

16D	Copper A (7% Metallic Copper; Zerlate 4%; Deenate 50P (5% DDT); Pyrax	7S	Dithane D-14, ½ gal.; Zinc Sulphate, 1 lb.; Lime ½ lb.; Quik Kill, 5 lb.; Lethane B-72, 3 lb.
17D	Copper A (7% Metallic Copper); Dusting Sulphur 25%; Gesarol (5% DDT); Pyrax	8S	Cuper Spray, 5 lb. (1.2 lb. Metallic Copper); Gesarol AK-40 (½ lb. DDT)
18	Check	9S	Cuper Spray, 5 lb. (1.2 lb. Metallic Copper); RHothane 25 (½ lb. DDD)
Composition of Spray Mixtures: (Concentration per 100 gallons of water)			
The numbers in the first column also appear in the first column in Tables 1 and 2.			
1S	Dithane D-14, 1½ gal.; Zinc Sulphate, 1 lb.; Lime, ½ lb.; Quik Kill, 5 lb.	10S	Fermate, 2 lb.; Deenate 25W (½ lb. DDT)
2S	Dithane D-14, 1½ gal.; Zinc Sulphate, 1 lb.; Lime, ½ lb.; Deenate 25W (½ lb. DDT)	11S	Fermate, 1½ lb.; Deenate 25W (½ lb. DDT)
3S	Dithane D-14, 1½ gal.; RHothane 25 (½ lb. DDD)	12S	Fermate, 1½ lb.; Zinc Sulphate, 1 lb.; Lime, ½ lb.; Deenate 25W (½ lb. DDT)
4S	Dithane D-14, ½ gal.; Zinc Sulphate, 1 lb.; Lime, ½ lb.; Gesarol AK-40 (½ lb. DDT)	13S	Zerlate, 2 lb.; Deenate 25W (½ lb. DDT)
5S	Dithane D-14, ½ gal.; Zinc Sulphate, 1 lb.; Lime, ½ lb.; RHothane 25 (½ lb. DDD)	14S	Zerlate, 1½ lb.; Deenate 25W (½ lb. DDT)
6S	Dithane D-14, ½ gal.; Sodium Sulphate, 1 lb.; Gesarol AK-40 (½ lb. DDT)	15S	Copper A (1.8 lb. Metallic Copper); Deenate 25W (½ lb. DDT)
		16S	Copper A (1.8 lb. Metallic Copper); Zinc Sulphate, 1 lb.; Lime, ½ lb., Deenate 25W (½ lb. DDT)
		18	Check

OATS RUST IN 1945

There was much less leaf (crown) rust injury on oats in 1945 than in the previous four years. Only in the northern sections of the State was the infection heavy. Stem rust, on the other hand, was heavier than usual, but developing late, it seemingly was not a large factor in determining yield differences, except in late fields or with late susceptible varieties like Victory. Rainbow yielded the highest at Fargo in 1945 and was among the highest yielding varieties also at Langdon and Edgeley. Gopher, though carrying considerable rust, compared favorably in yield this year with the more rust resistant varieties Vicland and Tama.

As in the case of wheat, some of the resistant varieties like Vicland and Tama were more rusted (mainly stem, but also some leaf rust) this year, in relation to other varieties, than in previous years. Rust readings for Vicland at Langdon were higher than for Rainbow, and farmer reports from northern counties tell of late fields of Vicland which carried considerable rust. This is in line with observations reported from the central states, where Vicland, Tama and similar varieties were grown very extensively, and which tell of an increase in the amount of rust on these oats in that area. The increase in the rust on these varieties is regarded as the

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Fusarium lini that produced severe wilting of flax did not infect alfalfa, barley, string beans, soybeans, sugar beets, cabbage, cantaloupe, sweet corn, field corn; cotton, sweet clover, cucumber, oats, peas, timothy, tomatoes, and wheat. These tests indicate that flax is an excellent crop to include in a rotation since even if there should be a build-up in the flax-wilt *Fusaria* other crops are not subject to attack by these strains.

The author concludes that *Fusarium lini* consists of many races that vary greatly in their pathogenicity and that some of these races are distinct and important even when growing in competition with the normal soil microflora. Among the factors contributing to the increased prevalence of a race is the increased acreage of a new variety which is a congenial host to that particular race. Thus when such varieties as Chippewa, N.D.R. No. 114 and Linota were released, the races to which they were susceptible constituted such a small part of the race

population that they produced little or no damage. The continued growing of these varieties probably allowed the build up of races attacking them.

Borlaug points out the danger of introducing races from South America. Most North American varieties including Bison have been very susceptible to a number of these South American races. Since Bison has been extensively used as a wilt resistant parent in flax breeding programs, many of the newly developed varieties also are susceptible to these races. The wilt organism remains alive in infected flaxseed and plant parts mixed with the seed for more than a year. South American flaxseed has occasionally been sown by growers in the United States. If this seed is not cleaned and treated with a seed disinfectant there is a good possibility of the new race being established. This might not only prove costly to the grower but also would be a serious obstacle to flax improvement. (Reviewed by H. H. Flor)

Oats Rust in 1945

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result of the increase of certain races of rust to which the varieties are not resistant.

The new varieties, Clinton developed at the Iowa Agricultural Experiment Station, and Bonda and Mindo, developed at the Minnesota Experiment Station have resistance to some of the rust races which attack Vicland and Tama and are, therefore, of considerable interest to all oat growers. Seed of these are not yet available for general distribution, but are being increased as rapidly as possible and should be available for 1947 planting, especially of Clinton which has been under increase a longer time. The North Dakota Experiment Station has tested Clinton the last two years and is increasing all the seed which it has available so as to make available some seed for further increase on North Dakota farms in 1947. (T. E. Stoa, Agronomist)