

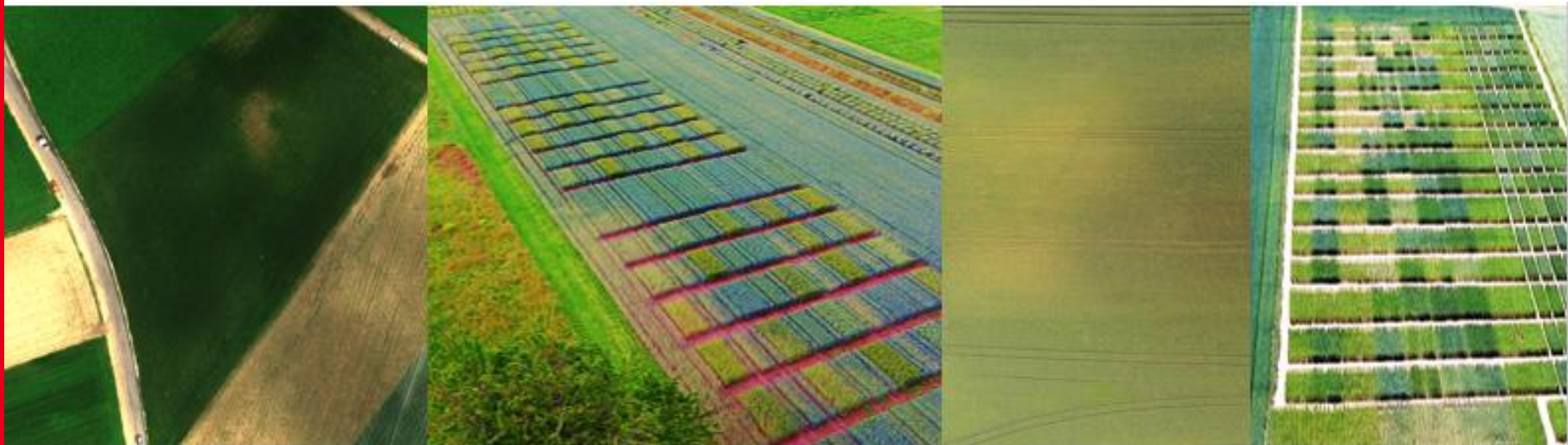


Schweizerische Eidgenossenschaft
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Confederazione Svizzera
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Département fédéral de l'économie,
de la formation et de la recherche DEFR

Agroscope

Wheat Advisor



Wheat Advisor

**Noémie Schaad, Amanda Burton, Nicolas Vuille, Silvan Strebel,
Lilia Levy, Juan Herrera, Didier Pellet**

11.01.2022

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Rahmenbedingungen

Wheat Advisor

Agroscope

swiss
granum



STEPHAN SCHEUNER
Management,
external
communication



THOMAS WEISFLOG
Trial expert and
internal
communication

DIDIER PELLET
Global
Coordination
contact with
international
partners



LILIA LEVY
Cereal Crops
Expert



JUAN HERRERA
Crop Scientist



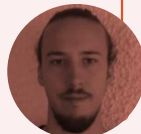
Agroscope conceptual



AMANDA BURTON
Post-Doc in
Agronomy

Agroscope operational

SILVAN STREBEL
FLORENT GERBEX
MATTHIAS SCHMID
MALGORZATA WATROBA
Agronomy and
Technical support



NICOLAS VUILLE
Digital support,
drone flights


NOÉMIE SCHAAD
Agronomy
coordination,
contact with
farmers



Management

 **Prométerre**



 Schweizerische Eidgenossenschaft
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Confederazione Svizzera
Confederaziun svizra

Bundesamt für Landwirtschaft BLW
Office fédéral de l'agriculture OFAG
Ufficio federale dell'agricoltura UFAG
Uffizi federal d'agricoltura UFAG

