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Cooperative Extension South Dakota State University

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Grain Sorghum Harvesting
Alternatives and Associated Fuel-Energy Requirements

Cooperative Extension Service
South Dakota State University, Brookings
U. S. Department of Agriculture
Alternatives and Associated Fuel-Energy Requirements for Grain Sorghum Harvesting

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General Information

The flow charts shown in this Fact Sheet can be used to determine fuel and energy requirements for harvesting either dry grain sorghum or wet grain sorghum. These charts can also be used to select grain sorghum harvesting, storage, and handling system alternatives. The most common alternatives available to South Dakota farmers for harvesting and storing are included.

Dry Harvesting of Grain Sorghum

If weather and crop conditions permit, harvesting field dry grain sorghum requires at least fuel and electricity to get the crop from field to feeding or market. Above each block in the chart is given the amount of gasoline required per bushel of grain sorghum for the operation. For example, to combine standing grain sorghum .03 gal / bu of gasoline on the average is needed. Each 100 bushels would take 3 gallons of gasoline. To get the total fuel requirements for a given harvesting and handling alternative, fuel needs for each block (operation) can be added. For example, to combine, farm store, and market would require a total of .03+.01=.04 gal /bu of gasoline. Thus 4 gallons of gasoline would be needed for each 100 bushels of grain sorghum. To convert the gasoline figures to diesel multiply the figure by .72. To convert from gasoline to LPG ("bottled gas") multiply the figure by 1.2. If an individual operator has fuel consumption records that appear more valid than those shown, then use them. Also note that all alternatives colored green appear to offer the lowest energy requirements.

Wet Harvesting of Grain Sorghum

Above each block in the chart is given the amount of gasoline or LPG ("bottled gas") required per bushel of grain sorghum to perform the operation. Electricity requirements for drying are also included. For example, to combine wet grain sorghum, grind into silo and then feed requires a total of .03+.035+.01=.075 gal /bu of gasoline. Thus 7.5 gallons of gasoline would be required for each 100 bushels of grain sorghum. To convert gasoline figures to diesel multiply the figures by .72. To convert from gasoline to LPG multiply the figures by 1.2. To convert LPG to gasoline divide the LPG number by 1.2. The paths outlined in red are those that have been determined as needing higher energy requirements. Green paths appear to offer the lowest fuel requirements. The .195 gal /bu at the right is expressed as gasoline. Electricity requirements are not included in the above figure. If an individual operator has fuel and electrical consumption records that appear more valid than those shown, then use them. The fuel and energy costs for drying are based on reducing moisture content 5 percentage points.

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Grain Sorghum (Dry)

Numbers in circles appearing near blocks refer to more information on the subject. These are listed in the key. Most of these publications listed may be obtained through your County Extension Agent or from the Bulletin Room at South Dakota State University, Brookings, S. D. 57006. When ordering, please give the number and title of the publication.

Key to Circled Reference Numbers
GRAIN SORGHUM DRY
1—FS 608 "Efficient Corn and Sorghum Harvesting."
2—Ext. Circ. 663 "Rates Paid for Custom Work in South Dakota."
3—Ext. Circ. 664 "Machinery Costs, Own, Lease or Custom Hire."
4—FS 601 "Temporary Storage."
5—USDA Farmers Bulletin No 2071 "You Can Store Grain Safely on the Farm."
6—USDA Farmers Bulletin No 2009 "Storage of Small Grains and Shell-Corn on the Farm."
7—Agricultural Engineering Digest-12
25—Bulletin 542 "Header Attachment Helps Save Grain Sorghum."
26—Ext. Circ. 177 "Reduce Shatter Losses in Your Grain Sorghum Harvest.
29—USDA Farmers Bulletin No 2009 "Storage of Small Grains and Shell-Corn on the Farm."

Alternative Harvesting and Associated Fuel-Energy Requirements

This Fact Sheet is one of six in a series dealing with fuel-energy requirements in harvesting and storage of corn and grain sorghum. The entire series includes the following:

FS 605—Corn Harvesting Alternatives and Associated Fuel-Energy Requirements.
FS 606—Grain Sorghum Harvesting Alternatives and Associated Fuel-Energy Requirements.
FS 607—Drying the Crop With Less Fuel.
FS 608—Efficient Corn and Sorghum Harvesting.
FS 609—High Moisture Grain Storage.
FS 610—Temporary Storage.

These fact sheets are available through your county Extension agent or the Bulletin Room, South Dakota State University, Brookings, S. D. 57006.