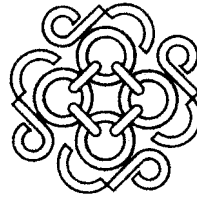
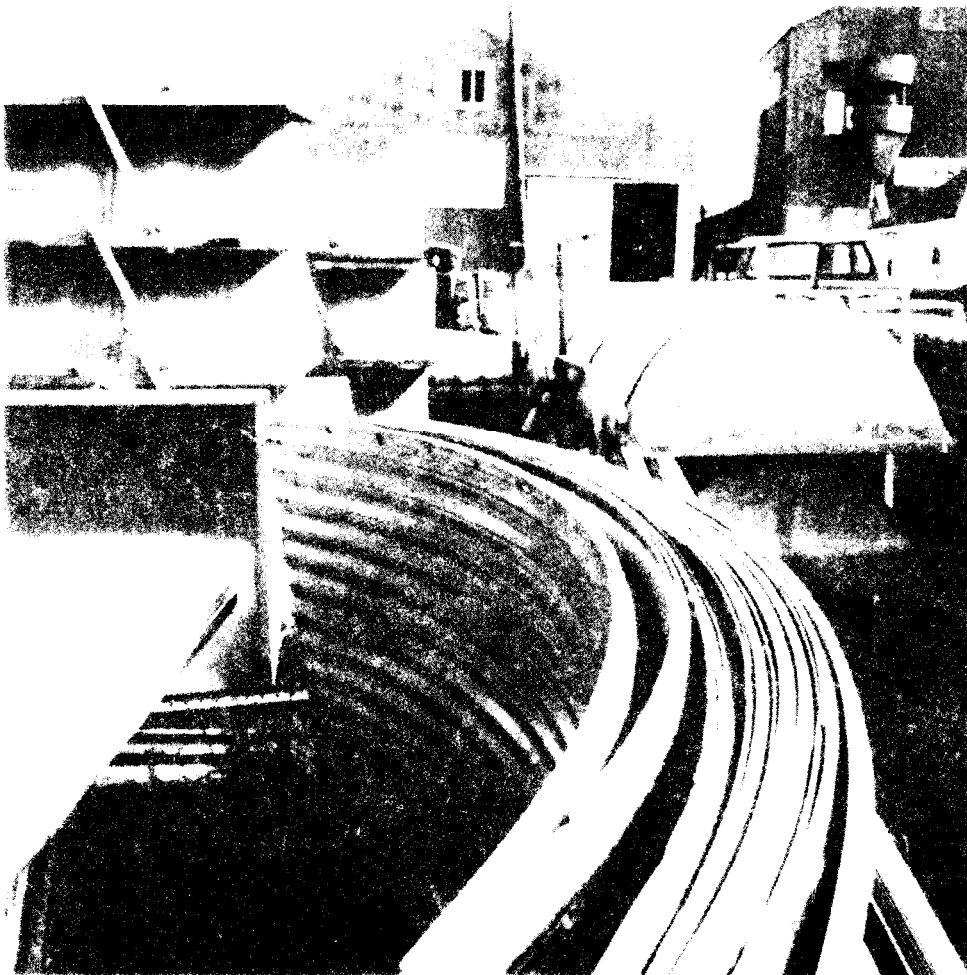


Cooperative Supply and Equipment Operations



FARMER COOPERATIVES IN THE UNITED STATES
COOPERATIVE INFORMATION REPORT 1
SECTION 20

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL COOPERATIVE SERVICE



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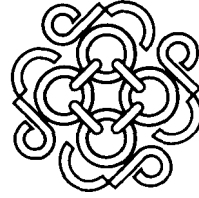
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In the 1940's farmers tried manufacturing tractors through the National Farm Machinery Cooperative. The venture is now history. This Co-op tractor is owned by Tennessee Farmers Cooperative, LaVergne; on display in the Murfreesboro historic equipment park.



Cooperative Supply and Equipment Operations



In 1986, about 4,500 farmer cooperatives reported net sales of about \$2.4 billion of general farm and home supplies and equipment, exclusive of sales of feed, seed, fertilizer, pesticides, and petroleum products.

Many cooperatives classify their sales of general farm and home supplies and equipment into the following six types: building materials; containers; farm machinery; farmstead, home, and plant equipment; food; and unclassified or other supplies. Some cooperatives, however, include one or more of these types under "unclassified or other" sales. This category also may include hardware, lawn and garden, recreation, and the like, and it accounts for about one-half the total.

The number reporting sales of these major types and their net volume in 1986 were:

Sales category	Cooperatives handling	Net sales
	Number	<i>Million dollars</i>
Building materials		
Containers and packaging supplies		
Farm machinery and farmstead equipment		
Food and related services		
Unclassified or other supplies		1,459.5
Total	4 , 5 0 0	2,426.1

Building Materials

Types and Farm Expenditures

Farmers buy many different kinds of building materials, including builders' hardware, paint, fencing, grain storage bins, silos, plumbing supplies, and the like. A major portion is for constructing and repairing buildings used in farm production; the remainder is for farm homes and is considered a family living expense.

In 1986, farmers spent about \$4.6 billion for building and fencing materials, labor, and services classified into the following types: new building construction and remodeling, \$3.4 billion; building maintenance and repairs, \$530 million; fencing materials, \$366 million; feedlots and bunk feeders, \$296 million; and other improvements, \$53 million. (These data included an undetermined amount of labor and services and landlord expenses but did not include expenditures for land improvements, farm water facilities, irrigation improvements, lagoons, and holding ponds.)

Retailing

Many early grain-marketing cooperatives handled fencing and roofing materials. One was the Rockwell Cooperative Society of Iowa, which began handling lumber and coal in 1893 and acquired a lumberyard

Table I-Cooperatives reporting net sales of building materials in specified years

Year	Cooperatives reported handling	Reported net sales of building materials'
	<i>Number</i>	<i>Million dollars</i>
1951-52	790	40.3
1955-56	1,458	79.1
(1960-61)	1,656	91.4
1965-66	1,987	127.2
1970-7 1	2,202	160.1
1975-76	2,382	326.4
1979	2,243	486.7
1980	2,107	516.6
1983	1,900	408.8
1986	1,746	371.5

'Excludes intercooperative business. In addition, "general or other" unclassified sales contained a considerable amount of building materials (table 5).

about 10 years later. In the 1930's, a number of farm supply cooperatives in Indiana and other Midwestern States acquired or built lumberyards. In 1943, Farmers Union Grain Terminal Association, St. Paul, MN, acquired a group of local lumberyards with the purchase of a line of elevators in the North Central States. In the 1950's and early 1960's, cooperatives in several areas added planning and construction services for farmers.

The number of cooperatives reporting separate building supply sales increased to 1,160 in 1952-53, with net sales of \$21.4 million. The peak number was 2,382 in 1975-76. In 1986, 1,746 cooperatives reported net sales of building materials totaling \$371.5 million (table 1). This was about 10 percent of the total all farmers spent for these materials and labor. However, 3,570 cooperatives reported sales of unclassified and other supplies totaling about \$1.5 billion, which included considerable amounts of fencing, roofing, and other building supplies.

The States, mostly in the **midwest**, accounted for nearly two-thirds of cooperative building supply sales in 1986. These States were Iowa, Minnesota, North Dakota, Indiana, Tennessee, Nebraska, New York, Pennsylvania, Illinois, and Kansas.

A number of cooperatives provide planning, designing, and cost estimating services; send foremen to supervise farmers and others in construction; or contract to put up a building with their own crews.

Two regional cooperatives have a leasing service and one provides field specialists to help farmers determine the best type of buildings for their operations.

Wholesaling and Interregional Purchasing

Wholesaling

Over the years, regional cooperatives have supplied at wholesale an increasing amount of building materials, but not many have made it a major activity.

In 1986, 15 regional wholesale cooperatives reported about \$119 million of intercooperative sales of building supplies to local retail cooperatives. This was a smaller proportion of intercooperative volume than for many other supplies, because three large regional cooperatives sell much of their building materials through their own retail outlets, one also sells a considerable amount to building contractors, and another sells most of its lumber to the building trade.

The leading cooperatives wholesaling building supplies are Great Plains Supply Division of Harvest States Cooperatives, St. Paul, MN;

Fruit Growers Supply Company, (FGS), Van Nuys, CA; Indiana Farm Bureau Cooperative Association (IFBCA), Indianapolis; Agway Inc., Syracuse, NY; Southern States Cooperative, Richmond, VA; and Farmland Industries, Kansas City, MO.

Interregional Purchasing

About 39 regional cooperatives in the United States and Canada own Universal Cooperatives, Minneapolis, MN, a national farm supply purchasing association. Universal supplies about \$4 million of building supplies, including aluminum roofing/siding, paint, and builders' hardware.

For more than 10 years, beginning in 1951-52, it had a college conference board of agricultural engineers the staff could consult to develop complete building plans, including specifications for insulation and ventilation in various climate zones of the United States.

Milling and Timber Production

Fruit Growers Supply Company (FGS) was organized in 1907 by members of California Fruit Growers Exchange (now Sunkist Growers, Inc.) to purchase box shooks (lumber parts) requirements for packing-houses in California and Arizona. In 1910, FGS acquired a lumber mill and some timber properties. In 1971, FGS bought additional timberlands in northern California and built a second mill and box factory. In 1944, the company bought additional timberlands and other sawmill facilities. As the industry changed to shipping citrus in fiber or corrugated containers, FGS began to sell or shut down its sawmill facilities. The first mill was sold in 1956, the second in 1963, and the last was shut down in 1973. FGS has no lumber mills at present, but does own a subsidiary company that remanufactures wooden pallets for sunkist and other agricultural and industrial users in southern California. FGS also owns about 340,000 acres of timberland in northern California, selling timber or logs to sawmills in that region.

FGS's annual timber sales recently have ranged from \$100 to 150 million, with \$120 million in 1986. Thus, its timber operations have become primarily a log sales operation, rather than a box-shook procurement operation for its members. ¹

¹In 1980, North Mississippi Paper Mill, Granada, MS, was formed jointly by a forest owners cooperative as a means of marketing members' pulpwood and by a company of publishers as a means of reducing paper costs.

The paper mill in N. Granada, MS, is a wholly owned subsidiary of Mississippi Chemical and will operate as Newsprint South Inc. It will be one of the first new paper mills to use Northern Mississippi pines to manufacture high quality newsprint for major publishers in the United States. It will employ 250 people when operations begin in 1989 and will provide a market for Northern Mississippi pine farmers.

