

REPORT ON A JOINT SURVEY
OF THE PRESENCE OF WILD OAT SEEDS
IN CEREAL SEED DRILLS IN THE UNITED KINGDOM
DURING SPRING 1970

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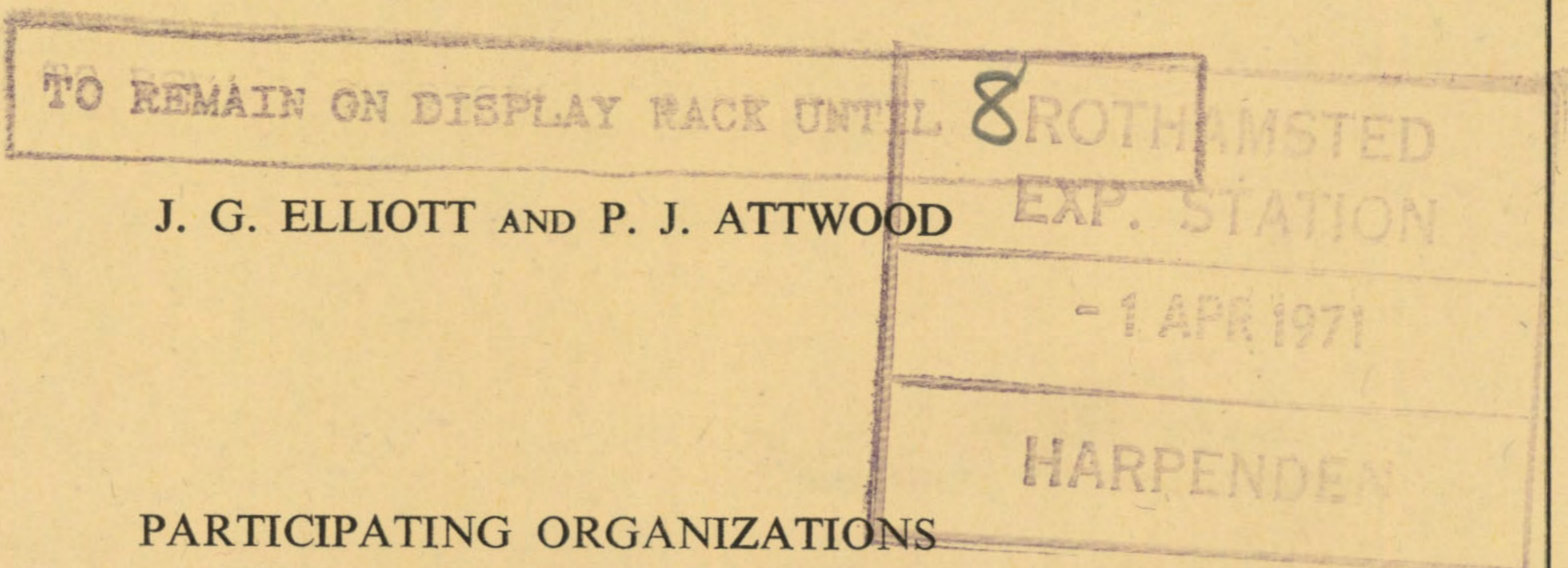
PARTICIPATING ORGANIZATIONS

ARC Weed Research Organization
National Agricultural Advisory Service
Ministry of Agriculture Fisheries and Food
Department of Agriculture and Fisheries for Scotland
Ministry of Agriculture for Northern Ireland
Official Seed Testing Station for England and Wales
Official Seed Testing Station for Scotland

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AGRICULTURAL RESEARCH COUNCIL
WEED RESEARCH ORGANIZATION



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Copies of this report may be obtained from the Information Section, ARC Weed Research Organization, Begbroke Hill, Yarnton, Oxford OX5 1PF.

Price 5/- or 25p.

REPORT ON A JOINT SURVEY OF THE PRESENCE OF WILD OAT SEEDS IN
CEREAL SEED DRILLS IN THE UNITED KINGDOM DURING SPRING 1970.

