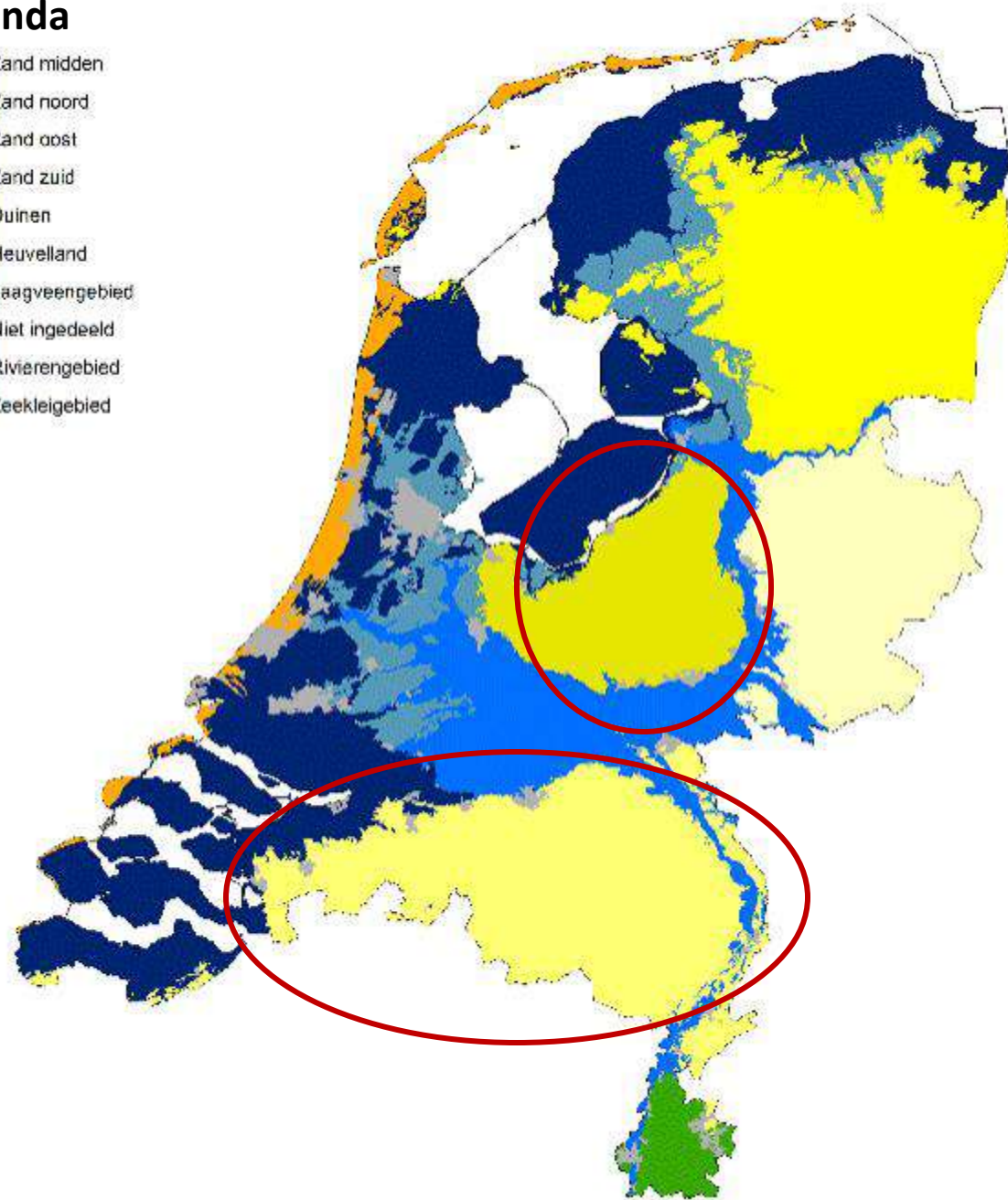


Nutriëntenbalansen van bossen onder hoge stikstofdepositie



Legenda

- Zand midden
- Zand noord
- Zand oost
- Zand zuid
- Duinen
- Heuvelland
- Laagveengebied
- Niet ingedeeld
- Riviereengebied
- Zeekleigebied



Beuk



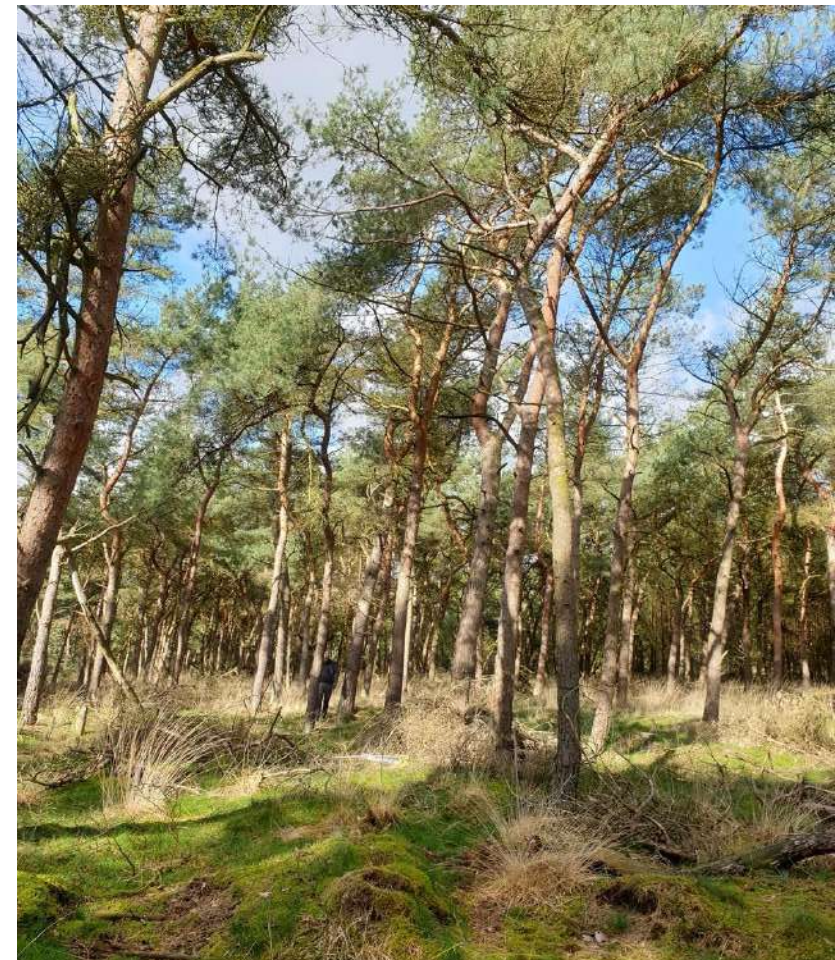
Oppervlakte 4%
Velling 2,4%

Douglas



Oppervlakte 4,6%
Velling 14%

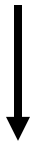
Grove den



Oppervlakte 28%
Velling 28%

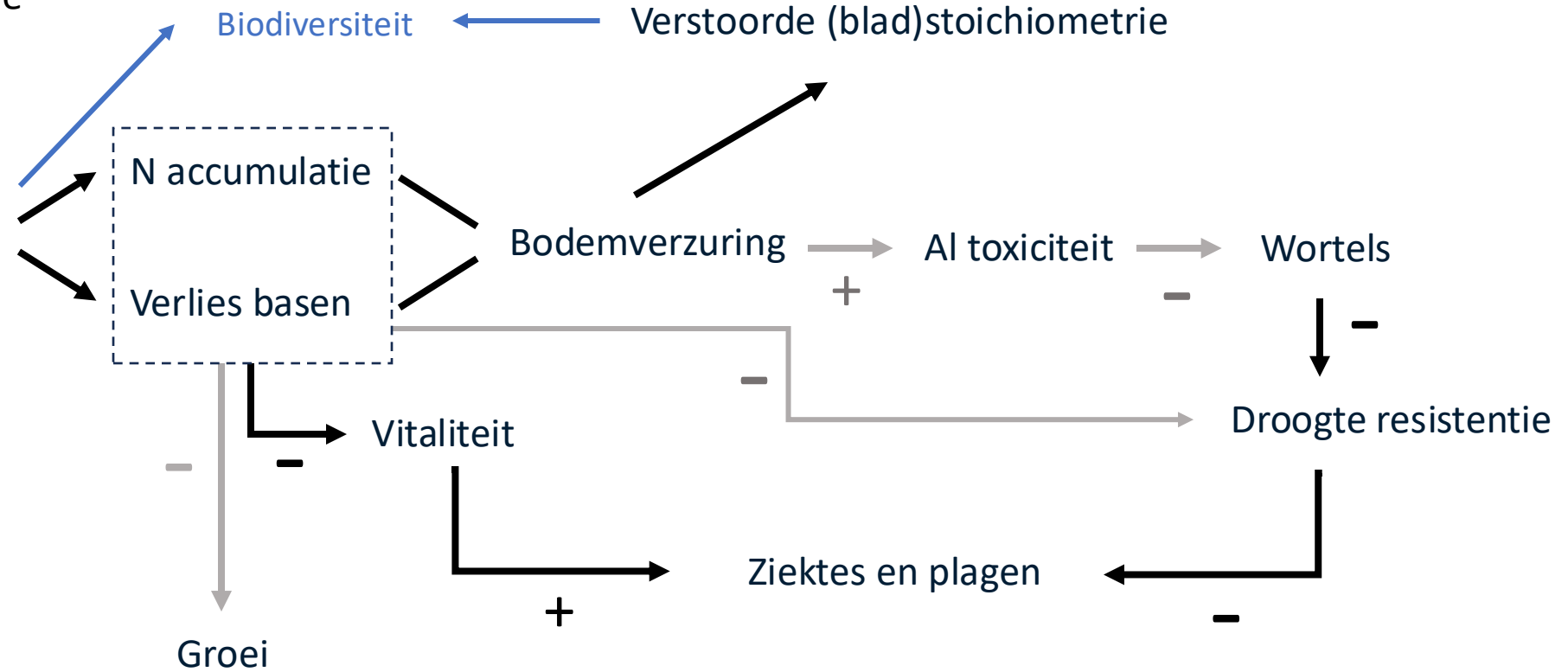
Het belang van een goede nutriëntenbalans

Verhoogde N (en S) depositie



Bodem-biogeochemie

Bodem



Is houtoogst nog wel duurzaam?

En verschilt dit tussen boomsoorten en kapmethodes?