During World War II, two regional supply cooperatives bought lumber mills and a shingle mill to help supply member locals during shortages. Later, as supplies became more available to locals, the mills were sold. Consumers Cooperative Association, (now Farm Land Industries, Inc.), Kansas City, MO, owned a mill in Swisshome, OR, and Indiana Farm Bureau Cooperative Association, Indianapolis, owned a shingle mill in Kentucky.

Prefabricating and Manufacturing

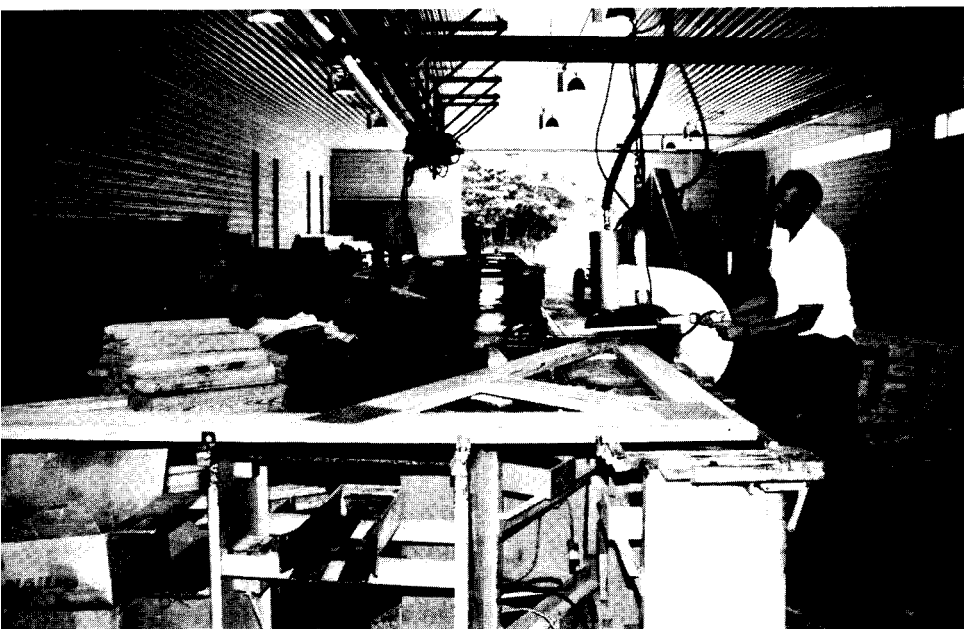
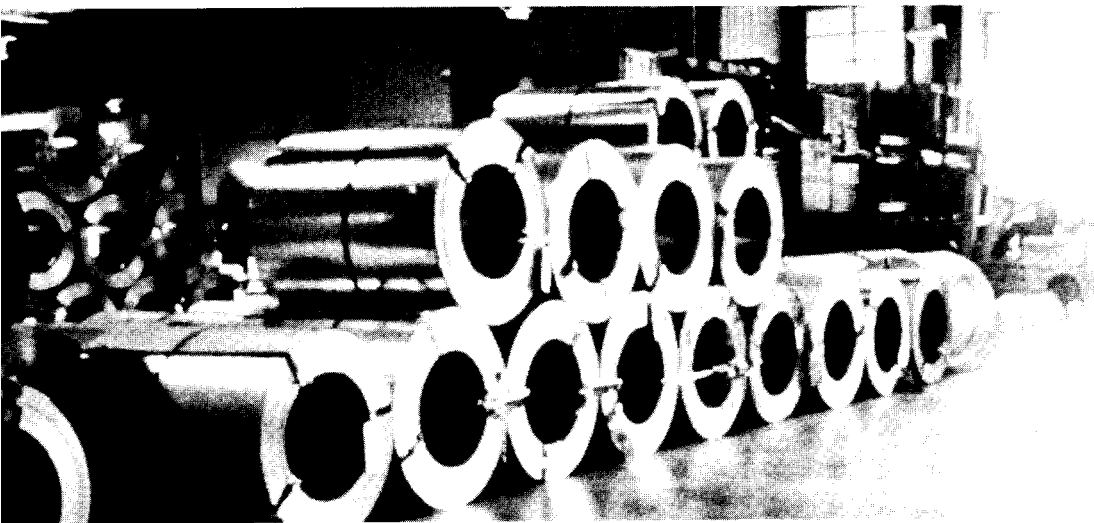
Great Plains Supply Division of Harvest States Cooperatives manufactured modular homes at 40 locations, roof trusses at 8, floor trusses at 1, and livestock confinement buildings at 6 locations in the North Central States-until closing the modular home division late in 1986. Agway manufactures building trusses at one of its three fabrication centers in the Northeast.

In 1959, Farmland Industries, Inc. acquired a steel-building plant in Hutchinson, KS. Farmland now manufactures grain-storage bins, gates, and other steel products. In 1979, a record 7,255 farm buildings were sold. Farmland also constructs commercial grain storage facilities. During 1979, about 320 facilities were installed. The steel building plant in **Hutchinson, KS**, was sold to **BEHLEN Manufacturing Co.** of Columbus, NE, in October 1986. Farmland's sales of buildings and materials in 1986 exceeded \$10 million. The cooperative also has operated a **paint-manufacturing plant** for many years. Universal Cooperatives is the only other cooperative that manufactures paint.

In 1980, **GROWMARK, Inc.**, Bloomington, IL, a federated regional cooperative, entered the farm-building manufacturing business, with purchase of a plant in Washington, IA. It produces all components, including roof trusses, for **GROWMARK** wood frame, general purpose, and livestock confinement buildings. Total sales of building supplies exceeded \$5 million in 1986.

Also in 1980, **Land O'Lakes, Inc.**, Minneapolis, MN, a regional cooperative reported working with Universal Cooperatives in developing a revolutionary concept in building design. Preconstructed building panels 8 feet high and up to 50 feet long were made available for on-farm facility





Building materials and containers are an important activity for cooperatives, ranging from fruit and vegetable cans, stock tanks, and steel buildings. A major supplier is the interregional Universal Cooperatives, Inc., Minneapolis. At the local or retail level are cooperatives like the Hamilton Farm Bureau Co-op, Hamilton, MI, that carries a wide range of building materials and even builds truss rafters for area home builders.

construction. Land O'Lakes also introduced its newly modified, open-front building, featuring labor-saving construction and quality panel workmanship, to midwestern pork producers. Total sales of building materials exceeded \$3 million in 1980. Building design and construction was discontinued in 1981 in restructuring operations with Midland Cooperatives.

Examples of Operations

Great Plains Supply Division of Harvest States Cooperative, St. Paul, MN

In 1943, Farmers Union Grain Terminal Association (GTA) acquired 38 lumberyards in purchasing a line elevator company serving several North Central States. These were operated by a separate centralized cooperative, Great Plains Supply Company, managed by GTA until it became the regional's Great Plains Supply (GPS) Division in 1976. It provides retail sales to both farmers and nonfarmer patrons and wholesale sales to builders and commercial firms.

In May 1982, Great Plains operated 101 lumberyards-29 in North Dakota, 26 in Iowa, 22 in Minnesota, 10 each in South Dakota and Nebraska, 3 in Montana, and 1 in Illinois. By 1986 lumberyards were reduced to 35 with retail sales of \$40 million. Patronage refunds have ranged from about 0.25 to 2 percent of sales. More than 100,000 patrons now use its retail stores and construction centers each year. GPS construction centers provide several services-engineering, design, manufacturing, and contracting-while selling building and home-remodeling materials.

GPS has been a leader in rural construction of specialized farmstead buildings and of other buildings ranging from garages and apartments to commercial offices. Great Plains employs up to 250 carpenters during the busy season, but also works with self-employed contractors in the construction of diversified buildings to be sure that equality is maintained, and that the work is done in an efficient manner to hold down costs. Great Plains can provide all of the sheltering needs that a farmer has except for all-steel grain storage buildings and grain handling equipment which are provided by other cooperative suppliers. Except for the all-steel buildings, Great Plains provides shelter for farm families, livestock, hay, machinery and other types of wood frame grain storage.

GPS sold 582 modular homes in 1979, but the number declined in 1980 and 1981. It operated a modular home-building center in Kensett, IA, but closed the center in 1986.. Also in 1980, GPS built 20 townhouse

units in the Williston, ND, area.

GPS yards offer a home buyer three construction choices, “stick-built” on-site, rebuilt panels completed on site, and a home built at the construction center and moved to the site. GPS continually examines new home-building techniques to provide energy-saving, cost-cutting, and quality-improving features.

In 1980, GPS began a program of special-purpose, farm-building leasing to serve the farm market further. GPS says this program has two advantages for young, beginning, or tenant farmers: (1) Some buildings can be easily moved, from building site to farm site, or from one farm to another; and (2) owners can avoid costly financing and create a cash flow for other purposes.

In 1981, GPS concentrated more on selling and promoting materials for building additions, repair, and remodeling. As part of its long-range plan, it trained 12 livestock-confinement specialists to help farmers determine through a cash-flow analysis the kind of building that would produce a profit margin. GPS continued constructing multifamily units in North Dakota and acquired land for additional units there and in Montana. It also began a certification process in which only approved lumberyards would specialize in certain types of construction or sales rather than encourage all yards to be total building and supply centers.

Indiana Farm Bureau Cooperative Association (IFBCA) and Members

Since organization of countywide cooperatives in Indiana in the 1920's and the wholesale cooperative in 1927, IFBCA has sold building supplies. In 1981, they had 17 local lumberyards.

Working in close cooperation with IFBCA, most yards provide three types of services to patrons: (1) designing, blueprinting, and cost estimating for a proposed building; (2) providing a foreman to work with the owner and neighbors or other local laborers in erecting a building; and (3) constructing a building to an owner's specifications with the cooperative's own construction crew.

Sales of building supplies in Indiana by local cooperatives in 1979 totaled about \$33 million. Wholesale volume by IFBCA was about \$13 million. When retail markup and transportation charges are added, this volume probably represents nearly two-thirds of retail sales.

During World War II, IFBCA found it necessary to manufacture building material to supply members' needs. It bought a shingle mill and lumber mill in Kentucky, which later were sold after supplies became available from industry sources.

Agway Inc., Syracuse, NY

The three regional cooperatives that merged to form Agway in 1964 had sold various types of building supplies since their formation in 1918, 1920, and 1934.² During the first 10 years of Agway's operation, its building department constructed about 6,000 buildings worth about \$75 million. They ranged in size from small utility buildings to large, free-stall dairy buildings with milking parlors.

During this period, several factors changed the design of farm buildings in the Northeast. Farmers were substituting capital for labor, herds and flocks were becoming larger, and farmers sought to improve production efficiency. New housing concepts for cattle and poultry, new milking and egg-collecting systems, new feeding and storage devices, and new manure-handling equipment all helped shape the look of contemporary farm buildings. Milking parlors underwent several changes—from walk-through and side-opening stall parlors, to the herringbone system.

