treatment after delinting. This was true with all four of the varieties in this test. Our interest in this trial was on seedling disease only, and no attempt was made to determine the degree or extent of insect control by the granular addition.

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SOUTHWESTERN COTTON RUST

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Cotton rust brought about lowered yields on many fields in parts of Pima, Santa Cruz and Cochise counties. It was present, probably without damage to yield, in Graham, Greenlee, Pinal and Yuma counties. Out-of-state reports of rust were received from the El Paso area, southwestern New Mexico and northern Mexico.

In our report last year we mentioned that we had found plants with an appreciable degree of rust resistance within certain species and in interspecific crosses in the genus Gossypium. Backcrossing of these resistant plants of interspecific background has been done with Acala-type breeding lines or varieties. Through the use of greenhouse inoculation techniques we accumulated a considerable mass of resistant breeding material for field testing in 1968. Field plantings of such material were made at four locations in southern Arizona in 1968, and we were fortunate in having natural development of cotton rust at all locations. A very encouraging degree of resistance to rust was apparent in many of the lines and numerous plant selections were made. Laboratory tests on fiber and boll properties are being made.

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EFFECTIVENESS OF CROP ROTATION AND FALLOW LAND TREATMENT IN COTTON ROOT-KNOT NEMATODE CONTROL

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A crop rotation and fallow land treatment for the control of the cotton root-knot nematode in a sandy textured field is still in progress in Pinal County. To summarize: the field was planted to Deltapine Smooth Leaf cotton

in 1966 and again in 1967. During 1966, a trace to light nematode infection (field average of 8° of galling[1]) was found with no apparent reduction in yield of the cotton crop due to root-knot nematodes. A moderate to heavy infection (65° of galling) of nematodes was found on the 1967 cotton crop. If the field had been planted to cotton in 1968, a heavy stand and yield reduction could have been expected. However, the field was then planted to barley and fallowed the summer of 1968.

Results

Three heavy rains during the summer of 1968 did not allow the field to be kept completely free of weeds which are favorable root-knot nematode hosts. Soil samples were obtained from 32 locations 8-12 inches below the soil surface in October. Cotton planted in these soil samples all showed galling. In November, weeds growing in the field were examined for evidence of the nematode. Galls on these weeds were found consistently throughout the field.

The importance of keeping a field free of weeds during the summer period of fallowing can be seen from these data. Normally, excellent control of the cotton root-knot nematode is achieved by October after four to five months of clean summer fallow. Since disking the field often enough to control the weeds was impossible this past summer, a sufficient population of cotton root-knot nematodes would be carried over and cause considerable damage to the 1969 cotton crop.

Present plans are to give the field a preplant fumigation for the 1969 cotton crop. If it had been possible to keep the field free of weeds, this fumigation would not have been necessary.

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[1] Percent galling converted to degrees: 0 = no infection; 1-25 = trace to light; 26-50 = light to moderate; 51-75 = moderate to heavy; and 76-100 = heavy to severe.