J. G. ELLIOTT⁽¹⁾ and P. J. ATTWOOD⁽²⁾

SUMMARY

Following a pilot survey in 1969, a survey of the presence of seed of wild oat *Avena* spp. in cereal seed drills was carried out in the United Kingdom during Spring 1970. From a random selection of farms, samples of cereal seed of about 7 lb weight were collected by a pre-determined method from 620 seed drills found operating in fields. At the same time information relevant to the samples was obtained. The samples were analysed by the appropriate seed testing station in England, Scotland or Northern Ireland. The survey was arranged to ensure the privacy of individual farm contributions.

The proportion of samples in each country found to contain seeds of wild oat was: in England and Wales 19%, in Scotland 16% and in Northern Ireland 3%. The contaminated samples were widely distributed throughout England, Wales and North and East Scotland; there were markedly fewer contaminated samples found in West Scotland and in Northern Ireland. Appreciable contamination was found in spring barley and spring oats, the two crops most commonly encountered. The number of samples of wheat and mixed corn were too few to allow comparisons to be made with the other crops.

In England and Wales 11% of the samples of cereal seed supplied to the farmers by merchants and 41% of the samples of cereal seed harvested on the same farm or obtained direct from another farm contained wild oat. The equivalent figures in Scotland were 10% and 24% respectively, and in Northern Ireland 5% and 2%. The contaminated samples of cereal seed obtained direct from the same farm or another farm contained variable numbers of wild oats to a maximum of more than 50 seeds per sample. In contrast, the contaminated samples of seed supplied by merchants, with one exception, contained less than 11 seeds of the weed, and the majority of them contained only 1 seed.

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INTRODUCTION

The wild oat Avena spp. has long been a weed of the Midlands and East of England in fields where cereals have been grown frequently. Until recently, other parts of the United Kingdom have not suffered from the weed's substantial presence. During the past 5 years or so increasing evidence has accumulated that wild oat is establishing in cereal fields in many areas previously considered relatively free.

As part of a major project on the control of wild oat, the Weed Research Organization (WRO) has been investigating the life cycle of the species including the movement of its seeds which are the sole means by which the weed may carry over from one crop to another. The possibility that wild oat might be perpetuated and spread by distribution in cereal seed was considered to merit investigation. Discussions with members of the National Agricultural Advisory Service (NAAS) revealed a similar view.

In the Autumn of 1968 an approach was made by WRO to NAAS for co-operation in carrying out a survey of the presence of seeds of wild oat in cereal seed drills. WRO and NAAS, assisted by several other official organizations in England and Scotland, carried out a small pilot survey during Spring 1969 with the object of obtaining experience in the conduct of a wider survey.

In the Autumn of 1969 a working group, consisting of the officers listed opposite page one, planned a national survey of the United Kingdom to take place during Spring 1970. The methods described in the next section were those agreed by the Group. In the event the survey proceeded much as planned, and produced the information that is summarised in the section on results and which is discussed in the final section. Throughout the survey care was taken to ensure the privacy of individual farm contributions.

METHOD

The scale of the survey was largely set by the number of samples that could be analysed by the Official Seed Testing Stations. A maximum of 500 samples from England and Wales and a similar number from Scotland and Northern Ireland together were considered practical. Specialist advice was that on such a scale a random sample survey should adequately represent the country as a whole.

In England and Wales, the addresses of 1,000 holdings where barley had

been grown in 1969 were selected at random by the Census Branch of the Ministry of Agriculture Fisheries and Food (MAFF) and grouped into "NAAS Counties" (see the Appendix). A maximum of 10 farms was allocated to each NAAS County together with replacement farms, where possible, to allow for those which might not participate.

The farm selection arrangements in Scotland and Northern Ireland were similar, although in Scotland the samples were to some extent related to the cereal growing areas.