In the early 1970's, Agway opened three fabrication centers. They are stocking and reload centers with one a manufacturing operation where roof and floor building trusses up to 60 feet long can be assembled. Agway's truck fleet, including truss flatbed trailers and special unloading equipment, deliver materials to farm-building sites.

About 1970, Agway began leasing farm buildings constructed by its building department. This service is handled by its finance subsidiary, Telmark.

During 1979, Agway introduced a new timber-column, packaged-building program through 125 retail locations. The program provided blueprints, specifications, planning, and building materials, with farmers furnishing the labor. During the spring of 1980, Agway added a new line of farm storage and utility buildings with emphasis on minimum costs.

From 1974 to 1982, Agway constructed 9,432 buildings valued at \$138 million. Annual sales of building supplies and automation equipment ranged from \$43 million to \$55 million during fiscal years 1979-81. About 80 percent of this volume consisted of building supplies. Distribution is through 120 service store corporations, 235 Agway-owned stores, and some of its 350 franchised independent dealers.

Benefits

Cooperative handling of fencing and roofing has provided a convenient service to many farmers for a long time. Most cooperatives

*Cooperative GLF Exchange, Ithaca, NY; Eastern States Farmers Exchange, W. Springfield, MA; and Pennsylvania Fan Bureau Cooperative Association, Harrisburg.

charged market prices and paid patronage refunds on these supplies at the same rate as for other general farm supplies. Some, however, may have added only small or modest markups.

Success of cooperative lumberyards has varied, depending on the same management and competitive factors as those operated by other firms. Patronage refunds have ranged from 0 to 5 percent of sales.

Challenges Ahead

As cooperatives continue to expand their supply lines, they likely will handle more building materials and hardware. Development of more cooperative farm service centers will make cooperatives consider whether to add a full-fledged building supplies department. Also, when lumberyards in small rural towns cease to operate, marketing/supply cooperatives will have to decide whether to purchase the facilities or expect members to go elsewhere for lumber and other supplies. Farmers' sheltering needs are becoming more specialized and many cooperative leaders believe that they can be best satisfied by farmer-owned businesses that respond to those needs.

Cooperatives also have the challenge of serving the rural nonfarmer and suburban market. Many of these residents, especially the do-it-yourself types and small local builders, are potential patrons of cooperatives with good building supplies and related services.

The extent local cooperatives handle or expand building supplies will depend on the services their wholesale cooperatives provide, especially in joint efforts in providing planning, designing, construction, and field assistance to farmer-members, and in developing construction centers for prefabricated structures.

If cooperatives are to expand their building supply volume, boards and general managers should recognize the need for special management expertise and departmentalization of operations. Building supply is a much different type of business than feed, fertilizer, seed, and **petroleum**—operations in which many cooperatives have been more successful.

Containers and Packaging Supplies

Types and Farm Expenditures

Farmers' purchases of marketing containers are considered production expenses. These include wooden boxes, crates, and lugs; sacks; and bulk bins for packing their products and moving them from fields to farmsteads and local packinghouses. Farmers buy wraps and ties for

cotton, baler wire and twine, and other packaging materials. They also buy packing supplies for storing products in farm freezers and locker plants, which are classified as family living expenditures. Many growers buy these containers and supplies through local marketing cooperatives that in turn procure them from their wholesale cooperatives.

Farmers' \$500 million of purchases of marketing containers and packaging supplies in 1983 were considered production expenses by USDA's Economic Research Service. About half was for fruits and vegetables. The other half was for nurseries and greenhouses and poultry and eggs.

Marketing firms, including cooperatives, also buy large quantities of paperboard; glass, metal, and paper containers; and bags and packaging supplies in marketing fresh, processed, frozen, and dehydrated farm products. Specific data on such expenditures are not available.

Retailing

Most early cooperative activity in containers and packaging supplies occurred in fruit, vegetable, and cotton-ginning associations. Some of the earlier fruit and vegetable cooperatives were formed in the East in the 1870's. Soon after, they began selling containers and packaging materials to their grower-members. Citrus- and vegetable-marketing cooperatives were first organized in 1885 in Florida and in 1895 in California.

Likewise, the earliest cotton gins-formed in the early 1900's—deducted the cost of bags and ties from members' cottonseed or cotton proceeds. Most of the earlier grain-marketing cooperatives, formed in the Midwest at the turn of the century, handled binder twine.

By 1962-63, the number of cooperatives handling containers and packaging supplies had reached a peak of 1,132. The numbers at 5-year intervals since 1951-52 are shown in table 2.

In 1986, 486 cooperatives reported net sales of containers totaling \$139.2 million (table 2). Fruit- and vegetable-marketing cooperatives were the principal types selling containers; also, farm supply cooperatives in the Northeast had a considerable volume. The six States with largest net sales in 1986 were Florida, California, Texas, Washington, Georgia and Oregon.

Container and packaging supplies sold to growers consisted mainly of bulk bins, crates, boxes, and sacks or bags used in harvesting or picking fruits and vegetables. They also included bagging and ties sold by cooperative cotton gins and baling wire and binder twine sold by farm supply cooperatives. However, most of the wire and twine probably were included in hardware or general farm supply sales.

Table I-Cooperatives reporting sales of containers and packaging supplies in specified years

Year	Cooperatives handling	Net sales*
	Number	Million <i>dollars</i>
1951-52	925	17.8
1955-56	1,126	25.3
1960-61	1,125	26.6
1965-66	1,058	32.7
1970-71	973	121.3
1975-76	670	113.3
1979	687	111.2
1980	658	141.4
1983	520	126.9
1986	486	139.2

*Excludes intercooperative business

Wholesaling

In 1907, local citrus packinghouses and district exchanges in California and Arizona organized the first regional, federated, **wholesale**-purchasing cooperative in the country. Fruit Growers Supply Company, Los Angeles, was formed to purchase box shoo for containers and orchard supplies for its member packinghouses affiliated with California Fruit Growers Exchange, now Sunkist Growers, Inc.

Three other regional federated cooperatives, one in Washington and two in Florida, later were formed to purchase or manufacture containers for local fruit- and vegetable-marketing cooperatives.

In 1986, 19 regional cooperatives sold about \$3 10 million of containers and packaging supplies at wholesale to other cooperatives. Almost all of this volume went to marketing cooperatives to use in their own processing and selling operations. For example, fresh fruit- and vegetable-packing associations used paperboard cartons and trays, plastic trays, paper bags, wooden boxes, lugs, crates, baskets, tubs, hampers, cups, pulp trays, burlap and mesh bags, and polyethylene bags. Processing cooperatives used metal cans, paperboard boxes, and glass containers.

Brief descriptions of two wholesaling cooperatives follow. The wholesaling/fabricating operations of five others are included in the next section.

**Highland Exchange Service Cooperative (HESCO),
Waverly, FL**

HESCO was formed in 1972 by a merger of Highland Crate Cooperative, Jacksonville, FL, and Exchange Supply and Service Cooperative, Tampa, FL. The former had manufactured wooden containers from box shoo and the latter had provided wholesale container service for local citrus-marketing cooperatives for many years.

HESCO began as a corrugated container broker but now purchases containers and other supplies in volume and carries inventories of supplies. It serves 41 member cooperatives, including some of the larger citrus packers and processors in Florida plus Gold Kist Inc., Atlanta, GA, and Michigan Celery Promotion Cooperative, Zealand.

It handles fresh citrus, and poultry cartons; mesh bags; polyethylene bags; can cases; and other packaging supplies totaling about \$30 million a year. HESCO also handles citrus processors' operating materials, including motors and power transmission items, and recently has broadened its product mix to include tires, batteries, citrus chemicals, petroleum fuels, and general supplies with total sales of \$70 million in 1986.

Northwest Wholesale Incorporated, Wenatchee, WA

Northwest Wholesale Incorporated, Wenatchee, WA, is a federated marketing/supply cooperative serving 38 apple-marketing cooperatives and orchards in the Northwest. It was organized in 1937 and for several years operated a lumber mill to make box shoo. Later, to adjust to the change to paperboard containers, it constructed a building and arranged for a container company to operate a fiber-box sheet plant in this building. A fire destroyed this facility in 1967. Northwest Wholesale now purchases containers and related supplies from six major manufacturers located in Oregon and Washington for distribution throughout north central Washington.

In fiscal 1982 (a 10-month period) Northwest's fiber carton volume was \$9.5 million and its fruit wraps, layer trays, and poly bag liners volume was \$4.7 million. Production supply sales were \$8.8 million. Net margins on combined packaging and production supplies have ranged from 5 to 6 percent on sales of \$35.5 million 1986. These included line discounts, volume incentive, and yearend net savings.

Fabricating and Manufacturing

A few regional federated cooperatives operated box-shook plants for several years and later carton-fabricating plants when the industry largely shifted to the use of paperboard containers. For many years, three small container cooperatives operated plants in Florida. For example, Highland Crate Cooperative, Jacksonville, FL, formed in 1918, manufactured wire-bound wood crates and later corrugated paperboard boxes for local cooperatives marketing citrus, celery, and poultry. In the 1970's it merged with Exchange and Supply Company, Tampa, FL, a container wholesale cooperative, and no longer manufactures containers.

Winter Garden Citrus Products Cooperative, Winter Green, FL, began operating a small can-manufacturing plant about 1960 and continued until Citrus Central opened its plant.

In 1982, one federated cooperative operated a carton-fabricating plant; another manufactured cans, and one joint cooperative venture manufactured cans for member cooperatives. Another cooperative operated a potato bag plant, and two cooperatives jointly owned a packaging material plant. Brief descriptions follow:

Fruit Growers Supply Company (FGS), Sherman Oaks, CA

This organization, formed in 1907, is owned by citrus packinghouses affiliated with Sunkist Growers, Inc. For many years, it operated three lumber mills and box-shook factories and owned several thousand acres of timberland in northern California. All three lumber mills have been either sold or shut down; however, FGS continues to cut timber and sell logs to mills in the southern Oregon and northern California regions. It annually supplies only about \$2.0-\$2.5 million worth of pallets and box shook to member packinghouses. All sales of timber or logs in the northern California operations are to nonmembers. There is no connection now between the timber operations and the procurement of box shook for the members.

After the use of fiberboard cartons became standardized, FGS built a carton-fabricating plant in 1961-62 in Los Angeles to reduce carton costs and to enable it to negotiate more favorable terms in purchases from other suppliers.

