

Profitability and Production Costs of Grain Sorghum in Texas

Annual Report

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Principal Investigator: Phillip Johnson (Texas Tech University)
Co-Principal Investigator: Larry Falconer (Texas Agricultural Experiment Station)
Primary Agency Affiliation: Texas Tech University, Lubbock, Texas
Contact Information: Phillip Johnson
Agricultural and Applied Economics
Texas Tech University
PO Box 42132
Lubbock, TX 79409-2132
phil.johnson@ttu.edu

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NON-TECHNICAL REPORT

Project Description and Expected Results

The long-term viability of grain sorghum production in Texas will depend on its profitability within farming operations. The objective of this study is to evaluate profitability and production costs of grain sorghum production in the High Plains (HP) and Coastal Bend (CB) regions using the Standardized Performance Analysis (SPA) program. SPA is a management tool designed to complete an integrated financial, production, and marketing analysis of an entire farming operation using farm financial statements and relevant production data.

Results from this project will provide producers with a detailed analysis of their financial information over their entire farm. A database of farm level financial and economic analyses, including production cost and profitability information is also being compiled for grain sorghum production across the HP and CB regions. Upon completion of the database, fiscal year “report cards” will be generated for individual enterprise observations. The report card provides each producer with information for each observation over all enterprises on his/her farm in comparison with the average of all observations within the database for each respective enterprise and crop year.

Producer Benefit

The expected results from this research project will benefit farmers, researchers, and extension personnel. SPA will provide grain sorghum producers with individual management information to assist with management decisions. Upon completion of the databases, farmers will be able to evaluate their individual performance against other producers within their region and across the state. It is expected that producer performance will increase, as farmers become better equipped with more detailed and complete information on their farming operations. The SPA database will also provide researchers and extension personnel with valuable production and financial information for future research in grain sorghum production.

Current Project Accomplishments

This project has made significant strides towards completion of the research objectives this past year. Cooperators have been identified in the HP and CB regions, and analyses for the 1999 crop year are being completed. In addition, databases have been developed for the HP and CB regions evaluating irrigated milo, dryland milo, irrigated milo behind failed cotton, and dryland milo behind failed cotton. It is anticipated that the 1999 crop year databases will be completed by the end of December 2000 following the completion of all 1999 analyses.

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TECHNICAL REPORT

Project Type

This project is being completed under the individual economic research support projects.

Project Objectives

1. Perform integrated enterprise and whole farm analysis of grain sorghum producing farms in the High Plains and Coastal Bend regions of Texas, and
2. Compile a database of grain sorghum production costs and profitability.

Methodology

Standardized Performance Analysis (SPA) is an integrated financial analysis program that allows analysis of multiple agricultural enterprises within a single farming operation. SPA generates fiscal year production and financial data with a focus on determining enterprise cost of production, profitability, and return on assets. Additionally, SPA completes a detailed financial analysis of the total farm business. SPA is an analytical tool that utilizes total farm financial statements (balance sheets and accrual adjusted income statements) to examine true enterprise performance. Financial statement information for expenses, revenues, assets, and liabilities is allocated to each enterprise. From this information, cost determination can be made using the farmer's actual financial information. This type of analysis provides individual farm operations with detailed financial information for their farm business.

The use of a standardized analytical tool, such as SPA, provides the means to generate analyses that are comparable across the state and regions. All analyses are performed using the same standards of allocation and calculation methods. Additionally, SPA allows comparison of different types of ownership structures, such as sole proprietorships, partnerships, and corporations.

A database of farm level financial and economic analyses, including production cost and profitability information, is being compiled for grain sorghum production across the two grain sorghum production regions of the state. The database program compiles all individual analysis and produces total business reports that summarize the whole farm financial situation and provides "report cards" for individual enterprise observations. The report card gives a producer information for each enterprise on his/her farm in comparison with the average of all observations within the database for each respective enterprise and crop year.

Results and Discussion

This project has made significant strides towards the research objectives this past year, and is an on-going process. The project began with the task of recruiting producers from the High Plains (HP) and Coastal Bend (CB) regions, with a total of nineteen producers agreeing to participate in the project. Additionally, several producers from previous SPA projects were retained as participants for the completion of this project. Once participants were identified, the process of collecting each producer's information started. This involved meeting with producers individually to collect all necessary production and financial information. In order for SPA results to be reliable, extreme care must be taken throughout the information collection process. Thus, the process varies for each producer depending on the quality of their information and personal time constraints. Upon collection of all necessary information, the SPA analysis began for each producer.

It is important to note that SPA analyses for 1999 are on-going and all results are preliminary at this point. Databases have been developed for the Southern High Plains (SHP), Northern High Plains (NHP), and CB regions evaluating irrigated milo, dryland milo, irrigated milo behind failed cotton (bfc), and dryland milo bfc. For the purposes of this project, the boundary between the NHP and SHP has been established as the southern county lines of Parmer, Castro, Swisher, Briscoe, Hall, and Childress counties. After completion of the individual producer SPA analysis, results from the analysis are entered into the appropriate database. The databases provide a means to aggregate the results across all individual SPA analyses. It is anticipated that all SPA analyses will be finished by the end of December 2000, which will allow completion of the 1999 databases. However, for the purpose of this report, preliminary results through the end of October 2000 are presented.

Preliminary results for the SHP, NHP, and CB regions are reported in Tables 1, 2, and 3, respectively. All results are reported on an aggregate basis for each region. Note that some results are not published at this time to avoid disclosing individual producers. **All information gathered from individual operations is held in strict confidence. The publication of production, marketing, and financial standards is on an aggregate basis only.** It is anticipated that these results will be reported as more observations are added to the databases.