Beuk



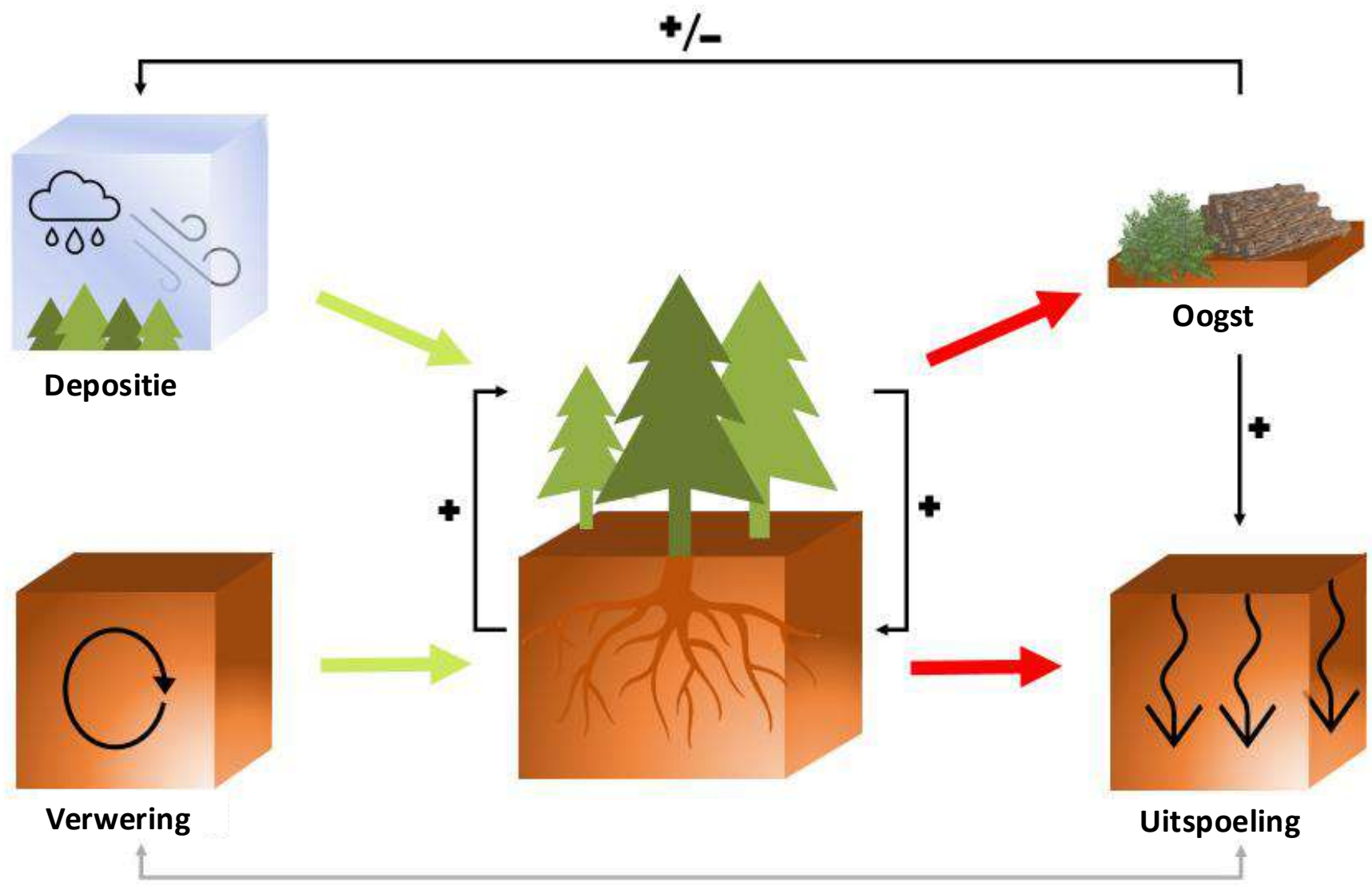
Douglas



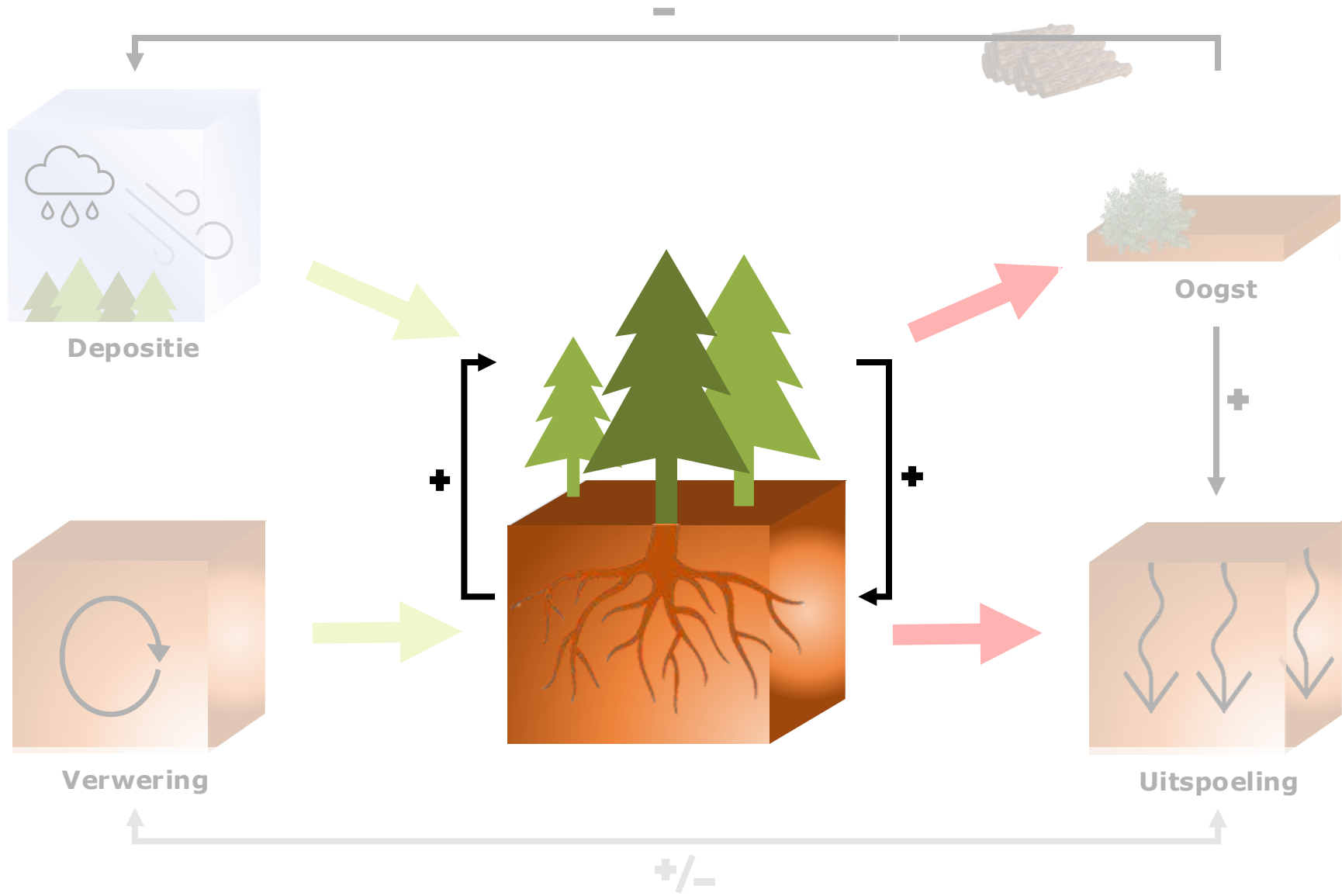
Grove den



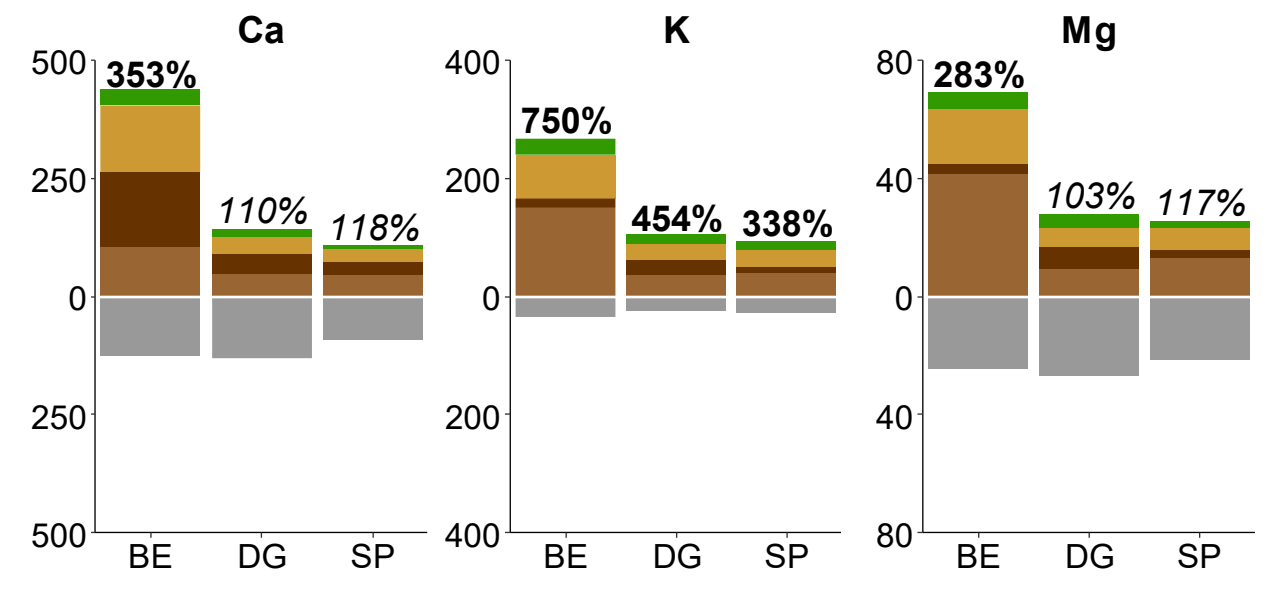
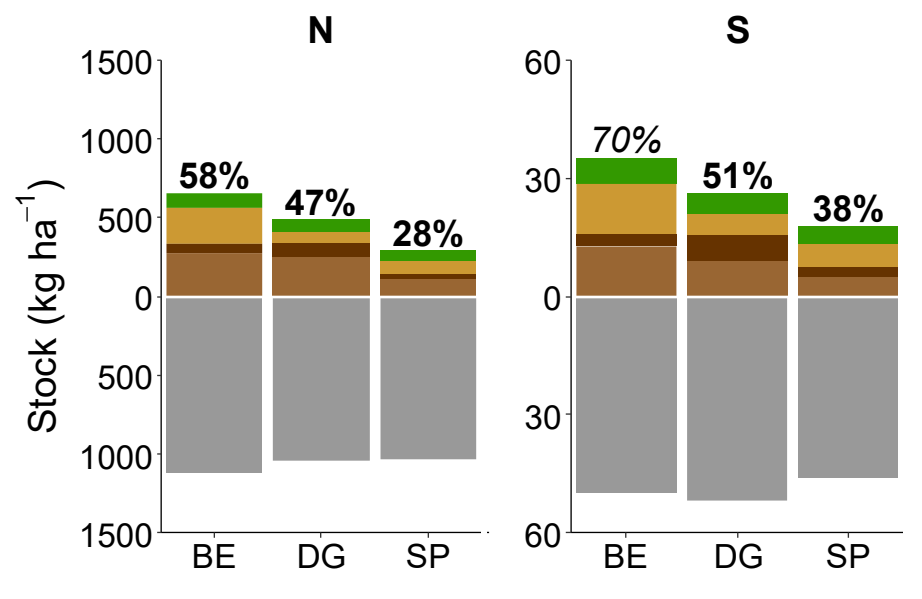
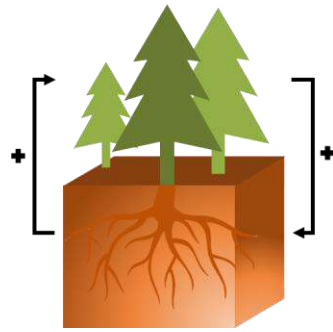