In 1979, FGS constructed at Ontario, CA., a fully integrated manufacturing facility, complete with corrugating and carton-forming capabilities. It contains 214,000 square feet and cost about \$9 million. To provide support for this program, FGS contracted with a major supplier for assistance in constructing and managing the facility and also for the

supply of linerboard. FGS also has a long-term arrangement with another company to manufacture plastic lemon storage boxes. The principal types and approximate quantities of items FGS furnishes members in a typical year are:

Packinghouse Supplies-70 million cartons, 86.4 million diphenyl sheets, 16.6 million polyethylene bags, 634,000 pounds of carton-sealing adhesive, 110,000 pairs of packers' gloves (also used by picker), 474,000 export pallets, and 22,000 feet of belting.

Picking Supplies-252,000 lemon storage boxes, 27,000 bulk picking bins, 7,000 picking bags, 3 1,000 paris of clippers, 70,000 feet of rope, and 4,000 orchard ladders.

Grower **Supplies-1.8** million feet of irrigation drag line hose, 495,000 feet of drip irrigation hose, 326,000 tree wraps, 3,600 orchard thermometers, 15,000 tons of commercial fertilizer, and 15,250 tons of fertilizer materials.

FGS's gross sales of containers to members have ranged between \$35 million and \$55 million for 44 to 70 million cartons and other container supplies in recent years. Sales of packinghouse supplies have been from \$1.5 to \$3.5 million annually. Patronage refunds on member business have ranged between 1.5 and 2.5 percent of net sales after sales price adjustments.

CT Supply Company, Fremont and Modesto, CA

CT Supply Company, formed in 1964, is jointly owned by California Cannery and Growers and Tri-Valley Growers, both headquartered at San Francisco, for manufacturing cans used in fruit and vegetable processing. The plants manufacture about 1 billion cans a year with a commercial value in excess of \$150 million in recent years. The operation has been of much value to the member-owners.

Citrus Central, Inc., Orlando, FL.

Citrus Central, Inc., a federated marketing and supply cooperative serves citrus-marketing exchanges in Florida. In 1968, it built a can-manufacturing plant at Plymouth, FL., which has been successful.

Sales have ranged from \$70 million to \$100 million in recent years, and net income has been from 20 to 25 percent of sales.

In mid-1981, the cooperative purchased the composite can-manufacturing plant of another firm in Orlando, FL.

Maine Bag Company, Presque Isle

Maine Bag Company, Presque Isle, a subsidiary of Maine Potato Growers, Inc. (MPG), manufactures paper bags required for the cooperative's marketing operations. A few years ago, however, the company also began selling bags throughout New England and New York.

Since MPG acquired its plant in 1945, it has been a successful operation. Sales have increased from about \$2 million to more than \$3 million in the past 2 years. The number of bags sold has ranged from 25 million to 36 million a year. Net income has ranged from 7 to 9 percent of sales.

Imperial Packaging Corporation, Des Moines, IA

Imperial Packaging Corporation is owned jointly by MFA, Incorporated, Columbia, Mo., and Land O'Lakes, Inc., Minneapolis, MN. It was acquired in 1978 to manufacture paper bags and other packaging material for livestock feed and human food. Sales range from \$6.0 million to \$9.0 million a year and net income from 10 to 16 percent of sales.

No studies have been made of the extent of vertical integration in cooperative container operations. Apparently, however, substantial proportions of container sales to growers and of volume used by marketing cooperatives are supplied by wholesale cooperatives, and a substantial percentage of the wholesale volume is fabricated or manufactured by cooperatives. This is especially true for fruit and vegetable containers. However, practically none of the containers used by dairy, livestock, poultry/egg, and farm supply cooperatives is purchased or made on a cooperative basis.

Benefits

Farmers, especially those producing fruits and vegetables, have realized substantial savings in buying containers and packaging supplies. Savings of up to 10 percent of sales have been realized from volume discounts, brokerage allowances, or negotiated prices from consolidated purchases.

Another benefit of cooperative procurement has been assurance of a dependable supply of good-quality containers when needed. Also, the operation of fabricating and manufacturing plants has provided cooperatives with a yardstick for evaluating costs and prices of specific types of containers.

Challenges Ahead

Apparently more cooperatives, especially those marketing farm products, could establish a container purchasing or brokerage service for either a wide variety of containers or for more limited lines of standardized containers. In some areas, local marketing cooperatives might interest regional wholesale farm supply cooperative in procuring containers and packaging supplies for them.

Possibilities for cooperative fabrication or manufacture of containers likely will be limited to areas where a large volume of a few types of standard containers are required. However, cooperatives should maintain a strong financial base and competent management to procure or manufacture containers successfully.

Farm Machinery

Farm machinery operations of cooperatives include sale of tractors and other machinery and implements used in farming. It includes both full lines and short lines of farm machinery companies.

Types and Farm Expenditures

Tractors and tractor-drawn equipment first came into use when World War I increased the demand for food and resulted in a manpower shortage on farms. The number of tractors reported on farms was 300,000 in 1920, 1.6 million in 1940, and 4.7 million by 1960 (fig. 1). Little change has been seen since then, with 4.7 million tractors reported in 1986, but size increased from an average of 60 to 70 horsepower during 1967-86.

Use of farm automobiles and trucks also increased dramatically during this period. In 1986, farmers had about 2.2 million farm automobiles and nearly 3.4 million trucks.

Grain combines on farms in 1986 totaled nearly **640,000**—down from a million in 1960. Cornheads, pickers, and sheller numbers have declined from 800,000 in 1960 to 680,000 in 1986. Pickup balers reached a peak of 800,000 in 1983 and declined to 798,000 in 1986. These increases in mechanization occurred while the number of farms declined from 6.5 million in 1920 to 2.3 million in 1983.

In 1986, farmers bought more than 97,000 farm tractors, 12,000 grain combines, 7,000 cornheads for combines, and 9,000 balers. More than half the tractors sold had less than 90 horsepower in the recent trend to smaller farm tractors.

Farmers spent about \$6.4 billion for new and used tractors and other farm machinery in 1986—off sharply from the record high \$11.75 billion in 1979.

Machinery expenditures consisted of \$1.5 billion for new tractors, \$.9 billion for used tractors, \$1 .0 billion for self-propelled machinery, and \$3.0 billion for other farm machinery.

In addition, farmers spent \$1.5 billion for trucks, \$0.3 billion for automobiles and other motor vehicles in farm production, and \$4.8 billion for repair parts and labor.

Retailing

In 1980, about 80 cooperatives were handling a full line of tractors and farm machinery of major manufacturers. Their sales of this equipment totaled \$105 million, of which \$56 million was for new and \$44 million was for used and other equipment and repair parts. Their service income totaled about \$6 million. Cooperative franchise dealers thus handled only about 2 percent of all heavy machinery farmers bought that year. Nearly two-thirds of the cooperatives were in Wisconsin, Indiana, Ohio, Minnesota, North Dakota and Oregon.

The numbers have declined substantially since 1970, when about 100 cooperatives distributed heavy machinery with a sales value of \$34 million.

A USDA survey of farmers found they bought the following percentages through cooperatives in 1978: new farm machinery and equipment, 4 percent; used tractors and self-propelled equipment, 1 percent; repair and replacement parts for tractors and other machinery and equipment, 15 percent; and repair and replacement parts for farm motor vehicles, 5 percent.

Local cooperatives began handling farm machinery shortly after the turn of the century. Many were midwestern farmers' stock companies that marketed grain. One of the earlier was Rockwell Cooperative Society of Iowa. Soon after organizing in 1891, it began selling machinery on a 2-percent gross margin to members and on a 10-percent margin to nonmembers. This policy led to so much dissension that it was soon discontinued. A number of cooperatives in Indiana, Michigan, Minnesota, and Wisconsin added farm machinery in the late 1920's.

The first detailed survey of cooperatives, conducted by cooperative division of Farm Credit Administration, found 363 cooperatives were handling farm machinery in 1936. In almost all, machinery was a department of a marketing or general supply cooperative; only a few solely machinery cooperatives existed. Many cooperatives in the 1940's added

machinery when National Farm Machinery Cooperative was formed to manufacture CO-OP tractors and related equipment.

By 1950, regional wholesale cooperatives reported about 1,000 local cooperatives were handling machinery, but not all handled a full line nor operated a complete repair shop. Many were grain cooperatives organized by Farmers Union in the Midwest and the Grange in the Pacific Northwest.

Cooperatives' daily machinery operations are similar to those of independent dealers. As a group, they operate under franchises with the six major manufacturers that deliver much of their equipment on consignment to dealers.

Cooperatives have machinery warehouses and outdoor display areas, storage bins for parts, and repair shops. They have problems of trade-ins, discounts, repair, credit, and service common to other dealers.

In addition to supplying heavy farm machinery, manufacturers floor-plan to dealers for a month to a year, depending on the value of equipment and when it is sold. During this period, the dealer does not have to pay the manufacturer. Machinery companies also finance sales on credit to both dealers and their patrons. Such credit plans may provide favorable time periods and interest payments to dealers. Terms to farmer-members usually are adapted to seasonal needs and periods of cash receipts.

Local Services

Repairing

Cooperative dealers are equipped with shop facilities and equipment to repair and service the machinery they sell and to recondition trade-ins. Dealers believe good service is required for customer satisfaction and for bringing new customers to the cooperative.

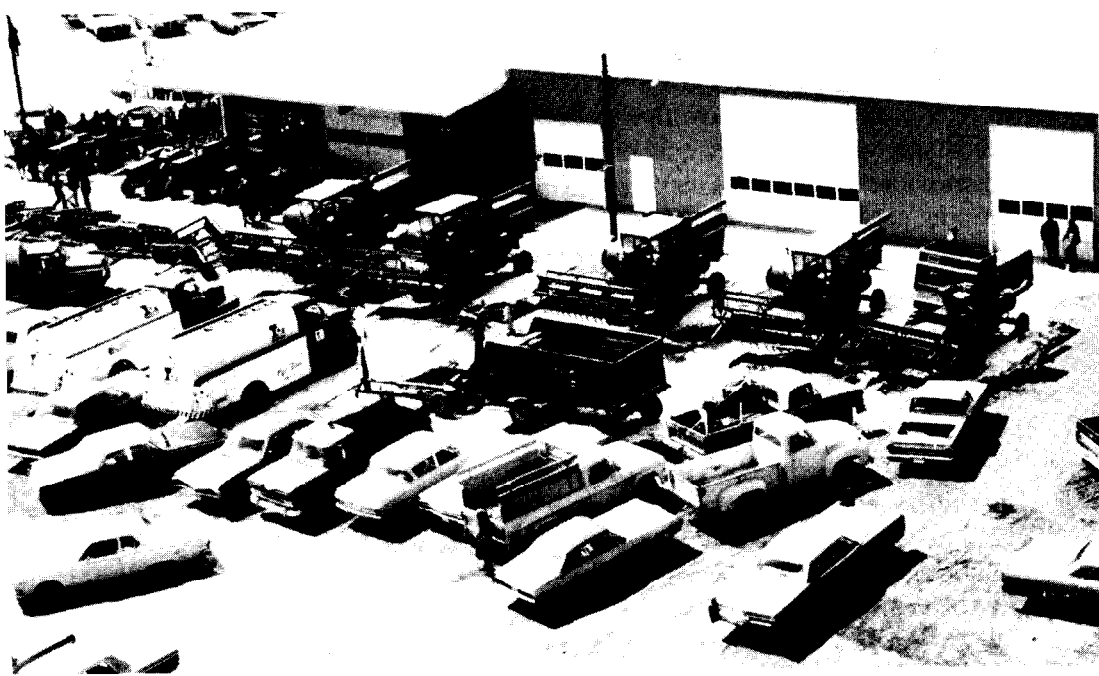
On-farm repair service is provided by most cooperative dealers—some more extensively than others. Most provide one mechanic to operate a service truck and repair light machinery on the farm; a few employ two or three mechanics for this service.

