

**THE
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JOURNAL**

**Volume 62
No. 10**

February, 1981

Macaroni Journal

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FEBRUARY, 1981



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From Pastaville Presentation

The stories on Milling of Semolina,
page 14; Pasta Manufacturing, page
17; Marketing to the Consumer, page
19; and those that follow on Food
Service, Standards & Nutrition, Gov-
ernment Relations, were all part of
the core presentation at Pastaville
USA, the International Durum Forum
held in Minot, North Dakota.
The segment on Product Promotion
will appear next month.

FEBRUARY 1981

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BASIC RECIPE

Macaroni products are generally interchangeable in most recipes, and they combine with in infinite variety of related items.

Basic Macaroni Cheese Salad, making eight servings, is given below, followed with variations.

Basic Macaroni Cheese Salad With Variations (Makes 8 servings)

- 2 tablespoons salt
- 4 to 6 quarts boiling water
- 4 cups elbow macaroni (1 pound)
- 2 cups (8 ounces) shredded Cheddar cheese
- 1 cup chopped green pepper
- 1 cup chopped celery
- 2 teaspoons each: salt and grated onion
- 1½ teaspoons dry mustard
- Dash pepper

Add 2 tablespoons salt to rapidly boiling water. Gradually add macaroni so that water continues to boil.

Cook uncovered, stirring occasionally until tender. Drain in colander. Rinse with cold water; drain again. Toss macaroni with remaining ingredients.

Variations: Use a different dressing. Omit the mayonnaise and vinegar and use instead one of the following:

1. 1 pint (2 cups) dairy sour cream and 2 tablespoons lemon juice. Add 1 teaspoon dill weed.
2. 1 cup bottled salad dressing.

Vary the ingredients. Omit the green pepper and use instead one of the following:

1. ½ cup sliced pimiento stuffed olives.
2. ½ cup sliced pitted ripe olives.
3. 1 can or jar (4 ounces) pimiento.
4. ½ cup sliced sweet gherkins.

Serve it differently:

1. Serve on a platter, ringed with sliced tomatoes.
2. Serve in salad bowl lined with crisp greens of any kind.
3. Serve in avocado half-shells.
4. Serve individual portions in lettuce cups.

DURUM IMPROVEMENT UPDATE

Presented at the International Durum Forum
by Dr. J. S. Quick, Durum Wheat Breeder

This paper will be divided into three major parts. The first part will include recent data and a report of our general research results from 1980. The second part will be devoted to basic studies and methods of handling materials in a breeding program. The third part will be devoted to future research efforts and some of the problems we can anticipate.

The 1980 cropping season, in terms of research results obtained, was probably one of the poorest that we have seen in the past 10 years. The season began by being very dry and hot. At the Fargo station, we planted only the advanced breeding materials; none of the early generation materials. At the Langdon station, we planted an entire nursery but at about jointing stage the entire nursery was severely damaged by a hailstorm. Fortunately, sufficient rainfall came with the hail so that the crop recovered to almost normal and the yields indicated only about a 20 to 30% reduction. We had some additional losses at the Langdon station due to the very wet weather at harvest, but all yield trials escaped damage. Williston also experienced a very dry growing season resulting in very low yield levels. The Dickinson and Carrington stations produced reasonable yield levels based on long term averages. In summary, we made good progress in the 1980 season but the results from our yield trials are quite erratic and of questionable value. We had a very successful Mexican breeding nursery during this past winter and all the material was evaluated at the Langdon station.

The quality testing program was also a very successful one. I believe the numbers of samples evaluated for quality was probably higher than in any previous year. The laboratory disease resistance work was also very successful. We added an additional screening test for tan spot (*Pyrenophora trichostoma*). The incidence of tan spot in the field is quite erratic so the addition of a greenhouse screening test is very valuable.

Performance of Cultivars

The performance of several cultivars and an experimental grown at



Dr. James S. Quick

North Dakota branch stations in the Uniform Regional Durum Nursery during 1979 and 1980 is included in Table 1. The most promising cultivars evaluated were Vic, Edmore, Rugby, Cando, and Calvin. The promising semidwarf experimental is the first possessing strong gluten. You will note from the yield data that Vic, Rugby and Cando have the highest yield average over the past two years. Edmore, Calvin, and the experimental are also high yielding but slightly below the other three. It is important to note that 1980 was probably not an average year. The test weight data indicate that Vic, Rugby and Calvin have the most desirable levels. Vic, Edmore and the new experimental have the highest kernel weights. The tall cultivars are all equal in days to head and the semidwarfs are slightly later than the tall group. The semidwarfs have been about 20 cm shorter than the tall types. There has been essentially zero lodging among the semidwarf cultivars and experimental.

TABLE 1
Performance of Several Cultivars and an Experimental Grown at North Dakota Branch Stations in the Uniform Regional Durum Nursery in 1979-80 (12 Station Years)

Trait	Vic	Edmore	Rugby	Cando	Calvin	Exp 1*
Yield, bu/a	46.4	42.8	48.2	45.2	42.4	43.4
Test wt, lb/bu	60.6	59.6	60.2	59.2	60.3	59.3
Kernel wt., mg	45.7	42.7	40.5	41.4	40.3	42.3
Days to head	56	56	56	58	57	56
Height, cm	86	57	86	69	66	67
Lodging, 0-9	2	4	4	0	0	0
Leaf spots, 0-9	3	4	2	2	3	4

* Exp 1 is a promising semidwarf experimental.

Vic has shown stronger resistance to lodging than Edmore and Rugby during the past two years. Leaf spotting or tan spot, has been an increasingly damaging disease during the past few years. We have particularly noticed this higher disease incidence in the semidwarf durums. The data on leaf spots in Table 1 indicate that Edmore and the experimental have the highest incidence. These data were collected from both wet and dry conditions and the tan spot incidence is greatly increased by continuous moisture on the foliage.

Quality Tests

One of the most critical needs in a breeding program for developing high quality wheat is to have quality tests which can be used on very small samples in very early generations and give repeatable results utilizing simple equipment. When the breeding program was changed to include strong gluten as a requirement we visualized a severe restriction on number of samples that could be handled. However, we were fortunate to have a new test available which was being used to evaluate bread baking quality. The SDS-sedimentation test utilizes only six grams of wholemeal and very simple equipment. One person can evaluate more than 100 samples per day. We have evaluated this sedimentation test in the durum breeding program and have found it to be very satisfactory. During the past year we have attempted to fit this test into our breeding scheme as efficiently as possible. Our early generation quality evaluation program includes evaluation of semolina color. It would be

very desirable to utilize this semolina in the sedimentation test, so we compared semolina with wholemeal. Table 2 shows some of the correlation coefficients that we obtained when using two different semolina sources, two reground semolina sources, and wholemeal. The correlation coefficients are all high but the best results were obtained by regrinding the quadramat or the brabender milled semolina. When this was done our correlation coefficients with wholemeal were greater than 0.9. These results confirmed that at least 100 samples per day per person could be milled and tested for both color and gluten strength allowing more rapid progress in breeding improved cultivars.

TABLE 2
Correlation Coefficients Among Sedimentation Volumes Obtained from Wholemeal, Two Semolina Sources, and Two Reground Semolina Sources (n = 32)

Comparison	Coefficient
Wholemeal vs Q semolina	0.71**
Wholemeal vs B semolina	0.70**
Wholemeal vs Re-Q semolina	0.96**
Wholemeal vs Re-B semolina	0.94**
Q semolina vs B semolina	0.81**
Re-Q semolina vs Re-B semolina	0.94**

Q = Quadramat, Jr., B = Buhler and Re = UDY reground semolina.

** Significant at the 0.01 level.

Development Program

Another advance during the past two years was to develop a 5-year cultivar development program. This is a very rapid method of generation advance reducing cultivar development time to five years without significantly reducing the final evaluation phase or jeopardizing agronomic performance, quality characteristics, or disease resistance of the cultivar. Four other recent developments have allowed such a 5-year program to be developed. The most critical discovery was the field application of a light interruption phenomenon utilizing artificial light. Utilization of the light interruption phenomenon has allowed the development of long-day (daylength sensitive) cereals during short day regimes during the October-March period in California and Arizona. Plant development and seed production can be shortened by about 30 to 60 days which allows: a) delayed planting from early November to late

November or early December, and b) harvest and subsequent planting in North Dakota by May 1 rather than June 1. The shortened period allows an additional generation between August and November in North Dakota greenhouses and subsequent return of seed to North Dakota by the normal planting date. The second important factor was the development of rapid, repeatable and effective quality screening methods requiring small amounts of grain and simple equipment. These methods allow selection for yellow semolina color and gluten strength in the F₂ generation of durum wheat. The third development is the availability of additional genetic information. Various workers have shown that semolina color is controlled almost exclusively by additive gene effects and they have provided evidence that gluten strength is predominantly additive, relatively simply inherited and highly heritable. Utilization of this information allows more rapid progress by placing more reliability upon fewer tests. An additional requirement for more rapid generation advance is the availability of additional funds and facilities, especially at critical planting, harvest and

evaluation periods. The 5-year plan being utilized by the durum wheat program in North Dakota is outlined in Table 3. You will note that during each of the first 2 years three generations are grown, either in the field or in the greenhouse. This allows very rapid advancement of materials. During the third year, two generations are grown, the first primarily for seed multiplication and purification, and the second for the first final evaluation in regional tests. The fourth and fifth years are devoted to the final evaluations in North Dakota and at regional locations in neighboring states and provinces. A 4-year plan could be justified by a severe disease epidemic or other urgent needs. In that case, the final three years of evaluation could be reduced to two. In 1980 the best products of this program were included in regional tests, but it was a very poor year for evaluation. The program also has merit when used to develop breeding materials or to improve parents for use in future cultivars.

There are a number of areas of thesis research that we have completed or are continuing (Table 4). We

(Continued on page 8)

TABLE 3
The North Dakota 5-Year Plan for Durum Wheat Cultivar Development*

Year	Date Planned	Location	Generation	Possible Tests
1	Sept. 1, 1977	Fargo greenhouse	Cross	—
1	Jan. 10, 1978	Fargo greenhouse	F ₁	—
1	May 10, 1978	ND field	F ₂	Height, maturity, diseases, semolina color, gluten
2	Aug. 10, 1978	Fargo greenhouse	F ₃	Stem rust, height (GA), discard low quality lines
2	Dec. 1, 1978	Arizona field with lights	F ₄	Height, daylength reaction, uniformity
2	May 10, 1979	ND field	F ₅	Grain yield, other agronomic, disease, color and gluten
3	Oct. 1, 1979	Mexico field	F ₆	Seed multiplication and purification
3	May 10, 1980	ND field	F ₇	Complete final evaluation, regional tests
4	May 10, 1981	ND field	F ₈	Final evaluation, regional tests, preliminary multiplication
5	May 10, 1982	ND field	F ₉	Final evaluation, regional tests, large scale multiplication, release to certified seed growers

* The schedule is illustrated with a program that began in 1977 and has produced lines for regional tests in 1980 and possible cultivar release in 1982.

