

**THE
MACARONI
JOURNAL**

**Volume 59
No. 2**

June, 1977

Macaroni Journal

JUNE, 1977





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Frank Test

Cabbage Noodle Skillet

Pillsbury to Acquire American Beauty Macaroni Co.

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Cabbage Noodle Skillet

Pillsbury to Acquire American Beauty Macaroni Co.

MINNEAPOLIS, Minn. (AP) — Pillsbury Co. has announced it will acquire American Beauty Macaroni Co. for \$100 million. The deal, announced Tuesday, would create a new pasta division for Pillsbury. American Beauty, based in Chicago, is one of the largest pasta manufacturers in the U.S. Pillsbury's pasta sales are about \$1 billion a year. The deal would give Pillsbury a market share of about 20 percent in the U.S. pasta market. American Beauty has about 100 employees and produces about 1 million pounds of pasta a year. Pillsbury's pasta division is based in Minneapolis. The deal is expected to close in the next few months. Pillsbury's stock price rose about 1 percent on Tuesday. American Beauty's stock price also rose. The deal is subject to regulatory approval.

Plant Operations Seminars

Two Plant Operations Seminars were held by the National Macaroni Manufacturers Association in April. The first attracted some fifty delegates to Hyatt On Union Square in San Francisco. The second drew about eighty delegates to Cherry Hill Hyatt House in the Philadelphia area.

Energy Audits

Program material was essentially the same. Peter Kolb of Gooch Foods, Lincoln, Nebraska, told how his company is making energy audits. Charles Niskey of San Giorgio Macaroni, Lebanon, Pennsylvania reiterated his message as published in last month's Macaroni Journal.

Warren Osborn of the Federal Energy Administration Regional Office in San Francisco observed you must know where you have been before you know where you are going. By fragmentizing your metering you can better measure it and better control it. He predicted natural gas rates would be up 30 percent to 35 percent on the west coast this year and counseled to have a plan to hold usage down. He referred to a book available from the FEA office at \$1.50 entitled "Total Energy Management" as a good reference piece.

President Carter went on national television the night before the Philadelphia meeting and the Federal Energy Administration staff there was holding public hearings the following two days.

Allen Katskee of Microcry Corporation reported that a microwave unit has a drying time of 42 minutes bringing product out of the dryer at 13 percent moisture which drops another percent by the time it hits the top of the storaveyor. Average experience takes 688 btu's per pound of pasta for drying with this unit. A stream dryer takes 970 btu's to evaporate a pound of water. Plate count is less than 200 on microwave dried products.

Cereal Technology

Dr. Brendan Donnelly of the Cereal Technology Department, North Dakota State University listed a series of tests they utilize for measuring quality of durum products produced in North Dakota.

(1) Test weight—pounds per bushel—gives the grading characteristic of

the wheat and should run around 60 pounds per bushel.

(2) This plus vitreous characteristics of 75 percent of crop makes for the grade Number One Hard Amber Durum. Yellow berries cut flour extraction.

(3) Moisture of the wheat should run between 12 percent and 13 percent—higher percentages lead to mold and spoilage while lesser averages lead to dryness and breakage problems.

(4) Thousand kernel weight is an indicator for milling yield.

(5) Protein should run between 12½ percent to 15 percent. The higher the protein, the lower the test weight. The lower the protein, the poorer the milling quality.

(6) Legal levels on ash in Italy and France require 5½ percent to 6 percent ash on a 14 percent moisture basis.

(7) Falling number tests measures the viscosity of starch. When sprouting is a problem, there is starch degradation.

(8) Speck count in semolina can affect appearance of end product. If the extraction is too high there will be bran in the mix or it may indicate there is black point or ergot present.

The quality of gluten was stressed by the Italian trade team visiting North Dakota last fall. They like United States color, but they prefer Argentine and Canadian gluten strength.

Good Plant Practices

James J. Winston briefly reviewed the Supreme Court decision on precedents of Federal Standards over state requirements for net weights. He pointed to four areas where management control of good manufacturing practices are essential.

(1) Raw materials—flour, semolina and eggs.

(2) Manufacturing and processing conditions must be sanitary with a sanitizing program and cleaning schedule strictly maintained.

(3) Finished products must be controlled with a quality assurance program and bacterial guidelines.

(4) Coding gives control for distribution and records are essential in the event that regulatory officials

find fault with any given product on the marketplace.

He stressed the need to keep detailed written records on packaging weight and moisture contents.

International Report

In San Francisco Charles M. Hoskins of the Hoskins Company reported on recent experiences in Poland and Venezuela and observed that technology for making macaroni is pretty much the same world over, but that the Europeans pay more attention to quality than we do, both as to taste and texture and run more quality control tests for their control.

Sanitation

In Philadelphia Michael Bertino of Shocket Chemical Corporation, Greenvale, New York, discussed insect control with ultra-low volume or ultra-low dosage misting with ULD V-50, a pyrethrin-inexpensive and safe chemical used in quantities of .5 percent for spraying large areas at economical cost. His materials are used in warehouses, railroad cars, trucks and mills for insect control.

Dr. Arthur C. Peterson, director of Inspection Services, Campbell Soup Company, gave a presentation on quality control which will be printed in the next issue of the Macaroni Journal.

Campbell Soup Tour

Through the good offices of J. W. Bill Anderson, Manager, Purchasing and Glenn D. Boyd, Vice President, Product Development, Frozen Foods, a tour of the Campbell's Research Facilities in Camden was arranged.

The group saw W. B. Eagle demonstrate can specification in manufacture; E. P. Montgomery demonstrated measuring pasta firmness using the Instron texture measuring instrument; Dr. H. G. Lento discussed nutritional analysis and nutritional labeling, while H. O. Fischer presented a display of Campbell's products which contained pasta.

There was also a tour of the Campbell Museum, a collection of tureens, bowls, and utensils made for food service dating from 500 B.C. to the present. Most of the items were made in the 18th Century in Western Europe where the decorative arts

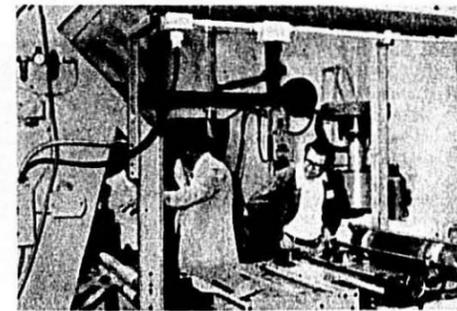
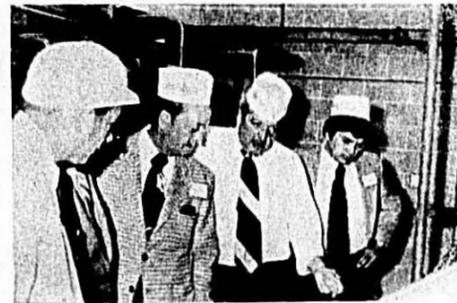
(Continued on page 6)

In San Leandro



Top: American Beauty delegates observe chocolate operations. Center: Manager Phil Stewart (hard hat center) explains step in chocolate manufacture.

Bottom: Tom DeDomenico of Golden Grain visits with Claude Hubert of Packaging Industries, Inc.



Top: Al Katskee (second from right) shows operation of die washer.

Center: Manager Phil Stewart (hard hat center) holds question session in a circle.

Bottom: Dr. Brendan Donnelly observes operation of film extrusion machine.

In Camden - Philadelphia



Top: Glenn D. Boyd greets group in front of Campbell Museum.
Bottom: Bill Urban welcomes visitors to Philadelphia Macaroni Co.

Top: Campbell Soup Pilot Plant.
Bottom: Delegates see straight line production of short cuts.

Plant Seminars

(Continued from page 5)

ceived abundant attention and financial encouragement from the royal families and other great houses. Formal dining during the period was done on a grand scale and with an elegance that is probably unmatched in all history.

Campbell Soup Company has provided the financial support so that this collection could be formed where the serious student of the decorative arts as well as those interested in foods and the history of foodservice could study under one roof, examples of fine tureens in many different materials and from many parts of the world.

Sanitation is a way of life. It is the quality of living that is expressed in the clean home, farm, business, community.



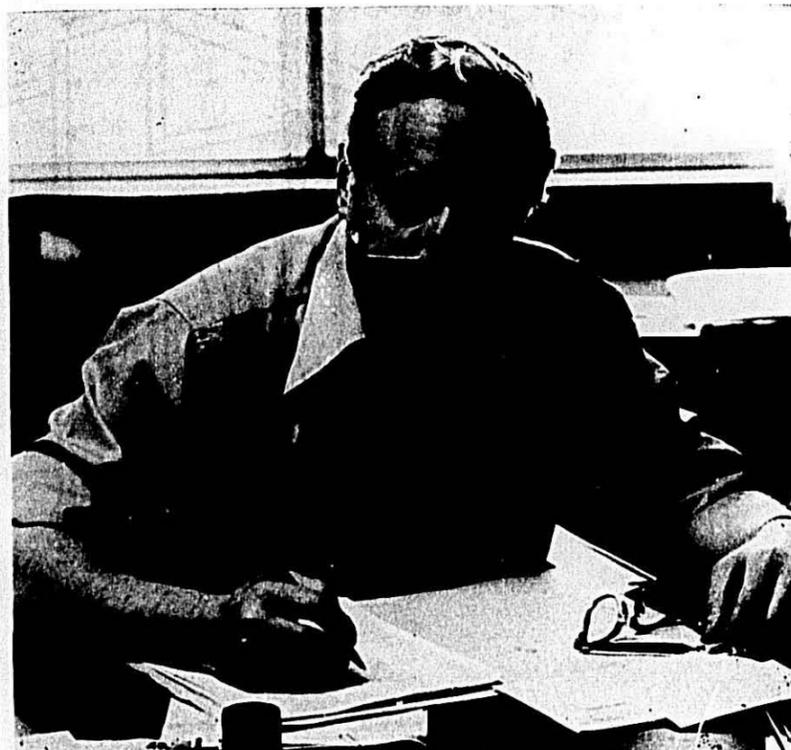
E. P. Montgomery demonstrates pasta firmness on Instron instrument.



Bill Urban, Luke Marano, and Kevin Robinson of Philadelphia Macaroni Company.

The following day the group visited the Philadelphia Macaroni Company plant at the foot of the Philadelphia International Airport. This is a straight-line operation with two Demaco short-cut press lines built in 1973. Designed by Bill Urban, produc-

tion of this plant goes to institutional use without packaging and warehousing operations. It is a model of compact efficiency. Kevin Robinson is Plant Manager; Luke Marano is President of Philadelphia Macaroni Company.



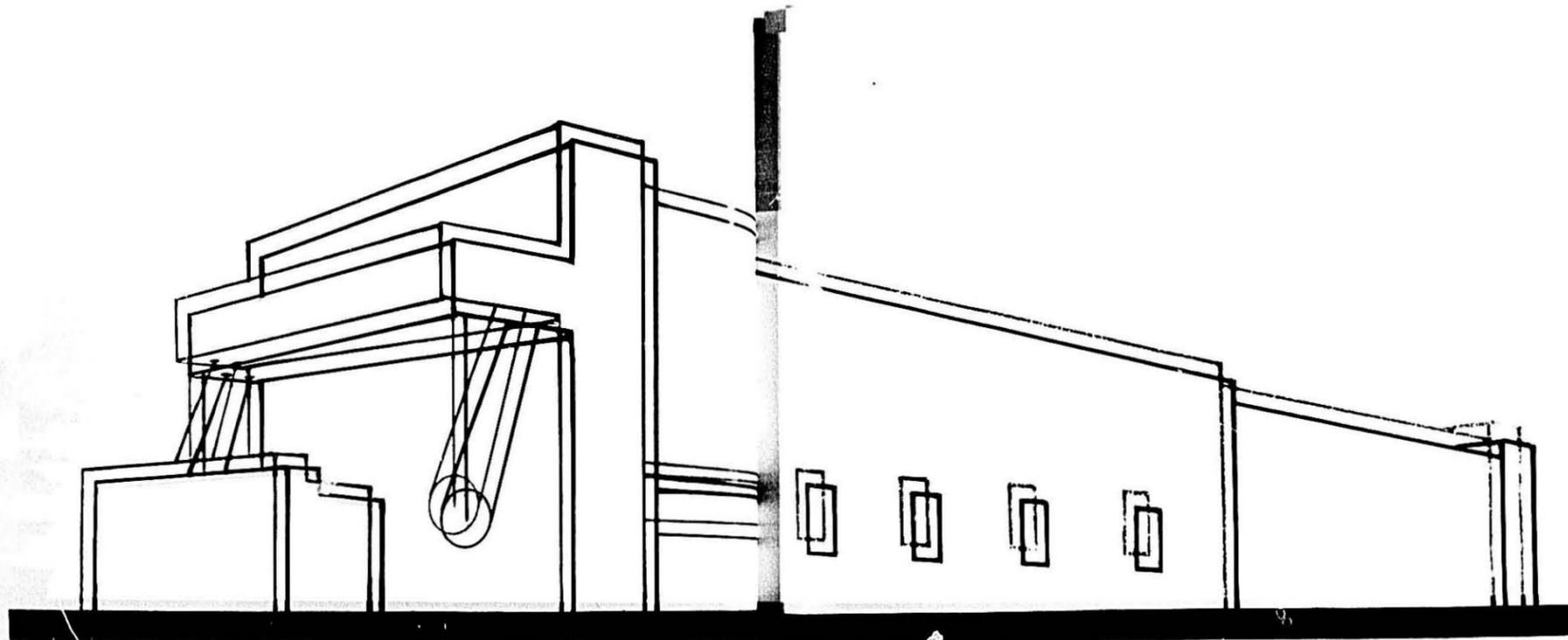
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Plant Seminars

(Continued from page 6)

In San Leandro Vincent DeDomenico welcomed the group to his Golden Grain Macaroni Plant and Ghirardelli Chocolate works. He briefly traced the history of the company established in 1912 in San Francisco, which was later moved to San Leandro in 1950. The Seattle operation was established in 1940 and a plant built in Chicago in 1962. Ghirardelli Chocolate Company was established in 1852 and acquired in the DeDomenico family in 1964. They also make Vernell Mints in Seattle and are the largest distributors of macadamia nuts in the United States.

