

## Woburn Ley-arable experiment cropping sequence 1938-2020

**DOI:** 10.23637/wrn3-cropping1938-2020-01

**Cite as**: Poulton, P.R., Johnston, A.E., Macdonald, A.J. and Glendining, M.J. (2021) *Woburn Ley-arable experiment cropping sequence 1938-2020. Electronic Rothamsted Archive, Rothamsted Research, Harpenden, UK.* 10.23637/wrn3-cropping1938-2020-01

Prepared by: Glendining, M.J., CAS Department, Rothamsted Research, Harpenden, Herts, AL5 2JQ, UK.

Published by: Electronic Rothamsted Archive, Rothamsted Research, Harpenden, UK

Date: December 2021

**Description**: Cropping details of the Woburn Ley-arable Experiment, 1938-2020, with details of the arable and ley rotation sequences in each of the five Blocks (I-V), and the different treatment crops.

- Page 1-2: Cover page
- Page 3: Generic plan showing plot and block layout and dimensions
- Pages 4-5: Cropping sequence 1938-1972/76
- Pages 6-7 Cropping sequence 1973/77-2007/11
- Pages 8-9: Cropping sequence 2008/12-2020

Site: W/RN/3. Stackyard field, Woburn Experimental Farm, Husborne Crawley, Woburn, Bedfordshire, UK. Geographic location: 51.99906, -0.61673

## **Derived from:**

- Rothamsted Experimental Station (1966) *Details of the Classical and Long-term experiments up to 1962*. Lawes Agricultural Trust, Harpenden. pp. 87 https://doi.org/10.23637/ERADOC-1-191
- Rothamsted Experimental Station (1970) *Details of the Classical and Long-Term Experiments up to 1967*, Rothamsted Experimental Station, Lawes Agricultural Trust, Harpenden UK, pp. 128 <a href="https://doi.org/10.23637/ERADOC-1-192">https://doi.org/10.23637/ERADOC-1-192</a>
- Rothamsted Experimental Station (1978) *Details of the Classical and Long-term experiments 1968-73*. Lawes Agricultural Trust, Harpenden. pp. 77 <a href="https://doi.org/10.23637/ERADOC-1-193">https://doi.org/10.23637/ERADOC-1-193</a>
- Annual Results of the Field Experiments, Yields of the Field Experiments and Results of the Classical and other Long-term experiments published by Rothamsted Research, 1939-2020 <a href="http://www.era.rothamsted.ac.uk/eradoc/books/2">http://www.era.rothamsted.ac.uk/eradoc/books/2</a>

**Funding:** Rothamsted Research receives strategic funding from the UK Biotechnology and Biological Sciences Research Council (BBSRC). The Rothamsted Long-term Experiments National Capability is supported by the BBSRC Grant BBS/E/C/000J0300 and the Lawes Agricultural Trust.

Licence and conditions of re-use:
These details are published under the Creative Commons Attribution 4.0 International licence. CC BY 4.00 You are free to adapt, copy, redistribute these details but must provide appropriate credit using the provided citation, including the DOI and indicate any changes made. You must not apply additional restrictions on the licence.

## Generic plan of the Woburn Ley-arable experiment

-	North	5.18 m		1.37 m ■ 19.66 m —	
01	02	<del></del> i	03	19.66 m	<b>→</b> •
d	-		-	d	
05	06		07	08	
d	-	Block	-	d	34.90 m
09	10	I	11	12	
-	d	Starts		-	
13	14	1942	15	16	
d	-		-	d	
	ı				← 2.13 m
17	18		19	20	
-	d		-	d	
21	22		23	24	
d a.c.	-	Block		d	↑ 8 53 m
25	26	II	27	28	♦ 8.53 m
d	-	Starts	-	d	▼
29	30	1941	31	32	
-	d		-	d	
33	34		35	26	
33 d	34		d	36	✓ 0.25 m
<u></u>	38		39	40	<b>✓</b> 0.23 III
37	d	Block		-	183.02 r
41	42	III	43	44	165.021
41	d	Starts	-	d	
45	46	1938		48	
-	d	1730	-	d	
	iu			Įū.	
49	50		51	52	
d	-		-	d	
53	54		55	56	
-	d	Block		d	
57	58	IV	59	60	
d	=	Starts		=	
61	62	1940		64	
-	d		d	-	
	<u> </u>			<u> </u>	
65	66		67	68	
-	d		d	-	
69	70		71	72	
-	d	Block	-	d	
73	74	V	75	76	
d	-	Starts		-	
77	78	1939	79	80	
d	-		-	d	
· · · · · · · · · · · · · · · · · · ·				40.69 m	

d = plots receiving dung (FYM) every five years until the mid-1960s.