N S P Ca K Mg Mn Cu Fe Zn
 { } { }
 Zuren Basen





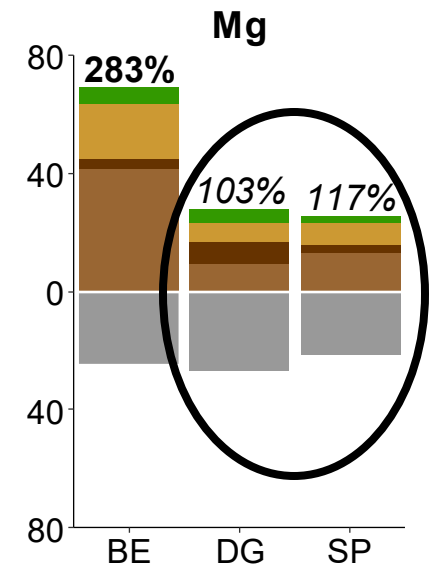
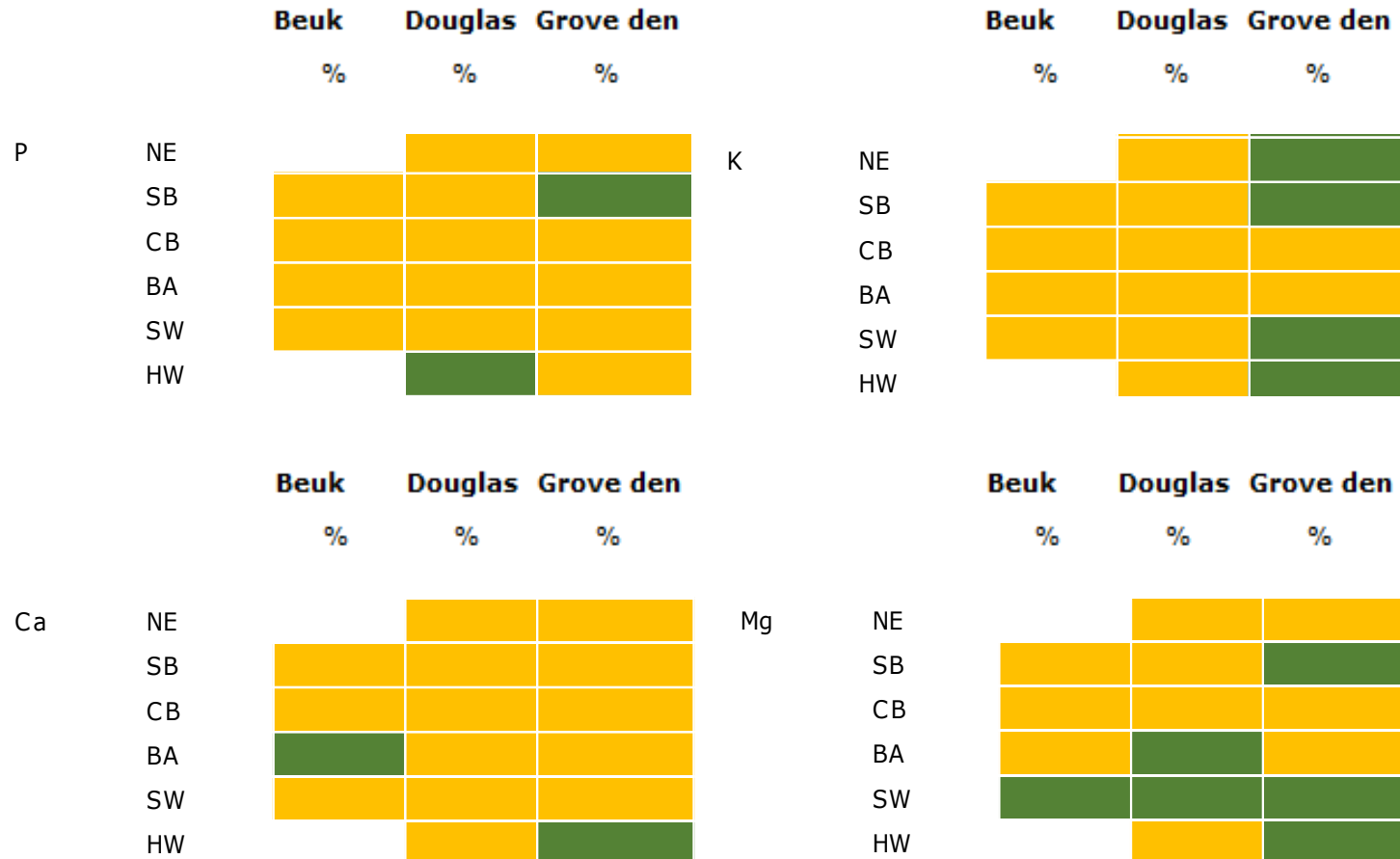


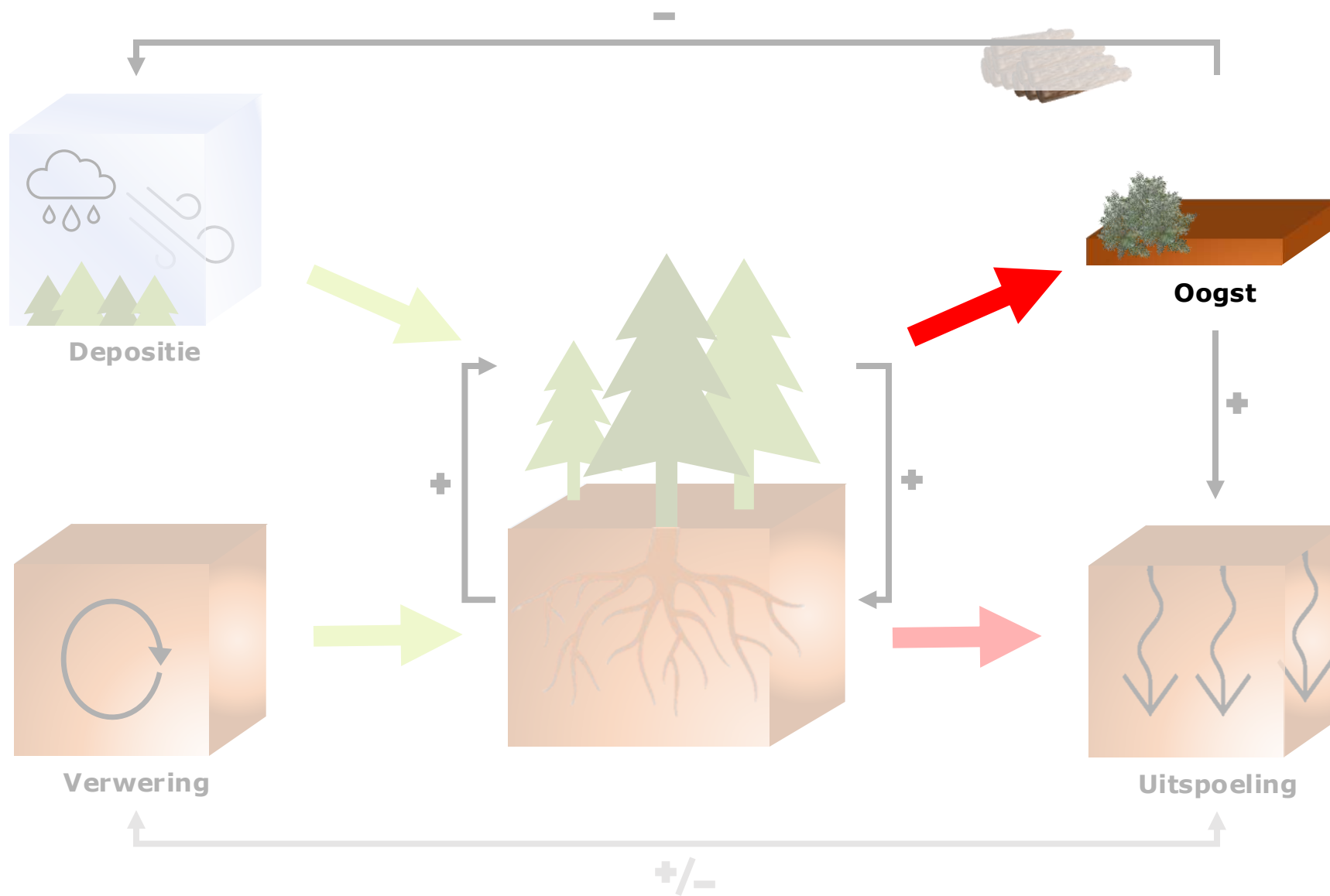
Zuren

Basen

■ Blad
 ■ Takken
 ■ Bast
 ■ Hout
 ■ Strooisel

Nutriëntenconcentraties



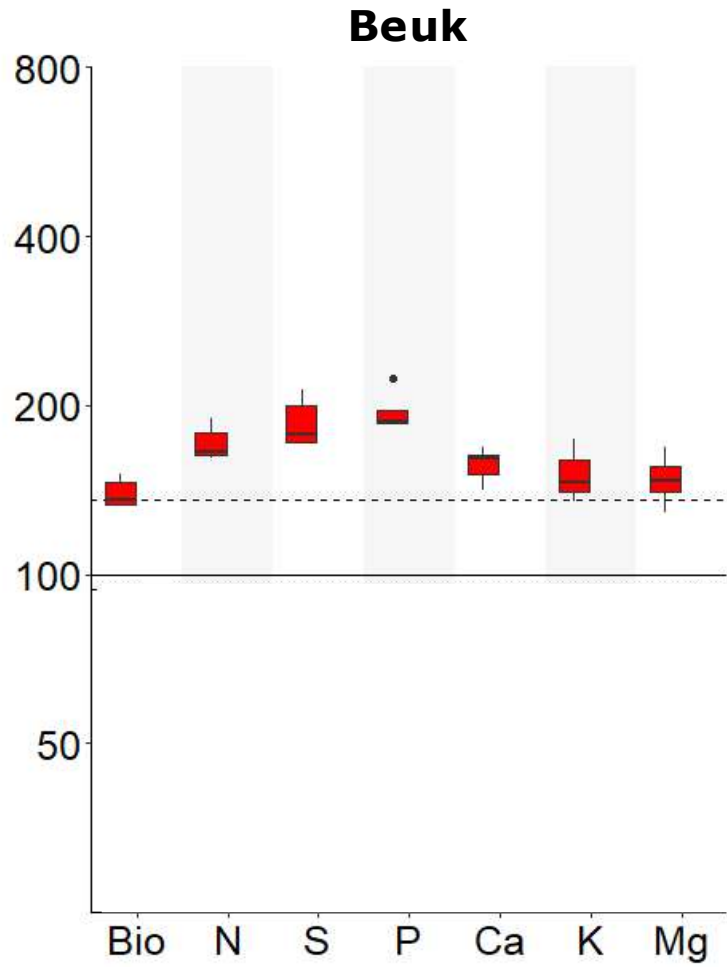




Oogst



Export (%)



