k-state extension AGRONOMY e-Updates

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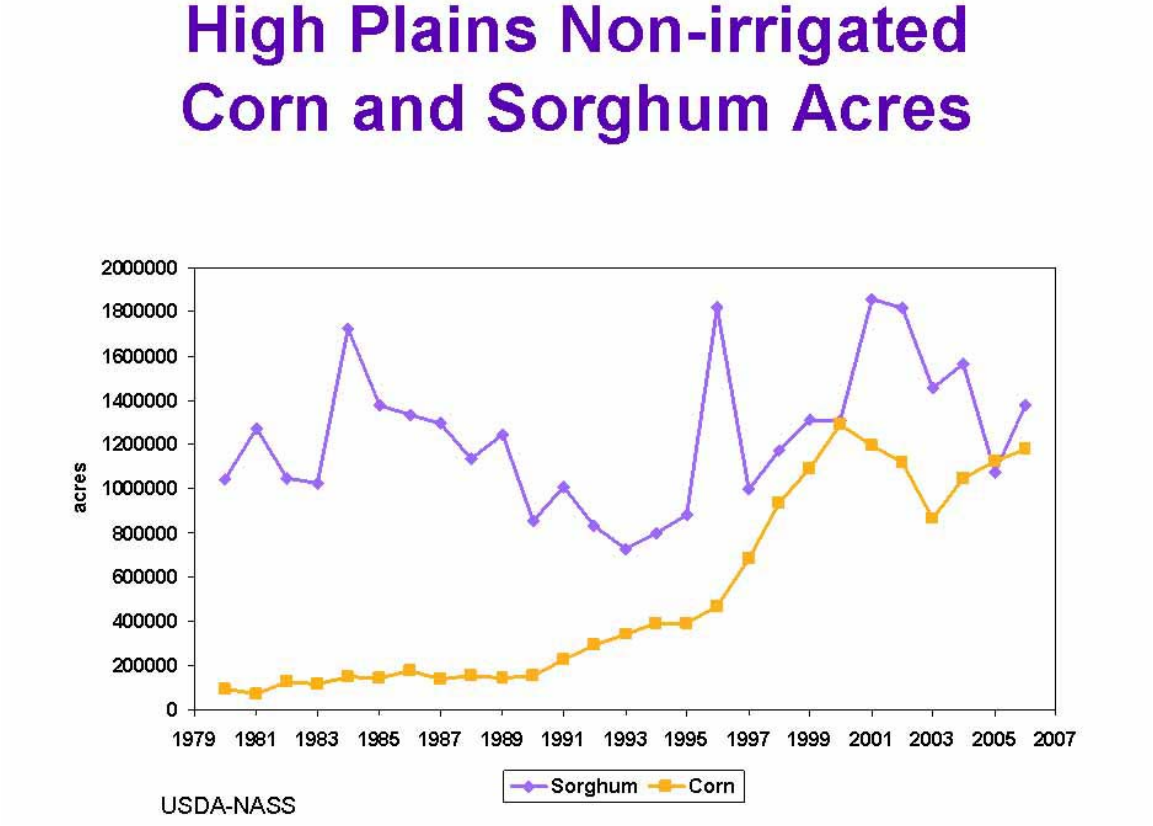
1. Comparing corn and grain sorghum performance in the High Plains

