

Rural COOPERATIVES

USDA / Rural Development

November/December 2001

"ONE MINUTE, IT WAS BUSINESS AS USUAL AT FOREMOST FARMS' MORNING GLORY DAIRY PLANT. BUT THEN, WITHOUT WARNING, A JET PLUNGED

BOUNCING BACK FROM TRAGEDY



FROM THE SKY AND CRASHED INTO IT.

SMOKE, FIRE, CONFUSION AND DEATH FOLLOWED."

See page 10 for the story of how the co-op overcame the tragedy, stronger and more united than ever. A timely lesson for us all.

Good time to assess role of cooperatives

As farmers across the country complete the 2001 harvest and the crop pipeline is filled to capacity in many commodity sectors, it is a good time to assess major events and developments affecting agriculture in the past year. We should also consider what the cooperative system has accomplished and how it has performed. Changes have included major mergers and consolidations among food industry processors and distributors, a recessionary economy—exacerbated by the Sept. 11 attacks and subsequent declaration of war against terrorism—debate over a new Farm Bill, and efforts to open a new round of trade negotiations.

The routine of managing cooperative business activities is clearly impacted by these events, some in ways that are not yet entirely manifested. Cooperative boards and management are being challenged to make decisions regarding those elements they can control, and to be sensitive to the changes in the external environment that can have a significant influence on their operations.

The year has been characterized by continuing pressure in commodity markets due to large inventories and bumper crops, a partial recovery in export markets for farm commodities and value-added products, and shifts in the makeup of customers. As buyers at the retail and processor levels continue to consolidate, farmer cooperatives are challenged to meet the demands of bigger orders for their products, or to develop market channels more directly linked to consumers.

Even the largest of cooperatives pale

in size compared to national and international market players, according to Dr. Larry Hamm of Michigan State University, who stresses (see article on p. 21) that this size issue is exactly why

These failures highlight the need for intensified board and management education efforts that increase the proficiency of board members. . .

the Capper-Volstead Act was passed. The Act enables farmers to use cooperatives as a preferred marketing tool to gain influence in the marketplace when dealing with much larger customers.

A number of new efforts this past year bear witness to the desire of producers to find new cooperative marketing strategies. For example, sugarbeet producers in several states have attempted to lease or purchase sugar factories in an attempt to secure their markets. Livestock producers are undertaking organizational initiatives to establish themselves as marketers of animal products. And grain and oilseed producers are examining expanded roles in producing biofuels.

While producers continue to explore

many new, value-added ventures, they are also carefully examining the benefits of horizontal associations for marketing identity-preserved crops and negotiating contract terms with buyers.

Despite momentum on these fronts, well-publicized failures of two large local cooperatives in the grain industry in Kansas and Iowa and of a livestock venture in Missouri indicate the need for improvement by boards of directors and cooperative management in discharging their respective fiduciary responsibilities. These failures highlight the need for intensified board and management educational efforts that increase the proficiency of board members and personnel to oversee the management of more complex operations.

Several years ago, a multi-agency task force at USDA issued a report on a proposed cooperative-based farm policy. One of the recommendations was that other sectors could follow the lead of cotton, rice and grain cooperatives in providing farm program-related services to their members. An article in the next issue of *Rural Cooperatives* will highlight the expanding use of cooperative marketing associations by the Farm Service Agency as a means of providing these services. In many cases, these services can be delivered more efficiently by cooperatives than through the county committee system. Using cooperative agreements with members and pooling are required for such program activity. This role merits examination by other cooperative sectors for its potential to expand services to the farm community.

Randall Torgerson, *Deputy Administrator Rural Business-Cooperative Service*

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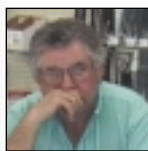


United States Department of Agriculture

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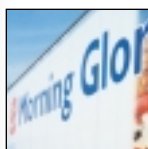
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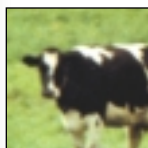
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Firefighters battle the blaze at Foremost Farms' Morning Glory dairy plant, near Green Bay, after a small business jet crashed into it. For the story of how the co-op recovered from the tragedy, see page 10. Photo by Steve Levin, courtesy Green Bay Press-Gazette



Farm co-op business volume increases slightly in 2000

Editor's note: Information for this article was compiled by the Statistics Staff of USDA's Rural Business-Cooperative Service, including Charles A. Kraenzle, Celestine C. Adams, Katherine C. DeVille, Jacqueline E. Penn and Ralph M. Richardson.

Net business volume of the nation's farmer-owned cooperatives was \$99.7 billion in 2000, up slightly from \$99.1 billion in 1999 despite low commodity prices in many agricultural sectors, according to USDA's Rural Business-Cooperative Service (RBS).

Farm supply sales increased from \$23.2 billion in 1999 to \$24.1 billion in 2000, a 3.9-percent increase, while the value of farm products marketed was \$72.06 billion, up 0.1 percent from 1999. Receipts from services provided by cooperatives and investment income dropped from \$3.9 billion to \$3.5 billion, a 10.1-percent decline.

Net business volume includes gross receipts from the sale of crops, livestock, farm supplies and services collected by the nation's 3,346 farmer cooperatives. It excludes business between cooperatives.

Lower average farm milk price (down 13.8 percent from 1999) was a major factor in holding down the overall sales value by all types of farm marketing cooperatives. Milk and milk product sales fell \$3.3 billion (12.6 percent) from 1999. However, dollar volume by cooperatives of all other commodities (except rice) increased, paced by a \$1.3 billion increase in the sale of grains and oilseeds.

Farm supply sales climbed 3.9 per-

Table 1—Farmer cooperatives' net business volume, 1999 and 2000¹

Commodity or function	Net business volume ²		Change Percent
	1999 Million dollars	2000 Million dollars	
Products marketed:			
Cotton	2,083	2,731	31.1
Dairy	25,999	22,721	-12.6
Fruits and vegetables	9,286	9,570	3.1
Grains and oilseeds ³	17,113	18,370	7.3
Livestock and poultry	9,545	10,176	6.6
Rice	912	815	-10.6
Sugar	2,540	2,681	5.5
Other products ⁴	<u>4,504</u>	<u>5,002</u>	11.1
Total products marketed	71,982	72,065	0.1
Supplies sold:			
Crop protectants	3,018	3,028	0.3
Feed	4,726	4,691	-0.7
Fertilizer	4,759	4,574	-3.9
Petroleum	6,260	7,457	19.1
Seed	752	916	21.7
Other supplies ⁵	<u>3,663</u>	<u>3,419</u>	-6.7
Total supplies sold	23,177	24,085	3.9
Related-services and other income:⁶			
Total	<u>3,905</u>	<u>3,510</u>	-10.1
Total	99,064	99,659	0.6

1 Totals may not add due to rounding.

2 Excludes inter-cooperative business. Volume includes value of products associated with cooperatives that operate on a commission basis or bargain for members' products.

3 Excludes cottonseed.

4 Includes dry edible beans and peas, fish, nuts, tobacco, wool and other miscellaneous products.

5 Includes building materials, containers, hardware, tires-batteries-auto accessories (TBA), farm machinery and equipment, food and other supplies.

6 Includes receipts from trucking, ginning, storage, artificial insemination, rice drying, and other activities as well as other income.

cent, due mainly to higher prices for petroleum. Petroleum sales increased nearly \$1.2 billion, or 19.1 percent. Seed sales were up nearly \$200 million, or 21.7 percent. Sales declined for feed, fertilizer and "other" supplies.

Net income (or earnings) before

income taxes for cooperatives dropped to \$1.28 billion in 2000, down from \$1.33 billion in 1999. This was the lowest net income reported since 1986. The record for net income by cooperatives was \$2.36 billion in 1995.

Net income dropped \$3.7 million

(0.4 percent) for marketing cooperatives, despite a \$64.2 million (or 23.2-percent increase) for dairy cooperatives, which saw earnings climb from \$276.6 million in 1999 to \$340.8 million in 2000. That gain was offset by lower net income for grain and oilseed cooperatives, which dropped from \$324.5 million in 1999 to \$274.5 million in 2000, and by losses by livestock/poultry and sugar cooperatives.

Farm supply cooperatives reported a \$41.3 million (11.7 percent) drop in net income. Net income for “related-service” cooperatives (those that perform services such as fertilizer and chemical application, trucking or livestock breeding) dropped nearly \$6.9 million, or 6.6 percent.

Combined assets of farmer-owned cooperatives reached \$49.7 billion in 2000, up \$2 billion (4.3 percent) from

1999. Marketing cooperatives accounted for \$32.9 billion, or 66.1 percent, of co-op assets while farm supply operation accounted for \$15.9 billion, or 32 percent of co-op assets. Related-service co-ops accounted for \$0.9 billion, or 1.9 percent of assets. Farm supply cooperatives’ assets climbed \$1.5 billion, or 10.3 percent — the major factor in the overall increase in assets. Fruit and vegetable, cotton, dairy and rice cooperatives’ assets decreased in 2000.

Net worth (or equity) of farmer cooperatives totaled \$20.28 billion in 2000, about the same as in 1999, which means cooperatives financed more assets with debt capital rather than net worth. Marketing cooperatives’ total equity was \$12.7 billion and accounted for 62.4 percent of cooperatives’ total equity.

Farm supply cooperatives, with \$7.1 billion in total net worth, accounted for nearly 35 percent. Related-service cooperatives accounted for the remaining \$0.5 billion, or 2.6 percent. Marketing and related-service cooperatives reported net worth decreased by \$174.5 million, or 1.3 percent, while farm supply cooperatives increased total net worth \$186.4 million, a 2.6 percent gain.

The number of U.S. farm cooperatives dropped to 3,346, down from 3,466 in 1999, or 3.5 percent. Mergers, consolidations, acquisitions and dissolutions resulted in a reduction of 164 cooperatives. However, 44 cooperatives were added to USDA’s list in 2000.

Memberships in farmer cooperatives totaled 3.09 million in 2000, down 2.8 percent from 1999. Memberships in farm supply cooperatives totaled 1.7 million, or 55.7 percent of the total. Marketing cooperatives had 1.2 million memberships, or 40.3 percent, and related-service cooperatives’ memberships totaled 0.1 million, or 4 percent. The number of memberships continued to be larger than the number of farmers in the United States because many farmers belong to more than one cooperative. ■

Chart 1—Cooperatives’ net business volume, 1996-00

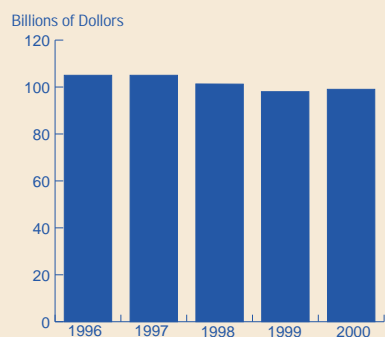


Chart 2—Cooperatives’ net income, 1996-00

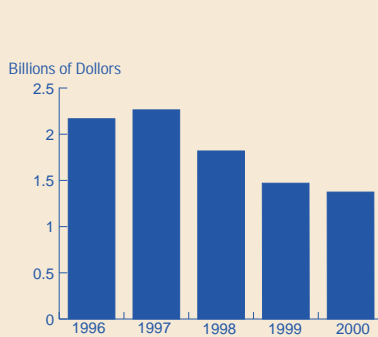


Table 2—Farmer cooperative numbers, net income, and memberships, 1999 and 2000¹

Principal product marketed or major function	Cooperatives ²		Net income ³		Memberships	
	1999	2000	1999	2000	1999	2000
	Number		Million dollars		1,000	
Marketing:						
Cotton ⁴	15	14	69.9	65.7	43.8	45.4
Dairy	221	208	276.6	340.8	90.7	96.9
Fruits and vegetables	231	232	57.9	66.7	40.9	41.1
Grains and oilseeds	896	826	324.5	274.5	657.9	615.3
Livestock and poultry	96	93	61.7	-56.1	166.2	161.3
Rice	17	16	6.1	10.5	11.8	12.2
Sugar	48	48	-21.1	-5.9	15.7	15.6
Other products ⁵	<u>225</u>	<u>235</u>	<u>95.4</u>	<u>171.2</u>	<u>255.9</u>	<u>255.3</u>
Total marketing	1,749	1,672	871.1	867.4	1,282.8	1,243.0
Farm supply	1,313	1,277	352.5	311.2	1,731.4	1,717.8
Related-service ⁶	<u>404</u>	<u>397</u>	<u>104.5</u>	<u>97.6</u>	<u>159.1</u>	<u>124.3</u>
Total	3,466	3,346	1,328.1	1,276.2	3,173.3	3,085.1

1 Totals may not add due to rounding.

2 Operations of many cooperatives are multi-product and multi-functional. They are classified in most cases according to predominant commodity or function indicated by business volume.

