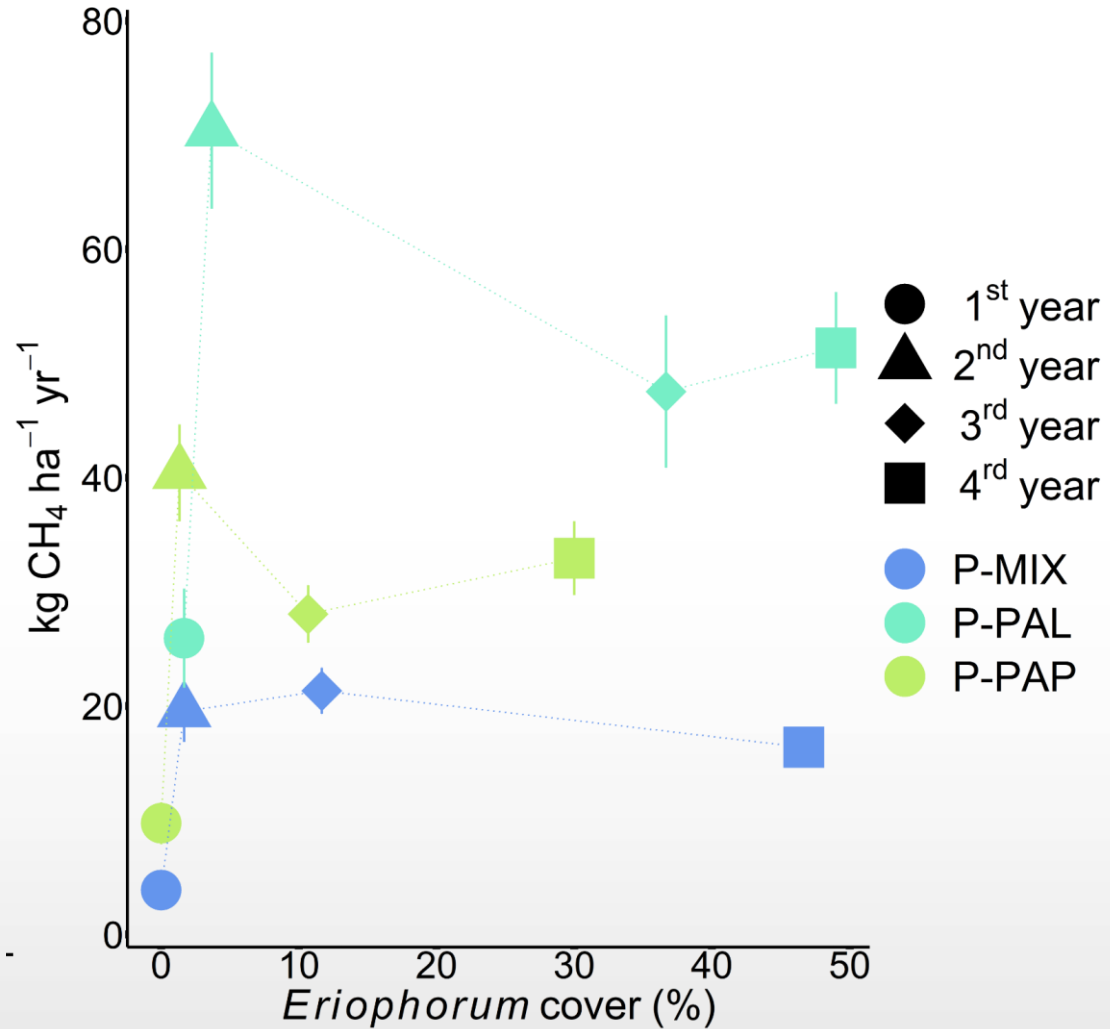


# Emissions of CH<sub>4</sub>



- Mean annual CH<sub>4</sub>- emissions:
  - 2017: 13.2 ± 11.4 kg CH<sub>4</sub> / ha\*a
  - 2018: 43.4 ± 25.6 kg CH<sub>4</sub> / ha\*a
  - 2019: 32.3 ± 13.6 kg CH<sub>4</sub> / ha\*a
  - 2020: 33.6 ± 17.5 kg CH<sub>4</sub> / ha\*a

# Emissions of CH<sub>4</sub>



# GHG- balances 2017 to 2020 and conclusions