135%
187%



100%



94%
77%

112%
166%

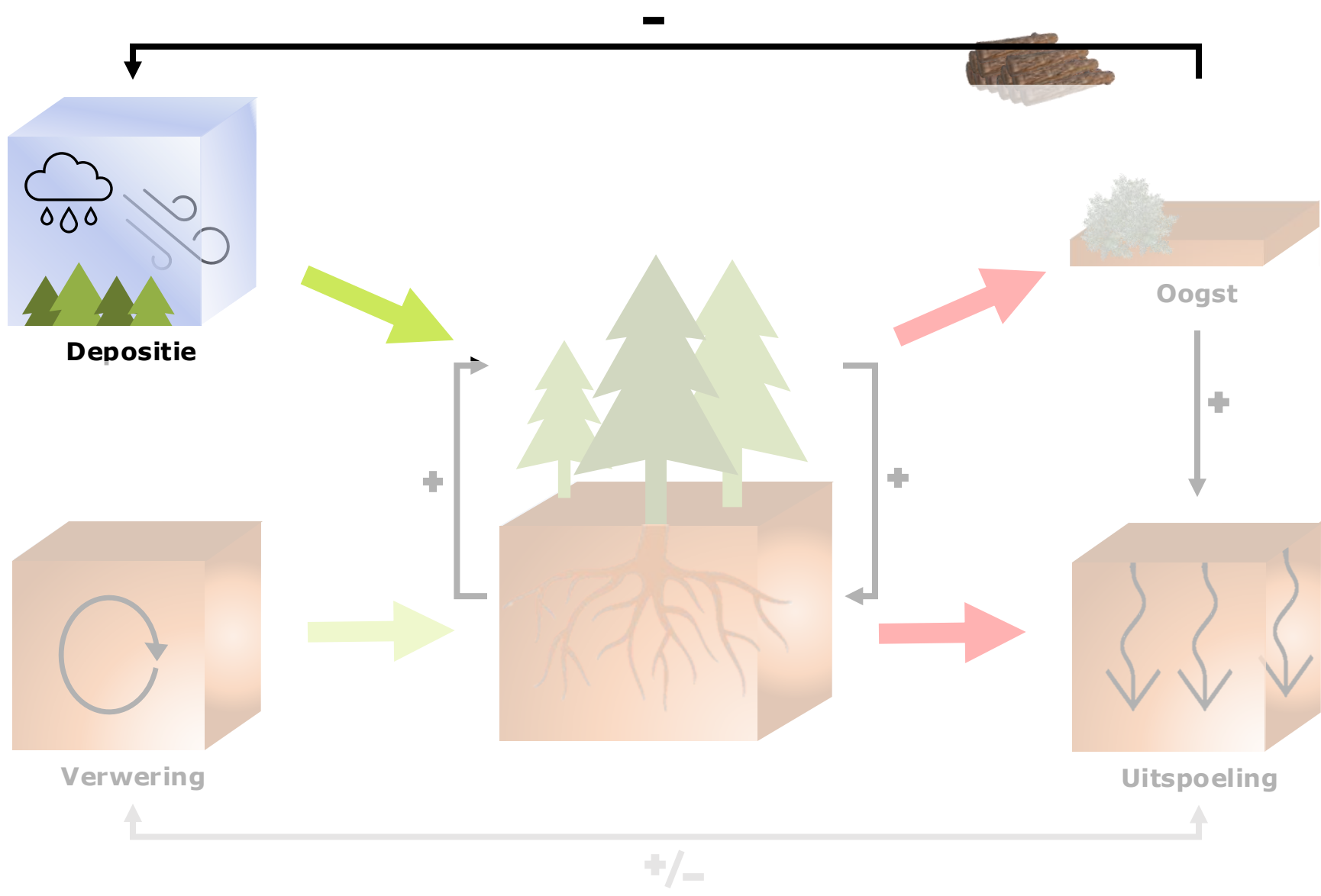
100%

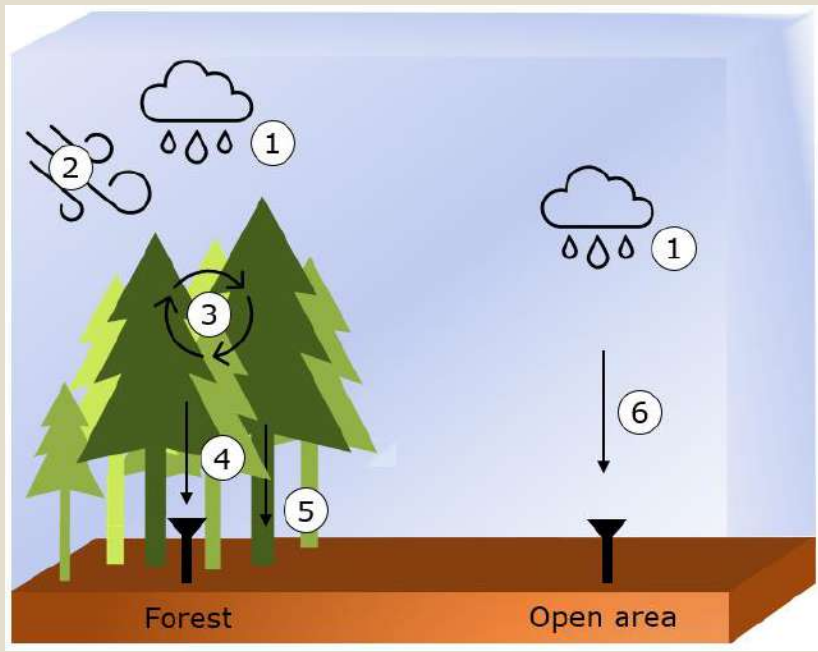
90%
59%

127%
200%

100%

92%
75%

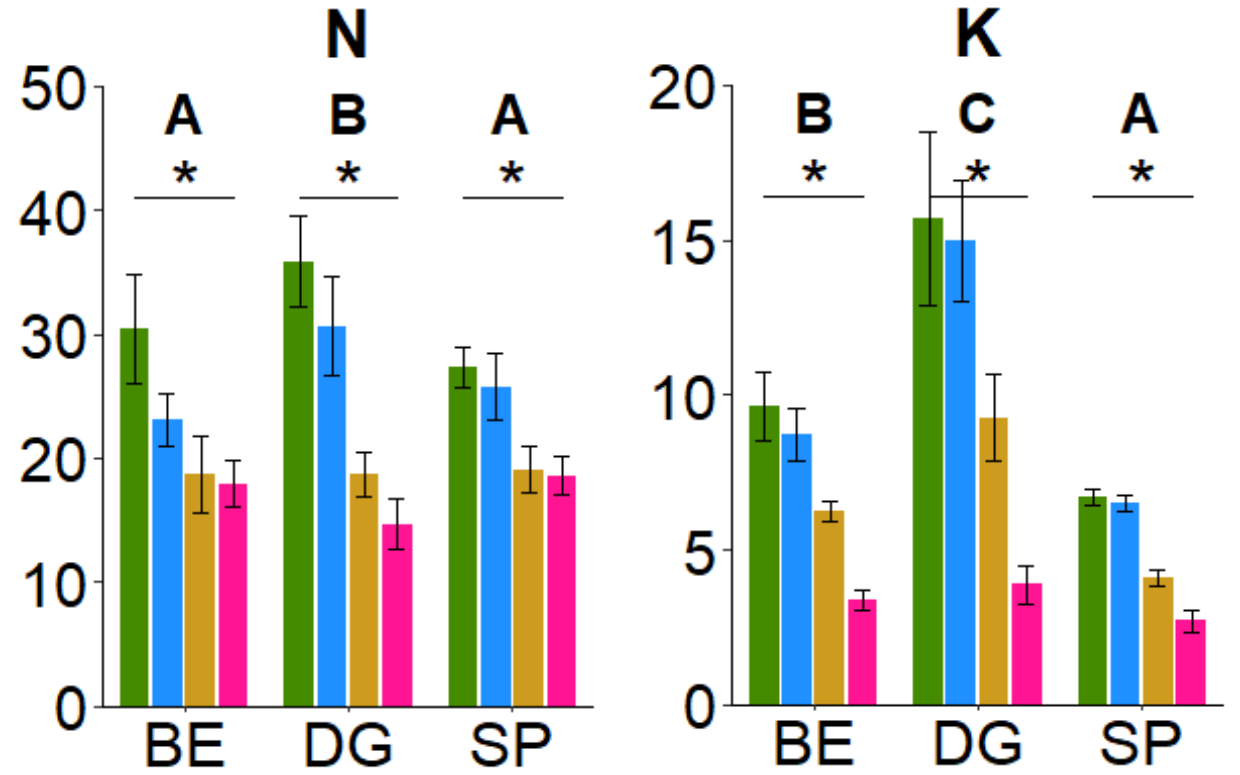




Depositie



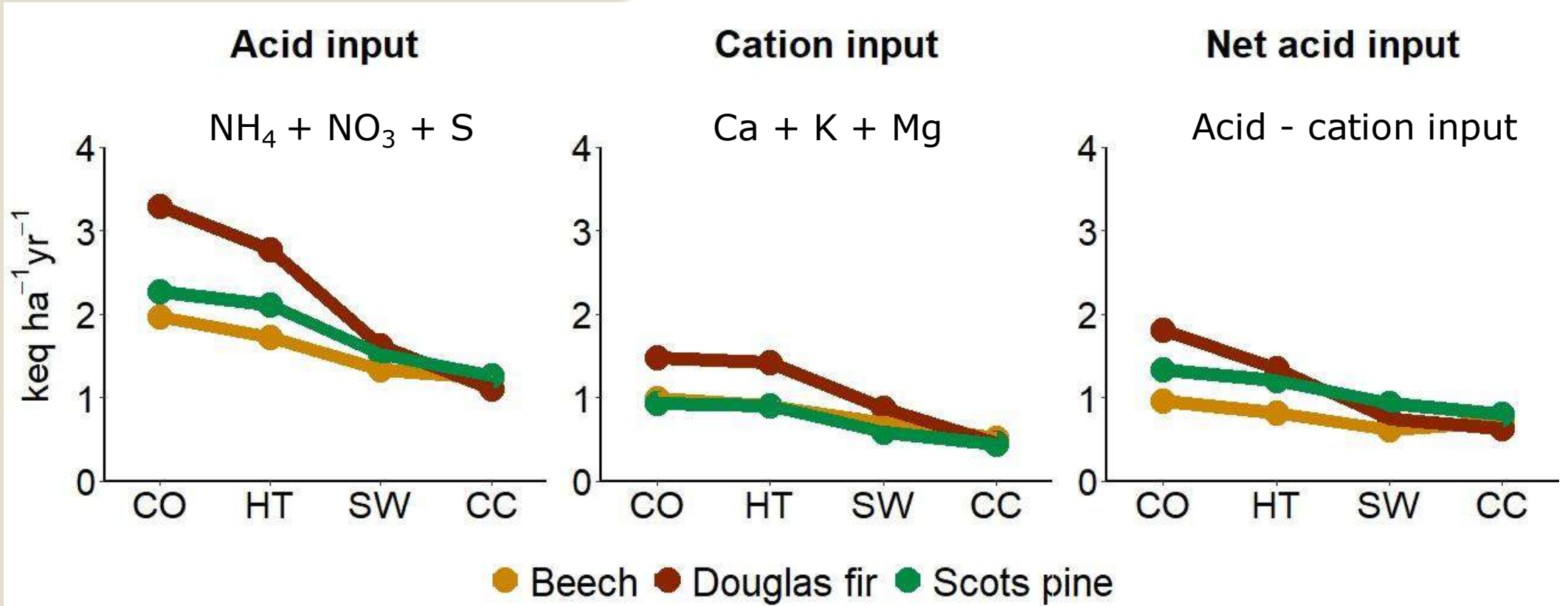