3 Net income less losses and before taxes.

4 Cooperative cotton gins included with related-service cooperatives.

5 Includes bean and pea (dry edible), nut, tobacco, wool, fish and miscellaneous marketing cooperatives.

6 Includes trucking, cotton gins, storage, artificial insemination, rice driers and other service cooperatives.

Coping with change:

Merger of local farm supply co-ops forces boards to deal with emotional issues

Katherine L. Hanson
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Farmers in Frederick County, Md., have depended on their local Southern States Cooperative store for their farm supply and service needs for more than 60 years. The Frederick Southern States store first opened its doors in 1937 and grew to include nearly 3,000 member-owners. In nearby Woodsboro, Md., another Southern States-affiliated local cooperative was formed

in 1954, and eventually represented more than 700 member-owners.

Although the two cooperatives differed in size, they were always very similar in their missions and the services and products they offered. Because the two cooperatives were located only a 15-minute drive apart, their customers were remarkably similar as well. Farmers came to the Southern States-managed stores to have their livestock feed ground and mixed, to buy their seed and fertilizer, and to schedule application of crop protectants.

Which store a patron frequented depended largely on proximity and product availability at a given time. Most of the member-owners of the two

cooperatives knew each other well, which is not unusual in a small agricultural community. They experienced similar problems, shared similar successes and relied on their respective cooperatives to provide for their similar farming needs.

It seems obvious that farmers in such a tightly-knit farming community could work well together to achieve common goals and would be open to partnerships. Recently, the member-owners of these two cooperatives were challenged to do just that when their two associations began to consider a merger.

But change inevitably creates conflict, and often spawns a hotly contested



Board members of the newly merged Southern States local cooperative in Frederick, Md., ponder some of the many issues that had to be ironed out before two local co-ops could merge into a single, stronger farm supply cooperative. USDA Photos by Katherine L. Hanson

tug-of-war to determine perceived winners and losers. This merger was no exception.

Mergers inevitably involve give and take by both parties. How leaders and members of the two cooperatives dealt with issues related to the merger provides an illustration to other cooperatives of the hurdles they might encounter in similar circumstances.



Mergers inevitably involve give and take by both sides, and the merger of Southern States local co-ops in Frederick and Woodsboro, Md., was no exception. But nearly everyone now agrees that — despite some raw feelings at times — the merger was for the best.

Why local co-ops are merging

Circumstances surrounding the Frederick-Woodsboro merger are far from unique. Faced with a prolonged slump in the farm economy, changes in farm programs and a decline in producer numbers, cooperatives in similar situations across the country are merging or restructuring in other ways to improve efficiency and cut operational costs.

The impact of these factors isn't confined to local co-ops. As a regional cooperative with members in 23 states, SSC recently implemented a multi-step restructuring plan designed to counter operating losses and to better position itself for the future. The effort has included the closing of 47 company-owned stores and other operations, eliminating about 300 jobs at both the local and corporate levels and the transfer of its livestock marketing operations and related facilities to another cooperative. More recently, SSC announced a reorganization plan designed to

improve efficiencies and provide better customer service by realigning and streamlining the cooperative's operations, including the elimination of four senior vice president positions.

In Maryland, economic factors (such as the loss of tobacco income and generally depressed commodity values) and demographic trends combined to present a clear choice to the Frederick and Woodsboro cooperatives: either merge

the two cooperatives or risk closure of one or both.

By the fall of 2000, both the Woodsboro and the Frederick cooperatives were facing financial challenges. The Frederick (SS Frederick) store had larger sales volume than Woodsboro, but had been operating at a loss. The Woodsboro (SS Woodsboro) store was carrying a substantial debt load from purchases of vehicles and other equipment. The merger proposal was based on the goals of spreading equipment use between both locations and distributing the business volume more evenly.

Southern States management had initiated discussions on merger possibilities with local leaders some 18 months earlier, examining the issues involved and reviewing various scenarios at individual meetings with the SS Frederick and SS Woodsboro boards. A third location also was considered as a merger partner during this preliminary phase. Over time, a

Frederick-Woodsboro co-op emerged as the leading alternative.

SS Frederick would become the primary association, performing the administrative and managerial functions of the combined cooperatives. Both locations would remain open to provide supplies and services to their patrons, but under the same management umbrella. Inventory would continue to be separated for each branch, but with the intention of sharing resources between the two locations.

Educating members about the reasons for the proposed merger and the resulting governance changes became a top priority as soon as the merger was first discussed.

Since the Frederick location would be the surviving entity, their general membership was not required to vote on the issue. The Woodsboro association, however, did have to place the matter before their membership. Approval by two-thirds of the general membership was needed to implement the merger plan. Within two weeks of the original discussion between the two boards of directors, a letter was drafted and sent to all members of the Woodsboro cooperative, describing the proposed merger and calling a special meeting of members to vote on the proposal. The letters contained proxy cards that would allow members who could not attend in person to cast their vote and let their opinions be counted. Remarkably, by January the proposed merger was complete—less than three months since the plan's inception. As mergers go, this one was relatively swift and painless, but the road to consolidation was not without difficulty.

Patronage, board allotment pose major challenges

When the idea of a merger of the two stores was first broached in October of 2000, there were many skeptics among the two boards of directors. The members of the financially stronger SS Frederick Cooperative were leery of inheriting the substantial Patronage Refund Allocation (PRA) responsibilities of the SS Woodsboro

Cooperative, but stood to gain from access to its abundant equipment and vehicles. The SS Frederick Cooperative last paid PRAs in 1982. The SS Woodsboro Cooperative was responsible for PRAs dating back to 1974.

Ultimately, there was agreement that PRAs owed to Frederick members would not be paid until the older Woodsboro patronage was retired and members of both co-ops were on the same status.

Additionally, many board members

remained fiercely loyal to the notion that their respective cooperative deserved equal representation on the combined board of directors, at all costs. In fact, during one heated discussion on this topic, a former board chairman was so frustrated with the proceedings that he abruptly left the meeting. He later reconsidered and resumed attending the board meetings.

The smaller cooperative (SS Woodsboro) was very concerned with achieving an equal "balance of power"

on the board, as determined by which cooperative board members would be elected from. Unfortunately, the cooperative's articles of incorporation and bylaws dictated that the board consist of seven members. Therefore, it would have been physically impossible to attain equal representation from each of the two co-ops.

Frustrated member interrupts annual meeting

At the first annual meeting of the

SS Frederick member supported co-op merger despite all hurdles

Harry William "Bill" Fouche III has lived in Frederick, Md., his entire life. He grew up on a dairy farm working alongside his father and brothers doing what he loved most: farming. Later, he managed to scrape together enough money to purchase the family farm, as well as some adjacent acreage.

By the time they were raising their own children, he and his wife, Barbara, were farming 650 acres and milking 125 cows. The work was hard and the hours long, but the reward of producing valuable commodities on his own land was immeasurable.

Although he sold his farm to make way for the development of a major highway and shopping center in the rapidly growing community of Frederick, Fouche stayed true to his agricultural roots. He currently leases approximately the same amount of acreage (650), on which he raises wheat, corn, soybeans, hay and cattle. According to Fouche, "It's the only job I know, and I'm too old to start a new career."

Fouche is in tune with the needs of his fellow farmers. His father was a board member of the Southern States Frederick (SS Frederick) cooperative since before he can recall, and Fouche has been a member since 1971. He has witnessed firsthand the structural and financial changes of that association over the last three decades. As a veteran board member, he has represented his fellow member-owners on many major issues affecting the cooperative. He believes in the cooperative form of business, and recognizes the need

to adapt in a changing agricultural environment.

Initially, Fouche was one of the few board members who supported the merger. Like many other members, he voiced concerns about the substantial patronage refund allocation (PRA) debt that the SS Frederick Cooperative inherited from the Woodsboro location, as well as other financial issues the merger might exacerbate. Although he had concerns about certain financial aspects of the

proposed merger, Fouche was vocal in his support for it.

Reflecting on the merger and the resulting changes of the past year, Fouche is optimistic about the cooperative's future. With both locations now operating in the black, he feels that the merger was a sound business move. But he concedes that there is much room for growth and improvement.

No stranger to difficult times in farming, Fouche offered a pragmatic view of the financial outlook for SS Frederick Cooperative:

"These aren't easy times for farm-

ers, or for Southern States. The chicken is always just one step ahead of the fox." He realizes that maintaining fiscal growth will require constant communication among members and management, and a willingness to compromise.

As a member-owner of this consolidated business, Bill Fouche has a vested interest in the development of good relations among members from both sites. If the member-owners can continue to overcome individual differences, they stand to benefit significantly from their partnership. And if they continue to share resources and improve business, they might just stay ahead of the fox. ■



"These aren't easy times for farmers or Southern States," says co-op member Bill Fouche of Frederick, Md. "The chicken is always just one step ahead of the fox."

combined cooperatives, the election proceedings were interrupted by an outburst from a Woodsboro farmer who felt that the former SS Woodsboro Cooperative members were not being given a fair opportunity to elect enough board members from their area. In reality, the floor was open for nominations and any number of candidates from the Woodsboro membership could have been posted on the ballot. Instead, angry member-owners (who may not have been thoroughly informed of the process) expressed their frustration due to the perceived shift of power on the board of their cooperative.

Member-owners still felt separated by issues of ownership and loyalty, even though the two cooperatives were merging into one business which they would all own and control. Board members were territorial at times, even though they were neighbors who lived and farmed in the same community. They had difficulty perceiving the combined cooperative as a “one for all and all for one” organization.

Such a reaction is not uncommon, according to current theories on how people adapt to change. In his 1996 book, “Communicating for Change,” Roger D’Aprix points out that about 15 percent of people react with anger when confronted with significant organizational change. Another 40 percent view the transformation with fear, skepticism, and distrust, and 30 percent are uncertain about change but are open to it. The remaining 15 percent are hopeful and energized about change, right from the start. With these statistics in mind, it is no surprise that opinions on this volatile issue varied greatly among board members.

Disputes subside with time

With each quarterly meeting of the combined board of directors, an increasing sense of unity among board members was evident. Reports of improvement in the financial status of both locations also helped heal any scars from the merger. Attitudes gradu-

ally shifted and board members began to put aside their notions of distinguishing between representatives based on which cooperative the member belonged to prior to the merger.

In fact, at the most recent quarterly meeting of the SS Frederick Cooperative (the combined entity still uses that name), board members and management praised the improved efficiency and overall success of the services provided. David Stas, manager of the combined cooperative, says: “I just couldn’t imagine a better working relationship than we have between the two stores. We help each other out every day — if one of us gets a call to spray a field and we’re all tied up, the other one just steps in and helps out.” Of the relationship between the combined management of the two stores, Stas adds, “If I could hand-pick any group of employees to work with at any cooperative in the country, I wouldn’t change a thing.”

Both Stas and Tommy Plunkert, manager of the SS Woodsboro branch, agree that they have benefited by pooling their resources. Not only are they able to share equipment and supplies, but they are also able to share employees, to a degree. Various employees from both locations have responded to requests to perform services on behalf of their partner cooperative. These obligations would not have been fulfilled without this level of cooperation among management and staff.

As business profits increase and mutual goals are achieved, there is even talk of combining both supply stores under one roof in the near future. At one point, the SS Frederick board of directors was researching the feasibility of building an entirely new facility to house both locations as one entity. When the magnitude of the financial commitment such an undertaking would entail was realized, however, the discussion turned to the more practical alternative of using one of the existing cooperative locations (which could, of course, spark renewed conflict).

Accident prompts show of unity

The solidarity that has developed among the board of directors was recently illustrated when an accident seriously injured Lloyd Taylor, a departmental manager at the SS Frederick Cooperative. During a quarterly meeting of the board, it was announced that earlier that day a 2,500-gallon fertilizer polytank had rolled off a truck and onto Taylor, pinning him beneath it and breaking his back. As a testament to his dedication to the co-op, Taylor used his cell phone while he was still pinned down by the tank to call the store and give instructions on where to deliver the tanks.

