Annual Report 1979

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Annual Meeting

The next Annual Meeting of the shareowners of Monsanto Company will be held at 1:45 p.m., Friday, April 25, 1980, at the Company's General Offices, 800 N. Lindbergh Blvd., St. Louis County, Mo. A formal notice of the meeting, together with a proxy statement and form of proxy, is being mailed to each shareowner.

10-K Report

A copy of Monsanto Company's Form 10-K Report filed with the Securities and Exchange Commission for 1979, which contains additional information relating to Monsanto, can be obtained by writing to: Shareowner Relations Department, Monsanto Company, 800 N. Lindbergh Blvd., St. Louis, Mo. 63166.

Italics identify Monsanto's trademarks.

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Operational Highlights

(Dollars in millions, except per share)	1979	1978
Net Sales	$6,192.6	$5,018.7
Net Income	$ 331.0	$ 302.6
Per Common Share:		
Primary Earnings	$ 9.11	$ 8.29
Fully Diluted Earnings	9.03	8.21
Dividends	3.35	3.175
Shareowners' Equity	77.20	71.26
Property, Plant and Equipment Additions	$ 565.9	$ 479.9
Depreciation and Obsolescence	$ 412.7	$ 288.3
Taxes—Income, Payroll, Property and Other	$ 320.8	$ 419.0
Research and Development	$ 173.5	$ 144.3
Year End:		
Shareowners—Common Shares	85,608	86,775
Employees	63,926	62,851

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Monsanto at a Glance

Monsanto Company is headquartered in St. Louis, Mo., where it was founded in 1901. It is today the fourth largest U.S. chemical company with annual worldwide sales of $6.2 billion.

The Company manufactures and sells a diversified line of chemicals and related products derived from petroleum, natural gas, phosphate ore and other raw materials. Monsanto sells little of its production to end users, but supplies materials to other industries which manufacture the end product.

Worldwide operations include investments (either directly or through affiliates) in more than 180 manufacturing plants, labora-

Monsanto Agricultural Products Co. serves agricultural and other markets through six major business areas: herbicides, insecticides, plant growth regulators, fertilizer materials, blasting products and hybrid breeding animals. Major products include:

- *Lasso, Roundup, Avadex, Far-Go* and *Machete* herbicides—used to control many annual and perennial weeds in major crop and industrial uses.
- Parathion insecticides protect feed and fiber crops from destructive pests.
- Plant growth regulators—increase the sucrose content of sugar cane.
- *Ammonium nitrate*—fertilizer for agriculture and blasting agents for mining.
- Farmers Hybrid Companies, Inc., (wholly owned subsidiary) develops and markets boars and other breeding stock.

Monsanto Chemical Intermediates Co. manufactures more than 60 "building block" materials that go into industrial and consumer products. MCI's business areas are petrochemicals, process chemicals and textile intermediates. The company's major markets are plastics, rubber, textiles and chemicals. A significant percentage of the company's production is used internally by various Monsanto operations. Major products and their uses:

- Acrylonitrile—fibers, plastics, synthetic rubber.
- Styrene—plastics, synthetic rubber, paints.
- Phenol—plastics, lacquers, chemicals, pharmaceuticals.
- Acetic acid—cellulose acetate, vinyl acetate, textiles.
- Ethylene—plastics, chemicals.
- Methanol—formaldehyde, antifreeze, solvents.
- Maleic anhydride—polyester resins, agricultural chemicals, plasticizers.
- Phosphorus and derivatives—insecticides, oil additives, ore flotation.
- Caustic potash—oil refining, fertilizer, soaps.
- Sulfuric acid and oleum—chemicals, metal treating, fertilizer.
- Adipic acid, adiponitrile—textile fibers.

Monsanto Industrial Chemicals Co. serves a broad range of markets through eight business areas: detergents and phosphates, electronics, engineering services, nutrition chemicals, plasticizers, pollution control equipment, rubber chemicals and specialty chemicals. The product line includes:

- Detergent builders, surfactants, antimicrobials and dentifrice agents.
- Electronic-grade silicon for semiconductor devices.
- Rubber chemicals and testing instruments for tires and other rubber products.
- Plasticizers—impart flexibility and other desirable characteristics to plastics.
- Pharmaceuticals including analgesics and L-Dopa for Parkinson's Disease.
- Fire-resistant additives for plastics and foams.
- Functional fluids for metalworking and heat transfer applications.
- Water treatment chemicals for swimming pools and industrial uses.
- Animal feed ingredients to retard spoilage and enhance nutritional values.
- Food ingredients including flavorings, preservatives, leavening agents.
- Enviro-Chem Systems, Inc., provides engineering services and pollution control equipment.

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tories and technical centers in 20 nations. The Company's products are sold in 123 nations.

The organizational structure includes five operating companies (based on market focus—see below) and the Fisher Controls Corporation of Delaware, a majority-owned subsidiary. These units manage their businesses on a worldwide basis with assistance from Monsanto International, R&D and Environmental Policy staffs, and other support groups.

Monsanto has approximately 64,000 employees worldwide and 86,000 individual and institutional owners of common shares.

Monsanto Plastics & Resins Co. is composed of three divisions: plastics, resin products and fabricated products. Major products and markets are:

Lustran ABS/SAN plastics—extrusion and injection molding uses in large and small appliances, auto parts, toys, dishes.

Lustrex polystyrene plastic—food packaging, disposable dishes, cassettes, toys.

Vydyne and *Vydyne R* (reinforced) nylon—electrical and automotive applications, industrial machinery, appliances.

Fome-Cor board—automobile headliners, graphic arts material, energy-saving sheathing for manufactured housing and home improvement.

Saflex interlayer—safety windshields and laminated architectural glass.

Specialty resins for paints, coatings, adhesives and paper manufacturing.

AstroTurf recreational surfaces and doormats.

Blow-molded plastic containers and bottles.

Polyethylene film—used for disposable diapers and energy-saving greenhouse cover.

Spray Guard rain flaps for trucks.

Monsanto Textiles Co. makes synthetic fibers for a variety of uses shown below. Garments and home furnishings made with Monsanto fibers often can be identified by the *Wear-Dated* trademark, a unique warranty that Monsanto offers directly to consumers.

Acrilan, Bi-Loft, So-Lara acrylic fibers—apparel, home furnishings, craft yarns and canvas-like products.

Nylon (including *Ultron* carpet fibers)—home furnishings, tire cord, industrial fabrics, hosiery and apparel.

Cerex spunbonded nylon—air filters, rubber and urethane reinforcement, upholstery backing, disposable clothing and parachutes.

SEF modacrylic fiber—fire-resistant apparel, drapes and blankets.

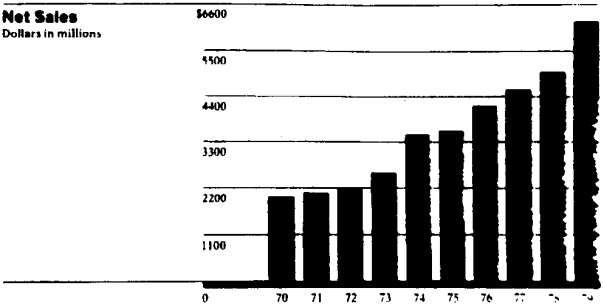
Polyester fiber—apparel filament and staple.

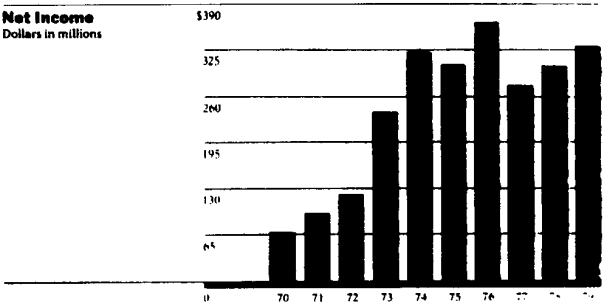
Bidim engineering fabric—stabilizing underlay for streets, highways, railroad track beds and drainage systems, and for control of soil erosion.

Fisher Controls Corp. of Delaware is a worldwide leader in the manufacture of process control equipment including valves, regulators and electronic and pneumatic instrumentation. Fisher products are used broadly throughout the chemical, petrochemical, power, paper, metal processing, and oil and gas industries. The company is owned approximately two-thirds by Monsanto and one-third by The General Electric Company Limited of the United Kingdom.

Monsanto International coordinates operations outside the U.S. in conjunction with the five operating companies and manages joint ventures worldwide.

Monsanto International has local management responsibility wherever the Company conducts business outside the U.S. These operations are organized into three major world areas: Europe-Africa, Canada-Latin America and Asia-Pacific. Area and regional headquarters are located in Brussels, London, Paris, Dusseldorf, Tokyo, Singapore, Melbourne, Toronto, Mexico City, Sao Paulo and Buenos Aires.





As fractionating columns rise 265 feet above Chocolate Bayou, Tex., the giant ethylene and coproducts plant being built by Monsanto and Conoco progresses toward its 1980 completion date.

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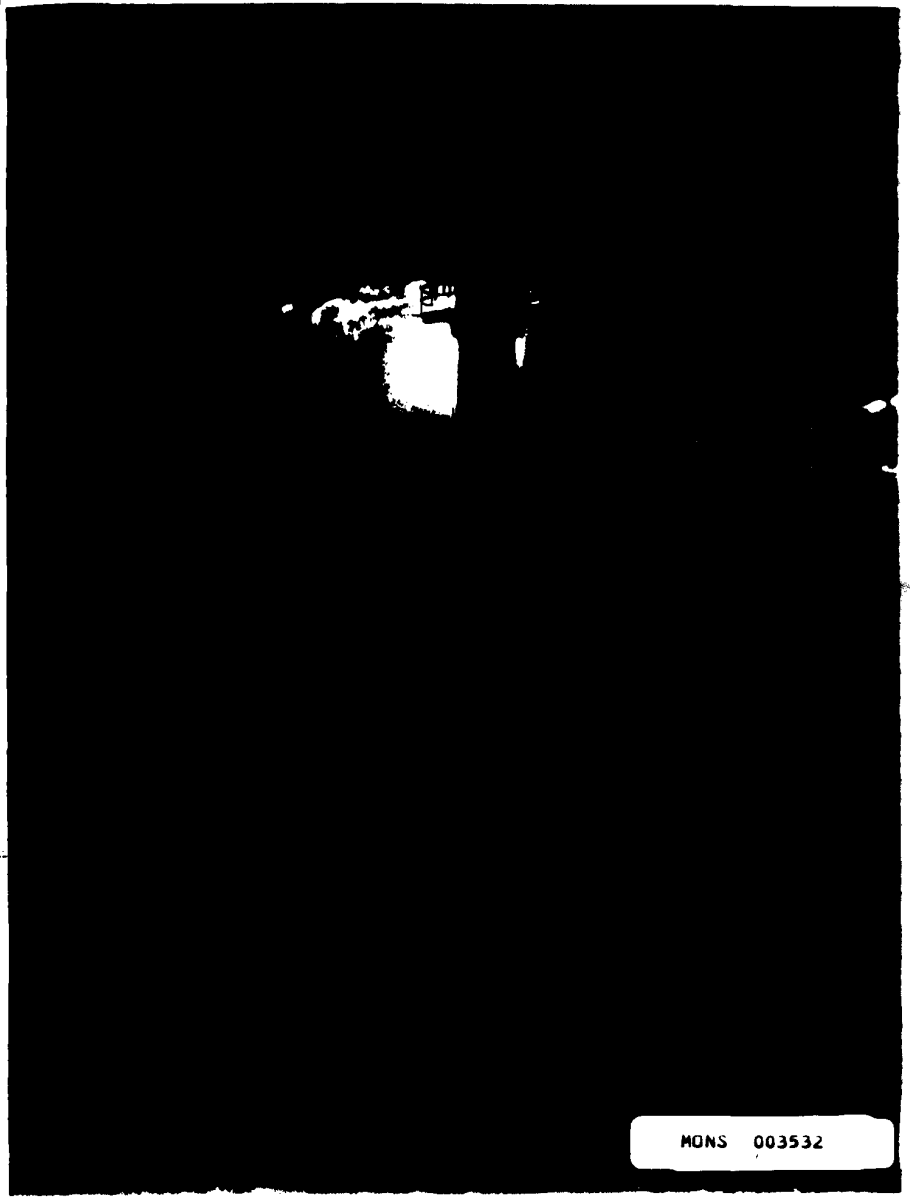

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To Our Shareowners:

By most traditional yardsticks of corporate performance, 1979 was a good year for Monsanto.

The Company achieved record sales of $6.2 billion. Our net income, boosted by a substantially lower effective tax rate, reached $331 million. Thus, despite a disappointing fourth quarter and loss provisions associated with the closing or restructuring of some problem businesses, 1979 net income was up 9.4 percent from 1978. Primary earnings per common share were $9.11 compared with $8.29 for the previous year.

However, 1979 was a year marked by such nontraditional developments—in terms of national and world economics, the pricing of energy and precious metals, and, of course, international relations—that our shareowners might well wonder about the validity of traditional corporate measurements.

The price of gold bullion finished the year almost three times higher than it opened 12 months earlier. During the year, the average cost of crude oil rose more than 80 percent in the U. S., with even greater increases in other parts of the world. The prime interest rate hit an all-time high in the U. S. while inflation reached levels that were unthinkable to most Americans only a few years ago.

Against this unsettling backdrop, it's difficult to interpret the results of any corporation. Should Monsanto's results be considered inadequate compared with the skyrocketing values of precious metals, or outstanding in that the Company withstood the economic shocks of 1979 while still achieving higher levels of profitability? Even more important, what has the Company accomplished in 1979 to assure continued growth, profitability and financial strength in the 1980's, despite a cloudy economic outlook?

These key questions provide the focus for this Annual Report. In it, we try to give our shareowners a broad perspective on Monsanto. This perspective includes not only a look at current performance, but also at our efforts to grow for the future, to overcome the obstacles posed by increasingly expensive energy and raw materials, to find and exploit new business opportunities through research and innovation, and to accomplish all of this in a socially responsible manner.



Seated in foreground: John W. Hanley, Chairman and Chief Executive Officer. Background, left to right: James J. Kerley, Chairman of the Finance Committee; H. Harold Bible, Vice Chairman; Richard J. Mahoney, President; Louis Fernandez, Vice Chairman.

Ready for the 1980's

We don't expect the 1980's to provide an easy business climate. While more careful control of federal spending and U. S. monetary growth is required and should result in a long-term cooling of today's torrid inflation rate, most economists believe that rising prices will be with us for some time to come. Even more troublesome is the uncertainty which faces the U. S. and most of the industrialized world regarding the availability and price of petroleum. These factors suggest that the decade ahead will be one of slower economic growth than this country experienced in the Sixties and early Seventies.

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Nevertheless, the 1980's also promise some new opportunities. The U. S. chemical industry as a whole should continue growing somewhat faster than the gross national product, and some areas within the industry should grow much faster than the average. We believe that Monsanto is positioned to recognize and seize the appropriate opportunities of the 1980's.

For several years, my messages to shareowners have dealt with our twin strategies of trimming weaknesses that were slowing financial progress and building strengths in professional management, technical expertise, and a well-balanced product line generally characterized by leadership positions.

The trimming continued in 1979 as we announced the closing of our unprofitable European nylon fibers business in the second quarter. We spent many months discussing possible options with appropriate European government officials and employee representatives. Unfortunately, these discussions failed to produce a workable alternative to withdrawing from this business.

Another problem area that we addressed in 1979—but did not fully resolve—was our Spanish plastics subsidiary Aiscondel. The management of that company is taking steps to reduce its losses in 1980, although we do not expect it to achieve profitability this year.

On the positive side, 1979 saw us building strengths by expanding product lines, exploring new markets and making new investments in high-potential businesses.

Our capital spending in 1979 amounted to $566 million and is expected to rise some 20 percent (not including capitalized interest) in 1980. The vast majority of this new capital is being directed into businesses where we now hold—or intend to achieve—leadership positions. This emphasis on leadership should enhance future profit potential while helping insulate the Company from general economic swings.

The capital spending figures above include investments in added capacity for such growing products as *Roundup* herbicide, *Saflex* interlayer and electronic-grade silicon. We've announced major capital projects to incorporate new Monsanto-developed technology with substantial cost advantages into the manufacture of existing products. Let me cite a couple of examples:

- Monsanto announced plans to build the world's largest synthetic methionine plant, capable of producing 100 million pounds annually. We market this chemical as *MHA* amino acid supplement for animal feeds and have just introduced a new liquid form to meet the needs of modern feed mills.
- We're also investing in proprietary new technology to make maleic anhydride, an important chemical intermediate, from butane instead of benzene. While adding capacity in maleic anhydride, we're also sharply improving our costs and the reliability of our raw material supply.

Ready Around the Globe

These kinds of technological advances—in step with the times—reinforce our confidence regarding Monsanto's prospects for the Eighties. Timely technology is also a key factor in expanding Monsanto's global presence to promote geographic growth of our product line.

Sales outside the U. S. in 1979 jumped 39 percent compared with the previous year. The increase reflected, in part, the full consolidation of Fisher Controls and Aiscondel results into Monsanto's total results. But the most important factor in our international sales gain was the strength of U. S. exports. This performance was enhanced by the effects of the U. S. dollar's weakness against other major world currencies, renewed economic growth in other nations, and feedstock cost advantages enjoyed by U. S. chemical companies generally. These factors should continue working to Monsanto's benefit in 1980, partially offsetting the effects of an expected U. S. recession.

That's not to say, however, that when these factors disappear from the scene, our advantages in international markets will also disappear. Monsanto's world-scale plants, strong raw material positions and technological leadership assure our continued ability to serve not only traditional markets, but also the faster-growing developing nations. We plan to continue building our multinational presence by taking advantage of carefully researched and analyzed opportunities around the world.

Tempo of Innovation

"In step with the times" certainly describes a new industrial product line that Monsanto unveiled during 1979—*Prism* separators. This system removes hydrogen from industrial gases by using hollow fibers made of permeable membranes. The system offers the potential for significant energy savings and other cost and processing advantages in certain industrial operations where hydrogen is an important ingredient. We're continuing our research programs to find additional applications for separations technology.

Research and development capabilities are an extremely important element of our readiness for the Eighties. Monsanto spent $174 million on R&D in 1979 and will boost that figure by more than 20 percent in 1980. We fully intend to continue providing first-class technical support and innovation within existing product lines while exploring new scientific frontiers that will be the basis of Monsanto's success in the future.

To that end, the Board of Directors last year elected Dr. Howard A. Schneiderman, formerly the Dean of Biological Sciences at the University of California-Irvine, as Monsanto's new Senior Vice President for R&D. The Company is indeed fortunate to have this eminent scientist leading its overall R&D efforts. Furthermore, his expertise in biology and genetics should be particularly helpful as Monsanto's R&D team expands its involvement in biochemistry—the chemistry of living cells. We believe that this evolving science holds great promise for helping the chemical industry cope with an energy-tight environment-conscious world in the 1980's.

Responsibilities to Society

It seems safe to say that, energy and economic problems notwithstanding, concerns over environmental protection in its broadest sense will remain with us in the Eighties—as well they should. Fortunately, there is also growing concern about the negative impact of poorly

conceived and executed government regulations. At least one major event of 1979 involving Monsanto underscores this and offers some hope for more reasonable regulation in the years ahead.

A U. S. Court of Appeals ordered the Food and Drug Administration to take another look at its 1977 decision banning Monsanto's *Cycle-Safe* plastic bottle. The court held that the FDA did not have sufficient data to support its decision. This is an encouraging development, even though it will not recreate the attractive commercial opportunity nor the thousand jobs that were lost when the bottle was banned.

Monsanto management remains committed to the principle that safety and sensibility must go hand in hand—in the laws, in regulations and, most of all, in our own actions. While the government has a proper role to play in establishing acceptable standards of industrial conduct, no one can relieve us of the primary responsibility for the safety of our own products and processes.

This attitude of social responsibility is no less than what the public expects and no more than what is proper. It's an attitude as essential to contemporary management as professional competence and appropriate analytical tools for guiding a multibillion-dollar enterprise. In my judgment, the Monsanto management team possesses all three in readiness for the Eighties.

