

Wheat study by K-State spans 55 years

Kansas State University scientists may be giving wheat growers reason to watch the weather more than they did before in October - and, for that matter, in May and June.

The scientists' sweeping look at 55 years' worth of historical wheat yield data showed that for ever one inch increase in October precipitation, dryland wheat yield increased four to five bushels per acre. For ever one degree (Fahrenheit) increase in fall (October or November) temperature, dryland and irrigated wheat yields both decreased about one bushel per acre.

In May, for every one degree increase in temperature, irrigated wheat yields increased one bushel per acre. In June, however, for every one degree increase in temperature, dryland and irrigated wheat yields both dropped about one bushel per acre.

"Our goal with this study was to determine the change in western Kansas wheat yields for the past 55 years, as influenced by precipitation and temperature," said John Holman, Garden City-based Kansas State Research and Extension agronomist. He collaborated on the study with three other Kansas State agronomists: Tribune-based Alan Schlegel and Manhattan-based Curt

Thompson and Jane Lingenfelder.

In the study, "Influence of Precipitation, Temperature and 55 Years on Winter Wheat Yields in Western Kansas," the researchers compiled data from four Kansas State Research and Extension experiment stations in western Kansas (Colby, Garden City, Hays and Tribune). They included dryland and irrigated wheat.

"Winter wheat is the most common crop in Kansas with 8.6 million acres grown in 2010," Holman said. "However, the number of acres planted to wheat has steadily decreased since 1993, when 12.1 million acres of wheat were planted in the state."

Several studies have evaluated wheat yield changes over time, he added, noting that wheat yields in the overall Great Plains have increased by close to one percent each year since 1959. About 50 percent of the increase is likely due to genetic improvements, but limited information has been available about the impacts of environment on crop yield over time.

Kansas State's research is the first evaluation the effects of monthly temperature and precipitation for dryland and irrigated wheat.

"One outcome of the study is that

we now have an estimate of what an average freeze event costs us in yield - at least an eight bushels per acre reduction," Holman said, adding that average reduction is probably more than that. The experiment station did not report very poor years with freeze damage.

"The results suggest that future wheat breeding and cropping systems research should work to improve stand establishment and minimize freeze injury," he said.

Because the main effect of irrigation was significant for this study, the scientists analyzed the data separately for irrigated and non-irrigated experiments.

Holman acknowledged that the effect of monthly temperature and precipitation on wheat yield is not fully understood. The study indicated, however, that warm weather in fall (October to November), early spring (April) and June tend to reduce yields. Warm late-spring temperatures tend to increase yields.

That could be because warm fall temperatures cause more fall growth, he said. If the growth gets excessive, it can deplete soil moisture, increase susceptibility to freeze injury, increase insect and weed problems, and increase spring lodging - all of which can reduce

yield potential.

"Warm early-spring (April) temperatures can cause wheat to break dormancy and initiate spring growth too early, which can result in freeze injury," Holman said.

Warm late-spring (May) temperatures increase wheat growth and development, enabling the plants to initiate anthesis (flower opening) and maturation during a cooler period of the year. But, warm June temperatures increase leaf post-maturity senescence and reduce kernel fill, which ultimately can curb yield.

Irrigated Versus Dryland

One of the key points that came out of the study is the average difference in yield between irrigated and dryland wheat across the time period - an 18 bushel-per-acre advantage for irrigation, Holman said.

"Irrigated wheat in western Kansas has increased about 0.5 bushel per acre per year," the researcher said. Specifically, the yield increase in southwest Kansas dryland wheat was 0.3 bushel per acre per year and in northwest Kansas dryland, 0.8 bushel per acre per year.

"Another interesting thing that came out of this study is how dryland wheat in southwest Kansas

differed from dryland wheat in the northwest part of the state, in terms of factors influencing yield and yield improvement over time," Holman said.

The difference was largely caused by more freeze by more freeze damage and worse stand establishment in the southwest, compared to the northwest. Dryland wheat in the southwest was affected more by October precipitation (stand establishment) and April temperature (spring freeze injury) than by crop yield improvements made over the past 55 years. Crop yield improvements included things such as new variety releases and improved agronomic practices, such as with fertilizers and pesticides.

Dryland wheat yields in northwest Kansas, however, were affected most by crop yield improvements (breeding and agronomic practices). Fall stand establishment was a secondary factor behind breeding and agronomics. Spring freeze did not affect dryland wheat yields in northwest Kansas. Behind fall precipitation, early spring precipitation was important for increasing yield. Precipitation that fell later in the growing season did not improve yield but could help improve test weight.

Irrigated wheat yields were only affected by temperature. For both dryland and irrigated wheat, warm fall and June temperatures reduced yield, while warm late-spring (May) temperatures increased yield. Irrigated wheat in southwest Kansas was not significantly affected by spring freeze damage, which implies that drought-stressed wheat may be more susceptible to spring freeze injury than wheat that is not stressed.

Together, these results suggest northwest Kansas is a more favorable environment than southwest Kansas to grow dryland winter wheat, Holman said. There was no difference in irrigated wheat yields between the southwest and northwest.