In a display of their unity, the board members expressed their collective sympathy for Taylor, and management from both locations worked together to solve the employee shortage caused by Taylor’s absence. Taylor has since recovered and is back on the job, grateful for the encouragement and support he received from Woodsboro and Frederick Cooperative members alike.

The future of Southern States Cooperatives will be linked to the success of mergers and consolidations of locals such as the SS Frederick/Woodsboro merger. When member-owners identify common goals and needs, they can band together to make their organizations stronger, rather than weaker. As in the case of the SS Frederick Cooperative, consolidation doesn’t have to signal decline, either in membership or business volume. Communication between management, board members, and other member-owners is vital to the survival of associations faced with such drastic change. When members feel informed, they feel empowered and are not afraid to face change.

Mergers and consolidations are necessary adjustments in response to the agricultural economy. For those cooperatives that are able to adapt structurally, the future still holds promise for success and growth. ■

Tragedy from the sky

Quick response helps Foremost Farms rebound after airplane slams into plant

Patrick Duffey
USDA Rural Development

It was the most unlikely of tragedies, but one which the rest of the nation would soon experience, magnified many times over. One minute all was serene and it was business as usual at Foremost Farms' Morning Glory dairy processing plant at De Pere, Wis., near Green Bay. But then, without warning, a jet airplane plunged from the sky and slammed into the side of the plant. Smoke, fire, confusion and death followed. Miraculously, only a single

life—that of the pilot—was lost in the tragedy. But a number of employees suffered burns when flaming jet fuel spewed from the ruptured tank; three people suffered severe burns.

The incident gave co-op employees and members a terrible taste of the turmoil and agony the rest of the nation has experienced in the wake of the Sept. 11 attacks on the World Trade Center and the Pentagon. The courageous efforts of rescue and aid workers, the victims and their families, the co-op's other employees and the support of the community also set an example of how to recover from a tragedy.

The noise and rushing of emergency

vehicles along Glory Road that late afternoon in early April and the subsequent rush of reconstruction activity have now subsided. The Morning Glory Dairy was back in operation four months after that disastrous day—three weeks ahead of a projected Labor Day opening.

Quiet day shattered

The quiet atmosphere during a spring snow shower and fog was loudly interrupted about 4:30 p.m. Monday, April 2, 2000. A twin-engine corporate jet laden with a full tank of fuel had taken off moments earlier from Green Bay's Austin Straubel International Air-



The small business jet that crashed into the Morning Glory dairy plant was apparently suffering technical problems; the pilot is believed to have become disoriented, possibly due to a snow squall, while attempting to abort the flight and return to an airport a few miles away from the plant. Photo by Steve Levin, courtesy Green Bay Press-Gazette

port, for a non-stop journey to Fort Myers, Fla. The 54-year-old pilot, the only one on board, had just radioed the airport's control tower, indicating problems with the plane. He said he wanted to return to the airport, just two miles away, for a visual landing.

Witnesses said his plane was tilted on its left side as it careened into the roof and ripped open half the south wall of the three-story cooler adjacent to the dairy's bottling plant. It plunged well into the interior, with the impact rupturing the plane's fuel tanks. The resulting explosion and fire caused nearly \$6 million in damage to the structure and contents. The blast also destroyed a group of trailers parked nearby. The pilot was killed and seven of 15 employees in the dairy's cooler building at the time were injured. Three employees with severe burns were transferred to Milwaukee, but made it home for continued recuperation by early June.

Emergency calls for assistance

The impact bounced Tim Decker, the dairy's human resources and safety manager, out of his office chair. He heard a loud boom and felt the building shudder. When he looked out his back window, he saw flames and smoke coming from the cooler building. The fire alarms went off immediately. Luckily, the accident occurred while several employees were waiting for an order, so there were fewer people present in the area at the time.

Amid the confusion, both he and Wally Heil, operations manager, made separate calls to the Brown County Public Safety Communications and asked them to send fire and rescue units to the Morning Glory Dairy because of an explosion and fire. During an extended conversation with the dispatcher, Decker tried to relate what limited details he knew about the emergency at the dairy, where Foremost employs 187 people. Neither he nor Heil knew at the time that a plane had crashed into the building.

Heil had just left the cooler plant with product samples and was headed

for the opposite side of the dairy. "I heard the boom, the cooler building shook and I saw heavy black smoke. I checked to see if evacuation was in progress and then went to the pre-designated emergency assembly site. All cooler employees had been evacuated and had followed the safety program taught at all the Foremost plants."

Rescue teams were the first to arrive at the scene but pulled back for the fireman once they learned all the employees were out of the building. This allowed the firefighters to immediately begin fighting the fire.

Jeff Koehler, general manager at the De Pere plant—sandwiched in an industrial park in the Village of Ashwaubenon, which borders both Green Bay and De Pere—notification Foremost officials at Baraboo and



Foremost Farms employees and members rallied behind their co-op and worked closely with various relief agencies to aid victims and launch a rapid reconstruction effort. The plant was back in operation four months after the disaster – much sooner than had been anticipated.

USDA Photo (top) by Patrick Duffey; Lower photo by Patrick Ferron, courtesy Green Bay Press-Gazette

regulatory agencies. At first, no one knew what caused the accident and explosion. Then, the 911 emergency dispatcher told Heil a plane may have crashed in the area. Suddenly things made sense.

The response from the Ash-

waubenon and airport fire crews, state patrol and ambulance services, the National Transportation Safety Board (NTSB), state departments of natural resources, agriculture and commerce, the Environmental Protection Agency (EPA) and contractors

Morning Glory brand name survives mergers

The Morning Glory corporate name in Wisconsin dairy cooperative circles dates back to 1953, when the board of Consolidated Badger at Shawano adopted its popular product brand name for its corporate title. Via a 1988 merger interlude to become a division of Associated Milk Producers Inc. (AMPI), it joined Foremost in the AMPI break-up in 1995. Jim Kasten, vice president of member, employee and industry relations for Foremost Farms USA, was Morning Glory's general manager at the time of its 1995 acquisition by AMPI.

The brand name has survived through a series of cooperative mergers and remains popular under the umbrella of Foremost, which is based at Baraboo. It now ranks among the nation's major dairy cooperatives. Sales for fiscal 2000 reached \$1.1 billion and earnings were \$10 million for its sixth year of operations. Members marketed 5.3 billion pounds of milk through their cooperative and adapted to new rules governing the federal milk marketing order system.

Like its counterparts in the industry, it too has been trying to weather the storm of low farm commodity prices, reduced cheese prices and higher energy costs. Foremost is investing \$32 million in Wisconsin plant improvements. Patronage refunds of \$12.6 million were allocated to members, 25 percent in cash and the balance added to each member's equity account. Total assets were up \$8 million to \$331 million. The cooperative designated \$4.8 million in late June in equity payments and/or allocated surplus to 6,023 current and former members. The payments represent 1987 allocated equity



Photo by Patrick Duffrey

credits and/or surplus in Foremost Farms and were earned by members of Wisconsin Dairies Cooperative and Golden Guernsey Dairy, both of which were consolidated to form Foremost Farms in 1995. Foremost operates 24 manufacturing plants and three receiving stations.

Three initiatives are soon coming on line to extend the mix of cheese products Foremost offers the marketplace. It also reduces its exposure of meeting lower priced commodity products produced in the western states.

Frozen mozzarella sticks for the food service industry are being manufactured at the Wilson plant, which now operates at capacity; a one-step process at Appleton shreds cheese as soon as it leaves the brine; and parts of mozzarella production have been shifted from Appleton to Richland

Center so it can produce 100 million pounds of the cheese for the growing pizza and frozen entree markets and convert from an American-style barrel cheddar. For the first time, last year Foremost Farms made 15 million more pounds of Italian cheese than American cheese.

The family of ingredient products marketed to the bakery, pizza and food manufacturing, pharmaceutical and feed companies currently comprises 15 percent of the cooperative's annual sales. More than two dozen lactose and whey products are now among Foremost's product mix. New strawberry and chocolate malt milk flavors have been introduced in 16-ounce sizes called "Grip It. Sip It" (trademarked) and aimed at customers on the move. And more Foremost Farms products are appearing in vending machines. ■

was overwhelming, Heil says. As part of its investigation, NTSB collected and assembled fragments of the plane at a local warehouse to examine and determine the cause of the crash.

Quick rebound to rebuild

The original contractor was on the scene late that same night and made an inventory assessment, and replacement steel was on site by April 20. It was one of many quick steps that eventually brought the cooperative's

operation back into production on an advanced schedule. After a salvage team finished clearing the site, the dairy's employees, along with regulatory officials, moved quickly to restore some of the lost production capacity.

Before the crash, the De Pere plant had been producing nearly 500,000 gallons of fluid milk a week, primarily under Foremost's Morning Glory and Golden Guernsey brands, but also for some private label customers. It also produced 1 million pounds of sour

cream for food service and marketplace accounts. The cooperative's other bottling operation at Waukesha near Milwaukee was pressed into supplementary service until the De Pere cooler could be rebuilt and returned to full service.

Extensive support

Don Storhoff, then Foremost's chief executive officer, called Ed Books, chairman of the board, and told him about the accident. The rest

of the board was informed by letter. No special meeting of the board was needed because a regular session had been scheduled soon after the accident. Storhoff headed a management team that visited the site that evening.

The next evening, Wisconsin Governor Scott McCallum and his Secretaries of Health and Human Services and Workforce Development visited the site to assess the damage and show support for the cooperative and its employees.

The entire operation was disabled for only two days, Heil said. "We made some temporary structural modifications which enabled us to resume limited production. The experience again reminded us about what cooperatives are all about.

"We secured supplemental cooling space overnight at Atlas Cold Storage in Green Bay 15 miles away. That night, we moved perishable products from the De Pere plant to the Atlas depot, including half gallons of milk that had been filled earlier in the day. To handle the daily flow of products coming to the warehouse, we subsequently transferred our cooler employees there. Luckily, we already had a 10-year working relationship with Atlas. Some of their other clients even tried to accommodate our emergency storage needs. And a neighboring business agreed to provide parking space for our trailers."

With that Atlas location and assis-

tance from Foremost's Golden Guernsey Dairy plant at Waukesha, the cooperative continued serving customers while the new cooler was being built at De Pere. "Before the crash, we delivered 400 products," Heil noted. "But afterwards we cut down to 150 and diverted a small portion of our production and distribution to Waukesha. Gradually, some of those diverted products were returned to the line at De Pere.

Minimal disruptions

"Any service disruptions to our food service, school and retail customers were very minimal and temporary. And none of our member-owners experienced any delays in our milk pickup schedule," Heil stressed, although some milk route trucks were temporarily diverted to Waukesha. He developed a week-by-week schedule for returning aspects of the operation back to full production.

Temporarily, packaged milk products—particularly half pints of milk for the school lunch program—were secured from competitors and neighboring dairy cooperatives, including Swiss Valley Farms and Land O'Lakes, until arrangements could be coordinated within the Foremost system to handle the job. More than 1,000 schools provide Foremost Farms products for breakfast, lunch and snack breaks.

Joe Weis, vice president of the fluid division, directed the return of initial

operations at De Pere—first in sour cream and then bottled milk. "All milk that had been in the system at the time of the crash had to be discarded. Milk production equipment had to be washed and disinfected twice before it was returned to service. Then, our own lab technicians tested it. Once we were assured of ample milk supplies, we needed approvals by inspectors. Soon, milk was flowing into our plastic Morning Glory jugs again."

The explosion caused a leak in the anhydrous ammonia storage lines used in the cooling operation. Fire crews had to work around hot spots and plant maintenance crews immediately shut down the system. The blast blew a sizeable hole in the roof and buckled the foam-paneled walls. The ensuing fire continued throughout the night.

High winds that weekend delayed structural demolition and cleanup at the cooler site. Engineering firms and equipment manufacturers inspected all steel work, racking and material-handling equipment to see what could be salvaged and what had to be destroyed. The site was initially cleared so reconstruction could begin.

Structural steel and roof joists ordered the day after the crash were installed about May 1. Exterior foam wall panels that completely enclosed the new building were in place by mid-May. Luckily, the original contractors still had copies of the De



Foremost Farms' tractor-trailers help promote Morning Glory products. USDA photo by Patrick Duffey

Pere cooler plant specifications in their files. That accommodated speedy assembly of needed supplies for the new plant. "Also, the cooler was originally built and designed the way we wanted it, so no new changes were necessary when we had it rebuilt," said Heil.

