Thank you for using eradoc, a platform to publish electronic copies of the Rothamsted Documents. Your requested document has been scanned from original documents. If you find this document is not readible, or you suspect there are some problems, please let us know and we will correct that.



Rothamsted Experimental Station Report for 1969 Part

ROTHAMSTED
EXPERIMENTAL STATION
REPORT FOR 1969
PART 2

HARPENDEN HERTS Nepredo 6077

Full Table of Content

Index

Rothamsted Research

Rothamsted Research (1970) *Index*; Rothamsted Experimental Station Report For 1969 Part 2, pp 187 - 189 - **DOI:** https://doi.org/10.23637/ERADOC-1-4

INDEX

Agdell Rotation Experiment	yields with and without fertiliser residues
brief history, 24	8, 10, 13, 16, 51–58, 64, 69, 78, 83, 88
cereal yields, 64	See also Barley, Oats, Wheat
effect of phosphate residues, 42	4-chloro-phenoxyacetic acid as growth regulator
microplot experiments, fertilisers, 29, 35	145
microplot experiments, layout, 29	P. J.
residues of fertilisers on, 14, 40-63, 66-67	Ethrel (2-chloroethylphosphonric acid)
rotation plots, 34	effect on barley and oats, 145
soils, 26 total P and K applied, 25	effect on plant growth, 136
Aphids caught in traps, 168, 170–176	Exhaustion Land
	cereals on, 7, 10, 13, 17, 18, 23, 28, 32–33 40, 52–55, 57–58, 64–65
DOOL district to the second	crops grown, 32
B9(N-dimethylaminosuccinamic acid)	effect of farmyard manure on, 16, 17
effect on field beans, 145	effect of residues of fertilisers on, 10, 11, 13
effect on frost resistance of plants, 146	17, 69–90
effect on leaf protein, 138 effect on plant growth, 136	effect of residues of manure and NPK on, 17
effect on potatoes, 136–138	history of, 23
Barley	microplot experiments, fertilisers, 33
Continuous Barley Experiment, Hoosfield, 18	microplot experiments, layout, 28
yields at Saxmundham, 93, 100-104, 133	soils, 26
See also Cereals	total P and K applied, 23
Barnfield	yields, 66–68
effect of K fertiliser residues on, 10	Eyespot (Cercosporella herpotrichoides)
effect of N fertiliser residues on, 9	effect of CCC on, 143
effect of rape cake residues on, 19	Farmyard manure
Rhizobium in, 149	applied at Rothamsted, 15
root-crop experiments, 7 Beans See Field beans	applied at Saxmundham, 91-112
Broadbalk	applied at Woburn, 25
fertilisers for cereals on, 7-9, 13, 20	early experiments with, 15, 23, 91
rape cake for wheat on, 20	effect of residues of, at Rothamsted, 15-19
The same services and any are	effect of residues of, at Saxmundham, 91–112
CCC(2 ablamanthul tains at later 1	effect on Rhizobium in soils, 149
CCC(2-chloroethyl-trimethylammonium chloride)	effect on soils, 96-97, 99-110
dimethylsulphoxide as aid to penetration, 144	N supplied by, 15
effect on cereals, 139–145	P and K residues of, 18
effect on field beans, 145	P content of, 94, 97 residual value of, 91–112
effect on frost resistance of plants, 146	Field beans (Vicia faba)
effect on gibberellin content of barley, 144	effect of growth regulators on, 145
effect on leaf protein, 139, 142	effect of residues of PK fertilisers on, 14
effect on lodging of cereals, 139, 141, 143, 144	yields at Saxmundham, 93
effect on plant growth, 135	Formalin
effect on potatoes, 136–138	direct and residual effects, 120, 121, 123
effect on semi-dwarf wheats, 143, 144	effect on cereals, 113–133
effect on sugar beet, 139 effect on sweet potato, 139	effect on grass, 115, 117, 126, 134
effect on wheat diseases, 143	effect on N content of crops, 114, 117, 118
effect on wheat varieties, 141–142	120, 122, 123, 126, 130–134 effect on take-all in cereals, 114
effect on white mustard, 138	effect on weeds, 116
harmful residues in grain, 144	Fosters field
Cereals	soil sterilisation on, 116, 117, 126
effect of CCC on, 139-145	7.5.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7
effect of farmyard manure on, 15, 91-112	Garden Clover plot
effect of formalin on, 140	Rhizobium in, 155
effect of growth substances on, 139-145	Gibberellic acid
effect of irrigation on, 140	conversion to Gibberellin As in plants, 137
effect of K fertilisers on, 69–90 effect of N fertilisers on, 113–133	effect on activity of hydrolysing enzymes, 136
effect of P fertilisers on 39–68, 93, 100, 101,	effect on cell division, 135
104	effect on potatoes, 136–138
effect of rape cake on, 19	effect on sugar beet, 139 Growth substances
effect of soil sterilisation on, 113–134	chemical control of, 135–147
K content of, 79-83	effect on field beans, 145
P content of, 54-58	effect on potatoes, 136–138
seedbed dressings on, 39	endogenous, 135, 137
	187

