decision should not be viewed as a hindrance to that conversion. At the time a change to testing for true protein may occur, a change in the 1.32 factor may be necessary.

4. Somatic Cell Adjustment. The producer price differential paid to each producer should be adjusted on the basis of the somatic cell content of the producer's milk. In a modification from the recommended decision, handlers' value of milk used in Class II and Class III, but not in Class I, also would be adjusted for somatic cell count (SCC). The value adjustment per hundredweight for each 1,000 somatic cells would be determined by multiplying .0005 times the monthly average National Cheese Exchange 40pound block cheese price. Each producer's monthly average SCC, in thousands, would be subtracted from 350 and multiplied by the value adjustment per 1,000 somatic cells. The difference between somatic cell adjustments to handler value and to producer value will be included in the computation of the producer price differential.

A wide range of somatic cell or quality plans were included in the notice of hearing and at the hearing itself. In general, all parties agreed that high-quality milk is important to all segments of the dairy industry. The major differences between the parties arose over the questions of how and whether quality and/or somatic cell adjustments should be included in the Federal order program.

A witness expert in the field of milk testing and quality testified about the influence somatic cells have on milk and the resulting affect on products made from milk. The witness explained that in normal healthy cows the somatic cell count is around 50,000. When an infection occurs in the udder of the cow white blood cells enter to fight the bacterial infection. The SCC thus increases with the increasing number of white blood cells. In fact, white blood cells and somatic cells are synonymous in this context. The witness continued by explaining that white blood cells contain enzymes that are designed to break down the cell walls of the bacteria that are infecting the udder, but do not distinguish between milk protein and bacteria. As a result, milk protein is also degraded. The witness also stated that the enzyme causes some deterioration in milkfat. The witness continued by explaining that these white blood cells also cause to be activated a proteolytic enzyme that is present in all milk.

The expert witness went on to explain that casein, which is the functionally important protein in milk, is broken

down into smaller protein chains that cannot perform the same functions as the casein. In fact, the witness explained, the destruction of the casein affects all dairy products that rely on casein for structure or function. These products include cheeses, whipped cream, yogurt, ice cream, and condensed and dry products used in the manufacture of other products in which casein is a functional necessity. The witness also explained that higher SCC milks have a tendency to have a faster increase in "acid degree value", which is a measure of rancidity and off flavors, than milks with low SCCs. The witness testified that most of the damage occurs in the udder of the cow, where conditions are ideal for the various enzymes to work. Once the milk is removed from the udder and cooled and stored properly, further deterioration does not stop but is slowed down significantly, and further damage is minimized.

The expert witness discussed the effect that somatic cell counts have on the manufacture of various dairy products, specifically cheese. He explained that high SCC milk results in lower cheese yields as well as problems with moisture control and the activity of the starter culture. The increased somatic cells result in less casein in relationship to the total protein so that less cheese is produced than would be indicated by the amount of protein present. The degraded protein ends up in the whey with the rest of the whey proteins. The witness explained that in studies using individual cow's milk cheese yield would drop dramatically as the somatic cell count went above 100,000, with the yield staying fairly constant as the somatic cell count climbed to 1,000,000.

The witness pointed out that the cheese yield effect of somatic cells differs when bulk tank milk is used instead of an individual cow's milk. He explained that in the case of bulk tank milk the relationship between cheese yield and somatic cell counts would be linear, with cheese yields declining as SCCs increase. The witness stated that the linear relationship is caused by the weighting of the SCCs in the bulk tank. Bulk tank tests are weighted averages rather than simple averages. For example, if 100 pounds of milk with a somatic cell count of 50,000 and 400 pounds of milk with a somatic cell count of 250,000 are added to the bulk tank the somatic cell count would be a weighted average of 210,000 and not the simple average of 150,000.

The witness also testified that the effect of somatic cell levels on fluid milk products is reflected in higher acid degree values that indicate rancidity and off flavors, resulting in shorter shelf life.

The expert witness testified that routine testing for somatic cells is conducted using a Foss-O-Matic infrared analyzer. The reference method for testing is the direct microscope somatic cell count in which the sample is stained and the somatic cells are counted using a microscope. The witness explained that if the electronic instruments are calibrated to the same reference samples the resulting test values and standard deviations should be in close agreement. The witness concluded that on a relative basis the results should be close to what would be obtained using other analytical tests.

The notice of hearing contained a proposal by CMPC to include an adjustment for somatic cells. However, at the hearing, a witness for CMPC explained that CMPC had decided neither to support nor oppose the inclusion of a somatic cell adjuster in the amended orders. The CMPC witness testified that the individual members of CMPC were free to support or oppose any of the somatic cell proposals as they saw fit.

As originally proposed by CMPC, the somatic cell adjustment would be computed by multiplying the National Cheese Exchange barrel price times .0005. The resulting quantity would be multiplied by 500 minus the somatic cell count of the milk, in thousands. The resulting value would be applied on a per hundredweight basis. As explained by a witness for CMPC, the proposed somatic cell adjuster would apply to all producer milk, including that purchased by Class I handlers. The witness went on to explain that the effect of somatic cells on the value of producer milk and milk used in Class II and Class III would be included in the computation of the producer price differential. A somatic cell adjustment on Class I milk would not be included in the pool, and therefore would not affect Class I handlers' cost of milk.

A witness for WCMA quoted extensively from the MCP recommended decisions for the Indiana, Ohio Valley, and Eastern Ohio-Western Pennsylvania milk marketing orders, and for the Michigan milk order, supporting the inclusion of an adjustment for somatic cells in Federal orders. The witness supported the CMPC proposal, but suggested that the somatic cell adjustment be applied to all milk; that is, Class I milk would not be exempted from a somatic cell adjustment. In addition, he proposed that the somatic cell adjustment be