			rn Ley-																																ш	لـــــا	$\vdash \vdash$	$\vdash$	$\vdash$	$\sqcup$	<b>↓</b>	4
			gan in 1																													and E	3lock	l in 1	945		$\vdash \vdash$	igsquare	$\vdash$	-	<b>↓</b>	$\downarrow$
nang	es/exc	ception	ns to cro	pping ai	e give	en in 1	the fo	otnot	es be	low	ı. See al	so "De	etails	of the C	lassic	al an	d Lor	ng-ter	m Ex	perim	ents	up to	1962	", "D€	etailsı	p to 1	967" a	nd "De	etails	.1968	3-73"				$\square$		<u> </u>	igsquare	$\vdash$	<u> </u>	ــــــ	╀
																																			$\square$			oxdot	$\vdash$		↓	1
									ļ				2nd				1st :						2nd			1s	_	_			_	2nd							$\perp$		1st	
												Test	Test			Т	est	Γest				Test	Test			Te	st Tes	t			Test	Test				Test	Test		ш		Test	
									Trea	ıtme	ent crops	crop	crop	Treatme	ent cro	ps c	rop	crop	Treatm	ent cr	ops	crop	crop	Treat	ment cro	os cro	op crop	Trea	tment	crops	crop	crop	Treat	ment	crops	crop	crop	Treat	tment o	crops	crop	ı
lock		Rotatio	on <sup>1</sup>	Plots					į																																	
				-/D <sup>2</sup>					ļ																																	
									1938	19	39 1940	1941	1942	1943 19	944 19	945 1	946 1	947 1	948 1	949 1	1950	1951	1952	1953	1954 19	55 19	56 195	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	L
III <sup>3</sup>	Cont.	. Rtns	Ar	40/39					Р	٧	N K	Р	В	Р 1	N SI	Be	Р	В	Р	R S	SBe	Р	В	Р	R S	Be SB	se B	Р	R	С	SBe	В	Р	R	С	SBe	В	Р	R	С	Р	T
		"	Ah	45/46					Р	٧	N H	Р	В	Р 1	N I	Н	Р	В	Р	R	Н	Р	В	Р	R	H SB	e B	Р	R	Н	SBe	В	Р	R	Н	SBe	В	Р	R	Н	Р	1
		"	L	43/44					L1	L	2 L3	Р	В	L1 L	.2 L	.3	Р	В	L1	L2	L3	Р	В	L1	L2 l	3 SB	se B	L1	L2	L3	SBe	В	L1	L2	L3	SBe	В	L1	L2	L3	Р	1
		"	Lu	34/33					Lu1	Lu	u2 Lu3	Р	В	Lu1 L	u2 Li	u3	Р	В	Lu1 I	_u2	Lu3	Р	В	Lu1	Lu2 L	ı3 SB	e B	Lu1	Lu2	Lu3	SBe	В	Lu1	Lu2	S	SBe	В	S1	S2	S3	Р	1
	Alter.	. Rtns	Ar/Lu	36/35					Р	٧	v K	Р	В	Lu1 L	u2 Li	u3	Р	В	Р	R	Н	Р	В	L1	L2 I	3 SB	e B	Р	R	Н	SBe	В	Lu1	Lu2	S	SBe	В	Р	R	С	Р	1
		"	Ah/L	47/48					Р		V H	Р	В				P				SBe	P		Lu1		ı3 SB			R	С	SBe	В	L1	L2	L3	SBe	В	P	R	Н	P	†
			Lu/Ar	37/38					Lu1	_	u2 Lu3	P	В				P				L3	P	В	P		d SB	_	Lu1	Lu2	Lu3	SBe	В	P	R	С	SBe	В	L1	L2	L3	P	†
			L/Ah	41/42					L1	-	.2 L3	P	В				P			u2 I		P	В	P		Be SB		L1	L2	L3	SBe	В	Р	R	Н	SBe		S1	S2	S3	P	†
	+		470	71/72						۲						-	-			-32	_uo	-	-	-	.,	30 30	- 6	1			350		-	- 11		350	۳	, <u>, , , , , , , , , , , , , , , , , , </u>	02		÷	+
								1030	1939	10	940 1941	10/12	10/12	1944 19	945 19	16 1	947 1	0/18 1	949 1	05N 1	1051	1952	1953	105/	1955 19	56 19	57 105	3 1959	1960	1061	1962	1062	1964	1965	1966	1967	1060	1060	1970	1071	1972	,
v	Cont	Ptnc	۸۰	74/73				1936 B	1939	_	N K	1942 P	1943 B				947 I	.948 J	P 1		SBe	P 1952	B 1955	1954 P		36 19: C SB	_	_	1960 R	C 1961	SBe	1963 B	1964 P	1905 R	C 1900	SBe	1908 B	P 1969	1970 R	19/1 C	1972 P	-
٧	Cont.	. Kths	Ar Ah	68/67				В	P	-	N K	P	В		_		P	_	P	_	Н	P	В	P		J SB		P	R	Н	SBe	В	P	R	Н	SBe	В	P	R	Н	P	4
		"	An L	65/66				В	:	-	_	P		-	_		-	_			L3			L1		_	_						_		L3	SBe		L1	_	L3	P	4
		"							L1	_			В		_	_	_		_	_	_	Р	В				_		L2	L3	SBe	В	L1	L2			В		L2	F E3		-
			Lu	79/80				В	Lu1	_	u2 Lu3	Р	В								Lu3	P		Lu1		ı3 SB	_	Lu1	Lu2	Lu3	SBe	В	S1	S2	S3	SBe	В	S1	S2		P	4
	Alter.	. Rtns	Ar/Lu	71/72				В	P	_	۷ H	P	В						P	_	SBe	Р	В	L1		3 SB		P	R	Н	SBe	В	S1	S2	S3	SBe	В	P	R	С	Р	4
	-		Ah/L	76/75				В	Р	-	N K	P	В				Р	В	Р		Н	Р		Lu1		ı3 SB	_	Р	R	С	SBe	В	L1	L2	L3	SBe	В	Р	R	Н	P	_
			Lu/Ar	69/70				В	Lu1		u2 Lu3	Р	В				Р				L3	Р	В	Р		SB		Lu1	Lu2	Lu3	SBe	В	Р	R	Н	SBe	В	L1	L2	L3	Р	_
	"	"	L/Ah	78/77				В	L1	L	.2 L3	Р	В	Р 1	N S	Ве	Р	В	Lu1 I	_u2	Lu3	Р	В	Р	R	l SB	le B	L1	L2	L3	SBe	В	Р	R	С	SBe	В	S1	S2	F	Р	_