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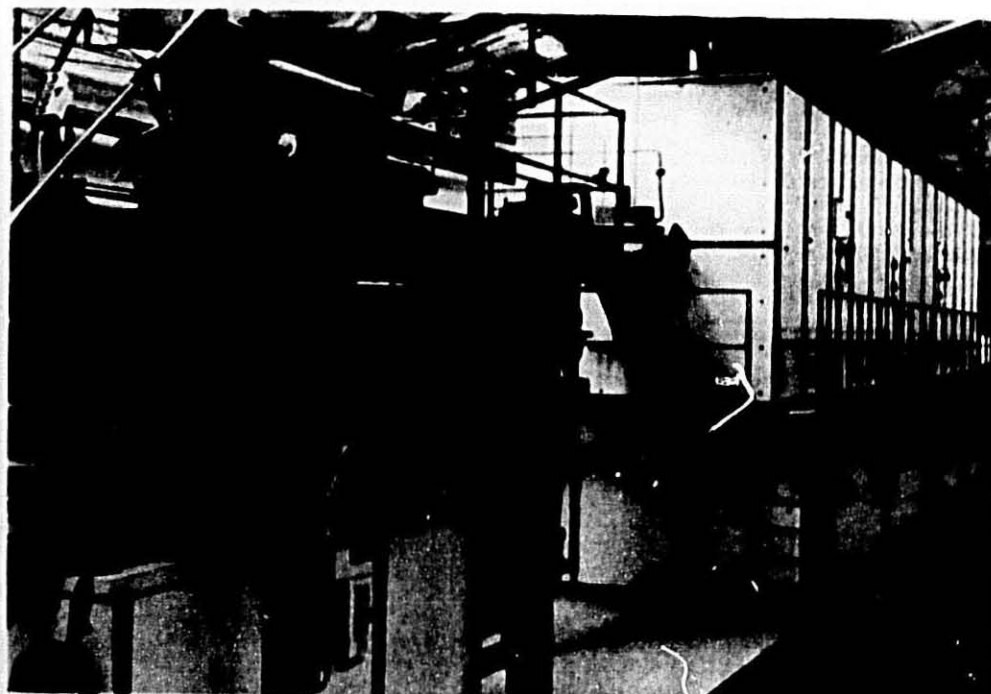
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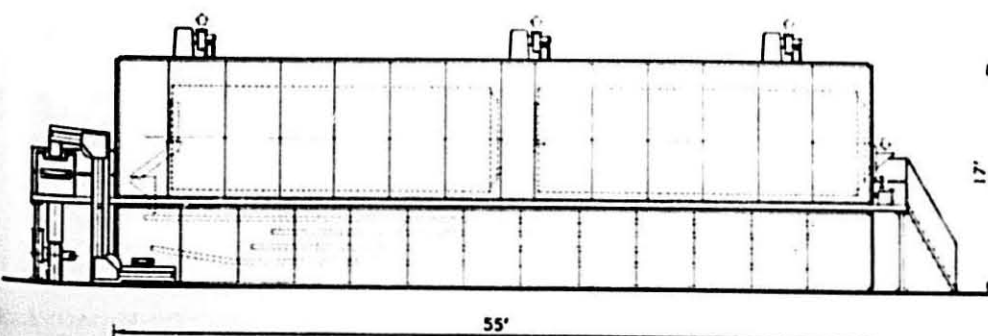
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Durum Improvement Update

(Continued from page 5)

have shown that cultivars differ in their ability to develop root systems and we have been able to explain some of the high yields obtained with semidwarf cultivars even under very dry conditions. The work done on semolina color has been useful in determining minimum sample sizes that can be used to evaluate potential cultivars in early generations. The genetics of color have been further elucidated which helps us place more confidence in our tests. We have also shown that heritability of color is medium to high which means that we can effectively select for high color under different environments. We have also compared various kinds of breeding methods to determine the most efficient approach. We have evaluated components of yield in an attempt to increase total yield. Seedling vigor has been a problem in durum wheat and recent evaluations in our advanced yield tests and in early generation material have demonstrated genetic seedling vigor differences. We are incorporating these genetic advantages into adapted cultivars. Harvest index (the ratio of grain to total plant yield) has been evaluated in an attempt to estimate yielding ability of lines or cultivars.

TABLE 4
Thesis Research

1. Root Development
2. Color — Sample Size
3. Color — Genetics
4. Color — Heritability
5. Breeding Methods
6. Yield Component Analyses
7. Seedling Vigor
8. Harvest Index

New Problems

The final part of this paper deals with new programs and new problems or thrusts for the future. One area that we are going to begin research on is resistance to sprouting. A year like 1980 has convinced us that the losses certainly are severe enough to justify at least an attempt to make an improvement. In Table 5 I have outlined some of the advantages and disadvantages involved in sprout resistance. Sprout resistance would reduce harvest losses to the producer in the field because his market grade would justify a major effort.

be higher, his test weight would be higher and the yield loss would be less. Sprout resistance would help maintain high grain quality. There are some major disadvantages to sprout resistance in durum wheat. Most of the effective resistance to sprouting is in the red wheats and related to the presence of red pigment, and since durum is a non-red wheat, it may be difficult to introduce effective resistance. Most of the known good sources of resistance are in hexaploid wheats, or the wheats with three sets of chromosomes. This resistance may possibly be transferred to the tetraploid, or durum wheats, but it will take longer than if the resistance was initially in the durum wheat. Probably the maximum resistance that one could develop in a durum wheat would be two weeks. If the period of wet weather is longer, probably no level of genetic resistance would remain the high wheat quality. Another disadvantage of sprout resistance would be that generation turnover would be delayed. We are growing as many as three generations per year, and if we had to incorporate a method of quickly breaking the dormancy, we would probably not be able to advance the materials as rapidly. Consequently, the incorporation of any new advantage in yield, quality or disease resistance would be delayed by the slower generation turnover and the need to screen for sprout resistance. Another obvious disadvantage to sprout resistance is that it is a long term project. If the resistance must be transferred from the red hexaploid wheats, and the technique for breaking this dormancy developed, it will require a 10 to 20 year project to develop resistant durum wheats. I believe that we should begin the effort to determine how severe the problems are. Certainly the dollar losses to the industry in 1980 along

TABLE 5
Sprout Resistance
Advantages

1. Reduce Harvest Losses
2. Maintain High Quality

Disadvantages

1. Resistance in Red Wheats
2. Resistance in Hexaploid Wheats
3. Maximum Two Weeks Resistance
4. Delayed Generation Turnover
5. Long-Term Project

Another area of continuing effort is seedling vigor. We have identified materials having excellent seedling vigor, and it is only a matter of time required to incorporate these materials into our adapted breeding lines. One of the possible problems is that high seedling vigor may be associated with the ability to sprout and grow quickly, and this could be a disadvantage in wet harvest years. The efforts to improve yielding ability will be continued while maintaining high levels of quality and disease resistance. The thesis problems completed over the past few years have identified many promising lines that are being used in our program to improve yield. The data in the next table comparing hard red spring and durum wheat cultivars illustrate that we have reached the level of the highest yielding hard red spring wheats. We have compared Cando and Calvin, the two semidwarfs, and Ward and Vic with the hard red spring wheat cultivar Era. You will note that the semidwarf durums have been essentially equal to Era in yield over the past six years in 14 tests at Langdon, Fargo, and Minot. Test weight of the semidwarf durums have been higher than that of the hard red spring wheat and the height and days to head have been quite similar.

The cultivar distribution (Table 6) for 1980 and 1981 are my estimates since the official survey results have not yet been published. I believe that the acreage of Ward will probably decrease and that of Vic will probably increase. We will also probably see a slight increase in the semidwarf durum acreage. The acreage of the older varieties like Rolette, Minot, and Crosby, will probably decrease in acreage. The total acreage occupied by the strong gluten durums, Vic and Edmore, will probably be about 20% in 1981.

TABLE 6
Yield Comparisons*
HRS vs. Durum

Entry	Yield	TW	HT	DH
ERA	49.8	58.2	75	58
Cando-Calvin	50.1	60.8	72	57
Ward-Vic	45.6	60.3	95	56

* 1974-79 Means — 14 tests (Ldn., Fargo, Minot).

THE MACARONI JOURNAL

WHO WILL DELIVER THE HIGHEST QUALITY SEMOLINA IN 1981?

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Durum Improvement Update

(Continued from page 8)

This paper has attempted to provide recent results from the 1980 crop year and our winter and greenhouse programs. The most recent research results have been incorporated into the breeding program. In the future we will give increased emphasis to breeding for sprout resistance, grain yield, and seedling vigor, while maintaining high levels of disease resistance and grain quality.

Durum Wheat Breeder

James S. Quick, Professor of Agronomy, and durum wheat breeder at North Dakota State University is leaving for a new assignment at Colorado State University at Fort Collins about March 1, 1981.

Dr. Quick writes: "The past eleven years at NDSU have been challenging, stimulating and satisfying ones. I have had the pleasure and privilege of cooperating with many colleagues, organizations, and individuals involved in durum improvement, product and utilization. I urge you to give the same support and cooperation to my successor."

New K Mill Dedicated in Grand Forks

North Dakota Mill was started in October, 1922. It was destroyed by fire in July, 1970.

The mill resumed operations following rebuilding in January, 1972. But after a few years they had to restrict sales due to lack of capacity.

General Manager Sam Kuhl recommended to the Industrial Commission that a long-range feasibility study be conducted which led to the construction of the new K mill.

The Industrial Commission appropriated approximately \$9 million for construction of the unit. Bids were submitted by three major milling suppliers. Contracts were let to OCRIM, Cremona, Italy with U. S. headquarters in Wichita, Kansas.

Equipment purchased from OCRIM included cleaning equipment, grinders and purifiers. OCRIM is associated with Kice Manufacturing, also of Wichita. Kice supplied other components such as the pneumatic conveying

(Continued on page 12)

TABLE 7
Cultivar Distribution — N.D. Durum*

Cultivar	Date Release	1975	1976	1977	1978	1979*	1980**	1981
Rolette	1971	26	18	14	9	6	5	4
Ward	1972	48	42	38	45	39	...	21
Botno	1973		9	7	4	4	3	2
Crosby	1973		9	8	10	10	8	4
Rugby	1973		9	16	13	17	20	21
Cando	1975			4	9	12	18	21
Calvin	1978					2	4	6
Edmore	1978					1	4	8
Vic	1979						2	12
Other	—	26	13	13	10	9	4	4

* Estimates from USDA and ND Crop Reporting Service.

** J Q Guestimate.

K Mill dedication attracts guests and customers from around the nation.



At the far right, Sam Kuhl points out various pasta products to Governor Arthur Link

THE MACARONI JOURNAL



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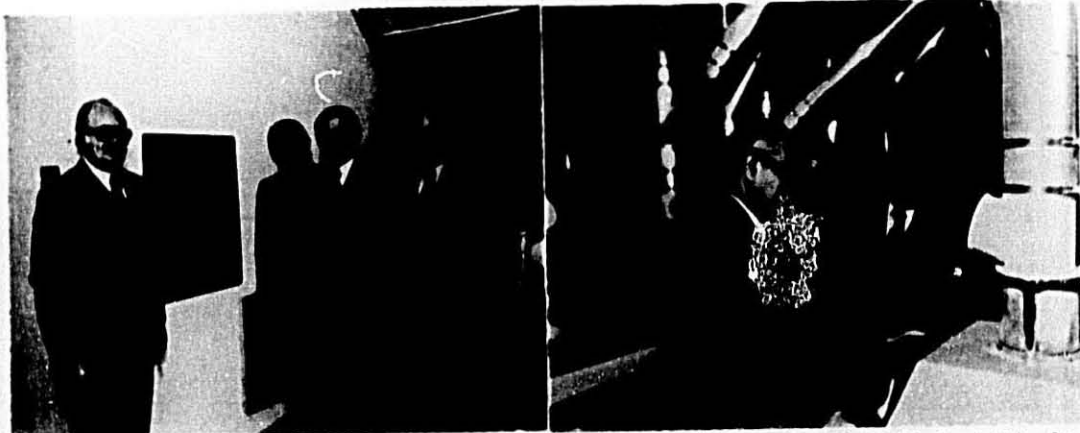
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Sam Kuhl, left, is presented with bronze plaque by the Industrial Commission made up of Agriculture Commissioner Myron Just, Governor Arthur Link, and Attorney General Allen Olson.