Bill Hoffman, Macaroni Plant Engineer, described the layout of the nine lines with 1.5 million pound capacity.

Bill Stewart, Chocolate Works Manager, described the processing of chocolate beans through cleaning, roasting, shelling and conching into chocolate before molding into 150 finished chocolate items.

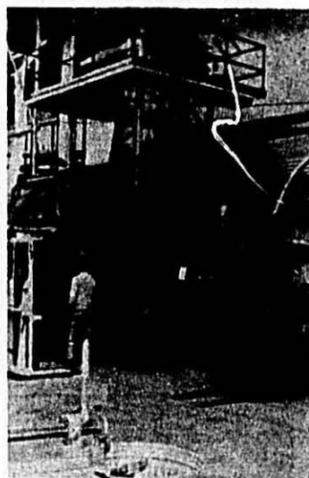
Packaging Industries, Inc.

The group was entertained at luncheon by Rene and Claude Gaubert where they saw a machine shop for Rene's development of automatic packaging equipment and Claude's Packaging Industries, Inc. film converting plant where cellophane and poly bags are made. One of highlights was the three-story high equipment taking resin flakes and producing polyethylene tubing from it.

Plant personnel always like to see how somebody else does the job and the tours were most educational and interesting.



Lou Bono, Controller, and Leo Verheul, Data Processing Manager, at a CRT console that shows inventory control at Golden Grain's three plants.



Three story high film extrusion machine.

A Family of Fine Foods

The Golden Grain family of fine food products includes many shapes of spaghetti, macaroni and egg noodles. To complement the many kinds of pasta, three marinara style sauces were created by the company. The sauces are made the same home-made way Mama DeDomenico made hers—simmered for hours and cooled slowly to retain the full fresh flavor of peeled Pomodoro tomatoes, olive oil, spices and Italian seasonings.

Golden Grain also makes many packaged dinners and other convenience foods. These were introduced by the DeDomenico sons and daughters. Famous as "the San Francisco treat" is Rice-a-Roni. Almost equally well known is Noodle Roni, Macaroni and Cheddar, Stir-n-Serv and a variety of other fine Golden Grain foods.

In the collection of Mama DeDomenico's favorite recipes are these two:

Zucchini Mescolanza (Makes 6 2-cup servings)

- 1/2 lb. ground beef
- 1 cup chopped onion
- 1 clove garlic, minced
- 3 cups sliced zucchini
- 2 cans (15 oz. each) Golden Grain Marinara Sauce
- 1 can (2 1/4 oz.) sliced ripe olives, drained
- 1 tsp. salt
- 1/4 tsp. pepper

1 package (14 oz.) Golden Grain Mostaccioli

Cook mostaccioli as directed on package. Cook ground beef, onion and garlic until light brown. Add zucchini Marinara Sauce, olives, salt and pepper; simmer 10 minutes or until zucchini is tender. Serve mostaccioli and zucchini sauce. Garnish with Parmesan cheese, if desired.

Un-Potato Salad (Makes 8 1-cup servings)

- 3 3/4 cups Golden Grain Sea Shells
- 1/4 cup instant chopped onions
- 1/4 cup wine vinegar
- 1/4 cup salad oil
- 1 1/2 tsp. salt
- 1/4 tsp. pepper
- 1/4 tsp. dill weed
- 1 1/2 cups chopped celery
- 4 hard cooked eggs, chopped
- 1/4 cup chopped parsley
- 1 cup mayonnaise
- 2 Tbsp. prepared mustard

Cook shells with onions in 3 quart rapidly boiling water with 4 tsp. salt for 10 minutes; drain and rinse with cold water. Combine vinegar, oil, salt, pepper, dill. Toss with cooked macaroni; chill. Add celery, eggs and parsley. Blend mayonnaise and mustard mix with salad. Chill.

Campbell Soup Recipes

Campbell's 100 Best Recipes book says the following: "The preparation of pasta has become extremely popular in America in recent years. Fortunately a galaxy of fascinating products—lasagna, manicotti, spaghetti, macaroni and vermicelli—is readily available in our stores. Pasta dishes are valued for entertaining as they can be prepared ahead of time and are most attractive served in casseroles for buffets or informal dining."

(Continued on page 38)



Food Consultant Phyllis Larsen and Chief Home Economist Cathy Dunlap in the Golden Grain Kitchens.

Before you buy an automatic spaghetti packaging system, do a little comparison shopping.



Until now there were two serious drawbacks to buying an automatic spaghetti packaging system. Complexity and price.

The Hayssen RT 176 has changed all that. Now you can get a simple, easy to operate, highly accurate automatic spaghetti packaging system which is, quite simply, an incredible bargain.

The RT 176 features a revolutionary tower volumetric feed system. You can achieve the same accuracy obtained on expensive, hard-to-maintain scale systems. It is as simple to use as it is to maintain. You need a highly trained specialist to keep your packaging line running smoothly.

Attached to a proven Horizontal Form, Fill, Seal machine, the RT 176 features the very same high quality Horizontal Form, Fill, Seal machine proven on literally hundreds of pouch packaging applications throughout the world. High speed, high quality packaging over a variety of materials from cellophane to polypropylene to polyethylene — combined with quick changeover features, assure a simple, accurate, and amazingly rugged packaging system.



Match your packaging to your production.

The design versatility of the RT 176 allows you to integrate your packaging to production and plant requirements. It can be automatically fed from the floor above as the spaghetti is discharged from the stripper cutter. Or, it can be fed from the same floor with an optional bucket elevator system.

Totally U.S. built.

There's nothing quite as frustrating as downtime. And that's exactly why a totally U.S. built machine, backed by an extensive domestic field service organization and local parts supply can be of critical importance to you.

Get the facts.

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How to Conduct an Energy Audit

presented by Peter Kolb, Gooch Foods, Inc.
at the San Francisco Seminar



Peter Kolb

Until recently, energy appeared to be plentiful and was relatively inexpensive—accounting for less than 5¢ of each dollar of the average business firm's cost. As a result, many businessmen did not have a strong incentive to conserve energy, but as prices began to rise sharply and as availability of supply became unpredictable, the potential impact of America's growing energy problem on the economy, more and more became a cause of serious concern.

Every business can expect that energy will be increasingly expensive in the future. Some of this increase will be passed through to the consumer in the form of high product and service prices. But the most successful business will be those which offset these costs by reducing energy input per unit of product. (i.e. BTU's per \$ output). A response of business to this price cost push, will depend on a variety of factors. These include price and substitution, elasticities of the product involved, substitutability of less scarce fuels (including waste product fuels), level of knowledge about energy efficiency measures, availability of capital for more efficient equipment, and other similar considerations.

It is difficult to predict where energy prices will be by 1980. One should be prepared for the possibility, however, that these prices will rise at a faster rate than overall inflation and that supply restrictions relating to environmental regulations will not change significantly. Meanwhile, providing increased supplies through faster development of domestic fuel

production and more rapid implementation of nuclear power will require at least three to five years to show measurable impact

Voluntary Action

Voluntary action by American business shows that we can meet the energy challenge by adopting new values, attitudes and patterns of behavior to establish an energy conservation ethic. Furthermore, this initial response has laid the foundation for long range efforts where pay off in energy savings through increased efficiency are vital to an lasting solution to energy problems. To the industrialists this potential for savings provides a way to expand production while holding down the level of energy consumption. To those in service industries increased energy efficiencies provides a means of offsetting price increases due to increased costs for fuels. To trade associations, this offers an important opportunity to provide vital assistance to its members. Of course, the response an association makes to this opportunity will vary depending upon the nature of its membership.

Many questions related to energy will be industry wide, technical and proprietary in nature. This makes an active roll by our trade association critical if competitive position, growth and stability of their members are to be maintained. Actions taken must, of course, be tailored to the specific needs of each industry. They should range from surveys and questionnaires designed to provide data needed for measuring energy efficiency to the sponsoring of complete R & D programs.

When discussing energy conservation as it may apply to our trade association activities, we will find that it could be split in two categories. Industrial (i.e. those whose members primary activity is to manufacture goods) and commercial (i.e. those whose members primary activity is to provide a service or whose energy consumption is primarily related to the operation of buildings).

The industrial sector accounts for 40% of the total domestic energy in

the United States. (excluding demand for transportation) Over 75% of this energy consumed in six basic industry groups; (1) primary metals; (2) chemicals and allied products; (3) petroleum refining and related industries; (4) food; (5) paper; (6) and stone, clay, glass, and concrete.

National estimates indicate that 95% of the total energy used by industry reflects; (1) process steam (45%), (2) electric drive (21%), (3) direct heat (29%). This gives pressures for energy engineers within industries as their primary targets to develop significant conservation measures. The most typical savings reported to the Department of Commerce are those in the 10 to 20% range and have been achieved as a result of improved management practices. (i.e. affective equipment maintenance and improvements in scheduling) More significant savings, those in the 3% to 50% range have been achieved through combination of such measures as waste heat recovery, increased insulation, and process changes.

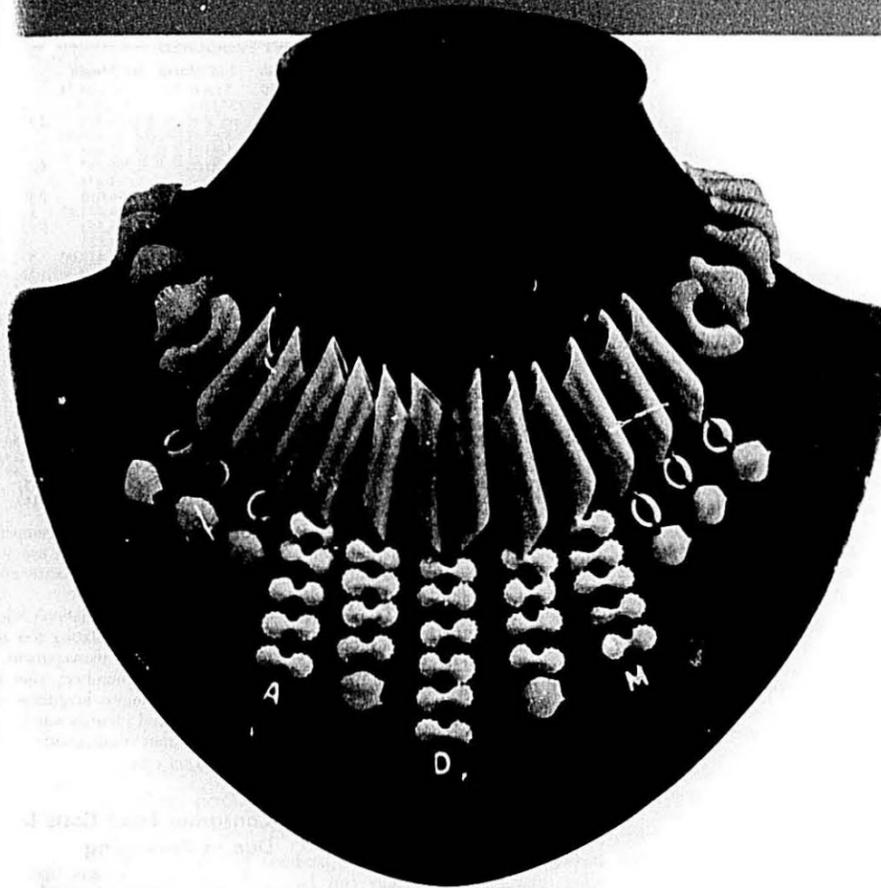
How to Conduct an Energy Audit

To conduct an energy audit, all measurements of that energy will be in the BTU content. The BTU content of various energy sources are as follows:

Energy Source	BTU Content
Residual fuel oil (No. 6)	149,690/gals.
Distillate fuel oil (No. 2)	138,690/gals.
Kerosene (No. 1)	135,000/gals.
Gasoline	124,952/gals.
Propane or LPG	95,000/gals.
Bituminous or lignite	23,750,000/short ton
Coal anthracite	25,400,000/short ton
Natural gas	1,031/cu. ft.
Electricity at point of consumption	3,412/kilowatt hours

Step One

Your first step in performing an audit and knowing where you are going is to get management commitment, because without it the success or failure of an energy conservation program will only be meaningful in their surveillance and perseverance is in affect. For example, direct monthly reporting to management tends to encourage serious attention to energy use by operating personnel



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To Conduct an Energy Audit

(Conducted from page 12)

Step Two

The second step in conducting an energy audit involves reviewing the rate which a company uses each form of energy and a determination of the end use for which fuels are consumed. In our industry I believe the majority are using primarily, electricity, gas, and/or oil. The greatest BTU consumption will be in drying pasta for most organizations. We are going to perform an audit on total BTU's consumed on an example basis in a short form to give you a little experience of how to go about these calculations.