Ready to Manage the Future

The Board of Directors took several important actions on February 22, 1980, relating to our readiness to manage the future. I'd like to take a moment to report these actions, which anticipate the January 1981 retirement of Vice Chairman H. Harold Bible.

The Board elected Louis Fernandez to the position of Vice Chairman and Richard J. Mahoney to be the President of Monsanto. While this means that I am relinquishing the role of President, the Board reaffirmed my roles as Chairman and Chief Executive Officer. These changes are effective April 1, 1980.

Dr. Fernandez's new responsibilities will include chairmanship of the Corporate Administrative Committee, which assists the CEO as the Company's principal policy and strategy-setting body. He will also supervise major portions of the Corporate Staff and retain overall responsibility for our technical community.

Mr. Mahoney will have responsibility for the worldwide activities of the five operating companies and Monsanto International.

While dealing with our readiness to manage the future, I'd be remiss if I failed to acknowledge the contributions of two individuals in making Monsanto what it is today. One is Mr. Charles H. Sommer, former Chairman of the Board, who died February 6, 1980. While we are saddened by his death, we shall remember him warmly and always admire him for the leadership he provided during his 45-year association with the Company.

I also want to express our special thanks to Mr. Bible, who will continue working closely with the Monsanto management team to effect a smooth transition as he moves toward retirement. His comprehensive knowledge of our business—based on 11 years as a Board member and 38 years of total Monsanto service—have made him a trusted adviser and a source of strength to me and my colleagues.

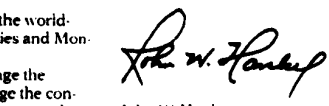
Additionally, let me salute the dedicated managers at all levels of operations and staff who provide such able support to top management. In particular, the caliber of our senior management today—enhanced by a substantial number of personnel changes in recent years—attests to the high priority that Monsanto gives to human resources planning. This senior management group represents a sound combination of youthfulness and maturity, backed up by many talented middle managers who are honing their skills in preparation for future responsibilities. From the Chairman's perspective, I have great confidence that Monsanto will not run short of professional management resources in the 1980's—or beyond.

To summarize the thrust of this report, the positive elements of Monsanto's 1979 performance reflect in many ways the quality of our preparations for the future. We expect that our 1980 performance will be adversely affected by the general economic slowdown in the United States. But we believe that our many strengths will continue working to our benefit.

Looking beyond the current year, we're well aware that this new decade will not be an easy one. Undoubtedly, there will be some unpleasant surprises compounding the difficulties we're already expecting. Nevertheless, the management of Monsanto is confident that we have prepared ourselves as fully as possible. We intend to do better than just coping with these problems. In fact, we intend to seize the opportunities invariably created by unsettled times such as these—particularly opportunities involving such important human needs as enhanced food production, health and safety, energy conservation and economic growth.

Above all, Monsanto shareowners should understand that its management team believes in the future. We refuse to participate in an oversold sense of pessimism quite evident in world gold markets—that today's problems are beyond human resolution. We don't believe that's true of society as a whole, and we know it's not true of Monsanto.

John W. Hanley



John W. Hanley
Chairman and Chief Executive Officer
March 14, 1980

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State-of-the-art [illegible] technology such as [illegible] employed at this [illegible] siana ammonia pla[illegible] major Monsanto [illegible] for the 1980's.


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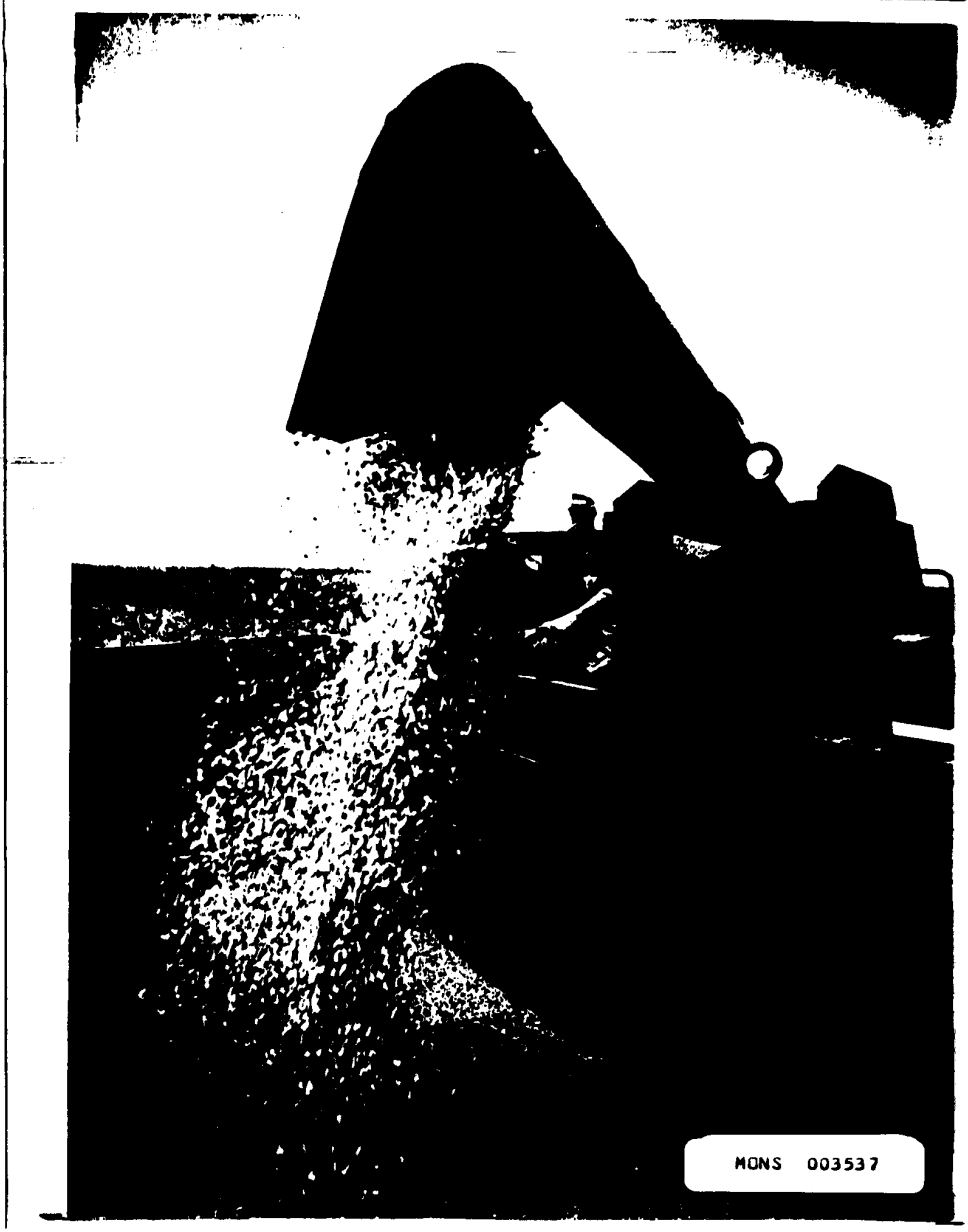
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Current Performance

Monsanto's consolidated net sales in 1979 climbed to a record $6.2 billion, a 23.4 percent increase over 1978. Part of the gain reflected the expanded sales base of the new Fisher Controls Corporation (created by a merger early in 1979) and the first full year for consolidating the sales of Aiscondel (a majority-owned Spanish plastics subsidiary). Adjusted for these two factors, the sales gain would have been about 19 percent.

Net income for 1979 was up 9.4 percent to $331 million, and primary earnings per common share were $9.11 compared with $8.29 for 1978. The dividend paid on a common share during 1979 was increased by 17.5 cents to $3.35.

The sales revenue improvement was about evenly divided between higher volumes and price increases that attempted to recover sharply higher raw material costs, particularly for feedstocks and energy derived from oil and natural gas. Business was strong for the first 10 months of 1979. Late in the fourth quarter, however, inventory corrections by downstream industrial customers—primarily in the automobile and housing industries—curtailed Monsanto shipments and severely squeezed profit margins.

Earnings benefited substantially from a high level of interest income, improved results from affiliates abroad and a lower effective tax rate. The most significant tax factor was a nonrecurring event involving a changed law in the United Kingdom. Other factors included higher levels of DISC export credits, based on strong export sales, and a lower U.S. statutory tax rate.

Earnings were lowered, however, by loss provisions associated with efforts to resolve certain problem situations, thus improving prospects for future profitability. The largest write-off covered the costs of closing the Company's European nylon fibers operations, with an after-tax impact of $42.7 million or $1.18 per share. Earnings were further penalized by $10.5 million or 29 cents per share when Aiscondel provided for the planned clos-



Styrene monomer production facilities at Texas City, Tex., increased production levels over 1978.



Monsanto specialty plasticizers include those used in food wrap to achieve clarity, flexibility, permeability to oxygen and safety for food contact.

Lasso herbicide is widely used in the U.S., South America and Europe to control grasses and certain broadleaf weeds which infest corn and soybean acreage.





Left: The tag that identifies *Wear-Dated* apparel with fibers by Monsanto has high consumer recognition and acceptance.

Right: A garment manufacturer turns out new fashions made with Monsanto polyester filament.



Above: High-fashion sweater garments have created a strong market for Monsanto acrylic fibers, including the high-bulk *Bel-Loy* fiber.

Right: *Wear-Dated* carpets of *Ultron* nylon fibers carry a five-year consumer warranty. This premium carpet fiber resists static and stains.



ing of some product lines—a proposal now pending before the Spanish government.

Despite these losses, Monsanto's international businesses made a major contribution to the Company's results. Sales abroad rose 39 percent and accounted for 38 percent of the Company total.

The international sales increase reflected strong exports from the U.S. and, to a lesser extent, the first-time consolidation of Aiscondel and Fisher Controls sales. U.S. exports rose 31 percent to $406 million, stimulated by technological and cost advantages, plus the effects of the dollar's weakness against other major currencies.

Foreign exchange losses, although slightly less than in 1978, were significant at 88 cents per share. The largest single piece of this was due to devaluations of the Brazilian cruzeiro throughout the year.

Each of Monsanto's five operating companies produced sales gains. However, only two operating companies improved their income performance.

Monsanto Agricultural Products Company's highly successful herbicides led the way to new records in sales and operating income. Total sales were $840 million, a 14 percent increase over 1978. Operating income (before taxes, interest expense and other income charges and credits) rose 8 percent to $329 million. Among the best performers:

Lasso herbicide continued as the largest selling herbicide in the U.S., protecting corn and soybeans from grassy weeds. *Roundup* herbicide maintained its spectacular sales growth, based on its worldwide utility in crop and industrial applications; the U.S. government granted approval for using the product in new sites and with additional application techniques. *Avadex* herbicide, used primarily to control wild oats in wheat, enjoyed steady growth. *Machete* herbicide, which protects rice crops in other parts of the world, is now under consideration by the U.S. government for use in this country.

Monsanto Chemical Intermediates Company achieved the highest gain in operating income among the companies, with a 54 percent improvement over 1978. Sales grew 64 percent to $859 million, and operating income reached $116 million.

Tight markets for several important products, espe-


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More than 50,000 square feet of laminated glass form the roof of this new courthouse in Vancouver, B.C. Architectural uses of *Saflex* laminate interlayer account for a growing portion of total sales. Further growth is also expected in automotive markets outside the U.S.

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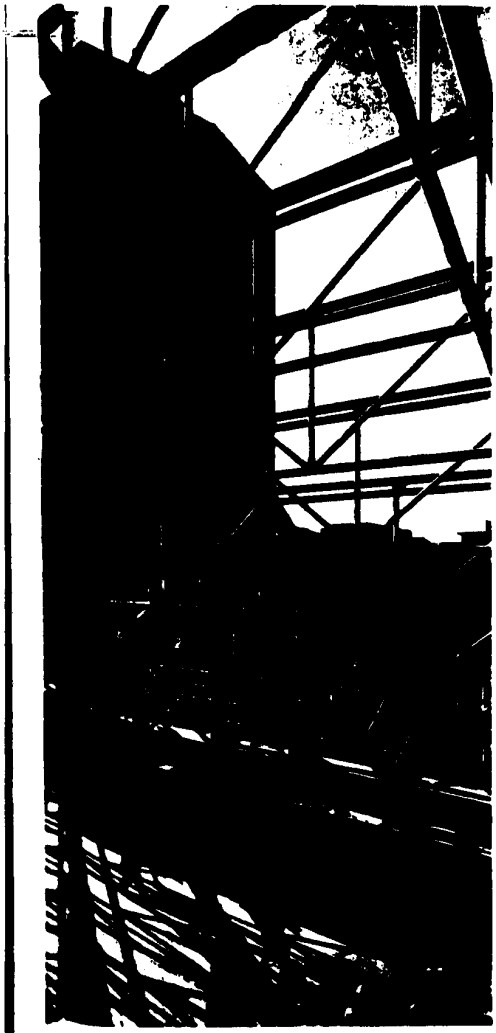


cially styrene monomer, allowed this operating unit to pass along a large percentage of higher costs, but not enough to prevent some profit margin deterioration. Volume increases, high plant utilization and manufacturing cost reductions were also factors in the year's results, aided by a strong export market.

Phenol, a widely used resin for plywood and other construction materials, enjoyed a strong year until the declining housing market began impacting volumes. Acrylonitrile performed well in the U.S., where downstream consumer buying of nylon and acrylic fibers remained firm, but less well in Europe where a soft market was further aggravated by the closing of Monsanto's nylon operations. Production of elemental phosphorus finished the year at full capacity in response to strong demand.

Monsanto Industrial Chemicals Company achieved $1.5 billion in sales, up 17 percent from 1978. However, escalating costs of hydrocarbon-based raw materials squeezed operating income to $202 million from $219 million in 1978.

In rubber chemicals, where Monsanto has the broadest product line in the industry, the company was able to offset the effects of a declining U.S. auto market by increasing market penetration and emphasizing other markets. Plasticizers, also heavily dependent on the auto industry as well as housing, nevertheless achieved higher U.S. volumes and increased export sales. The growing electronics industry kept demand high for Monsanto silicon. Detergents and phosphate products, specialty chemicals and Enviro-Chem businesses also enjoyed excellent sales growth.

Monsanto Plastics & Resins Company sales grew almost 16 percent to $1.4 billion, but operating income declined from $57.6 million to $9.6 million. Selling prices trailed rapidly rising raw material costs, and shortages of some materials hampered production.

Losses by Aiscondel and a wholly owned Monsanto subsidiary in Mexico—including provisions for closing certain operations—are consolidated with the Plastics & Resins Company's results. These losses were significant in 1979, as they were in 1978.

Plastics & Resins sales in all world areas exceeded prior year levels. Despite the sluggish automobile mar-



Strong markets for detergent products in 1979 spurred demand for detergent builders and elemental phosphorus, the key raw material.

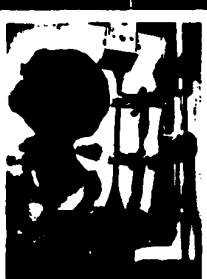


Left: A floating pulp mill containing control valves furnished by a subsidiary of *Fisher Controls* was built in Japan and towed 15,000 miles across the world's oceans to the Amazon forests of Brazil.

Right: Already the acknowledged technological leader in industrial control valves, Fisher Controls is building its reputation for excellence in process control instruments as well.



Above: Monsanto products found throughout many new cars include weight-reducing *Vydyne* nylon and *Lustran* ABS plastics. *Saflex* interlayer in the windshield. *Resimene* resins in the finish and headliners of *Fome-Cor* board.



Right: Monsanto testing instruments are the standard of the rubber industry. Now the Company is establishing its leadership in x-ray nondestructive tire testing.

ket, major product areas serving that industry maintained or improved sales on a year-to-year basis. For instance, the drive for fuel efficiency in automobiles caused increased demand for weight-reducing ABS and nylon plastics.

Monsanto Textiles Company results slipped to a $168.7 million operating loss. In part, this reflected the write-off for the closing of European nylon operations ($77.4 million before taxes).

Worldwide fiber shipments were up 7 percent despite the European nylon shutdown, and sales revenues of $1.1 billion surpassed 1978 by 11 percent. Loss factors included filament polyester in the U.S. and generally weak European nylon and acrylic markets. U.S. nylon results were adversely affected by comparatively high-cost raw materials shipped in from Monsanto facilities in Europe after the closing of the company's nylon operations there.

Bright spots for the year included a tripling of sales volume for *Ultron* nylon staple and improved market share for Monsanto acrylic fibers going into sweater and knit garments. Some technical progress was made toward improving the quality of filament polyester for downstream high-speed texturing uses.

Monsanto International operations—Europe-Africa, Canada-Latin America and Asia-Pacific world areas all contributed to the international sales gain. While exports from the U.S. were up substantially in all areas, the international performance was further strengthened by improved operations in several countries. Major contributors included businesses in Australia and Argentina, both of which registered record sales and earnings. Business growth was also strong for major joint ventures including Mitsubishi Monsanto Kasei in Japan and Industrias Resistol, S.A., in Mexico.

Fisher Controls Corporation of Delaware reported sales of $496.7 million and operating income of $44.4 million. Because this joint venture was formed early in 1979, the results are not directly comparable with those of 1978. Adverse factors affecting Fisher results included a nationwide labor dispute in the United Kingdom and a management decision to close a manufacturing facility there. On the positive side, the year was characterized by the highest level of orders for standard products in


MONS 003544



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Fisher history. Performance leaders included rotary valves—used in viscous slurry applications such as pulp production—and gas regulators, which are enjoying a resurgence as residential and commercial structures switch to natural gas heating.

2

Growing for the Future

During 1979, Monsanto continued directing its management, technical and financial capabilities toward developing growth prospects for the 1980's. This included efforts to identify new business opportunities which, while relating to existing technological strengths, are outside the areas Monsanto is pursuing today.

However, most of Monsanto's growth for the 1980's is expected to come from existing businesses. New applications, new markets and new related products will help retain the vibrancy of established businesses.

Worldwide capital investments of $566 million in 1979 stressed products and businesses where Monsanto's strategies call for aggressive growth. New investments by the operating companies are being targeted to gain competitive advantages based on capacity, technology and cost.

A premier growth product today—in practically every part of the world where the Company does business—is *Roundup* herbicide. As a manufacturing facility under construction at Antwerp, Belgium, progresses toward a 1980 start-up, Monsanto Agricultural Products Company has announced plans to build yet another new plant at Fayetteville, N.C. Together, these facilities will almost double present capacity for *Roundup*.

To test new generations of herbicides, plant growth regulators and other crop chemicals—and to broaden the uses for existing products—Monsanto Agricultural Products Company continues to expand its research presence in Belgium, Brazil, Japan and the U.S. A new 575-acre research farm in Troy, Mo., began operations in 1979.

Polished silicon wafers, which share the bright growth prospects of the electronics industry generally, will soon enjoy the added stimulus of a new 125-millimeter size



Specially developed breeds of boars are sold through sales centers operated by Farmers Hybrid Companies, Inc., a wholly owned subsidiary of Monsanto.