Sampling was carried out during the period March to May 1970 by NAAS Advisers in England and Wales, by the DAFS Inspectorate and the West of Scotland Agricultural College in Scotland, and by Officers of the Ministry of Agriculture in Northern Ireland. Visits to the selected farms were made whilst sowing was in progress. The sampling method was to remove handfuls of grain from varying depths from one end of the seed drill hopper to the other to make up a sample of not less than 7 lb for subsequent analysis. During the same visit, a card was completed which identified the sample and provided other relevant background information. The cards, when completed were returned to WRO, the co-ordinator of the Survey. The chief items of information collected were:

- (i) The cereal acreage of the farm.
- (ii) The source of the seed, whether supplied by a merchant to the farm, direct from another farm, or harvested on the same farm.
- (iii) Description of the seed. In view of the recent introduction of the British Cereal Seed Scheme (BCSS) with its requirements of specific description, it could be anticipated that a variety of seed descriptions would be encountered. In collecting descriptions of seeds, Surveyors were asked to distinguish between BCSS and other descriptions.

After collection from the drills the samples were labelled and passed to the appropriate seed testing station for detailed examination for the presence of seeds of wild oat. On completion of the analyses each station passed its results to WRO for incorporation in this report which was drawn up with the assistance of the Statistics Department of Rothamsted.

RESULTS

Samples classified by country.

Table 1 shows the total number of samples collected for each country and the proportion of samples contaminated by wild oat seed. Whilst the

estimates indicate little difference between England, Wales and Scotland as regards the proportion of contaminated samples, Northern Ireland was relatively free.

Table 1

No. of samples collected and proportion contaminated - by countries

Country	No. obtained	Samples Proportion contaminated %
England and Wales	378	19
Scotland	122	16
Northern Ireland	120	3
United Kingdom	620	

For the purposes of the survey, the regions of England were chosen to coincide with administrative areas used by NAAS. In presenting the results, Wales has been grouped with England because the area and number of samples obtained were similar to those of a region. In Scotland the geographical regions followed are those served broadly by the North, East and West Scottish Agricultural Colleges. Northern Ireland has been arbitrarily divided into two regions from which reasonably similar numbers of samples were obtained. The regions, together with their respective counties or districts from which samples were obtained, are shown in Table 2.

Contaminated samples were found in every region except in the West of Northern Ireland. Although there were some differences between the estimates for the individual regions of England and Wales and the East of Scotland, these might be due to sampling errors. The survey provides no strong evidence of differences between these regions. In the North of Scotland, the level was high and was confined to the Eastern parts of the region. In the West of Scotland the level was low but was again located towards the East of the region. There were only 4 contaminated samples in Northern Ireland and these were once more in the Eastern half of the country.

In counties or districts the number of samples obtained was very small, and reliable comparisons cannot be made between them. There were several counties or districts from which no contaminated samples were obtained: 45% of all the samples came from such areas. However this failure to find wild oat

is due to the small number of samples from such areas and should not be taken to indicate that the counties or districts were free of contamination.

Table 2

No. of samples collected and proportion contaminated - by regions

Region	No. obtained	Samples Proportion contaminated %
<u>England</u>		
Northern	38	16
Yorks and Lancs	30	20
West Midlands	54	11
East Midlands	58	24
South West	47	26
South East	54	17
East	45	27
<u>Wales</u>		
	52	13
<u>Scotland</u>		
North	30	33
East	42	17
West	50	6
<u>Northern Ireland</u>		
East	67	6
West	53	0

Cereal acreage of farms

The farms visited have been grouped according to cereal acreage (Table 3). In the United Kingdom as a whole most of the farms had a cereal acreage in the "medium" group (11 to 200 acres); but in Northern Ireland most samples came from the "small" group (1 to 10 acres).

The proportion of contaminated samples in England and Wales was virtually the same regardless of cereal acreage. In Scotland contamination was associated

mainly with the "large" group (201 acres +). In Northern Ireland the number of contaminated samples was too small to allow of any interpretation as to the effect of farm size. Although the percentages for the United Kingdom as a whole suggest a high incidence of contamination on the larger farms, the samples for different size groups are drawn from widely different situations. Wild oats were found on all sizes of farm.