Step Three

The third step of energy management program, is setting a measurable goal. It can be simple estimates of what is achievable based on results of an audit or it can be based on calculations by engineers who know the process involved.

Step Four

The fourth point is designing a motivation campaign, recognize the important role of employees in meeting conservation goals. Whatever the form, an awareness program should stress the need for cooperation in making changes related to energy conservation (i.e. changes in operating practice such as reducing heating or lighting levels should be subject to employee comment to assure acceptance).

Review Rates

Conducting an energy audit involves reviewing the rate with which a business uses each form of energy source identifying the end use of the fuels. Rates of consumption can be determined by collecting total fuel and annual utility bills, then gross amounts of fuel used should be converted into basic units (BTU's) for purposes of comparison. All forms of purchased fuels should be converted based on the following factors:

Energy Source	Conversion Factor*	=
Electricity KW (Kilowatt Hours)	× 3,412	=
Steam	× 1,031	=
Natural gas Cubic feet	× 1031	=
Oil No. 2 (gallons)	× 138,690	=
No. 6 (gallons)	× 149,690	=
BTU's (in thousands)		

ENERGY vs. CWT PROCESSED

	1st Month	2nd Month	3rd Month	
1972 Electricity \$	\$2,186.70	\$1,495.25	\$2,014.38	\$5,696.33
KWH	165,600	137,000	194,880	497,480
× 3412 = BTU (000)	565,027	467,444	664,931	1,697,402
Steam—\$	\$3,360.35	\$2,164.54	\$2,459.05	\$8,983.94
Gas cu. ft. (00)	13,283	19,196	27,063	59,542
× 1031/cu. ft. = BTU (000)	1,369,477	1,979,108	2,790,195	6,138,780
Oil gals. No. 2	13,876		1,418	15,294
× 138,690 = BTU (000)	1,924,462		196,662	2,121,124
TOTAL \$	\$5,547.05	\$3,659.79	\$4,473.43	\$13,680.27
TOTAL BTU (000)	3,858,966	2,446,552	2,446,552	9,957,306
Cwt. Flour/Eggs	17,214	20,157	20,825	58,196
1976 Electricity \$	\$4,825.00	\$3,074.43	\$4,417.00	\$12,316.43
KWH	218,520	141,120	201,960	561,600
× 3412 = BTU (000)	745,590	481,501	689,088	1,916,179
Steam—\$	\$5,244.34	\$2,824.24	\$8,319.14	\$16,387.72
Gas cu. ft. (00)	20,815	19,110	25,177	65,102
× 1031/cu. ft. = BTU (000)	21,460,027	1,970,241	2,595,749	26,026,017
Oil gals. No. 2	5,783		3,181	8,964
× 138,690 = BTU (000)	802,044	441,173	1,243,217	1,243,217
TOTAL \$	\$10,069.34	\$5,894.67	\$12,432.17	\$28,700.18
TOTAL BTU (000)	3,693,661	2,451,742	3,726,010	9,718,413
CWT Flour/Eggs	17,214	20,825	20,157	58,196
1972 Cost per million BTU's				\$1.37
1976 (000,000)				\$2.90
1972 Cost per cwt.				\$.24
1976				\$.49
1972 BTU's (000) per cwt.				171
1976				169

Total BTU's should be divided into the total dollars spent to determine the cost per million BTU's. Total cwt. manufactured should be divided into BTU's to determine BTU's per cwt.

We now have received a procedure for an energy audit. 1972 is the base year that will be used. Quickly we see our dollar cost increase which is shocking. Next, how efficient were our operations? This indicates only a slight improvement.

Identifying the operations concerning energy and fuels consumed enables management to target what conservation options are available and what goals energy savings can be achieved. A goal can be as simple as an estimate of what is achievable based on the results of an energy audit or it can be based on calculations of an engineer analyzing the operations involved. However established, the important point is that goals be set in quantifiable terms and then met.

Another important point of the program has to do with encouraging employees to be efficient in the use of energy on the job. This means emphasizing the importance of each employee achieving company energy savings goal through such information modes as employee suggestions programs, energy conservation posters and by encouraging employees at all levels to comment on changes in operating practices. (Energy conservation is everyone's concern for the security of their future.) Through energy management your company can

both strengthen their competitive stance and assure efficient use of our limited and increasingly costly energy resources.

Our Macaroni Association's role can be central; by stimulating the adoption of an energy management program among its members, your association can promote long-term economic health and identify our industry with the new nationwide energy conservation ethic.

Consumer Food Costs Down Due to Packaging

American consumers spend less than 17% of their disposable income on eating, with effective packaging credited for keeping the expenditure down. Analysis of recently released U.S. government data by The Packaging Institute/USA showed that the 1975 packaging bill for food was \$13.4 billion dollars. On a total food bill of almost \$160 billion, packaging represented only 8.4% of food costs.

The non-profit Packaging Institute/USA, the country's leading professional organization for packaging further noted that the American consumer pays less for food than consumers in any other country of the world. Further, consumer expenditures for food are nearly the lowest in our country's history.

In highlighting these data, The Packaging Institute/USA expects to demonstrate that packaging is a vital contributor to the socioeconomic structure of our nation.

WHY YOU MUST PUT YOUR BEST FACE FORWARD

These are basic facts of selling in today's market:

1. Shoppers have a food budget. It may be rigid—it may be flexible but, by-and-large, food purchases are contained within decided amounts.
2. Aside from predetermined items on a list, the vast majority of purchases are made on impulse. If a shopper buys Item A, Item B is out for that trip.
3. Packages designed to catch the eye and sell have a far greater appeal and are selected more frequently than outmoded "winners". But styles change, competition comes from even dissimilar products. Some dominant appeals of yesteryear are "old hat" today.

While the Rossotti Method is distinctive—we and several other producers can print excellent cartons and labels. But designing selling packages that are individually yours is a unique talent. Rossotti has created and produced resultful packages for a great many of the leading organizations throughout the country. IN ADDITION we offer a marketing service that is uncopied to date. Under the guidance of our Marketing Director, who has attained a background of international accomplishments . . . we will analyze your products as related to your market and make specific recommendations that promise greater profits from your sales.

There is no cost . . . all that is needed is an appointment for a preliminary discussion.

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Measuring the Efficiency of Various Dryer Lines

by Alan Katske, Microdry Corporation

In line with discussions of performing plant energy audits, one needs to measure the individual manufacturing lines relative efficiencies to determine where savings can take place in the area of BTU consumption to cut down on consumption of an existing line or as a factor in determining the proper replacement or addition of a new line.

We have performed some of these measurements in plants with the following results. The dryers were processing identical product, teflon die elbow macaroni with a wall thickness of approximately .035 inch.

We measured four lines—two conventional of different make and two Microdry which were identical except that one did not have an insulated air system.

The results were as follows:

BTUs per pound of finished product
Conventional One—
470 Steam system
Conventional Two—
397 hot water system
Microdry One—
318 steam-uninsulated air
Microdry Two—
242 steam-insulated air

The Microdry units include the electrical energy used to dry converted to BTUs. As you can see, the Microdry units consume anywhere from 25% to 50% less BTUs per pound of product throughout.

To actually calculate the BTU consumption of a dryer line one needs the following information:

If a steam system.

- Pounds of steam pressure used in the system.
- Gallons on condensate per hour.
- Temperature of the condensate and the steam.
- Pounds of macaroni product throughout.

If a hot water system.

- Pounds per hour of hot water used.
- Temperature loss of the water.
- Pounds of macaroni product throughout.

From the above one can go to the steam tables to determine the BTUs required to evaporate one pound of water at various steam pressures.

For Example:

Pounds Pressure	BTUs Required
15	970
30	945
60	915
80	901

If the system is a microwave, you must also add the electrical energy converted to BTUs which is calculated as follows: number of Kilowatts used times 75% (efficiency of the generator) times 3,413 BTUs per kilowatt.

Therefore in the cases of the lines we are discussing, the following are the calculations used to determine the BTU consumption of each.

Conventional One—steam system.

60.24 gallons condensate per hour times 8.35 pounds per gallon times 940 BTUs equals 472,823 BTUs per hour.

Plus the temperature drop of 145 degrees equal 72,936 BTUs per hour for a total of 545,759. This goes into a production rate of 1,160 pounds per hour for 470.48 BTUs per pound.

Conventional Two—hot water system.

Preliminary dryer: 62.8 gallons per minute times 8.35 pounds per gallon times 60 minutes per hour times 23 degrees temperature loss equals 723,644 BTUs per hour.

Final dryer: 33 gallons per minute times 8.35 pounds per gallon times 60 minutes per hour times 40 degrees temperature loss equals 661,320 BTUs per hour.

The total of 1,352,700 BTUs per hour goes into 3400 pounds per hour production to equal 397.85 BTUs per pound.

Microdry One.

Steam portion—pre dryer—78 gallons of condensate per hour times 8.35 pounds per gallon times 945 BTUs equals 615,478 BTUs.

Temperature drop of 50 degrees equals 32,565 BTUs.

Final dryer with 38 gallons times 8.35 times 945 equals 299,848 BTUs. Temperature drop of 50 degrees equals 15,865 BTUs.

Electric for microwaves is as follows: 26 kilowatts times 75% efficiency times 3,413 BTUs per kilowatt equals 118,084. Total BTUs for the system are 1,082,210. At a production

rate of 3450 pounds per hour this equals 318.29 BTUs per pound.

Microdry Two.

This unit has a boiler for the sole purpose of providing it with a steam source. Therefore, another method of measuring the line's BTU consumption becomes apparent. The boiler uses 200 gallons of No. 2 fuel oil every 24 hours and the line produces 86,000 pounds during each 24 hour period. The efficiency of the boiler is 75% and the BTU factor of the fuel oil is 120,000 BTUs per gallon. Therefore, 200 gallons times 75% equals 150 gallons of fuel for drying times 120,000 BTUs per gallon for 18,000,000 BTUs per day. Plus 26 kilowatt microwave power times 75% efficiency times 3,413 BTU per kilowatt equals 2,834,016 BTUs per day for a total of 20,834,016. At a production rate of 86,000 pounds this is 242.26 BTUs per pound.

Projecting a savings of about 150 BTUs per pound of a microwave dryer over a conventional dryer at 4,000 pounds per hour, the numbers look like this: 150 BTUs per pound times 4,000 pounds per hour equals 600,000 BTUs per hour times 24 hours for 14,400,000 BTUs per day. 72,000,000 BTU savings per 5-day week.

In addition, a microwave dryer's throughout time at 4,000 pound per hour is one and one-half hours where conventional dryer is in the vicinity of 7 hours, or on filling the dryer at the beginning of the week and emptying it at the end of the week one saves a total of about 11 hours of energy consumption per week with the microwave unit. Since neither dryer consumes full drying energy on filling and emptying, assume half use on filling and emptying for each or a total net saving of about 6 hours or another BTU savings of 9,600,000 per week bringing the total savings to 75,600,000 BTUs per week: on a single 4,000 pound dryer.

From this you can apply your local cost of energy and determine your dollar savings.

Obviously these savings go a long way to compensate for the 8 to 15% increase in energy efficiency the federal government is going to expect from the food industry.

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Planting Intentions

The sharp decline in wheat plantings indicated by farmers in January was confirmed as of April 1 in a U.S.D.A. survey.

Spring wheat acreage is expected to total 15,300,000 down 14% from 1976 and down 4% from January intentions. The smaller durum wheat crop is expected to total 3,300,000 acres, down 31% from last year but up 14% from January's intentions.

Wind Damage

Wind erosion has stripped nearly 6,800,000 acres of land in the Great Plains, the worst such damage in twenty years, the Department of Agriculture said.

Canadian Planting Intentions

Statistics Canada published data on Canadian planting intentions as of March 15, 1977. Total acreage is down about ten percent. Spring wheat is estimated to be planted on 22,300,000 acres compared to 23,800,000 last year, a six percent decline. The biggest drop came in durum which is expected to take only 1,800,000 acres, down 45 percent from last year's 3,300,000.

French Situation

Great Plains Wheat in Rotterdam gives this analysis of French durum, largest supplier of the European Economic Community:

Plantings in 1977: 150,000 hectares compared to last year's 210,000. Production: 14,700,000 bushels compared to last year's 20,800,000. Imports from the U.S. and Canada are estimated at 9,200,000 bushels making total supply 34,900,000.

French consumption should run about 20,200,000 bushels. With safety stocks at 2,600,000 export availability would be 12,100,000 bushels but expected exports will be about 9,200,000. This may lead to a more favorable market for U.S. durum.

Honors Day

The annual Honors Day ceremony at North Dakota State University in Fargo was held May 2. The National Macaroni Manufacturers Association fellowship was awarded to Edward C. Lulaj for basic research on durum wheat and pasta products.