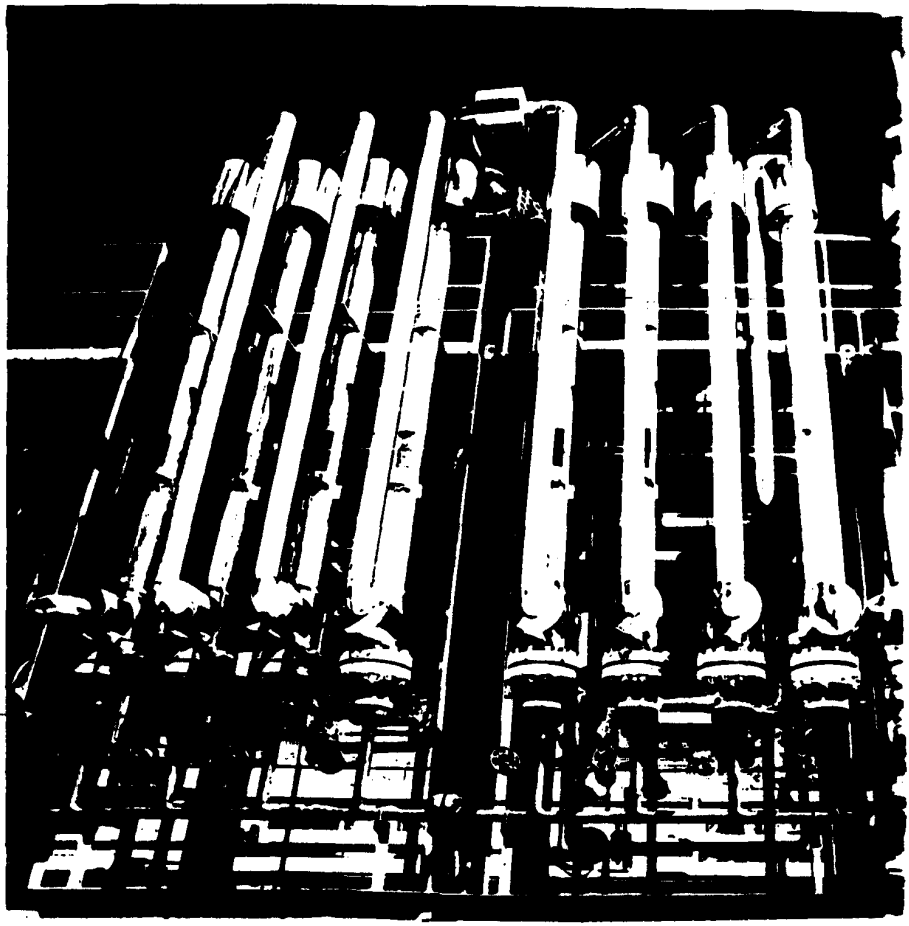


Greenhouse owners worry about heating costs too. Monsanto 602 polyethylene film, placed over glass greenhouses, has been shown to cut fuel consumption by almost 60 percent.



Left: Demand is brisk for Monsanto's high-purity silicon, used as substrate for integrated circuits, as electronic devices find their way into such everyday items as toys, appliances and automobiles.

Right: A laser scanner measures the flatness of a 125-millimeter silicon slice, a new size that will be made at Monsanto's Spartanburg, S.C., plant.



Prism separators recover hydrogen from the ammonia manufacturing process at Monsanto's Luling, La., plant. This new proprietary technology, which Monsanto introduced last year, generally requires no more energy to operate than the pressure of the gases flowing through it.

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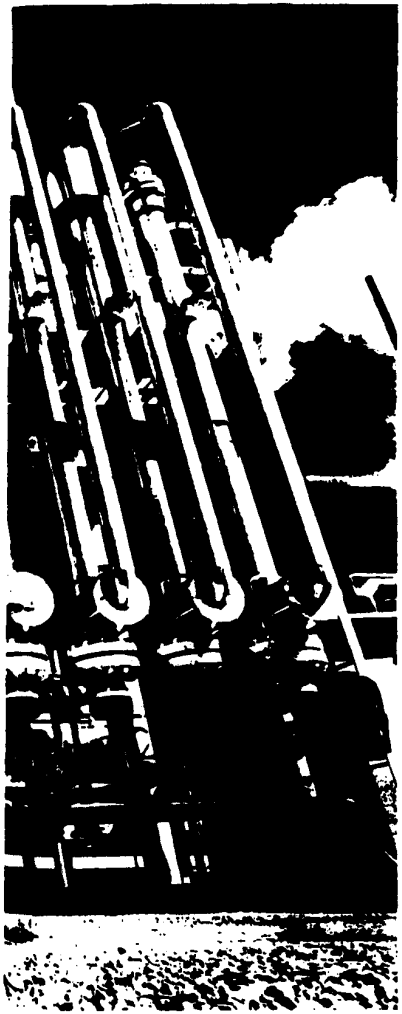




Long strands of tiny hollow fibers used in *Prism* separators terminate in an end-plug like this, which allows the recovered hydrogen to exit separately. The fibers are made of membranes that are selectively permeable to hydrogen gas.

and proprietary technological advantages. Monsanto Industrial Chemicals Company will begin operations later this year at the world's largest and most advanced plant for making polished silicon wafers at Spartanburg, S.C. The facility will double the company's total capacity, on top of recently completed expansions at St. Peters, Mo., and Kuala Lumpur, Malaysia.

Other aggressive growth areas for Monsanto Industrial Chemicals Company include general purpose plasticizers and nutrition chemicals. In 1979, the company formed a new division to spur development of nutrition-related businesses and announced plans to build the world's largest synthetic methionine plant at Chocolate Bayou, Tex. This chemical is marketed as *MHA*, an amino acid supplement for animal feed. Last September, a new liquid version was introduced, offering more convenient handling in modern feed mills.

In plasticizers, the company's world leadership—already reinforced in 1979 with the start-up of a new Brazilian facility—got a further boost with the announcement of a new general purpose plasticizer that can be priced competitively while providing performance advantages of certain premium-priced products. Plans are to build world-scale plants in the U.S. and Canada to make this new plasticizer.

Monsanto Textiles Company has capital projects underway in nylon carpet staple and *Bidim* engineering fabric. Annual capacity for the carpet staple will be boosted by 90 million pounds with the completion late this year of an expansion project at Pensacola, Fla. *Bidim* will be produced in the United States when a facility at Fayetteville, N.C., begins operations this year.

Businesses operated by Monsanto Plastics & Resins Company are deriving new growth stimulus from product-line additions. For example, new grades of *Lustran* ABS and SAN molding resins and *Vydyne* nylon engineering plastics were introduced in 1979, broadening the applications and potential markets for these lines. One of the new *Vydyne* plastics is reinforced with a combination of mineral plus glass fibers to meet rigid specifications as a metal substitute in automotive and industrial uses.

Saflex interlayer continues to show growth in architectural uses in the United States and automotive applications abroad. An expansion project completed in 1979


MONS 003549

approximately doubled capacity at the Ghent, Belgium, plant. Two more expansion projects are underway in the U.S. and will come on-stream in 1980.

Monsanto Chemical Intermediates Company's emphasis on achieving proprietary process and cost advantages has created additional growth potential for maleic anhydride. The company's worldwide capacity for this product will be boosted 60 percent by a new plant to be built at Pensacola, Fla., based on low-cost butane technology.

Complementing aggressive strategies for these and other individual businesses, Monsanto also has mapped out plans for geographic expansion of existing product lines. The markets for many Monsanto products are larger and faster growing in other world areas than in the United States. Worldwide opportunities are being pursued through aggressive exporting as well as manufacturing investments in other nations. In particular, international growth strategies for the 1980's include greater emphasis on fast-developing nations where the Company can make responsible contributions.

In Brazil, for instance, Monsanto's total investment passed the $100 million mark in 1979 with the dedication of a laboratory for testing rubber products, and plants to formulate major herbicides and make plasticizers. Additionally, the Company has strengthened its business organization responsible for broadening relationships with the People's Republic of China.

Greater emphasis on international growth could mean somewhat greater risks than would be encountered in more familiar markets, but Monsanto also expects greater rewards. To minimize the potential risks and maximize rewards, Monsanto's global expansion efforts in the 1980's will focus on businesses and technologies where management has proven experience. These efforts will be supported by world-scale plants and strong raw material positions. Business judgments will be enhanced by the same sophisticated analytical tools that provide the basis for all strategic planning at Monsanto. And management will continue using a variety of proven approaches to expansion such as joint ventures with local companies.

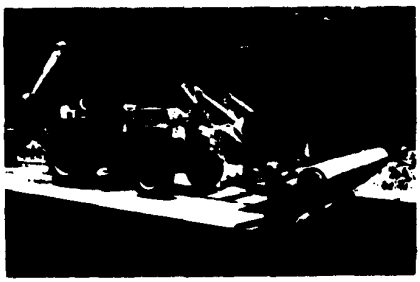
These global activities demonstrate management's intent to take full advantage of the growth opportunities of existing product lines—where the Company expects to



Telephones and other small household appliances represent a major new marketing area for *Lustran* ABS/SAN molding resins.



The grass-like surface on *Spray Guard* rain flaps reduces spray from truck tires more than 90 percent by trapping the water and letting it drain safely to the pavement.



Left: This new smaller size of *Roundup* herbicide encourages first-time users to try it. Growing world demand for *Roundup* is making this herbicide a sales and profit leader for Monsanto.

Right: *Bidim*, a nonwoven engineering fabric made of continuous filament polyester, helps stabilize roadbeds and disperse excess moisture.



Monsanto's Seal Sands, England facility became fully operational in 1979. Monsanto is the world's largest producer of acrylonitrile.

achieve the vast majority of its growth in the 1980's.

Longer term, Monsanto will also need new growth opportunities. Thus, the search is underway for business opportunities outside the chartered areas of current operating companies—opportunities that relate to Monsanto's technological strengths, provide excellent growth prospects, and offer a chance for Monsanto leadership.

Such efforts led in late 1979 to a merger agreement with Radiation Dynamics, Inc., the world's leading producer of electron-beam processing equipment, with 1978 sales of approximately $8.5 million. This technology is presently used for vulcanization, curing and sterilization of industrial materials. Monsanto expects it to be used in a widening series of applications related to the Company's own expertise in processing industrial materials such as plastics.

Finally, as a science-based company, Monsanto expects its own research labs to be a major source of new businesses for the 1980's and beyond. More on the directions of these efforts can be found in the "Research and Innovation" section of this report.

3

Energy and Feedstocks

There's little disagreement among investors, managers or economists regarding the most critical uncertainty facing industry in the 1980's. It's the supply and cost of petroleum and, secondarily, natural gas.

The issue has a special impact on the chemical industry, whose dependence on oil and gas for raw material feedstocks far outweighs its fuel uses of these hydrocarbons. The U.S. petrochemical industry uses as feedstocks only about 4½ percent of the oil and gas consumed in this country, although petrochemicals and resulting products account for nearly 23 percent of all business sales and about 19 percent of all nongovernment employment.

Monsanto, recognizing that interruption of chemical industry feedstocks would be a serious blow to the U.S. economy, strongly supports national energy conserva-

MONS 003551



This panel controls the acetic acid process at Monsanto's Texas City, Tex., plant. Technology such as this supports the Chemical Intermediates Co. in its outside marketing effort. The acetic acid process itself has been licensed for plants in six countries, the latest being Yugoslavia in 1979.

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tion goals. Monsanto's own stringent energy conservation program has been so successful that the Company actually used three trillion *fewer* BTU's last year than in 1972—even though output has grown substantially during that period. The Company needed about 22 percent less energy per pound of product in 1979 than it did in 1972, thus saving $141 million on last year's energy bill compared to 1972 levels of energy efficiency.

Engineering for energy efficiency goes hand in hand with process selection for feedstock reliability. For example, Monsanto is striving to lessen its dependence on petroleum-based aromatic compounds, which have increased in price dramatically in recent years. Thus, the Chemical Intermediates Company has been converting its hexamethylenediamine (a nylon intermediate) production to propylene feedstock instead of cyclohexane. Similarly, the company is planning to switch its entire U.S. production of maleic anhydride to butane feedstock instead of benzene.

Meanwhile, ensuring the reliability of more traditional feedstock supplies also has high priority. A joint project between Monsanto and Conoco Inc. will boost ethylene and coproducts annual capacity at Chocolate Bayou, Tex., to eight billion pounds by late this year. The joint project also includes a new unit being constructed at Conoco's Lake Charles, La., refinery. By matching up Conoco's strength in crude oil supplies with Monsanto's strength in petrochemical processing, the Company gains an important measure of feedstock security.

Pushing even further upstream, Monsanto continued aggressive exploration for new oil and gas reserves in 1979. For the fourth consecutive year, the Company increased its reserves of these hydrocarbons by discovering more than it produced. These efforts resulted in significant new finds in the Gulf of Mexico, Texas, Wyoming, and Alberta, Canada; an additional license for off-shore drilling in the United Kingdom; and an interest in a Guatemalan drilling venture.

While these efforts are relatively modest compared to those of major oil companies, Monsanto's 1979 production supported about one-third of our liquid feedstock requirements. Thus, the program is an important element of Monsanto's strategy for obtaining adequate supplies of feedstocks and fuel.



Plant technicians use an energy control system simulator to run conservation tests. Monsanto's employing energy conservation measures as simple as turning down thermostats and as complex as recapturing heat from chemical processes.



The Chocolate Bayou ethylene plant, part of a joint project involving Monsanto and Conoco, nears completion.

Left: A Monsanto-operated rig drills for natural gas in Fremont County, Wyoming.



Left: *Therminol* fluid is used for heat transfer in this solar collection system. Growing concern for energy conservation is expanding markets for Monsanto products, including engineering plastics to reduce auto weight, herbicides in low-tillage farming, and sheathing board to insulate manufactured housing.



Left: A Monsanto researcher conducts a portion of the joint biomedical project with Harvard Medical School. This program is advancing knowledge of the molecular basis of organ and tissue development.

4

Research and Innovation

The 1980's will witness the early stages of what might well become the chemical industry's most significant technical revolution since the development of hydrocarbon technology. During the decade, chemical companies—Monsanto included—will pioneer new processes and products with technologies patterned after the chemistry of living cells.

Biochemistry is a natural extension of Monsanto's expertise in many areas, including agricultural products and pharmaceuticals. Biochemical research will complement ongoing scientific investigations relating to more traditional Monsanto strengths. These more traditional investigations will push on toward new herbicides and plant growth regulators, synthetic fibers that are softer and easier to clean, engineering plastics and laminates to replace heavier metal parts in automobiles, detergent builders, nutrition and preservative chemicals, and scores of other new product and process ideas.

However, these already successful Monsanto business areas will be joined by new ones based on the life sciences. Cell chemistry may suggest new industrial processes more in tune with an age of tight energy and heightened environmental concerns. For example, while today's chemical industry technology typically employs high temperatures and pressures, living cells can synthesize incredibly complex molecules at ordinary temperatures and pressures. By learning to mimic these biological processes, Monsanto hopes to reap the benefits of their great efficiency and synthetic powers.

Monsanto has had some involvement in biochemical research in recent years, particularly with investigations into plant cell biology, drugs to stimulate the body's own natural defenses against disease, and a joint biomedical research program with Harvard Medical School.

Now the Company is formalizing and expanding its presence in the field of biochemistry by establishing a Molecular Biology Center as part of its corporate research facilities. The center will conduct long-term



Dr. Howard A. Schneiderman, one of the nation's most respected academic scientists in the fields of biology and genetics, joined Monsanto last October as Senior Vice President for R&D.





Left, above, and opposite page: Cell biology research may help uncover the mechanisms that control plant growth and productivity. By joining the sciences of chemistry and biology, Monsanto may be able to create new kinds of plant growth regulators and herbicides, and ultimately new kinds of plants with improved properties.

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Ultra-clean research environments protect cell cultures from contamination that could ruin months of painstaking and costly experimental work. In addition, Monsanto meets or exceeds all government safety standards for biochemical research

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basic research on cell chemistry, including recombinant DNA techniques, and will seek applications for this science in solving industrial and societal problems.

As the program moves forward, Monsanto will consult with the National Institutes of Health to assure compliance with guidelines for safe recombinant DNA research. Furthermore, a distinguished panel of world leaders in molecular biology is being formed to serve as public interest advisors. The Company will make sure that its biochemical programs, with their tremendous potential for meeting human needs, also meet the high standards of social responsibility by which all Monsanto activities are judged.

5

Environmental and Worker Health

Monsanto's scientific and management capabilities for dealing with safety and health issues matured in many ways during 1979.

The Company established an international advisory committee that includes some of the world's preeminent academic scientists in such disciplines as epidemiology, pathology and biochemistry. The committee provides highly qualified and objective outside guidance on matters relating to health and the environment.

To enhance response to U.S. environmental and safety regulation, management appointed a senior-level coordinator for each of five major laws: the Occupational Safety and Health Act, the Clean Water Act, the Clean Air Act, the Toxic Substances Control Act, and the Resource Conservation and Recovery Act. The Company also created a top-level European Environmental Council. By strengthening this corporate function around the world, Monsanto will be able to identify emerging environmental issues and deal with problems before they become crises.

Development proceeded on a computerized Medical and Environmental Health Information system, known as MEHI, which is now about 30 percent operational. When completed, MEHI will provide a highly sophisti-



Monsanto's Environmental Health Laboratory saw its first full year of operation in 1979. The Company also established an independent quality assurance unit to validate internal and external toxicology testing.

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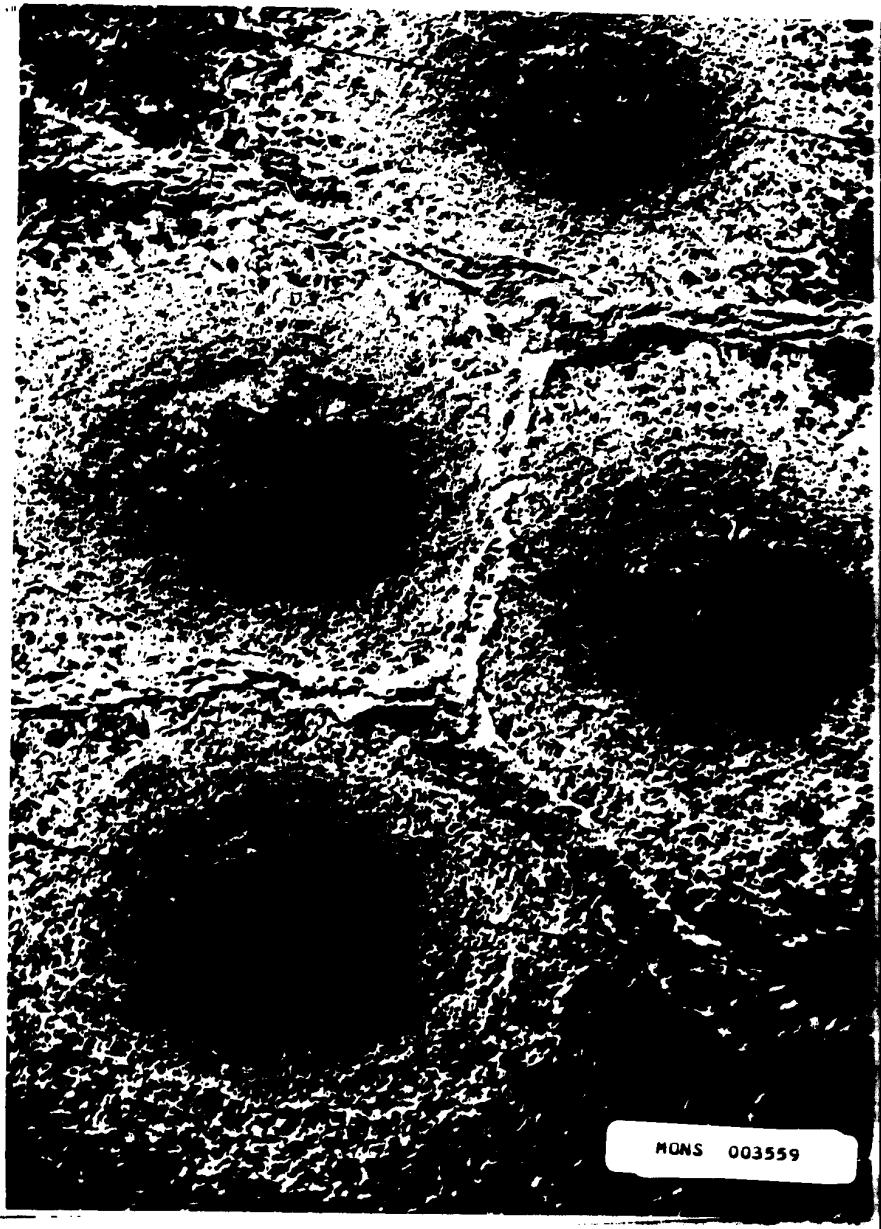
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...ht: Effluent control technology used by Monsanto includes aeration ponds to enhance the biological action of special microorganisms that break down unwanted waste products.

