



Der fachliche Wert von Dauerfeldversuchen

Was sind Dauerfeldversuche? Wofür brauchen wir sie?

Als Dauerfeldversuche (DFV) werden Freiland-Parzellen-Experimente bezeichnet, die statisch angelegt sind und mehr als 20 Jahre unverändert betrieben werden.



- **Wertvolle Forschungsbasis** → Daten kaum reproduzierbar



- **System „Klima-Boden-Pflanze-Management“** besser verstehen



- **Langfristigen Einfluss** von Umwelt & Bewirtschaftung einschätzen

Die ältesten & bekanntesten Dauerfeldversuche der Welt

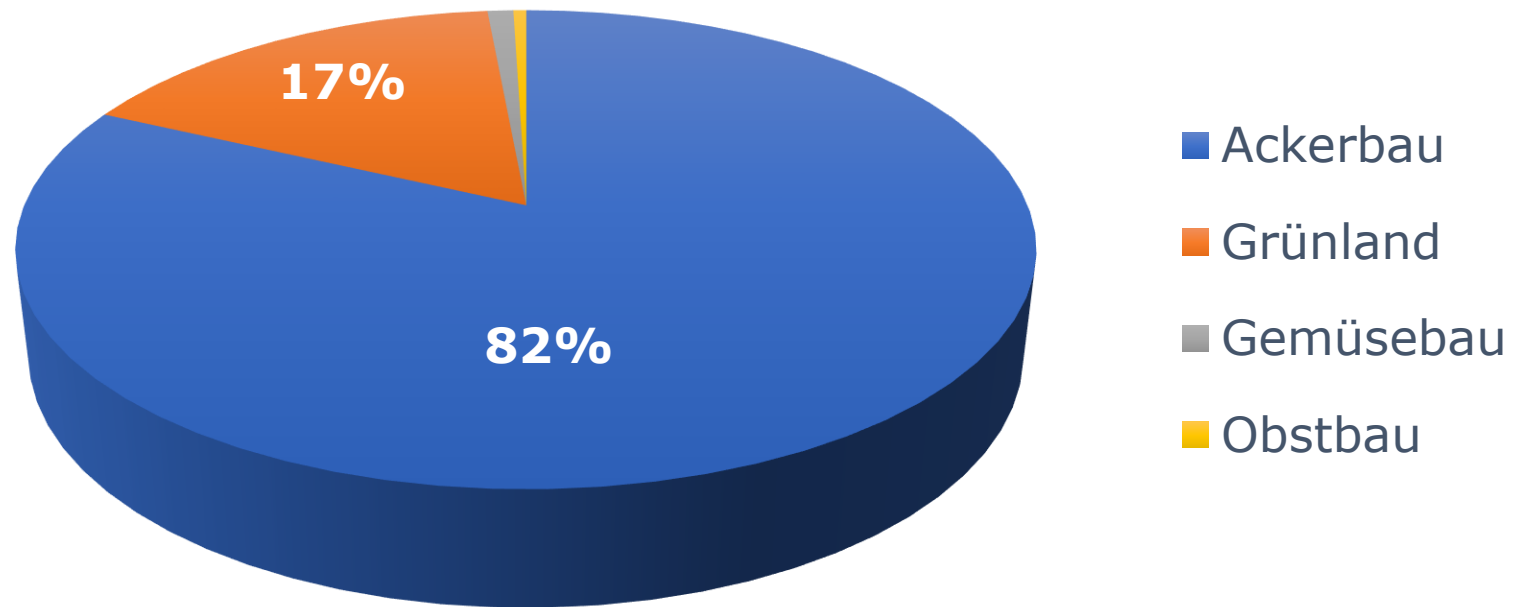


1. Broadbalk (Rothamsted, Großbritannien) → 1843
2. Park Grass (Rothamsted, Großbritannien) → 1856
3. Morrow Plots (University of Illinois, USA) → 1876
4. Ewiger Roggen (MLU Halle, Deutschland) → 1878
5. Sanborn Field (University of Missouri, USA) → 1888
6. Askov LTE (Aarhus University, Dänemark) → 1894



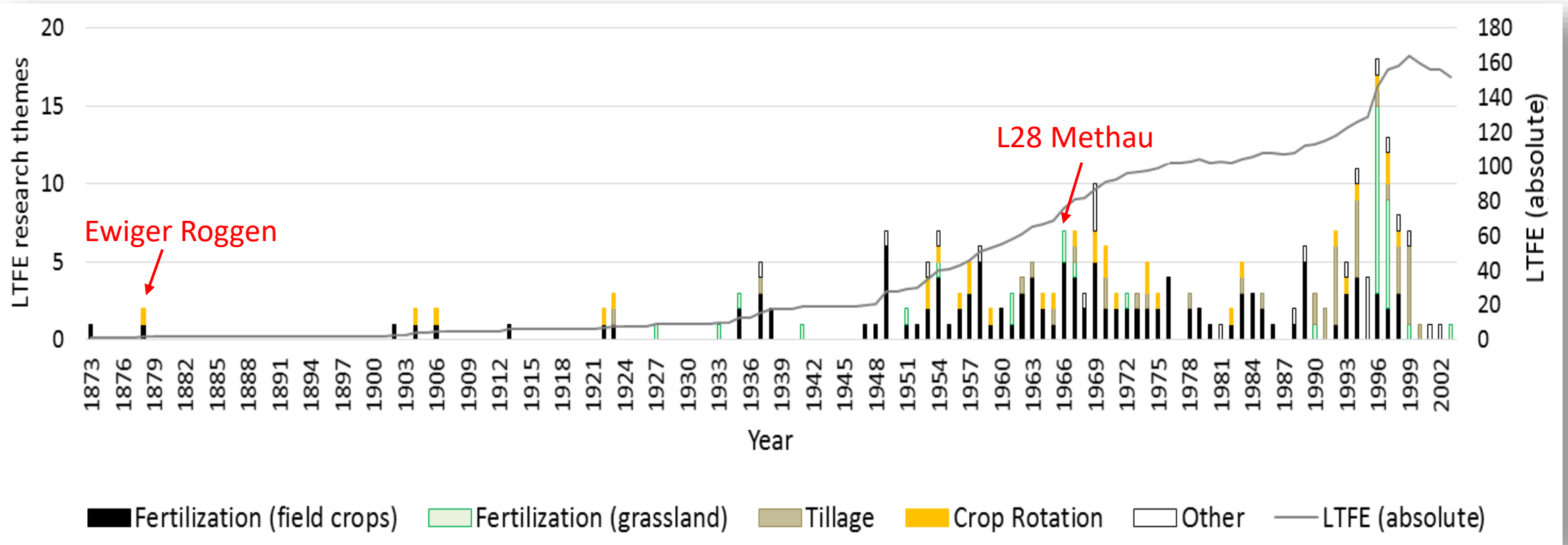
**Weltweit gibt es heute noch über 600 DFV,
etwa 25 davon sind älter als 100 Jahre.**

Dauerfeldversuche in Deutschland: Klassifizierung

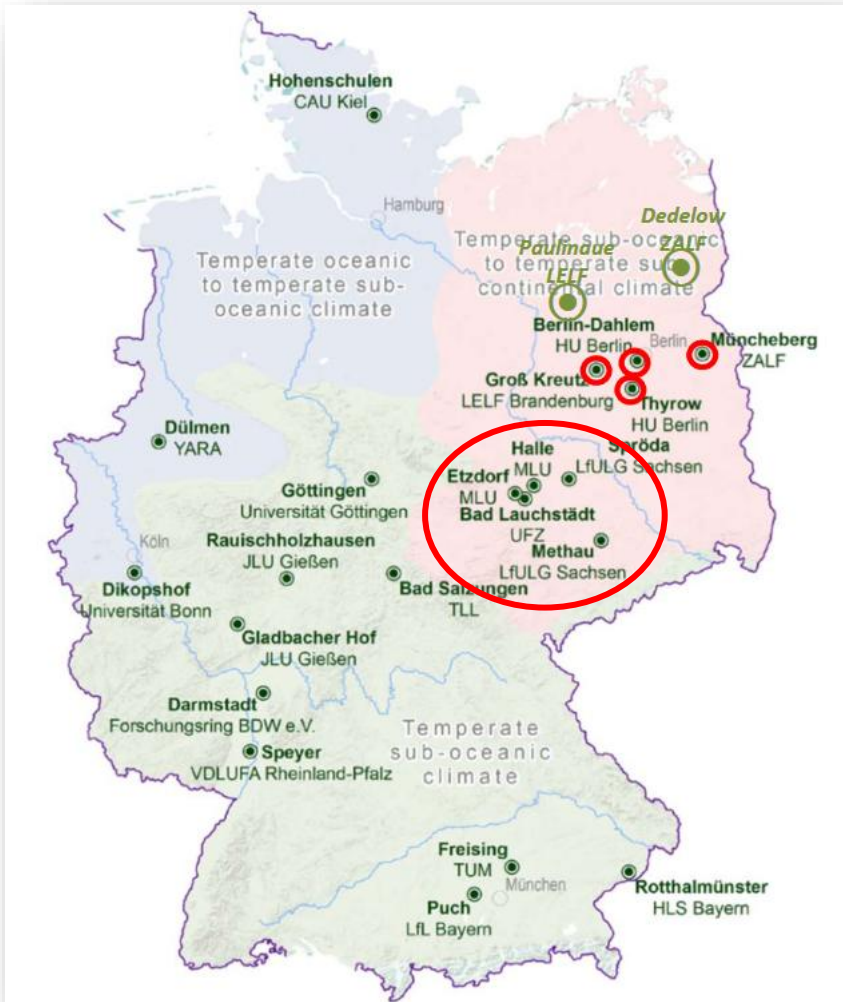


205 DFV identifiziert – davon ca. 2/3 aktiv & 1/3 beendet

Wann & wofür wurden Dauerfeldversuche bisher angelegt?



Spezifika von Dauerfeldversuchen: Was macht sie aus?



→ Langfristige Verfügbarkeit & statisches Design

→ Kontrollierte Differenzierung der Bewirtschaftung

→ Repräsentanz „Boden-Klima-Raum“

→ Repräsentanz „Landwirtschaftliche Nutzung“

89 % der Ackerbau-DFV liegen in trockenen Regionen

Table 2. Climatic water balance of the growing season (1 May to 31 October) (CWBg) classification of arable land in Germany and the number and share of the different LTFE types in each CWBg class.

CWBg class	Range [mm yr ⁻¹]	Agricultural area (arable)		LTFEs total (arable land) (<i>n</i> = 169)		Fertilization LTFEs* (<i>n</i> = 124)		Tillage LTFEs* (<i>n</i> = 38)		Crop rotation LTFEs* (<i>n</i> = 32)	
		Area [ha]	Share [%]	Number	Share [%]	Number	Share [%]	Number	Share [%]	Number	Share [%]
1	< -150	3 135 676	23	66	39	49	40	13	34	13	41
2	-150 to < -50	4 473 111	33	49	29	39	31	12	32	6	19
3	-50 to < 50	4 468 852	33	35	21	21	17	11	29	3	9
4	50 to < 150	926 798	7	10	6	10	8	1	3	4	13
5	150 to < 300	492 110	4	9	5	5	4	1	3	6	19
6	300 to < 500	0	0	0	0	0	0	0	0	0	0
7	> 500	0	0	0	0	0	0	0	0	0	0

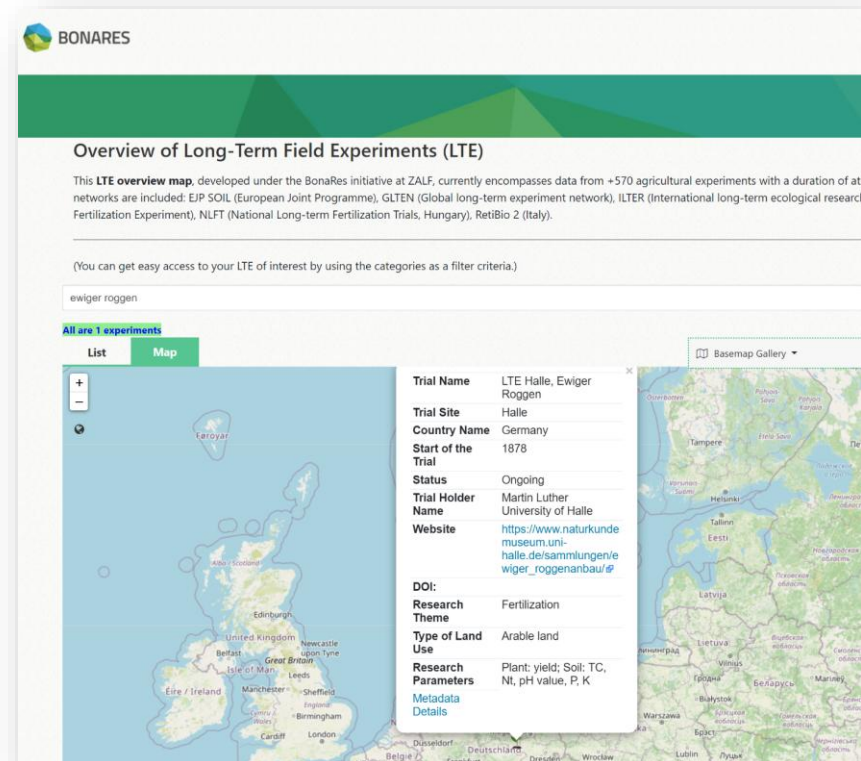
* Multiple nominations possible.