Leonard D. Sibbitt

Leonard D. Sibbitt Honored

Leonard D. Sibbitt, a professor in the NDSU Cereal Chemistry and Technology Department, was honored by the North Dakota State Wheat Commission colleagues and friends at an appreciation dinner in Fargo, April 18.

Professor Sibbitt, who has been with the NDSU Department since 1939, has been a mainstay in the department's hard red spring wheat quality testing and evaluation program. He has also worked with durum quality and pasta product research.

Mel Maier, NDSWC Administrator, told the banquet audience of nearly forty individuals that Sibbitt's expertise and dedicated service, both in the laboratory and in visits around the world, have brought about countless benefits for North Dakota wheat producers. Maier noted that Sibbitt has gone on several market development and data dissemination missions for the NDSWC as part of its technical assistance program starting in 1968.

"Sibbitt has developed many personal relationships with world grain trade decision makers. The value of this one-to-one interaction cannot be over-estimated", Maier said. He added that many European grain importers, government officials, pasta processors, millers, etc., await Sibbitt's visit each fall as a means of getting the most current, reliable production and quality information regarding the year's U.S. and North Dakota wheat crop.

Maier said the long term fruits of Sibbitt's overseas work are apparent. "I think that the growth of the U.S.

durum wheat market in Europe can be attributed to the selling job Professor Sibbitt does for the North Dakota durum producer each fall," he stated. He also said that this growth is a good example of what can be accomplished by good technical assistance program and points to the need for an even greater emphasis in this direction.

Maier noted that to be a good salesman one needs to know his product and have an understanding of the customer's needs. "When the NDSWC enlisted Professor Sibbitt's help in promoting the high quality wheat which comes off of North Dakota farms each year, it surely picked the right man," he concluded.

Egg Review

The nation's laying flocks produced 5.6 billion eggs during March, slightly fewer than a year ago. The number of eggs produced per 100 layers was 1% above a year ago. Layers on April 1, 1977 totaled 274.2 million, 1% fewer than the 276.3 million a year earlier and slightly below the previous months number of 275.5. Rate of lay on April 1 at 65.7 eggs per 100 layers established a new record high and compares with 65.1 a year earlier.

Egg-type chicks hatched during March totaled 51 million, up 2% from the 50.1 million produced a year ago. Eggs in incubators on April 1, at 19.5 million, were 8% above April 1, 1976.

Dry Egg Mix Purchase

In mid-April the U.S. Department of Agriculture announced plans to purchase 1,500,000 pounds of dry egg mix for use in domestic feeding programs.

Macaroni Business Slow

Grocery trade sales of pasta products did well the first quarter of 1977 but slipped in the post-Lenten period. Industrial-institutional sales were better during the first quarter than a year ago but government sales were off.

Monthly reports on sales to these three categories are sent to macaroni manufacturers who supply data to the monthly macaroni sales index. Contact John D. A'Asaro, Ernst & Ernst, 150 S. Wacker Drive, Chicago, IL 60606.

ASEECO BIN STORAGE SYSTEMS

BIN STORAGE

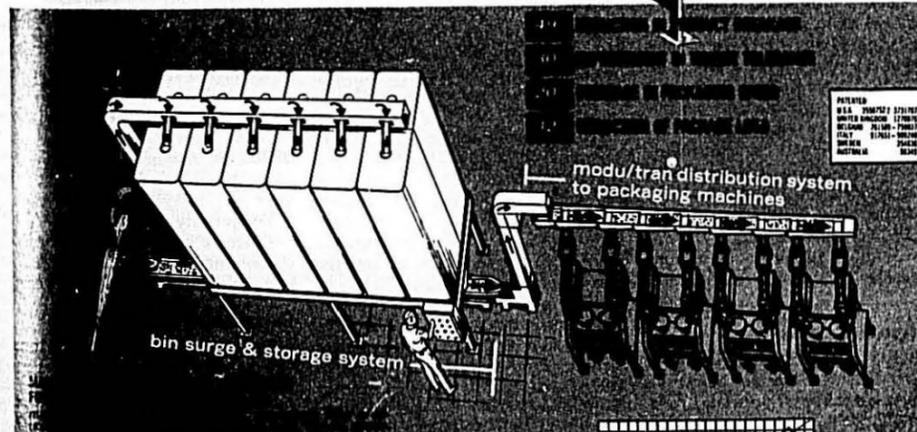
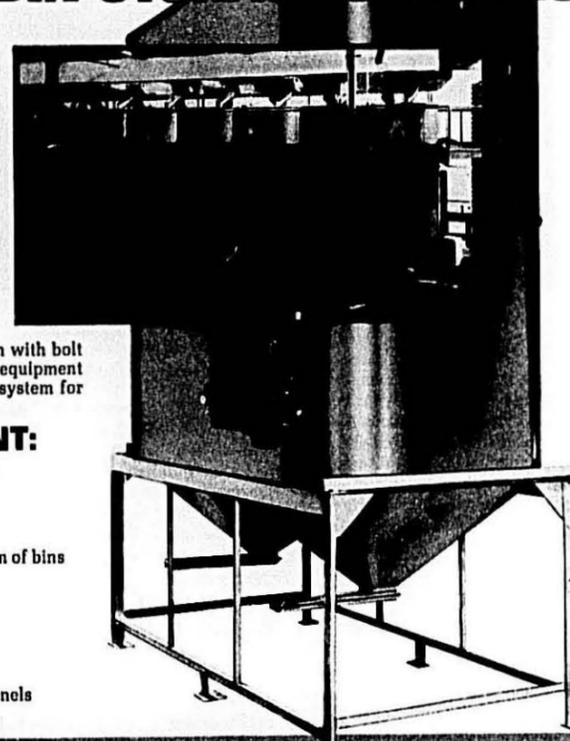
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William H. Grady



K. Charles Kolkjen



Robert H. Cromwell

Peavey Appointments

William H. Grady was named General Manager-Durum Sales for Peavey Company's Industrial Foods Group, Group Vice President Marcus W. Hefelfinger announced.

Grady had been District Sales Manager for durum sales in the central United States since 1967. In his new position, he is responsible for sales throughout the country of semolina and durum flour produced at Peavey's flour mills.

Grady joined Peavey in 1963 as a durum sales representative in Chicago. He was named Sales Manager in 1965 and District Sales Manager two years later. His experience in the food industry also includes managing a Red Owl Store in Chicago.

Replacing Grady as District Sales Manager, Central United States is K. Charles Kolkjen. Kolkjen had been Sales and Marketing Manager for durum sales in the Minneapolis area since 1975. He joined Peavey's Industrial Foods Group in 1971 as a sales trainee and worked in sales administration for durum until 1975.

Peavey Company is one of the nation's leading suppliers of durum products to pasta manufacturers.

Cromwell Retires

Robert H. Cromwell retired May 1 as Vice President-Durum Sales for Peavey Company's Industrial Foods Group.

Cromwell's 29-year-career in flour sales began in 1948 when he joined Russell-Miller Milling Company as a sales representative in Birmingham, Alabama. After Russell-Miller was ac-

quired by Peavey six years later, he served as Sales Manager for Peavey bakery mixes in San Francisco and District Sales Manager for flour in Buffalo and Scarsdale, New York.

In 1970 he was transferred to Minneapolis and named Vice President-Durum Sales.

Cromwell is a member of the Millers' National Federation's Durum Wheat Institute.

International Multifoods Reports Gains

International Multifoods Corp. reported its ninth consecutive year of increased earnings on record sales of \$847.0 million, up 6 percent from \$800.8 million the previous year.

Net earnings rose 22 percent from \$16.4 million to \$20.0 million for the broadly balanced food processing and marketing company whose fiscal year ended Feb. 28, 1977.

Earnings per common share rose 17 percent from \$2.19 to \$2.56.

Fourth quarter net earnings were \$4.7 million, or 60 cents per common share, on sales of \$205.7 million, compared to \$5.0 million, or 66 cents per share, on sales of \$202.6 million the year before.

William G. Phillips, Multifoods' board chairman and chief executive officer, said that the fourth-quarter earnings drop could be attributed to the net impact of foreign currency fluctuations, which reduced earnings in the quarter by \$990,000 or 13 cents per share.

Phillips pointed out that Multifoods has generated annual compound growth rates of 20 percent in net earnings, 16 percent in earnings per

share and 9 percent in sales since fiscal 1968.

"We had an outstanding year," Phillips said, "and we accomplished it through earnings improvement in each of our four market areas—Industrial, Consumer, Agriculture and Away-From-Home Eating. Our earnings growth again exceeded our objectives. Our unit volume was up. We fully expected our earnings and sales growth to continue in the current year."

ADM Has Small Decline

Net income of Archer Daniels Midland Co. for the nine months ended March 31 was down slightly from the preceding year on a total basis and off 6% on a per share basis. In the company's third quarter, both net earnings and earnings per share were down 13% from a year earlier.

ADM's net income for nine months ended March 31 amounted to \$47,444,484, equal to \$1.61 a share on the common stock, against \$48,562,766 or \$1.71 a share, in same period of the previous year. ADM had an average of 29,706,108 shares outstanding in the nine months, against 28,458,785 last year.

For January-March quarter, ADM's net income was \$15,401,911, or 53¢ a share, compared with \$17,698,634, or 60¢ a share, in the previous year.

Export Competition

Chile has purchased 74,000 tons of wheat from Argentina at prices ranging from \$95.10 to \$98.00 per ton f.o.b. Platte River for May-July shipment. Morocco bought 250,000 tons of Argentine and Turkish wheat for May-June delivery. In addition they took 10,000 tons of Argentine durum, 20,000 tons of Canadian durum for June delivery.

DURUM RESEARCH AT NDSU¹ A Progress Report by Brendan J. Donnelly²

¹ Paper presented at the Winter Meeting, February, 1977, National Macaroni Manufacturers Association, Boca Raton, Florida. ² Associate Professor, Department of Cereal Chemistry and Technology, North Dakota State University, Fargo, North Dakota 58102.

Before reviewing the progress made in the area of durum research conducted in the Department of Cereal Chemistry and Technology at NDSU over the past two or three years, I would like to express my sincere appreciation to the National Macaroni Manufacturer's Association for the invitation to attend this meeting and share this information with you.

Durum research in the C.C. & T. Dept. is primarily geared to ultimately benefit the pasta processing industry. Information derived from studies on durum wheat variety development, quality, processing, product formulation, and physical and biochemical studies is disseminated annually at national meetings and published in scientific and association journals. Some of the projects reviewed here have already been published and others are in the process of being submitted for publication. The nature of this research is quite broad in scope and hopefully this review will provide you with a greater appreciation of its importance and relevance to the durum industry.

I. New Micro-Milling Procedure for Durum Wheat

The development of new durum varieties requires close cooperation between the plant breeder, cereal chemist and plant pathologist. The cereal chemist is primarily interested in evaluating the quality of new experimental lines as they progress through the variety development program. The standard criteria of new selection approval as far as quality is concerned and before release is "the new experimental must be as good if not better in quality than existing varieties." Milling quality is an important aspect of this evaluation. Accurate, rapid tests for milling quality in early generation wheats are important for a successful breeding program. Although some micro-milling procedures are available they generally tend to suffer inadequacies



Dr. Brendan J. Donnelly

with respect to daily output, milling yield, tediousness of the procedure or combinations of each of these.

The objective in this research was to develop a single unit system for milling nursery durums and purifying semolina that would be suitable for 200 g. samples. The system had to be capable of detecting milling and processing differences in the wheat with a large, daily output.

This micro-milling unit consists of the following: a Brabender Quadramat Jr. mill with rolls 1,2,3 and 4 having 13,13,26 and 26 corrugations per inch, respectively; a #34 T.M. rotating mill sieve; a hopper to transfer the unpurified semolina to the sieving system of the purifier; the sieving system which contains 44,38 and 24 mesh sieves; a large drawer beneath the sieves to collect the semolina; a drawer at the end of the sieves to collect the "overs" which are remilled; four adjustable sliding vents on each side of the unit for air inlet control; a small 1/8 h.p. electric motor to operate an eccentric arm attached to the sieve frame which provides a screen oscillating frequency of approximately 520 per min. and finally a canister-type vacuum cleaner which removes the bran and fine dust particles from the semolina in the sieving chamber.

Samples of durum wheat (27 x 200 g.), representing composites from the 1974 North Dakota Wheat Quality Survey, were processed on this micro-milling unit. The results obtained were compared to those obtained from the macro (Buhler) mill. There

was a high degree of correlation, at the 1% confidence level, between protein, bran specks and ash as determined from both milling methods. The mill extraction between the 27 samples for the two procedures is not as high as expected but is significant at the 5% confidence level. An analysis of variance of the semolina extraction and the bran speck count for eighteen duplicated milled samples by both methods were highly significant (1% confidence level). This indicates that the micro milling and purifying method can select durums of high extraction and low bran speck count. The micro-milling unit produces a little finer semolina as indicated by particle distribution comparisons with the macro method (Table 1). One of the additional and important features of this unit is that it can process up to 120 samples per day, an increase of 60% over the older procedure or 45 more samples. The older procedure involved separate milling and semolina purification.