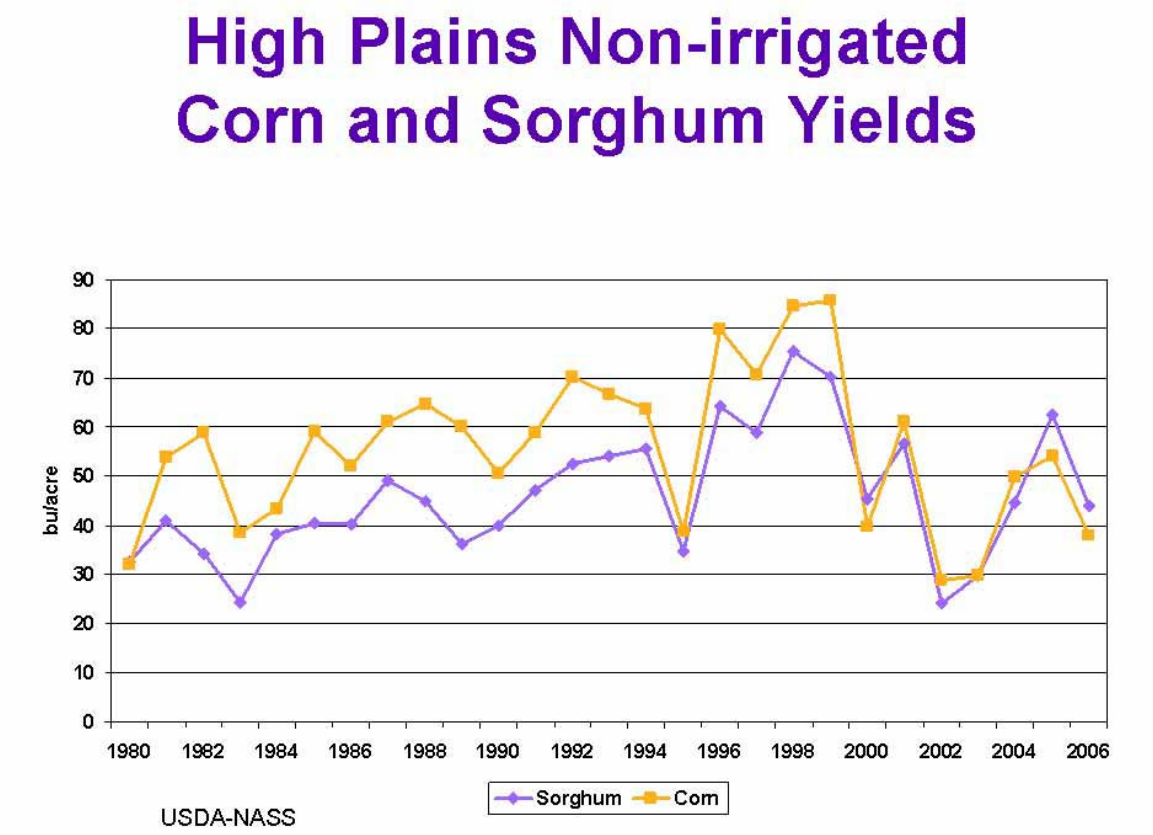
One of the most common decisions for many dryland farmers in Kansas is whether to plant corn or grain sorghum. There are many areas of Kansas where the two crops are both commonly planted, and neither has an overwhelming advantage. The acreage of dryland corn has been steadily increasing in the High Plains (the western three Kansas Agricultural Statistics districts, southwest Nebraska, and eastern Colorado) relative to the acreage of dryland grain sorghum.



Some of the main factors to consider are the cost of seed, the availability of herbicide options, the local basis and grain price, and of course the expected yields of the two crops in different types of growing seasons.

What does the research in Kansas reveal? In what situations does dryland grain sorghum have an advantage over corn, and vice versa – both in terms of yield and economics? Accurate comparisons between corn and sorghum require that each crop be grown at the same location in close proximity, and be managed to optimize production of that crop.

Historically, the yields of dryland corn and sorghum in the western-most districts of Kansas favored corn in the 1980's and 1990's. But yields have been fairly similar since 2000 in the High Plains region.



The best comparisons of yields between the two crops can be found in performance test data where the two crops were both tested at the same location, and in crop rotation research trials where both crops were included at the same location each year.

In the High Plains region, we were able to assemble 75 dryland corn-sorghum comparisons from 1992-2007. Most of these comparisons were from Thomas, Greeley, and Ellis counties, but some were from Stafford and Finney counties, as well as from Nebraska and Colorado.