BonaRes: Boden als nachhaltige Ressource für die Bioökonomie



BONARES ist BMBF-Fördermaße „Nationale Forschungsstrategie Bioökonomie 2030“

Groß angelegte Verbundforschung in Deutschland, DFV als wichtige Informationsquelle



→ **Online-Übersichtskarte** inkl. Metainformationen

→ **DFV-Steckbriefe** inkl. Versuchsbeschreibungen

→ **Data Repository** stellt Daten öffentlich bereit

Overview of Long-Term Field Experiments (LTE)

This **LTE overview map**, developed under the BonaRes initiative at ZALF, currently encompasses data from +570 agricultural experiments with a duration of at least a minimum of 20 years. The following networks are included: EJP SOIL (European Joint Programme), GLTEN (Global long-term experiment network), ILTER (International long-term ecological research), IOSDV (International Organic Nitrogen Fertilization Experiment), NLFT (National Long-term Fertilization Trials, Hungary), RetiBio 2 (Italy).

(You can get easy access to your LTE of interest by using the categories as a filter criteria.)

Search experiments, e.g. 'Sweden', 'Edinburgh', 'IOSDV', 'Ghent University', 'pH', 'maize'...

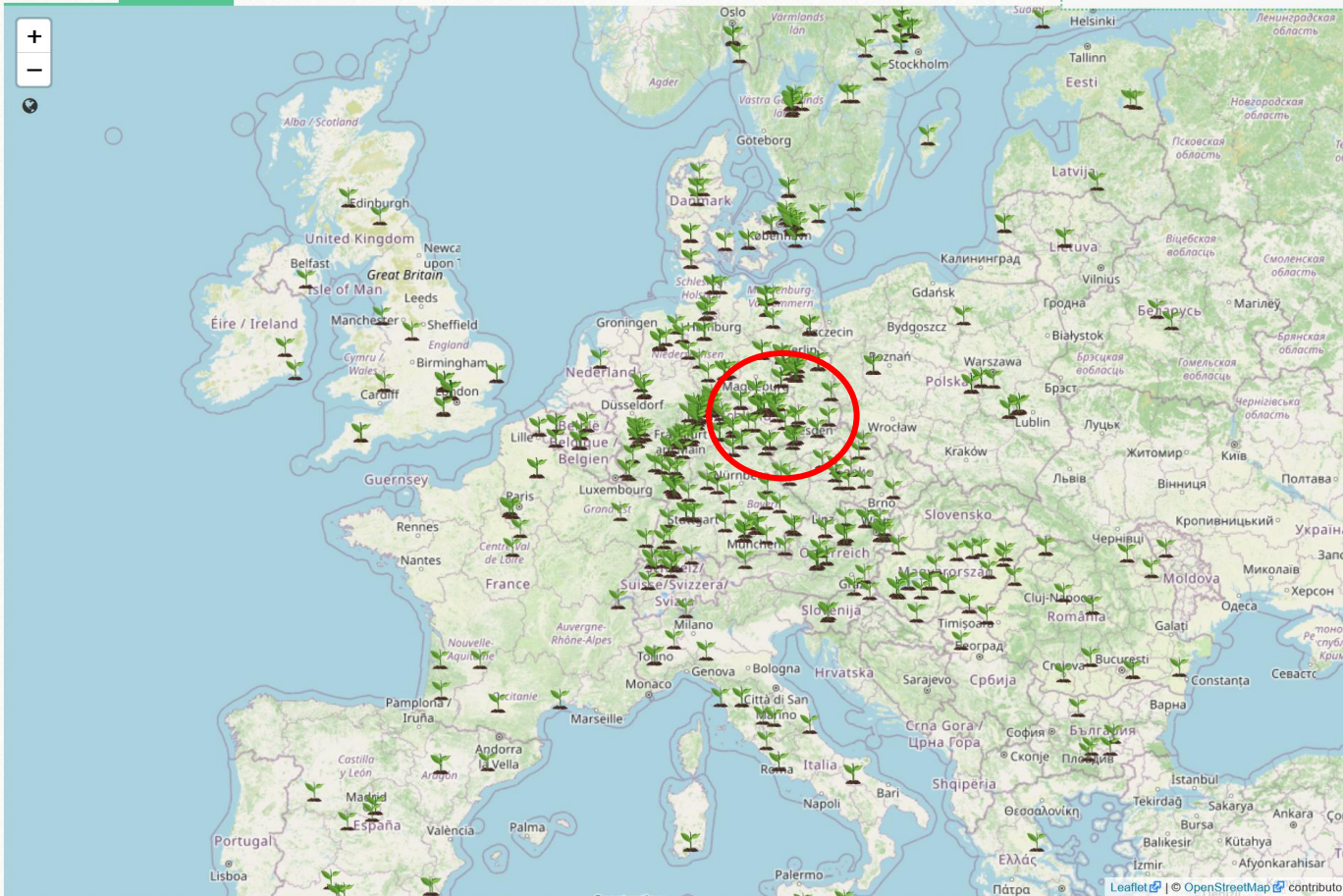
Search

 Metadata Download

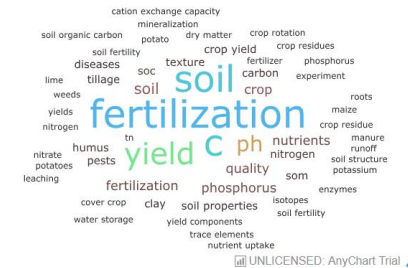
List

Map

Basemap Gallery ▾



LTE Wordcloud- Find on map, click on any keywords



Statistics Center

View

 Reset

Categories

Research Theme ▾

Land Use ▼

Farming Category ▾

LTE Project Duration ▾

 Trial Status

In cooperation of



BONARES

For questions or to add your LTE to the map, please contact Cenk Dönmez: cenk.doenmez@zalf.de.

Link zur Übersichtskarte: <https://lte.bonares.de/>

Detailed Metadata of LTE "LTE Halle, Ewiger Roggen"

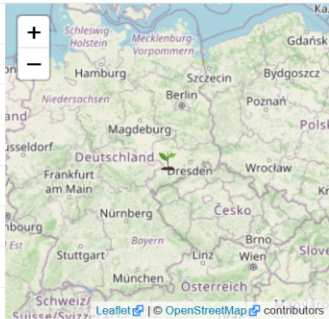


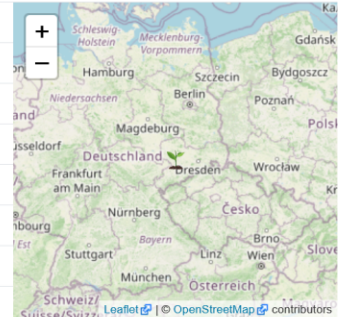
General	LTE Extent	Distribution	Location	Agrovoc Thesaurus
LTE Description				
LTE Name	LTE Halle, Ewiger Roggen			
Location	Halle			
Country	Germany			
LTE Start Date	1878			
Status	Ongoing			
Project Duration	146			
LTE Institution	Martin Luther University of Halle			
Institution Category	University / Technical College			
DOI				
				
Research Information				
Land Use Type	Arable land			
Research Theme	organic and mineral fertilization, soil properties, yield, quality			
LTE Category	Fertilization			
Farming Category	Conventional			
Research Parameters				
Soil Information				



Detailed Metadata of LTE "LTE Methau, Dauerduengungsversuch L28"

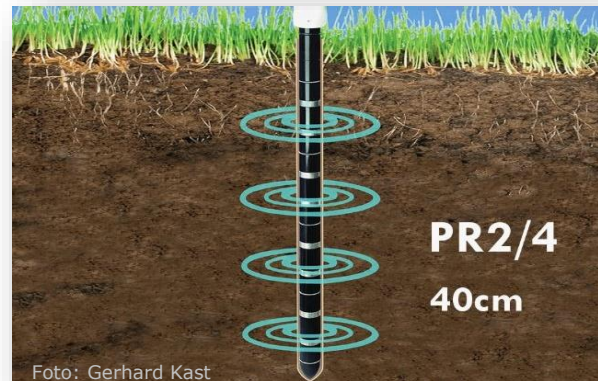


General	LTE Extent	Distribution	Location	Agrovoc Thesaurus
LTE Description				
LTE Name	LTE Methau, Dauerduengungsversuch L28			
Location	Methau			
Country	Germany			
LTE Start Date	1966			
Status	Ongoing			
Project Duration	56			
LTE Institution	Saechsisches Landesamt f. Umwelt, Landwirtschaft u. Geologie (LfULG)			
Institution Category	Other Institution			
DOI				
Research Information				
Land Use Type	Arable land			
Research Theme	Effect of differentiated mineral and organic fertilization on nutrient substitution, yield, soil properties, nitrate leaching etc.			
LTE Category	Fertilization			
Farming Category	Conventional			
Research Parameters				
Soil Information				



Wir wollen das System „Klima-Boden-Pflanze“ verstehen

Wetterstationen sind hierfür wichtig – genauso wie digitale Messtechnik & Feldsensorik