									<u> </u>																												igsquare	لــــا	$\overline{}$			1
									-	_	1942				946 19		948 1		950 1			1953			1956 19		_	1960					1965				1969		1971			1
IV	Cont.	. Rtns	Ar	64/63			P	В	Р	٧	N K	Р	В	P 1	N S	Ве	Р	В	Р	R S	SBe	Р	В	Р	R	SB SB	Be B	P	R	С	SBe	В	Р	R	С	В	В	Р	R	В	Р	╛
		"	Ah	53/54			Р	В	Р	V	N H	P	В			Н	Р	В	Р		Н	Р	В	Р		H SB	Be B	P	R	Н	SBe	В	Р	R	Н	В	В	P	R	Н	P	
		"	L	58/57			Р	В	L1	L	.2 L3	P	В	L1 l	.2 L	.3	Р	В	L1	L2	L3	Р	В	L1	L2 l	3 SB	Be B	L1	L2	L3	SBe	В	L1	L2	L3	В	В	L1	L2	L3	P	
		"	Lu	60/59			Р	В	Lu1	Lι	u2 Lu3	Р	В	Lu1 L	u2 Li	u3	Р	В	Lu1 I	_u2 l	Lu3	Р	В	Lu1	Lu2 L	ı3 SB	le B	Lu1	Lu2	Lu3	SBe	В	S1	S2	S3	В	В	S1	CL2	CL3	Р	
	Alter.	. Rtns	Ar/Lu	51/52			Р	В	Р	٧	N K	Р	В	Lu1 L	u2 Li	u3	Р	В	Р	R	Н	Р	В	L1	L2 l	3 SB	e B	Р	R	С	SBe	В	S1	S2	S3	В	В	Р	R	Н	Р	
			Ah/L	50/49			Р	В	Р	٧	۷ H	Р	В	L1 l	.2 L	.3	Р	В	Р	R S	SBe	Р	В	Lu1	Lu2 L	ı3 SB	se B	Р	R	Н	SBe	В	L1	L2	L3	В	В	Р	R	В	Р	
			Lu/Ar	61/62			Р	В	Lu1	Lι	u2 Lu3	Р	В	P \	N SI	Ве	Р	В	L1	L2	L3	Р	В	Р	R	H SB	e B	Lu1	Lu2	Lu3	SBe	В	Р	R	С	В	В	L1	L2	L3	Р	1
		"	L/Ah	55/56			Р	В	L1	L	.2 L3	Р	В	Р 1	N I	Н	Р	В	Lu1 I	_u2	Lu3	Р	В	Р	R	C SB	se B	L1	L2	L3	SBe	В	Р	R	Н	В	В	S1	CL2	CL3	Р	1
									!																											$\neg$						1
						1938	1939	1940	1941	19	1943	1944	1945	1946 19	947 19	948 1	949 1	950 1	951 1	952 1	1953	1954	1955	1956	1957 19	58 19	59 196	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	ī
II	Cont.	Rtns	Ar	19/20		В	Р	В	P		N K	Р	В		N SI		Р	В	Р		SBe	Р	В	Р		C SB	_	Р	R	С	SBe	В	Р	R	С	В	В	Р	В	В	Р	٦
	"	"	Ah	17/18		В	P	В	Р		N H	P	В				P		P		Н	P	В	P		d SB			R	Н	SBe	В	P	R	Н	В	В	P	В	Н	P	†
			L	31/32		В	P	В	L1		.2 L3	P	В				P				L3	P	В	L1		3 SB		L1	L2	L3	SBe	В	L1	L2	L3	В	В	L1	L2	L3	P	1
			Lu	29/30		В	P	В	•		u2 Lu3	P	В								Lu3	P		Lu1		13 SB		Lu1	Lu2	Lu3	SBe	В	S1	S2	S3	В	В	CL1	CL2	CL3	P	+
	Alter.	Rtns	Ar/Lu	27/28		В	P	В	P	-	W K	P	В	-	-	_	P	_	P	_	Н	P		Lu1		- SB	_	_	R	C	SBe	В	L1	L2	L3	В	В	P	B	H	P	+
	Aitei.	"	Ah/L	22/21	+	В	P	В	Р	_	V H	P	В		_		P	В	P	_	SBe	P	В	Lu i		3 SB	_	P	R	Н	SBe	В	S1	S2	S3	В	В	Р	В	В	P	+
			Lu/Ar	26/25		В	P	В	•	-	u2 Lu3	P	В			_	P				L3	P	В	P	-	S SB	_	_	Lu2	Lu3	SBe	В	P	R	H	В	В	L1	L2	L3	P	4
			L/Ah	23/24		В	P	В	Lu i	_	.2 L3	P	В				P	_		_	Lu3	P	В	P		d SB	_	Lu1	Lu <sub>2</sub>	Lu3	SBe	В	P	R	С	В	В	CL1	CL2	CL3	P	-
			L/AN	25/24		В	۲	В	LT	۲	L3	۲	В	P '	/v   S	ье	۲	D	Lu I	_uz   l	∟u≾	۲	D	۲	ĸ	1 SB	e B	LT	LZ	LJ	SRE	В	۲	К	U	В	В	ULT	ULZ	ULS	P	-
					1020	1020	1040	1046	1042	10	1011	1045	1040	1047 11	140 42	140	050 -	054 4	052 4	053 4	1054	1055	1050	1057	1050 11	FO 40	CO 400	1000	1000	1004	1000	1000	1007	1000	1000	1070	1074	1072	1072	1074	1075	-
	0	Dtoo		0/5						_	1944				948 19	_	950 1		952 1	_	_	1955			1958 19		_	1962			1965		_						1973		_	-
1	Cont.	. Ktns	Ar	6/5	В	K	P	В	P	_	N K	P	В				P	В	P	_	SBe	P	В	P		SB	_	P	R	С	SBe	В	P	R	С	В	В	P	В	В	P	_
		-	Ah	2/1	В	Н	P	В	P		N H	P	В				P		Р		Н	P	В	P		l SB			R	Н	SBe	В	P	R	H	В	В	P	В	Н	P	_
			L	14/13	В	Н	Р	В	L1		.2 L3	Р	В			_	Р	_			L3	Р	В	L1		3 SB		L1	L2	L3	SBe	В	L1	L2	L3	В	В	L1	L2	L3	Р	_
	"	"	Lu	3/4	В	K	Р	В	Lu1		u2 Lu3	Р	В				_				Lu3	Р		Lu1		SB			Lu2	Lu3	SBe	В	S1	S2	S3	В	В	CL1	CL2	CL3	Р	_
	Alter.	. Rtns	Ar/Lu	9/10	В	K	Р	В	Р	_	V H	Р	В		-			_	Р		SBe	Р		Lu1		= SB	_		R	Н	SBe	В	L1	L2	L3	В	В	Р	В	В	Р	_
	"	"	Ah/L	15/16	В	Н	Р	В	Р	_	N K	Р	В		u2 L	_	Р	В	Р	_	Н	Р	В	L1		3 SB	_	Р	R	С	SBe	В	S1	S2	S3	В	В	Р	В	Н	Р	
	"		Lu/Ar	12/11	В	Н	Р	В			u2 Lu3	Р	В				Р				L3	Р	В	Р		H SB	_	Lu1	Lu2	Lu3	SBe	В	Р	R	С	В	В	L1	L2	L3	Р	
		"	L/Ah	7/8	В	K	Р	В	L1	L	.2 L3	Р	В	Р 1	N I	Н	Р	В	Lu1 l	_u2 l	Lu3	Р	В	Р	R	C SB	se B	L1	L2	L3	SBe	В	Р	R	Н	В	В	CL1	CL2	CL3	Р	