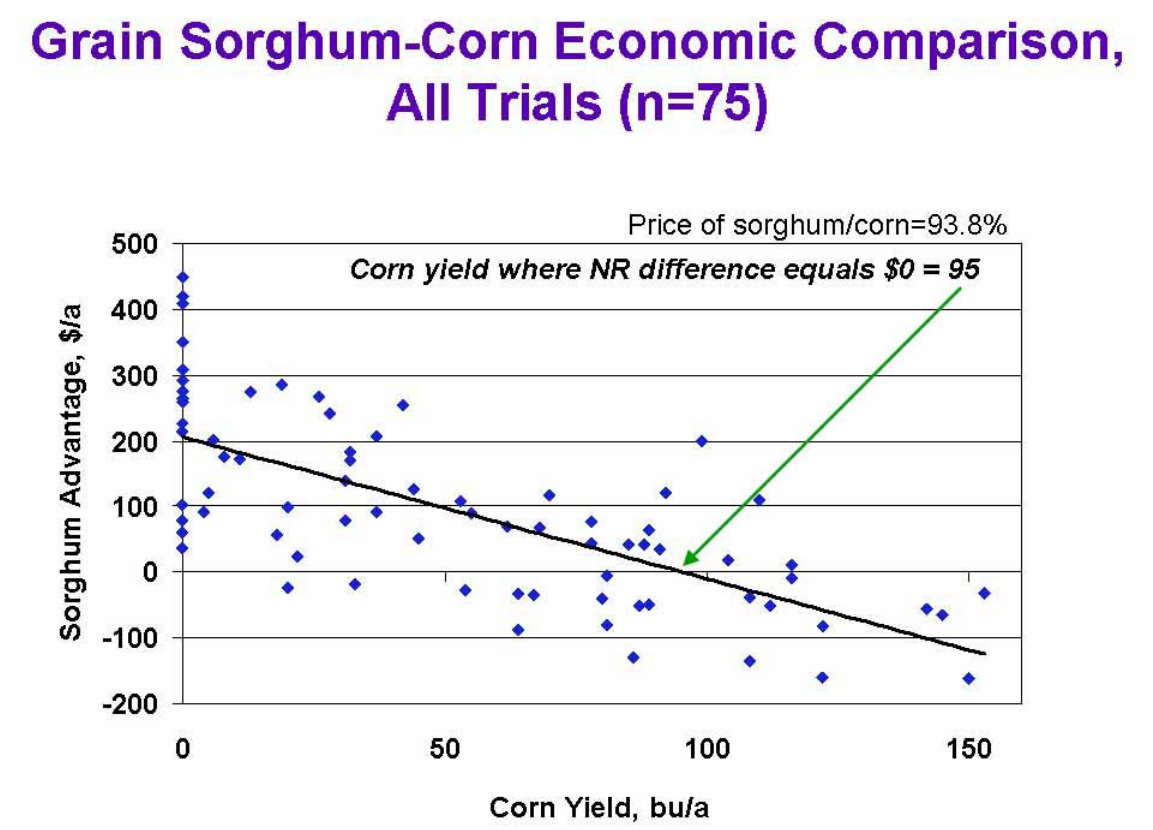
Averaged over all comparisons, dryland sorghum outyielded dryland corn in the High Plains by 19 bushels per acre (71 to 52 bpa). Sorghum yields were also much more consistent than corn yields in that region. Corn generally yielded more than sorghum when corn yield was 80 to 90 bpa or more.

Economic comparisons were also made, using information from *Corn and Grain Sorghum Cost-Return Budgets in Western Kansas* (MF-2150 and MF-904). Returns were calculated using corn and sorghum prices from the three western Kansas crop reporting districts from the January 2, 2008 Agricultural Prices report from Kansas Agricultural Statistics.