Partners

Groupe
Cultures
Romandie

 **Forum Ackerbau**



Uni Bern

FABIAN GUIGNARD
Post-Doc in
Mathematics



DAVID GINSBOURGER
Statistics /
Mathematics
Expert

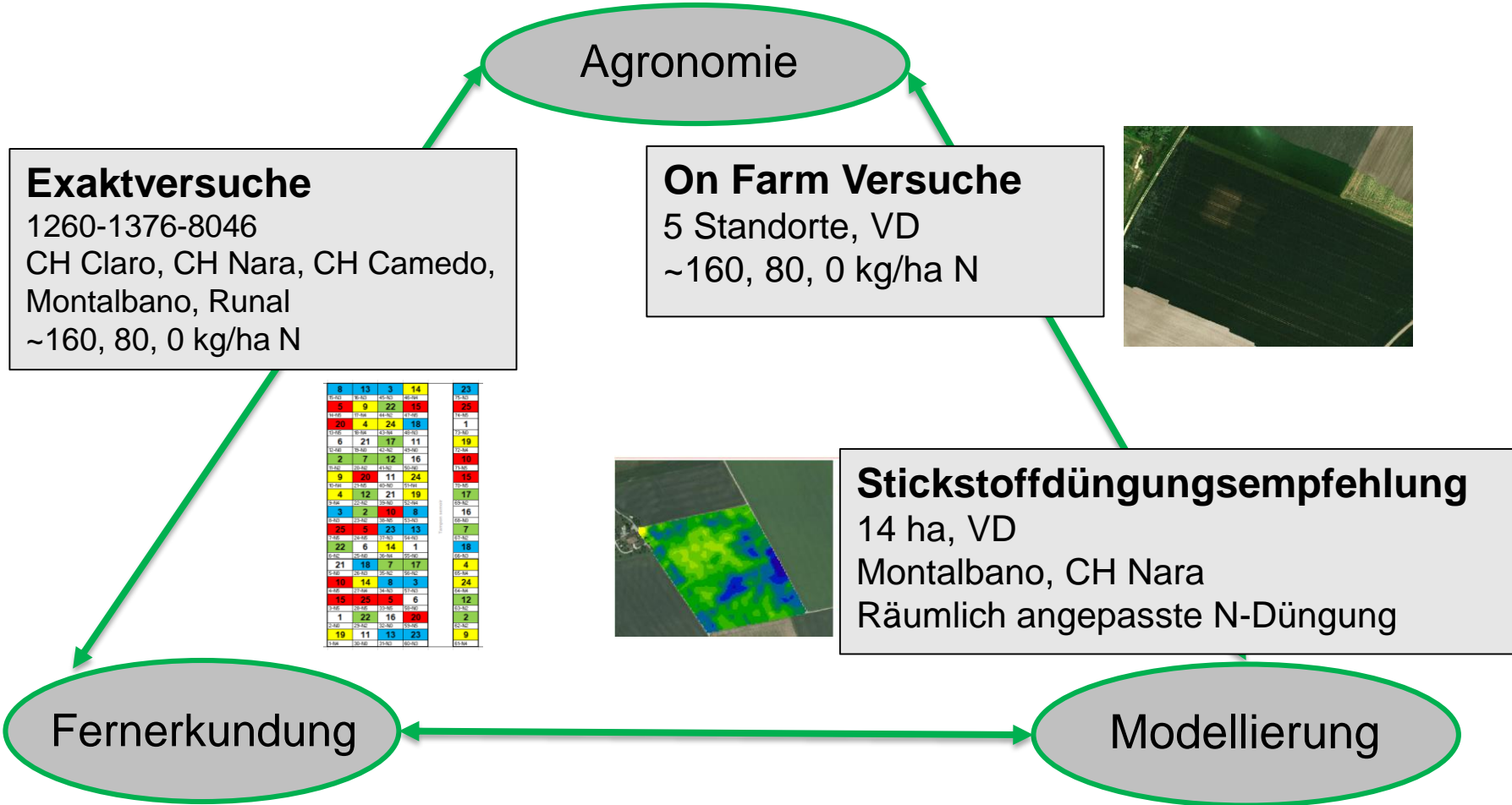


ANNA BROCCARD
Support in
Mathematics

Dauer: 1.1.2020 – 31.6.2023

Projektziele

Die passende Sorte am geeigneten Ort mit der optimalen Düngung





