SUMMARY

In orchard grass planted in 3-foot rows with a plant spacing of 1/2 yard in the row, the highest seed set was obtained in plants located near the pollinator plants. Plants within 1 1/2 yards averaged 62.4 seeds per panicle. Plants at a greater distance averaged only 27.2. The pollinator plants themselves averaged 197.—MAYNARD S. GRUNDER and PAULS DERMANS, Assistant Agronomist and Senior Experimental Aide, Western Washington Experiment Station, Puyallup, Wash.

LITERATURE CITED

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ZINC DEFICIENCY OF ALFALFA
IN WASHINGTON

For several years zinc deficiency of field beans and corn has been recognized on newly irrigated soils in Central Washington. This deficiency is associated with scraped areas where top soil has been removed during leveling operations. The deficiency has also frequently occurred where a lime zone is close to the surface and on some noncalcareous loamy sands. A marked response has been obtained from a 0.5% ZnSO₄·7H₂O spray applied early in the growing season.

In the spring of 1951 a virgin plot of Ritzville very fine sandy loam on the Irrigation Experiment Station at Prosser, Wash., was leveled and planted to Ranger alfalfa. A good stand was obtained, but on a fairly large area where top soil had been removed the young plants were stunted and failed to produce secondary shoots. Mature leaves, particularly the lower ones, were yellow with necrosis. The deficiency symptoms were quite evident in the early August the stunted plants were about 4 inches high, whereas healthy plants on the surrounding area were 12-14 inches high.

On August 8 a small plot in the center of the field was sprayed with a 0.5% ZnSO₄·7H₂O solution. In 10 days a definite response was shown in accelerated growth with normal color. One plot was resprayed and two more plots were treated with a ZnCl₂ solution at the same zinc concentration. Figure 1 shows the response, 30 days after the initial application, to the two zinc sulfate sprays. This induced a very definite increase in growth.

Plant samples, consisting of the top 1/4 inch of shoots taken at the early bloom stage from the stunted plants, were analyzed for zinc content. Duplicate samples of the stunted plants averaged 8.0 ppm zinc (dry weight basis) compared with 13.8 ppm in samples of plants showing normal growth.

As far as the writers know, this is the first field report of alfalfa to zinc reported in the United States. C. BOAWN and FRANK G. VIETS, JR. Soil Scientist and Senior Soil Scientist, respectively, Division of Soil Management and Irrigation, B.P.I.S.A.E., in cooperation with the Washington Experiment Station, Prosser, Wash.

2,4-D CAN KILL MATURE GRASSES

In the course of carrying out experiments on the effect of 2,4-D on the photosynthetic activity of susceptible plants it was found that the herbicidal effect was considerably more drastic and rapid when the 2,4-D was applied by immersing the test plants in the solution than when the same solution was sprayed on them. This observation suggested that 2,4-D may kill mature grasses if they were similarly immersed in 2,4-D which when sprayed on them produces no apparent effect.

Clumps of six species of mature grass were obtained (Panicum purpurascens Raddi), Guinea grass (Cynodon dactylon (L.) Pers.), Angleton grass (Eleusine indica (William) Nash), and goose grass (Echinochloa Gaertn.), were dug from the field with a large ball of soil attached and transplanted to 1-gallon pots. One month after planting the following experiment was conducted.

One clump of each species was immersed in a solution containing 0.2% acid equivalent 2,4-D isopropyl ester. The aerial portion of the plant was held immersed in the solution for a period of 1 minute after which it was withdrawn and allowed to drain until the excess solution had run off before being turned upright and placed in the sun. By this method very little solution fell on the soil. The solution was a 2nCl₂ solution at the same zinc concentration. Figure 1 shows the response, 30 days after the initial spray application, to the two zinc sulfate sprays. This induced a very definite increase in growth.

Plant samples, consisting of the top 1/4 inch of shoots taken at the early bloom stage from normal and stunted plants, were analyzed for zinc content. Duplicate samples of the stunted plants averaged 8.0 ppm zinc (dry weight basis) compared with 13.8 ppm in samples of plants showing normal growth.

As far as the writers know, this is the first field report of alfalfa to zinc reported in the United States. C. BOAWN and FRANK G. VIETS, JR. Soil Scientist and Senior Soil Scientist, respectively, Division of Soil Management and Irrigation, B.P.I.S.A.E., in cooperation with the Washington Experiment Station, Prosser, Wash.