Precision fertilization on grassland(?)

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"Using new technologies to optimize grassland systems"

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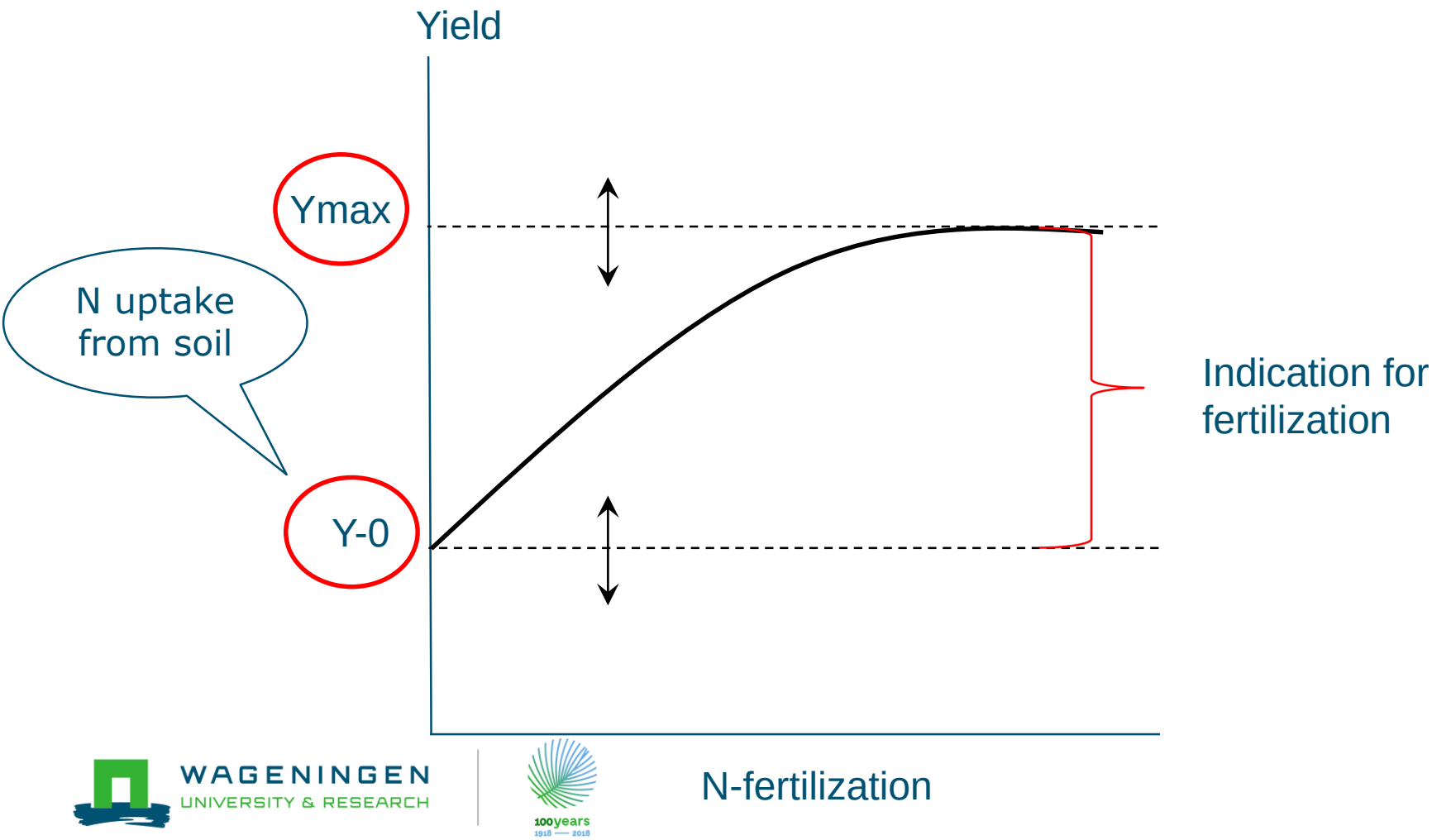
Precise N-fertilization grassland