Sam Kuhl shows finely milled product to Lloyd and Mickey Skinner.

system, air makeup and distribution, and other components necessary to complete the project. Other equipment such as sifters, conveyors and electrical control centers manufactured by U.S. companies were supplied through OCRIM.

Bob Kennedy of Harrie and Kennedy Architects of Grand Forks was the architect with KBM, Inc., structural engineer and Peterson Construction as the building and equipment installation contractor. "We used as many North Dakota people as possible", Kuhl said.

Coordinator

Ben Hennessy, assistant general manager of North Dakota Mill, was coordinator and responsible for all phases during construction of the K mill. Construction started in February, 1979. It was completed in November, 1980.

"This mill is the newest durum mill in the United States today and will produce high quality semolina", Kuhl said. "It will enable us to expand our marketing and satisfy customers not only on meeting delivery schedules but also meeting quality specifications."

"With the addition of this unit we have doubled our durum semolina milling capacity. We will be able to produce approximately 9,000 hundredweight of semolina per 24 hour day. Total milling capacity including our flour milling unit will be approximately 18,000 hundredweights of finished products per day. This capacity



A forest of metal tubes brings air to the purifying operation.

will require approximately 45,000 bushels of wheat per day.

Kuhl continued "In the past we have sold and produced in excess of 3 million hundredweights per year. Our projected goals with the added K mill in operation are a minimum of 5 million hundredweights per year. This will increase our wheat requirements from 7 million bushels per year to approximately 12 million bushels per year."

One hundred and forty people are employed at the mill. "We are the railroad's biggest customer in Grand Forks," Kuhl pointed out, "and that

causes employment locally on the railroad.

During the dedication on December 4 the Industrial Commission made up of Governor Arthur Link, Attorney General Allen Olson and Agriculture Commissioner Myron Just presented a bronze plaque to Sam Kuhl.

Tours for invited guests were held as well as a gala luncheon for many pasta manufacturers from around the U.S. who are prime customers of the mill, as well as individuals from local banking industry and farming.

Tours of the new facility will be open to the public during December and January.

Wall Charts

Wall Charts measuring 14" x 22" have full color illustrations of wheat, eggs, and pasta on the left side; selection of pasta dishes on the right side above diagrams of the milling process and pasta manufacture.

On the backside is historical label statement, cooking instructions and three simple recipes. A variety of shapes are illustrated around the borders.

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Australian Record

Record Australian wheat exports of 13.2 mmt are indicated for the 1979-80 marketing year ending Dec. 31, 1980.

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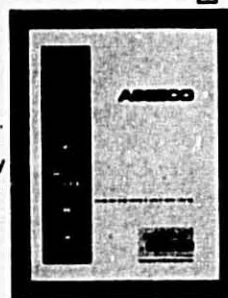
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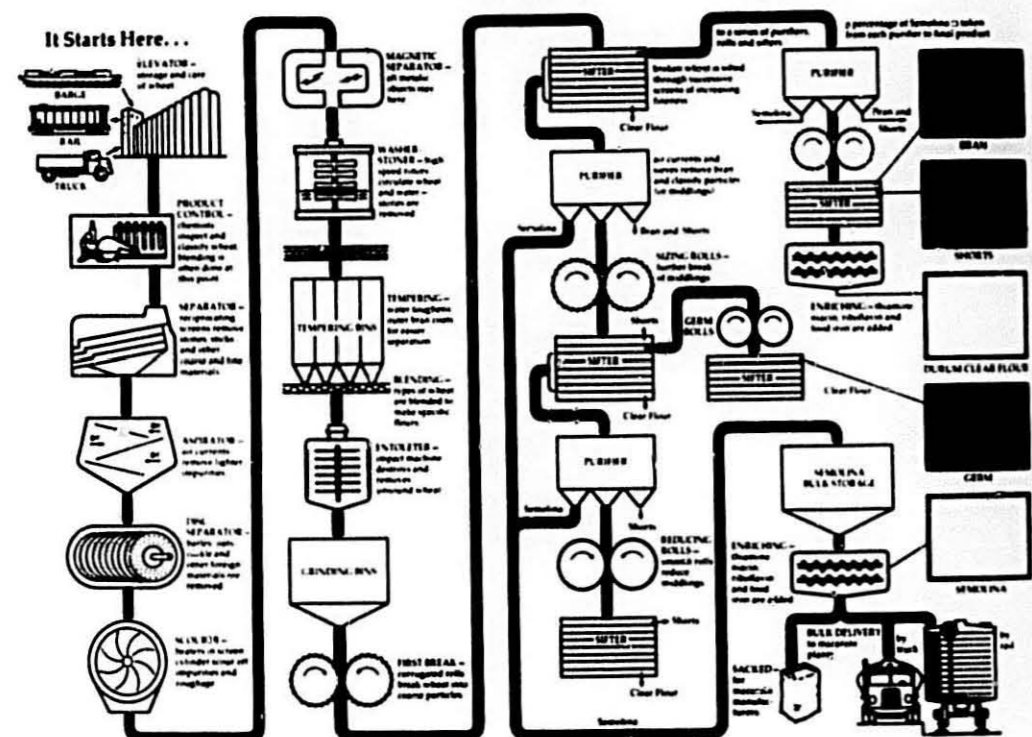
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How Durum Wheat Is Milled Into Semolina or Flour (A Simplified Diagram)



Durum differs from other types of wheat in that it may be milled into 60 to 85% granular semolina with not more than 3% flour, or granulars of higher flour content, or into 72% extraction-type golden flour. This is similar to the fine white product you know. The finer the grind, the greater water absorption. It takes about 2.65 bushels of durum to make 100 lbs. of semolina.

MILLING OF SEMOLINA

by Robert M. Howard, Chairman, Durum Wheat Institute



Robert M. Howard

The Durum Wheat Institute represents the millers of durum wheat, organized to promote its products. Its members include:

A D M Milling Company
Amber Milling Division G.T.A.
International Multifoods
North Dakota Mill & Elevator
Peavey Company
Seaboard Allied Milling Co.

Most are located in Minnesota, a place where we have nine months of winter and three months of tough sledding.

I'm going to tell you briefly about the miller's role in this billion dollar pasta industry.

First let me say that the flour miller no longer simply grinds someone's wheat into flour. The miller today gets involved way back at the wheat breeding station, working with and helping fund cereal chemists and ag-

ronomists to develop high-yield, quality wheat varieties. After growing, it's the miller's job to select, transport, blend and process this wheat into the product that fits (in this case) the macaroni manufacturer's specifications. He must also dispose of the by-products of the milling process, which amounts to about 25% of the wheat by weight.

Durum wheat is the standard of quality for pasta products; that is, color, palate feel, taste, etc., and it's the miller's job to produce a semolina, granular, or flour product from durum that retains and enhances these qualities.

Semolina is the prime durum product. It's a gritty product similar in appearance and feel to table salt and contains not more than 3% flour—granular contains increasing amounts of flour.

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THE MACARONI JOURNAL

GFS

The future of the pasta industry.



Introducing the Gravimetric Feed System. Advanced technology to keep your line's bottom line up!

The provides consistent and precise metering of the ingredients in pre-set ratios. The result: reduced variations of processing parameters. Requiring a minimum of skilled operator attention, the has built-in safeguards that shut down the line when low flow rates are detected and alerts the operator to the problem.

The Technology that optimizes press production within a given time frame. Invaluable in controlling production and final inventories.

Another example of Demaco's capability in meeting the needs of the pasta industry for reliability and production quality that brings customers back.

DEMACO

A vital link in the food chain

How Milled Durum Products Are Made Into Pasta



Milling of Semolina

The actual milling process starts with extremely clean, hard wheat for the removal of stones, seeds, and blackpoint chaff bits in a series of steps. The wheat is then tempered with small amounts of water in a 24-hour time period to "condition" the wheat for milling. It then passes through a series of rollers, after being grinding and get the final product. The milling process consists of several grinding steps, interspersed with the steps of classifying and blending. In the final step, durum wheat is a very strong grain. Milling this product takes initially more power and is more than conventional flour mills. It takes about 165 lbs. of berries from 2 1/2 bushels to produce 100 lbs. of semolina. Aside from the 100 lbs. of semolina, this 165 lbs. of wheat also yields approximately 25 lbs. of flour, a high ash darker flour, of which is used in the pet food business, and about 20 lbs. of millfeed.

Quality Characteristics

When purchasing his raw ingredient, a wheat miller is looking for quality and physical characteristics that will enable his customer, the pasta manufacturer, to produce a quality end product—one that tastes and pleases the final consumer. This means we want a clean, free of foreign materials, free of sprout damage, with a high weight and a good color, and with cooking tolerance.



C. Mickey Skinner

PASTA MANUFACTURING by C. Mickey Skinner, President Skinner Macaroni Company Omaha, Nebraska

The durum miller's job is to produce a high quality product that is suitable for pasta. Durum wheat is a very hard wheat and is milled in a series of steps. The first step is to clean the wheat and remove any stones, seeds, and blackpoint chaff bits. The wheat is then tempered with small amounts of water in a 24-hour time period to "condition" the wheat for milling. It then passes through a series of rollers, after being grinding and get the final product. The milling process consists of several grinding steps, interspersed with the steps of classifying and blending. In the final step, durum wheat is a very strong grain. Milling this product takes initially more power and is more than conventional flour mills. It takes about 165 lbs. of berries from 2 1/2 bushels to produce 100 lbs. of semolina. Aside from the 100 lbs. of semolina, this 165 lbs. of wheat also yields approximately 25 lbs. of flour, a high ash darker flour, of which is used in the pet food business, and about 20 lbs. of millfeed.

Speaking for his company, International Millers, we are well equipped and modern. Our mill is We have just received approval from our board of directors for a multi-million dollar project to increase the capacity of our St. Paul durum mill by 150,000 lbs. and the recent mill and new automatic turning capacity increases attests to the confidence we all have in this important growth segment of the food industry.

Each year, the industry produces about 1.5 billion pounds of pasta. The industry is a very hard wheat and is milled in a series of steps. The first step is to clean the wheat and remove any stones, seeds, and blackpoint chaff bits. The wheat is then tempered with small amounts of water in a 24-hour time period to "condition" the wheat for milling. It then passes through a series of rollers, after being grinding and get the final product. The milling process consists of several grinding steps, interspersed with the steps of classifying and blending. In the final step, durum wheat is a very strong grain. Milling this product takes initially more power and is more than conventional flour mills. It takes about 165 lbs. of berries from 2 1/2 bushels to produce 100 lbs. of semolina. Aside from the 100 lbs. of semolina, this 165 lbs. of wheat also yields approximately 25 lbs. of flour, a high ash darker flour, of which is used in the pet food business, and about 20 lbs. of millfeed.

Mixing

The mixing process is a very important step in the pasta manufacturing process. It involves the combination of the semolina, flour, and other ingredients in a precise ratio. The mixing process is a very hard wheat and is milled in a series of steps. The first step is to clean the wheat and remove any stones, seeds, and blackpoint chaff bits. The wheat is then tempered with small amounts of water in a 24-hour time period to "condition" the wheat for milling. It then passes through a series of rollers, after being grinding and get the final product. The milling process consists of several grinding steps, interspersed with the steps of classifying and blending. In the final step, durum wheat is a very strong grain. Milling this product takes initially more power and is more than conventional flour mills. It takes about 165 lbs. of berries from 2 1/2 bushels to produce 100 lbs. of semolina. Aside from the 100 lbs. of semolina, this 165 lbs. of wheat also yields approximately 25 lbs. of flour, a high ash darker flour, of which is used in the pet food business, and about 20 lbs. of millfeed.

