



PRODUCTION TECHNOLOGY

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ROOT ROTS IN WHEAT

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We seem to have an exceptionally high number of wheat fields having severe root rot problems in 1995. In some fields, take-all has been the primary problem although in most areas "sharp eyespot" caused by *Rhizoctonia* spp. seems to be more widely distributed and prevalent. In other fields, no specific pathogen is predominant. A mixture of "sharp eyespot", take-all, and dryland root rot pathogens can be found.

Symptoms in severely affected fields are severe stunting before heading, often appearing nitrogen deficient, sometimes with purpling in the leaves, and showing severe water stress symptoms. In such fields, the lower internodal areas of diseased plants will characteristically exhibit the following symptoms. For **sharp eyespot**, an eye-like lesion will be found on the lower internodal tissues that has typically a light center with a brown or black margin. For **take-all**, the lower internodal tissues and roots will have a very distinctly charcoal-like black coloration. Typically, this blackened crusty like discoloration can be scraped off the internodal tissues with a pocket knife or thumb nail. For **dryland root rot**, the lower internodes typically become a uniform light brown to darker tan color. The normal color of the lower internodal tissue is white to yellow or

light green. See the "Compendium of Wheat Diseases" or "Wheat Diseases" Kansas Cooperative Extension Service S-23 or OSU Fact Sheet 7622 for pictures.

Many of the fields look good at heading with the exception of a little unevenness. The slightly stunted areas may be lighter color. With warmer temperatures and wind, spots will begin to wilt much easier than expected. Examination of the base of the stems shows the discoloration again. About two weeks after heading, white heads begin to appear if the severity didn't prevent heading. Some fields are having as much as 50% of the heads dying prematurely. The result will be reduced yields due to shrivelled grain if any in the white heads. Test weights will be lower than normal.

The most severe problems seem to be in fields planted in September with soil pH above 6.0 and being stressed by heavy grazing and/or drought stress in December to February.

The pathogens causing the root rots are omnipresent. We have no varietal resistance and so far we have not identified seed treatments that are effective in controlling the root rots. Dr. Singleton and I

have some research plots with seed treatments in problem fields this year. We will obtain grain yield data from these trials.

What can we do?

Probably the most effective factor in reducing the impact of root rots is delaying the planting in Northern Oklahoma until after October 1 and in Southern Oklahoma after October 15. Even these late plantings may not have completely eliminated the problem this year, but remember we had no below normal temperatures all fall or winter. In most situations, crop rotation may not be feasible. Moldboard plowing to bury crop residue would help in some cases, however, this may not be possible due to conservation plans. In continuous wheat situations where pH is low and lime is applied, the goal should be to keep the pH between 5.0 and 6.0. Do not apply enough lime to raise the pH above 6.0, since pH above 6.0 seems to be more favorable for the root rots. OSU soil test results give two liming recommendations. Use the one for continuous wheat unless a legume will be grown in rotation with wheat.

Why plant late?

Soil temperature at planting is a very important component of root rots. Early planting (September) with concurrent high soil temperatures predispose wheat seedlings to more severe infections and damage. Conversely, with later plantings in cooler soils, wheat seedlings are more likely to escape infection by these pathogens, and ultimately be more productive in terms of spring forage and grain yield.

Many producers want to plant early to maximize forage for grazing cattle. In fields with a history of severe root rot, producers need to establish their priority. Are they most interested in forage or grain? If they want forage, plant early realizing the probability of root rot severely reducing forage production after January and grain yield. If they want grain, plant after the dates suggested above, not expecting enough forage to graze.

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