...ight: In The Fens region of England, *Roundup* herbicide is tested for residual effects in aquatic weed control. Canals and irrigation ditches could become important market for this herbicide.



Below: This mobile aquatic lab built last year can be trailered to plant locations for effluent testing. It was designed at Monsanto Research Corporation, whose state-of-the-art environmental technology is often adopted by other companies and government agencies.



...ated tool for handling data on toxicity, regulatory requirements, employee health and exposure.

Regarding on-job injury rates, Monsanto extended the strong and steady improvement trend of recent years. The 1979 rate of injuries requiring medical treatment was one-third of the 1976 rate, thanks to a determined continuing effort to make all Company workplaces as safe as possible.

Other advances in 1979 included successful retrofitting of a number of plants to meet regulatory requirements, a new employee hearing protection program, and a major increase in analytical capabilities to detect ultra-trace amounts of potentially hazardous chemicals. Furthermore, Monsanto now has two laboratories accredited by the American Industrial Hygiene Association. This accreditation, which only 110 laboratories in the U.S. have earned, means that these facilities meet the strictest scientific standards.

Operating and management expenses for environmental and health protection reached $173 million in 1979, and capital expenditures were almost $55 million. Nearly 700 employees in the U.S. alone worked full time to deal with air, water, solid waste, product and workplace safety issues.

The Company estimates that about $90 million of its total 1979 government-mandated expenditures in these areas were questionable or downright unnecessary when judged by sound scientific and management principles. While Monsanto does not object to any expenditures that provide real protection, unnecessary spending caused by unreasonable regulations shortchanges employees, customers, shareowners and the society as a whole. Nevertheless, Monsanto intends to make good faith efforts to comply with all applicable government standards for environmental and worker protection.

Finally, it should be noted that about 50 percent of Monsanto's toxicological testing today is not even required by regulation, but by management's own sense of responsibility for product safety and for advancing toxicological science generally. This practice is evidence that, where governmental safety standards are less stringent than what the Company considers necessary to protect health and the environment, Monsanto will adhere to its own more exacting standards.



Monsanto's own toxicology staff kept several major products on the market by revalidating tests done by a contract lab whose data was questioned by government inspectors.


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6

Corporate Citizenship

Monsanto could not consider itself ready for the 1980's without asking whether its reputation as a good citizen will be as solid in 1989 as it was in 1979. This self-examination is particularly critical in view of evolving concepts that carry corporate citizenship far beyond its traditional boundaries.

Certainly, Monsanto believes it performed well the traditionally accepted roles in 1979.

Corporate philanthropy for a broad range of community, educational, cultural, health and welfare programs throughout the United States and the world reached $7.4 million in 1979. This included $6.2 million from the Monsanto Fund and the remainder from corporate accounts. As recently as 1975, Monsanto's yearly charitable contributions in the U.S. amounted to one-half percent of pretax corporate earnings. The figure is now about 1.5 percent, and the Company's long-range objective is to move toward 2 percent.

Because of strong employee response to a three-year-old matching gift program for educational institutions—$199,000 in employee contributions were matched last year—the program was expanded early in 1980 to include hospitals, arts and cultural organizations. Employees also donated more than $2.1 million while the Fund donated another $1.4 million to 110 United Ways in communities where Monsanto people live and work.

Equal opportunity programs completed a decade of progress in 1979 with minorities and women making up 8.4 percent of management employees and 17.6 percent of professional employees. These statistics indicate increases of more than 300 percent for minorities and females in both categories since 1970. While Monsanto must continue emphasizing affirmative hiring efforts in the 1980's, the Company has made real progress in moving women and minorities into nontraditional and management jobs.

Purchases from minority-owned firms topped $23 million in 1979. The total number of such firms identified as qualified suppliers to Monsanto plants and offices throughout the U.S. has grown to more than 325. Monsanto's deposits in minority-owned banks exceeded $36 million in 1979.

Monsanto's participation in important national debates included expert testimony in legislative and regulatory hearings and expanded involvement with state government units. Shareowners were offered an opportunity to join a grassroots political action network which encourages individual communications with elected officials. The Monsanto Citizenship Fund, a strictly voluntary political action committee for employees, saw its ranks swell as the coming elections stirred interest.

Chemical risks and benefits—and the need for balanced thinking on these issues—continued as the primary message of a broad communications effort entitled "The Chemical Facts of Life." Monsanto's leadership has encouraged other chemical companies to take up similar themes, and an industrywide communications program is now underway. These initiatives should magnify the positive results Monsanto has already achieved.

Each of these traditional areas of activity will remain important to Monsanto and subject to timely innovation during the 1980's. However, management also wants to make sure its own eyes and minds are open to new expectations and opportunities in the realm of responsible corporate citizenship.

During 1979, Monsanto refined an issues management system designed to aid this effort. The system provides mechanisms for gathering information and ideas about emerging social issues, analyzing their impact on the corporation, setting priorities and initiating appropriate responses. Thus, Monsanto hopes to deal more effectively with emerging issues involving such matters as how management skills might be lent to improve the operations of community agencies; how to modernize the means of corporate governance; and how to provide an internal climate where each employee can fully develop his or her own human potential.

A system does not guarantee sensitivity, of course, and sensitivity does not guarantee responsiveness. But when all three are brought together by the people of Monsanto, the Company is assured of remaining a leader in responsible corporate citizenship.



Left: Contributions to minority colleges and universities return long-range benefits to Monsanto by increasing the supply of qualified job candidates. Monsanto educational grants totaled $2.7 million in 1979.

Right: Monte C. Throdahl (left in photo), Senior Vice President, meets with Senate aides before testifying on legislation affecting the chemical industry.



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Responsibilities for Integrity of Financial Data

Monsanto Company management is responsible for the integrity of all financial data, whether audited or unaudited, included in this Annual Report. The consolidated financial statements have been prepared in accordance with generally accepted accounting principles consistently applied in all material respects and reflect estimates by management where necessary. Where acceptable alternative accounting principles exist, as described in the Summary of Significant Accounting Policies on page 56, management has used its best judgment in selecting those principles that, in the circumstances, reflect fairly the consolidated financial position, results of operations and changes in financial position of Monsanto. All financial information in this Annual Report is consistent with that in the consolidated financial statements.

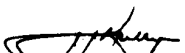
In order to gather financial data and safeguard assets, Monsanto establishes accounting and reporting systems supported by internal accounting controls. Internal accounting controls are maintained by: (1) the selection and training of personnel; (2) a division of responsibility in all organizational arrangements; (3) the establishment and communication of accounting and business policies; and, (4) a program of internal audits with follow-up, when necessary, by management. In establishing internal accounting controls, the cost of such controls is weighed against the benefits to be derived. Management believes that Monsanto's internal accounting controls provide reasonable assurance that assets are safeguarded against material loss from unauthorized use or disposition and that the financial records are reliable for preparing financial statements and other data and maintaining accountability for assets.

As ratified by shareowner vote at the 1979 Annual Meeting, Deloitte Haskins & Sells, an international firm of independent auditors, examined the consolidated financial statements contained in this Annual Report. Their examination was made in accordance with generally accepted auditing standards, which provide for a review of internal accounting controls and tests of a limited number of transactions. The principal result of this examination is the expression of an opinion, which appears on page 69, as to the fairness of the presentation of the consolidated financial statements in accordance with generally accepted accounting principles consistently applied.

The Audit Committee of the Board of Directors is responsible for reviewing Monsanto's financial reports and monitoring the Company's accounting practices. The membership of the Committee consists of three non-employee directors. At periodic meetings, the Committee discusses audit and financial reporting matters with representatives of financial management, the internal audit function and Deloitte Haskins & Sells. The independent auditors and the director of the internal audit function have full and free access to meet with the Audit Committee — with or without the presence of management representatives — to discuss the results of their examinations, the adequacy of internal accounting controls and the quality of financial reporting.



John W. Hanley
Chairman and
Chief Executive Officer



James J. Kerley
Chairman of the Finance
Committee
(Chief Financial Officer)

February 21, 1980

"We believe that Monsanto is positioned to recognize and seize the opportunities of the 1980's... particularly regarding such important human needs as enhanced food production, health and safety, energy conservation and economic growth."—from "To Our Shareowners," page 6

Financial Review

(Dollars in millions, except per share)

Economics of Major Markets

Because Monsanto is a producer of materials that are supplied to a wide variety of industries, the demand for its products is influenced by growth trends in a number of major end-use markets. The accompanying charts depict the growth trends in several of these end-use markets for the United States as well as the overall industrial growth trends in several of the major world areas outside of the United States that are of particular importance to Monsanto.

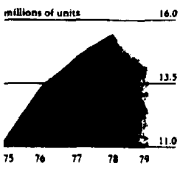
For the most part, major U.S. consumer markets of importance to Monsanto exhibited slower growth in 1979 than in the prior year. In some cases there were significant absolute declines in volumes. Overall, consumer demand experienced the lowest rate of growth since the recession of 1974-75.

For 1979, motor vehicle sales—automobiles and trucks—declined by 1.3 million units, or 8.4 percent from a peak of 15.4 million units for 1978. With consumer purchasing power being squeezed by inflation and the cost of owning and operating an automobile escalating rapidly, this sector was especially hard hit. The situation was made worse for U.S. automobile producers by the fact that fuel-efficient small cars, offered by Ex-U.S.A. manufacturers, captured an increased share of the U.S. market. The emphasis on lighter automobiles has and will continue to create new opportunities for lightweight materials—such as plastics—to assist automobile designers in their quest for improved gasoline mileage.

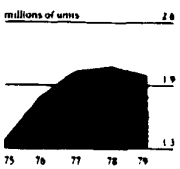
Another key end-use market, the construction of new housing units—both conventional and manufactured housing units—also experienced a fall-off in 1979. This decline amounted to over 12 percent and can be attributed to a tightening in the availability of mortage funds and a reduced consumer ability to buy and finance new homes. The underlying demographic demand for housing, however, remains strong. Furthermore, a personal preference for investment in home ownership as an inflation hedge and regulatory changes have made this sector less vulnerable to economic cycles than in the past.

Excluding the declines in the automotive and housing sectors, real consumer spending for all goods—after allowing for inflation—exhibited marginal growth from 1978 levels. Showing particular strength during the year were such important end-use products to Monsanto as appliances, furniture, apparel, carpeting and other household furnishings. Seeking to minimize the future effects of inflation, consumers purchased

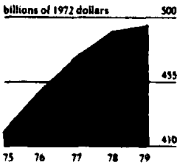
New Motor Vehicle Sales



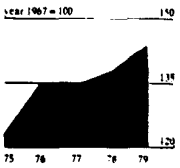
Total New Housing Units



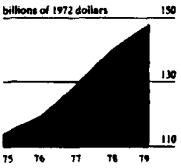
Consumer Spending on Goods



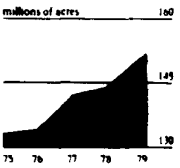
Textile Mill Production



Nonresidential Investment



Corn and Soybean Acres



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products, such as these, with long service lives.

Other important end-use markets, such as pharmaceuticals, soaps and detergents and prepared and packaged foods also exhibited modest growth.

Textile mill production exhibited a strong growth in volume of 4.6 percent for 1979, benefiting from the strength in apparel, carpeting and other home furnishings markets. The demand for man-made fibers was more robust, however, because of particularly strong export markets for fibers and a reduction in imports.

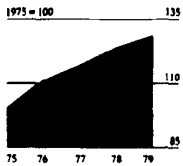
Nonresidential investment (e.g., business construction and equipment) showed a solid gain in 1979, increasing by 5.8 percent—in real terms—over 1978. This sector of the economy is expected to be particularly strong during the 1980's providing increasing demand for various Monsanto products.

The agricultural sector is relatively independent of general economic fluctuations. Of the major crops in the United States, corn and soybeans historically have been the most important to Monsanto's herbicide products. Combined acres planted for these two crops have advanced steadily in recent years, averaging nearly a 3.5 percent annual growth rate since 1975. During 1979, corn acreage maintained the high level of 1978, while acres planted in soybeans reached a record.

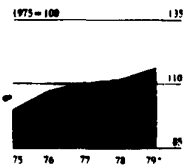
All major countries of the world with markets of particular importance to Monsanto exhibited stronger economic growth and industrial performance in 1979 than did the United States. This is in sharp contrast to the 1975-1978 period when the U.S., recovering vigorously from the 1974-1975 recession, led the major industrialized nations in economic growth. As U.S. economic growth slowed sharply in 1979, Western Europe's economies exhibited some renewed strength after several years of sluggish economic performance. The growth of industrial output in Canada and Japan is also estimated to have surpassed that of the U.S. last year. Industrial activity accelerated in Brazil and Mexico continued to benefit from its increased oil wealth.

Overall, in spite of a slowing economy in the U.S., 1979 was the best growth year for much of the rest of the world since the 1974-1975 recession.

U.S. Industrial Production



Western Europe Industrial Production



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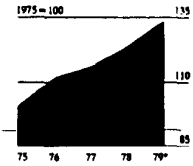
Japan Industrial Production



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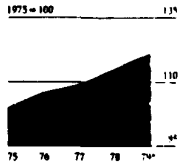
Canada Industrial Production



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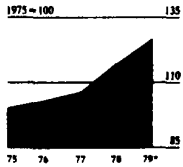
Mexico Industrial Production



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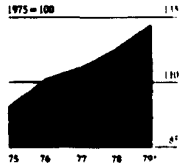
Brazil Industrial Production



*Estimated

Consolidated Operating Results for 1979-1978

For 1979, Monsanto's consolidated sales were $6.193 billion—a 23 percent increase over 1978 sales of $5.019 billion. The revenue gain includes the first full-year results of two partially owned subsidiaries—Alsocndel, a Spanish plastics producer and Fisher Controls Corporation of Delaware. Adjusting for these factors, the year-to-year sales gain was closer to 19 percent and was almost evenly split between higher sales volume and increased selling prices.

Net income for the year—$331.0 million—was the second highest in the history of the Company and represented a nine percent year-to-year improvement. While improved sales volumes and higher year-to-year selling prices helped to offset some part

of higher raw material and conversion costs, two important contributors to the level of net income were a higher level of interest income and a substantially lower effective tax rate for 1979.

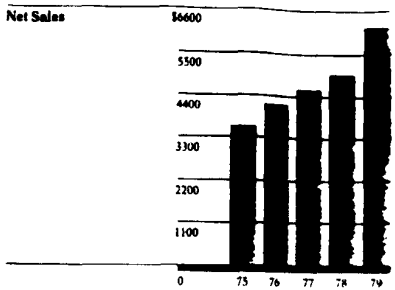
	Quarter				
	First	Second	Third	Fourth	Year
Net Sales					
1979	$1,623.8	$1,526.8	$1,496.7	$1,545.3	$6,192.6
1978	$1,342.7	$1,185.0	$1,187.0	$1,304.0	$5,018.7
% Change	20.9%	28.8%	26.1%	18.5%	23.4%
Net Income					
1979	$ 161.8	$ 59.5	$ 98.9	$ 10.8	$ 331.0
1978	$ 135.7	$ 76.1	$ 46.8	$ 44.0	$ 302.6
% Change	19.2%	(21.8)%	111.3%	(75.5)%	9.4%
Earnings per Share					
Primary					
1979	$ 4.44	$ 1.64	$ 2.73	$ 0.30	$ 9.11
1978	$ 3.71	$ 2.09	$ 1.28	$ 1.21	$ 8.29
% Change	19.7%	(21.5)%	113.3%	(75.2)%	9.9%
Fully Diluted					
1979	$ 4.40	$ 1.63	$ 2.70	$ 0.30	$ 9.03
1978	$ 3.67	$ 2.07	$ 1.27	$ 1.20	$ 8.21
% Change	19.9%	(21.3)%	112.6%	(75.0)%	10.0%

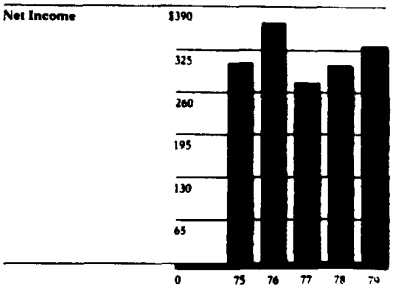
Primary earnings per common share for 1979 were $9.11 while fully diluted earnings per common share were $9.03.

For the year, Monsanto's net income and earnings per share were affected severely by the absorption of costs associated with the closing of some of its unprofitable businesses and the restructuring of others. The closure of Monsanto's European nylon operations and the impact of a planned retrenchment in Spain by Aiscondel that has been submitted to governmental authorities for approval resulted in charges to 1979 net income of $53.2 million—equal to $1.47 per primary share.

The quarterly pattern of sales in 1979 was somewhat different from the pattern exhibited in recent prior years. The sales of the Company's principal crop protection chemicals are seasonal in nature and, as a result, they are concentrated in the early months of the year. Because of this, Monsanto's first-quarter sales are the highest of any of its quarterly reporting periods. For 1979, sales for the second and third quarters declined—as is the Company's normal pattern—but sales for these periods of 1979 were stronger than normal because our customers stepped up purchases in anticipation of sales price increases resulting from the rapidly rising costs of raw materials—primarily petrochemicals and their related products. Fourth-quarter sales, while higher than the prior two quarters, reflected some softening of demand as customers—primarily, in automotive production related businesses—reduced purchases to work down inventory levels toward the end of the year.

The strong first quarter herbicide sales performance was supported further by physical volume gains from most business units. Sales volumes were up by 15 percent over the first quarter of 1978 with selling prices up a modest 6 percent





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over the same period of 1978. The first quarter witnessed strong export sales as well as an improvement in the performance of businesses operated outside of the United States. In spite of the improved level of profitability from most operations outside the United States, losses continued from nylon operations in Europe and from Aiscondel in Spain.

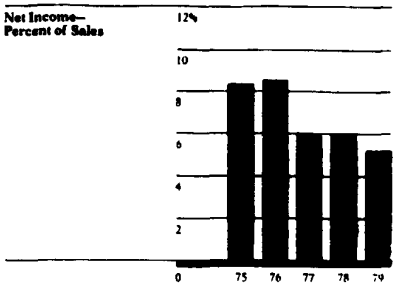
Second-quarter sales gained 29 percent over the same period in 1978. Volumes continued strong and were up by approximately 18 percent over the second quarter of the prior year and prices—pushed by escalating raw material costs—were up some 11 percent. Overall second-quarter results from operations were strong. The financial results were less satisfactory because of the impact of the decision to close the European nylon operations which resulted in a charge against second-quarter net income of $42.7 million or $1.18 per primary share.

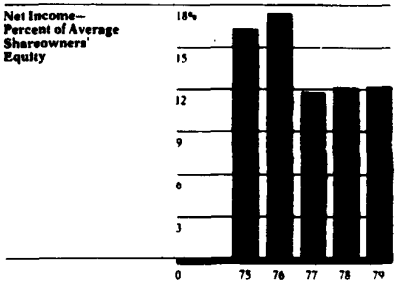
The third quarter produced a significant year-to-year sales gain of 26 percent. Volumes gained almost nine percent and selling prices—driven by rising raw material costs—increased approximately 17 percent. Sales of basic commodity chemicals, the continued growth for *Roundup* herbicide and strong demand for various specialty chemicals provided the impetus for the fine third quarter. Net income for this quarter was impacted favorably by the reversal of deferred income taxes of $16.8 million or $0.46 per primary share as a result of a change in U.K. tax laws.

For the fourth quarter, sales gains of almost 19 percent were achieved. Volumes were impacted by inventory corrections of many customers. This resulted in an unplanned build-up in inventory at Monsanto plants. Products for the automotive and residential construction businesses in the United States were particularly hard hit and high feedstock and raw material costs placed heavy pressure on profits. Other significant items that penalized profit in this period were the establishment of a reserve for the planned closing of a portion of the Aiscondel operation in Spain and the maxi-devaluation of the Brazilian cruzeiro. Fourth-quarter 1979 operating results also include the effects of year-end changes in accounting estimates—principally of the provision for LIFO and the adjustment to a final effective tax rate for the year. The higher LIFO provision decreased net income by $8.1 million whereas the lower effective tax rate increased net income by $12.3 million.