Moderne Sensorsysteme/Feldsensorik

Agrarsystem-Modellierung

Klimatische Faktoren

Statistische Analyse

Bodenparameter

Digitale Datenbank

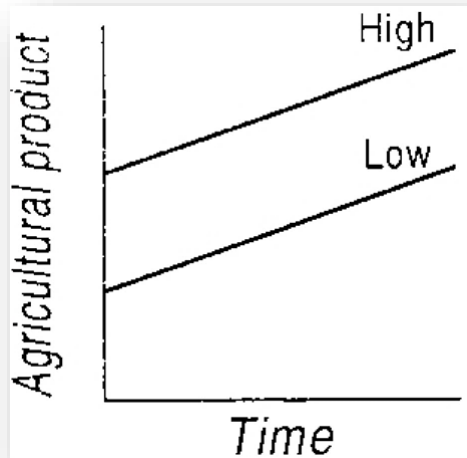
Pflanzenparameter

Agronomisches Management

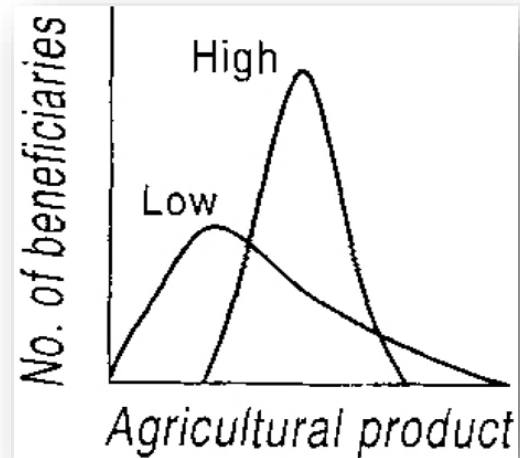


Dauerfeldversuche zur Bewertung von Landnutzungssystemen

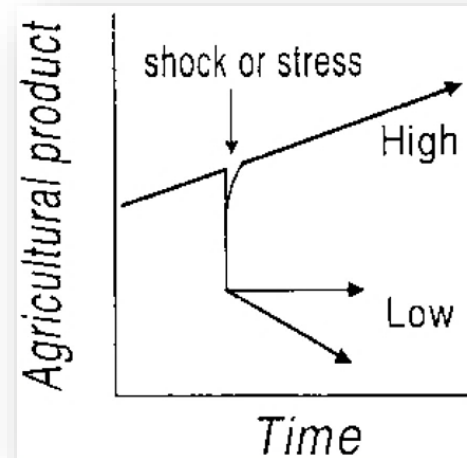
Produktivität



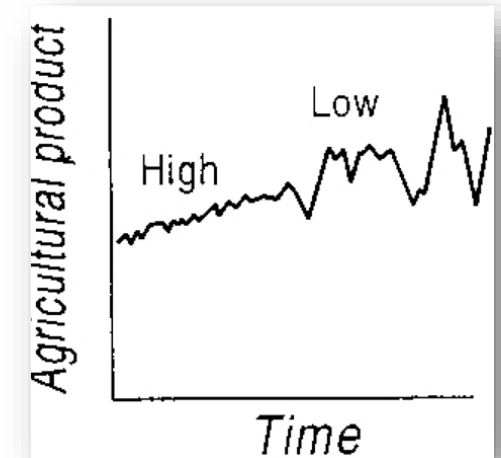
Verteilung

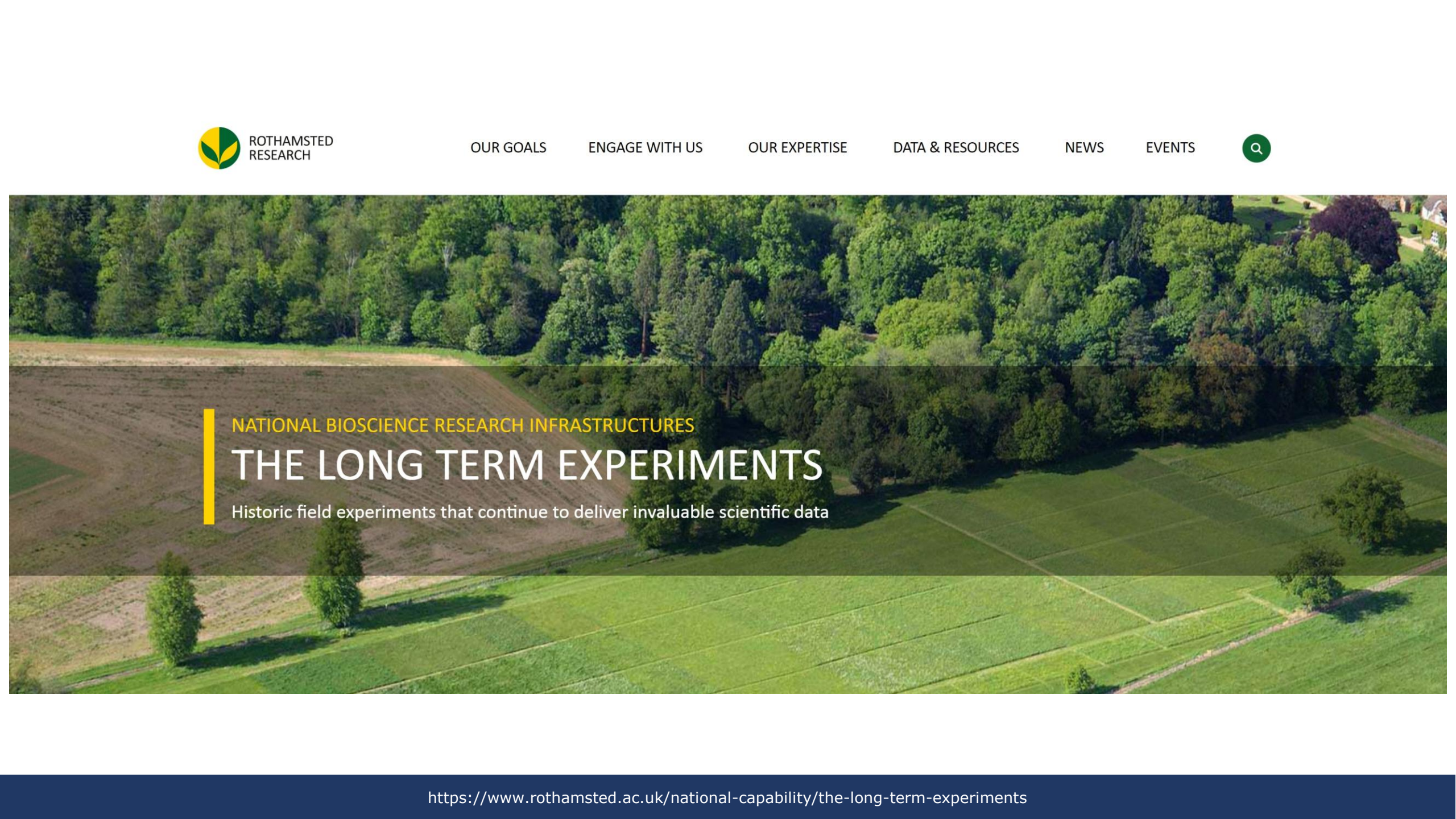


Robustheit



Stabilität





NATIONAL BIOSCIENCE RESEARCH INFRASTRUCTURES

THE LONG TERM EXPERIMENTS

Historic field experiments that continue to deliver invaluable scientific data



Access to data from the Rothamsted Long-term Experiments

e-RAdata

e-RApubs

e-RAdoc

e-RAsearch



ABOUT▼

SITES▼

EXPERIMENTS▼

DATA▼

METEOROLOGICAL DATA▼

SAMPLE ARCHIVE

Data from the LTEs was originally recorded on paper...

Broadbalk soils - Collected Oct 13-21, 1893.
Percent total Nitrogen (by soda-lime & by Kjeldahl), Nitrogen as Nitric acid, & Carbon, in fine dry soil, also Carbon to N. and N. to 100 Carbon. Mean of all plots sampled at each depth.

Number of Plots	Total Nitrogen			Nitrogen as Nitric acid	Carbon	Carbon to N.		N. to 100 Carbon	
	By Soda-lime	By Kjeldahl	P.E.			N. by Soda-lime	N. by Kjeldahl	N. by Soda-lime	N. by Kjeldahl
21	0.1167	0.1222	0.0055	0.00520	1.155	7.90	9.45	10.10	10.52
21	0.0720	0.0784	0.0056	0.00931	0.640	8.79	8.16	11.38	12.21
21	0.0613	0.0666	0.0053	0.00236	0.492	7.15	7.39	12.46	13.52
10	0.0676	0.0751	0.0057	0.00228	0.339	6.38	5.91	15.66	16.93
12	0.0386	0.0420	0.0034	0.00174	0.279	6.53	5.95	15.31	16.81
10	0.0386	0.0420	0.0034	0.00144	0.256	6.42	5.90	15.57	16.91

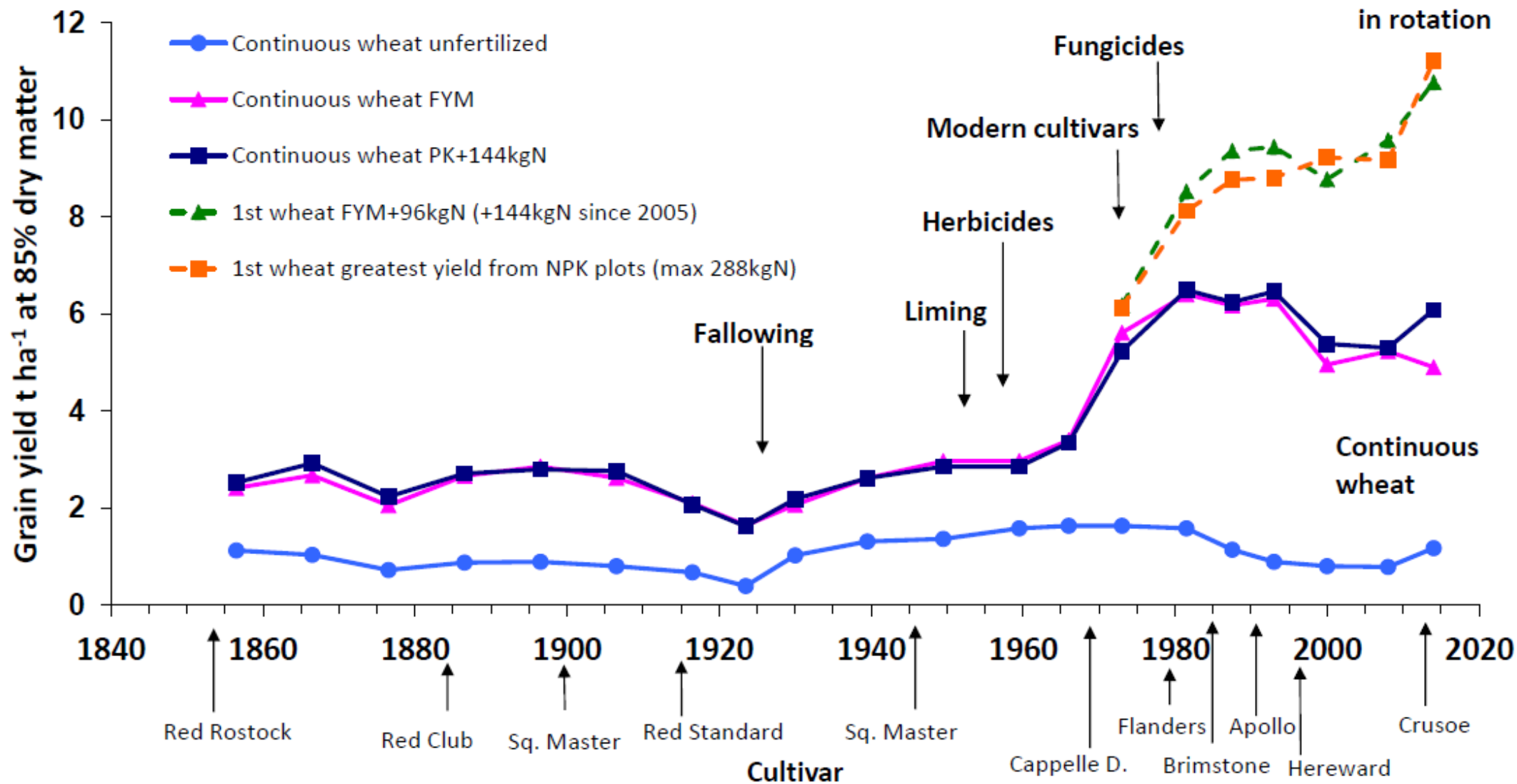
Broadbalk soil %C 1893

Rothamsted Park Hay
Produced 1856
Cut June 26 & Carted July 14.

Plot	Area	Actual Weight		Total	Produce per acre
		Carted	Stacked		
1	1/2	13 4	11 0	24 4	2 4
2	1/2	11 9	0 3	12 2	2 2
3	1/2	13 13	8 1	21 4	4 2
4	1/2	13 3	10 0	23 3	4 6
5	1/2	17 1	17 3	34 4	6 8
6	1/2	17 13	7 7	25 0	5 0
7	1/2	16 13	15 0	31 3	6 2
8	1/2	16 22	16 1	32 3	6 6
9	1/2	14 2	28 1	42 3	8 4
10	1/2	18 0	28 1	46 1	9 2
11	1/2	16 0	30 3	46 3	9 6
12	1/2	18 12	8 0	26 12	5 4
13	1/2	14 12	11 3	25 3	5 0
14	1/2	14 3	12 0	26 3	5 2
15	1/2	13 17	3 24	16 41	3 6

