CO-OPERATIVE SEED TREATMENT TRIALS -- 1962[1]/

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Abstract

Thirty seed treatments were tested in 1962 against common bunt of wheat (mixed Tilletia foetida (Wallr.) Liro and T. caries (DC.) Tul.), oat smut (mixed Ustilago avenae (Pers.) Rostr. and U. kolleri Wille), covered smut of barley (U. hordei (Pers,) Lagerh.) and against seed rot of flax caused by a complex of soil-borne and seed-borne microorganisms. Three of the treatments were later set aside for the time being, as it appeared that the lot of wheat seed used was too sensitive to their action. As in several previous years, most of the materials received for testing were organic mercury compounds and about two thirds of them were liquids,

Materials and Methods

Kinds of seed used in trials

Wheat bunt trials - Variety Red Bobs. Seed artificially contaminated (1:200, by weight) with mixed spores of Tilletia tritici and T. foetida,

Oat smut trials - 'Variety Vanguard, Seed naturally contaminated by mixed loose and covered smut.

Barley smut trials - Variety Plush, Seed naturally contaminated by covered smut.

Flax seed-rot trials - Variety Redwood. About 40% of seed cracked during threshing.

Treatment No.	Descriptions of Products
1	Control - seed not treated.
2	A powder containing 3% mercury as methyl mercury pentachlorophenolate. Obtained from Green Cross Insecticides, Winnipeg, Man.

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Treatment No.	Descriptions of Products
3	A powder containing 40% aldrin and 2% mercury as mixed phenyl mercury acetate and ethyl mercury chloride. Obtained from Allied Chemical Services, Calgary, Alberta.
4	A powder containing 3.2% mercury as ethyl mercury p-toluene sulfonanilide. Obtained from I. E. duPont de Nemours, Wilmington, Delaware.
5	A powder containing 50% tetrachlorotetrahydrothiophene dioxide. Obtained from Diamond Alkali Company, Gsinesville, Ohio.
6	A powder containing 75% tetrachlorotetrahydrothiophene dioxide. Obtained from Diamond Alkali Company, Gainesville, Ohio.
7	A powder containing 70% p-dimethyl amino benzene diazosodium sulfonate. Obtained from Chemagro Corporation, Kansas City, Mo.
8	A powder containing 4.5% mercury as phenyl mercury urea. Obtained from Leytosan (Canada) Ltd., Winnipeg, Manitoba.
9	A powder containing 50% of 5-chloro-4-phenyl-1,2-dithion-3-one. Obtained from Green Cross Insecticies, Winnipeg, Manitoba.
10	A liquid containing 1.5% mercury as methyl mercury dicyandiamide. Obtained from Chipman Chemicals Ltd., Winnipeg, Manitoba.
11	A liquid Containing 1.5% mercury as methyl mercury benzoate. Obtained from N. V. Aagrunol Chemical Works, Groningen, Holland,
12	A liquid containing 1.75% mercury as methyl mercury benzoate. Obtained from N.V, Aagrunol Chemical Works, Groningen, Holland.
13	A liquid containing 2.35% mercury as mixed methyl mercury 2, 3 dihydroxypropyl mercaptide and methyl mercury acetate. Obtained from I.E. duPont de Nemours, Wilmington, Delaware.

Treatment No.	Descriptions of Products
14	A liquid containing 4.70% mercury as mixed methyl mercury 2, 3 dihydroxypropyl mercaptide and methyl mercury acetate. Obtained from L.E. duPont de Nemours, Wilmington, Delaware.
15	A liquid containing 6.0% sodium ethyl mercury salicylate. Obtained from Eli Lilly Co., Indianapolis, Indiana.
16	A liquid containing 30% aldrin and 1.43% mercury as phenyl mercury acetate. Obtained from Gallowhur Chemical Canada Ltd., Montreal, Quebec.
17	A liquid containing 3.58% mercury as phenyl mercury acetate. Obtained from Gallowhur Chemical Canada Ltd., Montreal, Quebec.
18	A liquid containing 18.6% heptachlor and 7.39% pentachloronitrobenzene. Obtained from Green Cross Insecticides, Winnipeg, Manitoba.
19	A liquid containing 25.3% heptachlor and 0.36% mercury as methyl mercury 8-hydroxyquinolinate. Obtained from Green Cross Insecticides, Winnipeg, Manitoba.
20	A liquid containing 1.5% of methyl mercury benzoate. Obtained from Green Cross Insecticides, Winnipeg, Manitoba.
21	A liquid containing 2.0 lbs. heptachlor per Imp. Gal. and 0.4% mercury as methyl mercury dicyandiamfde. Obtained from Chipman Chemicals, Winnipeg, Manitoba,
22	A liquid containing 4.2% mercury as phenyl mercury acetate. Obtained from Nuodex Products of Canada, Toronto, Ontario.
23	A liquid containing 1.25% mercury as methyl mercury 8-hydroxyquinolinate. Obtained from Ortho Agricultural Chemicals, Vancouver, B. C.
24	A liquid containing 4.2% mercury as methyl mercury 8-hydroxyquinolinate. Obtained from Ortho Agricultural Chemicals, Vancouver, B, C.