Analysis of Change in Primary Earnings per Share

The year-to-year gain in 1979 sales volume and the higher year-to-year selling prices were more than offset by higher raw material costs, higher nonmanufacturing expenses and higher costs in all other areas of the business. The impact of the closure of the European nylon business and the planned restructuring of Aiscondel are reflected in the higher other manufacturing costs. Higher other





income results from a higher level of interest income and improved profit results from most Ex-U.S.A. affiliated companies represented "pluses" to income.

A lower effective tax rate—1979 vs. 1978—had a major impact on net income. The lower rate was attributable primarily to a lower U.S. statutory rate, a higher level of DISC credits because of increased exports from the United States and a change in the United Kingdom tax laws that had the effect of reducing deferred income taxes.

The net effect of all of the above factors was an increase in primary earnings per share of $0.82 from $8.29 for 1978 to $9.11 for 1979.

In contrast to 1979, the year-to-year gain in 1978 sales volume and higher year-to-year selling prices were more than sufficient to offset higher raw material costs and higher other manufacturing and nonmanufacturing expenses. Included in other manufacturing costs was the favorable impact of the $0.20 per primary share gain on the sale of the high density polyethylene business in 1978 versus a $0.55 per primary share adverse impact in 1977 for the shutdown costs and write-down of investment regarding *Cycle-Safe* containers. Other manufacturing costs for 1977 also included a $0.39 per primary share charge due to terminating or divesting certain product lines. Interest expense increased in 1978 as a result of additional borrowings in the United States.

	Increase (Decrease) in Primary Earnings per Share	
	1979 vs. 1978	1978 vs. 1977
Operating Income:		
Selling prices	$ 9.18	$ 1.76
Sales volume and product mix	3.15	0.30
Raw material prices	(8.02)	(0.19)
Other manufacturing costs	(4.41)	(0.79)
Start-up costs	(0.10)	0.22
Nonmanufacturing expenses	(1.88)	(0.98)
Increase (decrease) in Operating Income	$(2.08)	$ 0.32
Other Causes:		
Interest expense	$(0.30)	$(0.24)
Other income credits—net	1.01	0.68
Effective tax rate	2.15	(0.02)
Shares outstanding	0.04	0.09
Increase from Other Causes	$ 2.90	$ 0.51
Net Increase	$ 0.82	$ 0.83

This, plus a higher effective tax rate—which reflected continued losses in certain manufacturing operations outside the United States that could not be tax effected—resulted in an unfavorable impact on earnings. The net effect of these factors was an increase in primary earnings per share of $0.83—from $7.46 per share for 1977 to $8.29 for 1978.

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Agricultural Products

	Sales	Operating Income	Total Assets
1979	$839.9	$328.8	$660.2
1978	734.4	303.8	629.0
1977	654.0	274.3	579.4
1976	573.2	242.0	463.4
1975	547.4	255.6	347.6

For 1979, Monsanto Agricultural Products Company continued to record solid sales gains with an increase of 14 percent over 1978. Operating income increased eight percent 1979 vs. 1978. These results were due primarily to the continued expansion of the sales of the herbicide products of this operating unit.

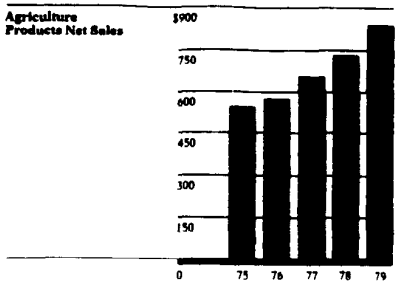
The year's major growth was exhibited by *Roundup* herbicide. *Roundup* is a post-emergent, non-selective herbicide that controls a broad spectrum of problem weeds. Since its introduction in 1974, *Roundup* has been widely accepted with continually expanding uses being developed. Markets for *Roundup* are international in scope with more than half the sales coming from outside of the United States.

Roundup herbicide exceeded the company's expectations with continued sharp sales growth during 1979. This rapid growth has been accelerated by a very intensive marketing effort designed to develop the product's worldwide market potential as quickly as possible. This intense marketing program should assure continued profit growth during the decade of the 1980's.

Lasso herbicide continued to be the largest-selling herbicide in the United States for the control of the many grassy weeds that cause cultivation and harvest problems in corn and soybean farming. As a result, *Lasso* remained the dollar sales leader for the Agricultural Products Company for 1979.

Avadex herbicide—a product used to control wild oats in small grain, wheat, and sugar beet fields—generated a record sales gain as did *Machete*—the company's rice herbicide.

Sales of other products—including insecticides, nitrogen-based fertilizers and blasting products and swine breeding-stock—continued to perform up to expectation.

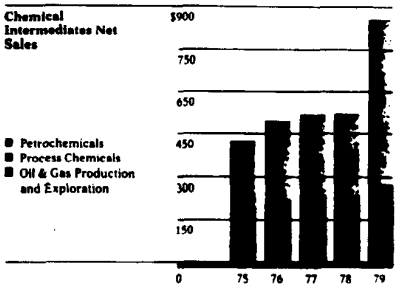


Chemical Intermediates

	Sales	Operating Income	Total Assets
1979	$858.6	$115.5	$1,123.4
1978	523.2	75.1	849.8
1977	522.0	128.0	735.9
1976	498.2	156.7	611.1
1975	426.2	105.9	450.4

Intercompany sales made on a market basis were $151.9, $116.3, $129.3, $117.2 and $100.2 for 1979 through 1975, respectively.

For 1979, Monsanto Chemical Intermediates Company recorded its best-ever sales year with sales increasing by 64 percent over 1978 levels. Operating



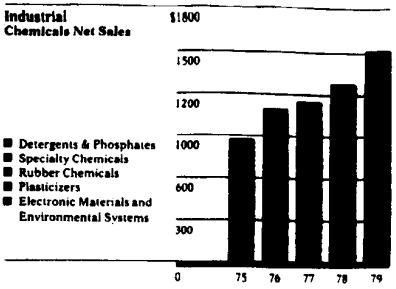
income—while not a record—increased by 54 percent on a year-to-year basis. The Chemical Intermediates Company is the primary supplier to other Monsanto operating units.

The demand for petrochemicals—the industry's basic chemical "building blocks"—led the sales gain with a year-to-year dollar sales increase of 102.9 percent. Shipments of acrylonitrile were strong and volumes were up significantly. A new plant at Teesside, England, became operational at mid-year. The petrochemical plants operated at high levels of capacity throughout the year. This—together with successful manufacturing cost reduction programs—helped to moderate rapidly rising raw material costs.

Sales of process chemicals increased 19.4 percent during 1979 and oil and gas sales grew by 10.1 percent.

Construction continued on an expansion aimed at assuring a reliable long-term supply of raw materials and feedstocks. This joint project—an effort in partnership with Conoco Inc.—with completion scheduled for the fourth quarter of 1980—will more than double the output at Monsanto's existing Chocolate Bayou plant near Alvin, Texas. The agreement with Conoco will also provide Monsanto with additional feedstock security when a new refining unit at Conoco's Lake Charles plant is completed in 1981.

Gas and oil revenues from production and exploration were up on a year-to-year basis due to price increases. Volumes were lower due to lower year-to-year demand for intrastate natural gas.



Industrial Chemicals

	Sales	Operating Income	Total Assets
1979	$1,513.8	$202.1	$984.1
1978	1,290.1	218.7	849.6
1977	1,156.4	211.9	750.3
1976	1,108.6	220.1	651.9
1975	948.6	186.9	572.7

Intercompany sales made on a market basis were $44.1, $26.6, $24.0, $22.9 and $19.6 for 1979 through 1975, respectively.

Continuing its trend of the last eight years, Monsanto Industrial Chemicals Company set another new sales record, recording strong increases across its broad product spectrum. For 1979, sales increased 17 percent over 1978. Operating income, however, was down 8 percent from the level of the prior year. Higher manufacturing and hydrocarbon-based raw material costs—offset only partially by increases in selling prices—were the principal factors responsible for the decline in year-to-year operating income.

Sales of detergent and phosphate products increased 15 percent over 1978, as sales of sodium tripolyphosphate, linear alkylbenzene and sodium nitrilotriacetate moving to detergent producers were strong throughout the year. The phosphate complex in Brazil achieved good sales volume growth over

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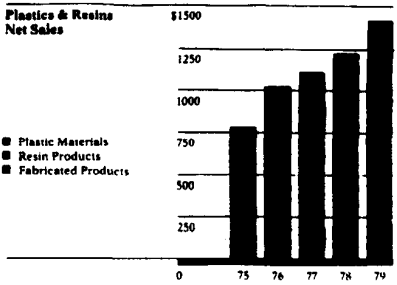
1978 but net income was affected adversely by the significant devaluation of the cruzeiro.

For electronics, significant volume growth was achieved for silicon polished wafer products as the demand from the semiconductor industry continued unabated. The divestiture of the III-V Materials and Devices business was completed successfully in early 1979.

Worldwide dollar sales of plasticizers for 1979 were up 22 percent over 1978 as sizable increases in selling prices were implemented in response to the sharp increases in raw material costs. Sales demand for *Santicizer* 160 and 711 plasticizers remained high. Strong exports and equally strong sales for Ex-U.S.A. plants plus increased market penetration in the U.S. offset the drop in U.S. auto production and housing demands.

Specialty and nutritional chemicals sales were up 10 percent as demand held for a broad range of products. Sales of rubber chemicals increased 14 percent over the previous year due primarily to higher exports and Ex-U.S.A. sales. Exports to the People's Republic of China and Eastern Europe showed strong gains.

Activity in the sulfuric acid plant construction and catalyst market accelerated in 1979. Monsanto Enviro-Chem Systems, Inc. received five new contracts for plant construction.



Plastics & Resins

	Sales	Operating Income	Total Assets
1979	$1,414.2	$ 9.6	$1,110.7
1978	1,223.6	57.6	1,088.2
1977	1,111.2	76.3	891.9
1976	1,018.7	100.8	752.9
1975	768.3	41.9	677.9

Worldwide sales for the Monsanto Plastics & Resins Company for 1979 were up 16 percent over the previous year but operating income declined significantly. A primary cause of the decline in income was the rapidly increasing raw material costs which were only partially offset by higher prices for products. In addition, provisions for the planned restructuring of Aiscondel and for a similar decision to close another small wholly owned plastics fabricating business adversely affected operating income. The financial results of these entities are consolidated with the Plastics & Resins Company.

Strong economic conditions in the first three quarters of the year increased demand for plastics and resins in construction, durable goods and the automotive sectors of the economy. By the end of the fourth quarter, recessionary factors caused inventory corrections by many customers resulting in a significant drop in shipments and only modest year-to-year volume gains for most products.

Lustran ABS and SAN plastics, Monsanto's largest selling plastic products, completed another record sales year. Accelerated technical programs resulted in

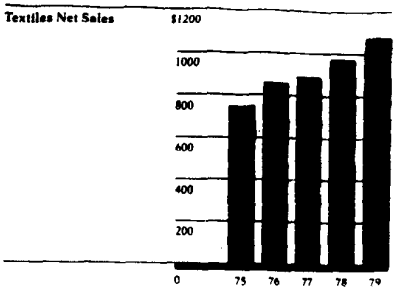
the introduction of several new molding grades of ABS with applications for small appliances, housewares and toys.

Lustrex polystyrene sales grew during 1979. Raw material shortages throughout the year kept *Lustrex* in relatively short supply. Selling prices kept pace with cost pressures.

Sales of Monsanto's *Fome-Cor* insulation board continued strong in 1979. A slowdown in the automotive headliner market was offset by greater consumer interest in the energy-saving potential of *Fome-Cor* in home improvement and manufactured housing uses.

Rapid customer acceptance of a new "high productivity" resin and strong market demand contributed to a record level of sales of *Vydyne* nylon resins.

Monsanto retained its leadership position as a supplier of polyvinyl butyral interlayer to the laminated safety glass market as 1979 sales of *Saflex* interlayer set a record. North American automotive demand slowed during the latter part of the year but European automotive demand remained steady.



Textiles

	Sales	Operating Income	Total Assets
1979	$1,069.4	$(168.7)	$1,022.7
1978	963.2	(29.2)	1,050.1
1977	884.3	(39.0)	1,011.2
1976	853.5	(1.2)	947.5
1975	747.2	(12.7)	812.2

Despite an 11 percent sales gain over 1978, Monsanto Textiles Company suffered a substantial loss for 1979. The loss included a non-recurring charge of $77.4 million to provide for the costs associated with the closure of the European nylon operations.

Over and above this factor, however, spiraling raw material and other costs more than offset higher sales volumes and selling prices and exerted continued pressure on profit margins during 1979.

Nylon carpet staple fiber demand remained firm throughout 1979 and market share was improved. Sales of Monsanto's soil-hiding, static-free *Ultron* carpet fiber grew threefold reflecting excellent consumer acceptance of this fiber. Carpets of *Ultron* nylon are now eligible for a full five-year consumer warranty under Monsanto's *Wear-Dated* program. Higher cost raw materials supplied to U.S. operations from Monsanto's own facilities in Europe severely penalized the 1979 reported performance of the nylon business.

U.S. sales of acrylic fiber—as well as exports from U.S. plants—remained strong. In Europe, however, selling prices remained depressed and acrylic fiber operations were in a loss position.

Polyester filament shipments by U.S. producers grew 7 percent during 1979 reflecting significant strength in exporting markets, while domestic consumption remained level. Raw material costs

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escalated rapidly during the year. Price increases did not fully recover cost increases because capacity utilization eased in the second half. Consequently, all producers recorded unsatisfactory performances. Monsanto's ambitious quality improvement targets were not fully realized and this further impacted results for 1979.

Major capital investment commitments were made in 1979 to position two fiber businesses for increased profitability. Nylon carpet spinning capacity will be raised and overall product cost reduced with an expansion, which incorporates the latest spinning technology, at the Pensacola, Florida, plant. Work is also underway to build *Bidim* manufacturing facilities at Fayetteville, North Carolina, so that this engineering fabric can be marketed aggressively. *Bidim* is a 100 percent polyester non-woven product designed for road construction and repair, railroad track beds, drainage systems and erosion control.

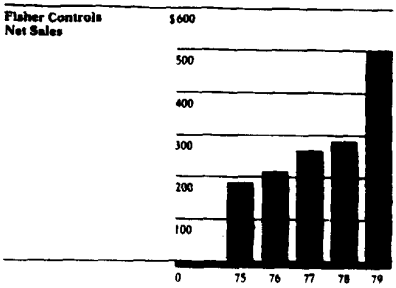
Fisher Controls

	Sales	Operating Income	Total Assets
1979	$496.7	$44.4	$353.3
1978	284.2	37.0	202.5
1977	263.5	37.9	181.7
1976	210.8	24.3	148.6
1975	186.3	20.6	137.4

Fisher Controls Corporation of Delaware recorded sales of $496.7 million and operating income of $44.4 million. This subsidiary was formed early in 1979 as a result of the combining of Fisher Controls Company, Inc.—a wholly owned subsidiary of Monsanto—and segments of The General Electric Company Limited of the United Kingdom. Sales and operating income for prior years do not reflect the former GEC segments of the new subsidiary formed in 1979 because this is treated as a purchase of assets by Monsanto.

The year 1979 saw Fisher positioning itself for the future as it took time to evaluate its facilities, product technology and organization. For the first full year of merged operations, sales reflected reasonable growth but operating income was impacted by a nationwide labor dispute in the United Kingdom and by a decision to close a manufacturing plant in that country.

Sales of the control valves product line in 1979 were strong in North America despite being a year of reduced contract business. The year was characterized by the highest level of orders for standard products in Fisher history. Output of rotary valves—used in viscous slurry applications, such as pulp production—more than doubled. The gas regulator business enjoyed a continued resurgence as residential and commercial structures switched to natural gas heating. Sales of control valves in Europe were affected adversely by the United Kingdom labor dispute. Process controls instrumentation sales in North America and in Europe fell short of



expectations due primarily to low order intake in the U.S. and to the strike in the U.K.

International Operations

	United States			
	Net Sales			
	Outside Customers	Inter-Area*	Operating Income	Total Assets
1979	$4,237.7	$451.0	$548.3	$3,840.3
1978	3,631.1	338.2	630.7	3,264.9
1977	3,409.5	317.9	614.1	3,030.4

	Europe-Africa			
	Net Sales			
	Outside Customers	Inter-Area*	Operating Income	Total Assets
1979	$1,316.6	$ 65.5	$ (52.6)	$1,198.3
1978	848.2	56.9	15.2	1,147.7
1977	706.0	43.4	8.5	910.8

	Canada-Latin America			
	Net Sales			
	Outside Customers	Inter-Area*	Operating Income	Total Assets
1979	$ 405.1	$ 4.6	$ 3.7	$ 300.5
1978	385.8	1.7	10.0	308.6
1977	352.6	0.1	11.9	270.9

	Asia-Pacific			
	Net Sales			
	Outside Customers	Inter-Area*	Operating Income	Total Assets
1979	$ 233.2	$ 26.2	$ 24.5	$ 181.0
1978	153.6	23.7	10.5	158.4
1977	126.4	15.1	7.0	114.9

	U.S. Export Sales to Outside Customers			
	Europe-Africa	Canada-Latin America	Asia-Pacific	Total
1979	$ 55.7	$172.4	$178.5	$ 406.4
1978	73.2	101.6	135.3	310.1
1977	49.6	134.9	63.9	248.4

*These sales are made "at market."

Sales	1979	1978	Percent Increase (Decrease)	Percent of 1979
United States	$4,237.7	$3,631.1	16.7 %	68.4 %
Europe-Africa	1,316.6	848.2	55.2	21.3
Canada-Latin America	405.1	385.8	5.0	6.5
Asia-Pacific	233.2	153.6	51.8	3.8
Total Consolidated	$6,192.6	$5,018.7	23.4	100.0
Operating Income				
United States	$ 548.3	$ 630.7	(13.1)%	112.6 %
Europe-Africa	(52.6)	15.2		(10.8)
Canada-Latin America	3.7	10.0	(63.0)	0.8
Asia-Pacific	24.5	10.5	133.3	5.0
Eliminations and Unallocated Corporate Expenses	(37.0)	(34.7)		(7.6)
Total Consolidated	$ 486.9	$ 631.7	(22.9)	100.0

Monsanto's operating companies have worldwide profit responsibility. This international section, however, provides another perspective of the

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Company's worldwide operations. Monsanto's markets outside of the United States grew at a rapid rate during 1979 and were served from manufacturing plants both inside and outside of the U.S. For the year, Ex-U.S.A. sales—including exports from U.S. plants—topped the $2 billion mark for the first time and represented 38 percent of the Company's consolidated net sales.

Exports of products manufactured at plant locations in the United States reached $406.4 million for 1979—an increase of 31 percent over 1978's results. Exports were aided by both the weakness of the U.S. dollar and the lower costs enjoyed by U.S. manufacturers—particularly for petroleum-based intermediate materials. Sales of products produced and sold outside of the United States also improved significantly and reached $1.5 billion—an increase of 42 percent.

For 1979, Monsanto's net loss from its Ex-U.S.A. operations decreased substantially despite the costs associated with closing the Company's European nylon operations and the provision for the planned restructuring of Aiscondel. The improvement was a result primarily of price and volume gains, but it also reflected turnarounds to profitability by several Ex-U.S.A. businesses and the beneficial effects of divesting certain unprofitable operations in 1978.