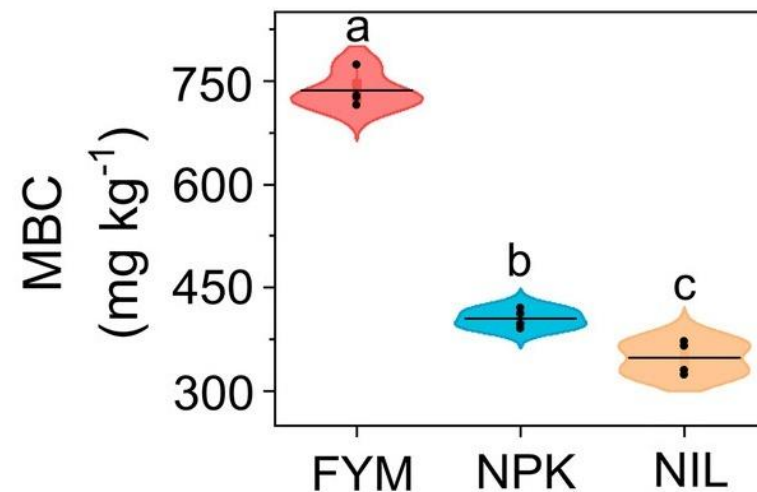
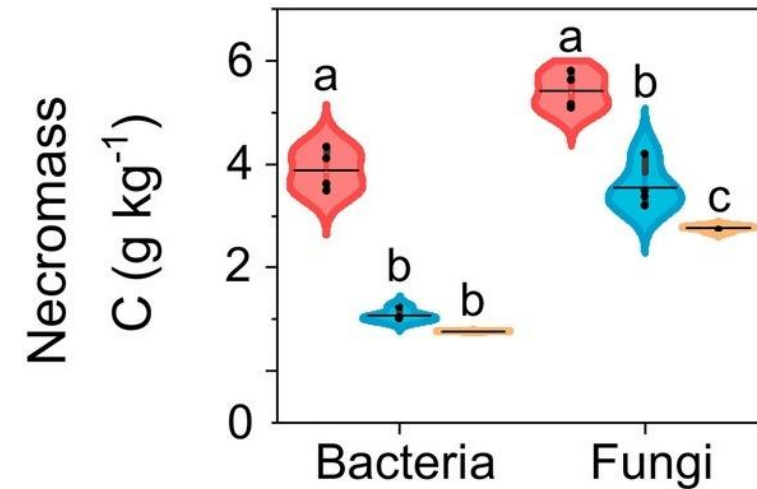
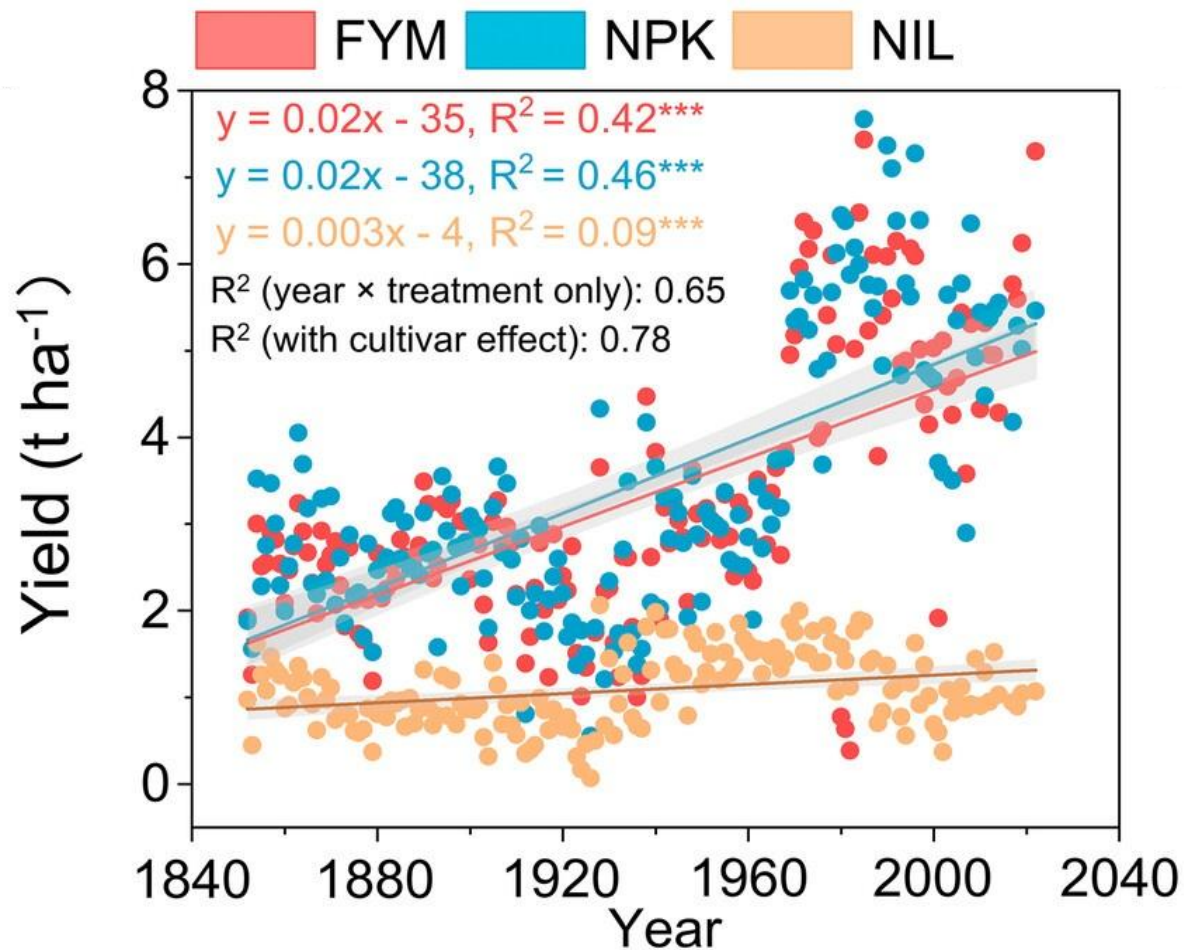
Park grass hay yields 1856

Broadbalk: Mean long-term winter wheat grain yields



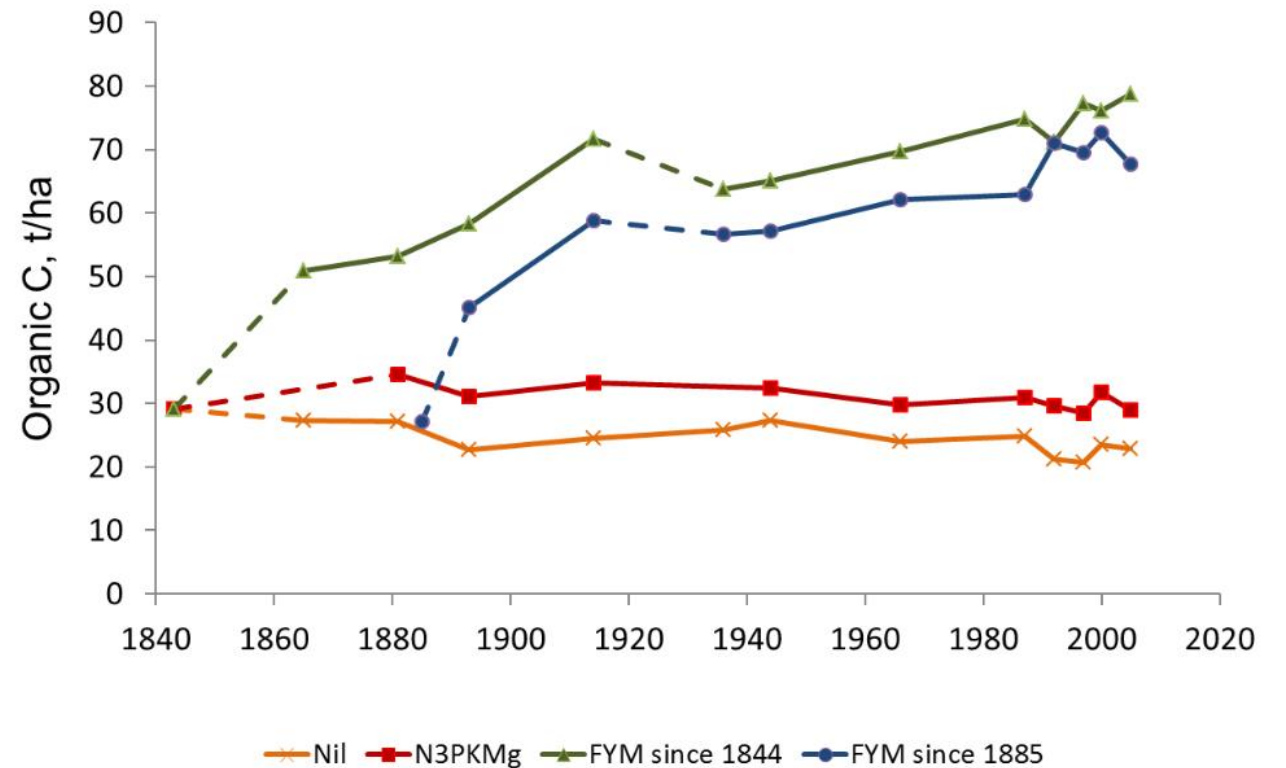
Einfluss der Düngung auf Weizenertrag & mikrobielle Biomasse

Broadbalk Experiment Rothamsted, UK (started 1843)



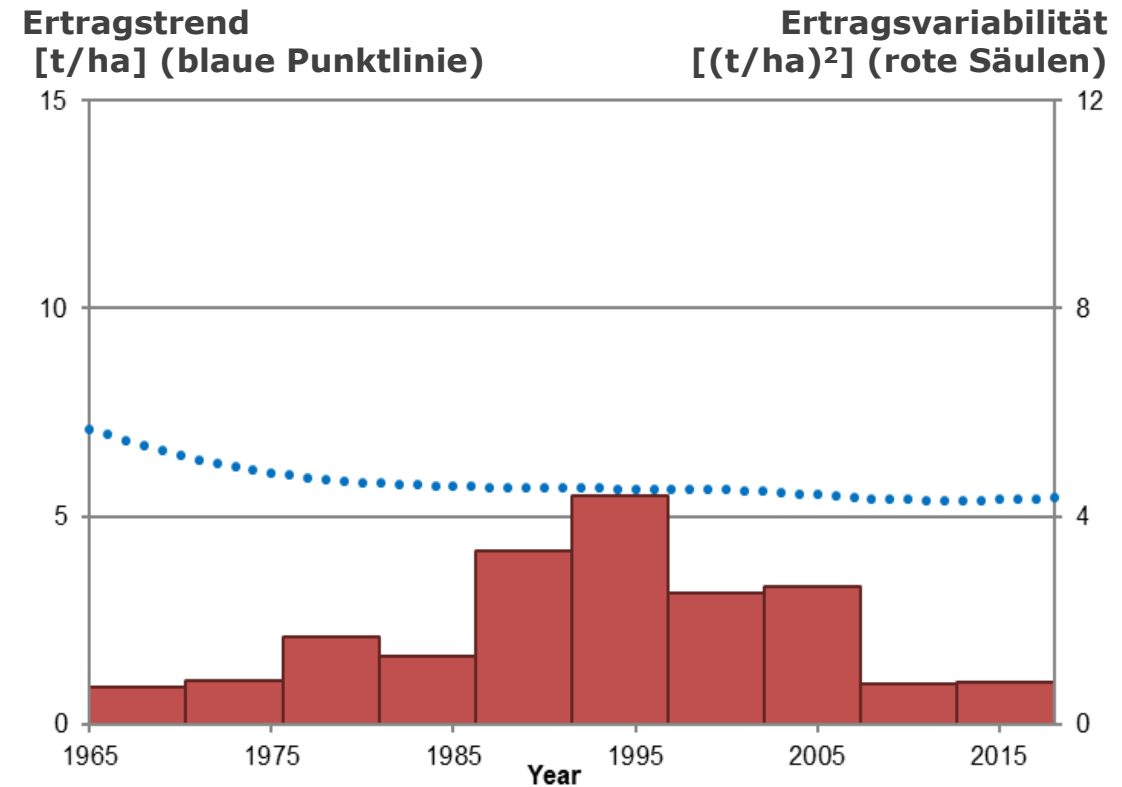
Einfluss der Düngung auf Entwicklung des Bodenkohlenstoffs

Broadbalk Experiment Rothamsted, UK (seit 1843)



Grünland: Langzeit-Trends in Ertrag & Ertragsvariabilität

Park Grass Experiment Rothamsted (seit 1856)



→ Für die Ertragsvariabilität wurden ähnliche Trends in den verschiedenen Düngungsvarianten gefunden

Starker Einfluss klimatischer Faktoren auf Ertragsvariabilität

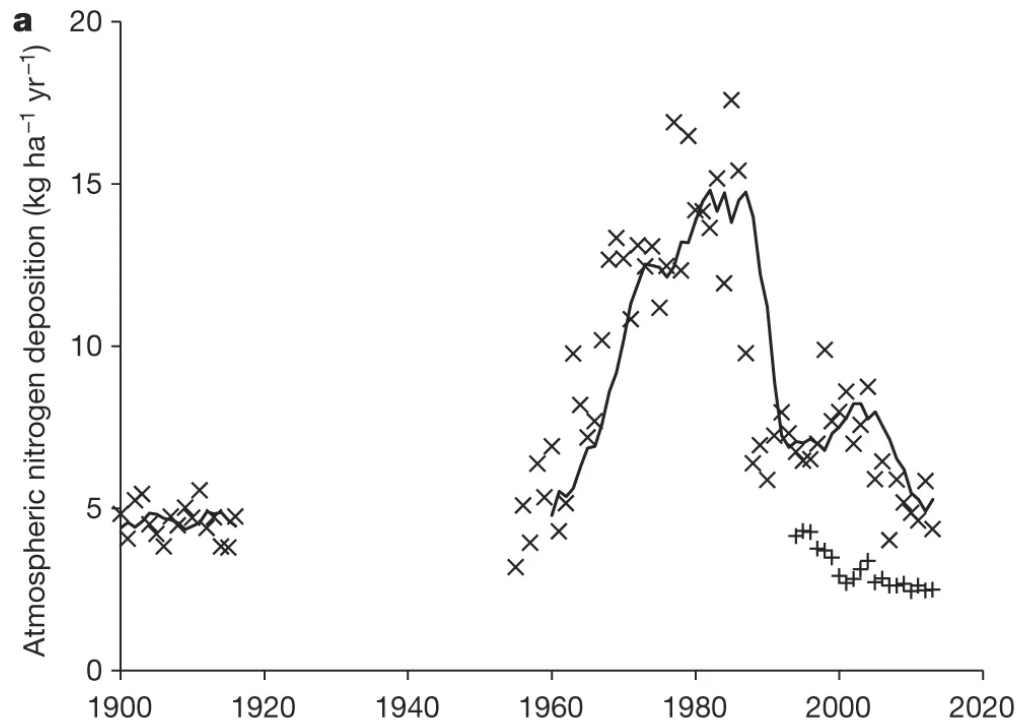
Park Grass Experiment Rothamsted (seit 1856)

