PENNSTATE College of Agricultural Sciences

From the Department of Dairy and Animal Science

This regular column from Penn State's Department of Dairy and Animal Science features the research findings, student opportunities, and reports on other important topics generated in the Department. The back issues of the column are archived on *Lancaster Farming's* Internet *www.lancasterfarming.com* home page. Look for them.

Conjugated Linoleic Acid In Dairy Products

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There are many articles in the popular press and scientific journals that discuss the health benefits of consuming dairy products. In a recent magazine article, milk and dairy products were referred to as "wonder foods" of the next millennium. Numerous scientific papers are also reporting the benefits of dairy products in reducing risk of osteoporosis, hypertension and arteriosclerosis and some forms of cancer.

One component in milk which is currently receiving much public attention is conjugated linoleic acid, or CLA. Chemically, CLA is a collective term to describe one or more positional isomers of the fatty acid linoleic acid. CLA is a minor fatty acid naturally found in the milk of ruminant animals.

Scientists have known for some time about the anticarcinogenic effects of CLA, but more recent research indicates that CLA may reduce the risk of heart disease and prevent the onset of diabetes While much of this research has been conducted with experimental animals, studies are now reporting similar findings in the laboratory with human cells.

In addition, one long-term study tracking the intake of dairy products in women found that there was an association between increased consumption of dairy products and a decreased incidence of breast cancer Since CLA is a natural anticarcinogen, it may be partially responsible for this decrease in incidence of breast cancer.

These findings may provide potential for increased profit for dairy producers with the value added pricing of milk Methods of increasing the CLA content in milk and other dairy products is being evaluated worldwide. CLA is produced by the bacterial breakdown and conversion of dietary fat in the rumen of the dairy cow. A recent study conducted at Penn State in collaboration with Cornell found a four-fold increase in the CLA content in milk from cows fed pasture compared to cows fed TMR. Researchers in Wisconsin reported a similar four-fold increase

In general, feeding higher forage diets results in increased CLA content of milk, but not to the same extent as when pasture is the major forage Research has found that in traditional feeding systems, with TMR's and stored forages, feeding fat supplements such as whole soybeans and various types of vegetable oils increases the CLA content in milk. This increase may be due to specific fats provided to the rumen to make CLA.

Can these feeds and vegetable oils further increase CLA content in milk with pasture as the major source of forage? Recent research suggests this to be the case and there is potential to increase CLA concentrations beyond the 4 to 5 fold increase found with just pasture. These changes in CLA content in milk allow us to realize an increased CLA intake without increasing fat consumption, and help to strike a balance between dietary fat and CLA intake

The average CLA content of milk in the grocery store is about 3 to 5 mg of CLA/g of fat Since CLA is a fat, the lower the fat content of milk, the lower the CLA content. Therefore, it becomes essential to find a balance between total fat consumption and the intake of CLA.

Whole milk and milk fat consumption have gradually decreased Since cows are pastured less than they were 20 to 30 years ago, the intake of CLA, the beneficial fatty acid that is part of milk fat, has decreased One recent article states, "the beneficial fatty acid is a casualty of animal diets, and the trend to decreasing milk fat consumption "

Some estimates suggest that typical human diets provide 25% of the needed CLA Increasing the CLA content of milk may increase the CLA available in the normal diet without increasing total fat content. This is good news for milk fat, and the dairy industry may have the opportunity to capitalize on CLA and change the public's perception of dairy products

Public Auction Register

APRIL

SAT APR 24 - 9AM Frystown community fire Co 5 miles N of Myerstown along Rt 645 1 mile south of I 78 Exit 2 2 miles W of Rt 501 on Frystown Rd

SAT APR 24 - 9 30AM Estate of the late L A Butch Girven held at the new Clarkstown Fire Hall along Rt 422 in village of Clark stown, 3miles E of Muncy Pa Fraley Auction Co

SAT APR 24 - 9 30AM Benefit Auction to Dr Holmes Morton Clinic for the benefit of children with genetic disorders Leinbach Produce Auction, 1120 Ritner Hwy Rt 11 N Shippensburg Pa

MON APR 26 - 3PM 5 Valley

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