Modern pasta mills are equipped with a series of rollers that are built to produce a high quality product. A common mistake is to think that the quality of the pasta is determined by the quality of the flour. In fact, the quality of the pasta is determined by the quality of the entire manufacturing process.

Pasta Manufacturing

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mixer in a vacuum chamber or by drawing a vacuum on the dough just prior to extrusion.

Why a vacuum? If air is not removed, small bubbles will form and give the finished product a white, chalky appearance. Furthermore, air bubbles can diminish the mechanical strength of the dried product.

Extrusion

The second function the press performs is the extrusion process. The extrusion auger is the heart of the macaroni press. The auger not only forces the dough through the die, but it also kneads the dough into a homogeneous mass, controls the rate of production, and influences the quality of the product.

Recent research shows that the auger speed as well as the dough temperature affects the color and the cooking qualities of the finished macaroni product.

During the extrusion process, a considerable amount of heat is generated. Most extruder barrels are equipped with a water cooling jacket to dissipate heat and to hold a constant extrusion temperature. For the best results, the pasta temperature should be held near 120 degrees Fahrenheit during the extrusion process. If the dough becomes too hot, the cooking qualities of the finished product will be damaged.

A rotating knife sweeps the surface of a metal die to cut the macaroni product to the desired length.

To control the extrusion pattern, the rotation rate of the auger and the temperature and physical conditions of the dough are quite important. Usually these are adjusted by trial and error. To get an even-flow rate across the die is considered part of the art of making pasta.

The inside surface of the die influences the product appearance and extrusion rate. Until recently most macaroni dies were made of bronze. A good bronze die, which has uniform extrusion characteristics, results in a fairly good product with acceptable color. However, bronze dies are relatively soft and tend to wear with prolonged use. Consequently, as wear on the die increases, the size and shape of the macaroni product change ac-

cordingly. In order to maintain the proper dimensions, it is necessary periodically to recondition or replace dies.

Teflon Dies

In the late 50's or early 60's dies were introduced where the extruding surface of the die was fitted with teflon inserts to extend the life of the dies and improve the quality of the product. Macaroni products extruded through teflon are very smooth and tend to have a much better appearance than similar products extruded through a bronze die. This improved appearance is due to the very smooth surface imparted by the low friction teflon.

Drying

Now, let's move away from the extrusion process and get to the area of drying. Drying is without a doubt the most difficult and critical step to control in the processing of pasta products. The objective of the drying is to lower the moisture content of the product from 31 percent to approximately 12 percent so that the pasta will be hard, retain its shape and will store without checking. To accomplish this, any number of dryer designs are used. However, the problems of setting the proper temperature and relative humidity increments are similar regardless of the design of the dryer.

Most macaroni drying operations use a preliminary dryer to quickly dry the product surface immediately after extrusion. Pre-drying case hardens the surface so that the pieces of macaroni will not stick together. The interior of the product remains soft and plastic during this operation.

Final Dryer

The final dryer is used to remove the bulk of the moisture from the interior of the product. Since the surface of macaroni products dries more rapidly than the inside, a moisture gradient develops across the surface to the interior of the product. As the product dries, the interior shrinks inside the product. If the strain becomes greater than the mechanical strength of the macaroni, checking will develop below the surface of the product. Cracks give the product a poor appearance and very low mechanical strength. Checked products are usu-

ally so fragile that they will crumble during the packaging phase and most certainly will break up during the cooking phase. Needless to say, it is essential that the product be dried with a drying cycle tailored to meet the requirements of a specific product.

If the drying cycle is successful, the product will be quite hard and flexible as it exits the dryer. It will, in fact, lend itself to considerable flexing prior to breaking. Now, if the product has not been dried properly, it will be rather soft and tend to crumble quite easily. The true test of drying is to find a product free of checks weeks or months after the product has left the dryer.

I would be remiss if I didn't mention a new, technological development for drying pasta products. That development is microwave. Yes, the same technology that many of you use in your kitchen is now being used successfully to dry pasta products.

Packaging

The final phase in the process is packaging. There are literally thousands of different sizes, shapes, and types of packages in which macaroni products may be sold. However, they all perform a similar function — to keep the product free from contamination, to protect the product from damage during shipment and storage, and to display the product favorably.

On the east coast most pasta products are packaged in folding cartons. As you move further to the midwest, you will find a variety of products packed in folding cartons or in flexible packages. Now, if you move out to the west coast, you will find most of the pasta products packaged in flexible packages.

The packaging equipment used in most pasta plants is automatic and high speed. In fact, great strides have been made during the last decade in the automation of pasta packaging equipment.

After the product has been put in the individual retail carton or bags, it is placed in a corrugated shipping container, moves through a case sealer, and is then either manually or automatically placed on a wooden pallet. The pallets, with the merchandise, are then picked up by hoist trucks, loaded into rail cars or over-

the-road trailers, and moved to distribution points throughout the country.

This is the way we mix, extrude, dry, package, and store pasta products. I think you can see that we are involved in a very complex and complicated operation. The success of our efforts is whether or not the housewife or the consumer enjoys the product when it is placed before them at the dinner table.

Good morning, Growers! My talk is on *The Growing of Pasta*. That's right — the growing of pasta consumption among American consumers. It can also be called marketing. Presently, we sell pasta to some 220 million Americans — from the time they begin to consume "solid" food and throughout their lives.

I will share with you how we — as growers of pasta consumption — go about the job of farming the wheat you grow into a rich harvest of good eating for America.

Just as your farm is supported by land, our pasta farming is supported by a bedrock of consumers.

So let's start with three basic factors of our business, or for that matter, almost any business: population; income; cost of living. These factors can be likened to your land, weather, and expense in equipment and fertilizer.

Trends

The population trend since 1974 is an annual rate of less than 1 percent.

Disposable income, the amount of money we have left after we pay our taxes, has increased at an annual rate of about 10 percent to 12 percent, a very healthy increase. But as we all know, inflation has eaten away the value of our dollar. The cost of living, at a 14 percent increase this year, is running ahead of what we Americans need to make ends meet.

Of vital interest to the health of our crop is the percentage of this "buying income" spent in food stores, our primary market place. The part of our income spent in food stores has been declining since 1975. This means our consumers are spending less of their income in food stores: today, only \$11.20 out of every \$100.00

MARKETING TO THE CONSUMER

by Joseph A. Urda, Vice President — Marketing*

C. F. Mueller Company, Jersey City, New Jersey

* Mr. Urda is with the Revlon Corporation as of January 1, 1981



Joseph A. Urda

While the percentage of buying income has been soft, total spending in grocery stores on a dollar basis has been increasing during the past three years at an annual rate of 10 percent. This is at about the same level as the cost of living.

Food Prices

Logically, the next subject to talk about is food prices. The government Bureau of Labor statistics publishes a figure called "The Food at Home Price Index". We'll use this because it most clearly reflects the inflation factor in grocery store prices. To review history briefly, food at home prices shot up 15 percent in 1976 and since then has gradually increased to 10 percent in 1978 and 11 percent in 1979. It is expected to be the same for 1980. Economists project an increase in 1981 at even a higher level: 12-13 percent.

Yet, the population trend is less than 1 percent a year. What can we generalize or say about all of this? Simply, that food tonnage or pounds sold through grocery stores stands at zero growth and that population is showing slightly less than 1 percent growth which means that the per capita consumption of food is lagging. These are some facts we must consider in trying to grow pasta consumption.

Demographics

Now, let's look at what we believe are some of the trends that will guide us in our future cultivation. We call these factors "demographics" or the study of people. They show that the characteristics of our homestead aren't what they used to be. Our homestead is growing older. That group of the population older than 65 is increasing and will continue to increase. The under 25 group is declining.

Other demographic information important to pasta farming shows by age and by homemakers the best prospects to buy pasta are in the 25-44 age group. They represent 38 percent of the households and on an index basis account for 57.7 percent of total pasta consumption.

Our best targets are those families earning \$10-25,000. They account for nearly half of all homemakers and also for almost two-thirds of the total pasta consumption.

As for education, homemakers with a high school education rank high in the buying of our crop.

Dry Pasta Market

With that brief background, let us turn to the dry pasta market. In 1977, the dollar value of dry pasta products reached a sales milestone — more than \$500 million. You can see dollar sales continued to grow. When we index 1980 volume to 1970 as a base of 100, we see that the value of dry pasta in dollars has nearly tripled. Like total grocery store sales, however, the tonnage trend is nowhere near as dramatic as the dollar trend. Here our index for 1980 on a tonnage basis is 118 compared to the index of 270 for dollars.

The average annual growth rate of dry pasta since 1971 is about 2 percent. That's a better rate of growth than for the total population.

Now, let's look at the size of the dry pasta crop versus some other foods. Pasta is a strong second against some pretty big edible foods — cereals for

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Pasta Masters.



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

Peavey Food Group

Marketing to the Consumer

(Continued from page 19)

example. And if we add macaroni and cheese along with canned macaroni products and the noodles for soups, you can see we are quite a strong category.

You might like to see just how popular our crop is in the home. An independent survey shows that 9 out of 10 homes use our products, and more than 38 percent use them once a week or more.

Also, pasta is primarily eaten by families at the evening meal.

Why do people buy this very popular food? Their families like it. No one has to be told to eat their spaghetti like they are told about some other crops. Pasta is economical when compared to other main meals. Pasta offers versatile meals that are easy to make, and pasta is nutritional.

We have noted that 9 out of 10 households use our products, and I thought you would be interested in how farmers use our pasta crop compared to the rest of Americans. It is obvious that farmers are a very savvy group of people. They know a good value when they see one. One of our obvious opportunities is to get the rest of the American public to be as smart as you, and you know that is not an easy task.

Advertising

And now, with all of this statistical plowing, we take one final step before we go about the cultivating of our pasta crop to the "traditional homemakers." This process we jokingly call the "brain crop circuitry analysis." This shows that there is a lot of weeding out we must do to raise the awareness level of pasta. Women have a lot on their minds. What advertising tries to do is plant the attributes of pasta and raise the awareness level.

When we advertise effectively, we achieve a greater awareness and usage of our product — pasta. As you can see, pasta has a great many positive elements to advertise. I have put together several advertising campaigns that individual manufacturers are using in selling the pasta crop. They are dependent in part on what each manufacturer wishes to cultivate, such as building awareness of pasta or increasing the frequency of use.

Of course, the taste and quality attributes of the crop are always desirable. Let's look at how some of our manufacturers try to cultivate consumers and grow pasta consumption with advertising.

Ronzoni's advertising furrow is based on product quality. Buitoni and Prince advertise a couple of nutrition hybrids: Buitoni's light spaghetti, a high protein-low starch product and Prince's Superoni, the newest high protein pasta.

San Giorgio's commercial would appear to have a high degree of awareness, and we understand that is its outstanding feature. Ronco and Gioia focus on the Italian heritage while American Beauty and Mueller stress the scene of a family's gathering for dinner is universal as is going to annual traditional events. They are something special, and we all relate to the American tradition.

There is also a lot of reading on our pasta farm, and Skinner and Cremonettes do our pasta farming this way by emphasizing using quality and usage.