Treatment	Fertilisation	Liming	General model statistic			First selected covariable				Second selected covariable			
			Durbin-Watson test	Adjusted R Square	VIF Collinearity	Name of covariable	Regression coefficient B	Standardized coefficient Beta	p value	Name of covariable	Regression coefficient B	Standardized coefficient Beta	p value
3	Nil	pH 7	2.02	0.29	1.00	Water stress days_March_October	-0.02	-0.55	0.00	none selected			
		pH 6	1.68	0.23	1.00	Water stress days_March_October	-0.02	-0.49	0.00	none selected			
		pH 5	1.62	0.29	1.00	Water stress days_March_October	-0.02	-0.54	0.00	none selected			
		no chalk	1.58	0.25	1.00	Water stress days_March_October	-0.02	-0.50	0.00	none selected			
7/2	P K Na Mg	pH 7	1.97	0.49	1.36	Water stress days_March_October	-0.03	-0.47	0.00	Temperature_July_August	-0.66	-0.35	0.00
		pH 6	2.05	0.37	1.36	Water stress days_March_October	-0.02	-0.37	0.01	Temperature_July_August	-0.63	-0.35	0.01
				0.34	1.01	Water stress days_March_October	-0.04	-0.52	0.00	Temperature_March_April	0.96	0.35	0.00
				0.25	1.00	Water stress days_March_October	-0.03	-0.52	0.00	none selected			
6	N1 P K Na Mg			n/a		Water stress days_March_October	-0.02	-0.40	0.00	Temperature_July_August	-0.40	-0.37	0.01
						Water stress days_March_October	-0.02	-0.39	0.01	Temperature_July_August	-0.79	-0.31	0.02
						Water stress days_March_October	-0.02	-0.39	0.01	Temperature_July_August	-0.64	-0.38	0.01
						Water stress days_March_October	-0.02	-0.36	0.01	Temperature_July_August	-0.74	-0.35	0.01
9/2	N2 P K Na Mg					Water stress days_March_October	-0.02	-0.32	0.02	Temperature_July_August	-0.85	-0.32	0.02
						Water stress days_March_October	-0.02	-0.32	0.02	Temperature_July_August	-0.73	-0.33	0.02
						Water stress days_March_October	-0.02	-0.29	0.04	Temperature_July_August	-0.67	-0.34	0.02
						Temperature_July_August	-1.30	-0.52	0.00	Waterstress_March_October	-0.02	-0.25	0.05
11/1	N3 P K Na Mg	no chalk	1.82	0.35	1.36	Temperature_July_August	-1.47	-0.60	0.00	Waterstress_March_October	-0.01	-0.16	0.05
		pH 7	1.72	0.34	1.36	Temperature_July_August	-0.91	-0.40	0.00	Waterstress_March_October	-0.02	-0.29	0.03
		pH 6	2.16	0.38	1.36	Temperature_July_August	-0.91	-0.44	0.00	Waterstress_March_October	-0.02	-0.29	0.03
		pH 5	1.72	0.33	1.36	Water stress days_March_October	-0.03	-0.39	0.01	Temperature_July_August	-0.67	-0.30	0.03
13/2	FYM/PM	no chalk	1.64	0.21	1.00	Water stress days_March_October	-0.03	-0.47	0.00	none selected			
		pH 7	1.95	0.31	1.19	Water stress days_March_October	-0.02	-0.42	0.00	Temperature_May_June	-0.25	-0.27	0.04
		pH 6	1.91	0.23	1.36	Water stress days_March_October	-0.01	-0.29	0.04	Temperature_May_June	-0.24	-0.29	0.05
		pH 5	1.80	0.32	1.36	Temperature_May_June	-0.25	-0.58	0.00	Waterstress_March_October	-0.02	-0.34	0.01
17	N*1	no chalk	1.73	0.28	1.00	Temperature_July_August	-0.58	-0.46	0.00	Waterstress_March_October	-0.01	-0.22	0.05

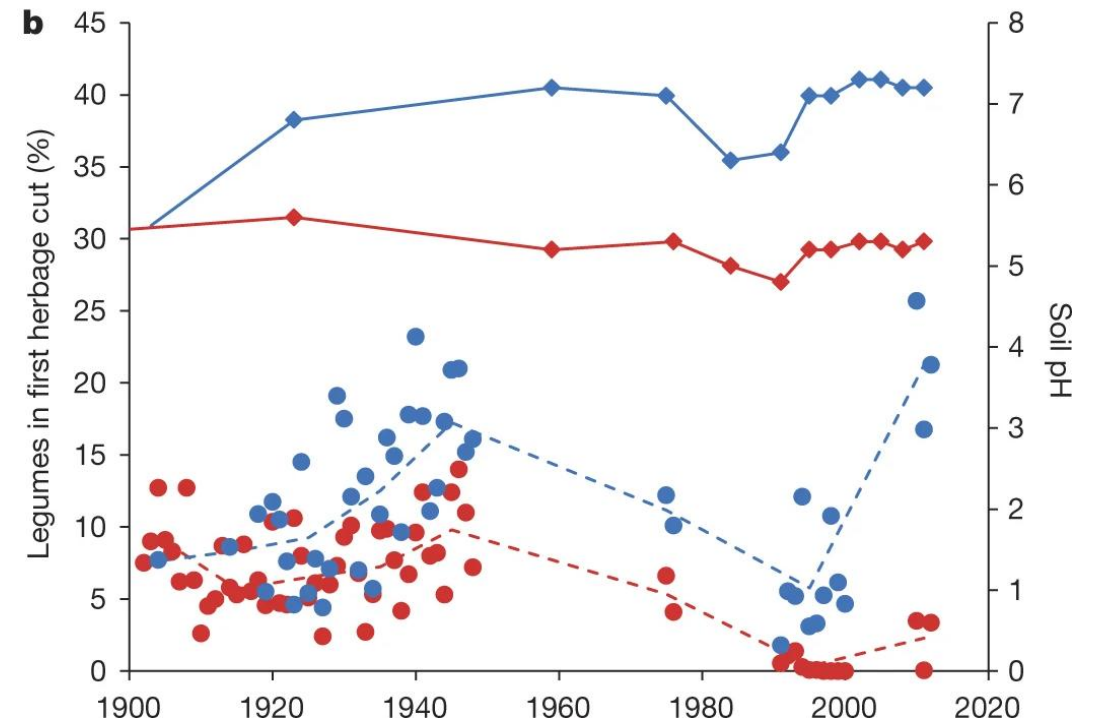
Trockenstress-Tage (März-Oktober) & Temperatur (Juli-August) wurden als die zwei Hauptfaktoren identifiziert, welche circa ein Drittel der Ertragsvariabilität erklären.

Grünland-Biodiversität erholt sich von langjähriger N-Deposition

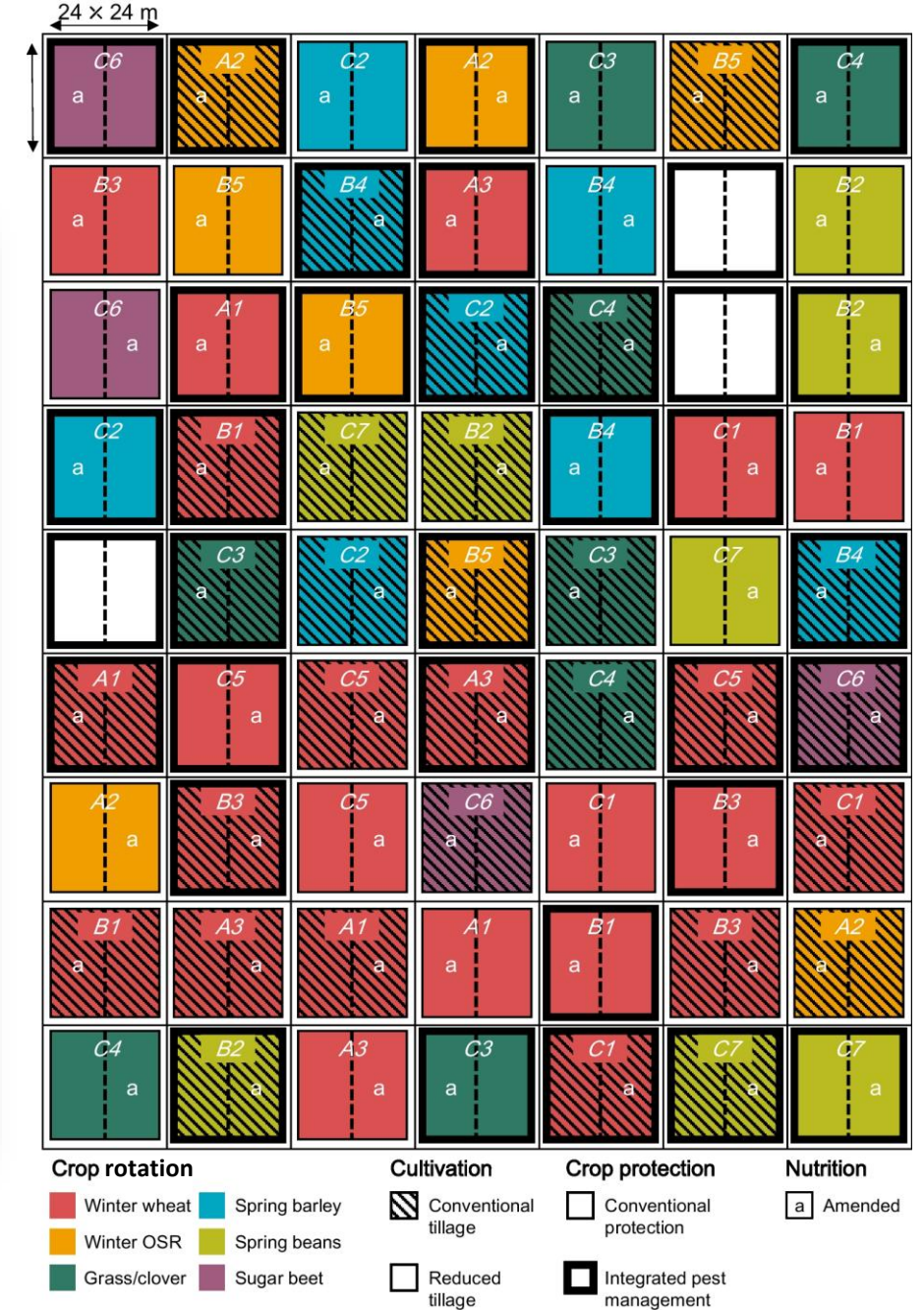
Park Grass Experiment Rothamsted (seit 1856)



a. Veränderungen in wet (x) und dry (+) N deposition
Linie zeigt gleitenden 5-Jahresdurchschnitt



b, Veränderungen des Anteils an Leguminosen
Variante mit Kalkung: blaue Punkte, blaue Strichellinie
Variante ohne Kalkung: rote Punkte, rote Strichellinie





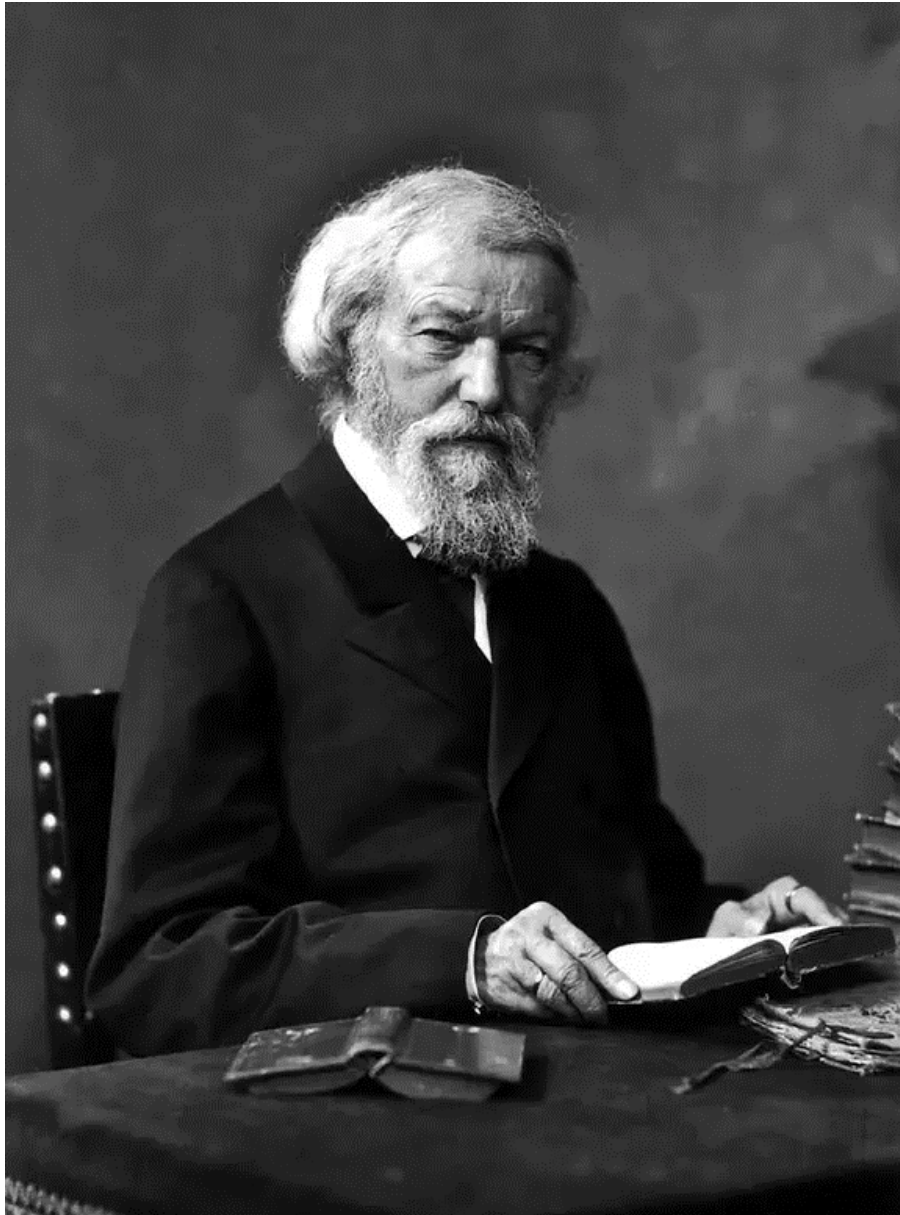
Welcome to the research hub on long-term field experiments
of the Department of Agronomy and Organic Farming
at the Martin Luther University Halle-Wittenberg



