

OVERWINTERING MICROBIAL POPULATIONS IN WHEAT STRAW INFESTED WITH *PYRENOPHORA TRITICI-REPENTIS*. W. Pfender and S. Wootke, Dept. of Plant Pathology, Kansas State University, Manhattan, KS 66506.

Wheat straw from a field with a high incidence of tan spot was collected at grain maturity (July) and either buried in soil or placed on the surface to simulate conservation-tillage residues. Microbial populations were estimated by grinding straw segments, after washing them and removing *Pyrenophora* (Pt) ascocarps, and plating on several media. Pt in surface straw decreased from 1600 to 800 cfu/cm<sup>2</sup> between August and March, and in buried straw from 200 to nondetectable. In March, mature pseudothecia were abundant on surface straw but extremely rare on buried straw. Population of *Septoria nodorum* (Sn) also decreased greatly in buried straw while remaining high in surface straw. A varied community of fungi, including *Trichoderma* and *Pythium*, and high populations of actinomycetes developed in buried straw. In surface straw the actinomycete population was low and the variety of fungi (Pt, Sn, *Alternaria*, *Cladosporium*) changed little from July to March. Bacteria counts did not differ between treatments.

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THE EFFECT OF CULTURAL PRACTICES ON AGGREGATE SHEATH SPOT OF RICE IN CALIFORNIA. P. S. Gunnell and R. K. Webster, Department of Plant Pathology, University of California, Davis, CA 95616

Aggregate sheath spot (AGSS) of rice caused by *Rhizoctonia oryzae-sativae* has become endemic in California rice fields. The impact of cultivar, rate of applied nitrogen, and seeding rate on disease development were assessed over a three year period. Incidence and severity of AGSS were found to be primarily dependent on the cultivar grown. In general, short-statured rice cultivars were found to be more susceptible to disease than tall-statured cultivars. The effect of nitrogen on disease development of AGSS was often cultivar specific, but overall disease incidence and severity was greatest at lower nitrogen levels. The rate of seeding resulted in little or no effect on severity of AGSS. Though AGSS is endemic in California, evidence indicates that the disease is not causing significant yield losses. Stem rot of rice caused by *Sclerotium oryzae* which is also widespread in California rice fields, is more severe at higher nitrogen levels and is usually more aggressive on those cultivars which are least susceptible to aggregate sheath spot.

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HORIZONTAL DISTRIBUTION OF *RHIZOCTONIA SOLANI* (AG-1) SCLEROTIA IN TEXAS RICE SOILS. S.B. Belmar and R.K. Jones, Tx. Agr. Exp. Sta., Dept. of Plant Pathology & Microbiology, College Station, TX, 77843

*Rhizoctonia solani* (AG-1) causes sheath blight in rice and aerial web blight in soybeans. Sclerotia serve to overseason the fungus and are the primary inoculum for these crops grown in rotation. The horizontal distribution of sclerotia was determined for a 0.52 ha site within each of two commercial rice fields. Soil cores, approximately 440 cms, from four concentric 9x9 matrix patterns having 0.33, 1, 3, and 9 m between sampling points were taken. Sclerotia were extracted from soil using elutriation and counted using 10X magnification. Recovered sclerotia from 576 cores ranged from 0-44/core. Variance to mean ratios for the 0.33, 1, 3, and 9 m matrices were: 11.95/11.58, 23.39/12.20, 16.30/9.73, 70.22/16.43, for site A and 1.07/0.95, 10.93/2.33, 4.18/1.52, 3.51/1.23 for site B. The respective estimates of the clustering parameter  $K$  were: 362.42, 13.30, 14.40, 5.02 and 7.52, 0.63, 0.87, 0.67. A disease incidence reading taken at the rice panicle initiation stage for the 9 m matrix showed variance to mean ratios of 65.81/4.96 and 91.00/8.54 with clustering parameter estimates of 0.40 and 0.88, respectively.

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EFFECT OF TEMPERATURE AND PHOTOPERIOD ON RESISTANCE OF ORCHARDGRASS TO *STAGONOSPORA ARENARIA*. R.T. SHERWOOD, C.C. BERG, AND K.E. ZEIDERS. ARS-USDA, U.S. Regional Pasture Research Laboratory, University Park, PA 16802.