The Continuous Rotations were:-										
Ar; three arable Treatment crops, including one year root crop, followed by two arable Test	crops									
Ah; three arable Treatment crops, including one year hay, followed by two arable Test crops	;									
L; three year grazed grass-clover ley Treatment crops, followed by two arable Test crops.										
Lu; three year lucerne ley Treatment crops, followed by two arable Test crops.										
The Aternating Rotations were designated as either Ar/Lu, Ah/L, Lu/Ar or L/Ah according to the	ne order in wh	ich the first si	ix Treatment	crops appea	red.					

Woburn Le	ey-Arable	e Cr	oppi	ng S	eque	nce	1973	-2007	7.																												
In 2018 it wa										ectly c	lescri	bed/d	esian	ated.	Chan	aes to	previ	ous s	pread	sheet	s (197	1-75	are s	shown	in re	d (P R	Poul	lton. 2	nd Jul	lv 201	8). Se	ee als	o the	footno	otes.		
			,	1		1st	2nd				1st	2nd				1st	2nd					2nd				1st	2nd				1st	2nd				1st	2nd
						Test	+				Test	Test				Test	_					Test				Test	Test				Test	Test				Test	Test
						crop	crop	Trea	tment	crops	crop	crop	Trea	tment	crops	crop	crop	Trea	tment	crops	crop	crop	Trea	tment	crops	crop	crop	Trea	tment	crops	crop	crop	Treat	ment	crops	crop	crop
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Block	Rotation	Plots																																			
			1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Ξ	AF	40/39	Р	В	В	W	В	F	F	0	W	В	F	F	BE	W	В	F	F	BE	W	R	F	F	BE	W	R	R	BE	М	W	R	R	BE	М	W	R
Year 1-1973	AB	45/46	Р	В	Н	W	В	В	В	0	W	В	В	В	BE	W	В	В	В	BE	W	R	В	В	BE	W	R	R	М	BE	W	R	R	М	BE	W	R
	Ln3	43/44	L1	L2	L3	W	В	1	2	3	W	В	1	2	3	W	В	1	2	3	W	R	1	2	3	W	R	1	2	3	W	R	1	2	3	W	R
	Lc3	34/33	CL1	CL2	CL3	W	В	1	2	3	W	В	1	2	3	W	В	1	2	3	W	R	1	2	3	W	R	1	2	3	W	R	1	2	3	W	R
1st cycle	LLn8	36/35	L1	L2	L3	4	5	6	7	8	W	В	1	2	3	4	5	6	7	8	W	R	1	2	3	4	5	6	7	8	W	R	1	2	3	4	R
""	LLc8	47/48	CL1	CL2	CL3	4	5	6	7	8	W	В	1	2	3	4	5	6	7	8	W	R	1	2	3	4	5	6	7	8	W	R	1	2	3	4	R
2nd cycle	LLn8	37/38	Р	В	Н	W	В	1	2	3	4	5	6	7	8	W	В	1	2	3	4	5	6	7	8	W	R	1	2	3	4	5	6	7	8	W	R
""	LLc8	41/42	Р	В	В	W	В	1	2	3	4	5	6	7	8	W	В	1	2	3	4	5	6	7	8	W	R	1	2	3	4	5	6	7	8	W	R
			1074	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
٧	AF	74/73	1974 P	1975 B	0	19// W	1978 B	1979 F	1980 F	1981 BE	1982 W	1983 B	1984 F	1985 F	1986 BE	1987 W	1988 B	1989 F	1990 F	1991	1992 W	1993 R	1994 F	1995 F	1996 BE	1997 W	1998 R	1999 R	BE	2001 M	2002 W	2003 R	2004 R	2005 BE	2006 M	2007 W	2008 R
<b>V</b> Year 1-1974	AB	68/67	P	В	0	W	В	В	В	BE	W	В	В	В	BE	W	В	В	В	BE	W	R	В	В	BE	W	R	R	M	BE	W	R	R	M	BE	W	R
Teal 1-1974	Ln3	65/66		L2	3	W	В	1	2	3	W	В	1	2	3	W	В	1	2	3	W	R	1	2	3	W	R	1	2	3	W	R	1	2	3	W	R
	Lc3	79/80			3	W	В	1	2	3	W	В	1	2	3	W	В	1	2	3	W	R	1	2	3	W	R	1	2	3	W	R	1	2	3	W	R
1st cycle	LLn8	71/72	L1	L2	3	4	5	6	7	8	W	В	1	2	3	4	5	6	7	8	W	R	1	2	3	4	5	6	7	2	W	R	1	2	3	W	R
