Table 1. Occurrence of Species of *Fusarium* in the Three Rhizosphere Zones (Tip, Intermediate and Crown) at Different Stages in the Life of the Oat Plants

(Figures represent frequency of occurrence expressed as percentage of total number of isolates)

	Young			Early maturity			Maturity			Late maturity			Senescence		
	T	*I*	*C*	*T*	*I*	*C*	*T*	*I*	*C*	*T*	*I*	*C*	*T*	*I*	*C*
Soil plating technique															
F. culmorum	0·7	0·6	2·1	0·6	2·0	5·5	4·2	3·6	10·5	3·4	5·5	12·0	7·6	7·6	9·6
F. avenaceum	0·0	0·0	0·7	0·0	0·4	0·0	1·8	1·2	1·0	0·0	2·5	1·5	2·4	2·4	3·2
Other *Fusaria*	0·0	0·0	1·4	0·0	0·8	0·0	0·0	0·8	1·5	0·0	0·0	0·0	0·5	0·0	1·6
Soil box technique															
F. culmorum	0·0	0·0	0·0	0·0	2·2	2·4	2·4	2·4	7·2	10 8	14·0	16·8	17·5	22·0	20·4
F. avenaceum	0·0	0·0	0·0	2·7	0·0	2·4	2·4	2·4	4·8	0·0	2·3	4·2	0·0	0·0	5·1
Other *Fusaria*	0·0	0·0	0·0	0·0	0·0	2·4	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0

material, and an increase in amount of *Fusarium culmorum* has been demonstrated to be associated with the degree of root decomposition[5].

Thus, under an oat crop which is approaching senescence, there appears to be developed in the soil a population of a potential pathogen which could have serious effects on a subsequent cereal crop, if the fungus is able to survive in sufficient amount in the soil.

Full details regarding the qualitative changes in the fungal component of the rhizosphere population which accompany increasing age of oat roots will be published elsewhere.

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Ultra-Violet Sterilization of Water used for rearing Oyster Larvæ

In a recent communication, Aboul-Ela[1] directed attention to the possibility of using ultra-violet light for sterilizing water used for culturing larval organisms. During the past 18 months, this technique has been used with considerable success at this Laboratory when rearing larvæ of *Ostrea edulis*. Sets of 6 beakers each containing 1 l. of filtered sea water are sterilized by a 10-min. exposure under a 15-watt 16-in. ultra-violet strip light. The larvæ are then introduced into the beakers, which are transferred to a rearing bath.

In order to avoid the necessity for washing the larvæ, attempts were made to sterilize them and their surrounding water. Larvæ exposed in a 1-cm. layer of water 25 cm. below the light source for periods of up to 8 min. were still active 18 hr. later. However, after exposures in excess of 40 sec. the larvæ, which were immobile under the light, took an appreciable time to become active. For example, 95 per cent of the larvæ were swimming 10 min. after a 20-sec. exposure, but it took 25 min. before even 80 per cent became active after a 2-min. exposure. After an 8-min. exposure, it took 2 hr. before 80 per cent were active.

Plate counts indicated that a 2-min. exposure would be necessary to kill all bacteria associated with the larvæ. In May 1957 a 40-ml. suspension of approximately 1,750 larvæ was exposed for this time. The larvæ were then transferred to a litre of sterile water in the rearing bath. Several control beakers were also set up. All the larvæ were fed with *Isochrysis galbana*, which has so far proved the most successful food organism[2]. Penicillin and streptomycin were added to all beakers, to keep down any bacterial growth[3].

Growth of the larvæ was slow in all cases, but, after 10 days, the mean length of the controls had increased by 14·1 per cent, and that of the treated larvæ by 8·9 per cent. However, mortalities were 11 and 47 per cent respectively.

The preliminary results suggest that exposure to ultra-violet light can be harmful to larvæ, even though it does not result in their immediate death. However, more carefully regulated doses may be useful in reducing the initial bacterial population introduced, along with the larvæ, into the rearing medium.

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Grain Weevils, *Calandra granaria* L. and *C. oryzae* L., reared on Irradiated Wheat

During the course of an investigation into the susceptibility of grain weevils to γ-radiation it was necessary to find out whether irradiation of the wheat (Manitoba No. 2) itself would affect its suitability as a culturing medium for grain weevils. The interaction of irradiation treatment with the quantity of grain and the depth of culture were also examined.

Wheat (30 grains per gm.) was irradiated in a cobalt-60 source providing a dose-rate of 37×10^3 rads/hr. Cultures were maintained on preconditioned grain at 26° C. and 75 per cent relative humidity; the minimum period of development from egg to adult was 33 and 28 days for *C. granaria* and *C. oryzae*, respectively.

The effects of an irradiated diet on adults of *C. granaria* was first tested by retaining samples of fifty insects, 7–14 days old, for four weeks in jars

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