TABLE 1
Average Particle Size Distribution of Micro Milled and Purified Durum Semolina Samples

U.S. Sieve No.	Macro %	Micro %
40	8.9	3.5
60	64.7	66.2
80	16.9	18.2
100	5.9	6.6
Thru 100	3.7	5.5

In addition to the advantages listed above, this unit provides the cereal chemist with early information on durum wheat quality (4th or 5th generation) and ensures the plant breeder of good quality durums in the advanced yield trial tests.

II. Formulations for Fortified Pasta Products

One of the great challenges today is the development of inexpensive foods which are nutritionally superior and at the same time acceptable to the intended consumers. The introduction of foods which are both nutritious and inexpensive is painfully slow if they represent forms and tastes which are foreign to the consumer.

(Continued on page 24)



Pasta Masters.



Super cool summer salads start with pasta made by Peavey experts from our line Semolina and Durum flours.

At Peavey, there's a longstanding tradition of searching out ways to make our products perform a little better for you. In our miniature macaroni press and dryer operation, for example, our own pasta experts actually make test batches of pasta so they can precisely analyze its color, nutritional content, and shape retention. We've found this is a proven way to constantly improve our products. (We're also very willing to work with our customers on their new product ideas, using our miniature equipment. Naturally, we're very discreet about keeping their secrets.)

Another reason why Peavey's such a popular name with pasta manufacturers is the consistently high quality of our King Midas Semolina and Durum flour. We start with Durum wheat from the North Country. Then mill it in our modern, well-equipped facilities that were designed specifically for producing the best Semolina and Durum flour available today.

Our pasta masters even develop recipes utilizing pasta in mouth-watering new ways, as in the cool summer salads shown here. Recipes are available to you without obligation. Just drop us a line and we'll rush them to you, plus answers to any questions you may have.

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Durum Research

(Continued from page 21)

Wheat, with its wide areas of adaptability, has the greatest potential for new or expanded food uses. New products that might be developed from wheat must be acceptable to many ethnic groups, particularly the young and the elderly of each group. Although bread products are more widely consumed than pasta products, the persons who eat a large amount of bread in their diet are usually more sensitive to any alterations, as there are thousands of bakers involved in its manufacture. It is also considerably more perishable. Pasta products are relatively non-perishable, usually made by large companies, consumed in many areas, and, perhaps more important, with a variety of well-flavored supplements easily accepted by all age groups from the small child to the elderly citizen.

At the time this pasta fortification project was being developed, durum wheat was selling for \$1.50 per bushel. There appeared to be a need to devise additional uses for durum wheat because of its unique functional properties and to improve nutritional properties. An agreement based on an acceptable project outline was signed September 8, 1973 between the North Dakota State Wheat Commission, the National Wheat Institute and the North Dakota State University Agricultural Experiment Station.

Included as objectives of the research outlined in the project agreement were:

1. To develop high-protein durum wheat based products of high nutritional value with a protein efficiency ratio (PER) approximately 95 per cent the value of casein with good consumer acceptance and at a minimum cost. Commercially available protein sources were to be utilized in this project objective.

2. To search for new sources of plant protein materials which can be incorporated with durum wheat pasta.

3. To seek potential applications of unique factors in food and/or industrial products. Snack food products were to be considered.

The PER specification of objective 1 was established so that all developed formulations would conform to the standards of identity of enriched macaroni with fortified protein and that the ingredients chosen would fortify the protein and not include

TABLE 3
Quality Data on High-Protein Formulas

Sample	Color Score	Cooked Weight g/10 g	Cooking Loss %	Firmness Score g. cm.	Protein %
Control	8.5	36.5	4.7	5.7	13.0
CF1	7.0	30.9	5.5	7.6	19.0
CF2	5.5	30.4	6.6	10.2	22.0
CF3	6.0	28.6	5.9	6.8	23.9
CF4	5.0	27.7	9.7	9.6	26.4
CF5	5.5	26.8	8.1	7.7	26.6
CF6	5.5	28.0	7.8	10.0	25.6
CF7	5.5	27.4	9.3	11.4	26.5
CF8	5.0	27.1	7.6	6.3	27.3
MCF2	7.0	31.5	7.6	6.9	22.7

¹On 14.0% moisture basis.

TABLE 2
Computer Formulas Obtained by Linear Programming (LP)

Computer Formula (CF)	Ingredients %	%
CF1	Semolina	83.2
	Fish Protein	5.5
	Soy Flour	6.1
	Whey Protein	3.0
	Wheat Germ Protein	2.2
CF2	Semolina	71.8
	Soy Flour	24.3
	Oat Protein	2.9
	Whey Protein	0.9
CF3	Semolina	76.1
	Pro-Fam 90/LS	4.3
	Protolac	3.2
	Egg Albumin	2.5
	Supro 620T	1.9
	Promosoy 100	12.0
CF4	Semolina	72.0
	Pro-Fam 90/LS	10.1
	Bakers Nutrisoy Flour	7.6
	Protolac	4.4
	Egg Albumin	5.9
CF5	Semolina	76.5
	Pro-Fam 90/LS	13.8
	Protolac	3.9
	Egg Albumin	5.8

TABLE 2—(Continued)

CF6	Semolina	76.6
	Pro-Fam 90/LS	9.7
	Protolac	3.5
	Egg Albumin	4.5
	Promosoy 100	5.7
CF7	Semolina	72.0
	Pro-Fam 90/LS	10.1
	Protolac	4.4
	Bakers Nutrisoy Flour	7.6
	Egg Albumin	5.9
CF8	Semolina	72.6
	Pro-Fam 90/LS	12.2
	Bakers Nutrisoy Flour	2.4
	Protolac	4.0
MCF2	Egg Albumin	6.8
	Promosoy 100	2.0
	Semolina	71.9
	Soyaluff 200W	24.3
	Vital Wheat Gluten Modified Whey Protein	2.9

color additives, artificial flavorings, artificial sweeteners, chemical preservatives or starches. Although enrichment nutrients are specified for enriched macaroni products, the prod-

ucts developed in this project work did not contain them. There would be no problem adding the enrichment nutrients to meet the standards of identity of these engineered products.

The product development research showed 15 formulations that seem to hold promise (2). Computer formulas (CF) 1 and 2 were the first formulas developed in this program (Table 2). Further improvement for better protein quality was attempted by developing computer formulations 3 to 8. The linear programming technique was used to improve upon the amino acid scores found in the protein of formulas developed as Improved Computer Formula (ICF) 1. All six formulations had good spaghetti cooking properties and high protein but were inferior in color as judged by the control sample of spaghetti made from 100 per cent durum semolina. However, the color of the six products was no worse than commercially produced spaghetti that had a color value of 4.8 (Table 3).

The PER value of CF 4 was 265 with a protein content of 26.4 per cent on a 14 per cent moisture basis. Although the PER value was determined only on CF 4 of the final group of six formulations, it is anticipated that the remaining five formulas should meet the requirement that fortified pasta has a PER value of 95 per cent of casein.

One formula which has been designated MCF 2 has received the bulk of the testing for consumer acceptance by school children and homemakers. The formula had a PER of 2.93 compared to 2.50 (adjusted) for casein. The protein content was 28.5 per cent (dry basis) or 22.7 per cent on 14 per cent moisture basis. From the results obtained on consumer

(Continued on page 26)

THE MACARONI JOURNAL



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Durum Research

(Continued from page 24)

testing and the quality of the spaghetti MCF 2 was judged to be the best formulation.

All the improved CF 1 computer formulations (Table 4) should be acceptable as fortified macaroni, particularly ICF 1-B and ICF 1-D-2. The spaghetti quality of these two products was excellent except for a higher than normal cooking loss when compared to a 100 per cent durum wheat pasta (Table 5). The protein content of ICF 1-B was 22.5 per cent while the protein of ICF 1-D-2 was 23.9 per cent on a 14 per cent moisture basis.

The use of bean protein concentrate in pasta showed good promise. The pasta was prepared using a 77:20:3 ratio of semolina to bean protein concentrate to vital wheat gluten, respectively. Product quality was judged to be excellent. The essential amino acid profile indicated that the bean fortified pasta protein, particularly with the navy bean concentrate (NBC) would produce a high PER value. Additional development work needs to be attempted.

In summary, a number of high protein pasta products have been developed by blending durum wheat semolina with commercial sources of protein. These products or formulations show improved nutritional qualities over the basic semolina products and have characteristics such as appearance and cooking quality that have good potential in the consumer market.

III. Cooking Properties of Spaghetti

Research was conducted to evaluate the effect of protein quantity and quality on the cooking properties of spaghetti (3). In addition, the progression of starch granule gelatinization from the outer surface of the spaghetti strand to the core was followed by

TABLE 4
Improved High Protein CF1 Formulas

Sample	Ingredient	%
ICF 1-A	For maximum color:	
	Semolina	77.4
	Nutrisoy Flour	17.5
	Protolac	4.7
ICF 1-B	For maximum protein quality (100 per cent FAO recommendation):	
	Semolina	71.1
	Nutrisoy Flour	16.7
	Protolac	1.2
ICF 1-C	For high lysine content (100 percent vs. 95 per cent FAO recommendation for CF 1 and 2):	
	Semolina	70.5
	Nutrisoy Flour	19.4
	Protolac	0.5
ICF 1-D	For maximum taste:	
	(1) Semolina	84.9
	Pro-Fam 90/LS	8.6
	Protolac	2.6
	Egg Albumin	0.9
	Supro 620 T	3.0
	(2) Semolina	85.0
	Pro-Fam 90/LS	9.5
	Protolac	3.7
	Egg Albumin	0.4
	Supro 620 T	1.4
	(3) Semolina	77.4
Pro-Fam 90/LS	0.1	
Supro 620 T	5.5	
Soyafuff 200 W	13.6	
Promosoy 100	3.4	

examining thin sections of cooked spaghetti with a polarizing microscope. The objective of this work was to determine whether or no the standard cooking procedure (3) used in our pasta cooking quality evaluation was generating optimum quality data. This standard procedure involved cooking spaghetti (10 g.) in boiling, distilled water (300 ml.) for 20 min. and, subsequently, determining the cooked weight, cooking loss and cooked firmness of the spaghetti. The spaghetti source material, protein content and gluten strength of the samples used in this study are shown in Table 6. The wheats with D prefix represent North Dakota experimental durum selections except DT 411 which is a Canadian experimental selection. These durum wheat samples represent a wide range in protein content and gluten strength. Results of statistical analyses of the cooking data in Table 6 are shown in Table 7. It is apparent from the results that the overriding effect of spaghetti cooking quality is cooking time and that protein content and gluten quality are significantly correlated with cooking loss ($r = -0.37$ and -0.40 respectively) and cooked firmness ($r = 0.44$ and 0.44 , respectively) at the 1% level of confidence. Another important feature of these results is that the strong gluten wheats, namely DT 411 and D 7158

TABLE 5
Quality Data on Improved High Protein CF 1 Formulas

Sample	Color Score	Cooked Weight g/10 g	Cooking Loss %	Firmness Score g cm	Prot. %
Control	8.5	36.5	4.7	5.7	13.4
ICF 1-A (max. color)	7.0	29.5	11.3	8.7	22.3
ICF 1-B (max. protein quality)	7.5	30.4	13.0	6.6	22.5
ICF 1-C (max. taste)	7.0	31.7	12.8	6.5	22.7
ICF 1-D-2 (max. taste)	7.0	34.0	11.5	5.7	23.9

* On 14.0% moisture basis.

TABLE 6
Cooking Properties of Spaghetti Processed from Durum Wheat Varieties

Sample	Protein* %	Gluten* Strength	Cooking Weight (g.) ^b				Cooking Loss (%) ^b				Cooking Time (min.) ^b			
			5	10	15	20	5	10	15	20	5	10	15	20
D7169	12.0	1	24.62	31.03	37.79	41.26	5.4	7.3	8.4	9.4	6.25	3.64	3.16	2.86
Rugby	13.6	2	23.46	28.48	34.03	36.78	4.0	5.5	6.9	7.9	9.00	6.15	4.85	4.02
Rolette	14.2	3	23.36	28.46	33.28	38.00	3.2	4.6	7.1	7.8	11.22	6.53	5.03	4.41
DT411	15.4	8	22.52	27.73	32.40	36.66	4.0	4.9	6.0	6.6	11.00	8.10	6.31	5.35
D7158	16.6	7	23.14	28.92	33.26	37.11	3.9	5.3	6.0	7.0	10.76	7.35	5.89	5.51
D71117	17.6	5	22.70	27.95	32.62	36.11	4.0	5.5	6.8	7.5	11.39	8.02	5.55	4.47

* Expressed on a 14% moisture basis.

^b Derived from comparison with standard farinograms.

* Average of two replications.

exhibited superior cooking quality to the other samples and that the low protein, weak gluten samples, particularly D 7169, had high cooked weight, cooking losses and low cooked firmness scores. These results corroborate existing data that protein content per se is not a determinant of pasta cooking quality but is also a function of protein quality.

Thin sections (8u) of cooked and uncooked spaghetti processed from the durum wheats outlined in Table 6 were examined with a polarizing microscope after 5, 10, 15 and 20 min. cooking. The results showed as cooking time increases the spaghetti strand walls and essentially reaches maximum thickness between 10 and 15 min. The starch granules also showed increased gelatinization with cooking time and loss of birefringence was complete after 15 min. regardless of protein content and gluten strength. However, starch gelatinization proceeded at a faster rate in the low protein, weak gluten samples than their higher protein, stronger gluten counterparts.