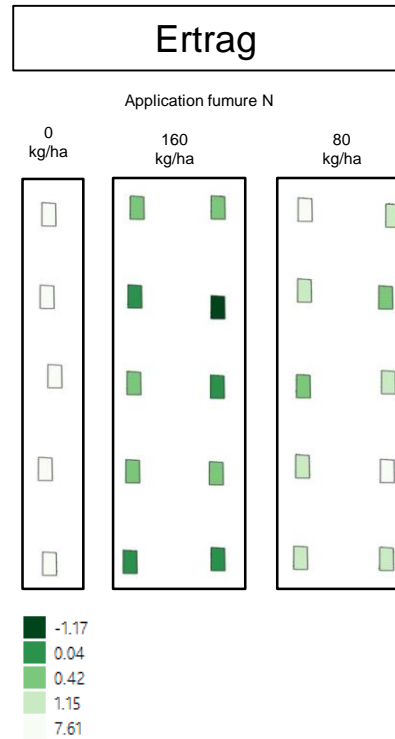
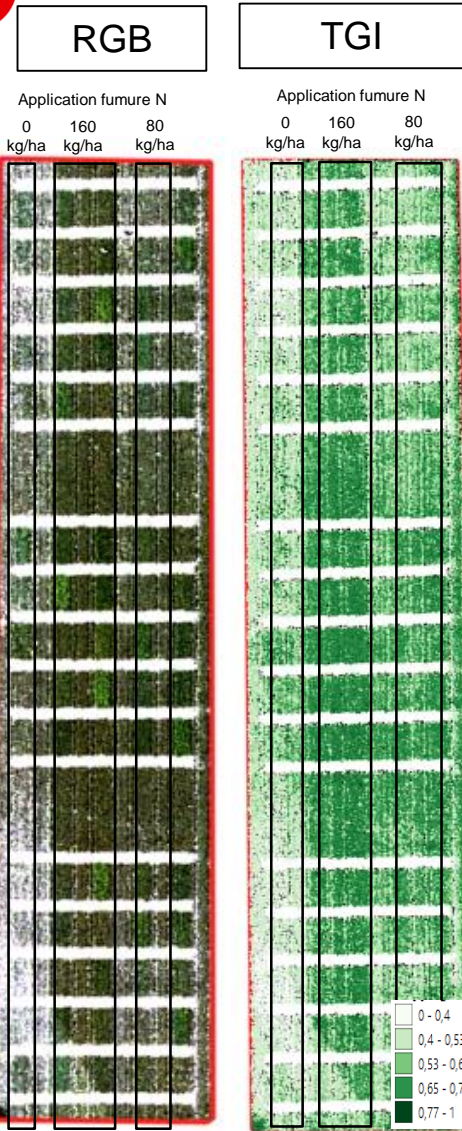
Erhebungen und Messinstrumente



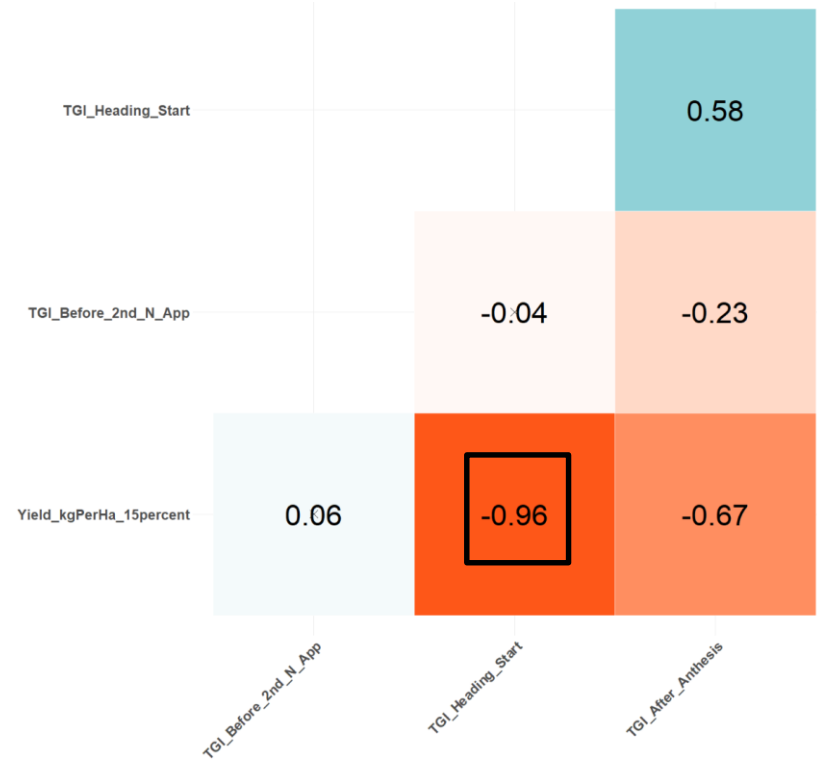
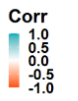
	Satelliten- bilder	Dronen- bilder	Spektro- meter	Ceptometer	Ntester	Sorten- aspekte
Geosys						
Modellierung						
On Farm Versuche						
Exaktversuche						



