

Introduction

The U.S. Department of Agriculture released the latest *Dietary Guidelines for Americans* in January 2005. In April 2005, the *Guidelines'* companion MyPyramid Food Guidance System was released and replaced the 1992 Food Guide Pyramid. A major focus of the new *Guidelines* is to encourage consumption of foods that provide substantial amounts of vitamins and minerals, yet are relatively low in calories, cholesterol, saturated fat, trans fats, and added sugars and salt so that Americans can meet their nutritional requirements “while staying within energy needs.” In particular, a chapter in the *Guidelines* is devoted to encouraging consumption of fruits, vegetables, dairy products—particularly fat-free or low-fat milk or milk products (e.g., nonfat yogurt and lower fat cheese)—and whole-grain products (a subgroup of the grains group).

If Americans adopt diets that follow the new dietary recommendations, there will be implications for U.S. agriculture. This study aims to estimate how big those impacts on agriculture might be if consumers were to fully meet the dietary recommendations for fruits, vegetables, whole grains, and milk products. Although we recognize that it is unrealistic to assume that Americans will fully meet the new dietary recommendations, they could make dietary changes to move closer to the *Dietary Guidelines'* recommended intake levels. Therefore, the estimated implications for agriculture may be realized to some extent. The findings in this report can add insight to the potential effect of these dietary changes on agricultural producers and the likelihood of U.S. agriculture's meeting the challenge to produce more of certain foods.

This report updates portions of Young and Kantor (1999), which examined the potential implications for agriculture if Americans met dietary recommendations in an earlier version of the *Guidelines*. They projected a net increase in crop acreage of about 2 percent of total cropland in 1991-95 due to the changes in consumption patterns. Young and Kantor looked at the impacts on all food groups, whereas this report examines only the impacts of the recommendations for fruits, vegetables, grain, and dairy consumption. We did not update estimates for the meat group, added fats and oils, and caloric sweeteners.¹

For each food group covered here, we tried to answer the following questions:

- (1) What level of domestic production would be needed to fully meet the *Guidelines'* recommendations?
- (2) What does this suggest for U.S. production acreage and regions?
- (3) Are there any anticipated changes in exports or the proportion or mix of products produced domestically or imported if we relax our assumptions?
- (4) Are there any interesting potential substitution effects or dietary challenges?

¹ The ERS food consumption data for added fats and oils are not appropriate for this analysis. The number of firms reporting vegetable oil production in U.S. Census Bureau data increased in 2000, causing a jump in per capita estimates in 2000, which is in the middle of the time frame for this analysis. Updating the meats group would require a more sophisticated model to fully capture the impact on meats from the new *Dietary Guidelines*. In particular, neither the simple technique employed here nor any existing ERS model can simulate the demand and supply for different quality cuts of meat (e.g., with different degrees of trimmed fat). Meat quality would undoubtedly be an issue if Americans strive to reduce fat intake. Therefore, this analysis omits meats. Given the remaining food groups, it seemed logical to focus on food groups that the *Dietary Guidelines* wanted to “encourage” and to exclude caloric sweeteners.

Understanding the full extent of the impacts requires a sophisticated dynamic model, capable of modeling complex supply and demand responses as well as the interactions across food groups and within each food group. For example, the model could incorporate offsetting shifts in trade, production, nonfood uses, and substitute foods. This study is not dynamic but rather partitions food sectors into segments that preclude interaction and ignores price effects. A more sophisticated analysis may show large price effects.

In general, for U.S. consumers to substantially increase consumption of foods in a certain food group, imports may be increased, exports may be diverted to domestic consumption, and domestic production may be expanded where possible. In this analysis, however, as discussed more fully in the methodology section, we kept the ratio between production and imports constant and held exports constant for each food group at 1999-2003 average levels. As demand for these products increases, domestic prices would likely increase as well, perhaps substantially in cases where consumption significantly increases, and maintaining constant exports would be highly unlikely. A more sophisticated analysis could use an almost infinite combination of imports, exports, and domestic production levels to move American diets closer to the new dietary recommendations.² Nevertheless, the straightforward extrapolations in this report offer a first glance of the possible implications for agriculture, which could be substantial.

² See Young and Kantor (1999) for more details on supply and demand adjustments.