Renting or Leasing

Most cooperative dealers lend machinery to farmers in an emergency and when the farmers' machinery is being repaired. About half the larger cooperative dealers rent or lease machinery to farmers. The going community rate is charged—either a per-acre, daily, or hourly



Among the few cooperatives around the nation handling farm machinery are Pendleton Grain Growers Cooperative, Pendleton, OR, above, and Agmax in Frankfort, IN.



rate. Some cooperative dealers rent both new and used tractors, combines, and other equipment. Others rent only new machinery to achieve future sales.

Some production credit associations, supervised by Farm Credit Administration, have taken the lead in pilot programs to own and lease farm machinery. With each association covering six or seven counties, areas are large enough for interchange of heavy equipment to meet demand. One association may operate from a single center, another from several centers, and some conduct small operations from local farms. The diversity of farming operations in different areas requires developing the most practical and useful methods for each. Production credit associations (PCA's) are finding more farmers are interested in leasing larger, more costly equipment.

Custom Farming

Only a few cooperative dealers provide custom farming services and practically no trend exists for more. These cooperatives-including several developing ones-own and operate custom equipment. Scheduling use of equipment and the necessity to own enough equipment to satisfy each user seem to be overriding concerns.

Production credit associations recognize that to justify leasing equipment they must serve large areas so equipment can be shifted between counties as needed. While most are pilot leasing operations, they could lead to more custom farming services. Cooperative dealers might join in these operations with PCA's by supplying machinery and keeping it in repair, as a few are now doing. In some areas, cooperative dealers might share the inventory cost of the machinery with PCA's, while in others cooperative dealers may want to own and operate the entire custom farming service.

Machinery Use or Pooling

Joint ownership and neighbors sharing different types of equipment has been a tradition among American farmers. But cooperative ownership of equipment, especially tractors and related crop equipment, by several farmers has not been common or successful. Such arrangements are called machinery pools or syndicates in other countries.

Cooperative use of machinery has been encouraged by a few religious groups and government agencies in the past. Because of farm machinery shortages and the need for greater food production during World War II, Farm Security Administration, USDA, encouraged small-

scale and low-resource farmers to form group service associations for joint ownership and use of farm equipment. By 1943, more than 21,000 such groups were in operation. Later, as members gradually were able to improve their economic status, they wanted to own equipment individually and now most of these associations are no longer operating.

Wholesaling

No cooperative wholesaled farm machinery in 1986. Regional farm supply cooperatives began wholesaling farm machinery in the 1930's and 1940's, spurred by their interest in getting into tractor manufacturing. However, most discontinued wholesaling in the late 1950's after their manufacturing cooperative ceased operating in 1953. It sold its plant to a Canadian firm, which supplied the regional cooperatives for a few years.

In the 1950's, 15 regionals, mainly in the Midwest and North Central States, were wholesaling machinery. Indiana Farm Bureau Cooperative Association, Indianapolis, was the first to provide this service. In 1930, it signed a distribution contract with Allis Chalmers Co. Soon after, Indiana and Ohio Farm Bureau regionals obtained machinery from B.F. Avery Co., until it began serving a large mail-order firm-and canceled their contracts.

In 1934-35, several regional cooperatives began obtaining machinery with the CO-OP trademark from National Farm Machinery Cooperative, Inc. It was their main source for about 18 years. Also, a few Grange regional cooperatives obtained machinery from Massey Harris Co. for several years. By 1962, only two regionals were handling a limited amount of heavy farm machinery-mostly short lines and parts.

Assembling and Manufacturing

No cooperative assembles or manufactures heavy farm machinery. Universal Cooperatives, Minneapolis, manufactured a small amount of specialized equipment, -mainly large field-crop sprayers, and some farmstead equipment.

In 1934, several regional cooperatives led by Farmers Union Central Exchange, St. Paul, MN, and Indiana Farm Bureau Cooperative Association, concluded they would have to work together to attain any success in the machinery field. Lacking sufficient capital for manufacturing, they contracted with Duplex Machinery Co., Battle Creek, MI, to have a CO-OP tractor built to specifications. Among their requirements were high-compression engines and rubber tires.

Unfortunately, the tractor was ahead of its time. After 2 years of

disappointing experience, a principal member withdrew. The remaining cooperatives then formed American Cooperatives, Inc., and signed an agreement in 1938 to have a CO-OP tractor assembled in a plant provided by Farm Security Administration at Arthurdale, WI. After encountering financial difficulties, this cooperative was liquidated in 1940.

The Indiana regional then decided to build its own tractor assembly plant at Shelbyville. To acquire sufficient volume, it helped organize National Farm Machinery Cooperative, Inc., which produced several hundred tractors in 1941. During the next 2 years, however, it was forced to switch to producing military hardware for war use.

In 1943, National acquired Corn Belt Manufacturing Co., Waterloo, IA, which produced corn pickers, pump jacks, and tank liners. Later that year, it bought Ohio Cultivator Co., Bellevue, a manufacturer of corn and cotton planters, grain drills, manure spreaders, lime spreaders, disk harrows, and garden tractors with a full line of attachments. It moved its headquarters to Bellevue and soon contracted with Cockshutt Implements, Brantford, Ont., to manufacture CO-OP tractors.

During the next few years, however, National encountered numerous difficulties in maintaining adequate volume from member regionals and their locals, raising adequate capital, and in managing operations successfully. National ceased operations in 1953 and sold its plants to the Canadian firm that was making its tractors.

Also during this period, Farmers Union Central Exchange operated an assembly plant for a large CO-OP tractor until farm machinery better suited to its trade area readily became available.

Three cooperatives have manufactured specialized equipment in the past. MFC Services, Madison, MS, made a small volume of liquid fertilizer equipment and sprayers. Agway Inc., through its **Waymark** Department, manufactured bodies for bulk feed trucks, tanks for petroleum delivery trucks, and lime and fertilizer spreaders. In 1986, Tennessee Farmers Cooperative, was manufacturing steel gates, truck racks, chutes and feeders.

Benefits

Although cooperatives as a group have not been successful in manufacture and distribution of farm machinery, a number of local retailing cooperatives have had a good record. Both farmer-members and local cooperatives have realized benefits.

Principal benefits local farm machinery-handling cooperatives have provided farmers are: (1) dependable places to buy equipment and repair parts, and to obtain repair services; many cooperatives have provided

farm service centers for farmers to buy machinery and other supplies and, in many cases, to market their products; (2) modest savings distributed as patronage refunds, permitting members to obtain the equipment at or near cost; and (3) competitive influence on prices and service in the community.

Benefits to local cooperative businesses often have been: (1) new patrons and members; larger farmers not using the cooperative for other services often became interested in quality machinery services; (2) increased volume, resulting in a lower general overhead per dollar of sales in all departments; (3) enhancement of the cooperative's image in the community by providing complex services; and (4) influence of successful local distribution and service on other locals examining the possibilities for machinery distribution under conditions somewhat different from those in the past.

Challenges Ahead

Farm machinery is the remaining large production input cooperatives generally have been unable to handle successfully. Yet, expenditures for it likely will increase as more food is needed to feed an increasing population. Purchase, operation, parts, and service of farm machinery accounted for \$24.5 billion in 1986 or 20 percent of total farm expenditures and 25 percent of total farm operating expenses.

The challenge is to determine ways cooperatives can provide beneficial services to farmers on a sound financial basis. Evidently, farm machinery cannot be handled in the same way as bulk supplies such as feed, fertilizer, and petroleum. It is a complex business, requiring contacting and selling farmers, making sound trade-ins, servicing and repairing equipment after it is sold, reconditioning and selling trade-ins, and financing or providing credit for new and used equipment. It requires a substantial volume to support needed facilities, financial reserves, and flexibility to carry the business through cycles of good and bad years.

Another challenge facing cooperatives is how to serve small farmers and new young farmers who have difficulty obtaining large amounts of capital required to buy the machinery they need, or to make it pay out despite inflation, high interest rates, and frequently low prices for farm products. Can larger local cooperatives provide leasing services? Can an operator be provided with larger, more costly leased machines? Can a custom-farming service be provided on a sound basis? Will marketing/supply cooperatives benefit from the experience of a few PCA's or perhaps develop joint or cooperative arrangements with them?

Still another challenge is to develop successful ways to handle farm

machinery in marketing/supply cooperatives, or to develop different organizational structures that are successful. Will cooperative management be willing to innovate and experiment? For example, they might consider forming multicounty, specialized farm machinery cooperatives on a pilot basis, supported by a central facility to handle parts and provide a reconditioning service for trade-ins, an annual auction of used equipment, and a trade show for new equipment.

If, instead, the multidepartment structure in existing local cooperatives is to be used, will regional cooperatives and manufacturers be willing to help plan a distribution system, provide field personnel, and select strong locals within a geographic area willing to handle machinery under an approved plan?

These alternatives pose the challenge of acquiring specialized and competent managers, mechanics, and other employees. Will marketing/supply cooperatives be willing to handle machinery as a major department operated by a competent and experienced department manager? And will boards of directors and general managers give sufficient support to the machinery program so it can realize its potential for benefiting members?

Farmstead, Home, and Plant Equipment

Types and Farm Expenditures

The stationary gasoline engine was one of the earlier types of farmstead equipment farmers began buying between 1910 and 1920. Since then, purchases of this type of farmstead equipment have increased each year due to the greater mechanization of agriculture, availability of electricity, and scarcity of farm labor.