$\text{kg ha}^{-1} \text{yr}^{-1}$

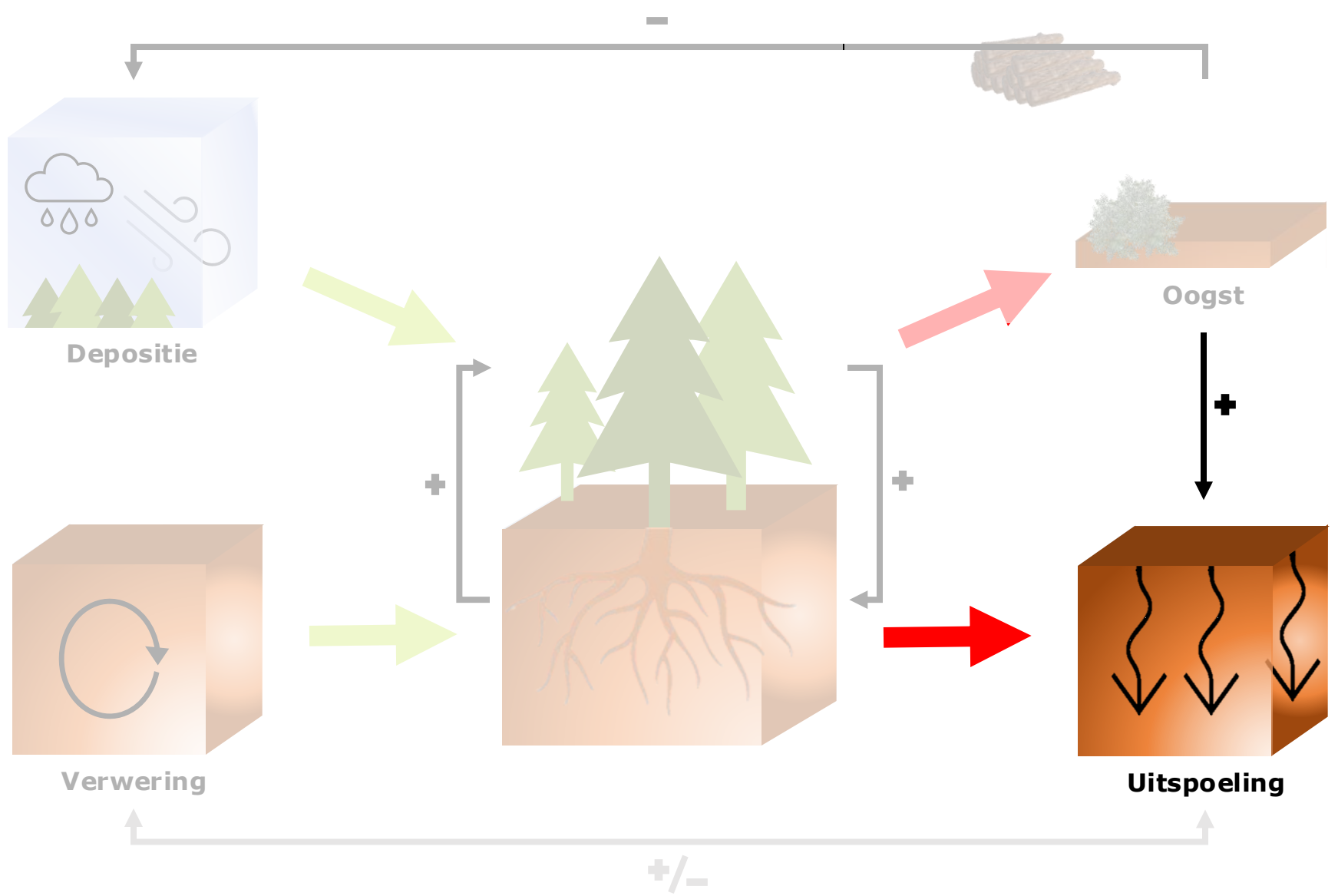


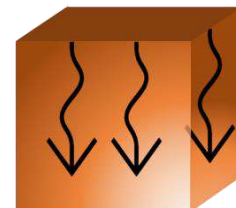
CO HT SW CC



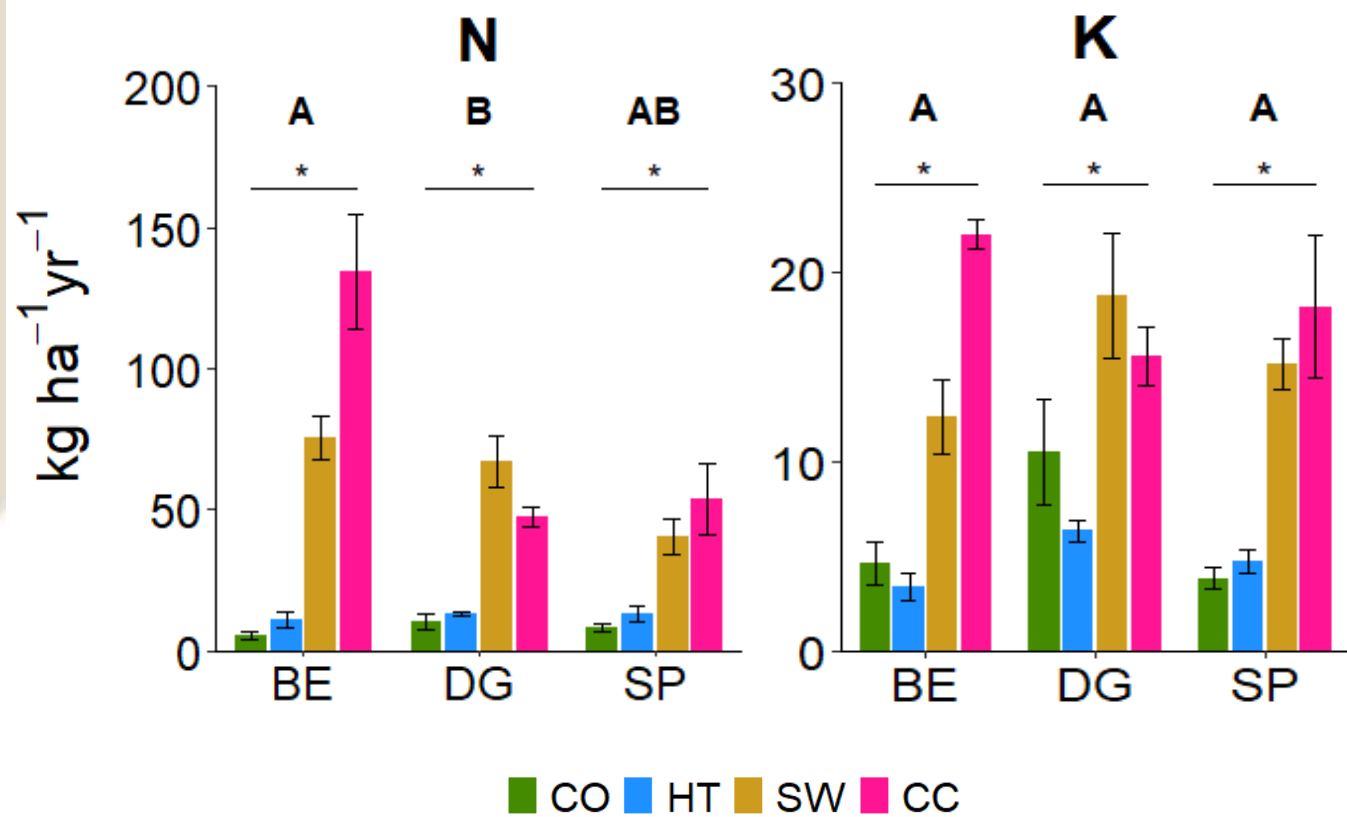
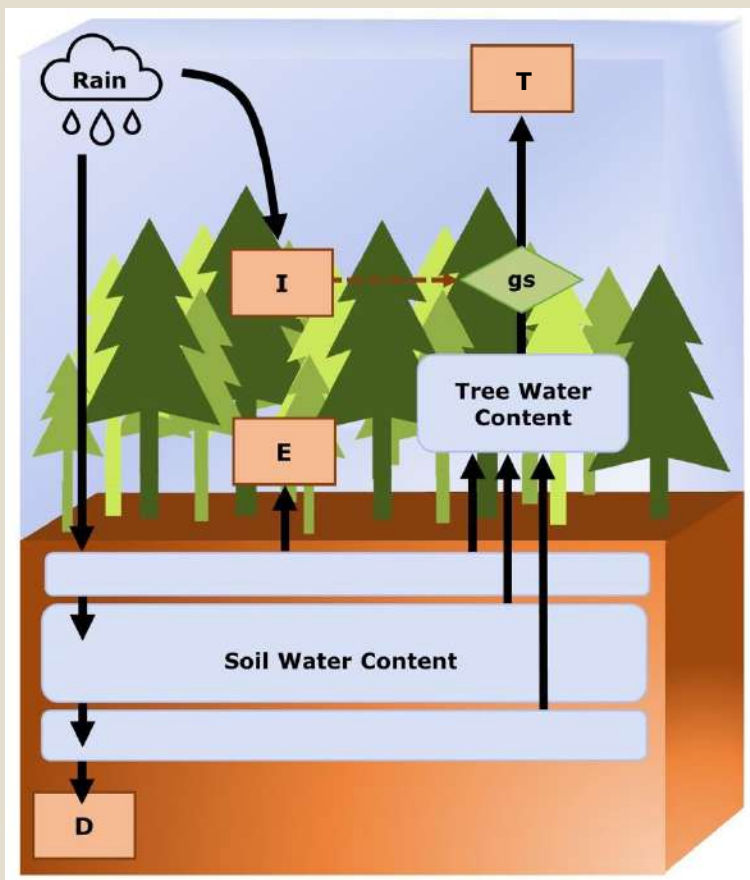
Deposite