As a result of the data generated in this investigation the 20 min. cooking time used in our standard cooking procedure in the past has been changed to 15 min. It is felt that this change provides more realistic cooking quality data.

IV. Effect of Steam Conditioning and Heat Treatment on Durum Wheat Milling

The main objective of wheat conditioning is to bring wheat into the best physical condition for milling. Proper wheat conditioning will cause desirable moisture differential throughout the wheat kernel with

TABLE 7
Correlation Coefficients Between Cooking Quality and Cooking Time, Protein, and Gluten Strength

Variable	Correlation Coefficient
Cooked Weight vs. Cooking Time	0.96**
Cooked Weight vs. Protein	-0.18
Cooked Weight vs. Gluten Strength	-0.17
Cooking Loss vs. Cooking Time	0.85**
Cooking Loss vs. Protein	-0.37**
Cooking Loss vs. Gluten Strength	-0.40**
Cooked Firmness vs. Cooking Time	-0.79**
Cooked Firmness vs. Protein	0.44**
Cooked Firmness vs. Gluten Strength	0.44**

** Significant at 1% level of confidence.

more moisture in the bran and will improve the separation of endosperm from the bran. Conditioning of durum wheat has an important role since large chunks of endosperm (semolina) must be produced with complete absence of bran and other specks. Wheat conditioning may be done by cold or warm process. The warm process may be accomplished by either heat or steam or both. The steam can be applied directly or indirectly. Time is another important factor in the different methods of wheat conditioning.

Durum wheat conditioning is usually different from bread wheats since more moisture is desirable in the bran than in the endosperm to obtain semolina free of specks. This study was conducted to determine what influence wheat treatment has on durum milling and pasta processing.

A blend of durum wheats from the 1971 crop was used for the purpose of this study. Table 8 gives physical

and chemical data of the durum wheat mix.

Wheat Treatments

a) Regular Tempering. The dry wheat was tempered in three stages: first to 12.5 per cent moisture at least 72 hr. prior to the second stage which adds an additional 2.0 per cent for 18 hr. to give a cumulative moisture of 14.5 per cent, then a final temper of 3.0 per cent, 45 min. prior to milling.

TABLE 8
Physical and Chemical Data of the Durum Wheat Mix

Test Weight	62.7 lb./bushel
Vitreous Kernels	89.0%
100 Kernel Weight	36.8 g.
Protein*	13.0%
Moisture	12.5%
Kernel Distribution	Large Medium Small
	39% 60% 1%

* 14% moisture basis.

b) Steam Treatment. Samples previously tempered to 12.5 per cent moisture were treated with steam for 30 seconds on position #3 of the regulating valve in the steam inlet pipe of the Miag laboratory conditioner. The samples had a rest period of 1/2 hr. after steaming before milling.

c) Tempering and Heat Treatment. Samples previously tempered to 12.5 per cent moisture were given an additional 3.5 per cent moisture to give a cumulative moisture content of 16 per cent, then heated to 60° C. inside the Miag laboratory conditioner drum and held for 15 min. The total time elapsed was 1/2 hr. The heated wheat was milled immediately after removal from the drum.

(Continued on page 30)

TABLE 9
Data on Semolina Milled from Durum with Different Conditioning Treatments and Particle Size

Conditioning Treatment	Extraction ² %	Ash ² %	Protein ² %	Absorption ² %	Moist. %	Dust Color	Specks	Distribution ³					
								Over 40	Over 60	Over 80	Over 100	Over 100	
Coarse	a	60.4	0.67	12.5	31.5	14.1	11.0	33	32.9	48.3	13.7	2.6	2.5
	b	63.1	0.70	12.6	31.5	12.7	11.0	30	34.7	46.9	13.0	3.0	2.4
	c	62.4	0.69	12.5	31.5	12.9	11.0	33	31.6	47.0	14.7	3.6	3.1
	d	63.6	0.73	12.8	31.5	13.0	11.0	50	32.2	46.6	14.7	3.4	3.1
Fine ¹	a	58.1	0.70	12.4	32.0	14.0	10.0	33	5.3	59.9	22.7	5.9	6.4
	b	62.1	0.72	12.4	32.0	13.0	10.0	43	5.0	59.7	23.0	5.5	6.8
	c	60.6	0.72	12.4	32.0	13.2	10.5	50	5.0	59.5	24.1	5.9	5.5
	d	60.9	0.71	12.7	32.0	13.0	10.0	40	4.3	60.5	23.2	6.3	5.7

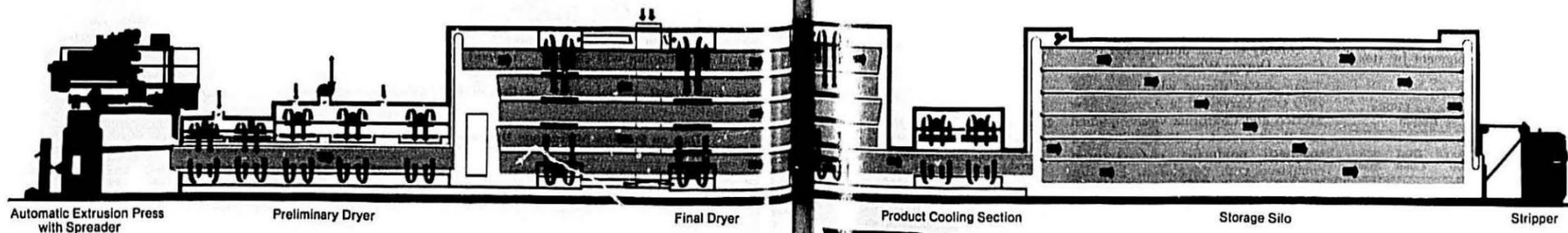
¹ = regular tempered, b = steam for 30 sec., c = tempered and heated, d = tempered and steam for 20 sec.

² = 14% moisture basis.

³ The percent extraction of fine flow was adjusted to the same percent extraction of the coarse flow when processing the semolina by adding 2nd and 3rd break flour to semolina. The particle size distribution was determined on the semolina after adding the flour.

The percent extraction given for the fine semolina is the unadjusted extraction.

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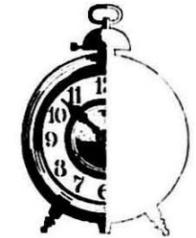
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Durum Research

(Continued from page 27)

d) Tempering and Steam Treatment. Samples pretempered to 12.5 per cent moisture were given an additional 1 per cent water to give a cumulative moisture content of 13.5 per cent, then rested for ½ hr. before steaming for 20 seconds using a Miag laboratory conditioner. The samples then rested for ½ hr. prior to milling.

Semolina: Extraction Rate and Quality

The data in Table 9 show that durum wheat treated with steam for 30 sec. (treatment b) gave the best extraction on the average with minimal speck count compared to the other treatments, regardless of the flow. Also, the moisture content was 1 per cent less than the regular procedure. The other two samples which had been heat treated or tempered and steamed showed marked improvement over the regular tempering procedure, but tended to be higher in speck count than the steam treated sample.

Semolina color for the coarse flow was higher than those of the fine flow due to particle size. No noticeable effect on particle size distribution or other chemical or physical properties of the semolina was observed to different treatments for a given flow as shown by the exemplary data in Table 9.

Durum wheat treated with steam for a period of 60 sec. or more gave lower per cent extraction (Table 10). Also, the semolina milled from wheat with longer steam treatment had lower color score due to an apparent destruction of the pigment by steam.

TABLE 10
Effect of Steam Time on Milling Performance of Durum

Steam Time ¹	% Extraction	Dust Color	Specks
20 sec.	65.8	11.0	77
30 sec. (treatment b)	63.1	11.0	30
40 sec.	62.1	10.0	33
60 sec.	55.9	9.0	30

¹ Durum adjusted to 12.5% moisture at least 72 hr. prior to steaming.

The mixograms for all the treated samples showed no difference in their pattern. The mixograph absorptions for the very fine semolina was increased by 8 per cent over the other samples. This increase in the water

absorption for the fine and very fine semolina is apparently due to the damaged starch.

Spaghetti Quality

Differences in cooked weight, cooking loss and firmness of spaghetti between samples were not significant. This would indicate that the quality of the final product could be maintained by any of the treatments as shown by data in Table 11.

TABLE 11
Effect of Heat Treatment on Pasta Quality

Granulation and Treatment ¹	Color Score	Cooked Weight g/10	Cooking Loss, %	Firmness g. cm.
Coarse				
a	8.5	35.7	5.0	4.24
b	8.5	35.6	7.0	4.67
c	9.0	36.1	6.0	4.43
d	9.0	35.2	6.0	4.48
Fine				
a	8.5	37.7	6.0	3.68
b	8.5	35.8	5.0	4.62
c	8.5	37.1	6.0	3.80
d	8.5	36.6	8.0	4.14

¹ See footnote 1, Table 9.

Conclusions

Heat treatments of durum wheat increased the milling performance without noticeable effect on quality of produced semolina or pasta products compared to the regular cold method. A short conditioning process is feasible when live steam is used and gives the best results.

Granulation did not appear to influence the final quality of the pasta product within the range studied.

V. Quality of U.S. Southwestern Grown Durum Wheat

Samples of durum wheat from the 1976 crop harvested in Arizona, New Mexico and California were obtained and their market quality, milling and spaghetti producing characteristics compared with the durum crop for the 1975 North Dakota harvest. The results were presented recently in the Macaroni J. (5). Suffice it to indicate at this time that the southwestern grown durums exhibited inferior quality factors in the milled and processed products when evaluated by established criteria used for North Dakota durum wheat. Such deficiencies as relatively low protein levels, high ash (in samples difficult to clean by mechanical means), low spaghetti color sources and generally poorer cooking quality will most likely have

an adverse effect on the marketability of this wheat. Of the varieties samples from the southwest, namely Produra, Crane, Cocorit, Mexicali and Modoc, the varieties Mexicali and Modoc represent future promise for wheat quality grown in that area.

VI. Summary

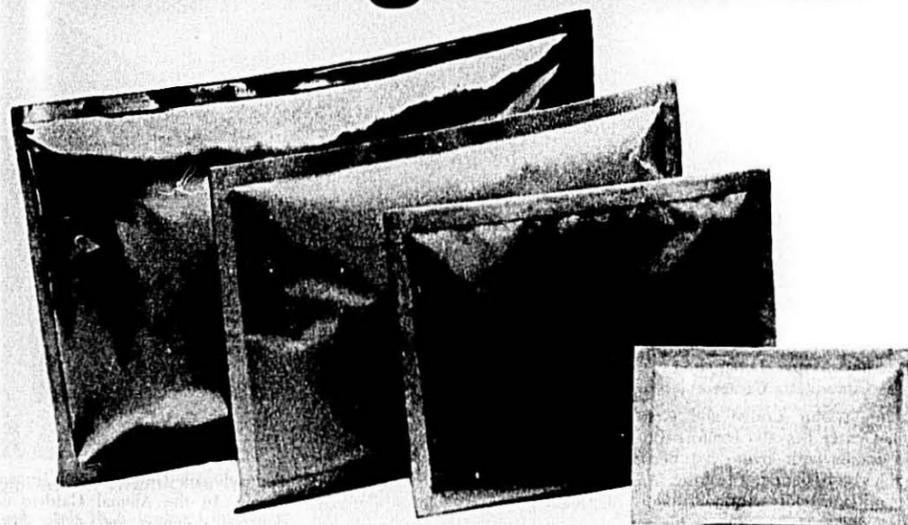
The research outlined in this report gives an overview of some of the work that has been done in the area of durum wheat and durum wheat products in Cereal Chemistry and Technology Department at North Dakota State University. The major portion of our work is concerned with the quality evaluation of new durum selections developed by the plant breeder and also the annual quality evaluation of the North Dakota durum wheat crop. The research is conducted primarily by graduate students working towards M.S. or Ph.D. degrees. In most instances efforts are made to have these students pursue projects with practical significance with respect to our quality program and/or the durum wheat and macaroni processing industry. In either case it is our intent that this work ultimately benefits the industry.

Finally, on behalf of the North Dakota Agricultural Experiment Station and the Department of Cereal Chemistry and Technology I would like to thank the National Macaroni Manufacturers Association for its generous support of our work in the past.

LITERATURE CITED

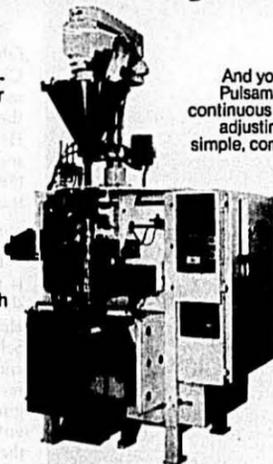
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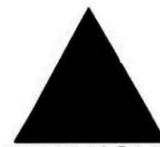
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Convention Highlights

Sunday, July 10. Executive Committee Meeting with Membership Committee at 2:00 p.m.

7:00 p.m.—Reception at the Hershey Country Club.

Monday, July 11. 8:00 a.m. Continental Breakfast—Business Session on the State of the Industry—Guests from the Macaroni Industry.

Lunch and Golf Tournament. Reception and Pasta Party.