Dr. Karolin Kunz
Kuratorin



Dr. Thomas Reitz
Feldversuchswesen



Dauerfeldversuch „Ewiger Roggen“



1878-1893

1894-1952

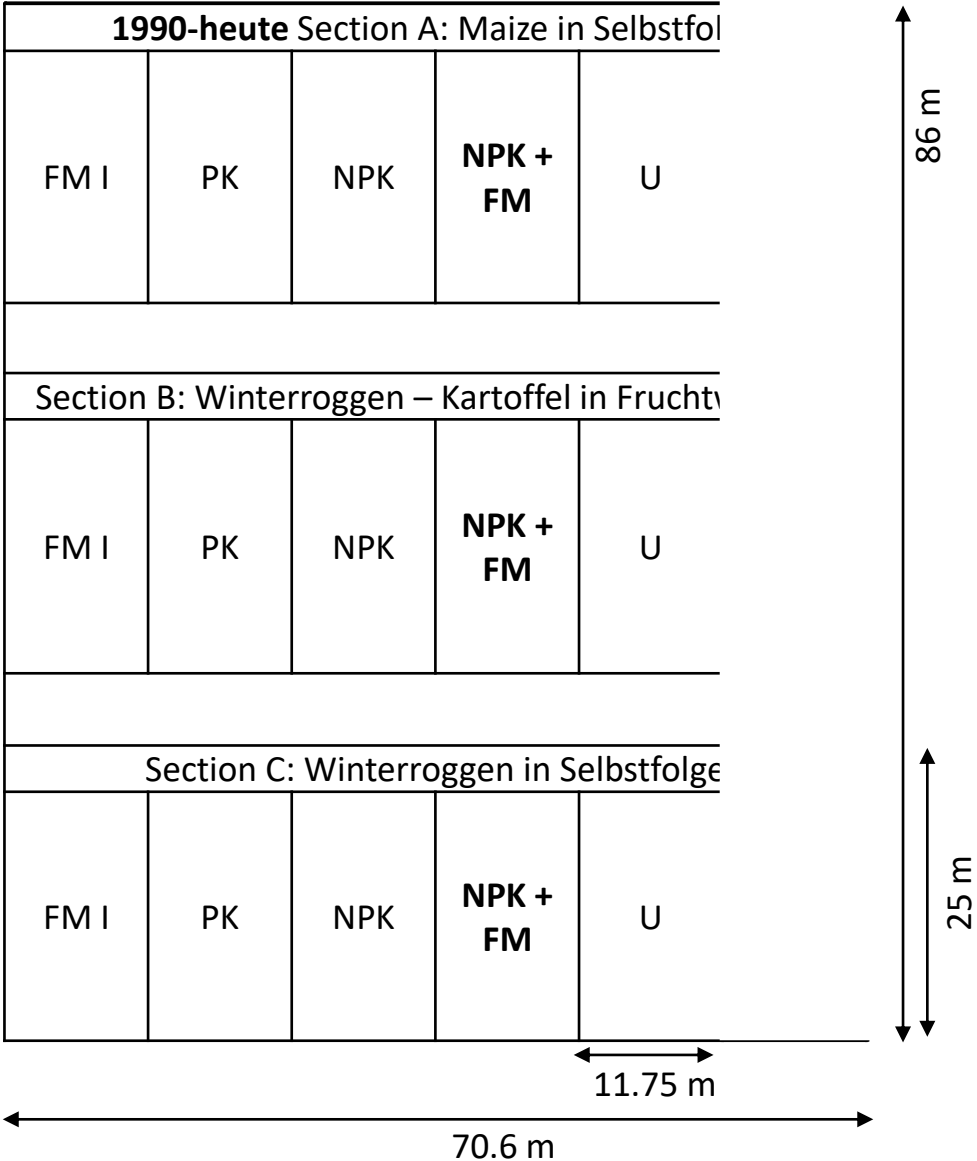
1953-1989

1990-heute

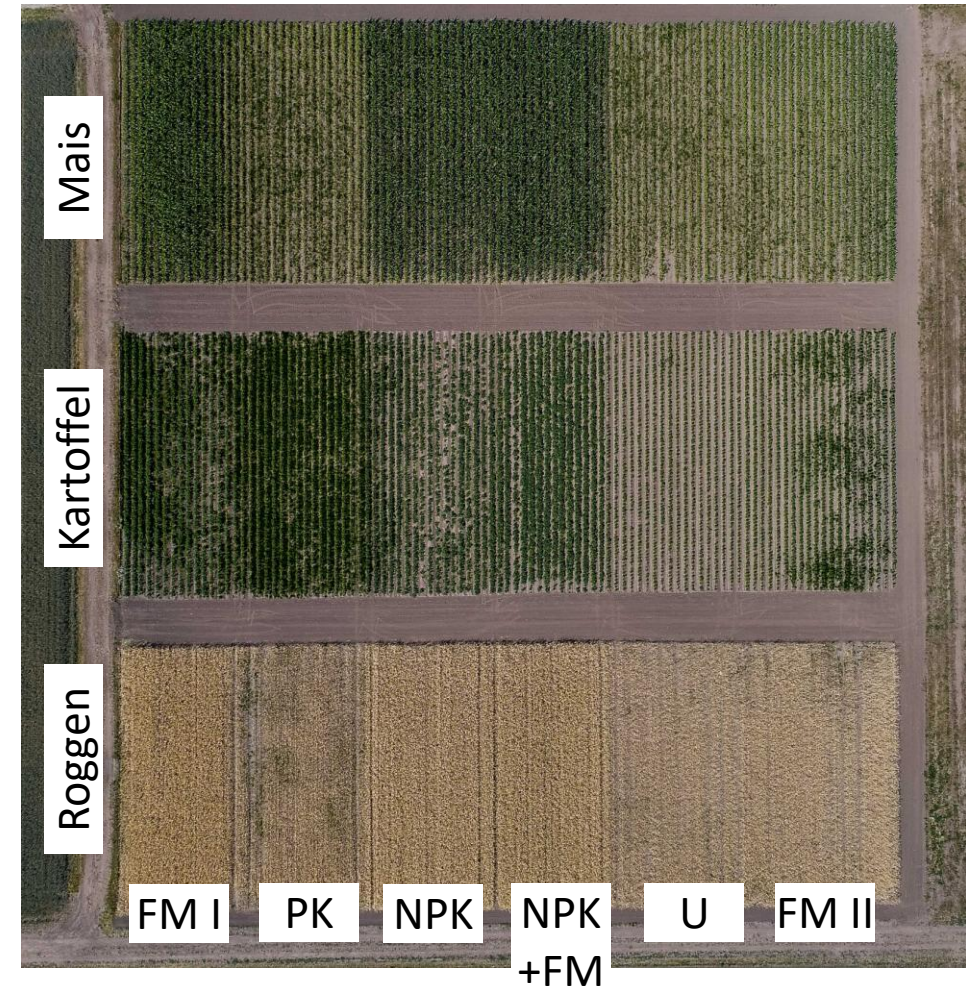
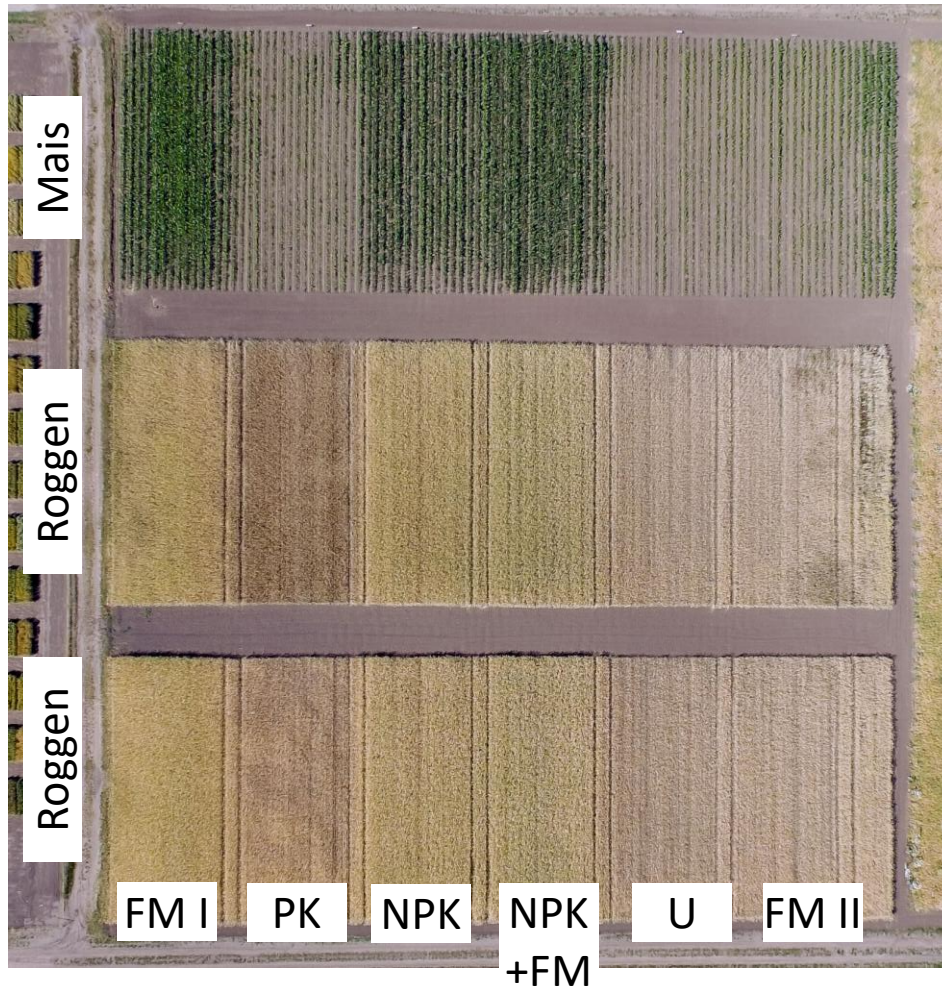
	FM I	PK	NPK	NPK +FM	U	FM II
N	60	-	60	120	-	-
P	18	24	24	42	-	-
K	55	75	75	130	-	-