Table 3

Percentage of total no. of farms visited - by cereal acreage groups

	Small 1-10 ac %	Medium 11-200 ac %	Large 201+ ac %	Not given %
England and Wales	14	70	15	1
Scotland	8	65	26	1
Northern Ireland	67	32	0	1
United Kingdom	23	62	14	1

Percentage of samples in each group contaminated by wild oat seed

England and Wales	19	19	21	0
Scotland	0	14	28	0
Northern Ireland	1	5	-	/
United Kingdom	8	16	24	*

/ 1 from 1 sample: * 1 from 6 samples.

Kind of cereal

Table 4 shows that 76% of the total number of samples taken were of barley but there were substantial proportions of samples of oats in Scotland and Northern Ireland (27% and 42% respectively). The numbers of samples of wheat and mixed corn together represented only 5% of the total.

In England and Wales the proportion of contaminated samples of oats was similar to barley. In Scotland the proportion contaminated of oats was appreciably less than of barley. In Northern Ireland no wild oats were found in the samples of oats. The numbers of samples of wheat and mixed corn were too few to allow comparison with the other crops.

Table 4

Percentage of total no. of samples by kind of cereal

	Barley %	Oats %	Wheat %	Mixed corn %
England and Wales	86	9	3	2
Scotland	73	27	0	0
Northern Ireland	50	42	0	8
United Kingdom	76	19	2	3

Percentage of samples in each group contaminated by wild oat seed

England and Wales	19	20	9	13
Scotland	19	9	-	-
Northern Ireland	5	0	-	10
United Kingdom	18	9	9	11

Source of seed

In England and Wales 73% of the samples were from seed supplied to the farms by merchants and the remainder came from the same farm upon which the sample was found or direct from some other farm. In Scotland and Northern Ireland the samples came equally from the two sources. (See Table 5).

Table 5

Percentage of total no. of samples by source of seed

	Seed supplied to farm by merchant %	Seed obtained from same farm or another farm %
England and Wales	73	27
Scotland	52	48
Northern Ireland	50	50
United Kingdom	64	36

Percentage of samples in each group contaminated by wild oat seed

England and Wales	11	41
Scotland	10	24
Northern Ireland	5	2
United Kingdom	10	26

In England and Wales 11% of the samples of seed supplied by merchants and 41% of those from the same farm or another were contaminated. The equivalent

figures for Scotland were 10% and 24% respectively; and for Northern Ireland they were 5% and 2% respectively. For the United Kingdom, 10% of the samples supplied by merchants and 26% of those from the same farm or another farm were contaminated.

Description of seed

The descriptions of 83 samples were reported as conforming to the requirements of the British Cereal Seed Scheme while those of 537 samples did not; the proportions of these samples found to be contaminated were 7% and 17% respectively (see Table 6). Of the 83 samples conforming to BCSS, only 1 in the 'Basic', 'Certified' or 'Multiplication' grades and 5 in the 'Field Approved' grade were found to be contaminated.

Of the 537 samples not conforming to BCSS, appreciable proportions of contaminated samples occurred in all types of seed in England and Wales, but only in the 'other or no description' category in Scotland.

Table 6

No. of samples attributed to the British Cereal Seed Scheme and to other descriptions, showing no. of samples and percentage contaminated by wild oat seed.

	GRADE (see footnote)	DESCRIPTION CONFORMING TO BCSS			ALL OTHER SAMPLES*		
		Total no.	Contaminated no.	%	Total no.	Contaminated no.	%
England and Wales	BCM	24	0	0	17	2	12
	FA	40	5	13	41	6	15
	OD	-	-	-	256	59	23
Scotland	BCM	5	0	0	1	0	0
	FA	11	0	0	4	0	0
	OD	-	-	-	101	20	20
Northern Ireland	BCM	3	1	33	24	1	4
	FA	0	0	0	4	1	25
	OD	-	-	-	89	1	1
United Kingdom	all grades	83	6	7	537	90	17

Total samples 620

Total contaminated samples 96

BCM = Basic seed, Certified seed, Multiplication seed.