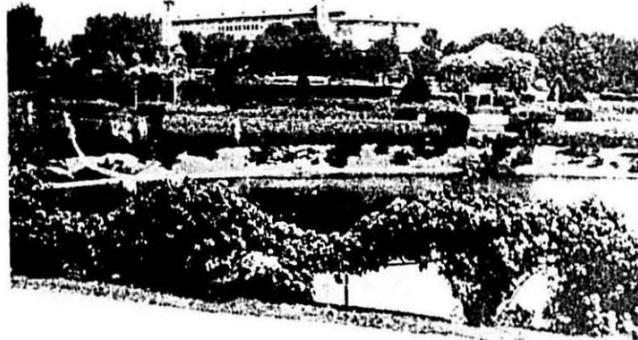
Tuesday, July 12. Early Breakfast. Promotion—Association Business Luncheon and Golf Tournament.

Wednesday, July 13. Early Breakfast. Management. Executive Climate.

Business Luncheon and Tennis Mixer. Evening Reception and Dinner Dance.

Thursday, July 14. Board Meets.

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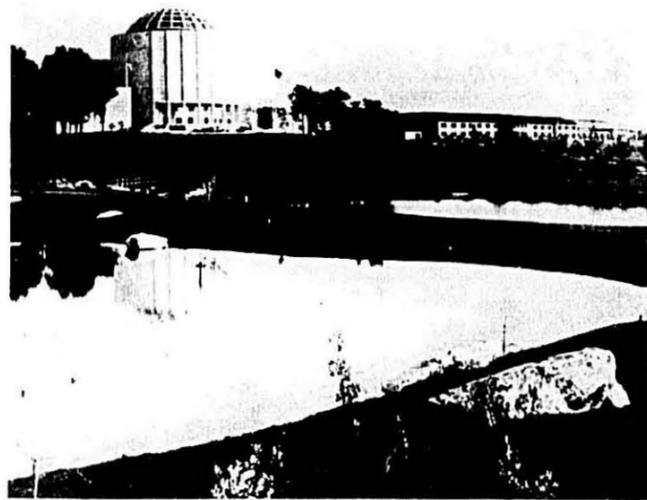
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Jerome V. Guerrisi, Vice President of Sales and Marketing for San Giorgio Macaroni, left; Paul Serff, General Manager of Hersheypark, middle; and Violet, a Hersheypark Fairy, are shown here with a supply of the special San Giorgio-Hersheypark promotion packages. The promotion, which offers a \$1.00 off admission coupon to Hersheypark, is available in specially marked packages of Rotini, Rigatoni, 1 lb. Spaghetti, 1 lb. medium Shells, and 1 lb. and 2 lb. boxes of Elbow Macaroni. Hersheypark has been called one of America's cleanest and greenest theme parks and is located in Hershey, Pennsylvania. The park is open weekends starting May 8th, daily May 30th through Labor Day, and Sundays in September. The in-store promotion offers colorful end-cap display material, shelf-talkers, a heavy radio schedule and specially marked boxes.



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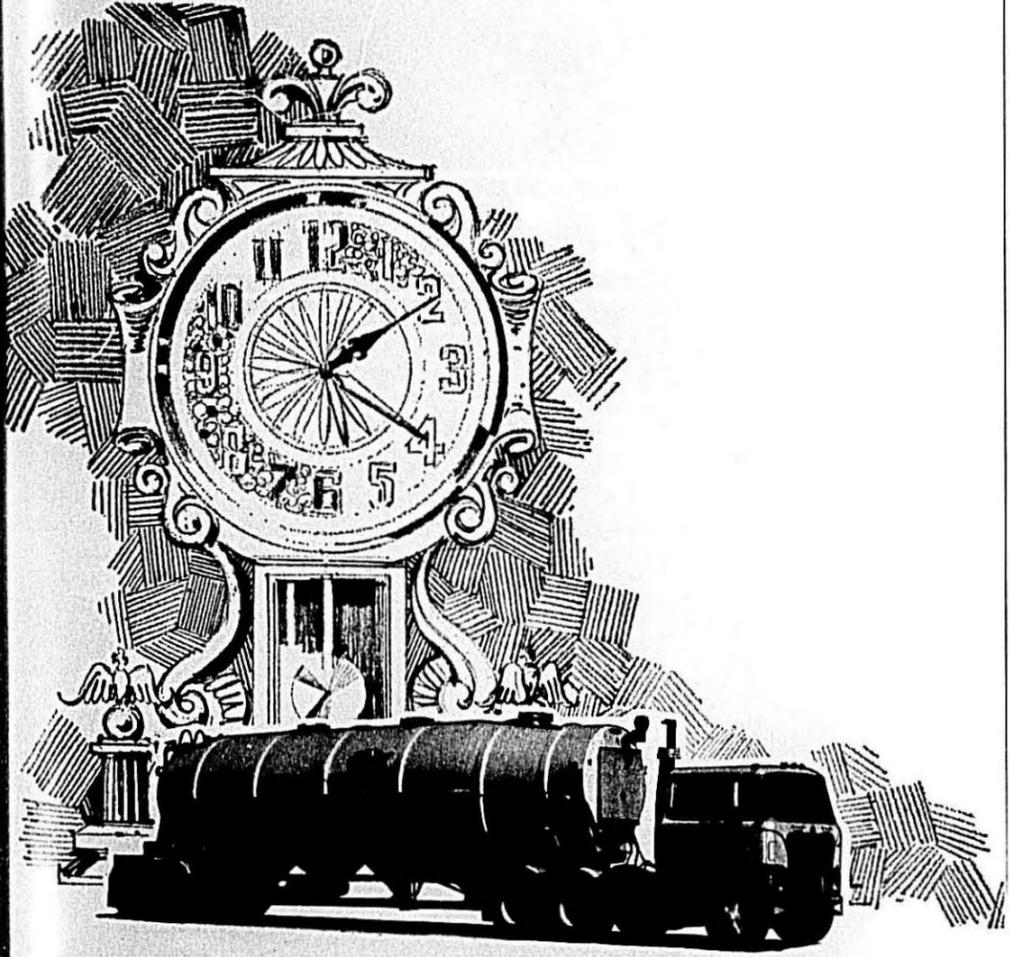
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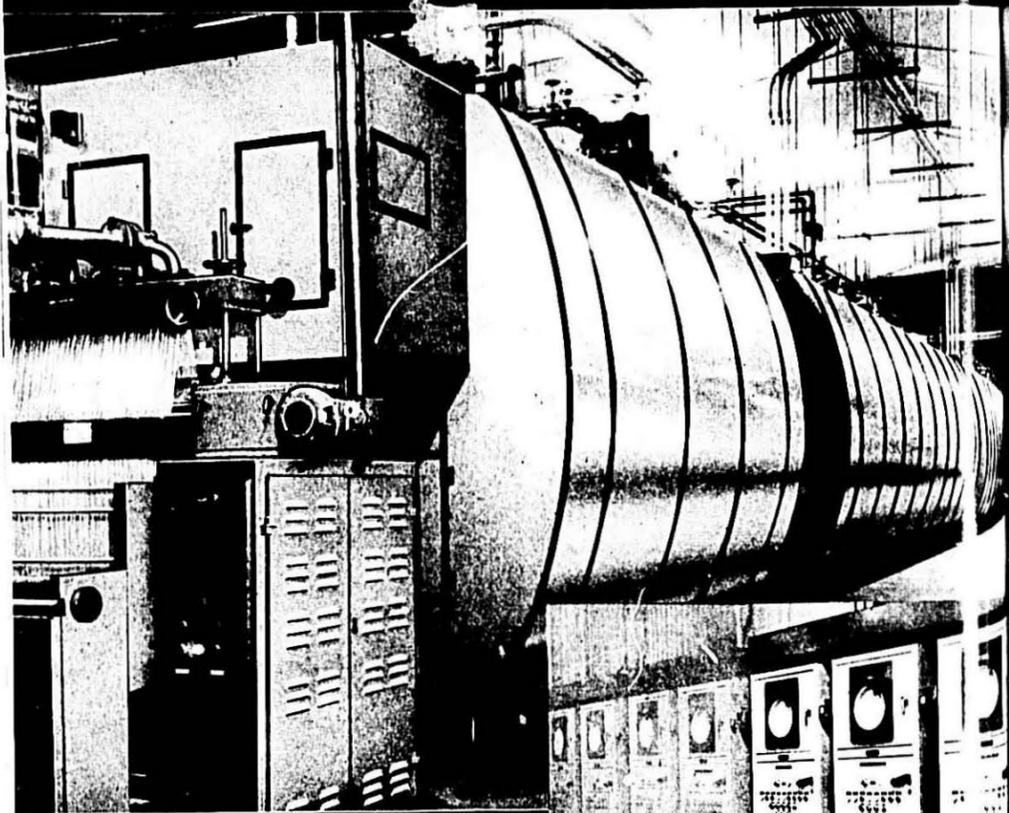
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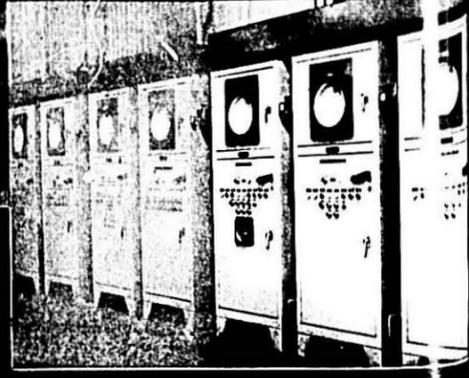


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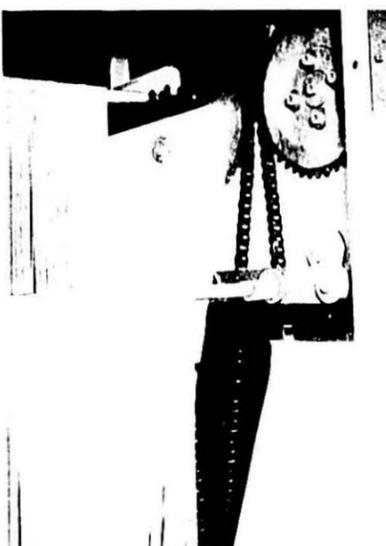
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Campbell Soup Recipes

(Continued from page 10)

Crispy Macaroni and Cheese

(Makes 4½ cups)

- 1 can (10¾ ounces) condensed cream of celery or mushroom soup
- ½ cup milk
- ½ teaspoon prepared mustard
- Generous dash pepper
- 3 cups cooked elbow macaroni
- 2 cups shredded Cheddar cheese
- 1 can (3½ ounces) French fried onions

In 1½ quart casserole, blend soup, milk, mustard and pepper. Stir in macaroni and 1½ cups cheese. Bake at 400° F. for 25 minutes or until hot; stir. Top with onions and remaining cheese; bake 5 minutes more.

Spaghetti with White Clam Sauce

(Makes 2 cups)

- 1 can (7½ ounces) minced clams
- 2 medium cloves garlic, minced
- 2 tablespoons chopped parsley
- 2 tablespoons butter or margarine
- 1 can (10¾ ounces) condensed cream of mushroom soup
- ¼ can milk or light cream
- 1 to 2 tablespoons grated Parmesan cheese

Cooked spaghetti
Drain clams; reserve liquid. In saucepan, cook clams, garlic and parsley in butter a few minutes. Stir in soup, milk, clam liquid and cheese. Cook over low heat 10 minutes. Stir occasionally. Serve over spaghetti.

Nona's Noodles

Test marketing of a new product, Nona's Italian Egg Noodles, has begun in the Denver area with color rotogravure advertising in the Post Empire. This was followed by black and white ads in metro area dailies and weeklies. 15¢ off coupons helped introduce wide egg noodles, narrow egg noodles, and egg spaghetti.

Jay Piz, Director of Product Development for L. A. King Foods in Denver, stated that product advantages being promoted in media messages were (1) quick cooking convenience; (2) taste; (3) adaptability and a wide range of uses.

The company has already marketed a successful line of frozen pasta products under the label of "Grandma's Fresh Frozen Egg Noodles" in a 14-state marketing area. The new "pre-cooked" line of Nona's (that's Italian

for Grandma's) is expected to follow suit.

New Tuna Helper Mix

General Mills is adding a new flavor to their line of Tuna Helper mixes—Tuna Helper for Country Dumplings, Noodles 'n Tuna.

The new flavor is being introduced via ads in June issues of women's magazines, and in May 31 Family Circle. The full-color page carries a 7¢ store coupon good on any of the Tuna Helper flavors.

Advertised as "tuna with a country accent," the new Tuna Helper flavor—Country Dumplings, Noodles 'n Tuna has "a hearty down home taste." Each box comes complete with packages of egg noodles, sauce mix and a new Country Dumpling mix.

Kellogg Buys Australian Business

Kellogg of Australia has acquired two-thirds ownership in London Enterprises, a company established in 1975 to manufacture a range of frozen pizzas, frozen spaghetti and related products under the Papa Guseppe brand name, according to Eurofood. Kellogg said that it has plans to broaden the company's product line, with 10 new products currently in the development stage.

Joe Paiz, who founded London Enterprises, is retaining one-third ownership and will continue as managing director. The company in this latest year had sales of 6 million Australian dollars (U.S. \$8.7 million).

Souped Up Salad

Lipton pushes soup mix for salad dressings in a full page ad in Family Circle and Woman's Day. Six variations are cited.