Damage to the 1.5-year-old building and contents was covered by insurance.

Emotional impact

"This accident was a very traumatic emotional experience for all our employees, but particularly those working in the cooler building," Heil explained. "Our employee assistance program counseling service helped ease employees (in individual and group sessions) through their difficult experience. After about two weeks the local service was discontinued, although employees still could access it."

While health insurance and worker's compensation handled many expenses and wages of the seriously burned employees, their fellow employees organized a benefit and raised \$17,500 for the families. In

addition, Foremost has established a trust for the burn victims to which vendors, friends and others are contributing.

An informational brunch attended by about 180 employees, Teamsters union officials and management representatives from Baraboo and De Pere was conducted at Green Bay on the Sunday after the plane crash. In addition to expressions of appreciation, the group was given an update on the plant's status.

After the accident, Decker represented Foremost at a crisis intervention debriefing conducted for emergency personnel who were involved in the De Pere crisis. The battalion chief at Ashwaubenton, who conducted the session, praised the employees at the Morning Glory Dairy for their cooperation in the emergency. Fortunately, none of the emergency personnel working at the scene were injured. "The success of our fast turnaround," Heil said, "was directly related to support from our employees, area fire and rescue units, insurance representatives, county and state

police, Red Cross and state government agencies—agriculture, commerce and natural resources—and federal agencies.

"We have received calls of support and contributions from many individuals and organizations from all over. A local grocer provided food for our employees the day after the crash." As to what he might tell other cooperatives caught in such an emergency, Heil said, "The accident taught us that you periodically need to practice your emergency response plan because these unfortunate and unpredictable things can happen." The subsequent events of Sept. 11 proved how timely and even prophetic his words were.

Family atmosphere

Heil said Foremost tries to foster a family atmosphere among employees at all its facilities. "Throughout our system, but particularly at De Pere, we were reminded that we had a dedicated base of employees who invested themselves in the cooperative. They feel close to one another. That was especially evident in the phone calls and personal visits to the burn victims. Cards were received from other employees working in every division of the cooperative.

"When that plane crashed, it hurt us all, but it also made us pull together." He and others from the cooperative's management team visited the burn victims while they were hospitalized at St. Mary's Hospital Burn Center in Milwaukee.

"Even those who have been with us for only a year or two feel part of the cooperative's family," Heil said. "Every year we have an employee Christmas party for them and their families. A lot of our retirees also attend. And periodically we conduct an open house so families and friends can get acquainted with the operation. So, in view of all that had happened, it seemed appropriate to conduct a special open house for our employees and their families shortly after the rebuilt plant was opened." ■



"The accident taught us that you periodically need to practice your emergency response plan, because these unpredictable things can happen," said Wally Weil, operations manager. Here, repair work proceeds to restore the co-op's milk processing operations. Photo by Patrick Ferron, courtesy Green Bay Press-Gazette

Co-ops respond to attacks with aid, calls for unity



By Patrick Duffey
USDA Rural Development

In the wake of recent terrorist attacks in New York and Washington, D.C., agricultural cooperatives across the nation were quick to respond with offers of assistance to the victims, sympathy to individuals and families affected and calls for national unity. Foreign sales agents even conveyed messages of sympathy and solidarity with their American cooperative associates.

★ Iowa-based West Central Cooperative donated 20,000 gallons of soy diesel to New York City to help fuel equipment used in removing debris from the disaster site. Jeff Stroberg, the cooperative's chief executive officer, said "every disaster recovery effort needs fuel, which is what we produce." He coordinated the donation with David Smith, chairman emeritus of Penn South, a large housing cooperative in Manhattan, and U.S. Rep. Leonard Boswell of Iowa.

★ In his monthly column in "Michigan Milk Messenger" magazine, Elwood Kirkpatrick, president of Michigan Milk Producers Association, extended sympathy on behalf of the cooperative's directors, members and staff "to the many individuals affected by the devastating acts of terror. As our country pulls together in this difficult time, I urge each of you to do what you can."

★ The National Milk Producers Federation (NMPF) in Washington, D.C., is working with Dairy Relief Inc., to establish a special fund for dairy farmers and other interested parties to donate money

to the victims of the Sept. 11 terrorist attacks. "This is a wonderful opportunity to get family dairy farmers involved in making contributions to the thousands of victims' families in this time of need," said NMPF President Gene Paul. "We are the dairy industry's ongoing charitable effort to improve lives of those less fortunate. The funds we collect will in turn be donated to the American Red Cross and, ultimately, to the victims and families."

★ Cooperative Development Foundation (CDF) in Washington, D.C., set up a relief fund to which cooperatives and others could make voluntary tax-deductible contributions. Judy Ziewacz, CDF executive director, said "we're working with New York cooperatives to identify the best use of those resources. Members of New York housing and other cooperatives were directly affected by the terrorist attacks," she said. Paul Hazen, president of CDF and National Cooperative Business Association, said "our members felt strongly that co-ops, regardless of where they are located, needed to help New York cooperators who have always been among the first to contribute to relief efforts when disasters have hit cooperatives in the United States and elsewhere around the world."

★ National Credit Union Association provided grants of up to \$15,000 to aid five low-income credit unions in New York City.

★ Blue Diamond Growers, Sacramento, Calif., published messages of support from its customers around the world in a recent newsletter. Jose Maria Pedrola, Spanish fruit and nut broker from Constantino Capnopoulos, said "I have no words for what happened. I

could never imagine that something like that would happen. We are so sorry! Sending you all our sympathy." Hubert Berribi and Raoul Gamon, Blue Diamond agents in France, felt "stupefied by the width of these terrorist actions which disturb the security and tranquility of the American citizens and infringe on their freedom." George Boden, Blue Diamond sales agent in Germany, said it was not only "an attack against America, but also the whole civilized world. We join everybody over here in assuring you of our sympathies and solidarity."

★ At Southern States Cooperative in Richmond, Va., nearly \$13,000 was collected in corporate and employee contributions earmarked for the American Red Cross. In addition, the cooperative's quarterly blood drive conducted in mid-October gained added emphasis in light of the crises in New York City and Washington, D.C.

★ In the aftermath of terrorist acts, CHS Cooperatives Foundation in St. Paul agreed to match up to \$30,000 in contributions from local cooperatives and CHS employees and designated the funds to United Way's Sept. 11 Fund to benefit victims and their communities. Foundation President William Nelson also encouraged local cooperative employees to support local agencies, including blood donations to the Red Cross and other contributions to the United Way. "It's important that we remember that assistance will be needed nationwide, in addition to East Coast recovery efforts," he said.

★ At Farmland (Industries) Foundation in Kansas City, 24 hours after the

continued on page 30

Bovine biogas

Dairy co-op sees major potential in methane gas recovery technology

By Steve Thompson
USDA Rural Development

Editor's note: *this article is the first of a series examining alternative energy technologies being used, or explored, by farm and utility cooperatives. In an upcoming issue of "Rural Cooperatives," the focus will be on a utility co-op pursuing methane recovery from a landfill operation and other co-ops that use wind and solar power.*

The late Buckminster Fuller, the inventor of the geodesic dome and many other brilliant innovations, used to say that pollution is merely a resource that isn't being used properly. That's a concept some co-ops are finding helpful as they struggle to both improve the bottom line and meet their environmental obligations.

In Oregon, the Tillamook County Creamery Association, maker of the famous Tillamook Cheese and other high-quality dairy products, hopes turning manure into methane will help its members do their part in preserving water quality in the beautiful Tillamook Bay estuary.

Manure disposal poses environmental challenge

Tightening environmental regulations regarding the use and disposal of manure are affecting increasing numbers of livestock farmers across the country, and the dairy farmers of Tillamook County want to deal with the issue before it becomes a problem. Located in a coastal area on a large estuary, co-op members hope to increase production and keep down costs while continuing to make sure their manure management practices are environmentally sound. For solutions, the co-op and its partners in local government are looking not at exotic new management practices or high-tech methods, but at technology similar to one in use in sewage treatment plants for the past 50 years: methane-producing digesters.

A single lactating dairy cow produces up to 119 pounds of manure a day. In Tillamook County, most farmers use the traditional method of disposal—storing it and then spreading the manure on pasture and cropland. Despite improvements in traditional conservation measures, such as increases in the width of streamside buffer zones, manure

spreading can result in nutrient and bacterial runoff (including phosphorus and nitrogen compounds) from the fields into the streams and rivers that feed into the estuary. If nutrient levels are too high, the nutrient compounds can promote growth of unwanted aquatic plants and algae, which, when they decay and die, can use up dissolved oxygen. This process can kill fish and other aquatic organisms. More and wider buffer zones may offer increased protection, but these buffers also hurt the bottom line for farmers by shrinking productive land.

Excessive nutrient levels are not a problem in the Tillam-



ook Bay watershed, although the coastal ecosystem is already stressed by high levels of sediment runoff from a large area of forestland denuded by fires. While nutrient levels in the estuary remain within acceptable limits, contamination from fecal coliform bacteria is another matter. Harvesting oysters and other shellfish in Tillamook Bay is an important source of income in the county, and bacteria levels in the bay prevent shellfish harvesting between 90 and 120 days every year. Recreational swimming and boating activities are also affected.



A member of Oregon's Tillamook County Creamery Cheese Association checks on his herd grazing in the hills of southern Oregon. Methane recovery technology will not only help protect this beautiful environment, but will produce methane gas for use in generating electricity. Above, the Tillamook cheese plant and visitor center. Photos courtesy Tillamook Cheese



Most of the bacteria come from non-farm sources: an Oregon State University study found that dairy livestock were the source of only 28 percent of the bacteria, much of it due to manure spreading during the rainy season—November through March. Spreading manure during these months increases the risk of runoff of nutrients and bacteria.

Government agencies have responded to the problem by resorting to stringent regulations. This year, the Oregon Department of Environmental Quality established standards for maximum bacterial “load” caused by runoff into the estuary watershed.

Seeking cost-effective solutions

Meanwhile, demand for the world-famous Tillamook cheese is increasing, and the co-op and its members want to ensure that environmental considerations do not hinder future expansion.

Cost and regulatory considerations put the co-op in a bind when seeking alternative means of disposal. Trucking manure any farther than a few miles is not cost-effective, and anywhere it is taken, there can be no escaping environmental problems and associated costs caused by the large amount of waste generated by 160 dairy operations and more than 60,000 cows. Increasing manure storage capacity on the farm is not ideal, because it requires significant capital expenditures. What the Tillamook co-op needs is a more lucrative

use for manure—to increase its value, which in turn will make its disposal less costly.

Jack Crider, manager of the Port of Tillamook Bay, thinks methane generation can provide the solution. For the past 12 years, the Port has been attempting to find a practical way to apply methane generation technology, similar to that used in thousands of municipal sewage treatment plants, to Tillamook's manure disposal dilemma.

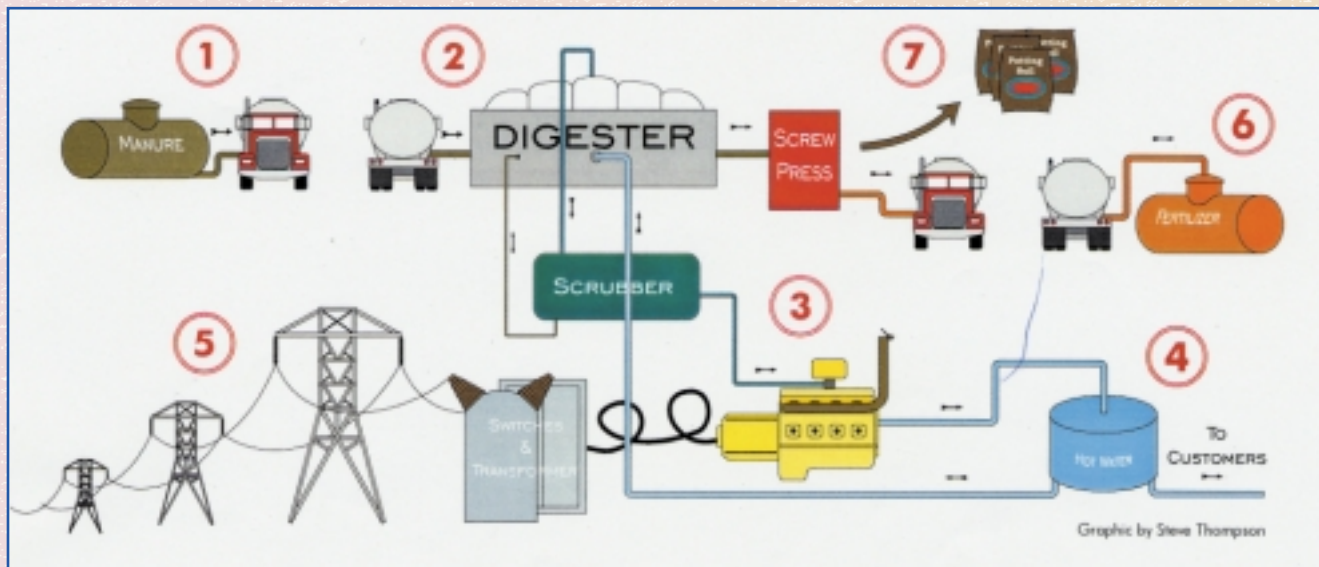
Methane generation from animal or human waste is not a complicated process. Manure is loaded into a digester—which is basically a large tank. There, anaerobic bacteria already present in the manure ferment the waste, producing heat and gas. The gas produced is called “biogas,” and consists of 50 to 80 percent methane—the same gas distributed by utilities as “natural gas.” The rest is carbon dioxide, water (5 percent) and small amounts of contaminants including hydrogen sulfide and other corrosive and odor-causing compounds.