The type of machinery we use in farming continues to change. The sickle and reaper are history. All of us take time out from time to time to see what changes are going around us, so we don't become obsolete. Let's the same with pasta farming. Let's review some values pertaining to food. There is no need to put a time frame on it. We would end up discussing the habits of the ape man. But, as we all know, over the centuries, there has been an evolution of how people place values on food. They go all the way from raw survival through taste, social approval, and convenience.

Today's consumer needs call for the need of reassurance. Everybody needs reassurance, because we live in a world of skepticism and uncertainty. There is increasing scrutiny of our products, not only what's in the package, but also what's on the package — specific nutritional value.

As for self expression, in our fast moving high pressure world, we feel that the kitchen is still one place where a person can do his thing, where he can be creative. And finally, in today's world members of the average family, as you know, eat in more different places, at more different

times, than ever before. And they must be satisfied with what they eat.

Now these changing values require consideration of what we should be planning for in the future. These incremental values should meet the need for a food with reassuring nutritional values. The drive for self expression points to the needs for a product that offers a high degree of menu selectivity and convenience.

And the fragmented eating patterns require a product with portability and stability. The product we farm, pasta, is indeed one that satisfies the masses. It is a food with high nutrition, versatility, and convenience. Aside from that — it's fun to eat!

Commitment

Now that we have done some spade work on what the consumers' expectations are to be, we can see what today's consumers are really like. They are vital and energetic, and our pasta crop plays a vital role in their lives.

That about sums up pasta farming. We've talked about trends, profiles, statistics, demographics, and psychographics. We've looked at advertising and lifestyles. We've tried to show how we, as manufacturers, go forth in labor and in love in cultivating the consumers to buy pasta and how we go about the sifting of the wheat from the chaff of consumers and how we shower them with messages. I think you will agree in a sense it is like your farming. It takes a lot more than just starting and turning off the tractor. We must decide beforehand what tools to use and what is the hallmark of pasta farming to all of us. It's not only having a product to plant, it's knowing how to cultivate and harvest it, too.

In conclusion, fellow growers, there is a story that I think is very apropos to this segment of your Forum. It seems that a pig and a chicken were walking down a hot dusty North Dakota road. They were very hungry and thirsty and finally came to a restaurant. Outside the restaurant there was a sign: "We serve ham and eggs." The chicken said, "Let's go in." "Hold it," said the pig. "Remember, for you it's just contribution, for me it's a total commitment." From the pasta manufacturers we assure you we have a total commitment to farming — your product and ours — pasta.



Food Service

by Joseph P. Viviano, President
San Giorgio-Skinner, Inc.,
Hershey, Pennsylvania

Eating out has been on a steady and increasing growth trend through the last 20 years. Today, 48% of meals are eaten outside the home, in schools, hospitals, nursing homes and in an endless range of restaurants.

As we will hear, the National Macaroni Manufacturers Association has contributed to pasta promotions and publicity for the retail segment (products sold in grocery stores), but until recently, has not addressed this Food Service segment.

Two years ago, we instigated a full program of pasta promotions directed to this large Food Service market.

We are currently collecting monthly statistics on production and sales throughout our pasta industry and in 1980, for the first time, we have a separate breakout so we can monitor and track Food Service sales and production in our pasta industry. We are taking this segments serious.

As an industry, are finally realizing there is a great Food Service world to conquer. We've learned that lots of dollars are being spent by other industries in Food Service and in fact in some cases, as much or more as the retail segment. We agree that it's a very vital part of our industry and plan to treat it as a great potential in the future.

Pasta Manual

As a start, we asked, Why isn't pasta used more in eat-out establishments? We researched that and many more questions and found an opportunity to tell our story to a very interested group of customers, creating an opportunity for a new and profitable market. Thanks to the Durum Wheat Institute and the North Dakota State Wheat Commission in cooperation

with the National Macaroni Manufacturers Association, we began a formal program and as of last year completed and established our base. The base was a Pasta Food Service Manual and was our first step to answering these many questions. This is the Pasta Bible. It talked about cooking procedures, problems identified by our customers, equipment, nutritional benefit of pasta, merchandising tips, how to sell pasta on the menu, not just as an Italian food, but pasta recipes for soups, side dishes, tossed in salads, with vegetables, macaroni salad on the salad bar and, of course various main dish ideas. 20,000 users agree it was a successful beginning.

Aggressive Approach

With this base established, we are planning an aggressive approach to this previously untapped market and plan to position macaroni products in a new and unique way. We hope to create a proper image and publicity in many ways such as in Food Service Journals.

Pasta is an item with unlimited use. The variety and versatility is endless. With pasta, we are telling a story of economy and profitability. Keep the cost down while presenting a very interesting dish. We also plan to tell the story of how, explain to people proper procedures, and show the importance of quality and, of course, the key to quality pasta products and consistency depends on a durum semolina product.

Again, we are appreciative of the Durum Wheat Institute and the North Dakota State Wheat Commission. Our natural association will be a great help to seeing pasta grow at a faster rate in Food Service than currently predicted in any other segment of the business.

NMMA Standards and Nutrition

by C. Mickey Skinner

Standards. I have the privilege of chairing one of the most interesting, exciting and action-oriented committees in the Association, The Standards Committee. This committee reviews and interprets recommendations for macaroni products and other policies of the Food & Drug Administration. It suggests and reviews projects for

macaroni/noodle products and their raw material.

Just to suggest a few issues this committee has addressed itself to in recent years.

1. **Phoney-Roni** — General Foods attempted to introduce a macaroni product with corn as its principal ingredient instead of wheat. The product was inferior to a wheat based product and could have had the affect of reducing the per capita consumption to the industry.
2. **Industry G.M.P.'s** — F.D.A. requested that several industries draft specific Good Manufacturing Practices to supplement their Umbrella G.M.P.'s. We had numerous meetings among ourselves and F.D.A. before F.D.A. decided to drop this proposition.
3. **Oriental Noodles** — The National Macaroni Manufacturers Association vigorously opposed the mislabeling of Oriental Style Noodles. The results were that Food & Drug strengthened its enforcement of these standards.
4. **Imported Products** — An investigation of imported pasta products was made to determine whether they are in compliance with the Standards of Identity. This report dealt with micro-analysis for filth, chemical assay for enrichment and analysis to determine if artificial coloring agents were present.
5. **Net Weight** — The committee is presently preparing a draft on Net Weight which would allow a 4% MAV (Maximum Allowance Variation) for moisture loss in pasta products during packaging, warehousing, shipping and storage.

There are many other issues we deal with but the above give you an idea of the variety and scope of our involvement.

Nutrition

What naturally organic food, is high in nutrient density, with energy for athletes, has few calories for the dieter and is economical for everyone? You guessed it — pasta.

(Continued on page 26)

Pasta Perfect:



There's nothing better

People who want to stay trim should realize the nutritional value and low caloric content of pasta products.

Pasta products in this country have inherited a reputation. **This is an undeserved reputation, — totally out of line with the proven facts.**

It's time somebody set the record straight by affirming the weight-conscious and waist-conscious public of the real nutritional value of pasta products. Enriched pasta products can provide a significant portion of an individual's Recommended Daily Allowance of niacin, riboflavin, thiamine, iron, and vitamin B.

Pasta products are also excellent sources of complex carbohydrates. The new HEW and USDA dietary guidelines suggest that increasing the intake of complex carbohydrates is a positive health measure.

Plus pasta products can help a person lose weight and waistline inches by providing the bulk necessary to quiet hunger pangs.

The caloric fact is that pasta products compare favorably in calories with yogurt. The chart below shows the actual comparison.

How pasta dishes compare with yogurt

	PASTA (Serving — one cup)	YOGURT
MACARONI	hot 155 calories cold 117 calories	100 — 100 calories
MACARONI & CHEESE	hot 288 calories	100 — 100 calories
NOODLES (EGG)	hot 200 calories	100 — 100 calories
SPAGHETTI	hot 155 calories	100 — 100 calories
SPAGHETTI TOMATO SAUCE & CHEESE	hot 190 calories	100 — 100 calories
SPAGHETTI TOMATO SAUCE & MEATBALLS	hot 258 calories	100 — 100 calories

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ADM also supplies quality bakers shortening, corn sweeteners, CO₂, soy protein and vital wheat gluten for the baking industry.

Nutrition

(Continued on page 28)

Grain foods are being recognized as a vital part of a balanced diet by consumers. Medical science has shown that better health and fewer chronic diseases such as heart disease and diabetes are present in populations with diets high in complex carbohydrates, moderate in protein and low in fat.

Nutritionists tell us today that diets which contain approximately 50% of their calories in the form of complex carbohydrates, 20% of the calories in the form of protein and 30% of the calories in the form of fats are best for our health. These diets will consist of less red meat and fats and more grain, vegetables and fruits.

Complex Carbohydrate

Pasta, of course, fits the mold well. It is high in complex carbohydrates, low in fat and has a moderate amount of protein. Pasta contains no sugar and very little sodium, 2 oz. of dry spaghetti contains 210 calories, .6 milligrams of sodium, 1.4% fat and 12½% to 13% protein. Egg noodles contain 220 calories, 1.8 milligrams of sodium, 4.5% fat and has a protein content of 13 to 13½%.

Pasta products are noted for B Vitamin and Iron content. The B Vitamin, Niacin, Riboflavin and Thiamin are essential in carbohydrate, protein and fat metabolism. One simply cannot live without them. Iron, of course, is a body builder and maintainer. It provides the vehicle of transport oxygen to the cells and pasta provides a moderate source of Iron. It is generally recognized that Iron is better absorbed in the system when Vitamin C is present. I mention this because the sauces normally used on pasta products contain tomatoes and green peppers and these are an excellent source of Vitamin C so thus you can achieve a more efficient use of Iron in Pasta.

Currently there is a carbohydrate shift in our diets. Carbohydrates are an important source of energy. In fact, carbohydrates are the only energy which can be used for brain fuel. Recent studies have shown that the human need for protein can only be maximized to a certain point. Beyond that level of protein intake, extra protein is used for energy which is an in-

efficient body process. A diet in which 12% of the calories come from protein and 60% of the calories come from carbohydrates is much more efficient.

What does this have to do with pasta? It means that for an average meal the portion of pasta should be substantial and the protein portion — be it meat, fish or poultry — should be at a 3 oz. level. If there is a need for an extra helping at the end of the meal, it should be pasta in order to assure that you are maximizing your body's efficiency. Don't worry about the calories. An ounce of cooked pasta has 70 calories and an ounce of cooked meat has 100 calories — so you be the judge.

Pasta also meets the needs of the fast-food craze. Listen to these comparisons.

8 oz. of spaghetti with ½ cup of tomato sauce has 434 calories. If you are a McDonald's lover, a quarter-pounder on a 2 oz. roll with 10 french fries has 580 calories. If you go to the Colonel, a ¼ of a 2½# chicken, plus ½ a cup cole slaw and a 2 inch square roll has 498 calories. If you frequent Arthur Treacher's — 2 pieces of fried fish plus a medium order of chips, which is about 4 oz., has 831 calories. Now if presented on a calories basis, which of these fast-food dinners would you choose?

Digestibility

Last but not least, let's address the digestibility and comfort of pasta. Because it is high in complex carbohydrates, pasta is easily broken down and quickly digested. This makes it a good food choice for athletes. The high fat, high protein pre-game meal takes much longer and is more difficult to digest than pasta. Macaroni products provide energy as well as being quickly and easily digestible so athletic performance can be at its peak. Many athletic regiments these days include pasta as the pre-game meal.

Now let's move to another area. Pasta has been considered a comfort food. The celebrated chef, James Beard, rhapsodizes pasta as a gentle, pleasant food which fits so well. It comforts the body. Marzella Hazen is an Italian chef who tirelessly promotes Italian cuisine in the United States. She tells her students to keep

their waistlines in control, you eat the pasta with sauce and not the sauce with pasta.