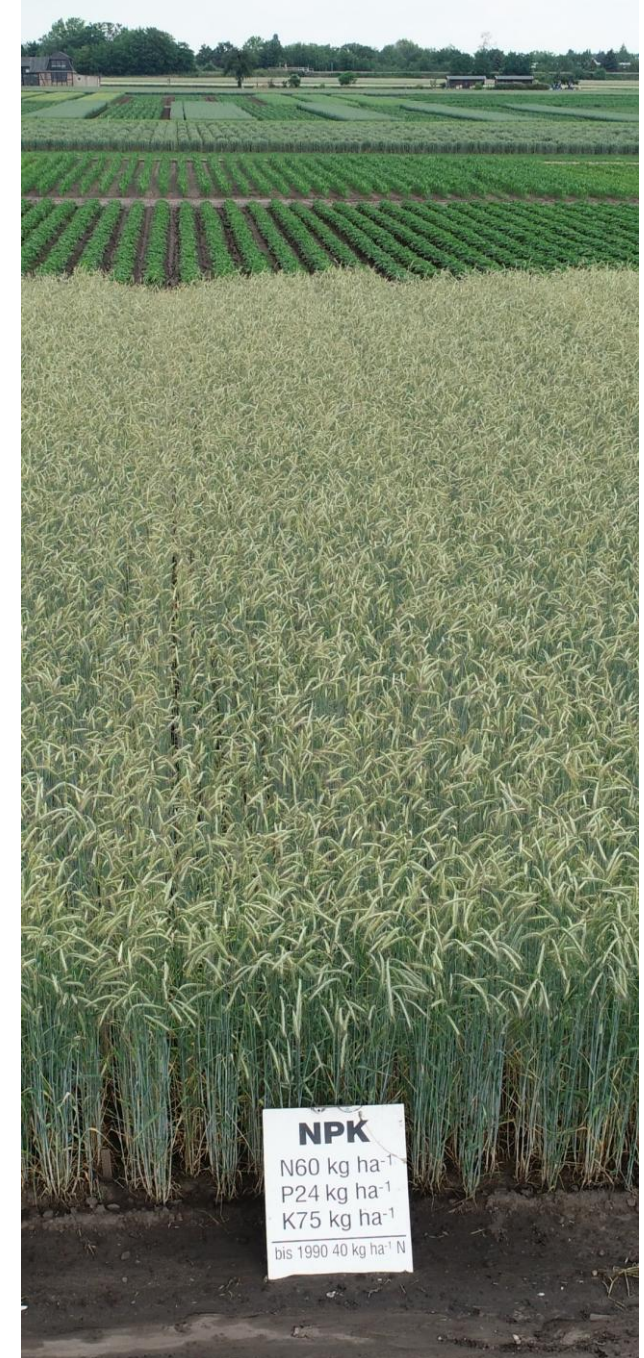
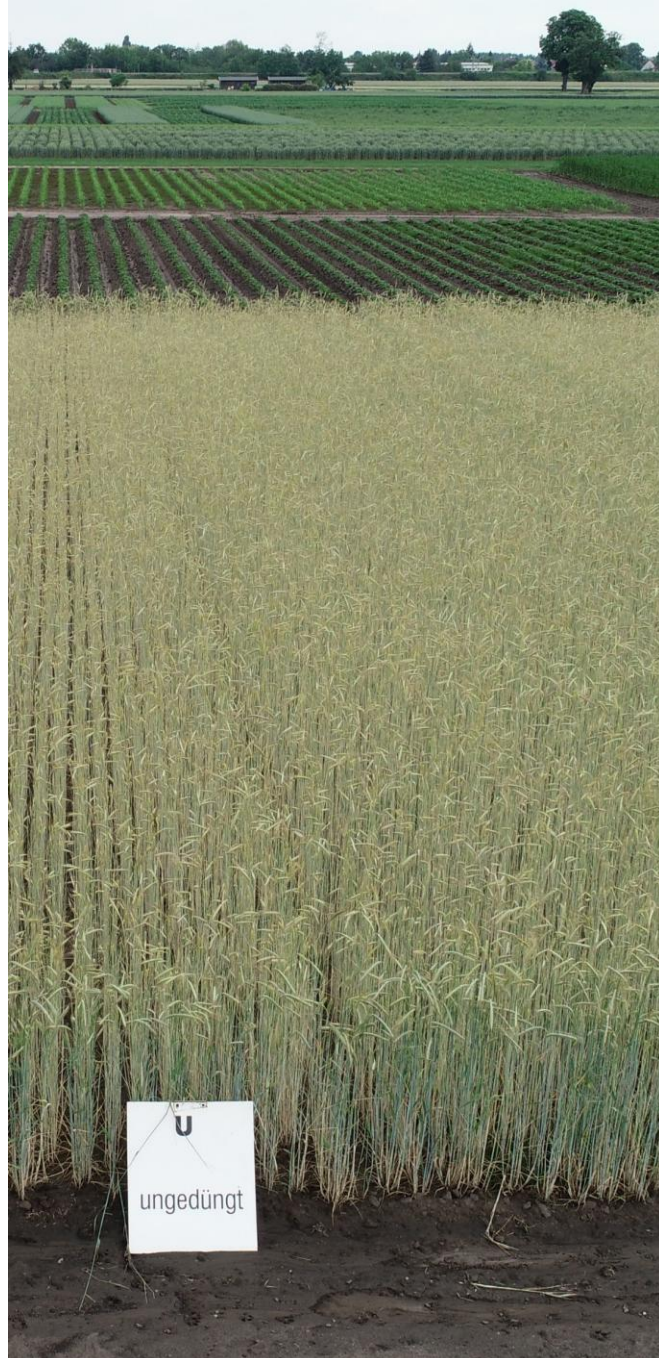
ca.12 t/ha

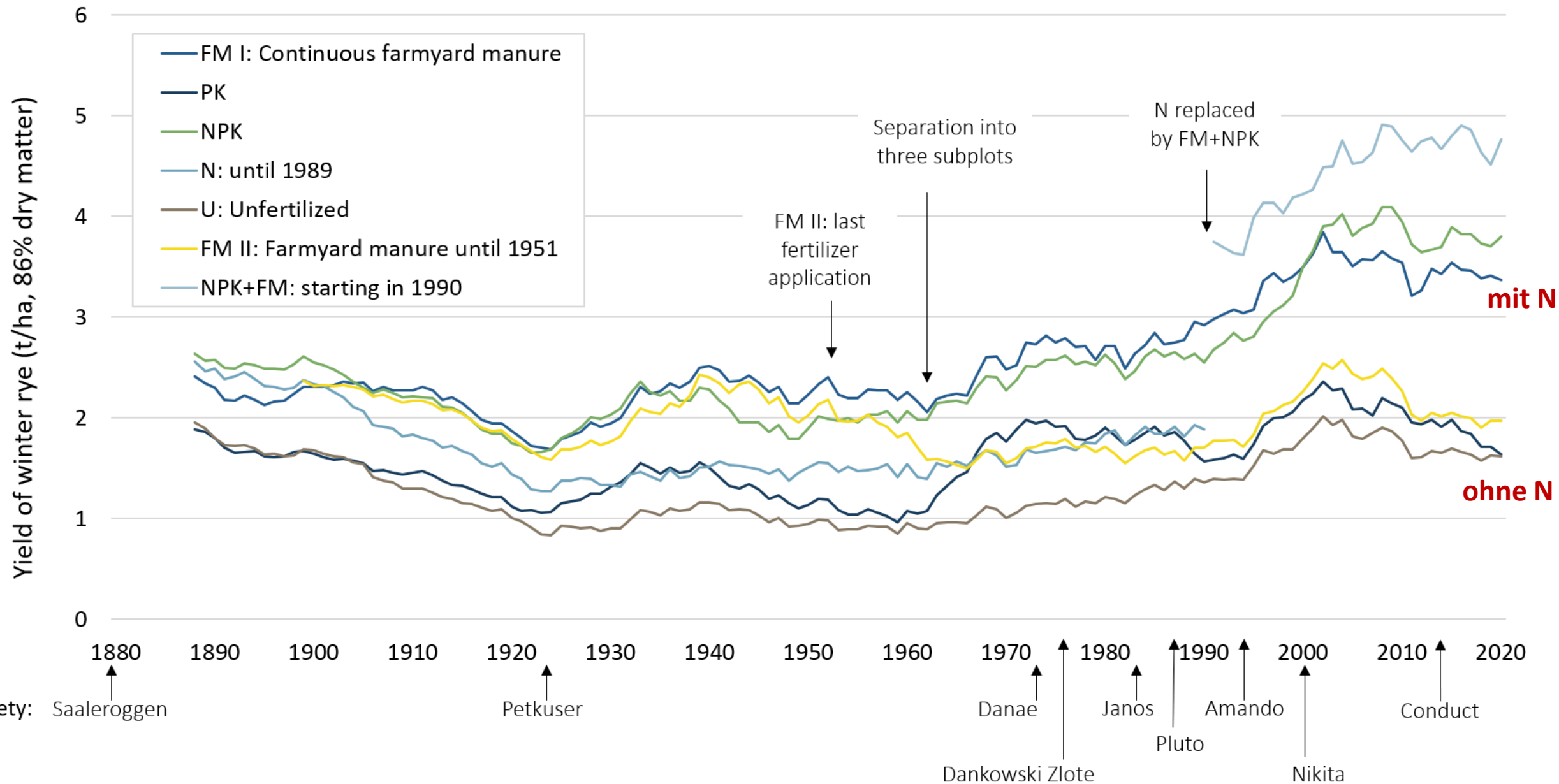
8 t/ha



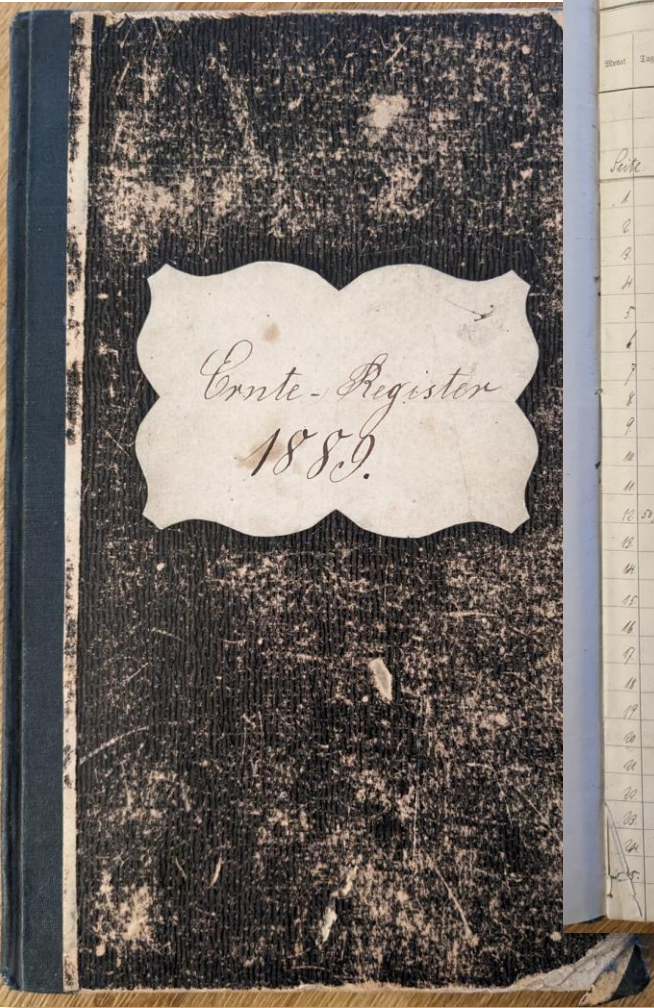
Dauerfeldversuch „Ewiger Roggen“ am Kühnfeld, MLU Halle







Originaldaten



at qm. Mrg. □ R.

Gehrofen.				pro Morgen				Bemerkungen.
Stapel	Zus.	volle Bogen	leere Bogen	Speen	Körner	Stroh	Speen	Körner
<u>Ernteverzeichniss</u>								
Seite	Bezeichnung des Feldes			Seite	Bezeichnung des Feldes			
1	Vord. Feld			16	Große Parzelle II			
2	" "			17	" "			
3	" "			18	Mühlengraben			
4	schwarze Heide			19	" "			
5	" "			20	" "			
6	Kleine Parz.			21	Häckerland II I			
7	schwarze Heide			22	" "			
8	Mühlengraben			23	" "			
9	Kornacker I			24	Birnacker II I			
10	" "			25	" "			
11	" "			26	" "			
12	Häckerland II			27	" "			
13	Kornacker I			28	" "			
14	" "			29	Waggraben			
15	" "			30	" "			
16	" "			31	" "			
17	Lange Heide			32	Goldberg I			
18	Heide			33	" "			
19	Erntemarkt I			34	" "			
20	" "			35	" "			
21	" "			36	" "			
22	Reithofen			37	" "			
23	Große Parzelle I			38	" "			
24	" "			39	" "			
25	" "			40	" "			



Versuchsfeld: 134.

Datum: Ende 1934

Boden aus: 4miger Roggenbau Parzelle 15-20

Nähere Angaben: Alle Zahlen sind auf Trockenmasse umgerechnet.