13t cyclc	LLc8	76/75	CL1	CL2	3	4	5	6	7	8	W	В	1	2	3	4	5	6	7	8	W	R	1	2	3	4	5	6	7	8	W	R	1	2	3	W	R
2nd cycle	LLn8	69/70		В	C*	W	В	1	2	3	4	5	6	7	8	W	В	1	,	3	4	5	6	7	8	W	R	1	2	3	4	5	6	7	8	W	R
Zila cyclc	LLc8	78/77	P	В	H*	W	В	1	2	3	4	5	6	7	8	W	В	1	2	3	4	5	6	7	8	W	R	1	2	3	4	5	6	7	8	\/\	R
	LLCO	70/11			- ''	- **					7	,	U	'		VV		_			7	3			U	• • •		-			7		U	,		VV	IV.
			1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
IV	AF	64/63	Р	F	0	W	В	F	F	BE	W	В	F	F	BE	W	В	F	F	BE	W	R	F	F	BE	W	R	R	BE	М	W	R	R	BE	М	W	R
Year 1-1975	AB	53/54	Р	В	0	W	В	В	В	BE	W	В	В	В	BE	W	В	В	В	BE	W	R	В	В	BE	W	R	R	М	BE	W	R	R	М	BE	W	R
	Ln3	58/57	L1	2	3	W	В	1	2	3	W	В	1	2	3	W	В	1	2	3	W	R	1	2	3	W	R	1	2	3	W	R	1	2	3	W	R
	Lc3	60/59	CL	2	3	W	В	1	2	3	W	В	1	2	3	W	В	1	2	3	W	R	1	2	3	W	R	1	2	3	W	R	1	2	3	W	R
1st cycle	LLn8	51/52	L1	2	3	4	5	6	7	8	W	В	1	2	3	4	5	6	7	8	W	R	1	2	3	4	5	6	7	8	W	R	1	2	0	W	R
	LLc8	50/49	CL	2	3	4	5	6	7	8	W	В	1	2	3	4	5	6	7	8	W	R	1	2	3	4	5	6	7	8	W	R	1	2	BE	W	R
2nd cycle	LLn8	61/62		2	3	W	В	1	2	3	4	5	6	7	8	W	В	1	2	3	4	5	6	7	8	W	R	1	2	3	4	5	6	7	8	W	R
	LLc8	55/56	1	2	3	W	В	1	2	3	4	5	6	7	8	W	В	1	2	3	4	5	6	7	8	W	R	1	2	3	4	5	6	7	8	W	R
			1076	1977	1978	1979	1980	1001	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
- 11	AF	19/20		F	0	W	B	F F	1902 F	1963 P	W	1963 B	F	F	BE	W	B	F	F	BE	W	R	F	F	BE	W	R	R	BE	M	W	R	2000 R	BE	M	2009 W	2010 R
Year 1-1976	AB	17/18		В	0	W	В	В	В	P	W	В	В	В	BE	W	В	В	В	BE	W	R	В	В	BE	W	R	R	M	BE	W	R	R	M	BE	W	R
.cai 1 13/0	Ln3	31/32	1	2	3	W	В	1	2	3	W	В	1	2	3	W	В	1	2	3	W	R	1	2	3	W	R	1	2	3	W	R	1	2	3	W	R
	Lc3	29/30		2	3	W	В	1	2	3	W	В	1	2	3	W	В	1	2	3	W	R	1	2	3	W	R	1	2	3	W	R	1	2	3	W	R
1st cycle	LLn8	27/28	1	2	3	4	5	6	7	8	W	В	1	2	3	4	5	6	7	8	W	R	1	2	3	4	5	6	7	8	W	R	1	BE	0	W	R
	LLc8	22/21	1	2	3	4	5	6	7	8	W	В	1	2	3	4	5	6	7	8	W	R	1	2	3	4	5	6	7	8	W	R	1	0	BE	W	R
2nd cycle	LLn8	26/25	1	2	3	W	В	1	2	3	4	5	6	7	8	W	В	1	2	3	4	5	6	7	8	W	R	1	2	3	4	5	6	7	8	W	R
	LLc8	23/24	1	2	3	W	В	1	2	3	4	5	6	7	8	W	В	1	2	3	4	5	6	7	8	w	R	1	2	3	4	5	6	7	8	W	R
		-,																																			
			1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
I	AF	6/5	F	F	0	W	В	F	F	BE	W	В	F	F	BE	W	В	F	F	BE	W	R	F	F	BE	W	R	R	BE	М	W	R	R	BE	М	W	R
Year 1-1977	AB	2/1	В	В	0	W	В	В	В	BE	W	В	В	В	BE	W	В	В	В	BE	W	R	В	В	BE	W	R	R	М	BE	W	R	R	М	BE	W	R
	Ln3	14/13		2	3	W	В	1	2	3	W	В	1	2	3	W	В	1	2	3	W	R	1	2	3	W	R	1	2	3	W	R	1	2	3	W	R
	Lc3	3/4	1	2	3	W	В	1	2	3	W	В	1	2	3	W	В	1	2	3	W	R	1	2	3	W	R	1	2	3	W	R	1	2	3	W	R
1st cycle	LLn8	9/10		2	3	4	5	6	7	8	W	В	1	2	3	4	5	6	7	8	W	R	1	2	3	4	5	6	7	8	W	R	R*	BE	0	W	R
	LLc8	15/16		2	3	4	5	6	7	8	W	В	1	2	3	4	5	6	7	8	W	R	1	2	3	4	5	6	7	8	W	R	R*	0	BE	W	R
2nd cycle	LLn8	12/11		2	3	W	В	1	2	3	4	5	6	7	8	W	В	1	2	3	4	5	6	7	8	W	R	1	2	3	4	5	6	7	8	W	R
	LLc8	7/8	1	2	3	W	В	1	2	3	4	5	6	7	8	W	В	1	2	3	4	5	6	7	8	W	R	1	2	3	4	5	6	7	8	W	R