In 1986, expenditures for such equipment were estimated to be about \$2 billion. They consisted of \$508 million for dairy, poultry, and livestock equipment; \$510 million for repair and maintenance of such equipment; \$330 million for power farm shop equipment; and \$700 million for other items, exclusive of hand tools.

More common types of farmstead equipment cooperatives and other firms handle are:

Dairy, Livestock, and Poultry: Barn stanchions and pens, barn cleaners, automatic feeders and drinking cups, water heaters, milkers, milk tanks and coolers, spraying equipment, and poultry feeding and cleaning equipment.

Feed and Grain Equipment: Feed grinders; bulk feed bins and conveyors; and grain augers, conveyors, and dryers.

General: Shop equipment, electric motors, gasoline and LP gas engines, electric fence controllers, air compressors, fuel storage tanks and pumps, irrigation pipe and pumps, petroleum storage tanks and attachments, hydraulic jacks, and plumbing items.

The more common types of nonfarming equipment sold to farmers and other rural residents are:

Lawn and garden: Tractors and attachments, lawn mowers, sprayers and dusters, fertilizer and pesticide spreaders, and garden tools.

Home: Cooking and heating stoves, deep freezers, refrigerators, ovens, air conditioners, fans, space heaters, water heaters, and lighting equipment-general home appliances.

Recreational: Fishing and hunting equipment, riding equipment, snowmobiles, and skiing equipment.

Plant equipment: That local cooperatives buy from wholesale cooperatives includes petroleum bulk tanks; service station equipment; compressors and motors; and equipment used in processing, canning, freezing, and dehydrating dairy and other farm products.

Retailing

Over the past 50 years, cooperative sales of farmstead and home equipment have increased. As cooperatives expanded and modernized farm supply or hardware stores and added new display areas to offices and warehouses, they added more kinds of equipment to meet members' needs.

In 1986, 1,564 cooperatives reported net sales of farm machinery and farmstead equipment of \$342.5 million (table 3). After excluding \$106 million in sales of heavy farm machinery, cooperative sales of farmstead and home equipment were estimated at \$257 million. However, about 3,570 marketing/farm supply cooperatives reported about \$1.46 billion sales of unclassified supplies. Unclassified coop supplies included about \$200 million of farmstead and home equipment, making the total \$600 million, or about 23 percent of the farmstead and home equipment market that year. The number of cooperatives reporting handling farm machinery and equipment has not changed much in the past 30 years, but their sales have increased about sixfold.

Most cooperative equipment volume is through local retail associations, but in the East, four large centralized regional cooperatives operate a large number of retail branch stores or warehouses also selling feed, seed, fertilizer, and pesticides. One regional of this type also operated

Table 3-Cooperatives reporting net sales of farm machinery and farmstead equipment in specified years¹

Year	Cooperatives reported handling	Reported net sales of farm machinery and farmstead equipment
	<i>Number</i>	Million dollars
1951	1,874	68.1
1955-56	1,853	68.7
1960-61	1,839	75.2
1965-66	1,526	81.4
1970-71²	1,424	125.8
1975-76	1,588	266.6
1979	1,940	385.0
1980²	1,827	418.2
1983	1,700	363.5
1986	1,564	342.5

¹Net sales excludes intercooperative business.

²Special surveys indicated total sales in 1970-71 included about \$36 million of heavy farm machinery sales by 100 cooperatives; and in 1980, total sales included \$106 million of farm machinery by 60 cooperatives. The remainder in these and other years consists of farmstead, home, and plant equipment. In addition, general or unclassified supply and equipment sales contained a considerable amount of farmstead and home equipment (table 5).

for many years in the Pacific Northwest but recently merged with another regional farm supply cooperative.

Agway Inc., one of the eastern group, also has developed a few centralized locations to make mechanical farm equipment and major home and farm appliances available directly from manufacturers. As such equipment becomes more sophisticated, a supply of repair parts available within a few hours and a specialist to install and service equipment becomes more important to patrons. Each Agway centralized location has two to four installation and service persons on call at all times.

Cooperatives retail equipment from a variety of facilities. Many handle it in a display room that is part of the general farm supply warehouse or office. Some handle it as part of general hardware. Others have built separate farm supply stores. Some cooperatives operate repair shops but probably more make arrangements with private shops to service the equipment.

Cooperatives' sales, pricing, and credit practices are similar to those of other equipment dealers. Equipment may be a separate department in larger cooperatives, but most include it with general farm and home supplies and declare one patronage refund rate on them.

Wholesaling and Interregional Purchasing

Wholesaling

Local cooperatives purchase a substantial part of farmstead and home equipment from regional wholesale cooperatives who, in turn, buy from an interregional purchasing association, Universal Cooperatives, Inc., Minneapolis.

In 1986, about 24 regional cooperatives reported wholesaling various amounts of farmstead and home equipment. Dollar volume sold to other cooperatives totaled about \$245 million. After allowing for transportation costs and retail markup, this volume may have been equal to 50 percent of the total equipment cooperatives retailed that year.

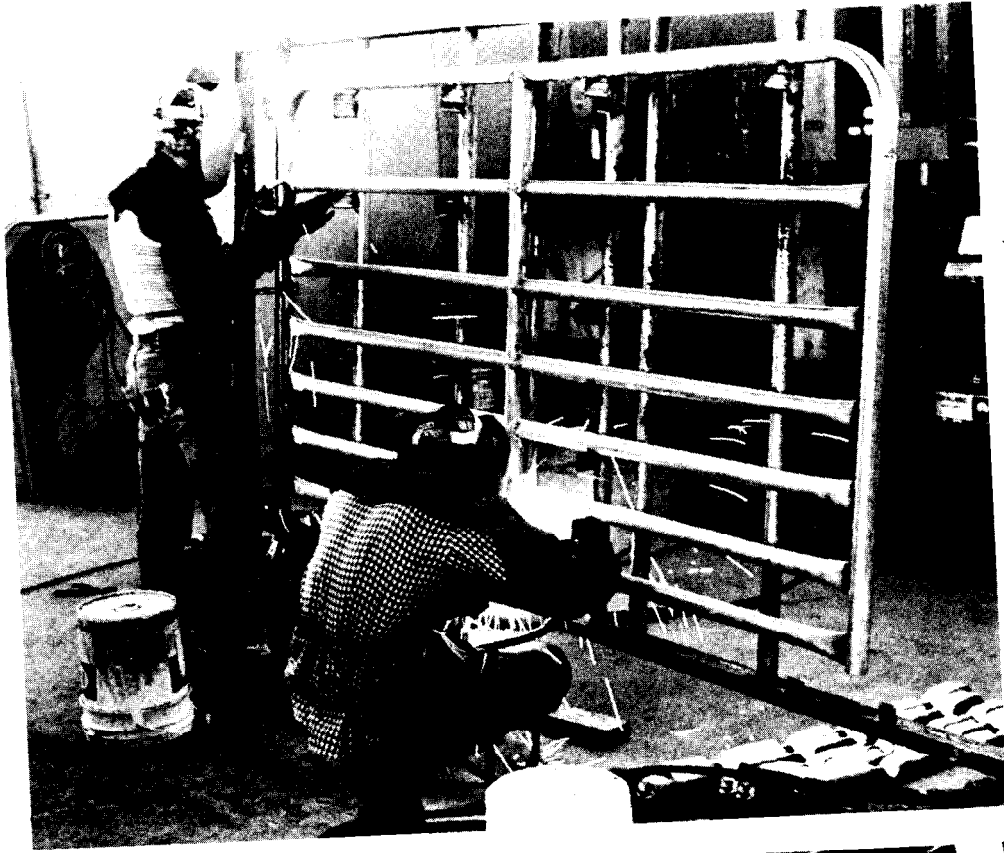
An example of farmstead equipment wholesaled is farm fuel storage tanks by Farmland Industries. In both 1979 and 1980, the cooperative supplied some 14,000 tanks with a total capacity of 9 million gallons to local cooperatives to resell or loan to farmers.

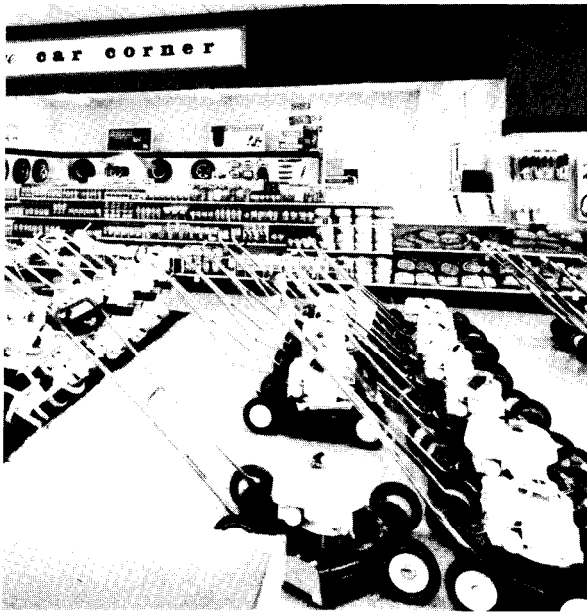
A number of regional cooperatives also supply plant equipment to local cooperatives. Most wholesale cooperatives handling petroleum sell bulk-plant and service-station tanks and equipment. Some also supply rolling stock, such as delivery equipment for petroleum fuels and fertilizer. And, some sell liquid storage tanks for grain dryers.

Several regional dairy-marketing cooperatives supply tanks, piping, valves, electric compressors and motors, and processing equipment to local cooperative creameries. Land O' Lakes, for example, had an equipment division that sold several million dollars of equipment annually for many years. However, it discontinued this division in the early 1970's, due to the decline in number of local dairy plants. A few regional fruit and vegetable cooperatives also supply plant equipment to member local associations.

HESCO wholesales operating materials and equipment and containers to member cooperative citrus packers and processors in Florida. Included are motors, pumps, chains, sprockets, bearings, belts, and other power transmission items. In 1981, it acquired an electric motor service subsidiary that repairs and rewinds all types of electric motors; it now has 25 employees and sales near \$1 million a year.

Regionals warehouse much of their equipment but have some shipped directly to their member local cooperatives or branch stores. Two or more locals may pool orders for a truckload or carload of equipment.





Welders assemble a tubular gate in Tennessee Farmers Cooperative's metal fabrication plant, LaVergne; twine being manufactured for Universal Cooperatives, Minneapolis, MN; plastic pipe in a Southern States Cooperative warehouse; and a suburban store of Madison County Cooperative, Inc., Huntsville, AL.