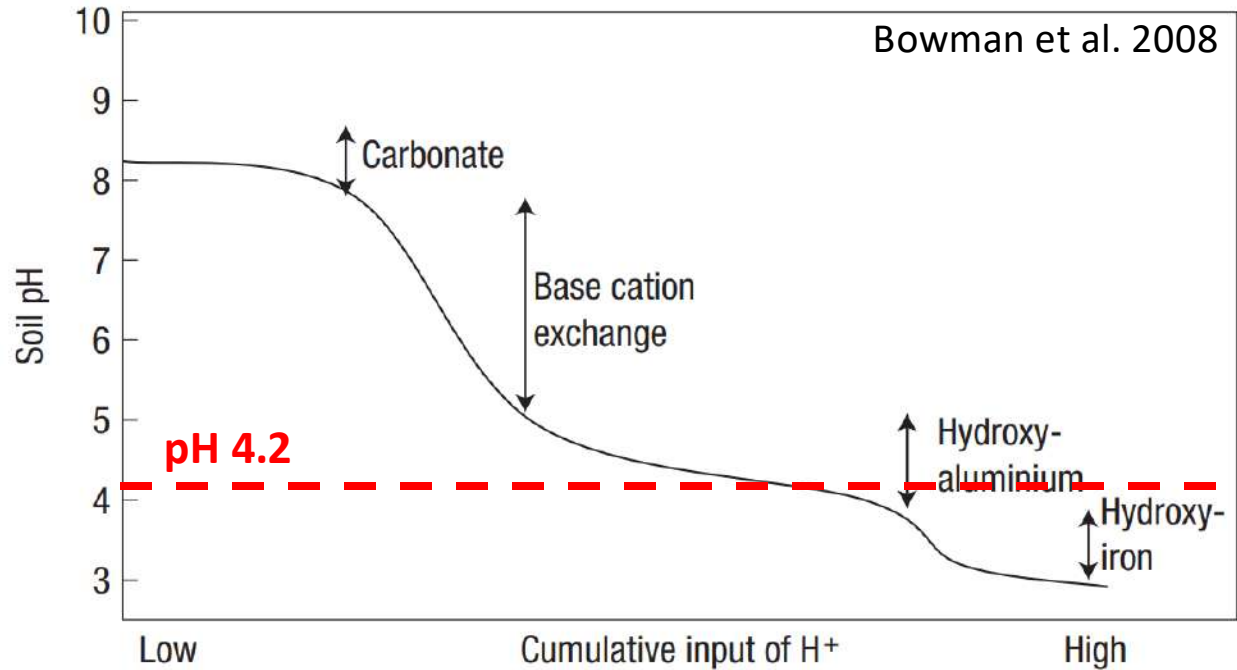




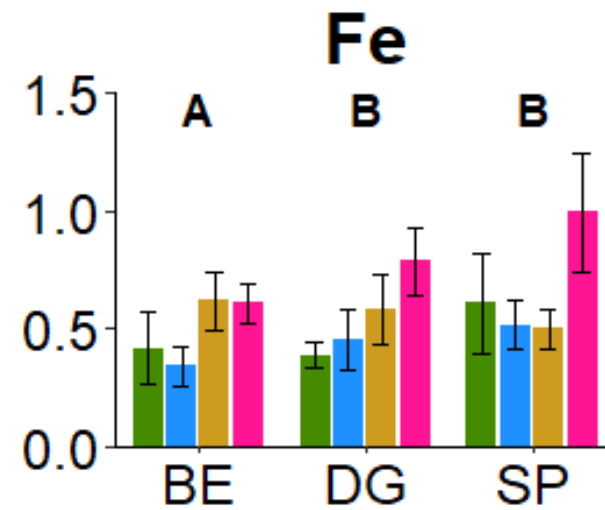
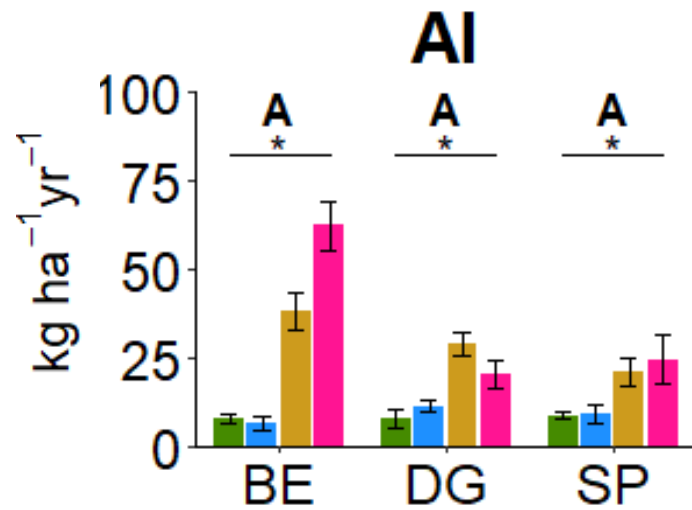
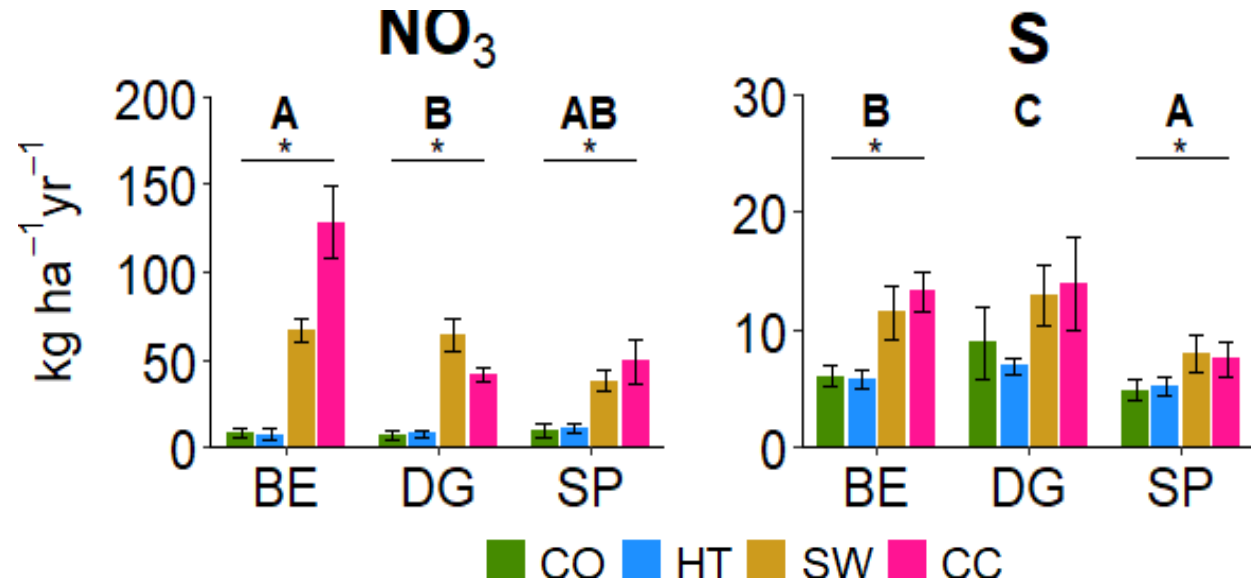


Uitspoeling

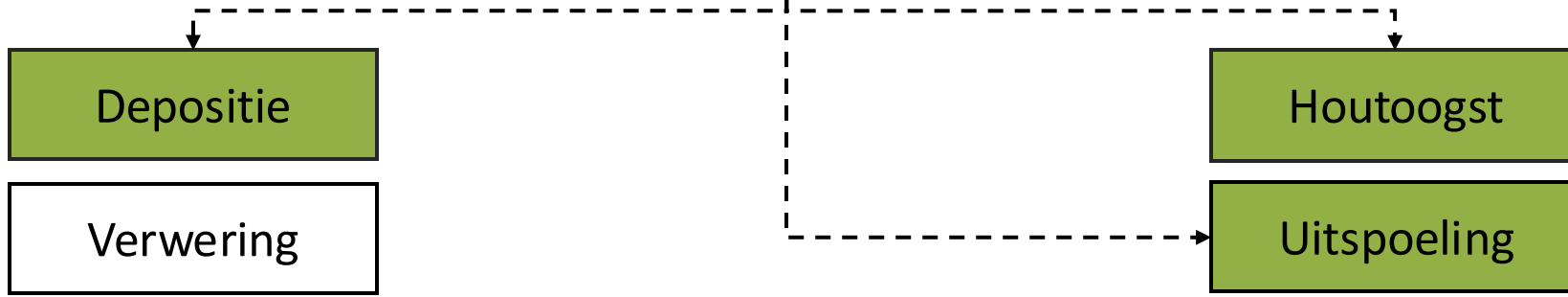




Wat gebeurt er na een eindkap?



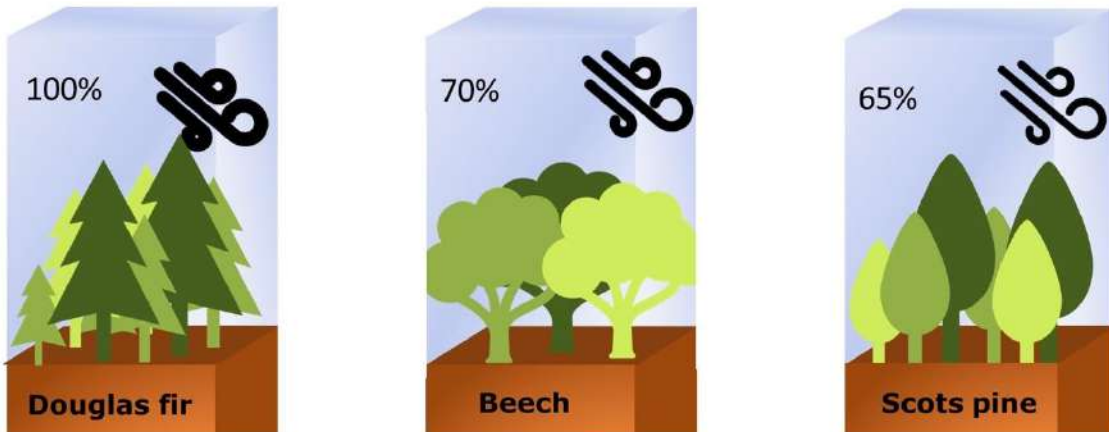
Beheer



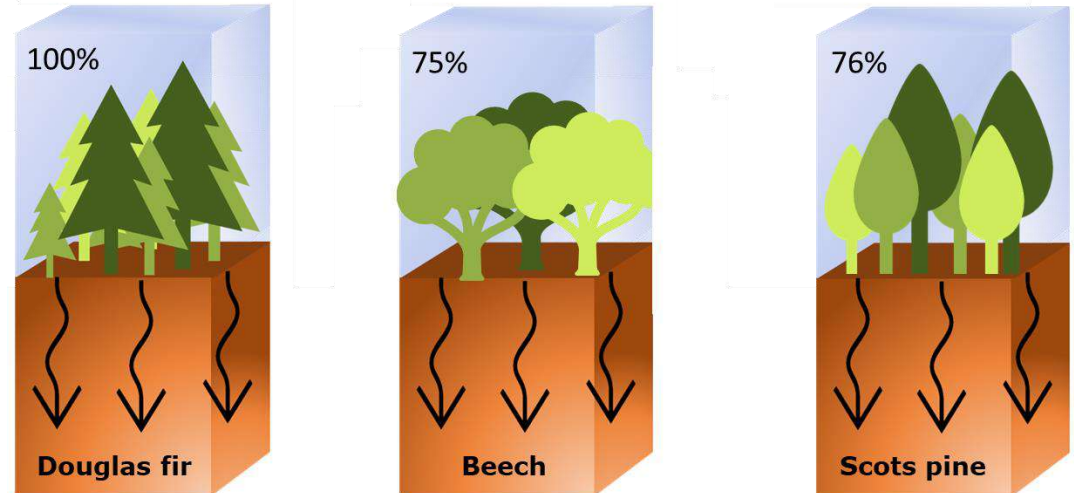
Boomsoort



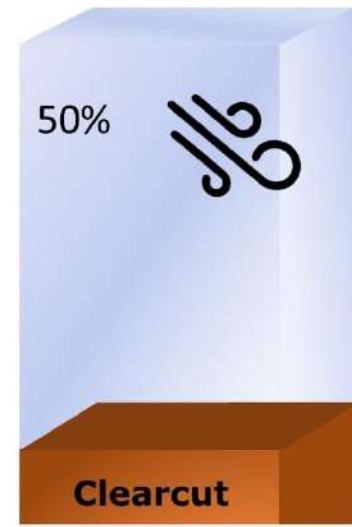
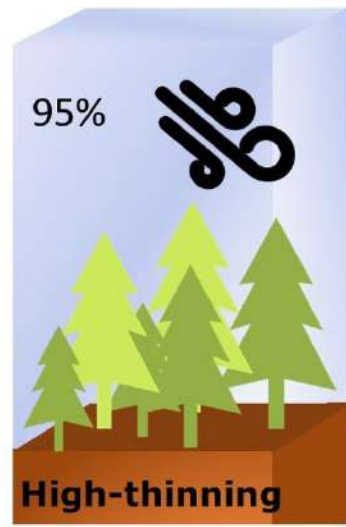
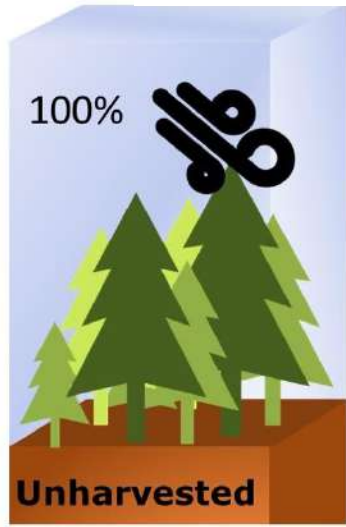
Effecten van de boomsoort op de depositie