		I			1									Τ	Г	1	I	T	T	l l	I				1				$ \top$	$\overline{}$	$\overline{}$	$\overline{}$	-	$\neg \tau$	$\overline{}$
																														-+	-	-+		-+	_
Crops: P=Pota	toes: B=Sr	oring bai	lev: W:	=Winte	er whea	at: K=K	ale: H=	one-v	ear Ha	v: SBe	-Sugar	beet: R=W	inter rve	: C=Ca	rrots: (	)=oats:	BE=V	Vinter I	peans:	⊥ M=Mai	ize: F	=Fallov	1.							+	$\rightarrow$	$\rightarrow$	-	$\rightarrow$	
C*=carrots faile			-						T	,,	3				1				1		1									$\neg$	-			$\neg$	-
									azed b	v sheer	until 1	1968 (excep	t for exis	sting 3r	d year	leys wh	nich we	ere gra	zed in '	1969),	cut the	ereafte	rl;												
												infoin (repla											-	y (repla	ced Sa	infoin	rom 19	71).							
Ln3, 1,	2, 3 = 1st,	2nd, 3rd	year o	f grass	s ley giv	ven N;	Lc3, 1,	2, 3 =	1st, 2r	nd, 3rd	year of	grass/clove	er ley.																						
LLn8, 1	, 2, 3. 4, 5,	6, 7, 8 =	= 1st, 2	nd, 3rd	d, 4th, 5	5th, 6th	, 7th, 8	th yea	r of gra	ss ley	given N	N; LLc8, 1, 2	, 3. 4, 5,	6, 7, 8	= 1st,	2nd, 3r	rd, 4th,	5th, 6	th, 7th,	8th ye	ar of g	grass/c	over le	y.											
Between 197	3 and 1980	, on Blo	ck III (a	and in	subseq	uent ye	ears on	Block	s V, IV	, II and	l) majo	or changes	vere ma	de.Thu	s:-																				
At the start of	of the expe	riment, p	olots we	ere in e	either C	Continue	ous Ro	tations	s or Alte	ernatin	Rotat	ions.																							
The Continu																																			
												e Test crop				`								`									able Te	st crop	S.
												998 on Bloc	k III (and	linsubs	sequen	t years	on Blo	ocks V,	IV, II a	nd I) th	nis cha	anged 1	o ABE	R, M, I	BE Tre	ament	crops fo	llowed	by two	arable	Test c	rops.		$\rightarrow$	
· · ·	aced L); th																																		
	aced Lu); t																													$\rightarrow$			$\longrightarrow$	$\rightarrow$	
The Aterna																																		$\rightarrow$	
So that this														nating	Rotatio	ns wer	e phas	sed in f	rom 19	73 on I	Block	III (and	in sub	sequent	years	on Blo	cks V, I	V, II and	1 l; 1st (	cycle):	;				
and two we	-												-																						
												y two arable																		$\longrightarrow$				$\longrightarrow$	
			,	•								two arable		•																					
<b>I</b>												by two arab																		$\rightarrow$	$\longrightarrow$			$\rightarrow$	
LLc8 2nd	cycle (rep	olaced L	/Ah); ei	ght ye	ar gras	s/clove	er ley T	reatme	ent crop	s, follo	wed b	y two arable	Test cro	ops.																					