Interregional Purchasing

Universal Cooperatives, Inc., Minneapolis, sells general farm supplies and equipment to 31 member regional cooperatives in the United States and Canada. Sales of farmstead equipment, such as milking machines, milk coolers, water coolers, barn stanchions, and the like, totaled about \$40 million in 1983.

Universal was formed in 1972 through a merger of United Cooperatives Alliance, OH, and National Cooperatives, Inc., Albert Lea, MN.

United started handling small tools, sprayers, and poultry supplies in 1936; barn equipment in 1940; refrigeration equipment in 1945; and farm electrical equipment in 1946. In 1947, United arranged to use, and soon buy, a testing laboratory at Ithaca, NY, owned by three Eastern members. In 1951, United set up an informal college conference board of agricultural engineers to advise and work with its laboratory committee and equipment staff. By 1960, 11 State colleges were represented.

National Cooperatives was organized by midwestern and western cooperatives in 1933 at Chicago to purchase CO-OP tires and auto accessories. In 1938, it added CO-OP electrical appliances, and soon after, refrigerators and other home equipment. National successfully handled Universal milking machines and related equipment for many years, and in 1983, they were still an important part of Universal's business.

Assembling and Manufacturing

Cooperatives assemble or manufacture only a small proportion of the farmstead and home equipment they sell. The principal activity is Universal Cooperatives' manufacture of Universal milking equipment, CO-OP water coolers and heaters, and UNICO barn equipment at the plant in Goshen, IN. The latter plant, one of the larger of its kind, produces feeders, waterers, gates, stalls, tanks, and other livestock and poultry equipment. Also, Universal manufactures grain bins, bulk feed bins, and large field sprayers.

Since 1959, Farmland Industries, Kansas City, MO, has manufactured steel grain gins and bulk feed tanks at Hutchinson, KS. Indiana Farm Bureau Cooperative Association, Indianapolis, has a small plant for producing hog equipment at Windfall, IN. In 1979, Gold Kist Inc., Atlanta, acquired a steel fabrication plant in Augusta, GA., that supplies storage bins and elevator and conveyor systems to Gold Kist retail outlets, affiliated farm cooperatives and unrelated purchasers. In

1986, Gold Kist contracted to franchise power machinery and compact tractors and equipment attachments for White manufacturing company.

United Cooperatives made the earliest manufacturing effort in 1939, when it contracted with a firm in Peoria, IL, to manufacture barn equipment under the UNICO brand. It purchased the plant in 1941 and began manufacturing milk coolers in the late 1940's. In 1949, United began assembling fence controllers in Alliance, OH, and within a few years, started assembling ventilating fans, egg room coolers, and cattle water bowls. In 1950, United bought Star Lawn Mower Co. in Plainfield, IA, but abandoned it in 1953, and its barn equipment plant in 1955. In the 1970's, United (now Universal) acquired a dairy equipment plant from **Sta-Rite** and at one time had four plants making livestock and field equipment. United's policy was to manufacture only when adequate outside sources were not available or when pricing structures of outside sources were unrealistic.

National Cooperatives acquired Universal Milking Machine Co. and its factory at Waukesha, WI, in 1943. Later, it began manufacturing CO-OP milk coolers, water heaters, and other dairy equipment. National also had refrigerators, deep freezers, stoves, radios, and other home appliances manufactured under its private CO-OP label for many years.

Benefits

Farmer-members have been able to buy equipment through cooperatives at cost, after taking into account dividends on equity capital and patronage refunds on purchases. They also have had the benefit of quality equipment and dependable service.

Farmers have realized the benefit of better daily prices, year end net margins, or both, through group purchasing through local, regional, and interregional cooperatives. Stated another way, they have benefited from margins at retail, wholesale, and manufacturing levels. This system provided more independence in seasonal buying and more freedom to cooperatives in distributing or marketing to meet seasonal fluctuations.

Through use of their own private labels, cooperatives have attained a greater voice in determining specifications of the equipment they wanted manufactured for farmer-members.

Because of their farmer ownership and basic objectives, cooperatives have developed much expertise in selecting the type of equipment to meet the needs of farmers and other rural patrons. They have done this over the years in a variety of ways-through use of testing and research laboratories; research farms; college conference boards of agricultural engineers; committees of regionals' directors and staff

members; and suggestions of local cooperative employees, directors, and farmer-members.

Challenges Ahead

Farmers probably will continue to buy more and improved types of farmstead and home equipment. This will present opportunities to cooperatives to be pasesetters in providing and servicing equipment, adapted to farmer needs at minimum costs.

Some local cooperative outlets will need to improve distribution methods and modernize facilities. Some may wish to develop more farm service centers, while taking care not to overinvest in facilities. Those handling sprayers and chemicals will need to be cautious to minimize product liability problems.

Another challenge is to be alert for opportunities to improve sources of supply and net margins through purchasing activities and manufacturing if necessary.

Cooperatives will face the challenge of recruiting and keeping employees who have mechanical aptitudes and a knowledge of farm management requirements. Management, with support of boards of directors, will need to do more long- range planning for installation and after-sales maintenance service for total systems needed in a variety of farm enterprises.

Food and Related Services

Farmers have applied the principles of cooperative purchasing to farm family living supplies such as food and related supplies as well as to farming needs.

Retailing

Early in the century, local grain marketing cooperatives pooled the orders of members for fresh apples and peaches, cases of canned goods, sugar, and flour and bought them in railcar lots. The next step was to either add a grocery store to the existing cooperative or to organize a separate food store cooperative. Some added cold storage locker services or separate food locker cooperatives. Most stores also carried some household supplies, small equipment, and work clothes and shoes. A few added clothing departments.

Most food stores served small rural communities. For many years, stores in the Midwest handled eggs and cream produced by small farmers

to provide a market outlet and to help them pay cash for groceries.

Many cooperative stores in the North Central States were owed by both farmers and other members of the community, including mine workers. Many of the earlier stores were operated by cooperatives under Grange and Farmers Union sponsorship.

In 1951-52, 860 farmer cooperatives handled food. The peak number was 974 in 1955-56. With development of supermarkets, better highways, keener competition, narrow margins, and cooperative mergers, the number selling food has been decreasing.

In 1983, only 430 farmer cooperatives reported sale of food such as groceries, meats, produce, and household supplies (table 4). Their net sales totaled \$124 million.

The five States with largest volumes in 1986 were Nebraska, Minnesota, Wisconsin, Kansas, and Washington. Minnesota and Wisconsin had the largest number of cooperative stores, 139 and 75, respectively.

Recently, some midwestern and eastern local cooperatives have been selling CO-OP food products on a full-case, pre-ordered, and prepaid basis. Their orders are pooled through regional wholesale cooperatives, which forward them to the grocery department of Universal Cooperatives, Minneapolis, their interregional association. Merchandise is shipped directly to participating local cooperatives.

A few of these cooperatives rent frozen food lockers to members for storing meat, fruit, and vegetables. In the 1940's, the peak number of frozen food locker plants cooperatives operated was about 900, but

Table 4-Cooperatives reporting net sales of food and related merchandise in specified years

Year	Cooperatives reported handling	Reported net sales of food and related items ¹
	<i>Number</i>	Million dollars
1951-52	860	38.0
1955-56	974	47.0
1960-61	896	51.9
1965-66	764	57.7
1970-71	667	69.9
1975-76	486	108.1
1979	485	184.3
1980	482	202.0
1983	430	123.7
1986	408	113.4

¹Excludes intercooperative business.

most of these ceased operating when home freezers became popular and cooperatives failed to adapt to this trend. Also, health and safety regulations became more stringent, forcing many cooperatives to spend considerable amounts to modernize, sell their facilities, or cease operation.

A few dairy-marketing cooperatives sell dairy products and a limited line of other foods. One example is Land O' Lakes, Inc., Minneapolis, which franchises several ice-cream and other dairy-product parlors or stores. These are handled by its Bridgeman retail division. High's and Bridgeman stores provide a way of marketing at retail dairy products and other foods. They are not cooperative purchasing functions by member-patrons, as no patronage refunds are distributed on such retail sales.

Some fruit- and vegetable-marketing cooperatives also operate retail stands near their facilities or in open markets, but this volume is small.

Wholesaling and Interregional Purchasing

Wholesaling

In 1980, only two regional cooperatives provided wholesale service in purchasing foods for local cooperatives. Their wholesale sales to other cooperatives totaled about \$22 million, perhaps equal to a fifth or sixth of the volume handled at retail by their member cooperatives.

These regional wholesalers were Producers Grocery Company, Columbia, MO, with about 50 local member cooperatives, which ceased operating in 1981, and Midland Cooperatives, Inc., Minneapolis, which merged with Land O' Lakes in 1981. (In 1963, Central Cooperative Wholesale, Superior, WI, with a large grocery division serving local farmer and consumer cooperative stores, and Midland Cooperative Wholesale had merged to become Midland Cooperatives, Inc.)

In July 1936, Consumers Cooperative Association (now Farmland Industries), Kansas City, MO, opened a wholesale grocery division to serve member locals but discontinued it after several years of losses, due in part to the scattered locations of small local stores and the trend to supermarkets.

Interregional Purchasing

Universal Cooperatives, Inc., serves both farmers and consumer regional cooperatives and supplies from its label library several million CO-OP trademark labels to canneries and other food packers, based on member regionals' orders each year. It also arranges for some other

merchandise to be packaged under the CO-OP label.

Universal's grocery department works with member regionals in supplying group or pooled orders for some of their local cooperatives in the Midwest and East. Universal's total sales of food products are nearly \$30 million a year. In 1939, National Cooperatives, Inc., formerly headquartered at Chicago and later at Albert Lea, MN, started a grocery department to serve five member regionals. It grew into a large supply association but food volume remained relatively small. In 1972, it merged with United Cooperatives, Inc., Alliance, OH, to become Universal Cooperatives, Inc.

Processing

No regional wholesale cooperative processed food for local cooperative stores in 1983.

Only one farmer/consumer wholesale cooperative-Central Cooperative Wholesale (later Midland Cooperatives)-has ever engaged in processing. It operated a coffee-roasting plant and bakery for many years.

Benefits

The benefits of cooperative distribution of food to farmers and other rural residents have been mainly dependable, convenient, and friendly service extending over many years in small towns and rural communities and dependable quality. Specifications were developed for two and sometimes three grades or qualities of CO-OP canned goods. Members came to rely on these quality and pricing practices to determine best buys for food needs.

Net margins as a percent of sales have been minimal, typical of the food industry for many years. However, these net margins have provided a modest return on invested capital (member equity) in numerous cases.