Treatment No.	Descriptions of Products
25	A liquid containing 1.5% mercury as methyl mercury dicyandiamide. Obtained from Morton Chemical Company, Woodstock, Illinois,
26	A liquid containing 25% heptachlor and .37% mercury as methyl mercury dicyandiamide. Obtained from Morton Chemical Company, Woodstock, Illinois,
27	A liquid containing 1.25% mercury as methyl mercury 8-hydroxyquinolinate. Obtained from the Shell Oil Company of Canada, Toronto, Ontario,

Experimental Results

The field data collected in 1962 are summarized in Table 1. They show that for wheat, DAC-649 W P 75, Hercules 3944, and Liquid Dual Purpose Bunt-No-More gave inadequate control of bunt. One product, DAC- 649 W P 50, gave only moderate control of this disease, In oats and barley, all products except two, Dexon 70% W P and Liquid Dual Purpose Bunt-No-More, gave satisfactory control of smut. In flax, there was a variable response to treatment, eleven products giving satisfactory control of seed rot, eight giving moderate control, and seven unsatisfactory control, In this trial with flax the germination was considered satisfactory when it exceeded 68.3%, moderately satisfactory within the range 64.5 to 68. 2%, and unsatisfactory below 64.5%.

Table 1. Co-operative Seed Treatment Trials - 1962 (Summary of data from 5 stations for wheat, 10 stations for oats, 11 stations for barley, and 10 stations for flax)

Treatment No.	Abbreviated name for seed dressing	Dosage (oz./bu.)				Smut (%)			Germination (%)
		Wheat	Oats	Barley	Flax	Wheat	Oats	Barley	Flax
1	Check (dry, untreated seed)	0.00	0.00	0.00	0.00	11.0	10.6	17.1	59.8
2	Aagrunol 473	0.50	0.50	0.50	1.50	01	0.1	0.1	66.6
3	ACS AM Dual Purpose Seed Dressing	2.00	1.40	1-40	5.00	06	0.1	0.1	68.5
4	Ceresan M	0.50	0.50	0.50	1.50	0.1	0.0	0.3	66.8
5	DAC-649 WP 50	0.50	0.50	0.50	1.50	2.5	0.1	02	54.6
6	DAC-649 WP 75	0.50	0.50	0.50	1.50	3.5	0.1	01	53.6
7	Dexon 70% WP	1.00	1.00	1.00	1.00	0.0	5.0	13.6	68.2
8	Ealf-ounce Leytosan	0.50	0.50	0.50	1.50	0.2	1.0	02	67.7
9	Hercules 3944	0.50	0.50	0.50	1-50	5.7	02	0.5	51.5
10	Agrosol (1962)	0.75	0.75	0.75	1.50	0.0	0.0	01	69.8
11	Aagrunol LSV 150	0.75	0.75	0.75	1.50	0.0	0.0	00	69.8
12	Aagrunol LS 175	0.75	0.75	0.75	1.50	0.0	0.0	0.0	68.6
13	Ceresan PL	0.50	0.50	0.50	1.50	0.0	00	0.1	71.2
14	Ceresan 2 PL	0.25	0.25	0.25	0.75	0.0	01	0.2	71.4
15	Elcide 70	0.75	0.75	0.75	1.50	0.1	06	02	71.1
16	Gallodual	2.66	1.90	1.90	6.66	0.2	2.7	02	56.2
17	Gallotox	0.75	0.75	0.75	1.50	0.0	2.3	0.1	68.6
18	Liquid Dual Purpose Bunt-No-More	2.66	1-90	1.90	6.66	5.5	7.8	17.0	54.6
19	Liquid Merlane	2.66	1.90	1.90	6.66	01	0.2	0.5	58.8
20	Liquid Mercury	0.75	0.75	0.75	1.50	0.0	00	0.0	72.1
21	Liquid Mergamma	3.00	1.88	1.88	7.50	0.1	0.0	0.1	60.4
22	Nuodex 65	0.75	0.75	0.75	0.50	.1	35	0.5	67.8
23	Ortho IM Seed Protectant	0.75	0.75	0.75	1.50	00	00	0.0	70.2
24	Ortho IM Seed Protectant Concentrate	0.25	0.25	0.25	0.75	1.3	2.2	1.0	66.6
25	Panogen 15	0.75	0.75	0.75	1.50	00	0.0	0.1	71.7
26	Pandrinox	2.12	2.12	2.12	4.00	01	0.0	0.0	65.3
27	Shell Liquid Mercury	0.75	0.75	0.75	1.50	.1	00	0.0	67.9
	Least significant difference (5%)					16	48	3.4	3.8

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