To summarize, the nutritional qualities of pasta are great. It is truly a nutritious food and with a little imagination can be served in many different ways. Pasta is truly the natural food with appetite appeal as well as good nutrition.

Government Relations

by Joseph P. Viviano

In 1980, we acknowledge the 35th Anniversary of the destruction and bombing of Japan to bring an end to World War II. Since that time, that country has risen from absolute destruction and ruins to challenge, and some might say successfully challenge, the largest industry in the world, the American automobile industry. How could this happen?

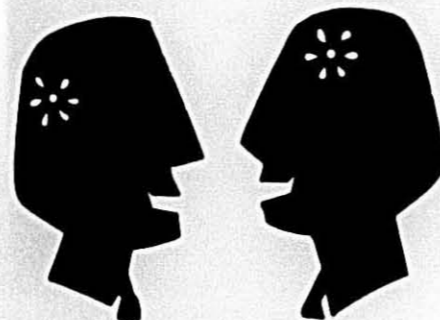
Those disciples of economic history would say simply Japan merely borrowed our ways of doing things and copied what the American government and business were doing so successfully in the 50's.

The key to success today in Japan is the relationship between government and industry, similar to the type of relationship we had years ago. Unfortunately, through the years, this relationship in the country has changed and suffered. The tone appears to be one of an adversary role in which the government only seems to help after industry is in serious trouble.

It's apparent that the election results of November were a complete indication by the majority of the American voters that a change must take place, and that is a very timely lead-in to what the Macaroni Association, through their National Affairs Committee, is all about.

The National Macaroni Manufacturers Association has continuously and actively had an interest in the activities of our federal government. We have had an annual meeting in Washington for our members through the years. Recently, the Association has formed a National Affairs Committee which intends to increase both our knowledge of and our interaction with the legislative and regulatory process.

(Continued on page 28)



Profitable Barter

If you have a dollar, and I have a dollar, and we exchange . . . we each still have a dollar. No profit there.

But if you have an idea, and I have an idea, and we exchange . . . we each double our ideas.

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Step number two is to attend their next meeting. And take an idea along with you. You're bound to at least double it before you leave.

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Robert M. Green, left, executive secretary of the National Macaroni Manufacturers Association, Palatine, IL, and Lester R. Thurston, center, C. F. Mueller Co., Jersey City, NJ, association president, visited at W.I.C. luncheon with Donald H. Heitman, right, of the John F. O'Neal law concern, counsel to the Wheat and Wheat Foods Foundation during creation of the Wheat and Wheat Foods Research and Nutrition Education Order. Mr. Thurston, an end product manufacturer member of the Council, was elected to its five-member executive committee at the organizational meeting.



The Wheat Industry Council which will administer the Wheat and Wheat Foods Research and Nutrition Education Program held its organizational meeting Nov. 18-19 in Washington. The Council's initial meeting was conducted in a conference room of the South Building of the Department of Agriculture, above, with representatives of the Agricultural Marketing Service directing the organizational procedures.

Photos courtesy of Milling & Baking News

Government Relations

(Continued from page 26)

The committee's members and other members of the board of the Association have a visitation program with key members of the Congress. Our purpose in this program is to inform as many of our legislators as possible of both our accomplishments and our problems. We have discussed pasta's role in the American diet with members of the North Dakota Congressional delegation as well as with other key members of the Agriculture Committees in the Congress. One of the major points which we consistently make is the necessity of maintaining a high standard for our products, by acquiring an adequate supply of Durum Wheat.

We also have a Standards Committee which concerns itself with the basic integrity of our products which are labeled under a standard of identity.

Washington Law Firm

The Association has engaged the Washington law firm of Collier, Shannon, Hill and Scott to both represent it, and to monitor developments in Washington. Naturally our industry has many concerns as you do with federal regulatory agencies such as OSHA and EPA. We also react to proposals made by USDA and FDA when we believe that such proposals would have an impact on members of our Association.

Recently, we have been involved in a very difficult issue for all those involved in the grain products area — that of net weight standards. Since this area is controlled by both federal and state authorities and since it is an area in which consumers have much interest but sometimes a low level of scientific knowledge, the pasta industry like the flour industry has found it a difficult area in which to get results. We are hopeful that any final guidelines which will be set will take into account the natural conditions of pasta products.

Another area in which our Association has attempted to emphasize the quality of products which meet our standards of identity has been in the area of the labeling of so-called oriental noodle products. These products contain very little durum wheat and certainly are of a different nature than are the noodles produced according to FDA's standards of identity. Our Association requested that FDA take action in this area by mandating imitation labeling on these oriental noodle products. While FDA denied this request, they have begun enforcing the need for conspicuous labeling of such products as oriental noodle and noodles made by members of our industry.

Wheat Industry Council

As you are probably aware, the macaroni industry has been invited to participate in the Wheat and Wheat Foods Council operating under the auspices of the U.S. Department of

Agriculture. The purpose of this Council will be to educate consumers as to appropriate and new uses of wheat products, and we believe this will be one more opportunity to explain to American consumers the far ranging uses for macaroni and noodle products. Naturally, we believe that the superior nature of durum wheat should be a part of any explanation to consumers of the benefits of the consumption of pasta.

It is certainly our Association's view that the farmers who supply us with high quality ingredient and the industry which processes it have a mutual story to tell in Washington and to the American public, and we are hopeful that this exchange will be the first step in ensuring that we tell the mutual story.

Algeria Best Durum Customer

Algeria continued as the largest customer for U.S. durum with purchases of 526,000 mmt during crop year 1979-80 and total wheat purchases from the U.S. of 747,000 mmt. The Algerian cereals office estimates 1980-81 imports at around 2 mmt with two thirds of that amount to be durum and one third soft wheat. The U.S. is expected to gain roughly half of the durum market this marketing year which could amount to 660,000 mmt. The U.S. is also expected to obtain up to 80 percent of the soft wheat sales with the remainder going to the EEC and Argentina.



For its outstanding contribution to the macaroni industry through achievement of a widespread reputation for quality pasta among its many patrons in the St. Louis Area . . .

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February 1, 1981



Seaboard Allied Milling Corporation



Good Year for G.T.A.

Grain Terminal Association announced total revenues of \$1.99 billion and net earnings of \$28.9 million for the fiscal year ended May 31, 1980 at its annual meeting in Minneapolis recently. B. J. Malusky, general manager of GTA, told more than 2,500 delegates and patron-owners attending the cooperative's 43rd annual meeting at the Minneapolis Auditorium that the year was good for GTA "despite the difficulties and challenges of the period."

"Inflation impacted on GTA and the higher cost of operations and larger grain volume required more borrowings to finance larger inventories," Mr. Malusky said. The cooperative reported a 58% increase in interest costs alone for the year.

Strike Hurt

Mr. Malusky said an 11-week strike at the Duluth-Superior port during the important shipping months of July, August and September increased costs of moving grain into export positions and created a shortage of transportation for country elevators. He also said additional problems resulted from the embargo of 17 million tonnes of grain from the Soviet Union last January. "While the administration developed programs to protect farmers and shippers from financial loss, the action clogged the marketing pipeline for several weeks as shippers juggled their orders and sought new buyers," Mr. Malusky said.

Dramatic Growth

Last year, GTA marketed 398 million bushels of grain for more than 780 local farmer cooperatives in Minnesota, North and South Dakota, Montana and adjoining states. Mr. Malusky told the convention \$7.5 million in cash refunds and the balance of their patronage earnings in GTA capital certificates. Other cash payments and capital certificates for the year brought total cash payments to \$9.95 million, he said.

Mr. Malusky reported that GTA had total equity of \$175 million and assets of \$531 million at the close of its fiscal year May 31, 1980.

The nation's grain farmers and the marketing system serving them must gear up for dramatic growth in the

future, Mr. Malusky said in his speech to the convention. He said that export sales are setting new records annually and that some observers believe sales may double this year's \$40 billion figure by the end of the decade.

Mr. Malusky said that GTA has been forced into continual expansion "just to hold its own in the competitive grain marketing industry."

The manager of each of GTA's seven operating divisions reported to the convention on last year's performance and on changes being made to prepare for the expected increase in demand.

Word from Washington

Glenn Hofer, vice-president of the National Council of Farmer Cooperatives, Washington, and Senator John Melcher of Montana addressed the convention, outlining what farmers might expect from a Reagan administration. Both said they didn't expect any great changes in farm policy. Mr. Hofer said, "I've been in Washington for 12 years and have seen administrations come and go without making any sweeping changes in agriculture."

Resolutions

Fourteen resolutions were passed by GTA delegates to the convention. Delegates resolved to endorse cooperative participation in railroad rehabilitation and to seriously consider cooperative ownership of rail lines. The delegate body also resolved to oppose embargoes that single out farm commodities and to further study the feasibility of fuel alcohol production.

Senator-elect Andrews

Closing address was delivered by Senator-elect Mark Andrews of North Dakota. He discussed recent farm legislation and talked about the important role agriculture plays in the nation's economy. Representative Andrews said, "The abundance of the family farm is the strongest beacon of hope in a troubled world and the most overlooked plus we have as a nation. The question to answer as we go into the decade of the 1980's is, 'Are we going to finally recognize the contributions that agriculture makes to this nation and to the world?'"

Technical Seminar
Radisson South, Minneapolis
April 27-30, 1981

Best Quarter for Multifoods

International Multifoods Corporation announced record sales and earnings for the third quarter and first nine months ended November 30.

Earnings from continuing operations and net earnings for the quarter were \$10.9 million or \$1.35 per common share. This is up 26 percent when compared with \$8.7 million or \$1.08 per common share on a continuing basis as reported last year. Record third quarter sales of \$311 million increased 12 percent compared to \$278 million last year.

For the first nine months of fiscal year 1981, earnings from continuing operations and net earnings were \$18.4 million or \$2.26 per common share, up six percent compared to \$17.3 million or \$2.14 per common share on a continuing basis, as reported last year. Record nine month sales were \$799 million compared to \$747 million reported for the same period last year, an increase of seven percent.

"Our historically strong third quarter was very good indeed," said William G. Phillips, Multifoods' chairman. "In fact, it represents the most profitable quarter in the company's 89-year-history. New sales and earnings records in the midst of this still unsettled economy has developed a strong feeling of momentum at Multifoods. The quarter produced sales gains in all four market segments: consumer, industrial, agriculture, and away-from-home eating. All but away-from-home eating were accompanied by strong earnings improvements."

Gain Broadly Distributed

Darrell M. Runke, Multifoods' president, reported that "third quarter earnings gains were broadly distributed across the industrial market segment, with United States and Canadian bakery flour, durum, and grain merchandising the major contributors. Consumer foods earnings gains were boosted by excellent family flour volume in Canada and Venezuela, and improvement in both mixes and cereals in the United States."

Earnings in the agriculture market segment rebounded sharply in the third quarter, with particularly strong performance by feed and animal health products in the United

(Continued on page 32)

Multifoods Gain

(Continued from page 31)

States and Venezuela. Multifoods' Mexican affiliate, La Hacienda, also contributed significantly to overall earnings, with improved performance in animal feeds.

Phillips and Runke concluded: "As we enter our final quarter of the fiscal year, we are confident that our last half performance will support our earlier predictions of a new record year. We have good momentum for improved sales and earnings in the agriculture sector, and expect a well-balanced earnings performance from our other segments in the fourth quarter. However, with newly increased energy costs added to our endemic inflation and high interest rates, caution must accompany any expectations for the future."