FA = Field approved seed. OD = Other or no descriptions

* There was great variety in the descriptions of these samples. Some samples were described to the sampling officers as 'basic', 'certified', 'multiplication' or 'field approved', but in other respects the descriptions of these samples were not in accordance with BCSS requirements. Some samples had the supplier's own description and some had no description.

Extent of contamination of samples classified by country and sources of seed

Table 7 shows that in England and Wales and Scotland contaminated samples of seed supplied by merchants contained, with the exception of one sample, less than 11 wild oat seeds per sample, whereas a substantial proportion (more than half in England and Wales) of samples from the two farm sources contained 5 to 50+ wild oat seeds per sample. In Northern Ireland the 4 contaminated samples all had less than 5 wild oat seeds per sample.

Table 7

No. of samples grouped according to no. of wild oat seed found in sample

Area	Source	Total no. of samples	No. of wild oat seed in sample						
			0	1	2-4	5-10	11-20	21-50	50+
			No. of samples contaminated						
England and Wales	Merchant	273	243	18	8	3	1	0	0
	Another farm	19	14	1	1	0	0	2	1
	Own farm	84	47	9	8	4	5	7	4
	All sources	376	304	28	17	7	6	9	5
Scotland	Merchant	63	57	5	1	0	0	0	0
	Another farm	14	13	0	1	0	0	0	0
	Own farm	45	32	6	4	2	0	1	0
	All sources	122	102	11	6	2	0	1	0
Northern Ireland	Merchant	60	57	2	1	0	0	0	0
	Another farm	22	21	0	1	0	0	0	0
	Own farm	37	37	0	0	0	0	0	0
	All sources	119	115	2	2	0	0	0	0
United Kingdom	All sources	617*	521	41	25	9	6	10	5

* The total no. of samples for the survey was 620, but there were 3 samples which were partly merchant's seed and partly farm seed; for the purpose of this table these have been discarded.
Most samples were of the specified 7 lb each; there were a few which fell short of this weight.

DISCUSSION

The object of the survey was to ascertain the extent to which wild oats were present in cereal seed drills, and to obtain certain limited information relating to the weed's presence. Specialist advice was accepted that to achieve this object a fully random selection of cereal farms should be made. In consequence of this decision, the survey provides information on the widespread presence of wild oat seed but suffers the limitation of a comparatively modest intensity of sampling in any one area (the plan called for 10 samples per county in England and Wales) and therefore allows only limited comparison of localities. The information from 620 samples is regarded as a valid basis for the survey. As an indication of the levels of accuracy, the standard error attached to the proportion of contaminated samples in each country (Table 1) is about $\pm 2\%$ for England and Wales and Northern Ireland and about $\pm 3\%$ for Scotland.

Two further limitations should be mentioned. The survey method involved the removal of the cereal seed with or without wild oat from the drill. It is possible that the wild oat seed was in the drill before the cereal seed was placed in it, and that the weed became mixed with the cereal. It cannot, therefore, be concluded with certainty that the weed was imported on to the farm or into the field in the cereal seed. It can, however, be concluded that the weed was present in the cereal seed in the drill; that it was about to be sown into the soil and that it probably came to the drill in the cereal seed. Another limitation relates to the information about the samples. At the time of sampling the information was obtained mainly by oral question and answer and was entered on a card, but it was not feasible to carry out checks on the information supplied.