Dronengestützte Prognose von Weizenparametern: Ertrag



Korrelation zwischen TGI-Index und Ertrag:
 $R^2=0.92$



$$TGI = \frac{(\lambda_{Red} - \lambda_{Blue})(\rho_{Red} - \rho_{Green}) - (\lambda_{Red} - \lambda_{Green})(\rho_{Red} - \rho_{Blue})}{2}$$

Reference: Hunt, E., C. Daughtry, J. Eitel, and D. Long. "Remote Sensing Leaf Chlorophyll Content Using a Visible Band Index." *Agronomy Journal* 103, No. 4 (2011): 1090-1099.

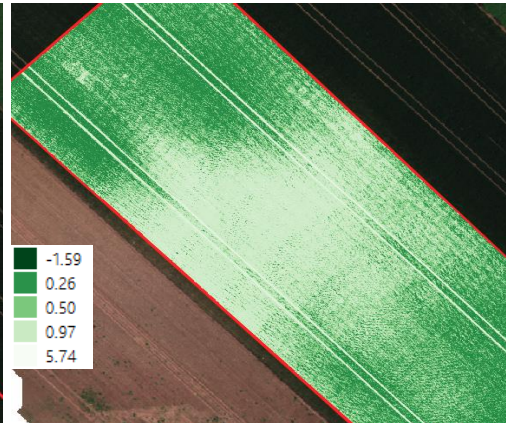
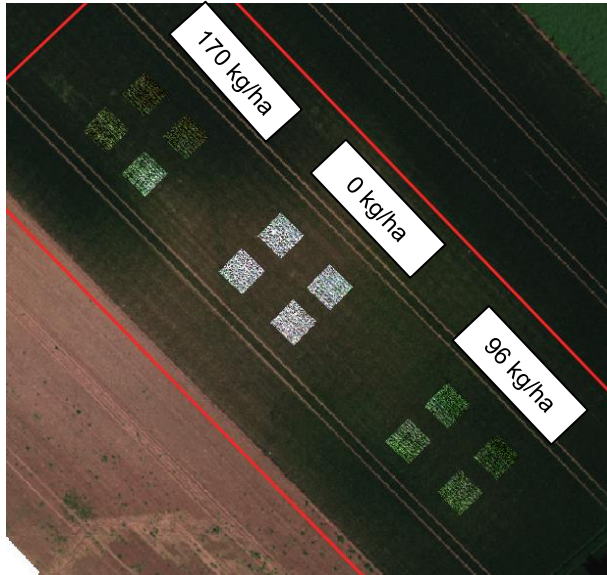
Dronengestützte Prognose von Weizenparametern: Ertrag

On Farm Versuch: Duillier

RGB

TGI (Triangular green index)