Peavey Sales and Earnings

Peavey Company announced net earnings for the first quarter ended October 31, 1980 of \$7,120,000 or \$1.28 per share on sales of \$206,971,000. This compares with restated net earnings of \$6,444,000 or \$1.14 cents per share on sales of \$190,697,000 in the first quarter a year ago. Last year's earnings have been restated to reflect the current method of valuing U.S. Farm Store inventories, which are now on a LIFO basis. The impact of the restatement is to reduce last year's first quarter net earnings by \$236,000 or 4¢ per share.

Contribution by All Groups

Peavey Chairman and Chief Executive Officer William G. Stocks, announcing first quarter earnings at the Company's Annual Meeting in Minneapolis, told shareholders: "All three operating groups contributed to the quarter's record performance, with the key factor being increased volume in both grain merchandising and flour milling.

Stocks said that the Agricultural Group again benefited from strong domestic and export grain demand. Commodity brokerage revenues increased substantially in the quarter.

The Food Group's Milling Division had record flour unit volume. The Group's grocery products earnings were lower due to a major fire, which destroyed the Company's Twinsburg, Ohio bakery; generally higher ingre-

diest costs; and a severely reduced peanut crop.

Retail Group sales and earnings were up for the quarter with improvements in both the fabric and farm stores divisions. Building supplies, as expected, had lower sales and earnings as higher interest rates continued to hold down construction activity.

Stocks told shareholders that fiscal 1981 earnings should approximate last year's records.

Barbara Armajani Elected To Peavey Board

The shareholders of Peavey Company elected Barbara Armajani to its Board of Directors at the Company's Annual Meeting in Minneapolis.

Mrs. Armajani is President and Chief Executive Officer of Powers Department Stores, Minneapolis.

Before her election as Chief Executive Officer of Powers in March, 1980, Mrs. Armajani was President of J. B. Hudson, Jewelers, a division of Dayton Hudson Corporation.

A native of St. Paul, Minnesota, Mrs. Armajani is a 1963 Bachelor of Arts graduate of St. Paul's Macalester College.

She is a member of the Boards of Directors of Northwestern Life Insurance Company, Midland National Bank and the Downtown Council of Minneapolis. She is a Trustee of Macalester College.

Seaboard Allied to Expand

The Seaboard Allied Milling Company, one of the leading milling companies in the US, has commissioned Buhler-Miag, Inc., Minneapolis, to expand its existing facilities. This will consist in adding a second floor mill with a capacity of 420t/24 h to its Albany, New York, plant which has been in operation since 1976. Allowance for an expansion was made when the first mill was being designed, so that the new facility, which is scheduled to go on stream in 1981, can be incorporated in the existing building. The expansion will take the grinding capacity of the mill complex in Albany to 300 t/24 h of durum and 2x420t/24h of hard and soft wheats, i.e. to a total of 1140t/24 h, making it the Seaboard Allied Milling Corporation's largest plant.

National Food Brokers Association Convention

The National Food Brokers Association held its 1980 Convention in Las Vegas December 5-10. The annual NFBA Convention and Sales Conference enjoyed participation by thousands of manufacturers, food brokers, and industry guests.

The overriding sentiment and talk of the convention was the admiration participants felt for the National Food Brokers Association in the ability to quickly relocate its headquarters. Also some 2,000 registrants were reassigned to other hotels from the closed MGM Hotel.

Discipline Required

Dr. John Stoessinger, Professor of Political Science at the City University of New York at Hunter College, told the NUFBA Convention audience that the key to solving America's problems and being able to handle the challenges of the future is "discipline."

He stated that a disciplined approach to such problems as productivity, energy, the economy, and the deterioration of the educational system is the only answer available to Americans.

George Jenkins Honored

The third NFBA Award for Outstanding Service was presented to George W. Jenkins, Chairman of the Executive Committee and Founder of Publix Supermarkets.

In accepting the Award, Mr. Jenkins told the Convention audience that "Publix fell in love with food brokers just as we fell in love with our customers. I feel very comfortable in a gathering of food brokers.

"I have heard people in this business refer to manufacturers and others as adversaries. It has always been the opposite with us.

"The U.S. is second to none in the production and distribution of food and we are all part of it."

Mr. Jenkins thanked the National Food Brokers Association for the honor and said the unique gold and lucite sculpture presented to him Friday Afternoon by NFBA President Mark Singer would be displayed in the lobby of Publix headquarters with other prized mementos of Publix 50 years in the food business.

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National Food Brokers

(Continued from page 32)

Safeway Stores Chairman and CEO Peter Magowan delivered the keynote address of the Convention. He told the enthusiastic group of food industry executives that "you are possibly the most important link in the food distribution system."

Mr. Magowan called on food brokers, manufacturers, retailers and all industry segments to adopt the philosophy of the 1980 Convention theme - "Marketing Partners" - "because only by doing so, can we keep our industry the most vibrant in the world."

1980 National Chairman Art Fewel (Fewel-Comer Company, Portland, Oregon) talked earnestly with the NFBA audience about food brokers continuing to make investments in the quality of their staff and services. Principals should constantly recognize that this investment is made in their interest.

Business Analysis

Dr. Paul Nadler, Professor of Business Administration at Rutgers University gave an analysis of the economic condition of this country and its contributing factors was heavily laced with pointed humor that kept the audience on its toes.

He told the NFBA audience that this country "must get its house in order" to present a united front to other countries and to garner the strength to solve its own problems.

The National Food Brokers Association elected new officers for 1981, with Dennis Putthoff (French-Nelson-Russell, Inc., Kansas City, MO) as 1981 National Chairman of the Association.

Singer Empathizers Ethics

NFBA President Mark Singer talked to the Convention audience on the importance of ethics in the industry today, for food brokers and manufacturers.

"The industry and the nation need a new, self-direction. One way to do it by a new dedication to high ethical standards. The time to do it is now. The place to start is with ourselves. There is no better way to meet this challenge," Mr. Singer declared.

Cooperative Projects

An overview of several cooperative projects now in process or that have just been completed by NFBA work-

ing with other industry groups was given.

Mark AUSTAD, former Ambassador to Finland and now Vice President of Metromedia, Inc., moderated this multi-segment presentation.

In opening, Mr. AUSTAD told the food industry executives that "using a brokerage firm is like having your own marketing team in the field, but only if you use it that way."

NFBA Vice President Charles Haywood reported on the first meeting of NFBA's Principal Advisory Group. Members of this group are: Claude Choate, National Sales Director, Grocery Products, Uncle Ben's Foods; Paul Corddry, President, Ore-Ida Foods, Inc.; John J. McRobbie, General Manager, LaChoy Food Products; A. L. Scherber, Vice President, General Sales Manager, The Pillsbury Company; Robert T. Silkett, President, The R. T. French Company; and David Thayer, Vice President, Sales, Heublein, Inc.

Mr. Haywood reported that the first Principal Advisory Group meeting had covered a number of topics, including competing products, mergers, the future of the food broker profession - whether it will likely expand or consolidate - productivity, communication, perpetuation and training.

Mr. Haywood summarized the conclusions drawn from this first meeting as follows: "First, each partner in this marketing partner to run his business in his own way, as he sees fit. But, always as a professional with his marketing partner in mind.

"Second, open communication between principal and broker is the one sure way to nip dangerous rumors in the bud and preserve a mutually beneficial relationship.

"Third, the essence of this relationship must be honesty, respect and trust."

Standardized Forms

Patrick McCarthy, Group Vice President, Operations, Ocean Spray Cranberries, Inc. presented four standardized forms developed through the joint efforts of the Broker Relations Committee, Grocery Manufacturers of America, and the NFBA Marketing Committee.

These forms, samples of which were distributed at the Convention session, "were developed in the in-

terest of simplifying broker-principal communications, according to Mr. McCarthy. It was pointed out that not all firms had a need for these forms. They were developed to help eliminate unnecessary reporting.

The forms are as follows:

- a promotional tracking and new item form
- a pricing and distribution form
- a key account profile form
- an annual broker profile form

"I think how well these four forms work is based on you the food broker and you the principal," Mr. McCarthy told the audience. He added, "if we work together on this project, we will all have more efficient selling time."

Communications System

Richard Furash, Partner in the Boston office of Touche, Ross & Co. discussed the Uniform Communication System for the food industry.

The system, according to Mr. Furash, should be available to the entire industry by December of 1981.

He urged all food brokers and manufacturers to become familiar with this project and credited the six industry trade associations that have sponsored the study and development of this system.

"Three things you should know about this system. First, there will be no change in the existing flow of communication in the industry. Second, brokers, regardless of size will still be involved in the order process. And third, the role of the salesperson will be heightened by the system," Furash told the NFBA Convention audience.

Frozen Food Promotion

Murray Lender, President of Lender's Bagel Bakers, Inc. and Gene Pfister, Director of Frozen Food Development, The Pillsbury Company, teamed up to present the details of a major industry promotion to take place the week of February 10th in major markets across the country.

According to Mr. Lender and Mr. Pfister, this promotion will reach 36.5 million people and is expected to generate an estimated \$2 billion in sales of frozen food products.

Response has been so great to this promotion on the part of the industry that a second thrust has been planned for the same markets the week of March 2nd.

They expect a 20 to 30 percent increase in sales for participating brands as a result of this promotion.

The Poultry and Egg Situation

from the

U.S. Department of Agriculture

Total egg production for 1981 may decrease, as producers continue adjusting output to achieve a positive net return. Broiler and turkey production will expand in 1981 in response to higher prices and less competition from other meats. Poultry prices should be up sharply from this year's second-quarter lows, but record feed costs may hold profits near break-even levels at least through the first half of the year.

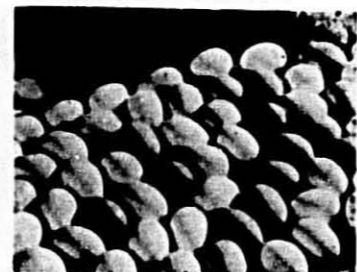
Egg production in 1980 will about equal a year earlier, the increase having occurred in the first quarter. Output in the fourth quarter may be near a year earlier, and indications point to a 1-percent decline in the first half of 1981. The table egg flock is below year-earlier levels and, until well into 1981, fewer replacement pullets will be available. Because a high percentage of the flock has already been force-molted, producers are expected to increase culling if egg prices do not keep up with rising costs.

Egg prices were down sharply in the second quarter but have since increased - mainly in response to production cuts from a year earlier. Cartoned New York eggs in July-September averaged 70 cents a dozen 5 cents above last year. Prices have increased this fall and will continue strong in early 1981 before declining seasonally in the spring. Prices may average in the high 70-cent range in the first quarter but then decline to the mid-70s in the spring. In the second half of 1981, if production is held at this year's level, prices can be expected to average 78 to 82 cents a dozen.

Output of federally inspected broiler meat for 1980 will total a little over 11 billion pounds, ready-to-cook weight up 2 percent from last year. Output should continue expanding in 1981, perhaps around 6 percent. Production costs will be higher than in 1980, but strong red meat prices will likely keep broiler production profitable, particularly in the second half of the year.

1980 Egg Output Steady

The number of layers on farms in 1980 has been below 1979 for most of the year, but the rate of lay was higher through May. Responding to reduced returns, producers culled their



flocks heavily in the first half of the year, removing the older, less productive hens. In many months, egg output was the same or larger than last year because the remaining hens were more productive.

In 1980 as both additions and cullings have declined, the flock has been getting older. The number of replacement chicks hatched in 1980 has been below year-earlier levels every month except February (even after adjusting for February 29), following year-over year increases in 1979. The number of light-type hens slaughtered under Federal inspection exceeded year-earlier levels every month from July 1979 to June 1980 except in March 1980.