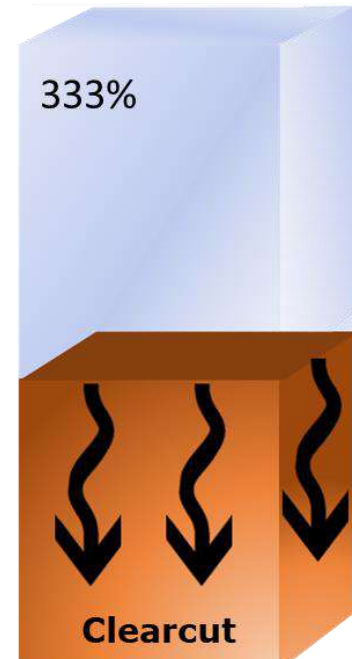
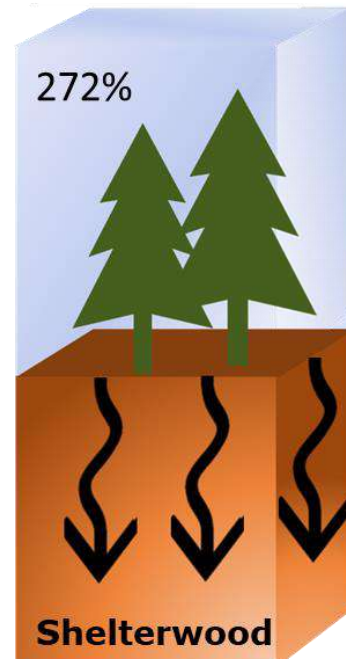
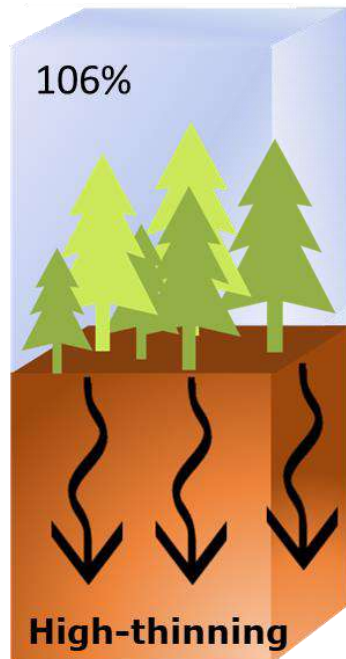
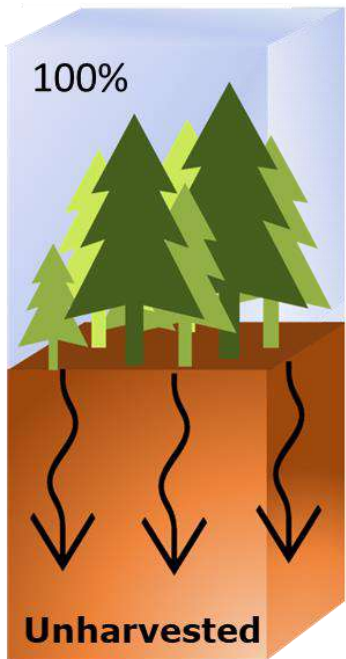
Effecten van de boomsoort op de uitspoeling

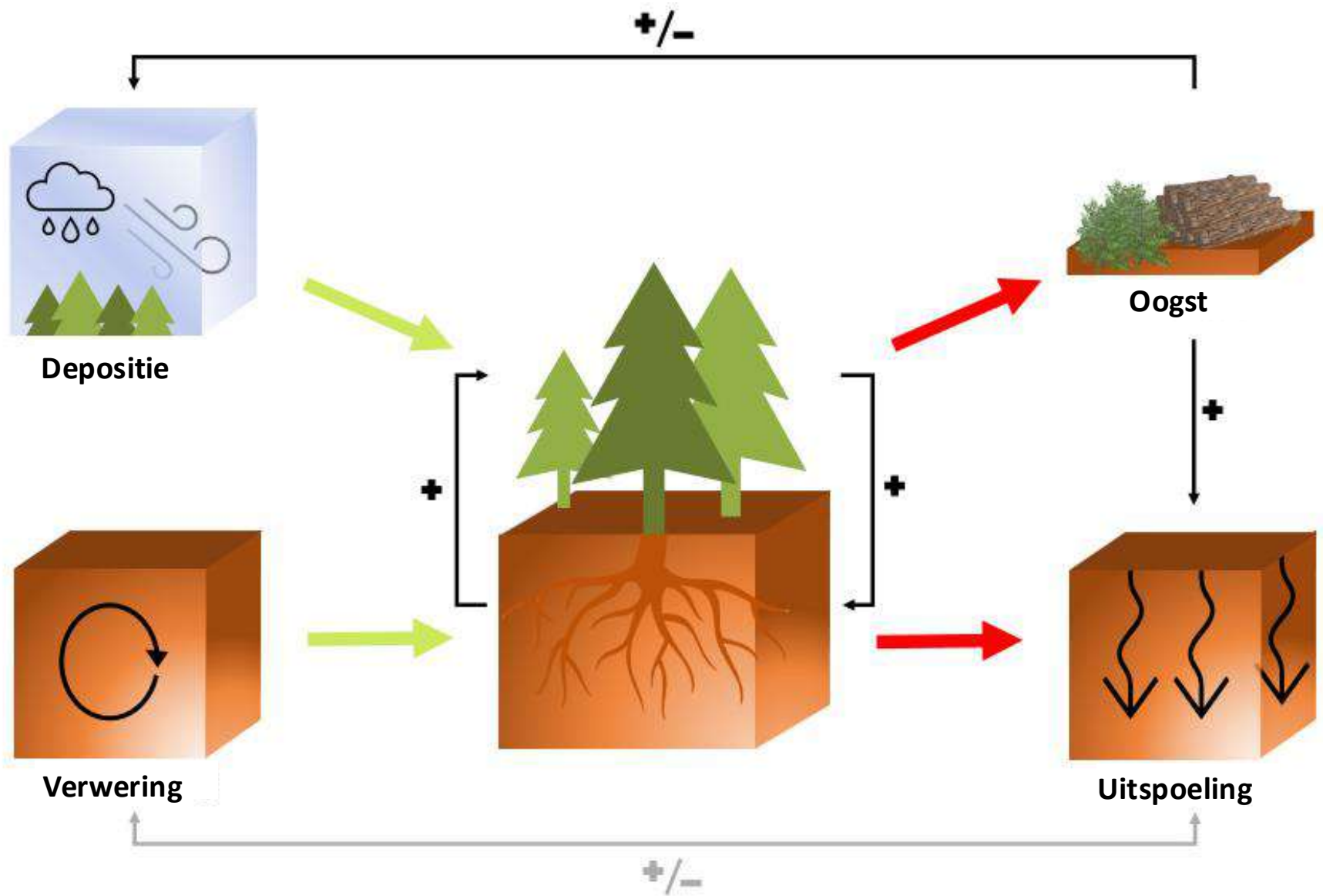


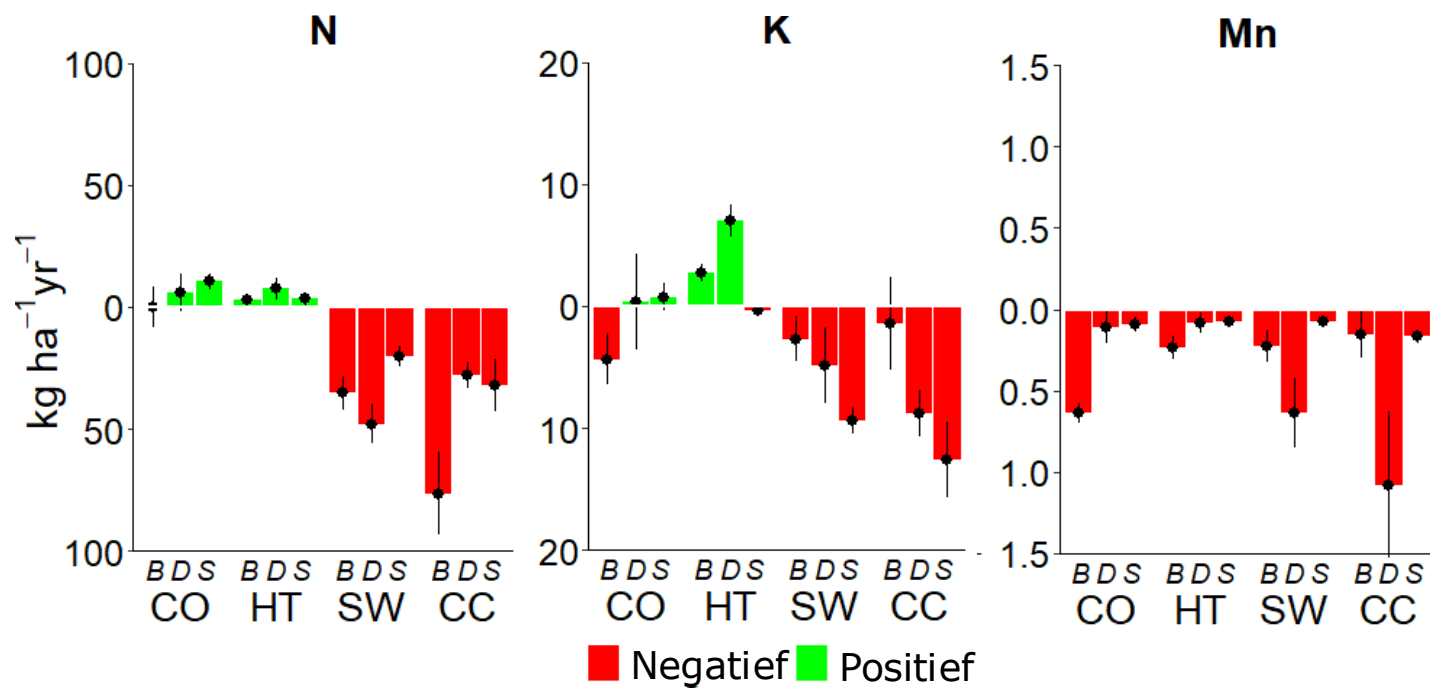
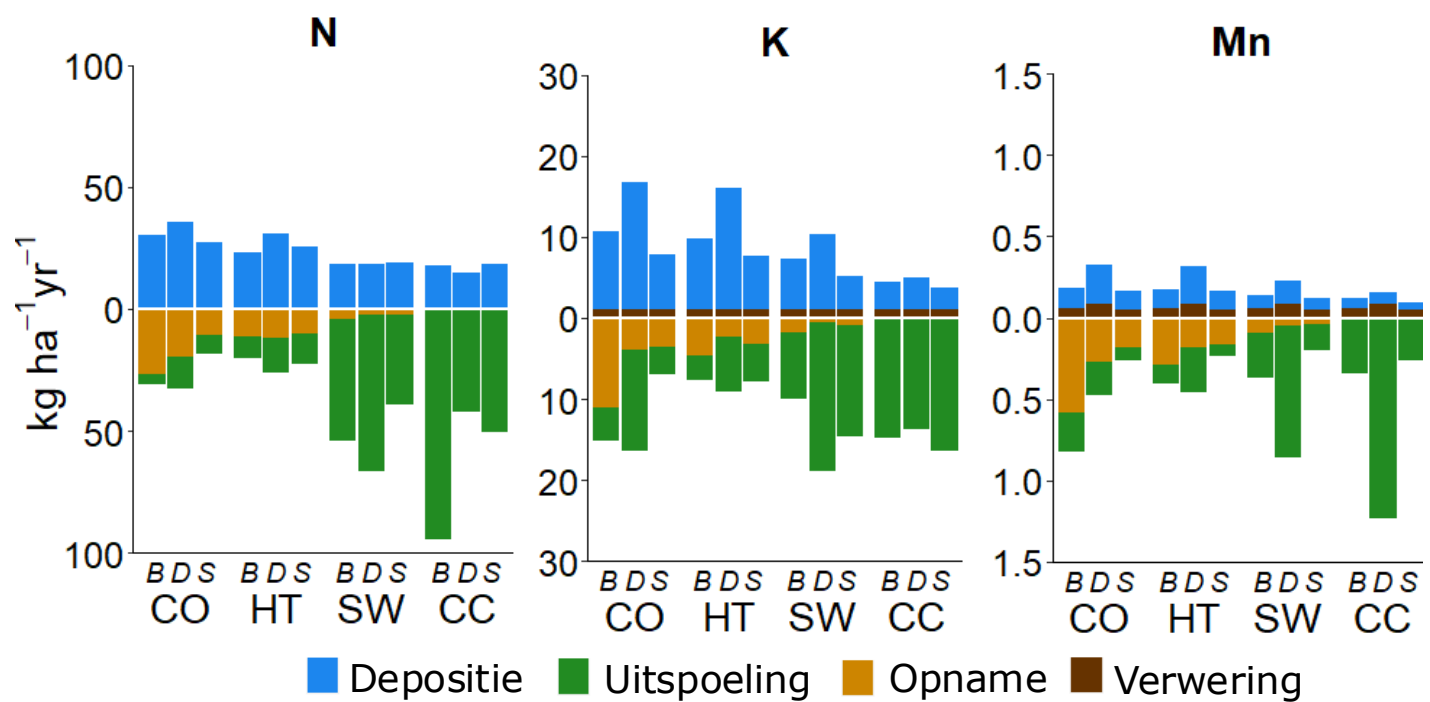
Depositie



