

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Cornhusker Economics

Agricultural Economics Department

January 2003

Crop Selection and The Potential of Drought

H. Douglas Jose

University of Nebraska-Lincoln

Follow this and additional works at: https://digitalcommons.unl.edu/agecon_cornhusker



Part of the [Agricultural and Resource Economics Commons](#)

Jose, H. Douglas, "Crop Selection and The Potential of Drought" (2003). *Cornhusker Economics*. 102.
https://digitalcommons.unl.edu/agecon_cornhusker/102

This Article is brought to you for free and open access by the Agricultural Economics Department at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Cornhusker Economics by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

Cornhusker Economics

Cooperative Extension

Institute of Agriculture & Natural Resources
Department of Agricultural Economics
University of Nebraska - Lincoln

Crop Selection and The Potential of Drought

Market Report	Yr Ago	4 Wks Ago	1/24/03
<u>Livestock and Products,</u>			
<u>Average Prices for Week Ending</u>			
Slaughter Steers, Ch. 204, 1100-1300 lb Omaha, cwt	\$68.63	\$72.92	\$77.69
Feeder Steers, Med. Frame, 600-650 lb Dodge City, KS, cwt	87.02	*	83.84
Feeder Steers, Med. Frame 600-650 lb, Nebraska Auction Wght. Avg	92.96	88.91	87.94
Carcass Price, Ch. 1-3, 550-700 lb Cent. US, Equiv. Index Value, cwt	105.67	111.91	118.92
Hogs, US 1-2, 220-230 lb Sioux Falls, SD, cwt	40.63	*	35.50
Feeder Pigs, US 1-2, 40-45 lb Sioux Falls, SD, hd	*	*	*
Vacuum Packed Pork Loins, Wholesale, 13-19 lb, 1/4" Trim, Cent. US, cwt	109.60	*	92.51
Slaughter Lambs, Ch. & Pr., 115-125 lb Sioux Falls, SD, cwt	*	82.75	88.37
Carcass Lambs, Ch. & Pr., 1-4, 55-65 lb FOB Midwest, cwt	129.07	164.60	164.86
<u>Crops,</u>			
<u>Cash Truck Prices for Date Shown</u>			
Wheat, No. 1, H.W. Omaha, bu	3.11	3.80	3.66
Corn, No. 2, Yellow Omaha, bu	1.90	2.24	2.27
Soybeans, No. 1, Yellow Omaha, bu	4.10	5.53	5.58
Grain Sorghum, No. 2, Yellow Kansas City, cwt	3.63	4.55	4.48
Oats, No. 2, Heavy Minneapolis, MN, bu	2.21	2.17	2.24
<u>Hay,</u>			
<u>First Day of Week Pile Prices</u>			
Alfalfa, Sm. Square, RFV 150 or better Platte Valley, ton	*	150.00	150.00
Alfalfa, Lg. Round, Good Northeast Nebraska, ton	65.00	80.00	80.00
Prairie, Sm. Square, Good Northeast Nebraska, ton	105.00	117.50	115.00
* No market.			

Three years ago I wrote an article in Cornhusker Economics on the possibility of the dry conditions in 1999 continuing into the 2000 crop year. I commented that we had not dealt with a serious drought in Nebraska for many years. I hope that was not an omen, or a curse, but we have been dealing with moisture shortfalls ever since. The state average yield for dryland corn was 84 bushels per acre in 2000. In 2002 timely rains, at least for non-irrigated corn, were only a mirage resulting in a state average yield of 60 bushels per acre.

In the past 10 years, non-irrigated corn acreage in Nebraska increased from about 2.5 million acres to over 3 million acres. Non-irrigated soybeans increased by a million acres during the decade of the 1990s from 1.7 to 2.7 million acres. During the same period non-irrigated sorghum acres declined by more than two-thirds, with only about 300,000 acres being harvested in 2002.

Now the big question. In the face of the continuing drought this winter, what about crop selection for 2003?

Comparison of Crops

Table 1 presents the basic information to compare the expected returns. Note that the expected prices are the prices which have been set by the Risk Management Agency for the APH-MPCI crop insurance program for this year. The planting or spring prices for the CRC program will be established during the month of February. Historically, grain sorghum prices have been from 85 to 95 percent of corn prices, per bushel. In the last couple of years there have been time periods when sorghum was at a premium to corn, due to a strong demand and reduced supply. Sorghum is 95.5 percent of corn in the RMA prices.

You can do your own analysis using your yields and the prices you expect to prevail. This analysis shows that the expected returns over cash costs are about the same for sorghum and soybeans, based on the prices and costs used.



To produce the same returns with corn as those shown for sorghum, the corn yield would have to be 109.5 bu.

$$\text{Sorghum return over costs} + \text{corn production costs} = \\ \$125 + \$116 = \$241.$$

$$\text{Breakeven corn yield} = \text{Costs to be covered} \div \text{expected selling price} = \$241 / \$2.20 = 109.5 \text{ bu}$$

An alternative approach is to look at the probabilities of different moisture conditions and the equivalent breakeven corn yields. This analysis is shown in Table 2.

These probabilities show there is a 35 percent chance or about one chance in three that the moisture conditions through the growing season will be normal or better, and a two-thirds chance that they will be below normal. Again,

you can insert your own numbers and work through the calculations. By multiplying the probabilities and the equivalent corn yields and adding them up, the expected equivalent corn yield is 88 bushels. $[(.1 \times 119) + (.25 \times 110) + (.45 \times 85) + (.20 \times 66)]$. This means that if you expect a corn yield of 88 bushels or more, given the current soil moisture conditions and a dry growing season, you are better off growing corn rather than sorghum. If this is questionable for your soil conditions, grain sorghum is the better alternative.

H. Douglas Jose, (402) 472-1749
Extension Farm Management Specialist

Table 1. Cost, Yield and Price Information to Compare Dryland Crops, Per Acre

Crop	Expected Dryland Yield	Cash Costs*	Expected Harvest Price per Bushel**	Expected Gross Income	Expected Returns over Cash Costs
Corn, NoTill, after Soybean	100 bu	\$116	\$2.20	\$220	\$104
Soybean, NoTill, R.R.	38 bu	\$77	\$5.30	\$201	\$124
Grain Sorghum, NoTill	95 bu	\$75	\$2.10	\$200	\$125

* Includes labor and interest on operating costs. Does not include crop insurance, depreciation or interest on machinery.

** Prices established by the Risk Management Agency for the APH-MPCI Crop Insurance Program for 2003.
Reference: Nebraska Crop Budgets. EC01-872-S. Nebraska Cooperative Extension

Table 2. Equivalent Corn Yields for Different Moisture Conditions

Moisture Situation	Subjective Probability Based on Current Conditions	Expected Grain Sorghum Yield	Return over Cash Costs	Corn Yield for Equivalent Return
Above Average	.10 or 10%	105	\$146	119 bu.
Average	.25	95	\$125	110 bu.
Below Average	.45	70	\$72	85 bu.
Very Dry	.20	50	\$30	66 bu.