According to the Department of Energy's National Renewable Energy Laboratory (NREL), biogas has an energy value of approximately 600 to 800 Btu per cubic foot. It can be used to produce heat through direct, external combustion, or it can run internal combustion engines that power generators. Electricity produced from dairy manure using this process costs about 6 to 7 cents a kilowatt-hour—approximately twice the wholesale price of conventionally produced power in the Tillamook area.

However, as far as the Tillamook farmers are concerned, generating electricity from methane isn't the only benefit of the digestion process. Molecules containing carbon are known to chemists as “organic compounds.” Cellulose and

How the Tillamook methane-recovery project will work:

1. Manure scraped from the floors of milking parlors and loafing sheds is stored in above- or below-ground tanks.
2. The manure is transported in tanker trucks to the nearby digester facility, where it is loaded into the digester.
3. Fermenting manure produces biogas, which is scrubbed of pollutants and dehumidified before fueling a piston-driven electrical generator. The scrubbed pollutants are returned to the digester for further biologic action.
4. Water heated as coolant for the engine/generator is piped into the digester to maintain optimum temperature. Excess hot water is sold to customers in the immediate vicinity.
5. Some of the electricity produced is used to run facility equipment. The rest is transferred to the local power grid.
6. After 15 or more days, the liquid effluent from the digestion process is separated from the remaining solids and transferred back to the farm in the same tanker trucks used to collect manure.
7. Solids left over from digestion are processed into a high-quality potting soil for sale.



USDA photo

other organic compounds make up the majority of the plant material cows eat and about 50 percent of the dry mass of their manure.

According to Ralph Overend, a researcher at NREL, these carbon compounds are undesirable bulk when manure is used as fertilizer. Moreover, the high proportion of organic substances in cow manure ordinarily inhibit the action of beneficial microbes, which, if given the chance, can transform ammonia and other smelly, volatile and problematic nitrogen-bearing substances in the manure. "By turning 70 to 90 percent of the carbon present in manure into methane and carbon dioxide," says Overend, "the digestion process reduces what we call 'organic loading' and allows the beneficial microbes to work."

The result is nitrogen compounds that are far less obnoxious and far more useful as fertilizers. Nearly odorless, they are much more readily utilized by plants, and, if applied properly, much less likely to run off and contaminate ponds, lakes and waterways. The remaining bulky organic substances can be

separated out, greatly reducing storage needs. And the problem of bacterial contamination is solved, too. The heat produced by biogas generation kills fecal coliform and other harmful bacteria.

The final products are a solid, fibrous material and a liquid with the consistency of milk—both nearly odorless. The fiber can be used as animal bedding or as a high-quality potting soil. The liquid can be stored and applied to fields as high-quality fertilizer.

AgSTAR promotes technology

The Environmental Protection Agency EPA administers a program called AgSTAR to promote methane generation technology for livestock facilities. EPA estimates that over 2,000 such facilities could install and operate cost-effective biogas systems.

When the program was first instituted in the 1970s, approximately 100 on-farm digester systems were built using AgSTAR technical assistance and subsidies. However, most

were failures, for a number of reasons. The materials used for construction, it later turned out, were not appropriate for digesters: tanks and pipes were made of mild steel, which quickly rusted when exposed to the highly corrosive compounds produced by biologic action on manure. According to Overend, the units were also too small to be practical—capable of handling 1,000 to 3,000 tons of manure per year. Maintenance and operation of the digesters imposed unacceptable time burdens and skill requirements on farmers already required to be welders, mechanics, plumbers, electricians and general jacks-of-all-trades.

Finally, the digester systems did not have provisions for dealing with hydrogen sulfide—the substance that gives rotten eggs their offensive smell—and other potential pollutants. When burned, hydrogen sulfide combines with oxygen to produce sulfur dioxide, which reacts with moisture to produce sulfuric acid. This not only has a deleterious effect on equipment, but contributes to the acid rain problem as well.

Agricultural digester technology has come a long way since those first attempts. Much of the progress has been achieved in Denmark and other European countries, with changes forced by rigorous environmental regulations and public opinion. Where necessary, steel has been replaced by concrete, fiberglass, PVC and other non-corrosive materials. Scrubbing technology similar to that used in coal-fired power plants now removes harmful sulfur and other compounds, and larger digester operations have proven to be more efficient.

In the 1990s, some of the units were updated and expanded, and others were built using more developed technology in response to increasing environmental regulatory pressures. Today, about 20 on-farm digesters are in operation, with mixed success.

Recognizing the possibilities

Tillamook recognized the possibilities of digester technology more than a decade ago. In 1989, the Methane Energy and Agricultural Development (MEAD) project was founded through an intergovernmental agreement between the Tillamook Public Utility District and the Tillamook County Soil and Water Conservation District. The project managed to gain special funding from Congress, administered through the AgSTAR program, to develop a plan

for a digester system that would provide electrical power to the public utility grid.

MEAD issued three requests for proposals (RFPs) in the 1990s, calling for the design and construction of a centralized facility that would handle all the dairy cow manure produced in the county. Unfortunately, none of the proposals received proved to be feasible. Though a large digester-generator facility did offer efficiencies of scale on its own, the transport of manure from throughout the county by trucks drove up costs. Participating farmers would be required to pay tipping fees that were too high to be cost effective. In any case, the project was just too big and expensive for the county to obtain financing for.

Meanwhile, Craven Farms, a large dairy farm in the county, went ahead with its own anaerobic digester-generator project. This project used a plug-flow digester (see sidebar) designed by Resource Conservation Management Digesters Inc., a consultant firm located in Berkeley, Calif. Generating 120 kilowatts of power, the set-up helped alleviate the dairy's manure problem, while at the same time providing income both from electricity sold to the utility district and from fiber solids

sold as animal bedding. It also provided heat for the milking parlor and the farm's hot water supply.

While the project was successful for a short time, the farm was later sold. The new owners shut down the digester last year. However, it had demonstrated the potential of available technology. After further research and consultation with the Department of Energy (DOE), the National Renewable Energy Laboratory and the firm that built the Craven facility, MEAD decided to try a new approach.

Instead of building a huge, centralized facility, the plan is to build one to handle the manure of a few dairies. It will be located close enough to the farms to keep transportation costs acceptable. If it proves successful, the revenues from the pilot



Worldwide demand is steadily growing for Tillamook cheese products.

How manure produces biogas in a digester

1. Anaerobic (non-oxygen-breathing) Microbes present in the manure produce enzymes that break down long-chain hydrocarbon molecules (polymers).
2. Fermenting Bacteria convert the resulting simple hydrocarbon compounds to volatile fatty acids (VFA), hydrogen, and simple alcohols.
3. Acetogenic Bacteria convert VFA and alcohols to hydrogen, carbon dioxide, and acetate.
4. Methanogenic Microbes use hydrogen and acetate to create methane and carbon dioxide (biogas). ■

Primary ways to process manure

Three basic types of digesters are used for animal manure: the covered lagoon, the complete mix digester, and the plug-flow digester. Each type is suitable for a different system of manure disposal:

- **Covered Lagoons**—Covered lagoons are large, deep, lined pits, covered with a taut floating membrane. They are used to process diluted manure-liquid mixtures in which the solids content is between 0.5 and 3 percent, such as those produced by flush-type cleaning systems. Because of the large amounts of liquid processed, lagoons must be large and 12 feet deep or more. Covered lagoons are not heated, and for this reason (and because of the diluted nature of the mixture) it takes from 40 to 60 days to process a batch of manure. They are best suited for individual dairy or hog operations in warmer climates.

- **Complete Mix Digesters**—Similar to the digesters used in municipal sewage-treatment plants, these are above- or below-ground tanks that process a slurry con-

sisting of 3 to 10 percent manure solids. Because they are heated, they are suitable for all climates. Complete mix digesters process manure more quickly, in about 15 to 20 days, and so require less space than covered lagoons. They are suitable for individual dairy or hog operations, and can be used to process combinations of scraped and flushed manure.

- **Plug-Flow Digesters**—Plug-flow digesters are so-called because each processed batch of manure is recovered by being pushed out by the next fresh, unprocessed load. They use heated, rectangular tanks that are suitable only for dairy manure, because they require a large amount of fiber to operate properly. The ideal mixture for a plug-flow digester is between 11 and 13 percent total solids, which is compatible with manure scraped from the floors of milking parlors and loafing sheds. After 15 to 20 days, the end products are processed fiber, which can be used for animal bedding or potting soil, and a liquid effluent that makes a high-quality fertilizer. ■

project could be used to service financing for a second system, and so on. The ultimate goal is to have a network of digester-generators, each facility handling the manure from four to six nearby dairies, each large enough to take advantage of economies of scale.

The contractor, RCM Digesters, is the largest firm in the United States building agricultural digester systems, and has built a number of successful projects. Together, MEAD and RCM developed a plan to build and operate a project that would process the manure from 2,000 dairy cows, using two digesters operating side by side. A site is readily available: a former U.S. Navy base, now an industrial park owned by the Port of Tillamook, with a large concrete pad—the remnant of a World War II blimp hangar.

Power generated by the project will be sold to the utility district. The processed liquid will be returned to the farm for storage until application on crop and pastureland. Oregon State University researchers have developed a marketable potting soil from dairy digester solids, and Crider is working on a deal for its sale, adding to the revenue stream. He is confident of the substance's market appeal: a Chinese dairy digester project exports its digested solids to the Netherlands for use in growing tulips.

One potential problem is the spread of contaminants through the mixing of manures from different farms. "That's why the facility will have two digesters instead of one," says Crider. Only manure from two farms will be processed in the same digester, and care will be taken to

reduce mixing to a minimum. The microbial profiles of the farms will be carefully matched to minimize cross-contamination.

The final hurdle

Financing the project is the final hurdle. Neither the Port of Tillamook, the county, nor the Tillamook co-op has the funds for the initial capital investment, and private sources are not willing to shoulder the risk. Crider and his colleagues believe that if the pilot project proves economically successful, financing the others won't be a problem. "The digesters already operating will give us a reliable revenue stream to cover debt service," he says.

In August, MEAD applied for funding from the DOE's Energy Efficiency and Renewable Energy (EERE) program. DOE policy is to offer assistance in the building of methane recovery systems, including financing for electrical generation projects through its Biopower program. Biopower funding is available for both demonstration projects and proven commercial applications of alternative biomass energy sources. Biomass refers to organically produced energy sources, including manure; plant byproducts such as wood chips, bagasse (sugarcane residue), and others; and also crops grown specifically as fuel.

Jack Crider is confident the project can work. If it does, it may provide a model for other dairy co-ops across the nation as conflicts occur over the need to produce food and to protect water supplies. ■

Co-ops and the transformation of global dairy relationships

By Larry G. Hamm
*Extension Specialist and Professor
Michigan State University*

Editor's note: Hamm's article originally appeared in "The Michigan Milk Messenger," the member magazine of the Michigan Milk Producers Association.