Uitspoeling







Risico's



Oogst tak- en tophout



Schermkap en kaalkap



Mn tekorten

Kansen



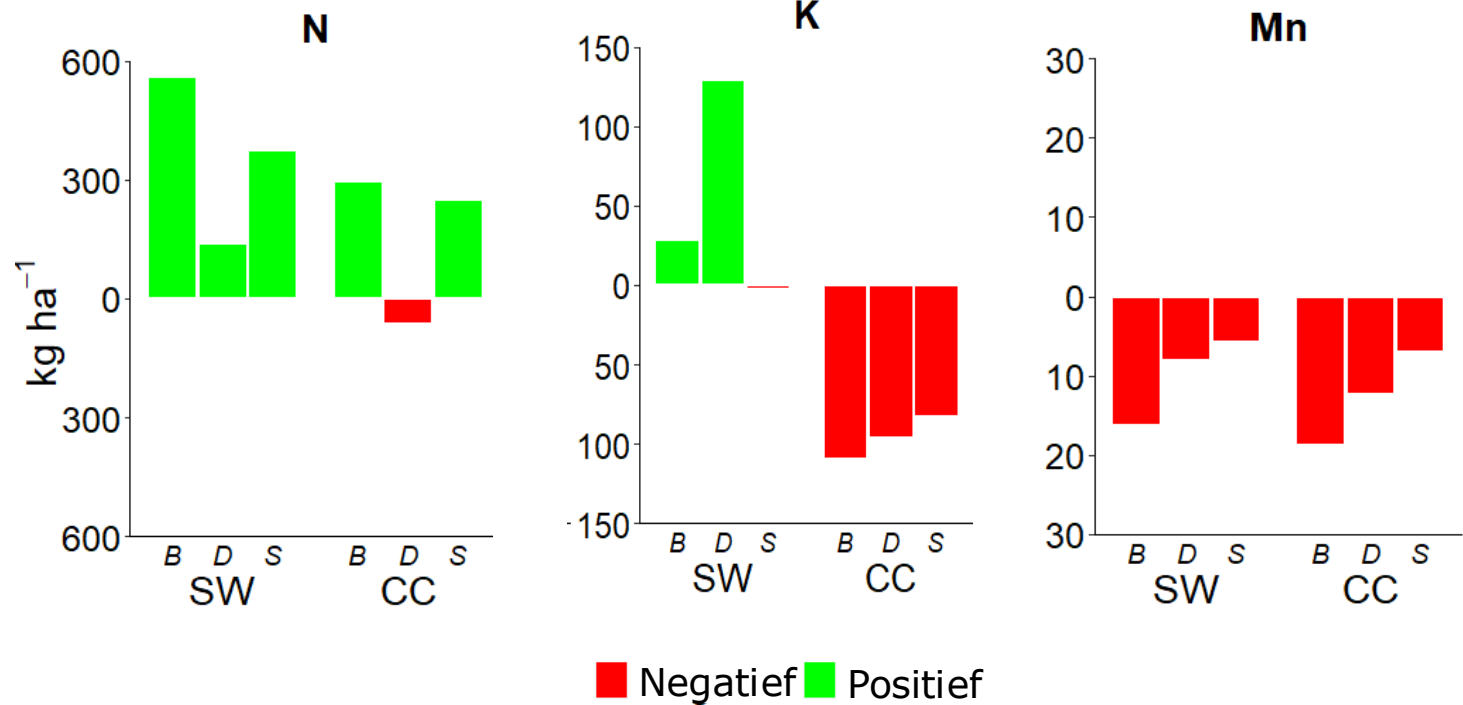
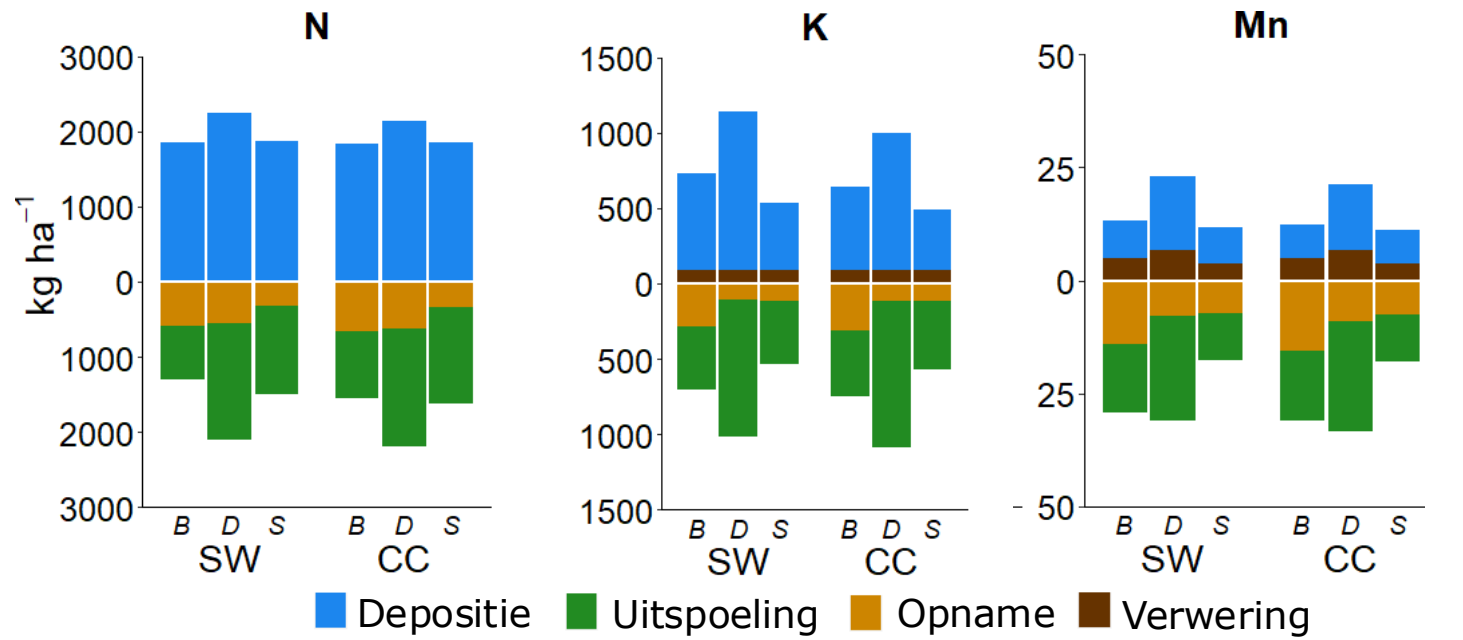
Bast verwijderen



Dunningen

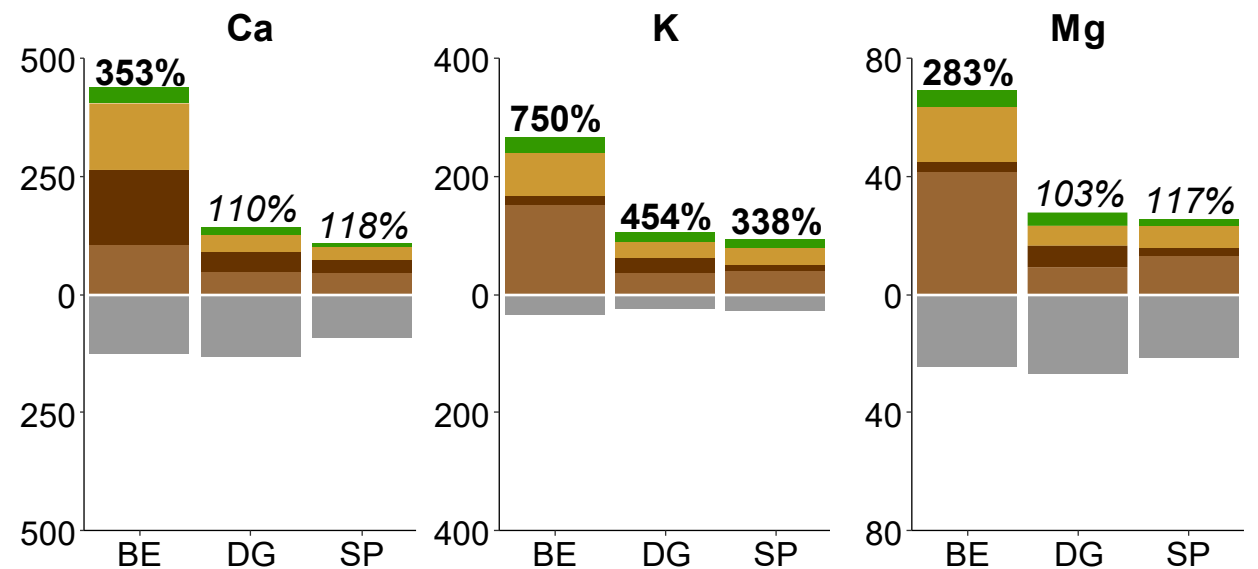


Monitoring van tekorten



Onzekerheden over de langere termijn

- Invloed van de regeneratie op de uitspoeling
- Tekorten kunnen mogelijk optreden
- Stikstofverzadiging van het systeem



Wat te doen bij andere boomsoorten

Adviessysteem houtoogst wordt geüpdatet.

Voor nu:

1. Ga na wat de gemiddelde beschikbaarheid van voedingsstoffen is
 - *De Jong et al. 2024: Veranderingen van voorraden koolstof, stikstof, fosfor, kalium, calcium, magnesium, ijzer en aluminium in bosbodems tussen 1990 en 2023*
2. Ga na wat de nutriëntenconcentraties zijn in het hout
 - *De Jong et al. 2022: Impacts of harvesting methods on nutrient removal in Dutch forests exposed to high-nitrogen deposition*
3. Vergelijk dit met de gemiddelde depositie en uitspoelingsdata
 - *Vos, 2024 : Impacts of harvesting practices on nutrient balances of forests under high nitrogen deposition.*