Sales by Product Group

	1979	1978	1977	1976	1975
Agricultural Products:					
Herbicides, Insecticides & Other Products	$ 839.9	$ 734.4	$ 654.0	$ 573.2	$ 547.4
Chemical Intermediates:					
Petrochemicals	585.1	288.4	286.6	284.0	230.5
Process Chemicals	192.1	160.9	154.6	147.2	137.2
Oil & Gas Production and Exploration	81.4	73.9	80.8	67.0	58.5
Industrial Chemicals:					
Detergents & Phosphates	399.9	348.5	311.4	288.5	279.5
Specialty and Nutritional Chemicals	353.8	324.1	293.7	254.9	206.3
Rubber Chemicals	292.5	255.6	228.8	199.0	172.4
Plasticizers	278.2	228.1	203.7	186.0	158.7
Electronic Materials and Chemical & Environmental Systems	189.4	133.8	118.8	180.2	131.7
Plastics & Resins:					
Plastic Materials	799.2	661.1	589.9	514.4	360.5
Resin Products	404.7	355.2	321.1	291.5	223.5
Fabricated Products	210.3	207.3	200.2	212.8	184.3
Textiles:					
Man-Made Fibers	1,069.4	963.2	884.3	853.5	747.2
Total Operating Companies	5,495.9	4,734.5	4,327.9	4,052.2	3,437.7
Fisher Controls:					
Valves, Regulators & Electronic Process Controls	496.7	284.2	263.5	210.8	186.3
Total Operating Companies and Fisher Controls	6,192.6	5,018.7	4,591.4	4,263.0	3,624.0
Cycle-Safe Containers			3.1	7.2	0.7
Total Consolidated	$6,192.6	$5,018.7	$4,594.5	$4,270.2	$3,624.7

Cycle-Safe, an operation terminated in 1977 (see "Legal Proceedings" in Notes to Financial Statements) had operating losses of $51.9; $43.4 and $35.8 for 1977-1975, respectively.

Major Operating Expenses

Monsanto's average purchase price for feedstocks for its petrochemical operations increased approximately 42 percent—1979 vs. 1978—and the total price of purchased raw materials—on a year-to-year basis—increased by 36 percent.

On the same basis, the costs of energy and utilities increased at an approximate 29 percent rate. Energy conservation programs that were initiated in 1973 continued to reduce our energy consumption rates which are down 22 percent since the inception of the program. If these programs had not been put into place, Monsanto's cost of energy would have been an estimated $141 million higher for 1979.

Wages, salaries and employee benefits were up 16 percent and related payroll taxes increased by 22 percent for 1979 as compared with 1978.

The higher level of expenditures for property, plant and equipment in recent years resulted in increased depreciation and repairs and maintenance. Depreciation increased by 11 percent for 1979. Repairs and maintenance were up 16 percent while property and other taxes were up 12 percent. Rental expenses increased approximately 13 percent—reflecting the higher level of business activity in the operating companies requiring additional leased facilities. Research and development expenditures were up 20 percent reflecting both inflation and the Company's continuing commitment to R&D programs.

	1979	1978
Purchased raw materials	$2,349.2	$1,538.4
Purchased energy	484.7	375.2
Depreciation	294.9	265.5
Repairs and maintenance	405.4	349.5
Research and development	173.5	144.3
Wages, salaries and employee benefits	1,328.2	1,318.1
Taxes:		
Income	150.1	273.7
Payroll	97.3	80.0
Property and other	73.4	65.3
Rents	62.2	54.9

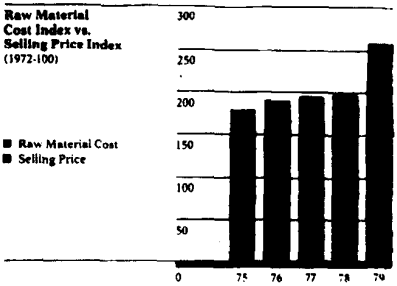
Income taxes for 1979 were down significantly from an effective tax rate of 47.5 percent for 1978 to 31.2 percent for 1979. There were several reasons for the significant decline, including a reduction in the statutory U.S. rate. In the United Kingdom, a recent change in the tax laws served to reduce the provision for income taxes by $24.5 million, which includes a $16.8 million reversal of previously deferred taxes. Also, substantially improved export volume led to a higher level of DISC credits.

Foreign Currency

For 1979, earnings were reduced by losses from foreign currency transactions and the translation of foreign currency financial statements by $32.1 million—equal to 88 cents per primary share. This compares with $32.5 million and 89 cents per primary share for 1978.

The Company reports its gains or losses resulting

Raw Material Cost Index vs. Selling Price Index (1972-100)



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from foreign currency transactions and translation of financial statements denominated in foreign currencies according to the Financial Accounting Standards Board's Statement No. 8. This statement requires that working capital (excluding inventories) and long-term debt be translated into U.S. dollars from foreign currencies at current exchange rates. Inventory and property, plant and equipment are translated using historical exchange rates. According to Statement No. 8, the effect of changes in exchange rates must be charged immediately to earnings.

As is evidenced by the fluctuations in the Company's reported gains and losses from quarter to quarter and as compared with last year (see "Quarterly Financial Data (Unaudited)" in Notes to Financial Statements), the U.S. dollar has not experienced a steady decline but it has suffered the vagaries of an uncertain marketplace.

An analysis of the losses that were incurred by the Company will aid somewhat in an understanding of this problem. The major portion of 1979's losses were generated by the devaluation of the Brazilian cruzeiro and the Argentine peso. Due to the twin impact of the high costs of borrowing in these countries plus the lack of any meaningful local long-term debt capital, Monsanto's operations in these countries are heavily financed with dollar-denominated loans. Accordingly, Monsanto has a net exposed asset position while, in most other countries in which it operates, it has a net exposed liability position. A net asset position, under conditions of a devaluation of the local currency, results in a loss. Devaluation is a "fact of life" in these two countries where extremely high inflation rates and regular devaluations are costs of doing business. According to Statement No. 8, these costs must be reported as a part of foreign currency gains or losses. The price increases that should recover these costs are not reported, however, as a part of foreign currency gains or losses. As a consequence, the reported foreign exchange losses are higher than the net economic effect of these devaluations on the Company's income.

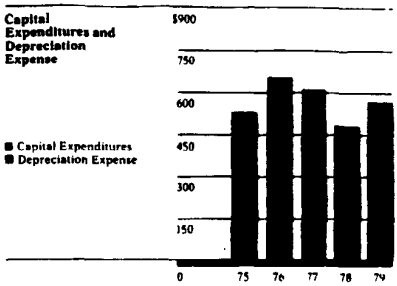
During the month of December 1979, the Brazilian government undertook a "maxi-devaluation" of the cruzeiro. Obviously, this has not yet been recovered in pricing. The effect on the Company of this "maxi-devaluation" was approximately $9.8 million, which amount is principally reflected in cost

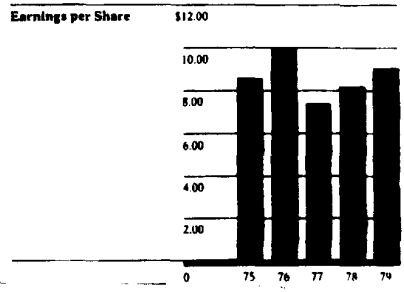
	1979			1978		
	Cost of Goods Sold	Other Income	Total	Cost of Goods Sold	Other Income	Total
Foreign currency transactions and translation of Ex-USA subsidiaries' financial statements	$(22.3)	$(13.5)	$(35.8)	$(5.9)	$(21.8)	$(27.7)
Translation of foreign currency financial statements of affiliated companies		2.3	2.3		(14.1)	(14.1)
Forward exchange contracts		6.6	6.6		13.5	13.5
Before-tax (losses)	$(22.3)	$(4.6)	(26.9)	$(5.9)	$(22.4)	(28.3)
Related income taxes			(5.2)			(4.2)
After-tax (losses)			$(32.1)			$(32.5)

of goods sold. Currencies other than the Brazilian cruzeiro and Argentine peso had much less of an impact on 1979 than was the case for 1978.

The Company's foreign currency risk management program—which was adopted in late 1978—resulted in hedging gains. These gains are the result of forward foreign exchange contracts that were entered into to offset the Company's exposures to foreign currency losses. Hedging South American exposures, however, is prohibitively expensive and was not undertaken.

The Financial Accounting Standards Board has concluded tentatively that Statement No. 8 is in need of major revision. The Company is supportive of the Financial Accounting Standards Board's plans to modify Statement No. 8 and hopes that the modification will provide a more accurate reporting of operating results while continuing to recognize the risks of investments outside of the United States.





Capital Spending

Worldwide capital expenditures for 1979 were $565.9 million—18 percent higher than the $479.9 million for 1978. Expenditures in the U.S. were $434.7 million—77 percent of the total—while the expenditures outside the U.S. were $131.2 million—primarily in the Europe/Africa area.

For 1979, the largest percentage of capital expenditures—as well as the largest year-to-year increase in such expenditures—occurred in the Chemical Intermediates Company. Major expenditures included continuing construction at Chocolate Bayou on the joint venture project in which Conoco is our partner, oil and gas development and several significant cost improvement projects. Major project capital spending for the Industrial Chemicals Company included capacity expansion for silicon materials in the United States and completion of a plasticizer plant in Brazil. Plastics & Resins Company's principal expenditures were the capacity expansions for *Saflex* polyvinyl butyral interlayer at Ghent, Belgium, and in the U.S.; and the capacity expansion for *Lustran* ABS/SAN plastics at Antwerp, Belgium. Compared with 1978, capital expenditures for Monsanto Textiles Company were up as capacity expansion for nylon staple and a new manufacturing plant for *Bidim* engineering fabric got underway.

Financial Position

Monsanto's financial position remained reasonably strong with a cash position that appears adequate for current operational requirements. Working capital —current assets less current liabilities—remained at virtually the same dollar level as at the 1978 year-end but the current ratio was reduced from 2.5:1 in 1978 to 2.2:1 in 1979.

Net property, plant and equipment was increased by $213.0 million. The year-to-year increase represented capital expenditures of $565.9 million offset, in part, by depreciation and other reductions of $352.9 million. Long-term debt was reduced by $21.0

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	1979	1978
Working capital	$1,322.7	$1,295.7
Net property, plant and equipment	2,817.8	2,604.8
Long-term debt	1,202.5	1,223.5
Other assets (liabilities)—net	(156.2)	(97.6)
Shareowners' equity	$2,781.8	$2,579.4
Current ratio	2.2:1	2.5:1
Debt-to-capitalization	30.2%	32.2%
Interest coverage (times)	4.9	6.6
Return on average shareowners' equity	12.3%	12.2%

million. This resulted from debt repayments of $93.3 million offset, in part, by an additional $22.5 million of pollution control industrial development bonds and other new financing of $49.8 million.

At December 31, 1979, Monsanto's long-term debt represented 30.2 percent of total capitalization. Debt retirements scheduled for the next five years—1980-1984—total $278.5 million.

Dividend Payments

Common stock dividends paid in 1979 amounted to $120.7 million—the equivalent of $3.35 per share and a $0.175 per share increase over 1978. Effective with the second quarter payments in 1979, the Board of Directors increased the quarterly dividend from $0.80 to $0.85 per share. The dividend has been increased in each of the past seven years and has been paid quarterly—without interruption or reduction—since 1928. The dividend yield on the average price of Monsanto common stock—based on year-end prices—was 6.28 percent for 1979 and 6.08 percent for 1978.

Preferred dividends amounted to $0.5 million for 1979—equivalent to $2.75 per share. Quarterly dividends of $0.6875 per share have been paid regularly since issuance of the preferred shares in 1969.

Common Stock Dividends per Share

Quarter	1979	1978
First	$0.80	$0.775
Second	0.85	0.80
Third	0.85	0.80
Fourth	0.85	0.80
	$3.35	$3.175

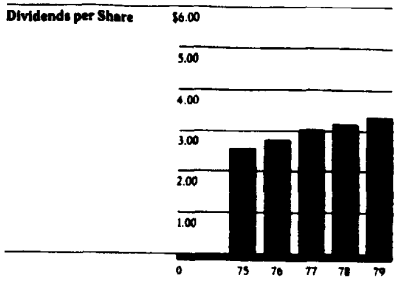
Stock Prices

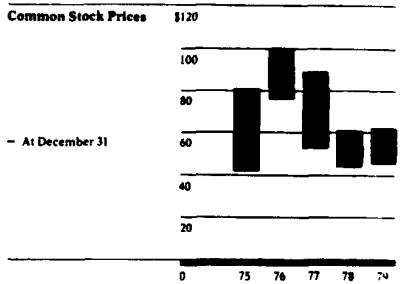
Common Stock Prices

Quarter	1979 High	1979 Low	1978 High	1978 Low
First	$52½	$45	$57⅛	$44⅛
Second	54⅝	46⅝	56¼	46⅜
Third	60¼	49¼	59⅜	49⅜
Fourth	62	53	60¼	47

Convertible Preferred Stock Prices

Quarter	1979 High	1979 Low	1978 High	1978 Low
First	$57	$52	$58	$50⅛
Second	59⅛	52⅛	60⅛	51⅜
Third	64	57⅛	66¼	55
Fourth	66½	62	66⅛	53





Operating Company Data

	Net Sales	Operating Income (Loss)	Total Assets	Depreciation and Obsolescence	Capital Expenditures	Research and Development
1979						
Operating Company:						
Agricultural Products	$ 839.9	$328.8	$ 660.2	$ 38.4	$ 43.4	$ 29.6
Chemical Intermediates	858.6	115.5	1,123.4	76.4	222.2	21.9
Industrial Chemicals	1,513.8	202.1	984.1	71.1	126.7	39.9
Plastics & Resins	1,414.2	9.6	1,110.7	78.0	91.6	32.7
Textiles	1,069.4	(168.7)	1,022.7	138.4	99.1	36.1
Total Operating Companies	5,695.9	487.3	4,901.1	402.3	543.0	154.2
Fisher Controls	496.7	44.4	353.3	9.1	18.9	19.3
Total Operating Companies and Fisher Controls	6,192.6	531.7	5,254.4	411.4	561.9	173.5
Eliminations		(8.2)				
Unallocated Corporate Expenses		(36.6)		1.3		
Total Operating	6,192.6	486.9	5,254.4	412.7	561.9	173.5
Income charges—net		5.8				
Nonoperating assets			284.7		4.0	
Total Consolidated	$6,192.6	$481.1	$5,539.1	$412.7	$565.9	$173.5
1978						
Operating Company:						
Agricultural Products	$ 734.4	$303.8	$ 629.0	$ 34.6	$ 57.5	$ 26.9
Chemical Intermediates	523.2	75.1	849.8	36.2	185.7	15.8
Industrial Chemicals	1,290.1	218.7	849.6	61.1	88.2	34.0
Plastics & Resins	1,223.6	57.6	1,088.2	69.5	91.9	29.1
Textiles	963.2	(29.2)	1,050.1	80.6	44.5	25.0
Total Operating Companies	4,734.5	626.0	4,466.7	282.0	467.8	130.8
Fisher Controls	284.2	37.0	202.5	5.1	9.0	13.5
Total Operating Companies and Fisher Controls	5,018.7	663.0	4,669.2	287.1	476.8	144.3
Unallocated Corporate Expenses		(31.3)		1.2		
Total Operating	5,018.7	631.7	4,669.2	288.3	476.8	144.3
Income charges—net		55.4				
Nonoperating assets			366.5		3.1	
Total Consolidated	$5,018.7	$576.3	$5,035.7	$288.3	$479.9	$144.3

The principal product lines included in each operating company are shown in the "Sales by Product Group" data on page 49. Total sales between operating companies (made on a market basis) were $229.7 and $169.5 for 1979 and 1978, respectively. These sales were not significant for any operating company except Chemical Intermediates ($151.9 for 1979 and $116.3 for 1978) and Industrial Chemicals ($44.1 for 1979 and $26.6 for 1978).

Unusual or nonrecurring charges or credits to operating income in 1979 and 1978 were as follows: Textiles operating loss for 1979 included a charge of $77.4 relating to withdrawal from the European nylon business; Plastics & Resins operating income for 1979 included charges of $12.1 relating to the shutdown of a plastics business and $15.6 for the planned closing of certain product lines of a Spanish subsidiary; and Plastics & Resins operating income for 1978 included a credit of $10.1 from the sale of the high density polyethylene business. The Fisher Controls amounts for 1979 reflect the operations of a new corporation formed by Monsanto and The General Electric Company Limited, as further described under "Business Combinations" in the Notes to Financial Statements.

Profit derived from intercompany sales is the principal item reflected in eliminations in arriving at the consolidated totals. Certain corporate expenses, primarily those related to the overall management of the Company, were not allocated to the operating companies. Nonoperating assets principally include cash, short-term securities, time deposits and investments.

World Area Data

	Net Sales		Operating Income (Loss)	Total Assets	Capital Expenditures
	Outside Customers	Inter-Area			
1979					
United States	**$4,237.7**	**$451.0**	**$348.3**	**$3,840.3**	**$430.7**
Europe-Africa	**1,316.6**	**65.5**	**(52.6)**	**1,198.3**	**98.9**
Canada-Latin America	**405.1**	**4.6**	**3.7**	**309.5**	**26.8**
Asia-Pacific	**233.2**	**26.2**	**24.5**	**181.0**	**7.5**
Eliminations		**(547.3)**	**(0.4)**	**(265.7)**	
Unallocated Corporate Expenses			**(36.6)**		
Total Operating	**6,192.6**	**—**	**486.9**	**5,254.4**	**561.9**
Income charges—net			**5.8**		
Nonoperating assets				**284.7**	**4.0**
Total Consolidated	**$6,192.6**	**$ —**	**$481.1**	**$5,539.1**	**$565.9**
1978					
United States	$3,631.1	$338.2	$630.7	$3,264.9	$337.9
Europe-Africa	848.2	56.9	15.2	1,147.7	114.7
Canada-Latin America	385.8	1.7	10.0	308.6	16.1
Asia-Pacific	153.6	23.7	10.5	158.4	8.1
Eliminations		(420.5)	(3.4)	(210.4)	
Unallocated Corporate Expenses			(31.3)		
Total Operating	5,018.7	—	631.7	4,669.2	476.8
Income charges—net			55.4		
Nonoperating assets				366.5	3.1
Total Consolidated	$5,018.7	$ —	$576.3	$5,035.7	$479.9

Inter-area sales, which are sales from one Monsanto location to another Monsanto location in a different world area, were made on a market basis. Export sales included in United States net sales to outside customers were as follows:

	Europe-Africa	Canada-Latin America	Asia-Pacific	Total
1979	**$ 95.7**	**$172.4**	**$178.3**	**$446.4**
1978	73.2	101.6	135.3	310.1

Unusual or nonrecurring charges or credits to 1979 and 1978 operating income were as follows: Europe-Africa operating income for 1979 included charges of $77.4 relating to withdrawal from the European nylon business and $15.6 for the planned closing of certain product lines of a Spanish subsidiary; Canada-Latin America operating income for 1979 included charges of $12.1 relating to the shutdown of a plastics business and $8.5 relating to the maxi-devaluation of the Brazilian cruzeiro; and United States operating income for 1978 included a credit of $10.1 from the sale of the high density polyethylene business.

Inter-area receivables and the profit derived from inter-area sales are the principal items reflected as eliminations in arriving at the consolidated totals. Unallocated corporate expenses and nonoperating assets are the same as those described for the Operating Company Data.

Following is a reconciliation of Ex-USA operating income and total assets as shown above to the Company's equity in the net income (loss) and net assets of consolidated Ex-USA subsidiaries

	1979	1978
Operating income (loss):		
Europe-Africa	**$(52.6)**	$15.2
Canada-Latin America	**3.7**	10.0
Asia-Pacific	**24.5**	10.5
	(24.4)	35.7
Income charges—net	**72.4**	80.5
Income taxes	**(69.0)**	13.7
Net (loss) of consolidated Ex-USA subsidiaries	**$(27.8)**	$(58.5)

	1979	1978
Total assets:		
Europe-Africa	**$1,198.3**	$1,147.7
Canada-Latin America	**309.5**	308.6
Asia-Pacific	**181.0**	158.4
	1,679.8	1,614.7
Total liabilities	**918.4**	1,025.3
Net assets of consolidated Ex-USA subsidiaries	**$ 761.4**	$ 589.4

Summary of Significant Accounting Policies

Management has selected the following accounting principles from acceptable alternatives in preparing the consolidated financial statements of Monsanto Company and Subsidiaries (Monsanto). These principles have been consistently applied in all material respects.

Basis of Consolidation
The consolidated financial statements include Monsanto Company (Company) and its majority-owned subsidiaries. Significant intercompany transactions have been eliminated in consolidation.