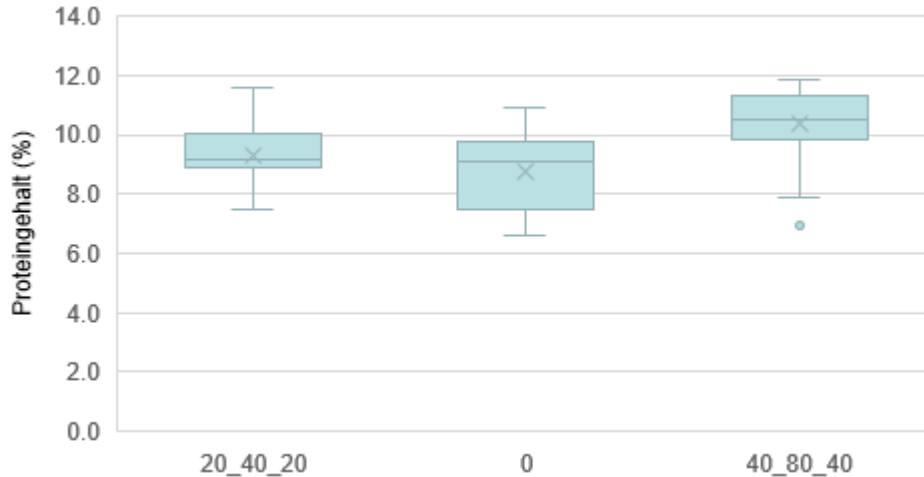
Ertrag



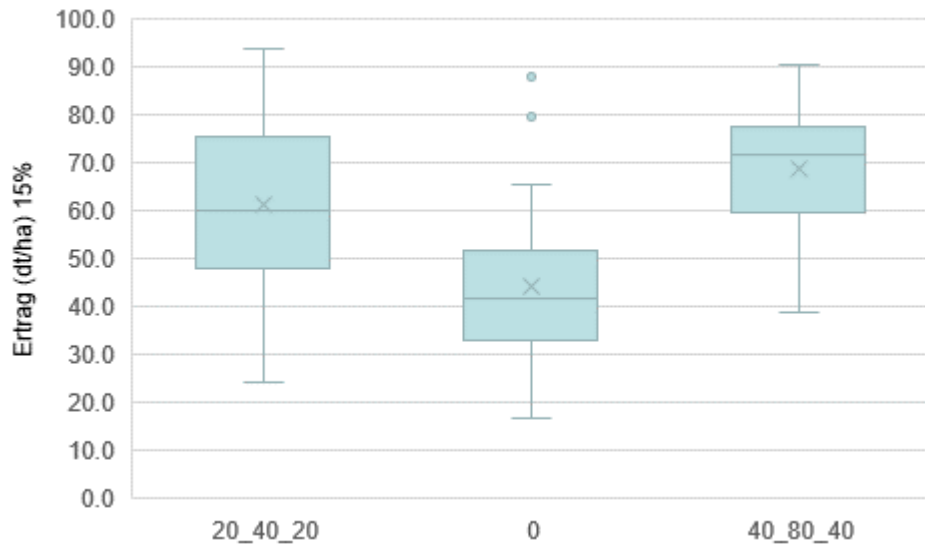


Provisorische Resultate – On Farm 2021

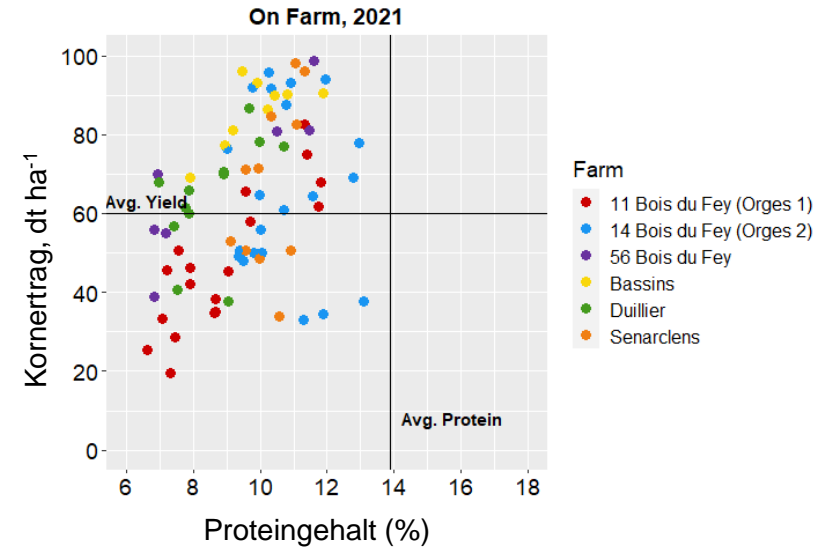
Kornproteingehalt abhängig von der N Düngung



