

### Warm Winters May Affect Crop Management Decisions in Kansas

The U.S. Department of Agriculture recently revised its Plant Hardiness Zone Map northward, meaning that the extreme low temperatures during the winter in Kansas and most of the rest of the country aren't quite as cold now as they were about 20 to 30 years ago, said Mary Knapp, K-State Research and Extension climatologist.

"There is a lot of variability, of course, from year to year. But the USDA has determined that there is enough evidence of a trend for warmer winters that it made this change in the Plant Hardiness Zone Map. Certainly that was the case during the early part of the winter this year, with Kansas recording one of the warmest Januarys on record," Knapp said.

Agricultural producers in the state may see some benefits from this trend of less extreme cold in the winter, but it may also result in the need for a few management changes in their cropping practices, according to K-State Research and Extension scientists.

Here are a few of the potential factors they say to consider:

- \* Insect overwintering survival. During winters with extreme lows that are not as cold, it is possible that some wheat pests may survive the winter a bit more easily, and become a problem earlier and in a larger scale than in more "average" winters, said Jeff Whitworth, K-State Research and Extension entomologist.

"Of particular concern would be greenbugs and bird cherry oat aphids. Although these insects probably do not overwinter in Kansas, they may do so during warmer winters. If they overwinter in Kansas, they would be available to start feeding and reproducing earlier, as soon as the wheat breaks dormancy," he said.

Also, flea beetles, army cutworms and winter grain mites may be more of a problem earlier in the year if their populations are not limited by the "normal" extreme lows in the winter we had in the past, Whitworth added. Dry conditions also add to the stress these pests have on the wheat and make it just that much more critical to start scouting wheat fields as soon as the first new growth is evident, the K-State entomologist said.

- \* Plant disease overwintering survival. Leaf rust can at times get started on wheat in the fall in Kansas. These fall infections do not usually cause a significant problem because the leaf rust fungus does not normally survive the winter in Kansas, said Erick DeWolf, K-State Research and Extension plant pathologist.

"But if the extreme lows during the winter are not as cold now as in the past, which is what the recent change in plant hardiness zones implies, then leaf rust may successfully overwinter on wheat more often," DeWolf said.

As a result, it would be a good idea for wheat farmers and consultants in Kansas to inspect their wheat fields more closely and frequently in late winter and early spring for signs of leaf rust, as well as other early-season diseases such as powdery mildew, tan spot, and septoria leaf blotch, DeWolf explained.

Another disease that may increase in frequency is barley yellow dwarf virus on wheat, DeWolf added. This disease is spread by greenbugs and oat bird cherry aphids, and these insects could become more of a problem in Kansas if wintertime lows are not as cold. Wheat producers may want to put more emphasis on selecting varieties with better resistance to barley yellow dwarf, and plant later to help avoid fall infestations of the aphids, DeWolf said.

\* Crop variety selection. New varieties of crops that overwinter in Kansas, such as wheat, alfalfa and canola, will have been developed under environmental conditions that existed over the past 10 years, and should be well adapted to the new hardiness zone conditions, said Jim Shroyer, K-State Research and Extension crop production specialist.

However, producers may want to consider taking a few extra steps to protect their wheat against the insects and diseases mentioned above, including selecting varieties with better resistance, if possible, Shroyer added.

Story by Steve Watson, K-State Agronomy

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The Kansas Wheat Commission is a grower-funded, grower-governed advocacy organization working to secure the future of Kansas wheat in the global market through research, education and market development. It is funded by a voluntary 1.5 cent assessment on each bushel of wheat produced in Kansas.