Challenges Ahead

Distribution of food and related merchandise through supermarkets operated by farmer cooperatives is expected to decline further. In many areas, the industry is dominated by large chains operating on narrow profit margins, and farmer cooperative stores have to rely on many **nonfarm** patrons to obtain sufficient volume to be competitive. With the decline in agricultural wholesale cooperatives handling food, local or retail

cooperatives likely will find it necessary to join retailer-owned cooperatives for their wholesale food services.

Local-regional farmer cooperative systems, working with Universal Cooperatives, may find opportunities to expand ordering and distributing of food products on a **caselot** preordered and prepaid basis. This system has successfully eliminated some of the traditional basic distribution costs, thereby providing farmers/consumers quality graded CO-OP products at lower net prices.

Unclassified and Other Farm and Home Supplies and Equipment

Types and Farm Expenditures

Unclassified farm supplies and equipment sales of cooperatives often include building materials, containers, pesticides, and farmstead equipment used in farming. They also include an “other” category such as farm hardware; hand tools; work clothes and shoes; fence controllers; binder twine; baler wire; plumbing materials; automotive supplies; and sometimes items related to feed, such as animal health products, oyster shells, salt, and litter.

Also unclassified sales include items farmers and other rural residents buy for home, garden, and family living. These include household supplies; hardware; home appliances; coal; clothing; and lawn and garden supplies and equipment, including packaged seeds, fertilizer, and pesticides, sprayers, and dusters. They also include recreation items such as horse riding equipment and tack; snowmobiles; and fishing, hunting, and skiing equipment. In many communities, rural residents and suburban patrons look to co-op farm supply stores as dependable sources of home, lawn, and garden supplies.

In 1983, U.S. farmers purchased about \$1.4 billion of miscellaneous equipment and hand tools, exclusive of power farm shop equipment and dairy, poultry, and other livestock equipment, considered farmstead equipment in this report.

Retailing

In 1986, 3,570 cooperatives reported net sales of “unclassified supplies” totaling about \$1.46 billion (table 5). The number of cooperatives reporting such sales has not changed much in the past 30 years, but net sales have tripled since 1970-71. The five States with largest

Table 5-Cooperatives reporting net sales of unclassified and other farm and home supplies and equipment in specified years

Year	Cooperatives reported handling	Reported net sales of unclassified farm and home supplies and equipment
	<i>Number</i>	<i>Million dollars</i>
1951-52	4,525	210.4
1955-56	4,482	163.4
1960-61	4,558	196.2
1965-66	4,810	257.0
1970-71	4,663	420.0
1975-76	4,432	733.6
1979	4,577	1,178.2
1980	4,331	1,206.1
1983	3,900	1,351.8
1986	3,570	1,459.5

¹Excludes intercooperative business. These sales consist of a considerable amount of building supplies; farmstead and home equipment; containers and packaging supplies; food; hardware; salt; lawn and garden supplies; work clothing, shoes, and boots; household and recreation supplies and the like.

net sales of these supplies in 1983 were Minnesota, Wisconsin, New York, Kansas, and North Dakota.

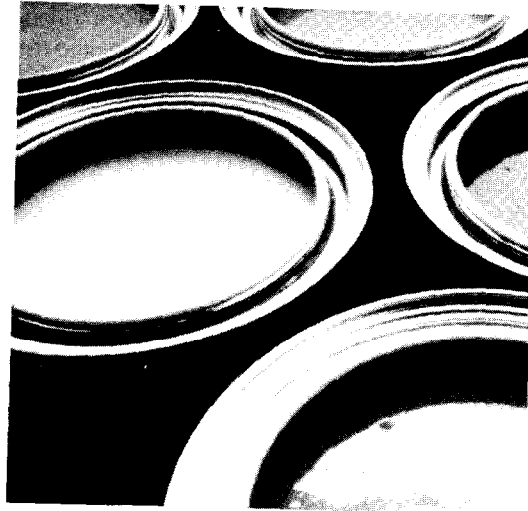
No surveys have been conducted to determine the types and dollar volumes of supplies in this unclassified category. The degree to which each cooperative classifies sales into types depends on volume, type of accounting system, and extent to which the manager wants sales itemized for control and margin information. In grain-marketing cooperatives, such unclassified supplies may be called elevator merchandise or general merchandise. In fruit- and vegetable-marketing cooperatives, they may be called growers' supplies or orchard supplies. Other cooperatives may refer to them as general supplies, hardware, or farm supply store merchandise.

Wholesaling and Interregional Purchasing

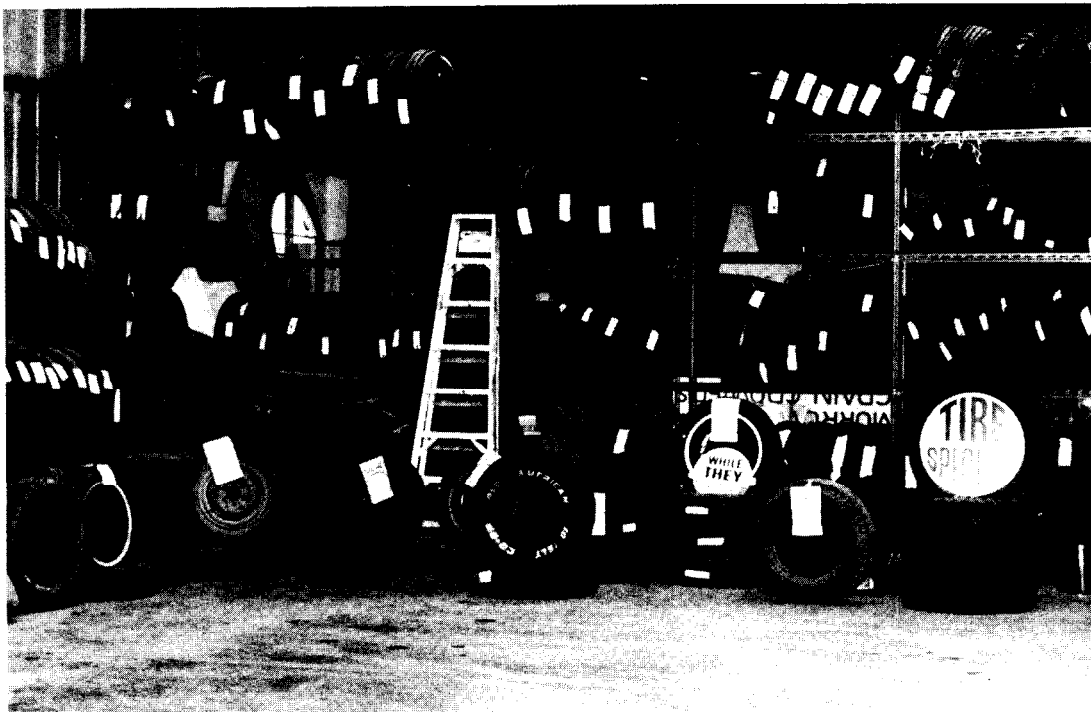
Wholesaling

Local cooperatives obtain a large part of their general supplies from regional wholesale cooperatives that, in turn, purchase them from interregional cooperatives.

In 1983, 31 federated regional cooperatives sold about \$600 million



In many rural cooperatives, the local cooperative is the all-purpose store for farm and home supplies and equipment.



of unclassified supplies and equipment at wholesale to other cooperatives. Allowing for transportation and addition of retail markups, this amount represented a substantial portion, perhaps 50 percent, of the \$1.4 billion of net sales by all cooperatives.

The five regionals with largest volumes in 1983 were Agway Inc., Syracuse, N.Y.; Farmers Union Central Exchange, St. Paul, MN; Farmland Industries, Inc.; Kansas City, MO. ; Southern States Cooperative, Richmond, VA; and Tennessee Farmers Cooperative, LaVergne.

Some larger farm supply cooperatives stock several thousand items that may be classified as general farm and home supplies and equipment. Agway Inc. reports it carries 13,000 items from paint to power equipment. It sells some at wholesale and some at retail. Agway classifies one group as "lawn, home, and garden" supplies and equipment, with annual sales ranging between \$89 million and \$116 million during the past 3 years. It classifies another group of items as "hardware and automotive," with sales averaging \$42 million a year during this period. Some items in these two groups may fall under other classifications used in this report, such as building supplies, farmstead equipment, and containers and packaging supplies.

Farmland Industries warehouses 22,000 items in its Equipment and Supplies Division, with sales ranging from \$94 million to \$129 million during the last 3 years.

Interregional Purchasing

Universal Cooperatives had annual sales of unclassified supplies, as defined in this report, of nearly \$175 million in 1980. It purchases a wide range of general farm and home supplies for 39 member regional cooperatives in the United States and Canada.

Universal sells binder twine and baler wire, farm hardware and hand tools, fence controllers and batteries, animal health products, and the like. It also sells tires, automotive supplies, paint, farmstead equipment (mechanical or automation equipment), and some building supplies.

Manufacturing

Regional cooperatives neither manufacture nor contract for manufacture of most of their general supplies. Exceptions are automotive batteries manufactured by Farmland Industries at its Kansas City plant and steel gates, racks, and fencing by Tennessee Farmers Cooperative at La Vergne, TN.

Benefits

Cooperative distribution of general supplies has benefited farmers and local cooperatives in several ways. Farmers have obtained them at a saving, taking into account patronage refunds. They have had confidence in the quality of supplies handled. Farmers and other rural residents have found it convenient to buy supplies at one location or farm service center.

In local cooperatives, these supplies have absorbed some administrative and general overhead expenses, enabling other supplies or departments to show greater net margins. General supplies also have attracted more patrons and helped build volume in major types of supplies handled.

Challenges Ahead

As local cooperatives become larger by merging and by adding branches, and as they become more diversified and complete farm service centers, sales of general supplies likely will increase. They also may be asked to provide more on-farm or custom services as farmers become larger and engage in more commercial operations.

Author / Lloyd C. Biser / agricultural economist, now retired.

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Agricultural Cooperative Service (ACS) provides research, management, and educational assistance to cooperatives to strengthen the economic position of farmers and other rural residents. It works directly with cooperative leaders and Federal and State agencies to improve organization, leadership, and operation of cooperatives and to give guidance to further development.

The agency (1) helps farmers and other rural residents develop cooperatives to obtain supplies and services at lower cost and to get better prices for products they sell; (2) advises rural residents on developing existing resources through cooperative action to enhance rural living; (3) helps cooperatives improve services and operating efficiency; (4) informs members, directors, employees, and the public on how cooperatives work and benefit their members and their communities; and (5) encourages international cooperative programs.

ACS publishes research and educational materials and issues Farmer Cooperatives magazine. All programs and activities are conducted on a nondiscriminatory basis, without regard to race, creed, color, sex, age, marital status, handicap, or national origin.