In Table 7 figures are given for the numbers of wild oat seeds found in the 7 lb samples. An average of 1 wild oat seed in 7 lb of cereal seed would mean 20 seeds in $1\frac{1}{4}$ cwt of cereal seed, a common sowing rate for spring barley. The arrival of 20 seeds per acre in previously uncontaminated soil could lead to the serious infestation of the field during a period of repeated cereal growing if no effort were made to eradicate the weed. However, with regular inspection and roguing of the crop, infestation could be prevented easily but with some expenditure. The samples containing more than 50 seeds of wild oat in 7 lb could provide a foundation for a rapid build-up of the weed to a level that would be too great for hand-roguing.

It is noticeable in Table 7 that the contaminated seed of merchant origin mostly contained very few seeds of the weed in each sample (only 1 sample

contained more than 10 wild oats), and this is in contrast with the farm seed which in England and Wales showed a variable contamination from a few to many seeds of wild oat. This difference probably indicates the extent of success in seed cleaning by some merchants which achieved a reduction in numbers of wild oat seeds, although not complete removal. That such a high proportion of farm seed samples was contaminated in England, Wales and Scotland and that the contamination was often appreciable indicates that these farms already contained an infestation of wild oat and that some of the attempts to clean the cereal seed that was harvested, if made at all, were relatively unsuccessful. The contamination of farm seed samples suggests strongly that these farmers were distributing wild oats round their cereal acreage.

The most striking outcome of the survey is the very widespread presence of wild oat in cereal seed drills across the length and breadth of Great Britain. This does not mean that contamination was found everywhere. In 14 counties in England, for example, no samples contained wild oat, but bearing in mind the limitation of the sampling method discussed above, it would be most unwise to assume that no drills in these areas were contaminated. A fair generalisation is that contamination was reasonably uniform throughout the cereal areas of much of Great Britain, but there was markedly less in Western Scotland and in Northern Ireland.

The survey was carried out in Spring and was therefore associated largely with the seed of spring barley and spring oats. The timing of the survey prevented the retrieval of information relevant to much of the nation's wheat crop which is mostly sown in the Autumn. The timing and the crops sampled also made it probable that the great majority of the wild oat found was the spring wild oat Avena fatua.

As anticipated the survey produced many different descriptions of the cereal seed that made up the samples: these descriptions have been consolidated in Table 6. Although the highest proportions of contaminated samples were associated with seed from the same farm or another farm, nevertheless an appreciable proportion of the samples described as supplied by merchants were found to contain wild oat. If, as is likely, the wild oats came to the drills in the cereal seed, it would appear that there is a situation with regard to seed supply in need of careful consideration.

Although the survey was carried out in one year, it is most unlikely that the widespread incidence of wild oat seed is a single unusual experience such as might result from a difficult harvest the previous year causing difficulty in obtaining good quality cereal seed. Indeed the harvest of 1969 was an easy one. It is more likely that the situation revealed by the survey is a perennial one that will continue unless positive steps are taken to improve it.

APPENDIX, Table 8

Regions and constituent Counties or Districts from which samples were taken

	Region	Counties* or Districts
England	Northern	Cumberland; Durham; Northumberland; Westmorland; Yorkshire N. Riding.
	Yorks/Lancs	Lancashire; Yorkshire E. Riding; Yorkshire W. Riding.
	West Midlands	Cheshire; Herefordshire; Shropshire; Staffordshire; Warwickshire; Worcestershire.
	East Midlands	Derbyshire; Leicestershire; Lincs. (Kesteven); Lincs. (Lindsey); Northants; Nottinghamshire; Rutland.
	South Western	Cornwall; Devon; Dorset; Gloucestershire; Somerset; Wiltshire.
	South Eastern	Berkshire and Oxfordshire; Buckinghamshire; Hampshire; Isle of Wight; Kent; Surrey and West Sussex; East Sussex.
	Eastern	Huntingdonshire and Soke of Peterborough; Cambridgeshire and Isle of Ely; Essex and Hertfordshire; Lincs. (Holland); Norfolk; Suffolk.
Wales	Anglesey and Caernarvon and Merioneth; Brecon and Radnor; Cardigan; Carmarthen; Denbigh and Flint; Glamorgan; Monmouthshire; Montgomery; Pembrokeshire.	
Scotland	West	Argyll; Clackmannan and Stirlingshire and West Perthshire; Lanark and Bute and Renfrew and Dunbarton and Peebles; Arran and Ayrshire and Wigtown; Dumfries and Kircudbright.
	East	Angus; East Perthshire; Fife; West and Mid and East Lothians; Berwick and Roxburgh and Selkirk.
	North	Caithness and Sutherland; Ross; Nairn; Banff; Aberdeen and Kincardine; Moray.
Northern Ireland	East	Antrim; Armagh; Down.
	West	Fermanagh; Londonderry; Tyrone.