Bezeichnung:

Tiele:		Prozente				georrte Mengeneinheiten			
Gehalt an:									
N	Parz.	Inhalt	Stroh/kg	Korn/kg	Trocken	N	P ₂ O ₅	K ₂ O	Trocken
727	15	Körner	1860	1860	88,97	1,63	0,25	0,41	1655
728	15	Stroh	3360	3360	92,24	0,37	0,61	0,19	3029
729	15	Speen	1000	1000	92,10	0,40	0,88	0,14	2029
730	16	Körner	1000	1000	88,63	1,33	1,02	0,75	1478
731	16	Stroh	2110	2110	92,57	0,31	0,24	0,68	1478
732	16	Speen	1540	1540	92,60	0,55	0,56	0,41	1478
733	17	Körner	1540	1540	88,85	1,65	0,25	0,99	1478
734	17	Stroh	3195	3195	92,45	0,39	1,37	0,14	2447
735	17	Speen	1540	1540	92,24	0,77	0,49	0,33	1478
736	18	Körner	1515	1515	88,65	1,84	0,28	0,52	1478
737	18	Stroh	3040	3040	92,27	0,43	0,68	0,08	2825
738	18	Speen	1515	1515	91,97	0,67	0,80	0,09	1478
739	19	Körner	930	930	88,77	1,82	0,49	0,67	1478
740	19	Stroh	2000	2000	92,26	0,34	0,64	0,04	1845
741	19	Speen	1695	1695	92,02	0,45	0,73	0,13	1478
742	20	Körner	1695	1695	88,55	1,63	0,27	0,43	1478
743	20	Stroh	3145	3145	92,16	0,30	0,64	0,08	2825
744	21	Speen	1695	1695	92,64	0,73	0,63	0,13	1478

von:

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Probenarchiv & Digitale Datenbank



Excel spreadsheet showing a database of experimental data. The spreadsheet is titled "Eternalnye : Datenbank - G:\APB\Forschung\AG Dauerfeldversuche\Datenbank\Eternalnye.accdb (Acc)". The data is organized into columns: Management_ID, Trial, Field, Crop, Crop_ID, Treatment, Treatment_ID, Year, Date, Management_name, Description, Intensity, Unit, Intensity, and C.

Management_ID	Trial	Field	Crop	Crop_ID	Treatment	Treatment_ID	Year	Date	Management_name	Description	Intensity	Unit	Intensity	C
1776	Eternal Rye	B	Winter rye	1 FM_II		10	1993	02.10.1992	Chemical care	Uvon Kombi 33	1.5	l/ha		
1777	Eternal Rye	B	Winter rye	1 FM_II		10	1993	22.04.1993	Chemical care	Arelon	1.5	kg/ha		
1778	Eternal Rye	B	Winter rye	1 FM_II		10	1993	30.04.1993	Chemical care	Sys 67 Dambe	3	l/ha		
1779	Eternal Rye	B	Winter rye	1 FM_II		10	1993	30.04.1993	Chemical care	Camposan	3	l/ha		
1856	Eternal Rye	B	Winter rye	1 FM_I		2	1995	12.08.1994	Soil cultivation					
1857	Eternal Rye	B	Winter rye	1 FM_I		2	1995	20.09.1994	Soil cultivation					
1858	Eternal Rye	B	Winter rye	1 FM_I		2	1995	28.09.1994	Soil cultivation	Plowing		25	cm	
1859	Eternal Rye	B	Winter rye	1 FM_I		2	1995	05.10.1994	Soil cultivation	Seedbed preparation				
1860	Eternal Rye	B	Winter rye	1 FM_I		2	1995	07.10.1994	Sowing	Variety Amando				
1861	Eternal Rye	B	Winter rye	1 FM_I		2	1995	07.10.1994	Sowing	Seed rate		126	kg/ha	
1862	Eternal Rye	B	Winter rye	1 FM_I		2	1995	07.10.1994	Sowing	Row width		12.5	cm	
1863	Eternal Rye	B	Winter rye	1 FM_I		2	1995	28.09.1994	Fertilization	Organic				
1864	Eternal Rye	B	Winter rye	1 FM_I		2	1995	07.10.1994	Chemical care	Uvon Kombi 33	1.5	kg/ha		
1865	Eternal Rye	B	Winter rye	1 FM_I		2	1995	22.03.1995	Chemical care	IPU	2.5	l/ha		
1866	Eternal Rye	B	Winter rye	1 FM_I		2	1995	03.05.1995	Chemical care	Camposan Extra	2	l/ha		
1867	Eternal Rye	B	Winter rye	1 FM_I		2	1995	12.05.1995	Chemical care	Sys Makasal	1	l/ha		
1868	Eternal Rye	B	Winter rye	1 FM_I		2	1995	14.06.1995	Chemical care	Macasal	1.5	l/ha		
1869	Eternal Rye	B	Winter rye	1 FM_I		2	1995	31.07.1995	Harvest					
1870	Eternal Rye	B	Winter rye	1 PK		3	1995	12.08.1994	Soil cultivation					
1871	Eternal Rye	B	Winter rye	1 PK		3	1995	20.09.1994	Soil cultivation					
1872	Eternal Rye	B	Winter rye	1 PK		3	1995	28.09.1994	Soil cultivation	Plowing		25	cm	
1873	Eternal Rye	B	Winter rye	1 PK		3	1995	05.10.1994	Soil cultivation	Seedbed preparation				
1874	Eternal Rye	B	Winter rye	1 PK		3	1995	07.10.1994	Sowing	Variety Amando				
1875	Eternal Rye	B	Winter rye	1 PK		3	1995	07.10.1994	Sowing	Seed rate		126	kg/ha	
1876	Eternal Rye	B	Winter rye	1 PK		3	1995	07.10.1994	Sowing	Row width		12.5	cm	
1877	Eternal Rye	B	Winter rye	1 PK		3	1995	27.09.1994	Fertilization	P				
1878	Eternal Rye	B	Winter rye	1 PK		3	1995	27.09.1994	Fertilization	K				
1879	Eternal Rye	B	Winter rye	1 PK		3	1995	07.10.1994	Chemical care	Uvon Kombi 33	1.5	kg/ha		
1880	Eternal Rye	B	Winter rye	1 PK		3	1995	22.03.1995	Chemical care	IPU	2.5	l/ha		
1881	Eternal Rye	B	Winter rye	1 PK		3	1995	03.05.1995	Chemical care	Camposan Extra	2	l/ha		
1882	Eternal Rye	B	Winter rye	1 PK		3	1995	12.05.1995	Chemical care	Sys Makasal	1	l/ha		
1883	Eternal Rye	B	Winter rye	1 PK		3	1995	14.06.1995	Chemical care	Macasal	1.5	l/ha		
1884	Eternal Rye	B	Winter rye	1 PK		3	1995	31.07.1995	Harvest					
1885	Eternal Rye	B	Winter rye	1 NPK		5	1995	12.08.1994	Soil cultivation					
1886	Eternal Rye	B	Winter rye	1 NPK		5	1995	20.09.1994	Soil cultivation					
1887	Eternal Rye	B	Winter rye	1 NPK		5	1995	28.09.1994	Soil cultivation	Plowing		25	cm	
1888	Eternal Rye	B	Winter rye	1 NPK		5	1995	05.10.1994	Soil cultivation	Seedbed preparation				
1889	Eternal Rye	B	Winter rye	1 NPK		5	1995	07.10.1994	Sowing	Variety Amando				
1890	Eternal Rye	B	Winter rye	1 NPK		5	1995	07.10.1994	Sowing	Seed rate		126	kg/ha	
1891	Eternal Rye	B	Winter rye	1 NPK		5	1995	07.10.1994	Sowing	Row width		12.5	cm	
1892	Eternal Rye	B	Winter rye	1 NPK		5	1995	27.09.1994	Fertilization	P				
1893	Eternal Rye	B	Winter rye	1 NPK		5	1995	27.09.1994	Fertilization	K				
1894	Eternal Rye	B	Winter rye	1 NPK		5	1995	06.10.1994	Fertilization	N				
1895	Eternal Rye	B	Winter rye	1 NPK		5	1995	08.03.1995	Fertilization	N				
1896	Eternal Rye	B	Winter rye	1 NPK		5	1995	07.10.1994	Chemical care	Uvon Kombi 33	1.5	kg/ha		
1897	Eternal Rye	B	Winter rye	1 NPK		5	1995	22.03.1995	Chemical care	IPU	2.5	l/ha		
1898	Eternal Rye	B	Winter rye	1 NPK		5	1995	03.05.1995	Chemical care	Camposan Extra	2	l/ha		
1899	Eternal Rye	B	Winter rye	1 NPK		5	1995	12.05.1995	Chemical care	Sys Makasal	1	l/ha		
1900	Eternal Rye	B	Winter rye	1 NPK		5	1995	14.06.1995	Chemical care	Macasal	1.5	l/ha		
1901	Eternal Rye	B	Winter rye	1 NPK		5	1995	31.07.1995	Harvest					
1902	Eternal Rye	B	Winter rye	1 NPK+FM		7	1995	12.08.1994	Soil cultivation					
1903	Eternal Rye	B	Winter rye	1 NPK+FM		7	1995	20.09.1994	Soil cultivation					
1904	Eternal Rye	B	Winter rye	1 NPK+FM		7	1995	28.09.1994	Soil cultivation	Plowing		25	cm	
1905	Eternal Rye	B	Winter rye	1 NPK+FM		7	1995	05.10.1994	Soil cultivation	Seedbed preparation				
1906	Eternal Rye	B	Winter rye	1 NPK+FM		7	1995	07.10.1994	Sowing	Variety Amando				
1907	Eternal Rye	B	Winter rye	1 NPK+FM		7	1995	07.10.1994	Sowing	Seed rate		126	kg/ha	
1908	Eternal Rye	B	Winter rye	1 NPK+FM		7	1995	07.10.1994	Sowing	Row width		12.5	cm	
1909	Eternal Rye	B	Winter rye	1 NPK+FM		7	1995	27.09.1994	Fertilization	P				
1910	Eternal Rye	B	Winter rye	1 NPK+FM		7	1995	27.09.1994	Fertilization	K				
1911	Eternal Rye	B	Winter rye	1 NPK+FM		7	1995	06.10.1994	Fertilization	N				

Datenpublikation „Ewiger Roggen“: Ertragsdaten + Bodendaten

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'Eternal Rye' winter rye grain and straw yield, 1879-2018

Kunz, Karolin¹ ; Reitz, Thomas¹ ; Peiter, Edgar¹ ; Macholdt, Janna¹

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Dec 16, 2025

This dataset contains the grain and straw yields of winter rye (t/ha) of the “Eternal Rye” long-term experiment in the years 1879-2018, the sowing and harvest dates and information about the fertilization treatments. Grain yield data is given at 86 % dry matter. In 1959 no harvest data is available. The field trial started in 1878. It originally consisted of five plots with different fertilizer applications. In all plots each year winter rye was grown, treatments are not replicated. The treatments include mineral N, PK, and NPK fertilization, organic fertilization with farmyard manure (FM_I), and an unfertilized plot (U). In 1893 an additional plot with reduced organic fertilization was added (FM_II). Here, fertilization was terminated after the harvest of 1953. The plot is unfertilized ever since. In 1991 a combined fertilization of mineral NPK and farmyard manure (NPK_FM) replaced the N plot, and the nitrogen amount in the NPK plot was increased from 40 to 60 kg N/ha/a. In 1961 the plots were divided into three sections, in one of which the winter rye monoculture was continued. The data set includes data of the large plots until the separation and the section continued winter rye monoculture hereafter. The trial is managed under conventional farming methods, with chemical and mechanical pest control as needed.

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'Eternal Rye' soil nutrient content and pH value since 1878

Kunz, Karolin¹ ; Reitz, Thomas¹ ; Peiter, Edgar¹ ; Mikutta, Robert¹ ; Macholdt, Janna²

Show affiliations

This dataset contains the soil data of C, N, P, K, Mg, and the pH value of the “Eternal Rye” long-term experiment in the years 1878-2006, the harvest and the soil sampling dates and information about the fertilization treatments. The first sampling took place before the implementation of the field trial in 1878. In 1959 no crops were grown. The field trial originally consisted of five plots with different fertilizer applications. In all plots each year winter rye was grown, treatments are not replicated. In some years multiple replicates of soil samples were taken within the plot. The treatments include mineral N, PK, and NPK fertilization, organic fertilization with farmyard manure (FM_I), and an unfertilized plot (U). In 1893 an additional plot with reduced organic fertilization was added (FM_II). Here, fertilization was ended after the harvest of 1953. The plot is unfertilized ever since. In 1991 a combined fertilization of mineral NPK and farmyard manure (NPK_FM) replaced the N plot, and the nitrogen amount in the NPK plot was increased from 40 to 60 kg N/ha/a. In 1961 the plots were divided into three sections, in one of which (Section C) the winter rye monoculture was continued. In 1985 lime (2.77 t/ha CaO) was applied to all plots of section C in order to reach a pH value of 6.2. The data set includes data of the large plots until the separation and the section with continued winter rye monoculture hereafter. The trial is managed under conventional farming methods, with chemical and mechanical pest control as needed. P and K have been extracted using the Double-Lactate (DL) extraction method since 1929. For the samples before that (1878, 1912) no information about the method is available any more.

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