	.ey-Arable New Cr	L	L	101100	100			2000	OHV	varu			трп	ase	Ју 18		p	20	-								$\models$
		1	1			1st test	2nd test				1st test	2nd test						-						1			$\vdash$
	Treatment		36	37	38	39	40	41	42	43	44	<b>45</b>	46	47	48												╁
Disal	*****	Diete	30	31	30	39	40	41	42	43	44	45	40	41	40												╁
Block	Code (since 1973)	Plots	2000	2000	2010	2011	2012	2012	2014	2015	2016	2017	2010	2019	2020												₩
	(AE) (ANA) AO	39/40	2008 R	2009 BE	2010 O	W	2012 R	2013 R	2014 BE	2015 O	W W	2017 R	2018 R	2019 BE	2020 O												₩
III	(AF) (AM) AO (AB) (ABe) ABe	45/46	R	0	BE	W	R	R	0	BE	W	R	R	0	BE									+			$\vdash$
	Ln3	43/44	1	2	3	W	R	1	2	3	W	R	1	2	3												₩
	Lc3	33/34	1	2	3	W	R	1	2	3	W	R	1	2	3												╁
	LLn/AO	35/36	R	BE	0	W	R	R	BE	0	W	R	R	BE	0	Into	ontini	IOUS SI	ahla f	rom 20	07 (LLn	/ <b>Δ</b> [ <b>/ / / / / / / / / /</b>					$\vdash$
	LLc/ABe	47/48	R	0	BE	W	R	R	0	BE	W	R	R	0	BE						07 (LLc						$\vdash$
	LLn/Ln3	37/38	1	2	3	W	R	1	2	3	W	R	1	2	3						(LLn/Ln						H
	LLc/Lc3	41/42	1	2	3	W	R	1	2	3	W	R	1	2	3						2008 (		)				H
	LLC/ LC3	71/72	'		3	**	- 1				**	- 11				iiilo c	y y g	433/010	VCI IC	ys non	12000 (	LLG/LG/					$\vdash$
			2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020													$\vdash$
V	(AF) (AM) AO	73/74	R	BE	0	W	2013 R	R	BE	0	W	R	R R	BE													+
•	(AB) (ABe) ABe	67/68	R	0	BE	W	R	R	0	BE	W	R	R	0			1							+	+	1	$\vdash$
	Ln3	65/66	1	2	3	W	R	1	2	3	W	R	1	2									1	+			$\vdash$
	Lc3	79/80	1	2	3	W	R	1	2	3	W	R	1	2				1						1			$\vdash$
	LLn/AO	71/72	R	BE	0	W	R	R	BE	0	W	R	R	BE		Into	ontini	IOUS AL	able f	rom 20	07 (LLn	/AM)					╁
	LLc/ABe	75/76	R	0	BE	W	R	R	0	BE	w	R	R	0							07 (LLc						┢
	LLn/Ln3	69/70	1	2	3	W	R	1	2	3	W	R	1	2							(LLn/Ln						H
	LLc/Lc3	77/78	1	2	3	W	R	1	2	3	W	R	1	2							2009 (		)				H
	LLC/ LCS	77770		_	_				-				•	_		into c	, y. g.	000,010	700110	yo non	12000 (						$\vdash$
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020														$\vdash$
IV	(AF) (AM) AO	63/64	R	BE	0	W	R	R	BE	0	W	R	R														$\vdash$
	(AB) (ABe) ABe	53/54	R	0	BE	W	R	R	0	BE	W	R	R														$\vdash$
	Ln3	57/58	1	2	3	W	R	1	2	3	W	R	1														$\vdash$
	Lc3	59/60	1	2	3	W	R	1	2	3	W	R	1														-
	LLn/AO	51/52	R	BE	0	W	R	R	BE	ō	W	R	R			Into o	ontinu	lous ar	able f	rom 20	07 (LLn	/AM)					H
	LLc/ABe	49/50	R	0	BE	W	R	R	0	BE	W	R	R								07 (LLc						$\vdash$
	LLn/Ln3	61/62	1	2	3	W	R	1	2	3	W	R	1								(LLn/Ln						<b>†</b>
	LLc/Lc3	55/56	1	2	3	W	R	1	2	3	W	R	1								2010 (		)				T
	.,																, ,					,					$\vdash$
			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020															$\vdash$
II .	(AF) (AM) AO	19/20	R	BE	0	W	R	R	BE	0	W	R															1
	(AB) (ABe) ABe	17/18	R	0	BE	W	R	R	0	BE	W	R															T
	Ln3	31/32	1	2	3	W	R	1	2	3	W	R						1									T
	Lc3	29/30	1	2	3	W	R	1	2	3	W	R															Г
	LLn/AO	27/28	R	BE	0	W	R	R	BE	0	W	R				Into o	ontinu	lous ar	able f	rom 20	07 (LLn	/AM)					Г
	LLc/ABe	21/22	R	0	BE	W	R	R	0	BE	W	R									07 (LLc						
	LLn/Ln3	25/26	1	2	3	W	R	1	2	3	W	R				Into 3	3-yr gr	ass ley	s fron	n 2011	(LLn/Ln	)					Г
	LLc/Lc3	23/24	1	2	3	W	R	1	2	3	W	R									n 2011 (		)				Г
			2012	2013	2014	2015	2016	2017	2018	2019	2020																Г
J	(AF) (AM) AO	5/6	R	BE	0	W	R	R	BE	0	W																
	(AB) (ABe) ABe	1/2	R	0	BE	W	R	R	0	BE	W																Г
	Ln3	13/14	1	2	3	W	R	1	2	3	W																Г
	Lc3	3/4	1	2	3	W	R	1	2	3	W																Г
	LLn/AO	9/10	R	BE	0	W	R	R	BE		W					Into o	ontinu	lous ar	able f	rom 20	07 (LLn	/AM)					Γ
	LLc/ABe	15/16	R	0	BE	W	R	R		BE	W										07 (LLc						Г
	LLn/Ln3	11/12	1	2	3	W	R	1	2	3	W										(LLn/Ln						Г
	LLc/Lc3	7/8	1	2	3	W	R	1	2	3	W										2012 (		)				Г
																					1	<i>'</i>					Г