Plants of one susceptible and five resistant genotypes of *Lactylis glomerata* were inoculated with *S. arenaria* and incubated at 22 C for 48 hr. Before and after incubation the plants were maintained in cool (16-20 C) or warm (26-30 C) conditions with short (8-9 hr) or long (15 hr) daylengths, in greenhouse and growth chamber trials. Leaves of the susceptible genotype always developed large spots. Leaves of resistant genotypes in cool, long-day conditions developed small spots, and in warm, short-day conditions developed large spots. There were differences among genotypes in cool,

short-day and in warm, long-day treatments. Some genotype X temperature and genotype X photoperiod interactions were significant. Thus resistance to purple leaf spot may be environmentally unstable.

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INFLUENCE OF TILLAGE ON GRAY LEAF SPOT DEVELOPMENT AND NUMBERS OF AIRBORNE CONIDIA OF *CERCOSPORA ZEA-MAYDIS*. G. A. Payne and H. E. Duncan, Dept Plant Pathology, North Carolina State Univ., Raleigh NC 27695-7616.

Four tillage treatments (fall plow, fall disk, spring plow, and no-till planting in corn stubble) were compared for their influence on gray leaf spot development and numbers of airborne conidia of *Cercospora zea-maydis*. In 1984, lesions appeared earlier (2 days before tasseling) and disease was greater at each evaluation date in the no-till plots than in the other plots. By 9/12, the numbers of lesions on the fifth leaf above the ear averaged 72 and 36 for the no-till plots and for the other tillage plots, respectively. There were no differences in disease severity among the other treatments. Conidia were first trapped 5/23, 5 days after planting, but collection was erratic. Levels of airborne conidia increased beginning 7/27 in all the plots with the greatest number of conidia collected in the no-till plots. Effects of tillage on disease severity and the number of airborne conidia were similar in 1983, but the overall level of disease was less than in 1984.

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SPREAD OF CORN ANTHRACNOSE FROM SURFACE RESIDUE. P. E. Lipps, Dept. of Plant Pathology, The Ohio State University, OARDC, Wooster, OH 44691.

Anthracnose leaf blight was monitored throughout the growing season to determine the spread of disease from corn residues on the soil surface in the center of two plots maintained under continuous corn or a corn-soybean rotation. The number of leaves with lesions per plant from 28 to 70 days after planting and the percentage of plants with stalk rot at the end of the growing season was negatively correlated (<0.01) with distance from the residues in both plots. The difference (P<0.01) in slopes of regression equations indicated that leaf blight spread more rapidly within rows than across rows. More leaf blight and stalk rot occurred in the continuous corn than in the corn-soybean rotation at various distances from the residue area. Results indicate that disease spread was influenced by orientation of corn rows in relation to the inoculum source and by cropping history.

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MICROORGANISMS ASSOCIATED WITH PECKY RICE. Fleet N. Lee, N. P. Tugwell, G. J. Weidemann and W. C. Smith. University of Arkansas, P.O. Box 351, Stuttgart, Ar 72160.

Bacteria, yeast and fungi were isolated from "pecky" (discolored) rice kernels and tested for pathogenicity. Developing rice caryopses in the dough stage were wounded through a small hole in the glume, inoculated and allowed to mature. Control kernels inoculated with sterile water developed a light brownish discoloration at the wound site. Inoculation with *Nematospora goryllii* isolated from soybean resulted in a black discoloration seldom extending 1 mm beyond the wound site and was atypical of pecky rice. Grain inoculated with heat-killed bacteria, yeast or fungi developed similar symptoms. Inoculation with *Curvularia lunata*, *Alternaria alternata*, *Alternaria* (*Trichoconis*) *pedwickii*, *Fusarium oxysporum* or a *Bipolaris* sp. usually resulted in a black brown discoloration extending 2 mm or more from the wound site and in some instances discoloring the entire kernel. *F. oxysporum*-inoculated grain occasionally developed a creamy tint or mycelium above the seed coat. Symptoms in all fungi-inoculated grain resembled those of pecky rice.

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RESPONSE OF COTTON TO TEMIK-TSX AT VARIOUS PLANTING DATES. S. Micinski and P. D. Colyer, Louisiana State University Agricultural Center, Bossier City, LA 71113.

A study was initiated in 1984 at the Red River Research Station to evaluate the response of cotton to in-furrow applications of Temik-TSX at various planting dates. Deltapine 41 was planted with and without Temik-TSX on 15 planting dates from April 4 through May 11, 1984. Generally, application of Temik-TSX had