* England and Wales are grouped as "NAAS Counties".

APPENDIX TO WRO TECHNICAL REPORT NO. 16.

A report of a joint survey on the presence of seeds of wild oat in cereal seed drills in the United Kingdom during Spring 1970.

(Appendix Tables No. 9 to 14)

Note: The following tables are presented to supplement the main report and to supply the basic data of numbers of samples classified in various ways. Caution should be exercised in additional interpretation and use of the figures for comparisons since in some cases the sample is very small.

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Appendix Table 9 - Nos. of samples classified by cereal acreage, crop, and source of seed - England and Wales

NAAS region	Total samples	FARM CEREAL ACREAGE				CROP				SOURCE OF SEED		
		Small (1-10)	Medium (11-200)	Large (201+)	Not given	Wheat	Barley	Oats	Mixed corn	Merchant	Another farm	Own farm
NORTH	38	3	34	1	0	0	31	6	1	19	6	13
YORKS/ LANCES	30	1	26	3	0	1	27	2	0	25	0	5
WEST MIDLANDS	54	9	40	5	0	1	50	2	1	41	2	10
EAST MIDLANDS	58	6	42	10	0	5	49	3	1	44	3	11
SOUTH WEST	47	4	34	7	2	1	42	3	1	31	2	14
SOUTH EAST	54	5	30	19	0	2	47	5	0	39	3	12
EAST	45	5	29	10	1	1	42	2	0	34	1	10
WALES	52	20	30	1	1	0	37	11	4	40	2	9
TOTAL	378	53	265	56	4	11	325	34	8	273 ⁺	19	84 ⁺

⁺ These figures exclude 2 samples (1 in West Midlands and 1 in Wales) in which merchant-supplied seed was mixed with own-farm seed.

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Appendix Table 10 - Nos. of samples classified by cereal acreage, crop, and source of seed - Scotland and Northern Ireland

Region	Total samples	FARM CEREAL ACREAGE				CROP			SOURCE OF SEED		
		Small (1-10)	Medium (11-200)	Large (201 +)	Not given	Barley	Oats	Mixed corn	Merchant	Another farm	Own farm
<u>SCOTLAND</u>											
West	50	10	35	4	1	30	20	0	30	8	12
East	42	0	23	19	0	34	8	0	18	2	22
North	30	0	21	9	0	25	5	0	15	4	11
Total	122	10	79	32	1	89	33	0	63	14	45
<u>NORTHERN IRELAND</u>											
West	53	38	15	0	0	22	27	4	24	11	17
East	67	43	23	0	1	38	23	6	36	11	20
Total	120	81	38	0	1	60	50	10	60 ⁺	22 ⁺	37

+ These figures exclude 1 sample (West region) in which merchant-supplied seed was mixed with "another farm" seed.