The United States and Michigan dairy industries are rightly focused today on the consequences of drought, heat stress, high replacement prices, environmental challenges, milk prices and the prospects for dairy farm income. While the dairy markets are reacting to these immediate market factors, the transformation of global dairy relationships continues. Depending on how one views these global trends, dairy producers are either building a new world order or heading for unforeseeable problems.

While individual dairy operations cope with difficult management decisions, the consolidation and deregulation of the dairy industry continues. Consolidation in the U.S. dairy industry has been discussed in this column several times. The proposed merger of Dean Foods into Suiza Foods appears to still be moving toward some final resolution.

Even today's largest dairies are small when compared to national and international buyers. Therefore, the preferred milk marketing tool still is cooperatives. But even the largest milk marketing cooperatives tend to be smaller than milk buyers. This is why cooperatives were given the Capper-Volstead Act to use to get even more influence in the marketplace.

Michigan's superpool was the first, and still remains one of the best, applications of Capper-Volstead Act principles. Superpools and Capper-Volstead cooperatives are used extensively in the fluid milk markets. Recently, some of the United States' largest cooperative marketers of nonfat dry milk powder (NFD) established a Capper-Volstead cooperative organization called Dairy



America to market and attempt to enhance the price of NFD. This was a response to the U.S. policy to deregulate the dairy industry by eliminating the dairy price support and eliminating (through the GATT negotiations) import quotas on NFD imports.

As U.S. dairy producers are challenged by market concentration, deregulation, globalization, etc., they have continued to reinvent their use of and commitments to cooperatives. To have dairy producers elsewhere in the world, there have been extensive mergers of European and Scandinavian cooperatives. Irish cooperatives have converted to non-cooperative forms.

The two remaining large New Zealand cooperatives and the New Zealand Dairy Board are voting to merge into one marketing entity called Global Dairy Company. Australia deregulated its dairy industry and is now engaged in mergers and alliances with other cooperatives and/or multinational dairy companies. All this is taking place in the context of the largest world dairy companies such as Nestle, Kraft, Parmalat and Unilever getting bigger and more dominant in virtually every major milk market in the world.

The world dairy markets are beginning to look like the local milk markets used to look like in the United States. Individual market areas would have a few very dominant buyers with a few cooperatives and clusters of independent producers. Producers would compete against one another, assuring that the producer price would fall to federal order minimums or, without orders, to a flat price equal to the lowest value use of milk in the market. In the new global world it will be groups of organized producers from one country competing against other organized producers from other countries for access to specific market areas. This will likely hold for all major agricultural commodity markets.

Dairy producers have other options, however. The majority of the world's milk producers are organized into cooperatives. Just as U.S. producers learned that the Capper-Volstead Act allowed cooperatives to join together so as not to be condemned by the outcomes of market competition, so could the world's producers join to present a united marketing front. The vision of many of the

continued on page 30

Co-ops and trade sanctions

Co-ops defend their members' interests in sanctions reform debate

By Alan Borst, USDA/RBS Agricultural Economist

Marc Warman, USDA/RBS Agricultural Economist

Cooperative executives have a central mission of increasing the earnings of their farmer-owners. Initiatives to achieve this mission usually involve increasing the value of their product line to increase sales and profits. Sometimes, however, marketing initiatives to increase an individual cooperative's sales and earnings must first overcome political barriers to market access. For other cooperatives, erecting or maintaining market barriers is critical to maintaining or increasing their sales and earnings.

Such was the case with debates over the North American Free Trade Agreement (NAFTA) in the 1990s. Most U.S. agricultural interests wholeheartedly supported NAFTA, but some firms which perceived a competitive threat from Mexico opposed the agreement – unless certain protections for their industries were included. This political pattern is repeating with regard to the issue of unilateral economic sanctions reform. This article describes the role which some cooperatives have played in recent sanctions reform debates.

The United States government has imposed unilateral trade sanctions on many different nations for a variety of reasons since World War II.

These sanctions range from severe export restrictions to outright embargoes, under which no U.S. export transactions may be conducted with targeted countries. During the late 1990s, there were six countries subject to such sanctions which received particular attention from the agricultural

community: Iraq, Iran, Cuba, North Korea, Libya and Sudan. In 1996, these countries imported \$6.3 billion worth of agricultural products.

The USDA Foreign Agricultural Service estimates that U.S. agricultural exporters could have had at least \$500 million of that trade had they been permitted to compete for it. USA Engage, a coalition representing American business and agriculture which opposes the use of unilateral trade sanctions, argues that the FAS estimate is conservative, and that this number could have been considerably higher.

In 1998, these six countries imported \$7.7 billion in agricultural imports (about 2 percent of world-wide agricultural imports). The Congressional Research Service estimates that U.S. farmer income in 1996 was probably reduced by \$150 million because of these unilateral sanctions. This reduced farm income would have represented about 1/4 of 1 percent of 1996 U.S. farm income.

Regardless of these sanctions' relatively modest impact on the broad U.S. agricultural sector, their impact on specific com-

modity sectors or individual agribusinesses has sometimes been more dramatic. Unilateral trade sanctions are especially controversial because the targeted countries have frequently found alternative suppliers among our agricultural exporting competitors.

Large investor-owned trading companies, which source and sell agricultural commodities from around the world, are generally less vulner-

able to such sanctions than U.S. farmer-owned cooperatives. Co-op export marketing channels are largely dedicated to sourcing and selling their members' commodities.

Trading companies, or their foreign subsidiaries, can more easily manage deals between foreign commodity suppliers



Arkansas rice is heading to Cuba for the first time in 40 years, Riceland Foods announced in late November. Farmland Industries and other processors will also be shipping other grains and soybeans to Cuba. Photo courtesy Riceland Foods Inc.

and sanctioned importers, and thus retain a share of the targeted countries' import markets. In spite of this, cooperatives and their investor-owned competitors have generally been united in their political support for unilateral trade sanction reforms (with the exception of some fruit and vegetable firms in Florida and California).

Impact on rice markets

The U.S. rice sector has probably suffered the most from unilateral economic sanctions. On three consecutive occasions, the U.S. imposition of unilateral trade sanctions has removed the largest import markets for U.S. rice.

In 1962, Cuba was the largest foreign buyer of U.S. rice, but on July 8, 1963, Cuban Assets Control Regulations were issued which closed that market to U.S. rice exporters. In 1989 Iraq was the largest foreign market for U.S. rice, but the Gulf War and Executive Order 12722 closed that market on Aug. 2, 1990. The largest importer of U.S. rice in 1995 was Iran, despite an executive order on May 6 of that year which closed off trade with that country.

Over the past few years, executives from two Arkansas rice milling cooperatives have aggressively courted prospective rice buyers in Iran, Iraq and Cuba.

These same executives and their allies in the U.S. rice sector have been lobbying the U.S. policymakers to reform unilateral trade sanctions which restrict agricultural exports. This issue is of critical importance to the U.S. rice sector, which has been experiencing serious economic problems in the past few years.

Twenty percent of U.S. rice mills are either shut down, for sale or in bankruptcy. In Louisiana and Texas, the milling industry is running at just 20 to 30 percent of capacity. Federal payments since 1998 are all that has been keeping some producers in business. In such circumstances, securing access to one or a few new markets could significantly boost the U.S. rice sector.

One rice milling cooperative donated 20 tons of rice to Cuba last summer to help residents suffering from a drought. The shipment was sent to Havana through Mexico, in part to introduce Cubans to the cooperative's rice product should normal trading relations become established in the future. The same cooperative planned to export rice to Iraq under the United Nations' sanctioned oil-for-food program, and attempted negotiations with prospective Iranian buyers.

Impact on wheat markets

U.S. wheat growers and their cooperative elevators have also lost global market share because of U.S. unilateral trade

sanctions. U.S. Wheat Associates estimates that growers and marketers of U.S. wheat have lost access to about 11 percent of the global wheat market because of unilateral trade sanctions in 1997-98, valued at about \$353 million. The estimated average annual losses to U.S. wheat exporters from sanctions for the previous 10 years were valued at about \$320 million. Iran had been a major importer of U.S. wheat, especially soft white wheat, before the imposition of sanctions. Sanctions have had less impact on corn and soybean exporters.

Executives from several large grain cooperatives have urged Congress to pass sanctions reform legislation, and argued that sanctions have:

- Lost U.S. agricultural exporters global market share;
- Increased competition as rival foreign suppliers have

been able to fill the gap caused by U.S. withdrawal from these markets; some of these trading rivals have even increased production to capitalize on the opportunities;

- Allowed some foreign rivals to charge higher prices to importers in U.S.-sanctioned nations, consequently enabling them to cross-subsidize their exports to third markets where they are also competing against U.S. suppliers;

- Encouraged countries that rely on food and agricultural imports to adopt policies that make them more self-sufficient and less

dependent on the U.S. for supplies;

- Damaged the reputation of U.S. agricultural exporters as reliable suppliers;
- Sometimes forced U.S. agricultural exporters to discount their supplies in order to move them in remaining world markets.

These cooperative executives further asserted that unilateral sanctions have had little positive impact on pressuring targeted countries to modify their conduct in the intended ways. They have urged U.S. policymakers to pursue a policy of constructive engagement with those countries whose conduct was deemed objectionable.

Collectively, these co-op executives called upon U.S. policymakers to: (a) review existing unilateral trade sanctions; (b) terminate sanctions found to be ineffective or no longer needed; and (c) establish a framework for evaluating the merits of future proposed sanctions. They also expressed concern that export licensing might be required on a case-by-case basis, which would considerably raise the transaction costs of dealing with importers from sanctioned countries.

Citrus co-ops support sanctions

In contrast to the grain cooperatives, Florida citrus packing cooperatives and their growers have generally opposed removing sanctions against Cuba, whose exports

In contrast to the grain cooperatives, Florida citrus packing cooperatives and their growers have generally opposed removing sanctions against Cuba.

they fear would economically injure their sector. One Florida citrus cooperative, in testimony to the International Trade Commission, asserted that the Cuba trade embargo had been beneficial to their producers and processors. While most of Cuba's citrus production is currently directed toward Europe, co-op members expressed concern about Cuba's export focus dramatically shifting toward the U.S., where they would have much lower shipping costs.

During the 1990s, there was considerable political conflict—and ultimately compromise—between Florida growers threatened by Mexican competition



This Mississippi rice mill was recently purchased by the Producers Rice Mill cooperative of Stuttgart, Ark. See page 30 for more on this acquisition. Photo courtesy Producers Rice Mill Inc.

and U.S. agricultural exporter interests over the negotiation and ratification of NAFTA. The prospect of opening up U.S.-Cuban trade has again worried Florida growers about the potential economic impact on their industry.

The political coalition favoring sanctions reform—which included the major grain cooperatives and the vast majority of U.S. agricultural interests—succeeded in securing some sanction reform. At first this was achieved through a series of executive orders. On April 28, 1999, the Clinton administration lifted prohibitions on U.S. commercial sales of most agricultural commodities and food products to three countries: Iran, Libya and Sudan. It further indicated that future sanctions would not include agricultural products.

The White House decided in May 1999 that licensed agricultural sales to

Cuban private and non-governmental entities could be undertaken. In September 1999, the White House announced that U.S. agricultural exporters could sell to North Korea without securing an export license. Sanctions against Iraq are now multilateral, and remain in effect apart from any U.S. unilateral sanctions reform.

Codifying sanctions into law

On October 28, 2000, Congress passed the Trade Sanctions Reform and Export Enhancement Act of 2000, which codified the previous executive orders on sanctions reform into law.

This Act exempts commercial sales of agricultural products and medical supplies from unilateral trade sanctions. This Act also requires the president to obtain Congressional approval before imposing sanctions which would restrict or prohibit the sale of agricultural or medical products, and mandates that Congress must renew any approved sanctions that extend beyond two years. This

Act also broadened the exemption of agricultural exports to include non-food agricultural commodities and fertilizers.

Currently, U.S. farm groups and other stakeholders of the sanctions reform issue are awaiting the release of the Executive Branch regulations that would implement the statutory provisions on sanctions reform. These regulations will specify export licensing requirements for U.S. exporters seeking to conduct transactions with importers from the sanctioned countries. The degree to which these rules are restrictive or more flexible will largely determine the practical effect of sanctions reform. These export licensing regulations are expected to be released soon.