Assumptions Used in Economic Comparison of Dryland Corn and Sorghum in High Plains			
	Average Yield for Location		
	60	80	100
Sorghum costs* ($/acre)	$212.01	$247.31	$282.19
Corn costs* ($/acre)	$248.21	$284.02	$320.28
Sorghum price ($/bu)	$3.76	$3.76	$3.76
Corn price ($/bu)	$4.01	$4.01	$4.01
Government ($/acre)	$11.22	$12.20	$13.17

* Costs include land, labor, machinery, and production costs. From *Corn and Grain Sorghum Cost-Return Budget in Western Kansas* MF-2150 and MF-904, Troy J. Dumler et al. Assumes Wheat-Corn/Sorghum-Fallow rotation

Corn yield was used to characterize the relative productivity of each environment. The economic advantage for sorghum was plotted against corn yield to determine which environments favored corn and which favored sorghum based on the economic assumptions presented above.



The point at which greater profitability switched from sorghum to corn varied with location, but the range was generally between 70 and 95 bpa. In other words, sorghum was more profitable in environments that supported corn yields of 70 to 95 bpa or less. Corn was more profitable in environments that supported corn yields of 70 to 95 bpa or more.

In an upcoming issue, we will look at the economics of this decision in northcentral and northeast Kansas, with data from K-State's Barney Gordon and Kevin Dhuyvetter.

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2. Planning for spring-seeded alfalfa

Now is a good time to start planning for spring seeding of alfalfa. Many stands of alfalfa in Kansas had damage from freeze, flooding, and/or severe insect and disease pressure last year, and had to be destroyed. If new fields of alfalfa were not seeded last fall, spring seeding will be necessary.

Spring seeding of alfalfa often succeeds well in Kansas, since rainfall in April and May is usually more predictable than rainfall in late summer or early fall. Productivity this summer will be limited, however.

Alfalfa planting can begin in late March in southeast Kansas, and in April in other areas of the state. On irrigated fields, alfalfa can be planted into May.

Some tips for planting alfalfa:

* Producers should have their soil tested as soon as it thaws this winter to determine if phosphorus, potash, or lime needs to be added.

* In selecting a variety, producers should look at state performance test results. Also, look at disease resistance and fall dormancy ratings. Choose varieties that can resist phytophthora root rot, bacterial wilt, fusarium wilt, verticillium wilt, anthracnose, pea aphid, spotted alfalfa aphid, and other diseases and insects. Fall dormancy ratings of 3 to 4 are best for the northern part of the state, and 4 to 5 are best for southern areas. The lower the number, the earlier the variety goes into dormancy and the less productive it is in the early fall.

* Plant in firm, moist soil. This can be accomplished with no-till. Minimizing tillage when planting alfalfa this spring can also decrease planting costs and help maintain soil moisture levels. No-till has worked well for alfalfa, especially when planted onto failed wheat ground, or into last year's row crop stubble.

* Make sure weeds are controlled before planting and after emergence. This is especially important in spring-planted alfalfa. For the latest recommendations, see K-State Report of Progress 994 "2008 Chemical Weed Control for Field Crops, Pastures, Rangeland, and Noncropland": http://www.oznet.ksu.edu/library/crpsl2/SRP994.pdf

Read and follow all label directions when using any pesticide.

* Producers should make sure there is no potentially harmful herbicide carryover remaining in the field that will be planted to alfalfa. Consult product labels for specific rotation restrictions of any herbicide.

* Inoculate the seed to help ensure the nitrogen fixation necessary for optimum production.

* In general, plant seed 1/4 to 1/2 inch deep. But never plant less than 3/4 inch deep in sandy soils unless the field is irrigated.

* Plant 8 to 12 pounds of seed per dryland acre in the west, 12 to 16 pounds per dryland acre in central and eastern Kansas, and 15 to 20 pounds per irrigated acre in all soils.

* Plant certified, treated seed.

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These e-Updates are a regular weekly item from K-State Extension Agronomy and Steve Watson, Agronomy e-Update Editor. All of the Research and Extension faculty in Agronomy will be involved as sources from time to time. If you have any questions or suggestions for topics you'd like to have us address in this weekly update, contact Steve Watson, 785-532-7105 swatson@ksu.edu, or Jim Shroyer, Research and Extension Crop Production Specialist and State Extension Agronomy Leader 785-532-0397 jshroyer@ksu.edu