Crops: P=Pota	atoes; B=Spring barley	W=Winte	er whea	at; K=Kale;	H=one	year H	ay; S	Be=Sugar b	eet; R	=Winte	er rye;	C=Ca	arrots;	O=oat	s; BE=	-Winte	er bear	ns; M=	-Maize	; F=Fa	allow.								
C*=carrots fail	ed 1976; H*=one-year	Hay failed	1976;	R*=Spring	Rye																								
	L3 = 1st, 2nd, 3rd yea					grazed	by sh	neep until 19	68 (ex	cept fo	or exis	ting 3	rd year	leys	which \	vere g	razed	in 196	59), cı	t there	after];								
Lu1, Lu	12, Lu3 = 1st, 2nd, 3rd	ear of Lu	cerne l	ey; S1, S2,	S3 = 1	st, 2nd,	, 3rd	year of Sain	foin (re	eplace	d Luce	erne fr	om 19	64); Lo	1, Lc2	2, Lc3	= 1st,	2nd, 3	Brd ye	ar of R	ed clov	er ley (	eplace	d Saint	oin from	1971).			
	2, 3 = 1st, 2nd, 3rd ye			-				-																					
LLn8, 1	, 2, 3. 4, 5, 6, 7, 8 = 19	t, 2nd, 3rd	d, 4th, 5	5th, 6th, 7th	, 8th ye	ar of gr	rass	ley given N;	LLc8,	1, 2, 3	. 4, 5,	6, 7, 8	8 = 1st	, 2nd,	3rd, 4t	h, 5th	6th, 7	th, 8tl	h year	of gra	ss/clov	er ley.							
Between 197	'3 and 1980, on Block	II (and in	subseq	quent years	on Bloo	cks V, I	V, II a	and I) major	chang	es wei	e mad	de.Thu	us:-																
At the start	of the experiment, plot	s were in	either C	Continuous	Rotatio	ns or A	Iterna	ating Rotatio	ns.																				
The Contin	uous Rotations were:-																												
AF (repl	aced Ar); two years fal	ow and or	ne arab	ole Treatme	nt crop	, followe	ed by	y two arable	Test c	rops.																			
	In 1998 on Block III (a	nd in subs	equen	t years on	Blocks \	/, IV, II	and	I) this chang	ed to /	AM; R,	BE, N	1 Trea	ment o	crops	follow	ed by	two ar	able <sup>-</sup>	Test c	ops.									
AB (repl	aced Ah); three arable	Treatmen	t crops	s, followed b	y two a	arable T	Test o	crops.																					
	In 1998 on Block III (a	nd insubs	equen	t years on	Blocks \	/, IV, II	and	I) this chang	ed to /	ABE; R	, M, B	E Trea	ament	crops	follow	ed by	two a	rable	Test c	rops.									
Ln3 (rep	laced L); three year gr	ass ley wi	th N Tr	eatment cr	ops, foll	owed b	y tw	o arable Tes	t crops	S.																			
Lc3 (rep	laced Lu); three year g	rass/clove	er ley T	reatment c	rops, fo	llowed	by tv	vo arable Te	st crop	s.																			
The Aterna	ting Rotations were ch	anged cor	npletel	y so that th	e effect	s of eig	tht ye	ear leys on th	ne subs	sequer	nt arab	ole Te	st crop	s coul	d be in	clude	d.												
So that this	could be tested every	five years	(as wi	ith the Cont	inuous	Rotatio	ns) c	changes to tv	vo of th	ne four	Alter	nating	Rotati	ons w	ere ph	ased i	n from	1973	on Bl	ock III	(and ir	subsec	uent ye	ears on	Blocks '	V, IV, II	and I; 1	st cycle	<b>∌</b> );
and two we	ere phased in from 197	3 on Block	t III (an	nd in subsec	quent ye	ears on	Bloc	ks V, IV, II a	nd I; 2	nd cy	cle).																		
LLn8 1st	cycle (replaced Ar/Lu	); eight ye	ar gras	ss ley with I	N Treati	ment cr	ops,	followed by	two ar	able T	est cro	ops.																	
LLc8 1st	cycle (replaced Ah/L)	eight yea	ar grass	s/clover ley	Treatm	ent cro	ps, f	ollowed by to	vo ara	ble Te	st crop	ps.																	
LLn8 2n	d cycle (replaced Lu/A	r); eight ye	ear gra	ss ley with	N Treat	tment c	rops	, followed by	two a	rable 1	est cr	rops.																	
LLc8 2nd	d cycle (replaced L/Ah	); eight ye	ar gras	ss/clover ley	/ Treatr	nent cro	ops,	followed by t	wo ara	able Te	est cro	ps.																	