The milo price received was relatively constant across all enterprises and regions ranging between \$2.78 to \$2.98 per hundred weight (cwt). However, there was significant variation in operating and total costs across regions, which is partially explained by differences in yields across the regions.

The preliminary results from the SHP indicate cash operating expenses of \$5.68, \$5.93, \$5.13, and \$5.01 per cwt for irrigated milo, dryland milo, irrigated milo bfc and dryland milo bfc, respectively. This variation can be partially explained by difference in yields across the enterprises. The SHP experienced aggregate yields of 45, 12, 23, and 13 cwt per acre for irrigated milo, dryland milo, irrigated milo bfc, and dryland milo bfc, respectively. Results indicate that irrigated milo had higher costs on a per acre basis; however, the results are similar to the other milo enterprises when reported on a production unit basis. Additionally, dryland milo was the only sorghum related enterprise to generate a positive net return for 1999 in the

SHP. Net returns were \$-86.63, \$29.34, \$-18.47, and \$-8.26 per acre for irrigated milo, dryland milo, irrigated milo bfc, and dryland milo bfc, respectively.

Preliminary results for the NHP are detailed in Table 2. Results were not reported for irrigated milo bfc and dryland milo bfc to avoid disclosing individual producers. The NHP experienced cash operating expenses of \$4.71 and \$8.28 per cwt for irrigated milo and dryland milo, respectively. This difference can be attributed to variations in yields for the two enterprises. On an aggregate basis, irrigated milo and dryland milo produced yields of 33 and 22 cwt per acre, respectively. In contrast to the SHP, irrigated milo generated net returns of \$20.19 per acre, while dryland milo experienced negative net returns of \$70.30 per acre.

The CB preliminary results are provided in Table 3. Currently, results are only reported for dryland milo in the CB region. Irrigated milo results are not reported to avoid disclosing individual producers, and there were no reported observations for irrigated milo bfc and dryland milo bfc in 1999. The CB incurred cash operating expenses of \$2.16 per cwt for dryland milo. In addition, the CB generated the highest net return across all enterprises and regions of \$56.57 per acre.

A comparison across all enterprises and regions shows that the CB region outperformed the SHP and NHP among all enterprises with respect to profitability and showed lower production costs on the aggregate level. This is largely explained by significantly higher yields of 44 cwt per acre for dryland milo. Dryland milo yields in the CB region were substantially higher compared to all other enterprises across all regions, with the exception of irrigated milo in the SHP. The CB was able to produce higher yields without the irrigation expense due to higher rainfall totals in that region. This allowed dryland milo to produce higher net returns when compared to all other regions.

This report includes preliminary results and is a sample of the results that can be expected from this project. Aggregated results may change as 1999 analyses are completed, however, the results are not expected to change drastically. Upon completion of the project, a complete report will be provided detailing profitability and production costs. The final results will provide a complete breakdown and analysis of all major variable costs.

Technology Transfer and Education Activity

There have been no publications to date, however it is anticipated that publications will be forthcoming as the project is completed. Upon completion of 1999 analyses, it will be determined if one year of results are sufficient for presentation at the 2001 Sorghum Industry/Biennial Grain Sorghum Research and Utilization Conference.

This project is also incorporated in the educational process for graduate students and undergraduate students. Currently, there are a Research Assistant and two Student Assistants working on the project, with responsibilities of working with participants to complete their analysis.

TABLE 1

Southern High Plains - 1999 Preliminary Results				
	Irrigated Milo	Dryland Milo	Irr. Milo	Dry Milo
			Behind Failed Cotton	Behind Failed Cotton
Yields (cwt/Acre)	45	12	23	13
			(\$/cwt)	
Total Cash Operating Expenses	5.68	5.93	5.13	5.01
Total Enterprise Cost	7.66	8.53	6.37	6.93
Enterprise Cost of Production	4.45	0.54	3.67	3.45
Milo Price Received	2.91	2.98	2.87	2.82
			(\$/Acre)	
Net Returns/Acre	-86.63	29.34	-18.47	-8.26
Non-Primary Product Income	144.62	126.62	67.25	45.23

TABLE 2

Northern High Plains - 1999 Preliminary Results				
	Irrigated Milo	Dryland Milo	Irr. Milo	Dry Milo
			Behind Failed Cotton	Behind Failed Cotton
Yields (cwt/Acre)	33	22	*	*
			(\$/cwt)	
Total Cash Operating Expenses	4.71	8.28	*	*
Total Enterprise Cost	5.34	9.25	*	*
Enterprise Cost of Production	2.20	6.01	*	*
Milo Price Received	2.82	2.78	*	*
			(\$/Acre)	
Net Returns/Acre	20.19	-70.30	*	*
Non-Primary Product Income	103.39	71.39	*	*

* Not published to avoid disclosing individual producers

TABLE 3

Coastal Bend - 1999 Preliminary Results				
	Irrigated Milo	Dryland Milo	Irr. Milo	Dry Milo
			Behind Failed Cotton	Behind Failed Cotton
Yields (cwt/Acre)	*	44	**	**
			(\$/cwt)	
Total Cash Operating Expenses	*	2.16	**	**
Total Enterprise Cost	*	3.04	**	**
Breakeven Cost	*	1.58	**	**
Milo Price Received	*	2.78	**	**
			(\$/Acre)	
Net Returns/Acre	*	56.57	**	**
Non-Primary Product Income	*	65.14	**	**

* Not published to avoid disclosing individual producers

** No observations were reported for the enterprise