Since these reforms, however, cooperative exporters have had diffi-

culty in dealing with prospective importers in targeted countries because of resentment against the sanctions and conditions under which transactions must be conducted. Opponents of sanctions reform won some points in the policy debate, which is reflected in the Act's tougher treatment when it comes to Cuban sanctions. The Act prohibits the use of U.S. public or private financing for export sales with sanctioned countries, requires that deals be made with private Cuban importers, and bans tourist travel to Cuba.

The combination of restrictive export licensing requirements and other high transaction costs of dealing with sanctioned importers could become prohibitive for selected U.S. exporters. The Cuban government has announced that under present conditions, Cuba will not deal with U.S. agricultural exporters. One cooperative rice milling executive made the point that with their lower shipping costs and higher quality, they can competitively enter the Cuban market whenever normal commercial relations can be established with them.

Most of the countries currently subject to unilateral trade sanctions are not major U.S. competitors in either foreign or domestic agricultural markets. Many of these countries are limited in their global competitiveness by outdated infrastructure, a lack of current production technology and equipment and a lack of knowledge about U.S. consumer preferences for their products. With a steady flow of foreign investment and technical advice, however, these conditions could be reversed eventually, especially in Cuba. Efforts in Congress to further reform trade sanctions are ongoing, particularly with regard to Cuba.

For more information, check out some of the periodically updated Congressional Research Service reports on sanctions reform by entering the word "sanctions" in their title keyword box at: <http://www.cnire.org/nle/crssearch/crssearch.cfm> ■

Sales climb, net income declines for local cooperatives in 2000

Beverly L. Rotan
USDA Rural-Business Cooperative Service

Sales by local cooperatives of major farm supplies (feed, seed, fertilizer, chemicals, petroleum and other farm supplies) averaged \$8.33 million in 2000, a 14-percent increase from \$7.28 million in 1999. Petroleum sales spurred this increase, with a 30-percent surge to \$2.92 million per local cooperative in 2000 (table 1). Seed sale averages also climbed sharply, up 21 percent, to \$248,967 per local co-op in 2000. Indeed, every category of farm supply sales increased from 1999 to 2000.

When revenue from the sale of farm commodities is added to farm supply sales, the total sales average per local cooperative rose to more than \$14.1 million in 2000.

Net income averaged almost \$242,000 in 2000, down steeply from \$334,000 in 1999, a 27 percent drop. About 26 percent of the 331 local cooperatives in this study reported losses in 2000. Local co-op savings were up 3 percent, while patronage refunds from regional cooperatives declined 49 percent from 1999. Even with this slight downturn, these refunds were still an important source of revenue, allowing 39 out of 95 cooperatives that had local losses to report overall net income for the year.

Increases in fertilizer and petroleum sales were both due to the rise in propane prices. Propane is used to heat farm homes and as a component in anhydrous ammonia fertilizers. Sales of

Table 1—Average sales and percent change for principal farm supplies and grain from 1999 to 2000

Farm input/product	1999	2000	Percent increase
	Dollars	Percent	
Feed	1,264,631	1,349,396	6.7
Seed	205,433	248,967	21.0
Fertilizer	1,390,028	1,454,519	4.6
Crop protectants	1,185,647	1,261,788	6.4
Petroleum	2,251,739	2,929,104	30.0
Other farm supplies ¹	984,416	1,101,747	12.0
Total farm supplies	7,281,894	8,338,919	14.5
Grain	5,605,223	5,832,074	4.0

¹ Other farm supplies include tire, batteries, and accessories; machinery; building materials; hardware; and food.

Table 2—Size and type definitions used for respondent cooperatives

Cooperative size	Definition	Number
Small	up to \$5 million in total sales	112
Medium	\$5 million to \$10 million	83
Large	\$10 million to \$20 million	67
Super	\$20 million and more	69
Cooperative type		
Farm supply	total net sales from farm supplies	169
Mixed farm supply	from 50 to 99 percent farm supplies	77
Mixed marketing	from 25 to 49 percent farm supplies	61
Marketing	less than 25 percent farm supplies	24

tires, batteries and accessories, containers, building materials and groceries from convenience stores (all categorized as “other farm supplies” on the accompanying tables) all showed increased sales. As a group, this category climbed 12 percent, to more than \$1.1 million.

Overall sales for marketing farm commodities (crops and livestock) showed a small increase in 2000. Grain

sales, with higher market prices and production in 2000 than in 1999, were up 4 percent, to almost \$6 million per local cooperative on average. Service income increased less than 1 percent.

Both current assets and total assets showed increases, up 11 and 8 percent, respectively, on average for the 331 co-ops surveyed. Investments also increased in property, plant and

Financial ratios help track co-op performance

The performance of cooperatives can be analyzed by using financial ratios, which have both financial and operational impacts. Following is a brief description of ratios in table 3:

1. Liquidity ratios—focus on a company's ability to pay bills when due. If liquidity ratios remain relatively high for a prolonged period, too much capital may be invested in liquid assets (for example, cash, short-term investments, accounts receivable and inventory) and too little is devoted to increasing member equity.

2. Leverage ratios—reveal a company's use of borrowed funds (rather than members' equity or investments) to expand its business. The goal is to borrow funds at a low interest rate and invest in business activity that produces a high rate of return, exceeding the target rate of return for investment. Debt-to-equity ratio measures the long-term solvency of a company by comparing debt to net worth. A company with a high debt-to-equity ratio could have trouble meeting fixed

interest/debt payments if business falters or does not grow as planned.

3. Activity ratio turnover — or efficiency ratios, measure activity or changes in certain assets. Poor turnover generally indicates resources are invested in non-income-producing assets. The inventory turnover ratio measures how quickly inventory is sold and replaced each year. An inventory turnover of 12 means inventory is sold (turned over) once each month. The times interest earned ratio measures a company's ability to make interest payments on debt. If the ratio does not exceed the interest rate on current debt, the business may not be making enough to pay interest expenses.

4. Profitability ratios—vary from industry to industry and should be compared to a company's ratios for prior years/periods. The return-on-assets measures how well a company is using its assets to generate net profits. The return-on-member equity ratio measures a company's return on members' money. ■

equipment; grain and oilseed inventories; farm supply inventories; and accounts receivable.

Current liabilities for local co-ops jumped nearly 14 percent during the two-year study period, with patrons' credit balances, seasonal debt and accounts payable showing double-digit

increases. Growth was also experienced in accrued expenses, as well as in current and long-term debt. Cash patronage refunds and dividends decreased.

Equity financing remained a strong fiscal component for local cooperatives, with equity growing about 4 percent from 1999 to 2000. Farm income also remained strong for local cooperatives, in large part because of government payments.

Cost of goods sold and revenue almost offset each other in 2000, with cost of goods sold rising about 10 percent and revenue rising 8 percent. Cost of goods sold averaged almost 88 percent of net sales. Total expenses climbed about 8 percent from 1999.

These factors may be

the reason why there have been so many cooperatives with net income losses for the year.

Local agricultural cooperatives continued to play a vital role in supplying goods and services to their farmer-members and in marketing their crops. Local co-ops are also important to rural communities, where they are often one of the largest employers and generate considerable tax revenues for their communities.

Co-ops in the study had an average of 39 employees, who earned an average salary of \$27,024. Total employee expenses were up about 6 percent from 1999. Directors' fees and expenses were a small part of total costs. However, director compensation is an important factor that helps many cooperatives convince producers to divert time each month to helping to guide their cooperative. Co-op boards averaged seven members, who were paid an average of \$952 per year.

Information for this article was the result of a study that collected detailed financial information from 331 cooperatives. These co-ops were grouped into four categories: small, medium, large and super (table 2). ■

Table 3—Financial ratios, 1999 and 2000

Ratio	1999	2000
Liquidity		
Current	1.39	1.35
Quick	0.69	0.67
Leverage		
Debt	0.21	0.23
Debt-to-equity	0.37	0.41
Activity		
Times interest earned	3.30	1.86
Total asset turnover	1.96	1.99
Fixed asset turnover	6.70	6.91
Profitability		
Gross profit margin	0.12	0.12
Return-on-total assets (before taxes and interest)	0.04	0.02
Return-on-member equity	0.07	0.03



**Tree Top sets sales record;
\$10.8 million earnings paid**

Apple and pear grower-members of Tree Top Inc., based at Selah, Wash., were paid \$10.8 million in cash to close out the 2000 crop season. Payments to members are made throughout the year in the form of cash advances as fruit deliveries are received. The cooperative



Tree Top processed a record crop of 533,000 tons of fruit from the 2000 harvest.

reported record sales of \$297.5 million for fiscal 2001, which ended July 31. Tree Top processed a record 533,000 tons of fruit from the 2000 harvest and completed its ninth consecutive year of profitability. Also, for the ninth consecutive year, the board voted to distribute all grower earnings in cash.

Earnings from non-member business were sufficient to cover the cooperative's operating costs. However, the market value of fruit dropped significantly due to an oversupply of low-cost concentrate on the world market. The value of juice apples, for instance, dropped from \$121.18 per ton a year ago to \$42.93 per ton. Similarly, peel apple values dropped from \$128.90 per ton to \$72.28 per ton. Tree Top has

2,000 members in Washington, Oregon and Idaho. The cooperative's annual payroll for 1,300 employees exceeds \$43 million.

**LOL completes purchase
of Purina Mills feed business**

In a brief annual meeting in St. Louis on Sept. 10, shareholders – by a 2- to-1 margin – approved the \$230 million cash sale of the Purina Mills' livestock-feed manufacturing business to Minnesota-based Land O'Lakes (LOL) Inc. The transaction, which includes LOL assuming Purina's \$130 million of debt, was completed in early October. Purina Mills will become part of the consolidated business operated by Land O'Lakes Farmland Feed LLC, a subsidiary of the two regional cooperatives and the largest feed company in North America.

The combined organization's feed sales are expected to reach \$2.5 billion. The company will be headed by Bob De Gregorio. Purina Mills, founded in 1894, declared bankruptcy last year. It has 48 feed plants, 2,300 employees nationwide and is known for its "Chow"-brand livestock feeds.

"Through the acquisition, we are building the economies of scale and critical mass necessary to compete in the consolidating feed industry," said Jack Gherty, LOL president and chief executive officer. "By bringing in Purina Mills into our system, we are creating a national feed organization that is extremely well positioned to succeed

long term and deliver increasing value to customers and others," he added. DeGregorio said the transaction "brings together complementary geography and product lines and unites two organizations and product lines that share a high level of customer recognition and a proven record of quality and service."

**Volume of Canada's Top 10
ag co-ops tops \$15 billion**

Canada's 42 agricultural cooperatives—which represent 654,000 producers—had a combined business volume of \$19 billion (in Canadian dollars) and assets valued at \$17.4 billion in 1999, according to a recent report from the Cooperatives Secretariat at Ottawa.



The national maple leaf symbol of Canada, from the cover of a new report on that nation's co-op sector.

While the number of Canada's agricultural cooperatives declined 3.3 percent, memberships increased 2 percent from 1998 to 1999. Business volume was down 4 percent, but asset value of cooperatives climbed 9 percent. The number of employees was up 0.5

percent, to more than 22,400.

Some of Canada's agricultural cooperatives are leaders in particular industries. The combined business volume of the top 10 agricultural cooperatives was more than \$15.4 billion, and they reported assets of \$5.2 billion, up 11 percent from 1998.

Marketing of agricultural products in Canada and abroad reached \$12.5 billion. On the farm supply side, combined business volume of these cooperatives was \$3.2 billion, up 3.2 percent from 1998. The nation's 53 fishery

cooperatives reported \$179.5 million in revenue for 1999, up 30 percent from 1998. The 4,064 service cooperatives, the largest sector in Canada, reported a combined business volume of \$1.5 billion, up 4 percent from 1998.

CHS buys Farmland's interest in petroleum joint venture

CHS Cooperatives is purchasing Farmland Industries' share of Country Energy, their fuel joint venture, which will result in a major boost in petroleum volume and service territory for CHS. Country Energy sells about 3 billion gallons of fuel annually. The move makes CHS a petroleum marketer from Lake Superior to Texas and throughout the Plains and West. Meanwhile, Farmland is exploring the sale of its holdings in oil refineries which were not part of the Country Energy buyout.

In other CHS news, federal regulators are reviewing a proposal to combine flour-milling operations of CHS and Cargill, both of which are headquartered in Minnesota, into a joint venture that would create the second largest miller (by capacity) in the nation. If approved, the new joint venture would become effective early in 2002. If combined, the Harvest States division of CHS Cooperative would

contribute five mills and Cargill would add another 15 to the venture, for a combined 293 million pounds of flour-milling capacity per day. Both firms have suffered from low profit margins and periodic operating losses in milling. Cargill would contribute 75 percent of the new venture's capacity and ownership.