Investments in affiliates in which Monsanto has an ownership interest greater than 20 percent, but which are not majority-owned, are accounted for by the equity method.

Depreciation
Monsanto generally uses the straight line method of computing depreciation; however, the sum of the years digits method is used for most domestic assets placed in service prior to January 1, 1972.

Income Taxes
Investment tax credits are recorded under the "flow through" method of accounting as a reduction of income tax expense in the year in which they are used to offset the Federal income tax liability.

Income taxes have not been provided on the undistributed earnings of Ex-USA subsidiaries since any taxes on dividends received from those subsidiaries would be substantially offset by foreign tax credits. Also, income taxes have not been provided on a substantial portion of the undistributed earnings of domestic subsidiaries, including domestic international sales corporations (DISC's), whose distribution would be subject to additional taxes, because Monsanto intends to indefinitely reinvest those earnings.

Inventory Valuation
Inventories are stated at the lower of cost or market. The cost of substantially all domestic inventories is determined by the last-in, first-out (LIFO) method. The cost of other inventories is generally determined by the first-in, first-out (FIFO) method.

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Statement of Consolidated Income

Monsanto Company and Subsidiaries

(Dollars in millions, except per share)	1979	1978
Net Sales	$6,192.6	$5,018.7
Cost of Goods Sold	4,932.0	3,743.6
Marketing and Administrative Expenses	551.6	453.2
Technological Expenses	222.1	190.2
	5,705.7	4,387.0
Operating Income	486.9	631.7
Other Expense and Income:		
Interest expense	123.3	102.8
Other income—net	117.5	47.4
	5.8	55.4
Income Before Income Taxes	481.1	576.3
Income Taxes	150.1	273.7
Net Income	$ 331.0	$ 302.6
Earnings per Common Share:		
Primary	$ 9.11	$ 8.29
Fully diluted	9.03	8.21

The above statement should be read in conjunction with page 56 and pages 62 through 69 of this report.

Statement of Consolidated Financial Position

Monsanto Company and Subsidiaries

(Dollars in millions, except per share)	Dec. 31, 1979	Dec. 31, 1978
Assets		
Current Assets:		
Cash	$ 43.7	$ 65.4
Short-term securities and time deposits, at cost which approximates market	227.6	282.2
Receivables, net of allowances of $35.6 in 1979 and $32.2 in 1978	1,277.2	1,112.0
Inventories	909.9	720.8
	2,458.4	2,180.4
Investments and Miscellaneous Assets:		
Investments in affiliates	129.8	118.5
Miscellaneous investments and receivables	41.8	48.9
	171.6	167.4
Property, Plant and Equipment, at Cost:		
Land	55.9	49.1
Buildings	619.9	597.8
Machinery and equipment	4,086.0	3,801.9
Mineral rights and oil and gas properties	314.1	260.4
Construction-in-progress	452.8	457.7
	5,528.7	5,166.9
Less accumulated depreciation	2,710.9	2,562.1
	2,817.8	2,604.8
Deferred Charges	91.3	83.1
	$5,539.1	$5,035.7

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The above statement should be read in conjunction with page 56 and pages 62 through 69 of this report.

	Dec. 31, 1979	Dec. 31, 1978
Liabilities and Shareowners' Equity		
Current Liabilities:		
Accounts payable and accruals	**$1,042.8**	$ 801.1
Income taxes	**28.4**	39.7
Current portion of long-term debt	**64.5**	43.9
	1,135.7	884.7
Long-Term Debt	**1,202.5**	1,223.5
Other Liabilities and Deferred Credits:		
Deferred income taxes	**295.4**	312.5
Miscellaneous	**123.7**	35.6
	419.1	348.1
Shareowners' Equity:		
Preferred stock—authorized, 10,000,000 shares without par value, issuable in series; outstanding, 158,181 shares in 1979 and 185,112 shares in 1978; involuntary liquidation preference, $35 per share, or an aggregate of $5.5 in 1979 and $6.5 in 1978	**0.3**	0.4
Common stock—authorized, 100,000,000 shares, par value $2 each; issued, 36,978,084 shares in 1979 and 36,976,516 shares in 1978	**73.9**	73.9
Additional contributed capital	**652.9**	651.5
Reinvested earnings	**2,102.3**	1,892.5
	2,829.4	2,618.3
Less common stock in treasury, at cost (946,916 shares in 1979 and 786,653 shares in 1978)	**47.6**	38.9
	2,781.8	2,579.4
	$5,539.1	$5,035.7

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Statement of Changes in Consolidated Financial Position

Monsanto Company and Subsidiaries

(Dollars in millions)	1979	1978
Source of Working Capital:		
Net income	$ 331.0	$ 302.6
Changes not affecting working capital:		
Depreciation and obsolescence	412.7	288.3
Deferred income taxes	(17.1)	76.5
Other—net	(59.9)	24.8
Working capital from operations	666.7	692.2
Outside financing—net of unexpended funds from industrial development bonds	55.4	284.9
Property disposals	35.7	47.3
Other—net	49.6	
	807.4	1,024.4
Application of Working Capital:		
Property, plant and equipment additions	565.9	479.9
Dividends	121.2	115.4
Debt reduction	93.3	133.2
Other—net		80.2
	780.4	808.7
Increase in Working Capital	$ 27.0	$ 215.7
Changes in Elements of Working Capital:		
Increase (decrease) in current assets:		
Cash, short-term securities and time deposits	$ (76.3)	$ 149.3
Net receivables	165.2	301.3
Inventories	189.1	(5.6)
	278.0	445.0
(Increase) decrease in current liabilities:		
Accounts payable and accruals	(241.7)	(249.3)
Income taxes	11.3	10.4
Current portion of long-term debt	(20.6)	9.6
	(251.0)	(229.3)
Increase in Working Capital	$ 27.0	$ 215.7

MONS 003587

The above statement should be read in conjunction with page 56 and pages 62 through 69 of this report.

Statement of Consolidated Shareowners' Equity

Monsanto Company and Subsidiaries

(Dollars in millions, except per share)	Preferred Stock	Common Stock	Additional Contributed Capital	Reinvested Earnings	Treasury Stock
Balance, January 1, 1978	$0.6	$73.7	$650.6	$1,705.3	$(29.3)
Net income				302.6	
Dividends:					
Preferred—$2.75 per share				(0.6)	
Common—$3.175 per share				(114.8)	
Conversion of $2.75 Preferred Stock to common stock	(0.2)	0.2			
Shares issued under employee stock ownership and option plans			0.8		3.2
Shares purchased					(12.8)
Other			0.1		
Balance, December 31, 1978	0.4	73.9	651.5	1,892.5	(38.9)
Net income				**331.0**	
Dividends:					
Preferred—$2.75 per share				**(0.5)**	
Common—$3.35 per share				**(120.7)**	
Conversion of $2.75 Preferred Stock to common stock	(0.1)		(1.3)		1.4
Shares issued under employee stock ownership and option plans			0.3		4.5
Shares issued upon conversion of Monsanto Limited convertible loan stock			0.2		2.0
Shares reclassified from Miscellaneous Investments					(4.4)
Shares purchased					(12.4)
Other			2.2		0.2
Balance, December 31, 1979	$0.3	$73.9	$652.9	$2,102.3	$(47.6)

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The above statement should be read in conjunction with page 56 and pages 62 through 69 of this report.

Notes to Financial Statements

(Dollars in millions, except per share)

Business Combinations

On February 28, 1979, Monsanto signed an agreement with The General Electric Company Limited (GEC), an English limited company, that provided for the formation of a new corporation consisting principally of Fisher Controls Company, Inc., a then wholly owned subsidiary of the Company engaged in the manufacture of valves, regulators, controllers and process controls instrumentation, and similar operations of GEC. GEC contributed net assets with an estimated fair value of approximately $70.0 and received 33.5 percent of the common shares of the new corporation, Fisher Controls Corporation of Delaware (FCCD). Monsanto contributed net assets with a book value of approximately $134.0 and received 66.5 percent of the common shares of FCCD. The transaction was accounted for under the purchase method with no excess of cost over fair value of the GEC operations' net assets.

The effective date of the transaction was specified as January 1, 1979. Accordingly, the results of FCCD's operations have been included in Monsanto's consolidated financial statements for all of 1979. The effect on Monsanto's 1978 consolidated financial statements of including FCCD on a pro forma basis would not be material.

On February 21, 1980, Monsanto acquired substantially all of the common stock of Radiation Dynamics, Inc. for $31.9 in cash in a transaction to be accounted for under the purchase method.

Shutdown Costs

In June 1979, Monsanto's Board of Directors authorized the withdrawal from nylon operations in Europe. Accordingly, the related nylon manufacturing facilities were shut down by the end of 1979 and will be disposed of as soon as practical. Also in June, the Board authorized withdrawal from an Ex-USA plastics business. In December, the Board approved the planned closing of certain product lines of Aiscondel, a majority-owned Spanish subsidiary. Monsanto recorded provisions for losses related to these actions in 1979 of $105.1 in cost of goods sold or $53.2 ($1.47 per primary share) net of related tax effects. As of December 31, 1979, the remaining accruals for these losses had been reduced as a result of the actual expenditures for shutdown costs, disposal of certain facilities, and operating losses subsequent to the recording of the provision. The remaining accruals are estimated to be sufficient to absorb any additional costs related to these actions.

Depreciation, Obsolescence and Repairs

Charges to expense were:

	1979	1978
Depreciation	$296.9	$265.5
Obsolescence	117.8	22.8
	$412.7	$288.3
Repairs and maintenance	$403.4	$349.5

Included in obsolescence expense for 1979 is $93.1 related to "Shutdown Costs" discussed above.

Pension Plans and Other Post-Retirement Benefits

Most Monsanto employees are covered by non-contributory pension plans. The expense related to these plans was $92.3 in 1979 and $84.2 in 1978. These amounts include charges applicable to current service and amortization of unfunded prior service costs over periods ranging from 15 to 30 years. It is Monsanto's policy to fund pension costs accrued. Annual valuations of the major pension plans are made by an outside firm of actuaries. The "entry age normal" actuarial method is used. The key actuarial assumptions used include an annual average investment return on pension assets of seven percent, an average salary increase (when applicable) of six percent and an average retirement age of 61 years. The actuarial method and assumptions were consistent for 1979 and 1978.

Plan benefit and asset information for plans representing 97 percent of total 1979 pension expense is presented below on an aggregate basis as of December 31, 1979. Net assets were measured at market value at that date and year-end accumulated benefits were estimated from earlier actuarial valuations.

	Assets in Excess of Benefits	Benefits in Excess of Assets
Actuarial Present Value of Accumulated Plan Benefits:		
Vested	$524.3	$339.0
Nonvested	16.6	12.3
	$540.9	$351.3
Net Assets Available for Benefits	$653.7	$304.1

Monsanto also provides life insurance and medical benefits for many retirees. The cost of such benefits is not significant and is charged to expense as incurred.

Technological Expenses

Technological expenses consisted of the following:

	1979	1978
Research and development	$173.5	$144.3
Engineering, commercial development and patent	48.6	45.9
	$222.1	$190.2

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Equity in Affiliates
Monsanto's equity in the net income (loss) of affiliates, including foreign currency gains or losses on translation of financial statements, totaled $25.8 and $(10.1) in 1979 and 1978, respectively, and is included in other income-net.

Foreign Exchange
Net exchange losses resulting from foreign currency transactions and translation of foreign currency financial statements were $26.9 and $28.3 in 1979 and 1978, respectively, including a gain (loss) of $2.3 and $(14.1), respectively related to the translation of equity affiliates' financial statements.

Income Taxes
The components of income tax expense were:

	1979	1978
Current:		
Federal (after investment tax credits of $28.4 in 1979 and $28.0 in 1978)	$126.1	$164.3
State	16.0	16.8
Foreign	25.1	16.1
	167.2	197.2
Deferred:		
Federal	44.2	69.3
State	4.0	6.1
Foreign	(68.3)	1.1
	(17.1)	76.5
	$150.1	$273.7

A change in tax laws in the United Kingdom resulted in a reversal of deferred taxes of $16.8 ($0.46 per primary share), which amount is reflected in the above deferred foreign income tax expense for 1979. The deferred taxes were established in prior years for differences in book and tax bases of U.K. inventories.

The sources of timing differences in the recognition of revenue and expense for tax and financial statement purposes and the tax effect of each were:

	1979	1978
Additional depreciation and obsolescence for (book) tax purposes	$(22.1)	$ 58.6
Reversal of deferred taxes related to U.K. inventories	(16.8)	
Net change in accrual for pension expense	14.8	0.7
Other items — net	7.0	17.2
	$(17.1)	$ 76.5

Monsanto's effective income tax rate differed from the federal statutory rate due to the following factors:

	1979	1978
Federal statutory rate	46.0%	48.0%
Investment tax credit	(5.9)	(4.9)
Tax treatment afforded earnings of DISC's	(4.9)	(2.9)
Losses of Ex-USA subsidiaries for which no tax benefits are currently available	1.8	4.8
U.K. stock relief, including reversal of deferred taxes	(5.1)	
Foreign, state and local income taxes	1.1	3.3
Other	(1.8)	(0.8)
Effective income tax rate	31.2%	47.5%

Undistributed earnings of subsidiaries for which additional taxes in the event of distribution have not been provided were:

	1979	1978
Ex-USA subsidiaries	$ 78.2	$ 80.0
Domestic subsidiaries, including DISC's	218.1	159.5
	$296.3	$239.5

Ex-USA net operating loss carryforwards for which no tax benefits have been recorded were approximately $208.2 at December 31, 1979 and expire in various years beginning in 1980.

Earnings per Common Share

Income and the number of shares used in the computation of earnings per common and common equivalent share were determined as follows:

	1979		1978	
	Primary	Fully Diluted	Primary	Fully Diluted
Income				
Net income	$331.0	$331.0	$302.6	$302.6
Preferred dividends	(0.5)		(0.6)	
Interest (less tax) on:				
Loan stock of Monsanto Limited	0.3	0.3	0.3	0.3
Debentures of Monsanto International Finance Company		0.3		0.4
	$330.8	$331.6	$302.3	$303.3
Number of Shares (In thousands)				
Weighted average shares:				
Outstanding	36,068	36,068	36,212	36,212
Incremental shares for outstanding stock options	5	24	9	11
Shares issuable upon conversion:				
Loan stock of Monsanto Limited	242	242	259	259
Debentures of Monsanto International Finance Company		174		194
$2.75 Preferred Stock		191		248
	36,315	36,699	36,480	36,924

Inventory Valuation

Inventories at December 31, 1979 and 1978 would have been $429.3 and $258.2, respectively, higher than reported if the FIFO basis of inventory valuation (which approximates current cost) had been used for all inventories.

Bank Credit Arrangements

At December 31, 1979, Monsanto had $150.0 of open domestic short-term lines of credit and $150.0 committed under a Revolving Credit/Term Loan Agreement with twenty-one banks. The open domestic short-term lines of credit are renewable annually and any loans thereunder bear interest at the prime commercial rate of the various banks. The Revolving Credit/Term Loan Agreement, dated December, 1978, provides for a four-year revolving credit, with any borrowings outstanding at the end of that period convertible into a three-year term loan. Interest on borrowings under the revolving credit is at the prime rate and interest on borrowings under the term loan will be one-quarter percent above the then prime rate. No borrowings were made under any of the arrangements through February, 1980.

In addition, certain Ex-USA subsidiaries have short-term loan facilities aggregating approximately $341.2, under which loans totalling $93.7 were outstanding at December 31, 1979. Interest on these loans is related to various Ex-USA bank rates.

Key Employee Bonus

Data relating to the Monsanto Management Incentive Plan of 1974 were:

	1979	1978
Maximum allowable addition to bonus reserve	$12.0	$14.5
Actual charge to expense (and addition to bonus reserve) as determined by the Executive Compensation and Development Committee of the Board of Directors	$11.9	$ 8.4
Bonus awards:		
Number of directors and officers	25	25
Number of other key employees	488	471
Amount	$12.6	$ 9.5
Balance in bonus reserve at year-end	$ 5.4	$ 6.7

The bonus award amounts for 1979 and 1978 include respective five-year accumulated award payments to 33 and 36 officers and employees of $1.8 and $1.6 for the long-term incentive program established under the Monsanto Management Incentive Plan of 1974.

Guarantees, Leases and Other Commitments

Monsanto was contingently liable as guarantor of bank loans and for customers' receivables discounted aggregating approximately $95.1 at December 31, 1979.

Rent expense under operating leases with a term of more than one month was approximately $62.2 in 1979 and $54.9 in 1978.

Minimum rental commitments under operating leases with an initial term of one year or more at December 31, 1979 were approximately:

1980	$ 16.7
1981	13.7
1982	10.2
1983	8.8
1984	5.6
After 1984	53.6
	$108.6

Commitments in connection with uncompleted additions to property aggregated approximately $191.6 at December 31, 1979.

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Long-Term Debt

Long-term debt, exclusive of current maturities and repayable in U.S. dollars, except where indicated, was as follows:

	December 31,	
	1979	1978
Monsanto Company:		
8% notes due 1985	$ 100.0	$ 100.0
7¼% promissory notes due 1981/1986	12.3	14.3
4¾% promissory notes due 1993	62.7	67.3
8¼% sinking fund debentures due 2000	175.0	175.0
9¼% sinking fund debentures due 2000	84.0	114.0
3¾% income debentures due 2002	91.0	91.0
4¼% income debentures due 2008	50.0	50.0
8¼% sinking fund debentures due 2008	200.0	200.0
4%-7¼% industrial development bond obligations due 1983/2009	156.7	134.2
Capitalized lease obligations	13.7	14.1
Other:		
U.S. dollar	1.3	1.4
West German deutsche mark		5.6
Monsanto International Finance Company:		
4½% sinking fund debentures due 1985 (a)	12.5	15.0
Monsanto International N.V. (Netherlands Antilles subsidiary):		
8¼% sinking fund debentures due 1985	3.2	4.6
Monsanto Limited (United Kingdom subsidiary) (British pound):		
5% loan stock due 1982/1986 (b)	11.0	12.1
Other	31.7	29.4
Monsanto (Suisse) S.A. (Swiss subsidiary) (Swiss franc):		
6¼% sinking fund debentures due 1985 (c)		16.1
6¼% sinking fund debentures due 1986	30.1	29.8
Monsanto Europe, S.A. (Belgian subsidiary) (Belgian franc):		
9% bank loan due 1981/1986	0.5	1.2
9¼%-11⅞% bank loans due 1981/1988 (d)	100.0	100.2
9¼% bonds due 1982/1991	14.3	13.9
Aiscondel, S.A. (Spanish subsidiary):		
9%-19½% bank and commercial loans due 1981/2015:		
U.S. dollar	32.0	17.3
Spanish peseta	16.9	11.0
Other (principally West German deutsche mark)	3.6	6.0
	$1,202.5	$1,223.5

Notes:

(a) These debentures are currently convertible into the Company's common stock at $86 per share, subject to adjustment under certain conditions.

(b) This loan stock is convertible into the Company's common stock at a rate equivalent to $55 per share, subject to adjustment under certain conditions.

Of the total loan stock originally issued in 1969, 54 percent has been retired through December 31, 1979 by conversion into 254,097 shares of the Company's common stock.

(c) Current maturities for 1980 include the planned early redemption of these debentures.

(d) The interest rates on these bank loans will be reduced by a government subsidy ranging from 4.0%-2.8%, which expires in 1981. Monsanto has the option of repaying these loans in 1981.

Maturities and sinking fund requirements on long-term debt are $64.5, $59.5, $58.7, $52.3, and $43.5 for the five years ending December 31, 1980 through 1984, respectively.

Covenants of certain loan agreements restrict maximum borrowings. It is not anticipated that additional future borrowings will be affected by these restrictions.