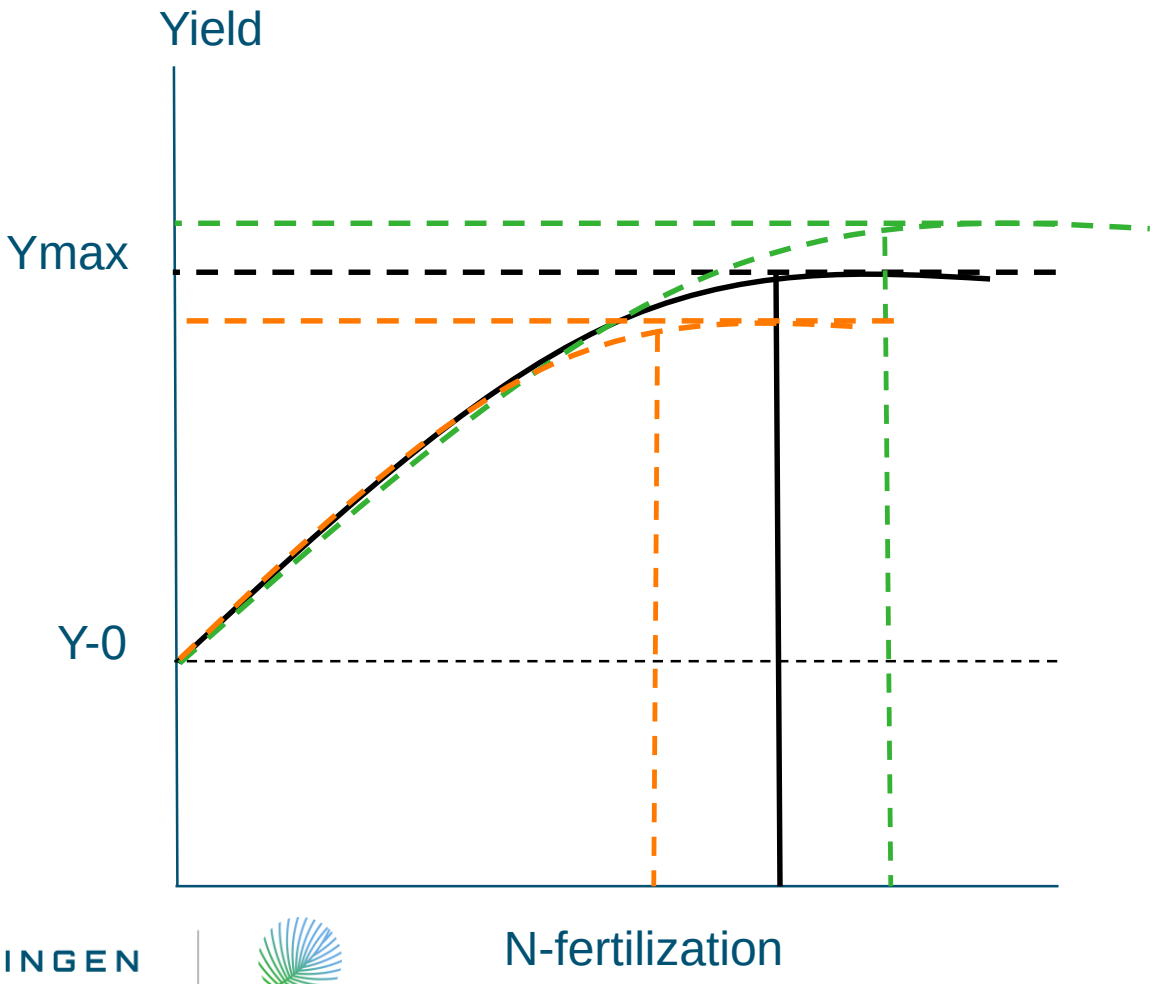
- Optimize N-fertilization at farm level
- Taking into account:
  - Limited use of fertilisers
  - Distribution to crops
  - Distribution to fields
  - Distribution in growing season
  - Distribution *within* a field → precise N-fertilization

Background (1)

Growth curve grass



Background (2)