Sunkist expansion reflects rising interest in fresh juice

A \$15.5 million expansion project underway at Sunkist Growers' processed products plant in Tipton, Calif., reflects shifting consumer demand toward fresh orange juice and away from frozen concentrate. "This six-million-gallon bulk-storage system is an investment in the future of our West Coast citrus industry," says Jeff Gargulio, president of world's leading citrus marketing cooperative. Construction is expected to be completed next August. "The expansion positions us to take advantage of increased sales opportunities and will improve returns to our growers," he said. Labor savings and reduced handling costs will increase the juice value. Sunkist sells its juice in bulk to customers who package the final consumer product. The Tipton plant was built in 1982.

Oemichen new VP with Wisconsin Federation

Bill Oemichen, an attorney who led Wisconsin efforts in federal milk marketing reform, has been appointed senior vice president of the Wisconsin Federation of Cooperatives (WFC) at Madison. WFC serves as the legislative arm of the state's 600 cooperatives, principally agricultural and rural electric co-ops. Before joining the cooperative sector, Oemichen was administrator of the consumer protection division for the Wisconsin Department of Agriculture.

Rod Nilsestuen, president of the Wisconsin federation and Minnesota Association of Cooperatives, saluted Oemichen's "extensive government experience in both states, his deep knowledge of cooperatives, and his outstanding reputation for getting results. His extensive work with dairy, agriculture and consumer issues and strong administrative and legal experience will be great assets." Oemichen had earlier been deputy commissioner and chief legal officer for the Minnesota Department of Agriculture.

Flood of Asian imports hurts Plains Cotton Cooperative

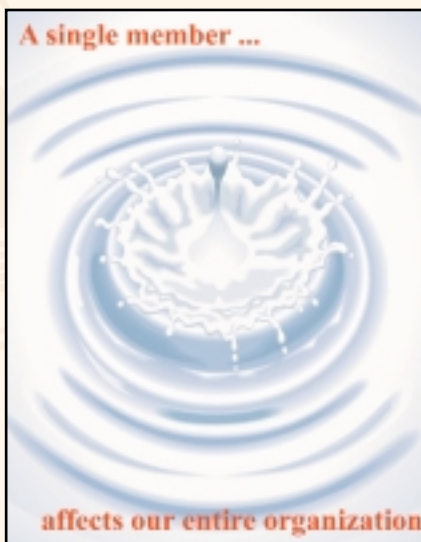
The winds of change – fueled by a flood of low-cost imported textiles and apparel from Asia, coupled with the strong U.S. dollar – cut into fiscal 2001 performance of Plains Cotton Cooperative Association (PCCA) at Lubbock, Texas. The co-op reported its first net loss – \$627,861 – since 1985. Despite the loss, PCCA paid \$1.9 million in cash dividends to warehouse and marketing pool patrons, \$1.5 million in stock retirements and \$7.9 million in retirement of per-unit capital retains.

The most dramatic change was in the textile division, which lost \$7.9 million, the largest in PCCA's history. "Since 1997, devalued Asian currencies have given those countries' textile and apparel products a significant advantage compared with U.S.-made goods," said Van May, PCCA president and chief executive officer.

The ripple effect

Dairy Farmers of America (DFA), the nation's largest dairy cooperative, has developed a new logo: an image of a milk drop splash that symbolizes how each member affects the entire organization. "Milk is all about dairy farmers," observes Agnes Schafer, DFA vice president of communications. "When milk pools in a pail, concentric rings touch one another. Once the drop clears, what remains is farmers working together. Whether large or small, we need each other to serve agriculture." *Graphic courtesy DFA*

A single member ...



affects our entire organization

Due to cheaper Asian market imports and limited opportunities in the Caribbean basin, PCCA exited the yarn-dyed business and converted its Mission Valley plant to a spinning/denim weaving operation. The plant spent \$6.2 million to cut its production, administrative and sales force 60 percent and increased denim manufacturing capacity 30 percent. May said it was the least expensive and most attractive alternative available to the cooperative. The marketing divi-



The cover of PCCA's latest annual report.

sion also registered a net loss of \$347,000, its first in 12 years. Adverse weather impacted pool marketing efforts.

On the positive side, gains have been made in

electronic marketing. "We completed negotiations and formation of our new Internet trading company, The Seam, and began operating it last December," May said. "We believe these new electronic ventures will ultimately generate improved financial results for PCCA and all of our members by providing better control of overhead costs related to cotton marketing."

Changing guard at Foremost: Fuhrman succeeds Storhoff

After nearly a quarter century at the helm of Foremost Farms USA at Baraboo, Wis., Don Storhoff is retiring, and will be succeeded by David Fuhrman, current vice president of the co-op's cheese division. Fuhrman has been with the cooperative since 1981. He currently serves as co-chairman of the Dairy 2020 Council, a Wisconsin initiative that works to help the state's \$17 billion dairy industry better position itself for long-term viability. With its 13 plants and 700 employees, the cheese division represents about half of Foremost's annual sales, which reached

\$1.1 billion in fiscal 2000. The cheese division is the largest of the cooperative's operating divisions. Storhoff will stay on until the end of the year to assist in the transition.

Chairman Ed Brooks said Storhoff's "leadership and vision have been the key to Foremost Farms' growth and success. This growth has taken place on a step-by-step basis and has resulted in a financially stable, diversified cooperative that is a major manufacturer and marketer of cheese, whey ingredients, butter, packaged fluid milk and juice and bulk raw milk. He leaves the cooperative on solid footing with a well-defined direction for the future.

"Since our formation in 1995, we have focused on generating returns for our member-owners through market-driven returns," Brooks said. "We've streamlined business procedures and reinvested in our manufacturing plants to produce products in demand by today's marketplace."

Doug Wilke has been named the new vice president of the cheese division. Wilke has been with the cooperative since 1987. Most recently, he helped with the changeover of Foremost's Appleton plant into a cheese shredding facility.

In a move to bolster the state's dairy industry, the Foremost board of directors has donated \$150,000 to the integrated dairy management program at the University of Wisconsin-Madison. "The dairy industry is very important to us and this is a way to enable land-grant colleges to do the research necessary for all of our producers," said Brooks. The program involves construction of dairy heifer research facilities at the Marshfield Agricultural Research Station and

USDA looking for latest co-op pubs, news releases

Many of the news items appearing on these pages are taken from co-op newsletters, magazines and news releases. Please help us keep other cooperative leaders around the nation informed of important developments at your co-op by sending a copy of your co-op publications and news releases to: Rural Cooperatives magazine, Attention: Dan Campbell, Stop 0705, 1400 Independence Ave. SW, Washington, D.C. 20250-0705. News releases may also be faxed, attention Dan Campbell, to: (202) 690-4083, or e-mailed to: dan.campbell@usda.gov.

upgrading dairy facilities at the Arlington research center and at the Madison campus.

Storhoff and his wife, Lois, have created two annual \$1,000 college scholarships—one for the child of a member and the other for the child of an employee. The scholarships will be administered by Foremost Farms' Charitable Foundation.

Agway restructuring triggers \$8.9 million loss

Expanded energy business volume and higher product prices helped boost 2001 sales for Agway Inc., Syracuse N.Y., to \$1.55 billion, up 14 percent from 2000. But the Northeast regional cooperative lost \$8.9 million for fiscal 2001. The co-op also had a loss of \$9.4 million in 2000, and is expected to suffer one more year of losses in 2002 due to the restructuring efforts. But the cooperative should return to profitability by 2003, according to Donald Cardarelli, Agway's president and chief executive officer.

Part of the current losses are due to closing an underperforming Texas produce operation and converting several Agway-owned operations to dealer stores and selling or closing some facilities. Strong 2001 earnings were reported for its energy and insurance divisions and its lease financing subsidiary.

Producers Rice buys Greenville mill complex

Producers Rice Mill Inc., a Stuttgart, Ark.-based cooperative, has completed the purchase of a one-million-bushel capacity rice mill complex in Greenville, Miss., from ACH Food Companies Inc. The facility includes a white rice mill, a parboil mill and a

rice flour mill. The mill can load barges directly on the Mississippi River. Producers Rice has also signed a supply agreement to provide rice products to ACH, which is focusing on the manufacture of specialty, high-value products. The sale does not impact ACH's other operations in Brinkley, Ark., and Mobile, Ala..

Producers began expanding into northwestern Mississippi in 1996, with the opening of a green rice handling facility at Boyle. The cooperative of 2,400 members now handles about 25 percent of Mississippi's rice crop. It operates 10 other green rice receiving stations in eastern Arkansas.

Co-ops respond to attacks with aid, calls for unity *continued from page 15*

Sept. 11 attacks, an initial \$5,000 donation was made on behalf of the cooperative and its employees with a commitment to making further donations. By mid-October, employee donations of \$25,000 were matched by the cooperative. In addition, Farmland sponsored a blood drive in late October at its headquarters to replenish supplies.

★ More than \$100,000 was donated to the American Red Cross Disaster Relief Fund in Bloomington, Ill., by the Illinois Farm Bureau and its affiliates, including GROWMARK, Inc. and employees. A special flag-raising ceremony was conducted on the national day of mourning at GROWMARK's headquarters and other facilities, including its offices in Mississauga, Ont. Meanwhile, the cooperative continues to advise its member companies and employees of the latest information available from governmental agencies concerning transportation and other industry security issues.

★ A "call to arms" was issued to members of the Cooperative Communi-

cators Association (CCA) by newsletter editor Donna Abernathy. While the immediate crisis was understandably distracting, she said, "now is not the time to be caught off guard. As communicators, I believe we can and should contribute much to the new chapter in history. During these difficult times, members of your cooperative will turn to you for information about what's happening and how it affects them. Take up your pen, your computer mouse and your camera – the tools that provide vital information – and dig deep the trenches of knowledge, any nation's greatest defense."

★ Raisins from Sun-Maid Growers of California were believed to be among food relief supplies dropped into the embattled Afghanistan countryside. The U.S. military has been dropping 35,000 ration packets each day since the air strikes began. Because the raisins were purchased by military suppliers through third parties, no packer knew its product was being dropped in the relief effort. The use was good news in view of an industry-

wide surplus and declines in world demand. Raisins comply with Afghan dietary restrictions imposed by cultural influences and religious guidelines.

★ Lower natural gas prices are bringing ammonia plants back into production. Farmland Industries has reopened nitrogen plants in Enid, Okla., and Polack, La., but its plant at Lawrence, Kan., remains closed. Operations were suspended in May. The facility produced two millions tons of ammonia per year. The cooperative has increased security at its fertilizer production plants and supply storage facilities in light of a nationwide heightened alert.

★ A nonprofit, Rural America Patriot Fund has been established so that potentially tax-deductible contributions can be made to assist the federal government's anti-terrorist effort with the hope that agricultural producers can donate money, grain or livestock. Although farmers may be hard pressed for cash, they do have commodities to contribute, especially if those donations become tax deductible. ■

Co-ops and the transformation of global dairy relationships *continued from page 21*

world's early cooperative pioneers was that someday cooperatives would have the ability to work together across borders to help producers gain the countervailing power to increase producer incomes and standards of living.

To date, the idea of global cooperative coordination has been the stuff that "old college cooperative professors" would put in lectures and on exams. In late July, however, Dairy America and the New Zealand Dairy Board (NZDB), two national-level, producer-owned

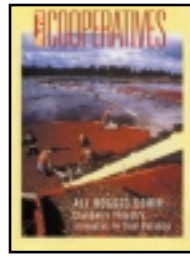
organizations, opened negotiations to have the NZDB be the agent for foreign (outside the United States) sales of Dairy America producers' skim milk powder.

Needless to say, this announcement has opened the debate on what should be the form of producer strategies for dealing with the globalized dairy industry. Are worldwide producer coordination and cooperation possible and desirable? Or is this approach counter-productive and harmful? Clearly, multinational milk buyers will not welcome this approach.

Likewise all the arguments about the virtues and vices of cooperation among co-ops will be revisited.

The forces of globalization are in place and no more reversible than the forces of technological change. Just as technology requires new management strategies, so does globalization. But once again, dairy producer investments in cooperatives and cooperative behavior gives dairy producers more options for shaping their futures than most of the global farmer neighbors. ■

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