Ertrag abhängig von der N Düngung



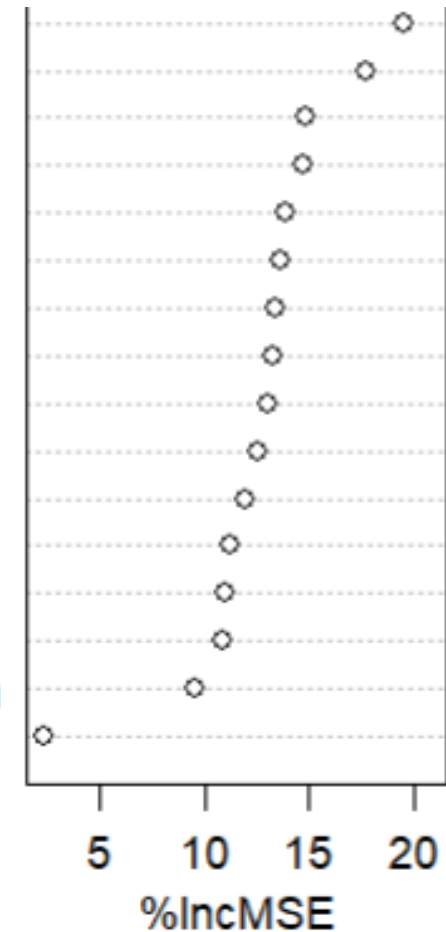
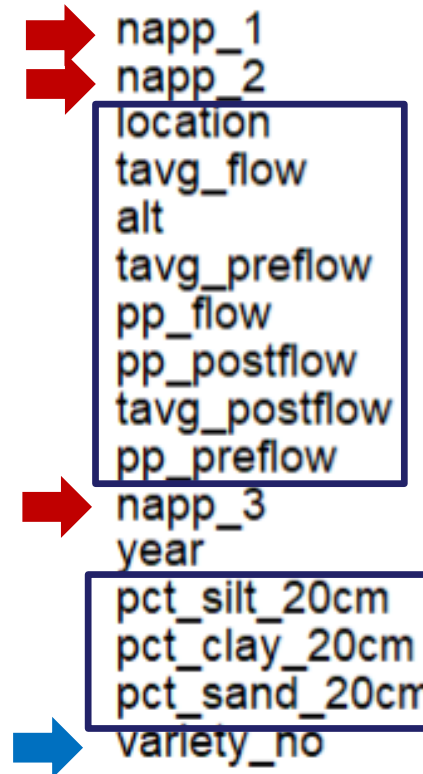
Kornertrag vs. Proteingehalt