INDEX

herbicides as, 137 time of application, 138 See also B9, CCC, Ethrel, Gibberellic acid, Phytokinins stimulation of cell division by, 137 Potassium fertiliser combined effect with farmyard manure, 17 combined effect with P fertiliser, 12 effect of residues of, 10 values of residues of, 69 Potassium in crops, 79–86 Potassium in crops, 79–86 Morphactins Grass effect of formalin on, 116, 117, 126, 134 effect of N fertilisers on, 113–129, 134 effect of residues of farmyard manure on, 15 effect of residues of K fertilisers on, 11, 15 Potassium in soil at Rothamsted, 27 at Saxmundham, 103–109 Potassium residues in soil effect of soil sterilisation on, 113-134 Continuous Barley Experiment, 7, 18 crop yields with and without, 10, 17, 69-90 otatoes
effect of farmyard manure on, 16, 100, 103
effect of growth regulators on, 136
in rotation with cereals, 9
K content of, 79, 81, 84, 85
P content of, 54, 56, 57, 59
response of varieties to growth substances, 137
yields at Saxmundham, 100, 103
yields with and without fertiliser residues, 11,
14, 43, 52, 54, 56, 59, 66, 70, 75, 78, 79, 81,
84, 85 Potatoes rape cake on, 20 See also Exhaustion Land Insect survey, 168–185 insects in suction traps, 168, 170–176 insects in light traps, 168, 178–185 effect with CCC, 140-141 effect with formalin, 117, 119 effect of fertiliser residues on, 50-55, 57, 61, 68, 76-79, 82-85 K content of, 82, 85 Rape cake applied on Agdell field, 24 early experiments with, 19 effect of residues of, 19 P content of, 57, 61 effect of residues of, 19
Rhizobium in soils
effect of farmyard manure on, 149, 163
effect of fertilisers on, 149, 156–163, 165
effect of liming on, 156–163, 165
effect of soil acidity on, 164
effect of weeds on, 151, 153, 164
effectiveness of strains of R. trifolii, 158–166
in bare fallows, 151, 152
in Garden Clover plot, 155
in Park Grass plots, 157–163
method of counting, 148, 162, 163
numbers in arable fields, 153
numbers in rhizosphere, 151 effect on nodulation in clover, 158 effect on *Rhizobium* in soil, 157-163 Little Knott soil sterilisation at, 115, 116, 120-127, 131 effect of K fertiliser residues on, 11 effect of rape cake on, 20 yields at Saxmundham, 93 Morphactins effect on plant growth, 136 effect on potatoes, 138 Moths caught in traps, 168, 178–185 numbers in rhizosphere, 1 test legumes for, 149, 151 Root nodule bacteria, 148 Nabam, 113, 118
Nitrogen fertiliser
effect of residues of, 7–12
effect on cereals, 7–9, 114–128
effect on grass, 114–128
effect on Rhizobium in soil, 149–166 Sawdust, effect on Park Grass, 11 Saxmundham soil sterilisation at, 115, 117, 123, 126
See also Saxmundham Rotation Experiment
Saxmundham Rotation Experiment C and N accumulation Experiment
C and N accumulation in soils, 96
changes in P content of soil, 97, 105–110
comparison of soils in Rotations I and II, 96
crop response and soil analysis, 110
exchangeable K in, 105–108
fertilisers applied, 92–94 Oats, effect of CCC on, 143 Park Grass plots early experiments, 7, 11, 15
effect of fertiliser residues on, 11
effect of sawdust on, 11
residual farmyard manure on, 15
Rhizobium in, 156–166 fertilisers applied, 92–94
monocalcium phosphate potentials, 94
P in soils, labile and soluble, 97, 109
phosphate recovery, 97
profitability of the rotation, 92
residual value of farmyard manure, 91–112
residual value of fertilisers, 91–112
soil analysis, 91, 94–101, 105–112
yields, 93, 101–104, 110
Soil analysis
at Saxmundham, 94–101, 105–112
C and N accumulation, 96
comparison of Rotations I and II at Saxmundham, 96
crop response and, 110
methods, 26, 91
Soil sterilisation, effects on cereals and grass, Pastures field soil sterilisation on, 115, 116, 121–127, 132 Phosphorus fertiliser application methods, 43, 47, 49
combined effect with farmyard manure, 17
combined effect with K fertiliser, 12
value of residues, 12, 17, 39 Phosphorus in crops, 54-61 Phosphorus in soil at Rothamsted, 27 at Saxmundham, 94, 103–111 changes after ploughing, 106 changes on cropping, 106 labile, 97, 109 soluble, 97, 103, 109 Soil sterilisation, effects on cereals and grass, 113-134 Sugar beet effect of farmyard manure on, 102, 103 effect of growth substances on, 139 effect of seedbed dressings on, 47, 49 Phosphorus residues in soil

188

crop yields with and without, 12, 17, 39-68

INDEX

K content of, 82, 86
P content of, 57, 59, 60
yields at Saxmundham, 102, 103
yields with and without fertiliser residues, 11,
47, 52-54, 57, 59-62, 67, 72, 78-79, 82, 85,
86, 102
Superphosphate
applied at Saxmundham, 94, 99
effects on soils, 96
recovery of, 97
residual value of, 91-112
value of residues for arable crops, 39-68
Swedes
K content of, 82, 85
P content of, 57, 61
yields with and without fertiliser residues, 8,
10, 50-54, 57, 61, 68, 76-79, 82-85
Sweet potato (*Ipomoea batatus*)
effect of CCC on, 139
α-(2,4,5-trichlorophenoxy) propionic acid
as growth regulator, 145
Turnips
effect of farmyard manure and P fertiliser on,
102, 103

effect of residues of K fertiliser on, 10 yields, 102, 103

Wheat semi-dwarf, effect of CCC on, 143 yields at Saxmundham, 93

See also Cereals

White mustard (Sinapis alba) effect of CCC on, 138

Woburn cereals at, 13, 22–90, 114, 116, 117–119, 124, 127, 130

Rhizobium in soils, 148–167

See also Woburn Permanent Wheat and Barley Experiment

Woburn Permanent Wheat and Barley Experiment brief history, 25

effect of fertiliser residues on, 13, 22–90

microplot experiments, fertilisers given, 37

microplot experiments, layout, 30, 36

soil, 26

total P and K applied, 25