

Projected Increases in Milk Production Resulting from Proposed Price Changes

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Farm Milk Supply Elasticities

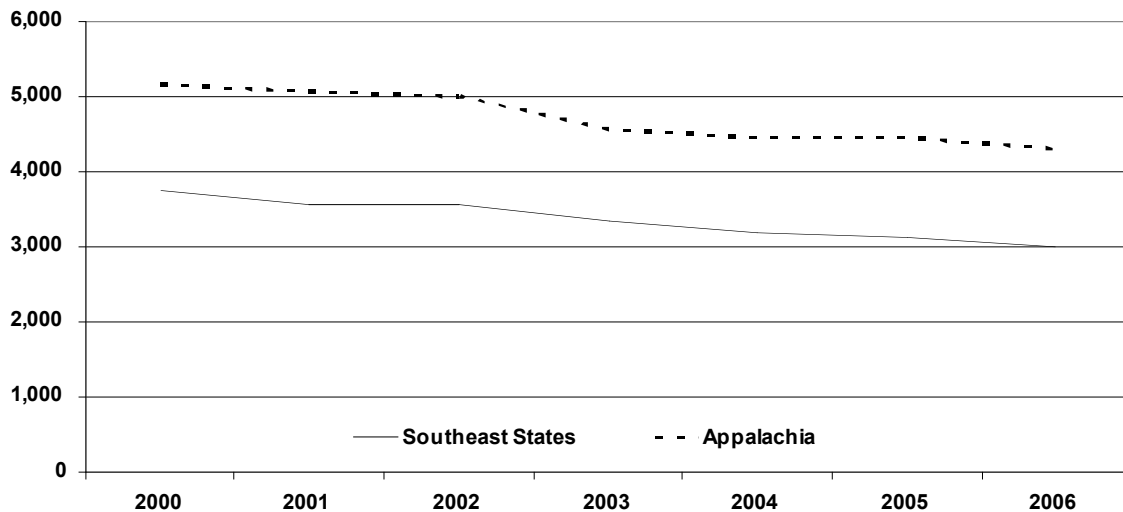
The primary reason cited for the proposed changes to the Southeast, Appalachian, Florida Federal Milk Marketing Orders is concern over declining milk production levels in these areas. To assess the impact of DCMA's proposed Class I differential increases and Diversion Limit decreases on milk production in the Southeast and Appalachia, it is beneficial to understand how changes in farm level milk prices impact production. In addition to the price of milk, numerous other factors may influence production including feed prices, land values, replacement heifer prices, and government programs, to name a few. Extensive research has been conducted in the area of farm level milk production responses to changes in milk prices at a national level, yielding a wide range of estimated price elasticities. Price elasticity is a measure of the expected percentage change in the quantity of a commodity produced given a one percent change in its price. A review of current, peer reviewed, academic research reveals estimates ranging from .07 to .59. This includes estimates from sources including the United States Office of Management and Budget (OMB), the Food and Agriculture Policy Research Institute (FAPRI), as well as other authors listed in references at the end of this paper. Little, if any, work has been published in the area of estimating supply response functions for the Southeast and even less specifically related to individual states.

Milk Production Trends in the Southeast and Appalachia

Figure 1 shows annual milk production for selected states for 2000 – 2006. Since Federal Order boundaries do not exactly follow state lines, the states of Georgia, Alabama, Mississippi, and Tennessee are referred to as the "Southeast" and North Carolina, South Carolina, Virginia, and Kentucky are referred to as Appalachia.

Based on data from the National Agricultural Statistics Service (NASS), milk production in the Southeast states has declined by an average of 122 million pounds, or 3.6 % annually since 2000. Similarly, milk production in the Appalachian states has declined by an average of 143 million pounds or 3.0 % annually since 2000.

Figure 1.



Estimated Milk Supply Response

A widely circulated set of “Talking Points” compiled by proponents of the proposal states that “the combined impact of additional Class I pooled revenue and lowered diversion limits would increase Federal Order minimum blend prices. Based on 2006 annual data the estimated increase in blend prices at the various Order base zones are: Approximately \$0.28 per hundredweight in F.O. 5 (Charlotte/Winston Salem) and Approximately \$0.75 per hundredweight in F.O. 7 (Atlanta/Dacula). Blend price increases in other cities would vary up or down from the above values based on each city’s proposed increase in Class I prices.”

Combining these estimated price increases with the afore mentioned estimated milk price (supply) elasticities offers a projection of how much milk production in the Southeast and Appalachia may be expected to increase as a result of the proposed Federal Order changes. A range of milk supply increases is derived based on the low and high elasticity estimates cited above. The low estimate (.07) is attributed to FAPRI and we consider it a short-term or partial response. The high estimate (.59) is attributed to Suzuki and Kaiser and we consider it a long-term or full effect. Dairy farmers have limited options to respond to price increases in the short run. Milking cow numbers cannot be adjusted easily except by less rigorous culling. Options to boost milk production per cow are similarly limited in a well managed heard. In the longer term, some additional heifers can be raised and the rate of dairy farm exits may slow, slowing or reversing the long term trend in cow numbers.

Between 2000 and 2006, the average mailbox milk price, the price actually received by farmers for their milk, as published by USDA was \$14.72 per hundredweight for the Southeast Federal Milk Marketing Order and \$14.27 for the Appalachian Order. The proponents estimate of a \$0.75 per hundredweight increase represents a 5% increase in the average Southeast Federal Order Uniform

price. The estimated \$0.28 per hundredweight increase represents a 2% increase in the Appalachian Federal Order Uniform price. The results of applying these estimated price increases to the indicated supply elasticities are shown in Figure 2.

Figure 2. Estimated Annual Percentage Increase In Milk Production

	Low Elasticity (.07) = Short term or partial effect	High Elasticity (.59) =Long term or full effect
Southeast Increase \$0.75	.35% Increase in Production	2.95% Increase in Production
Appalachian Increase \$0.28	.14% Increase in Production	1.18% Increase in Production

Table 2 demonstrates that, given the estimated price increases and supply response elasticities, production in the Southeast can generally be expected to increase by less than 3% and production in Appalachia can generally be expected to increase by less than 1.2%. These are lower than the average annual rates of decline of 3.6% and 3.0% experienced since 2000 by the Southeast and Appalachian states, respectively. Applying these estimated percentage increases to 2006 production levels in the two regions yields the expected milk production increases shown in Figure 3.

Figure 3. Estimated Annual Increase In Milk Production

	Low Elasticity (.07) =Short term or partial effect	High Elasticity (.59) =Long term or full effect
Southeast Increase \$0.75	10,489,000 lbs.	88,411,500 lbs.
Appalachian Increase \$0.28	6,011,600 lbs.	50,669,200 lbs.

Based on these estimates, the expected increase in milk production in the two areas as a result of the anticipated price increase is less than the current average annual rate of decline, suggesting that these modest price increases will have a very limited impact on current milk production trends.

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