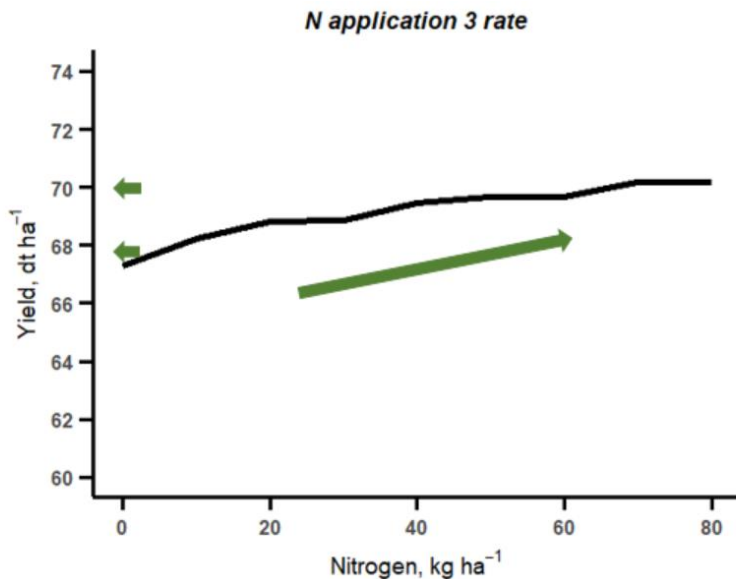
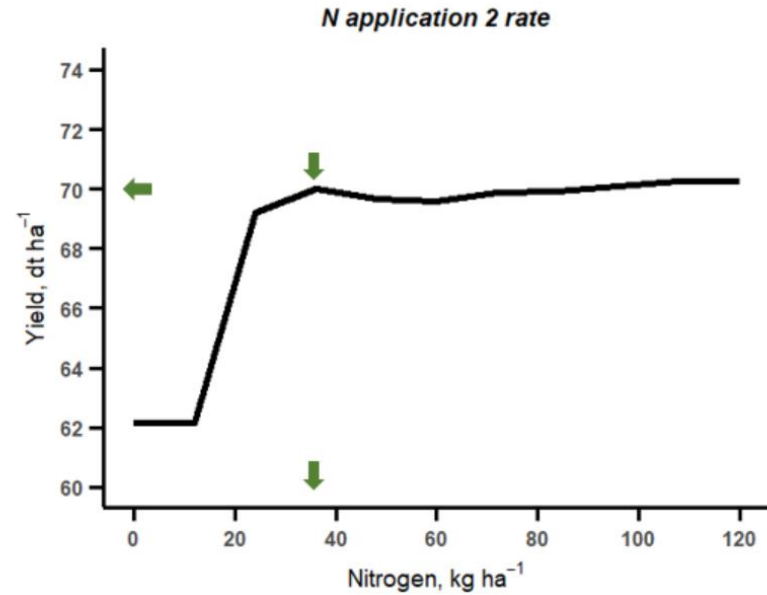
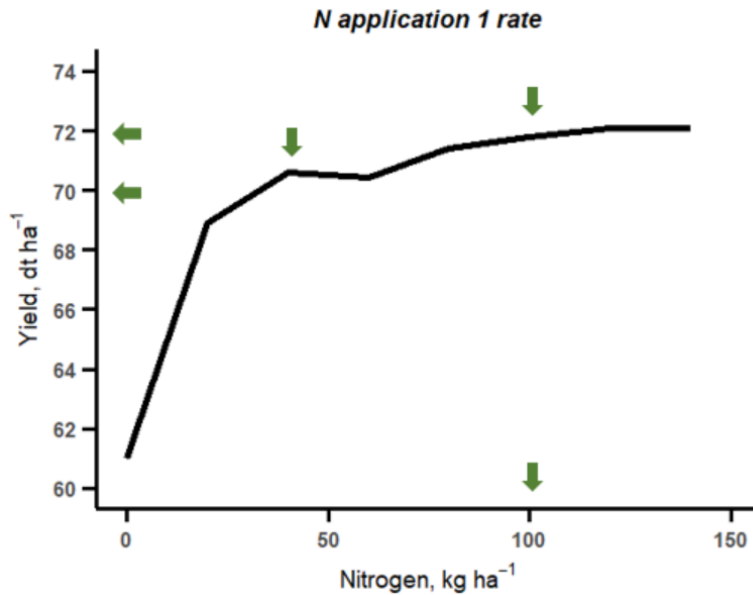
Provisorische Resultate – random forest

Einfluss von Variablen auf den Ertrag:

- Genetik
- Umwelt
- Bewirtschaftung



Provisorische Resultate – random forest



! Variabilitäten

Daten

- 1. : 15.02-15.03
- 2. : 10.03.- 30.03
- 3. : 15.04 - 30.04

Düngemittel

Ammoniumnitrat, Entec 26, flüssiger N-Dünger, etc.



Ausblick

- Agronomie: letztes Jahr mit Feldversuchen
- Anschliessend statistische Auswertungen und Modellierung:
 1. A posteriori Modellierung
 2. Prädiktive Modellierung





Vielen Dank für Ihre Aufmerksamkeit!

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