Egg producers have been in a cost-price squeeze for most of 1980. Returns were especially low in the second quarter of 1980. Since producers had a relatively young laying flock, they cut production during the second quarter by force molting more hens. Force molting removes the hens from the laying flock for a time, but, unlike slaughter, maintains the production base. Hens force molted in the second quarter would be back in the laying flock when egg demand usually increases seasonally. By September 1980, 16.5 percent of the layers had completed force molting - the highest percentage of the laying flock force molted since October 1975 and 2 percent above 1979.

Recently, egg producers seem to be adjusting flock size - and thereby egg output - by increasing slaughter of culled hens when egg prices are low. Egg output in the fourth quarter may be near a year earlier as producers adjust output to achieve positive returns. Thus, 1980 output will be near the 1979 production level.

Slight Egg Production Decrease for 1981

The laying flock in early 1981 will be relatively older than in early 1980,

and so the rate of lay may not increase as much and the impact of rising feed costs may not be reduced by rising productivity.

With an older laying flock and a high percentage of layers already force-molted, producers may decide not to molt the hens a second time. Thus, returns less than costs could again encourage increased culling, lower flock size, and reduce egg output. With the increase in grain prices, feed costs will likely continue to increase in 1981. Egg production may decline 2 percent in the first quarter of 1981 from a year earlier. Output for all of 1981, however, may be very near 1980 as production picks up during the rest of 1981 to year-earlier levels.

Egg Production

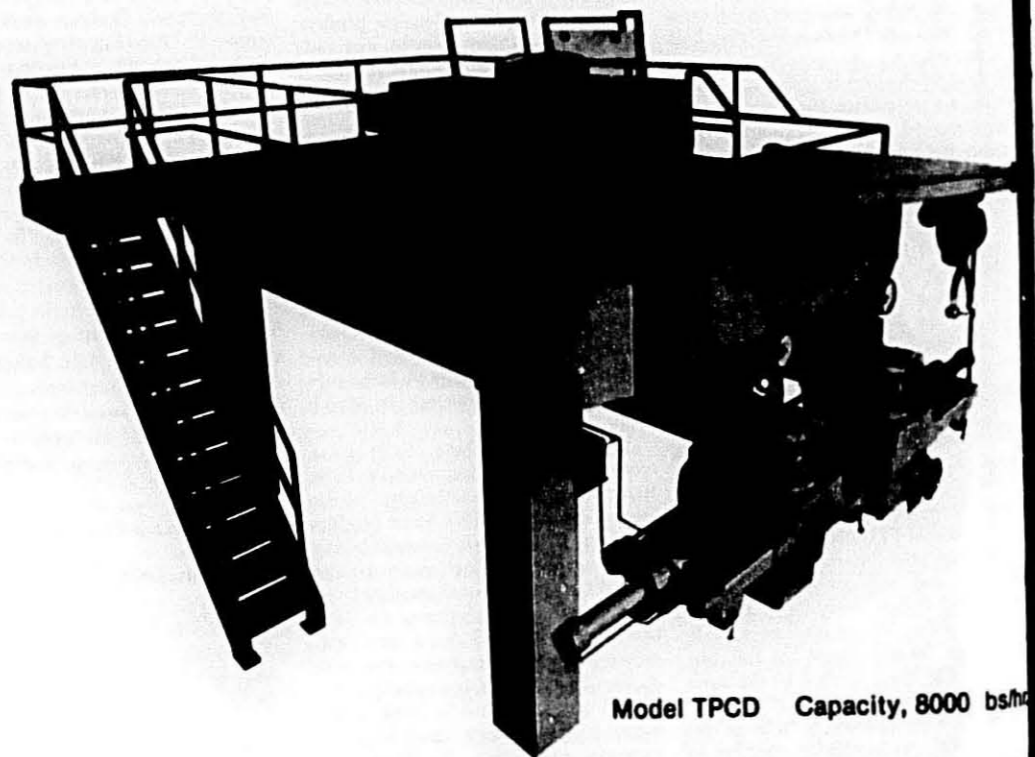
The nation's laying flocks produced 5.77 bil. eggs during November slightly below the 5.79 billion produced a year ago according to the Crop Reporting Board. Production included about 5.24 bil. eggs for table or commercial type eggs and 530 mil. hatching eggs.

Canadian Sale

Canada sold 2.1 million metric tons of grain to the USSR. That sale effectively removed Canada from participation in the grain embargo of the USSR. Canadian Wheat Board spokesmen had recent stated that no ceiling would be placed on sales to the Soviet Union and grain sales in 1980-81 could reach 5.2 mmt. The action, in part, came as a result of Canadian displeasure over the recent signing of a grain agreement between the U.S. and the People's Republic of China, which Canada considered was a break in U.S. assurances that the U.S. would not seek advantages in traditional Canadian markets. Canadian grain sales to the USSR now total approximately 4.7 mmt, well above the 1979-80 level of 3.8 mmt. The 2.1 mmt sale calls for delivery between January and July of 1981 and include Canadian Western Red Spring Wheat, Durum, Canadian Western Red Winter wheat and feed barley.

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TPAE (Single Screw)	660- 1,320
TPAD (Double Screw)	1,320- 2,640
TPBE (Single Screw)	1,000- 2,000
TPBD (Double Screw)	2,000- 4,000
TPCE (Single Screw)	2,000- 4,000
TPCD (Double Screw)	4,000- 8,000
TPCV (Four Screw)	8,000-16,000

We can help your profit picture, regardless of your plant size.

Sanitary Design

Structural Members completely enclosed; can't collect dust or dirt.

Motors and Drives are open, away from product area and easy to service.

Drive Guards are completely enclosed in oil baths for chain drives. Belt Drive Guards are open at bottom, to prevent dust and dirt accumulation.

One-piece Unique Trough Design has smooth rounded corners for easy cleaning. Product hangup on mixer walls is virtually eliminated.

Outboard Bearings on mixer shafts absolutely prevent product contamination by lubricant. Seals may be replaced without removing bearings or shafts.

Easy Supervision and Operation

Mixer Cover has plexiglass window for easy inspection.

Variable Speed Drive with remote control for accurate capacity adjustment.

Time-Saving Hydraulic Die Change Device.

Robust Construction

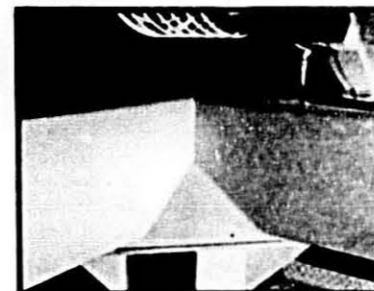
Time-Proven Design assures long, trouble-free extruder life.

Reliable U.S.-built Drive Components selected for low noise operation.

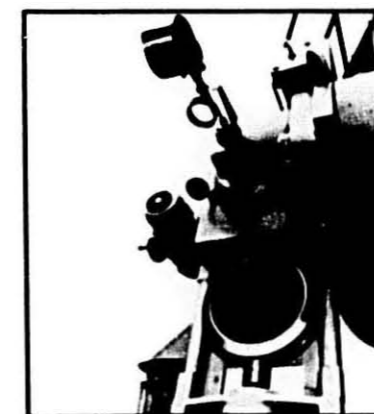
Product Quality is What Really Counts!

Product quality is yours from BUHLER-MIAG equipment. Your customer recognizes and deserves it. Can you afford to give him less?

Contact us for information on BUHLER-MIAG Extruders and other Macaroni Processing Equipment.



Press base and belt guard reflect the clean, efficient design and attention to detail in every Buhler-Miag press. Base is sturdy and easily accessible. All joints have smooth welds for easy cleaning.



Head for round dies: 15 1/4" (400 mm) diameter, with hydraulic die change device (Single screw extruder).



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Coming Events:

Pasta and Durum Short Course
North Dakota State, Fargo
March 10-13, 1981

N.M.M.A. Technical Seminar
Radisson South, Minneapolis
April 27-30, 1981

Interpack '81, Dusseldorf
West Germany, May 14-20

77th Annual Meeting N.M.M.A.
La Costa, Carlsbad, CA
July 12-16, 1981

Obituaries

Don Benincasa, 34, son of Jim and Kilti Benincasa, Zanesville, Ohio, and father of two was killed in an accident while on a hunting trip in December. The truck he was driving overturned.

Elsie Wolfe, wife of C. W. Jack Wolfe, president of the NMMA from 1941-1948, died after a long illness, December 19, in Harrisburg, Pa.

Appointment

Robert E. Bradford, Executive Vice President of the Food Marketing Institute, was named to become Executive Vice President of the National Restaurant Association in mid-January.

Changes at San Giorgio-Skinner

Three executive changes have been made at San Giorgio-Skinner, Inc., the pasta division of Hershey Foods Corporation, San Giorgio President Joseph P. Viviano has announced.

Fred E. Pierce

Fred E. Pierce has been named Vice President of Sales. Pierce will be responsible for the total sales function of all four of the company's brands — San Giorgio, Skinner, P&R, and Delmonico. His function also includes military sales and broker contacts.

As a consequence of the merger of the San Giorgio and Skinner Macaroni Companies earlier this year, Pierce's first mission will be to merge the sales functions of the Company's various brands covering sales in 38 states, according to Viviano.

Pierce most recently served as a consultant in business development for the National Food Brokers Association, Washington, D.C. Previously he held various positions with the Clorox Company, including Vice President of Marketing for its Jemco Packaging division, Vice President and General Manager of Grocery Store Products Company, and Vice President and General Manager of Clorox of Canada. He also held sales and marketing positions with Proctor and Gamble Company, Cincinnati.

A graduate of Transylvania University, Lexington, Ky., Pierce resides in West Chester, Pa.

Clifford Larsen

Viviano also announced that Clifford Larsen, formerly Vice President of Sales and Marketing for the San Giorgio, P&R, and Delmonico brands has been named Vice President, Marketing of the entire division.

Larsen joined San Giorgio in mid-1979 after serving as Director of Corporate New Product Planning for Hershey Foods. Previously he held positions with Rivano Foods in Houston, and Proctor and Gamble, Cincinnati.

A native of Duluth, Minn., Larsen holds degrees from the University of Missouri and Xavier University.

Alan Pascale

Alan Pascale, formerly Vice President of Sales and Marketing for the

Skinner brand, will assume the dual position of Vice President of Planning and Corporate Development and Director of Special Markets for the entire division. That position includes responsibility for strategic planning.

Pascale joined Skinner in 1964 as Assistant Advertising Manager and was named Vice President/Marketing in 1974. He is a native of Omaha and a graduate of the University of Nebraska.

Viviano said Pierce and Larsen will operate from division headquarters in Hershey, Pa. Pascale will continue to operate in Omaha, where the Skinner offices are located.

Macaroni in Turkey

Over the last few years, macaroni products have developed into one of the staple diets in Turkey. The consumption of pasta in this country has been on a very sharp increase since 1972. In addition to the production covering domestic consumption, the Turkish macaroni industry is also exporting an ever-rising amount of this food to countries in the Orient.

Apart from the two best-known macaroni producers, a larger number of smaller companies have also expanded their businesses, installing up-to-date continuous production lines made by Buhler. The first continuous macaroni lines in Turkey went into operation in 1955.

Buhler has received orders from Turkish companies to install and start up, in the period between 1972 and 1979, 24 continuous macaroni lines with a total daily capacity exceeding 440 metric tons.

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IF YOU MOVE A LOT
MORE PASTA.**



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