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Appendix Table 11 - Nos. of samples containing wild oat seed - England and Wales

NAAS Region	Total samples	Number of samples containing wild oat seed	SOURCE OF SEED			FARM CEREAL ACREAGE			CROP			
			Merchant	Another farm	Own farm	Small (0-10)	Medium (11-200)	Large (201+)	Wheat	Barley	Oats	Mixed corn
NORTH	38	6	1	1	4	0	6	0	0	5	1	0
YORKS/LANCS	30	6	2	0	4	0	6	0	0	6	0	0
W. MIDLANDS	54	6	3	0	3	1	5	0	0	5	1	0
E. MIDLANDS	58	14	6	1	7	0	9	5	1	13	0	0
SOUTH WEST	47	12	4	1	7	2	8	2	0	12	0	0
SOUTH EAST	54	9	5	1	3	2	4	3	0	9	0	0
EAST	45	12	5	1	6	3	7	2	0	10	2	0
WALES	52	7	4	0	3	2	5	0	0	3	3	1
TOTAL	378	72	30	5	37	10	50	12	1	63	7	1

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Appendix Table 12 - Nos. of samples containing wild oat seed - Scotland and Northern Ireland

Region	Total samples	Number of samples containing wild oat seed	SOURCE OF SEED			FARM CEREAL ACREAGE			CROP		
			Merchant	Another farm	Own farm	Small (0-10)	Medium (11-200)	Large (201+)	Barley	Oats	Mixed corn
<u>SCOTLAND</u>											
West	50	3	2	0	1	0	2	1	3	0	0
East	42	7	1	0	6	0	1	6	7	0	0
North	30	10	3	1	6	0	8	2	7	3	0
Total	122	20	6	1	13	0	11	9	17	3	0
<u>NORTHERN IRELAND</u>											
West	53	0	-	-	-	-	-	-	-	-	-
East	67	4	3	1	0	1	2	0	3	0	1
Total	120	4	3	1	0	1*	2*	0	3	0	1

* These figures exclude 1 contaminated sample about which the information on farm cereal acreage was not given.

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Appendix Table 13 - Nos. of samples classified by description of seed - England and Wales

Number of contaminated samples shown in brackets

NAAS Region	Total samples	DESCRIPTIONS CONFORMING TO BCSS				OTHER DESCRIPTIONS					
		Grade of Seed				Certified	Multipli- cation	Field approved	Miscell- aneous	No description	Total
		Basic or Certified	Multipli- cation	Field approved	Total						
NORTH	38	1	2	3	6	0	0	2	6	24 (6)	32
YORKS/LANCS	30	0	2	3	5	1 (1)	0	4 (1)	11	9 (4)	25
WEST MIDLANDS	54	1	3	6 (1)	10	4 (1)	0	5	7	28 (4)	44
EAST MIDLANDS	58	1	3	5	9	0	0	7 (1)	10 (2)	32(11)	49
SOUTH WEST	47	0	2	8 (2)	10	1	2	5	11 (2)	18 (8)	37
SOUTH EAST	54	1	6	6	13	1	2	5 (1)	11 (2)	22 (6)	41
EAST	45	0	0	6 (1)	6	0	0	10 (3)	7 (2)	22 (6)	39
WALES	52	2	0	3 (1)	5	4	2	3	14	24 (6)	47
TOTAL	378	6	18	40 (5)	64	11 (2)	6	41 (6)	77 (8)	179(51)	314

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Appendix Table 14 - Nos. of samples classified by description of seed - Scotland and Northern Ireland

No. of contaminated samples shown in brackets

Region	Total samples	DESCRIPTIONS CONFORMING TO BCSS				OTHER DESCRIPTIONS					
		Grade of Seed				Certified	Multipli- cation	Field approved	Miscell- aneous	No description	Total
		Basic or Certified	Multipli- cation	Field approved	Total						
<u>SCOTLAND</u>											
West	50	0	0	1	1	0	0	2	6	41 (3)	49
East	42	0	3	6	9	0	1	2	3 (1)	27 (6)	33
North	30	1	1	4	6	0	0	0	6 (1)	18 (9)	24
Total	122	1	4	11	16	0	1	4	15 (2)	86 (18)	106
<u>NORTHERN IRELAND</u>											
West	53	2	0	0	2	3	3	1	2	42	51
East	67	0	1 (1)	0	1	7	11 (1)	3 (1)	4	41 (1)	66
Total	120	2	1 (1)	0	3	10	14 (1)	4 (1)	6	83 (1)	117