Future dryland crop breeding and agronomic research needs to improve winter wheat establishment and improve the tolerance of wheat grown in southwest Kansas to spring freeze damage, he said. Both dryland and irrigated wheat will benefit from increased tolerance to warm fall and June temperatures.

Life insurance important decision in family

Most of us know that life insurance is not about us, but about our families and loved ones. Having a life insurance policy on yourself can be one of the handful of decisions that will have great significance for others over the course of a lifetime.

That's why I urge you, especially during September, which is designated nationally as Life Insurance Awareness Month, to think about what a policy can do for the people you name as your beneficiaries, and how to protect it for them.

Below are some tips on protecting your beneficiaries. You can find more in our Kansas Insurance Department publication "Life Insurance Basics," which can be ordered from our department, (800) 432-2484, or printed from our website,



sandy praeger

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Name the beneficiary. Your beneficiary will receive the insurance benefits tax free, and life insurance benefits do not have to go through probate or other legal delays involved in settlement of an estate. If you die without naming a beneficiary, the benefits will be paid into your estate and then paid out according to your will or through state laws. This delays the payment and could create a financial hardship for your beneficiary.

Keep your policy in a safe place.

However, do not use any place where the policy might not be readily available. Record the basic information such as company, policy type, policy number, insured's and beneficiaries' names in a separate place. Let your beneficiary know the kind of insurance policy you have, any changes you make, and where you keep the policy.

Changing your beneficiary. A change in beneficiary may be made after the policy is taken out, unless you have named an irrevocable beneficiary. An irrevocable beneficiary arrangement can only be changed with the beneficiary's consent. Your agent can arrange for a change in beneficiaries, or you can do it by

writing directly to your life insurance company and asking for the appropriate form.

Number of beneficiaries. You can specify as many beneficiaries as you want to receive the benefits. You may also specify how the benefits are to be divided. It is a good idea to name a second (contingent) beneficiary to receive the money in case your primary beneficiary dies before you do or at the same time as you.

Social Security and life insurance proceeds for beneficiaries. According to law, monthly life insurance payments will not disqualify the beneficiary from receiving full Social Security payments. Monthly life insurance benefits do not count as earned income, regardless of how

much is paid each month through a policy.

Taxes. As a general rule, your beneficiary does not have to pay any federal income taxes on the proceeds of your policy. However, if proceeds of a policy are paid to the deceased person's estate and the total estate exceeds a statutory maximum, including life insurance, there will be federal estate taxes payable. There are variations between states, and tax laws are complex. Your agent has information on the subject, which your lawyer or accountant can explain.

Lost policy. Loss of a life insurance policy will not affect your protection in any way. If a policy is lost, accidentally destroyed or stolen, ask your agent or write the company

directly to obtain a duplicate.

Filing a life claim. Your beneficiary will need to notify the life insurance company of your death. Again, that's why it is important for your beneficiary to be able to locate your policy. Companies require a certified death certificate or other legal proof of death, and they may ask for the policy. The life insurance company will pay the proceeds of the policy to your beneficiary after receiving proper notification of death.

According to a national group, almost one out of three U.S. households don't have life insurance. I would urge you to make sure that, for your family's sake, it is included in your financial budget.

Research, improving net returns for swine producers is topic

Research aimed at improving net returns for swine businesses and a global grain and livestock outlook are among high lighted topics to be presented at Kansas State University's Swine Day, Thursday, Nov. 17, at Manhattan.

The event begins with registration and a trade show at 7 a.m. (Mountain Time). The program starts at 8:45 a.m. (Mountain Time) at the Alumni Center in Manhattan. Presentations and speakers will include:

- Current Kansa State swine research to help improve net return

of a swine business. Animal scientists from Kansas State will discuss application of the latest production research and present breakthroughs during a two-part session.

- Failure to thrive: the effect of Vitamin D at processing. Veterinarians Steve Henry, Lisa Tokach and Megan Potter from Abilene Animal Hospital are presenters.

- Global grain and livestock outlook: hot it will impact you, featuring Joe Kerns, risk assessment and management, Ames, Iowa.

Cost to attend is \$25 per person

by Thursday, Nov. 10; \$35 at the door. Registration includes lunch, conference materials and parking permit. Information will be posted online as the event draws closer at www.ksuswine.org.

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Aaron L. Doonan, MD, is a Kansas native. He graduated Summa Cum Laude and with academic honors from Washburn University, Topeka, then earned his medical degree from the University of Kansas School of Medicine, Kansas City. He completed his residency in Internal Medicine at the Cleveland Clinic Foundation and a Cardiovascular Disease Fellowship at the University of Minnesota.

He is board certified in Basic Life Support and Advanced Cardiac Life Support by the American Board of Internal Medicine.

Dr. Doonan is a member of the American Medical Association, the Society for Cardiac Angiography and Interventions, and a Fellow-In-Training with the American College of Cardiology. He has presented at numerous medical symposiums and has been published in the American Journal of Cardiology.

For more information about cardiac services at the DeBakey Heart Institute at HaysMed, call 888-625-4699 or ask your primary care physician.

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