Strategies for fertilization

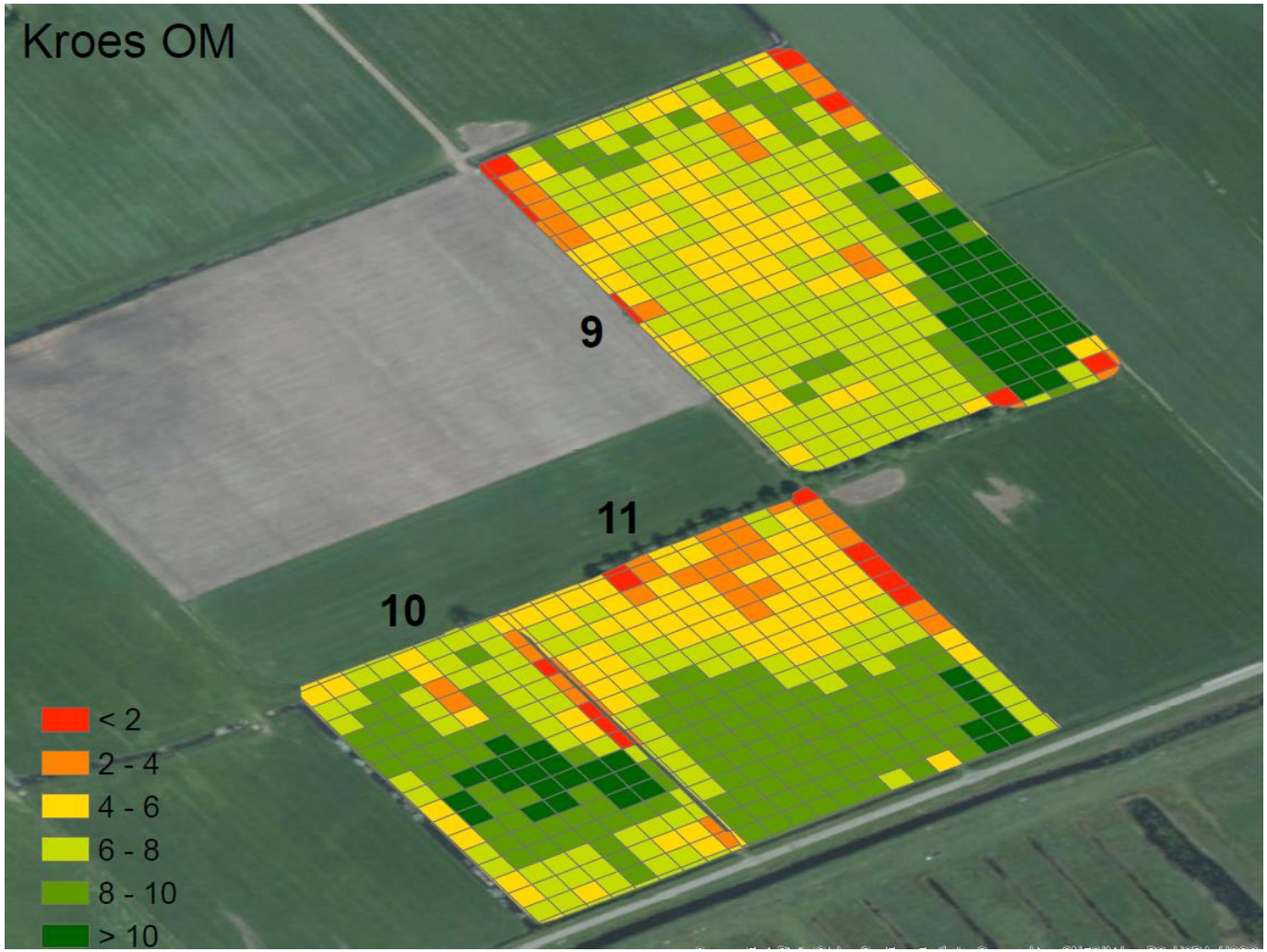
- Compensating = ‘Robin Hood’
  (‘poor’ spots more, ‘rich’ spots less)

- Anticipating = ‘King John’
  (‘rich’ spots more, ‘pore’ spots less)

Which one is optimal?

Is one of these optimal?

VERIS soil scan: Organic matter ....