Net Weight Decision

Culminating a legal battle by the flour milling industry dating back more than 50 years, the U.S. Supreme Court ruled that federal statutes allowing reasonable weight variations in packaged flour preempt state laws requiring net weight of packaged foods to be exactly that listed on the package.

In affirming the November, 1975, decision of a federal appeals court in

San Francisco, the high court upheld challenges to California state law filed by General Mills, Inc., the Pillsbury Co. and Seaboard Allied Milling Corp., which were joined by Millen National Federation.

The Supreme Court in April of last year agreed to consider an appeal by the state of California—joined by 39 other states—and to rule whether federal law—which provides for reasonable variations in package weight because of moisture loss after packaging—preempts state weight laws.

State had seized flour
The California case was one of two in recent years involving flour millers and the Federation in challenging the right of state officials to seize or place off sale containers of flour because of discrepancy between actual weight and the package statement.

In the other case, a federal appeals court in New York in January, 1975, affirmed a lower trial court decision against the flour millers in their challenge of New York state laws.

Glenn G. Paxton, the Federation's general counsel, noted that the Supreme Court decision comes after "more than a half century of battling for a principle."

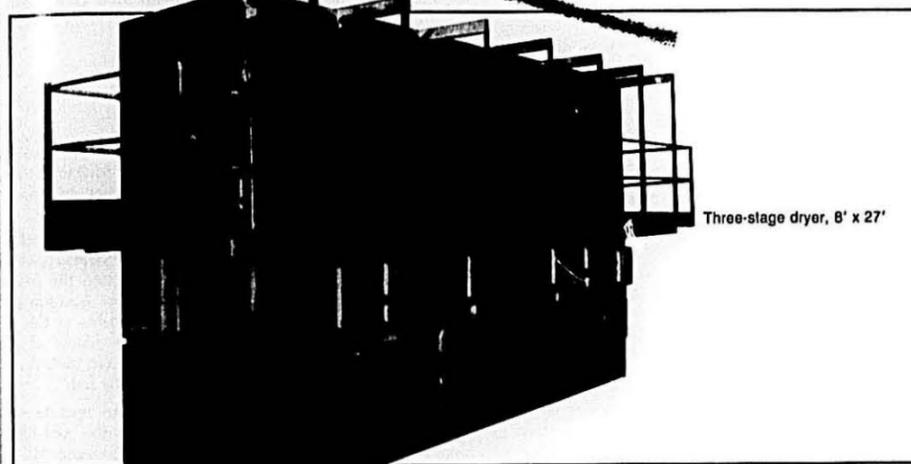
"It is very interesting," Mr. Paxton said, "that all three courts—the trial court, the appeals court and the Supreme Court—decided the case in favor of the millers on the theory of federal preemption. Although each one of those courts had its own route to reach that final conclusion, they arrived at the same place. Fortunately the Supreme Court arrived there and that's more important than both the others put together."

Justice Thurgood Marshall, writing the Supreme Court's seven-justice majority opinion, concluded that the California law conflicted with federal law in that it "stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress."

Stating that a major purpose of the Fair Packaging and Labeling Act is to facilitate value comparisons, Justice Marshall said:

"Obviously, this goal cannot be accomplished unless packages that bear the same indicated weight in fact contain the same quantity of the product for which the consumer is paying. The significance of this requirement for our purposes results from the physical attributes of flour."

THE DRYER OF THE FUTURE



In a 1973 survey of the entire pasta industry by an independent research firm, 67% of respondents stated that a combination of microwave and conventional drying is "the method of the future."

Three-stage dryer, 8' x 27'

TODAY'S DRYER

The pioneering is over! The microwave dryer is standard 24 hour/7 day equipment for any size macaroni or noodle plant

Up to 4 times the production in the same feet of floor space (a bargain in itself with construction costs in the \$20 sq. ft. range).

Reduces infestation up to 99.99%. Kills: bacteria, Salmonella, E. Coli, Coliforms, mold, yeast, weavils and eggs.

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Makes a richer looking product; no blanching.

Energy savings reported: 52% less BTU's, 6% less KW's.

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"All future equipment will be Microdry" — Tech. Dir., large pasta plant.



Compared with conventional dryer

Units in these lbs./hr. Capacities: 1500, 2500, 3,000 and 4,000.

Operating today at: Golden Grain, San Leandro (2 units); Golden Grain, Chicago (2 units); D'Amico, Chicago; Catelli, Montreal; Gooch, Lincoln; O. B., Ft. Worth; Lipton, Toronto (2 units); Gilster Mary Lee, Chester, Ill.

Completely fabricated and assembled in our plant. All stainless steel construction. Complete microwave and process control instrumentation systems with the unit — no extras to buy. Personnel generally can learn operation in one day. Continuing consultation privileges with Microdry.



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Grocery Industry Report

In its 44th annual report of the grocery industry, *Progressive Grocer* magazine states:

The big news about the grocery business in 1978 was that it didn't make much news. No shortages. No burning new consumerist issues. And overall no intimidating eruptions in prices.

Boom Days Over

The outlook sees boom days over while there is gathering gloom about wages and energy—up 10% and ranging from 16 to 27% respectively. Full time clerks in independent stores earned an average \$3.61 per hour; part-timers \$2.92. The average super market's monthly energy bill was \$2,080—almost as much as rent in some instances.

"Price-Plus" makes the market place hotter than ever as customer services are cycling back into popularity.

Store designers are building in longer range savings by using fewer windows, better insulation, heat recycling systems and more efficient machines and display equipment.

Independents are showing the strain of doing business in an increasingly competitive, inflationary environment. The strain shows up in higher labor costs and lower net profit, and in a relatively bearish outlook about the economy and their own prospects. Yet independents don't feel as much margin pressure as chains do—a sign of their continued confidence in their own "feel" for the market to carry them through. An additional sign of abiding independent strength is evident in ongoing takeovers and turn-arounds of failed chain stores.

Non-public chains once again grew at faster rate than the top ten and once again, the share of sales done by larger super markets rose impressively.

Low Net

Competitive-in-fighting has left net income before taxes at 1.17%, the worst level since recession in 1972-1973. The reason is clear. The percent of chain executives who saw an increase in percent gross margins compared to 1975 was 48%—but 80% reported wage expenses higher in 1976. This is a two-pronged problem that will get much attention in 1977.

Customer Relations

Retailers are devoting more time, effort and money to their relations with customers than ever before. Programs involving formal information dissemination—often by on-staff consumer advisors or home economists—have largely become the rule rather than the exception. All this reflects not merely the political pressure that may have started the whole thing several years back, but a clear-eyed understanding in the trade that the consumer holds the ultimate key to success. The lesson is coming home with particular force as retailers eye competition: more and more of it from other retailers trying to woo shoppers away, and more from fast food outlets as life styles change and people take to eating out regularly.

Many in the industry still believe that consumer relations programs are often a waste—particularly such information aids as unit pricing—but surveys show greater use of unit pricing, open code dating, and formalized sanitation programs that are important to employee morale as well as for customer satisfaction.

Store Work

Wholesalers and store managers report less salesmen's work at store level and fewer offers of display and merchandising materials. Independents tend to welcome the display and merchandising efforts of salesmen more than do chains, especially the larger chains who feel they can exercise better control of stocking and merchandising with their own personnel.

Behind the scenes, deals and allowances are reported up markedly compared to the increases last year. Requirements for price features or special display at store level by retailers is also up.

International Exhibit

With the opening date of IPACK-IMA '77 still months away, October 3-9, exhibition space has been reserved from more than 600 firms from sixteen countries: Austria, Belgium, Canada, Czechoslovakia, Denmark, France, Germany, Great Britain, Holland, Italy, Japan, Spain, Sweden, Switzerland, the United States and Yugoslavia.

U.S. manufacturers specializing in building machinery for the production of packing and machines for carrying out packing operations on an industrial scale will be represented indicating once again their confidence in the commercial and technical validity of IPACK-IMA.

Metric Meeting

Over 600 registrants attended the American National Metric Council third annual conference in Chicago in March.

Dean Swift, president and chief administrative officer of Sears, Roebuck and Company, presented the conference keynote address. According to Swift, it is "in the aisles of this nation's stores and the offices of this nation's businesses that metric conversion will succeed or fail."

Sears is planning to operate completely in metric by the mid-1980's. Employee training in metric will begin this spring, Swift said, and the company will work with its suppliers—mostly small businesses—to assure a smooth transition.

Congressman Robert McClory (R-Ill.) outlined federal government activities. "There must be some further action which may be taken in Congress," he declared, "besides encouraging members of Congress to write President Carter urging him to act promptly in naming the 17-member Metric Board."

McClory spoke of a Senate resolution recently proposed by Senator Claiborne Pell (D-R.I.) that would require the use of metric in all legislation and reports of the Senate in which units of measure or weight are used (S. Res. 88). He said he offered a similar resolution in the House on March 14 (H. Con. Res. 154) that expresses the sense of the Congress that conversion to the metric system should proceed through adoption of policies and action by the legislative and executive branches of the federal government as well as through the policies of various state governments.

ANMC president Dr. Malcolm O'Hagan reported on ANMC operations. He said the organization continued to attract new subscribers in 1978 and ended the year with a total of almost 1600 (415 companies, 285 organizations, and 913 individuals).



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Enrichment Literature from Stauffer

A series of 13 data sheets on vitamin mixtures for enrichment of flour, bread, rice, corn meal, farina and pasta products is now available from the Food Ingredients Division of Stauffer Chemical Company.

The data sheets describe physical properties and applications of the mixtures, as well as the Federal Standards of Identity for the products they enrich.

A data sheet on No. 46P Vitamin Mixture details the mixture's composition and its application in the enrichment of degerminated corn meal and grits. Also covered in the literature is information on proper usage

of 46P to insure compliance with the Federal Standards of Identity.

Technical literature describing the composition and chemical properties of No. 58E Vitamin Mixture for flour enrichment also is included. The information details the amount of thiamine, riboflavin, niacin and electrolytic iron that the mixture will add to each pound of flour.

For copies of the data sheets, write: Stauffer Chemical Company, Food Ingredients Division, Westport, Conn. 06880.

Prima Salsa Successful

Management at Hunt-Wesson Foods is reported to be "highly pleased with the solid success of Hunt's Prima Salsa spaghetti sauce."

A spokesman for the company says that with six months of business data in hand, the Prima Salsa brand is meeting the firm's expectations and will finish Year I with a significant share position.

"In fact," he said, "Hunt's Prima Salsa passed Chef Boy-Ar-Dee and became the No. 2 spaghetti sauce after only four months of marketing." The prepared spaghetti sauce market has reportedly grown 28% since the brand was introduced.

Hunt's Prima Salsa will be running a full-color print ad in May 31 Family Circle, as well as other women's magazines.

Prima Salsa was introduced nationally in August with heavy levels of advertising and promotion spending. Additionally, the brand conducted a public relations program that featured spaghetti-eating contests in shopping malls coast to coast. Strong advertising and promotion efforts continue to support the brand.

On San Giorgio Sales Team

San Giorgio Macaroni, Inc. has announced three important changes in its sales management team. According to Jerome V. Guerrisi, Vice President of Sales and Marketing, the Lebanon, Pa. based manufacturer of macaroni and pasta products has assigned new responsibilities and titles to two executives, and a new member has joined the company in a sales management position.

Jim Leonard has been appointed Sales Manager, Administration & Director of Special Sales Projects. In

addition to administrative duties, Mr. Leonard will initially be responsible for directing the company's expansion in Midwestern markets.

John Schultz has been named to the post of Field Sales Manager. Mr. Schultz was previously San Giorgio Philadelphia District Sales Manager.

Tom O'Reilly has joined the company as the sales manager for the Philadelphia district. Mr. O'Reilly was previously associated with Pet Milk, Ralston Purina, and Dofo Cheese.

San Giorgio Macaroni, Inc. is a subsidiary of Hershey Foods, and along with its Delmonico division, markets its products from Maine to Miami, as far west as the Mississippi.

Buitoni in the West

The Los Angeles Times Merchandiser recently had an article on the launching of an expanded advertising campaign on behalf of Buitoni from Italian foods, sauces and pasta.

Buitoni began in San Sepolcro, Italy in 1827. In five generations it has grown into a multinational conglomerate with corporate headquarters in Pergula, Italy and operations in France, Britain, Brazil and the United States.

Marco Buitoni, a direct descendant of the founder, is President of Buitoni Foods Corporation of America. Buitoni products came to the United States through an accident of history. Giovanni Buitoni came to this country to promote Buitoni pasta in the 1880 World's Fair. But World War II interrupted his plans to return to Italy. Undaunted, the marooned Giovanni borrowed enough money to establish a spaghetti factory and, later, a sauce manufacturing facility.

At the end of the war, most Buitoni factories in Europe were bombed-out ruins. Giovanni's American operation continued to prosper while his relatives across the Atlantic began to rebuild. In 1952, Buitoni Foods of America consolidated operations in South Hackensack, New Jersey.

The big push in the West is the introduction of frozen Lasagne with meat sauce, Cheese-filled Manicotti, Meat Ravioli - Parmigiana Style, Eggplant Parmigiana. Large scale advertising and couponing will push these products.

We've been going together for nearly 50 years.

Diamond International Corporation
Packaging Products Division





Multifoods natural goodness is always in good taste

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