Under various parallel loan agreements, Monsanto has borrowed $85.5 in pounds sterling from United Kingdom companies and has made United States dollar loans to the U.K. companies or their subsidiaries aggregating $86.7 as of December 31, 1979. These agreements require the parties to either make additional loans in the respective currency or repay loans whenever the exchange rate varies by a predetermined percent. At December 31, 1979 the U.K. companies were required to make additional pound sterling loans or repay U.S. dollar loans of $1.2, which amount is reflected as a current asset. As both parties to the agreements have the legal right to offset in case of default by the other party, the parallel transactions are reflected net in the accompanying financial statements. Interest rates on the sterling loans are 2¼% to 2½% higher than the interest rates on the corresponding dollar loans. Maturity dates of the loans range from 1982 through 1986.

Substantially all long-term debt of subsidiaries is guaranteed by the Company.

Legal Proceedings

Monsanto is a party to a number of lawsuits arising in the normal course of business. The more significant litigation is discussed below.

The Company has been a defendant in various lawsuits alleging damages from products containing polychlorinated biphenyls (PCB's). Suits filed in 1976 in the U.S. District Court for the Northern District of Georgia, the Superior Court of Fulton County, State of Georgia, and the U.S. District Court for the Northern District of Alabama relating to alleged PCB pollution of the Coosa River and its tributaries and Weiss Lake located between the States of Georgia and Alabama were dismissed in 1979 without any payment by the Company. In another PCB case still pending, the United States Environmental Protection Agency filed suit on March 17, 1978, in the District Court for the Northern District of Illinois against Outboard Marine Corporation of Waukegan, Illinois. The action is based on several federal pollution statutes and seeks recovery of unspecified civil penalties and damages for the removal of PCB's

allegedly discharged by Outboard Marine into Waukegan Harbor and North Ditch, a tributary of Lake Michigan. In November 1978, the Company was joined as a third-party defendant from whom indemnity is sought for products allegedly sold by it to Outboard Marine. The Company will vigorously defend this action. Monsanto no longer manufactures or sells PCB's.

The Company is one of several defendants in a number of lawsuits arising out of the use by the United States government of an herbicide known as agent orange in the Vietnam war. The first lawsuit in which the Company was served as a defendant was filed on February 1, 1979. Many of these actions have been consolidated for pretrial purposes in the United States District Court for the Eastern District of New York. Certain of these actions are alleged to be class actions, although no determination has been made of the class action issue. The actions allege death, illnesses and birth defects resulting from exposure of United States Vietnam war veterans to agent orange. It is impossible to determine the total amount of damages or remuneration sought in these suits. The Company will vigorously defend these actions.

The Company is a defendant in a number of lawsuits filed in the federal and state courts in Missouri and a state court in Illinois arising out of a tank car derailment which occurred in Sturgeon, Missouri on January 10, 1979. The lawsuits, which seek in excess of $126.0 actual damages and $355.0 punitive damages, have been filed against the Company, the railroad which had control of the tank car, the manufacturer of the tank car and the manufacturer of an allegedly defective coupling device. The first lawsuit was filed June 11, 1979. Plaintiffs are property owners in Sturgeon and workers involved in the cleanup of the resulting spill of orthochlorophenol crude, who allege that the Company negligently failed to warn of the alleged hazards of this material, failed to properly containerize the chemical, and supplied an unreasonably dangerous product. The Company has denied the material allegations in each lawsuit and intends to vigorously defend these actions.

While the results of litigation cannot be predicted with certainty, management believes, based upon the advice of Company counsel, that the final outcome of such litigation will not have a material adverse effect on Monsanto's consolidated financial statements.

On February 21, 1980, a federal jury in the Northern District of Illinois returned a $3.5 million antitrust verdict against Monsanto. Company's trial counsel has advised that there are substantial bases for appeal. Any final judgment would be trebled. No provision has been made in the accompanying financial statements for any amounts which may be paid as a result of this case.

Following a February 1977 announcement by the Food and Drug Administration (FDA) of its intention to suspend the food additive regulations permitting the use of acrylonitrile copolymers in the fabrication of plastic containers for carbonated beverages, the Company suspended production of its acrylonitrile/styrene copolymer *Cycle-Safe* container. In September 1977, the FDA issued a final decision prohibiting the use of acrylonitrile to make plastic beverage containers. Accordingly, in 1977 the Company wrote off its net investment in *Cycle-Safe* container operations and provided for related expenses. During 1978, the Company filed a petition in the U.S. Court of Appeals for the District of Columbia seeking review of the FDA's decision. In 1979, the Court ruled that the FDA must reconsider its decision because it was made without sufficient supporting data. Management continues to believe that the use of the *Cycle-Safe* container poses no health hazards but, rather, possesses considerable positive environmental and consumer convenience attributes.

Capital Stock

The outstanding preferred stock is stated at $2.24 per share, has a cumulative dividend of $2.75 per share and is convertible into the Company's common stock. The conversion rate of 1.12 shares of common for each share of preferred is subject to adjustment in certain events under antidilution provisions. The Company issued 30,120 and 96,505 common shares upon conversion of 26,931 and 86,194 preferred shares in 1979 and 1978, respectively. The 1979 issuances included 28,552 shares from treasury stock. Of 2,330,510 preferred shares originally issued in the period 1969 through 1974, a total of 2,172,329 preferred shares has been converted to 2,432,658 shares of common stock through December 31, 1979. The outstanding preferred stock may be redeemed solely at the Company's option at $73 per share (the voluntary liquidation preference).

The Company also issued 41,138 common shares out of treasury stock in 1979 upon exercise of conversion rights by holders of convertible loan stock issued by Monsanto Limited, a United Kingdom subsidiary. There were no conversions of loan stock in 1978.

No common shares were issued in 1979 or 1978 for conversion of convertible debentures issued by Monsanto International Finance Company.

The Company held 55,174 and 81,882 shares of its common stock for specific purposes (principally for distribution to participants in the Employee Stock Purchase Plan) at December 31, 1979 and 1978, respectively. These shares are included in Miscellaneous Investments in the accompanying Statement of Consolidated Financial Position at December 31,1978; in 1979, they have been reclassified to Common Stock in Treasury.

There were 2,959,054 shares of common stock reserved for the following purposes at December 31,1979:

	Shares
Conversion of $2.75 Preferred Stock	177,163
Stock option plans	2,391,367
Conversion of convertible loan stock of Monsanto Limited	217,175
Conversion of debentures of Monsanto International Finance Company	173,349
	2,959,054

Stock Option Plans

The status of authorized common shares for stock option plans and the changes occurring during 1979 were:

	1969 and 1974 Plans	
	Shares Under Options Outstanding	Shares Available For Grant
At January 1, 1979	1,070,784	1,356,513
Grants	253,600	(253,600)
Exercises	(15,355)	
Cancellations	(70,790)	50,215
At December 31, 1979	1,238,239	1,153,128

Options outstanding at December 31, 1979 were granted at prices ranging from $32.50 to $92.88, or a weighted average of $64.50 per share. Options for 758,393 shares were exercisable at December 31, 1979. The options exercised during the year had been granted at prices ranging from $32.50 to $57.75 per share.

Stock appreciation rights (SAR's) are authorized to be granted at the same time the related non-qualified options under the 1974 Plan are granted. In addition, SAR's may be granted retroactively for any unexercised non-qualified options under either the 1974 or 1969 Plan. The exercise of an SAR cancels the related option; conversely, the exercise of an option cancels the related SAR. At December 31, 1979, SAR's with respect to options for 330,871 shares were outstanding; of these, 259,204 were exercisable. In 1979, SAR's with respect to options for 75,667 shares were granted; none were exercised; and 24,145 were cancelled.

Segment Information

Financial Accounting Standards Board Statement No. 14 requires disclosure of certain industry and world area "segment" data. Accordingly, the Operating Company and World Area data for 1979 and 1978 appearing on pages 54 and 55 of the Financial Review Section of this Annual Report are integral parts of the accompanying financial statements.

Quarterly Financial Data (Unaudited)

Unaudited quarterly financial data for 1979 and 1978 follow:

	Net Sales	Cost of Goods Sold	Net Income	Earnings per Common Share: Primary	Earnings per Common Share: Fully Diluted
1979:					
First Quarter	$1,623.8	$1,153.7	$161.8	$4.44	$4.40
Second Quarter	1,526.8	1,264.9	59.5	1.64	1.63
Third Quarter	1,496.7	1,178.4	98.9	2.73	2.70
Fourth Quarter	1,545.3	1,335.0	10.8	0.30	0.30
Year	$6,192.6	$4,932.0	$331.0	$9.11	$9.03
1978:					
First Quarter	$1,342.7	$ 903.4	$135.7	$3.71	$3.67
Second Quarter	1,185.0	885.1	76.1	2.09	2.07
Third Quarter	1,187.0	918.5	46.8	1.28	1.27
Fourth Quarter	1,304.0	1,036.6	44.0	1.21	1.20
Year	$5,018.7	$3,743.6	$302.6	$8.29	$8.21

The 1979 operating results include the following effects of foreign currency gains or losses: first quarter gain $6.4 ($0.18 per primary share); second quarter loss $10.3 ($0.29 per primary share); third quarter loss $17.4 ($0.48 per primary share); and fourth quarter loss $10.8 ($0.29 per primary share).

The 1979 second quarter operating results include a charge of $42.7 ($1.18 per primary share) relating to certain "Shutdown Costs" discussed above. Third-quarter 1979 results include a reversal of deferred income taxes of $16.8 ($0.46 per primary share) resulting from a change in tax laws in the United Kingdom. The fourth quarter 1979 operating results include the effect of a $7.7 ($0.21 per primary share) charge for the planned closing of certain product lines of Aiscondel, a majority owned Spanish subsidiary. Also in the fourth quarter of 1979, operating results reflect the effects of year-end changes in accounting estimates, principally of the LIFO provision and the effective tax rate. A higher LIFO provision decreased net income by $8.1 ($0.22 per primary share); a lower effective tax rate increased net income by $12.3 ($0.34 per primary share). The effects of these accounting estimate changes were not significant to any other quarter of 1979.

The 1978 operating results include the following effects of foreign currency losses: first quarter $12.8 ($0.35 per primary share); second quarter $2.7 ($0.07 per primary share); third quarter $12.5 ($0.35 per primary share); and fourth quarter $4.5 ($0.12 per primary share).

In addition, third-quarter 1978 operating results include a gain of $7.1 ($0.20 per primary share) related to the sale of the high-density polyethylene business.

Supplementary Financial Data Adjusted for the Effects of Changing Prices (Unaudited)

Monsanto's financial statements are prepared in accordance with generally accepted accounting principles, which include the concept of historical cost. Under this concept, inventory and property generally are recorded and reported at the amounts originally paid and do not reflect subsequent changes in (1) the general purchasing power of the dollar, (2) the current cost of replacing the asset, or (3) the amount for which the asset could be sold — its market value.

The Financial Accounting Standards Board has recently issued Statement of Financial Accounting Standards No. 33 (FASB No. 33), entitled "Financial Reporting and Changing Prices," which requires the disclosure of selected data under two different sets of assumptions. One set of data — the "constant dollar" disclosures — reflects the adjustment of the historical cost financial statements for changes in the general purchasing power of the dollar. The second set of data — the "current cost" disclosures — reflects adjustments based on estimates of the current cost to replace, in kind, existing assets. The current cost data attempt to measure the impact of price changes which are specific to Monsanto.

Only the following specific items are adjusted in the current year under the constant dollar and current cost disclosures: inventories; property, plant and equipment; cost of goods sold; and depreciation expense. Under the rules established by FASB No. 33, income taxes cannot be adjusted.

The supplementary current cost data are based on the best judgments of management and the assumption — required by FASB No. 33 — that Monsanto would replace its entire inventory and existing facilities with identical assets at the end of its fiscal year. Of course, in replacing inventory and existing facilities, the Company will take advantage of available technological improvements to increase the efficiency and cost effectiveness of its operations. Accordingly, the supplemental information should not be interpreted as indicating Monsanto's results of operations from replacement of its productive capacity. Actual replacement will not take place in the manner assumed in estimating the supplemental current cost information.

In addition, the computation of the supplementary data reflects only certain inflation effects on a limited number of assets. The resulting adjusted net assets and net income amounts are, accordingly, of questionable value for purposes of determining the overall or specific impacts of inflation on Monsanto's financial position and operating results. Management believes that the above data adjusted for changing prices — which data are disclosed under the requirements of FASB No. 33 and are not otherwise utilized by management — should be evaluated with caution and careful consideration of the appropriateness of the underlying concepts used in its preparation. The Financial Accounting Standards Board, in issuing FASB No. 33, noted that the information is experimental in nature and that its usefulness has not been proven.

A statement of net income from operations and certain other information for the year ended December 31, 1979 adjusted for changing prices in accordance with FASB No. 33, and the historical cost information reported in the primary financial statements for the same period, are shown below:

	Historical Cost	Adjusted for General Inflation	Adjusted for Changes in Current Costs
		(In Average 1979 Dollars)	
Net sales	$6,192.6	$6,192.6	$6,192.6
Cost of goods sold, excluding depreciation	4,637.1	4,693.8	4,655.1
Depreciation expense	294.9	399.0	420.2
Marketing, administrative and technological expenses	773.7	773.7	773.7
Other expense and income —net	5.8	5.8	5.8
Income taxes	150.1	150.1	150.1
Net income from operations	$ 331.0	$ 170.2	$ 187.7
Income from operations per primary share	$ 9.11	$ 4.68	$ 5.16
Gain from decline in purchasing power of net amounts owed		$ 122.7	$ 122.7
Net assets at year-end	$2,781.8	$3,650.5	$3,723.6
Shareowners' equity per common share	$ 77.20	$ 101.31	$ 103.34

The increase in current cost of inventories and property, plant and equipment for the year ended December 31, 1979, stated in average 1979 dollars, was $644.3, of which $95.9 was in excess of the increase caused solely by general inflation. At December 31, 1979, the current cost of inventory and property, plant, and equipment (net of accumulated depreciation) was $1,346.3 and $3,537.3, respectively, stated in year-end 1979 dollars.

"Adjusted net income from operations" reflects higher depreciation and cost of goods sold. As indicated above, income taxes have not been adjusted for these higher costs resulting in an effective tax rate of approximately 46.9% and 44.4%, respectively, for the constant dollar and current cost data as compared to 31.2% under historical cost. Also not considered in the adjusted net income is the impact of changing prices on expenses other than those derived from inventory and property.

Adjustments for general inflation have been made

using the Consumer Price Index-All Urban Consumers as required by FASB No. 33. The amounts reported as the estimated current costs are calculated as described below. These estimates, although based on the best judgments of management, are not necessarily indicative of either the amounts for which the assets could be sold or the cost at which such assets might be replaced in the future.

Inventories determined on a FIFO basis were used to approximate inventories on a current cost basis. Cost of goods sold, excluding depreciation, as determined on a LIFO basis or techniques that approximate the results obtained on a LIFO basis, was used to approximate cost of goods sold on a current cost basis. The current costs (specific prices) of property, plant and equipment were generally estimated using appropriate construction and equipment indices. Accumulated depreciation and depreciation expense related to the current cost of existing facilities were estimated using the same depreciation methods and lives as used in the historical cost financial statements.

Certain five-year data adjusted to average 1979 dollars in accordance with FASB No. 33 follow:

	Year Ended December 31,				
	1979	1978	1977	1976	1975
Net sales ...	$6,192.6	$5,583.8	$5,503.3	$5,444.8	$4,888.4
Dividends per common share	$ 3.39	$ 3.56	$ 3.64	$ 3.52	$ 3.46
Market price of common stock at year-end ..	$ 56.38	$ 50.36	$ 67.61	$ 109.92	$ 99.84

The average Consumer Price Index was 217.4, 195.4, 181.5, 170.5, and 161.2, respectively, for 1979-1975.

Independent Auditors' Opinion

Monsanto Company:

We have examined the accompanying consolidated financial statements (pages 56 through 69) of Monsanto Company and Subsidiaries as of December 31, 1979 and 1978 and for the years then ended. Our examinations were made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, such consolidated financial statements present fairly the financial position of Monsanto Company and Subsidiaries at December 31, 1979 and 1978 and the results of their operations and changes in their financial position for the years then ended, in conformity with generally accepted accounting principles applied on a consistent basis.

Deloitte Haskins & Sells

Saint Louis, Missouri
February 21, 1980

Ten-Year Summary

Monsanto Company and Subsidiaries

(In millions, except per share and where italicized)	1979	1978
Operating Results		
Net sales	$6,193	$5,019
Operating income	487	632
Interest expense	123	103
Income taxes	150	274
Income before extraordinary charge	331	303
Extraordinary charge		
Net income	331	303
Percent of net sales	*5.3%*	*6.0%*
Percent of average shareowners' equity	*12.3%*	*12.2%*
Earnings per common share:		
Primary:		
Before extraordinary charge	$ 9.11	$ 8.29
After extraordinary charge	9.11	8.29
Fully diluted:		
Before extraordinary charge	9.03	8.21
After extraordinary charge	9.03	8.21
Year-End Financial Position		
Total assets	$5,539	$5,036
Working capital	1,323	1,296
Property, plant and equipment—gross	5,329	5,167
Property, plant and equipment—net	2,818	2,605
Long-term debt	1,203	1,224
Shareowners' equity	2,782	2,579
Other Data		
Per common share:		
Dividends	$ 3.35	$ 3.175
Shareowners' equity	77.20	71.26
Property, plant and equipment additions	$ 566	$ 480
Depreciation and obsolescence	413	288
Year-end:		
Shareowners:		
Common	*85,608*	*86,775*
Preferred	*952*	*1,156*
Common shares outstanding	36.0	36.2
Employees	*63,926*	*62,851*

(1) As of January 1, 1974, the Company and certain of its domestic subsidiaries changed their method of inventory valuation for substantially all United States inventories from the FIFO basis to the LIFO basis. The effect of this change was to decrease 1974 income by $77.5 or $2.26 per primary share.
(2) Excludes $16.0 applicable to extraordinary charge.

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1977	1976	1975	1974	1973	1972	1971	1970
$4,595	$4,270	$3,625	$3,498	$2,648	$2,225	$2,087	$1,972
610	668	547	550	406	216	178	128
86	80	56	43	39	37	39	33
248	251	230	251	173	81	66	35
276	366	306	323(1)	238	122	94	78
							11
276	366	306	323(1)	238	122	94	67
6.0%	*8.6%*	*8.4%*	*9.2%*	*9.0%*	*5.5%*	*4.5%*	*3.4%*
11.9%	*17.3%*	*16.4%*	*20.0%*	*17.2%*	*9.7%*	*7.8%*	*5.6%*
$ 7.46	$10.05	$ 8.63	$ 9.25	$ 6.90	$ 3.49	$ 2.65	$ 2.17
7.46	10.05	8.63	9.25	6.90	3.49	2.65	1.83
7.37	9.77	8.22	8.73	6.54	3.40	2.63	2.17
7.37	9.77	8.22	8.73	6.54	3.40	2.63	1.83
$4,350	$3,959	$3,451	$2,938	$2,545	$2,237	$2,154	$2,145
1,080	1,106	1,150	968	855	677	547	538
4,745	4,208	3,620	3,157	2,852	2,765	2,735	2,637
2,409	2,090	1,660	1,312	1,152	1,133	1,170	1,170
1,031	915	845	587	579	576	558	589
2,401	2,253	1,977	1,755	1,484	1,294	1,226	1,194
$3.025	$ 2.75	$ 2.55	$ 2.30	$ 1.90	$ 1.80	$ 1.80	$ 1.80
66.16	61.79	56.62	51.39	44.26	39.05	37.16	36.27
$ 607	$ 647	$ 528	$ 313	$ 205	$ 168	$ 205	$ 301
296	226	173	172	170	194	187	170(2)
85,021	*84,647*	*91,725*	*98,542*	*98,964*	*104,369*	*110,490*	*121,399*
1,404	*1,956*	*2,836*	*3,709*	*3,855*	*3,939*	*3,897*	*3,941*
36.3	36.4	34.8	34.1	33.4	33.0	32.8	32.8
61,519	*61,903*	*59,242*	*60,926*	*58,277*	*57,891*	*59,271*	*62,940*

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Monsanto Company
800 North Lindbergh Boulevard
St. Louis, Missouri 63166