

Characteristics of U.S. Wheat Farming

A Snapshot

Mir B. Ali
Nora L. Brooks
Robert G. McElroy

Introduction

Wheat is the principal cereal grain crop used for food consumption in the United States and most of the world. In terms of value of production, wheat is usually the Nation's fourth field crop. Only corn, hay, and soybeans have higher marketings. Wheat is an important U.S. export crop, with about 50 percent of total wheat production exported.

U.S. wheat farming involves many different topographic, climatic, and soil situations. On many farming operations, wheat is the sole or primary enterprise, although on most farming operations it is a secondary source of farm and ranch income. The 1997 agricultural census reported that 243,568 farms produced wheat.

The Federal Agriculture Improvement and Reform Act of 1996 severed the connection between program payments and market prices and gave flexibility in making cropping decisions to farm operators, landowners, and managers. At the same time, the rising cost of producing crops, more variability in the market price, and elimination of planting restrictions have pressured farmers to make decisions about which crops and how much to produce. They have to make cropping decisions in response to various production, demand, and price scenarios in both the domestic and international markets. In the absence of commodity support programs and with new planting flexibility, farmers, especially in the high-cost areas, will be looking for new or nontraditional crops with higher net returns than for wheat or for new, more profitable ways to produce wheat. Production information is useful in a variety of ways to consumers concerned about possible effects on retail food prices and the environment, to policymakers considering policies and programs that affect the economic well-being of producers and consumers, as well as to others.

This report compiles information from the U.S. Department of Agriculture's (USDA) 1994 Farm Costs and Returns Survey (FCRS) for wheat. This survey, conducted in the spring of 1995 to obtain 1994 calendar year production and financial data for U.S. wheat farms, is the only available source of such comprehensive nationwide micro-level farm information.

Importance of the Study

ERS published preliminary findings from the FCRS that briefly discussed the regional differences in characteristics and production costs of wheat farms (Ali and McElroy, 1996). An editorial on that report in the *Milling and Baking News* (June 1997) emphasized that the information derived from these USDA surveys (conducted since about 1975) has more relevance and more importance than before. According to the editorial, ". . . differences in regional costs are especially pertinent in view of another major goal of the 1996 Act . . . total flexibility. That is why these newly issued wheat production cost data take on special significance for pointing to the areas with the highest production costs and thus with the greatest vulnerability to decisions by producers to grow other crops that have a higher return than wheat. Sectors of the grain-based food industry relying on supplies from the Pacific coast and Southeast, the top cost areas, should follow these relationships to watch cropping decisions." The editorial concluded that any great cost-price discrepancy would stimulate farm organizations and policymakers to examine existing law.

Because of the resulting changes in wheat farming and farm programs that give more planting flexibility and reduce price and income supports, additional knowledge is needed about adjustment opportunities available to farmers relating to farm size, crop mix,

crop and livestock integration, land tenure, and production practices, as well as alternative resources used in wheat production.

Previous Studies

Several studies have documented cost-size relationships as a potential cause of structural change in U.S. agricultural production. (The term “farm structure” in this report simply refers to how farms of different sizes, incomes, assets, and locations organize their natural, financial, labor, and other resources.) More recently, Hallam (1993) provided a comprehensive review of studies on size, methods of analysis, and empirical results related to the structure of U.S. agriculture. However, very few studies focused on the structure of U. S. wheat production. Studies have tended to focus on the supply and demand relationships of the broader wheat industry and the effects of changes in the wheat program (Heid, 1987; Harwood et al., 1989; Hoffman et al., 1995; Schwartz and Just, 1996; and Dahl and Wilson, 1997). Heid (1973) described in detail the characteristics of grain farms in seven parts of the Northern Plains. Lagrone and Krenz (1980) described the production practices, machinery, and input use by wheat type. The Agricultural Resources and Environmental Indicators report (USDA, ERS, 1997) discussed tillage practices, input use, and management in wheat production. Glaze (1993) examined the characteristics and production costs of U.S. wheat farms in 1989. He reported that differences in regional production practices and adverse weather conditions were major influences on wheat production costs and yields. Costs of producing wheat vary considerably across individual farms, primarily associated with differences in yields, farm size, and wheat acreage (Ahearn et al., 1990).

In another study, Ahearn et al. (1993) examined the cost-size relationship for corn, soybeans, and wheat. They found significant differences in average per-bushel economic costs of producing wheat related to several indicators of structure other than size. Older operators (65 years or more) and those who owned the land had significantly higher costs, compared with younger operators and those who rented land.

Operators whose major occupation was farming had a significant cost advantage. McBride (1994b and 1994c) developed estimates of costs and returns for farm operators to examine the influences of farm organization and operator characteristics on corn production costs. He found that specialization in corn production, land tenure, irrigation, crop rotation, and corn expense structure were significant determinants of the unit cost of corn production (see Glossary for explanation of “farm structure”).

Objectives of the Study

The overall objective of this study was to identify and examine the factors that influence the costs of producing U.S. wheat. Specific objectives were:

- (1) To analyze farm and operator characteristics and production practices by classifying wheat farms based on different criteria such as region, cost level, and size of wheat enterprise.
- (2) To examine the distribution of production costs and identify key variables that affect farmers' positions on this distribution.
- (3) To identify factors that influence the unit cost of wheat production and their variance effects at national and regional levels using regression analysis.

Accomplishing these objectives will provide a valuable addition to the literature. The national survey of wheat growers allows cross-regional comparisons that have been unavailable. This analysis is also one of the first that examines the distribution of production costs in detail and decomposes the variance effects of major variables on the costs of producing wheat. This broad study of the economics of producing U.S. wheat will address issues omitted from earlier studies and will assist policymakers and researchers alike to better understand the major factors that influence production decisions by wheat growers.