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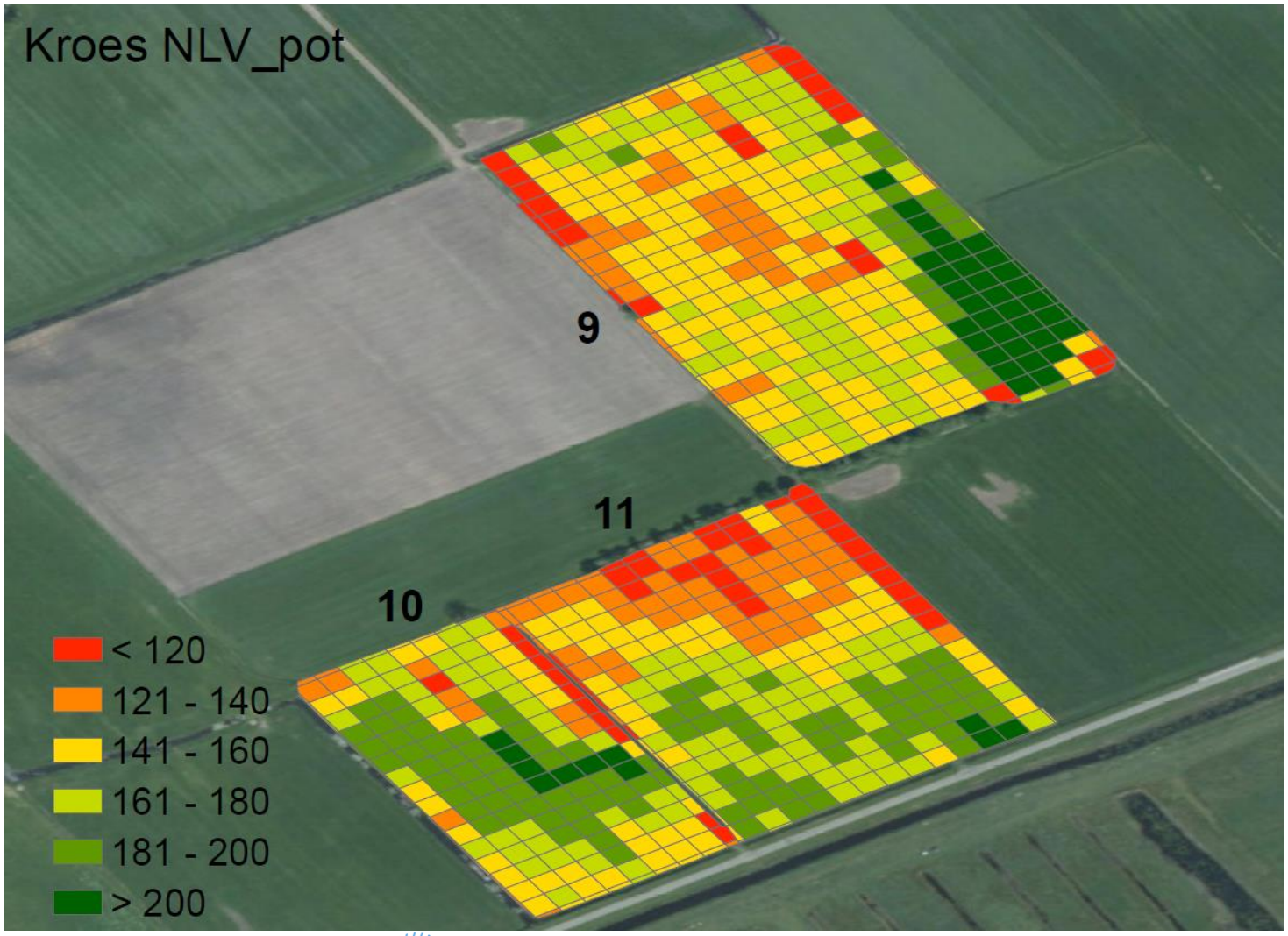
… transformed to a ‘N uptake from soil’



Field trial

- 2 locations:
  - Wageningen (clay soil)
  - Exp. farm ‘De Marke’ (sandy soil)
- 64 plots per location:
  - 32 unfertilised (‘N uptake from soil’)
  - 32 fertilised+ (‘max yield’)
  - →What is the variation within a field?

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Measurements/monitoring

- Soil ‘samples’:
  - Veris soil scan
  - ‘Classic’ lab analysis (per plot)
- Weekly monitoring grass height (plate sward)
- Multi-spectral camera (400-1000 nm, each nm)
- During harvest:
  - Weighing grass, each plot
  - Grass samples for N,P and K-content)
  - Pasture Reader (ultrasonic sward height meter)
  - OptrX (NDVI/NDRE)

Mowing and weighing grass with the ‘Haldrup’

The Haldrup with sensors

The OptrX sensor

The Pasture Reader

Results experiments...

Thanks for your attention

Questions? Remarks?

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