

Division of Marketing
Agricultural Development and Diversification (ADD) Program
1990 Grant Final Report

Grant Number 05024

Grant Title The Shiitake Mushroom Market Development Project (Phase 2)

Amount Awarded \$15,279.00

Name John Cook

Organization Shiitake Growers Association of WI (SHIL-GAW)
Birchwood

E-Mail

WEB

Department Contact: DATCP - Marketing - ADD Grants
PO Box 8911 Madison, WI 53708-8911
Tel: (608)224-5136
<http://datcp.state.wi.us>

I. Original Project Intent

Shiitake mushrooms are a high value crop that can be grown by many Wisconsin farmers and other individuals interested in diversifying their agricultural incomes. There are, however, no well established wholesale markets for Shiitake in Wisconsin. The nearest regional market in Chicago receives much of its supply of Shiitake from large-scale producers located in the East Coast. These growers produce Shiitake on artificial logs, and as a result of their production methods the quality of the mushrooms tends to be inferior to that which is grown on natural logs. Thus the price for Shiitake in the Chicago market tends to be lower than what a high quality mushroom grown on natural logs should command. In addition production volume on the East Coast is sometimes erratic, and this causes substantial price swings in the Chicago market. Because of this market situation Wisconsin Shiitake growers have to develop their own niche markets and spend considerable time in doing their own marketing.

The niche market that most Wisconsin Shiitake growers find most profitable is that of direct sales to local and regional restaurants. Chefs tend to appreciate the higher quality of Shiitake grown on natural logs and are often willing to pay premium prices for that quality. In addition direct sales enable the producer to cut out middlemen and thereby increase profit margins. Many growers are, however, uncomfortable with direct marketing. One of the principle objectives of this project was to produce marketing materials that would enable growers to be more successful direct marketers. These materials include a videotape aimed at introducing Shiitake mushrooms to chefs, a file folder with institutional size recipes featuring Shiitake, and a manual on nutritional information that the grower can use to inform buyers about the nutritional benefits of Shiitake. For growers, who do direct marketing to the public, three separate recipe brochures were developed. These brochures feature using Shiitake in many different types of dishes that the consumer would not ordinarily think of using mushrooms in. All of these marketing materials were designed to make the grower more comfortable with the idea of direct marketing.

Many Wisconsin Shiitake growers are seasonal producers, who grow their crop outdoors. Climatic conditions often cause wide fluctuations in crop yields and crop quality. Many growers often have a temporary surplus of mushrooms or a temporary abundance of lower quality mushrooms. This can cause severe pricing problems in the market that affects the profitability of the crop. The

second major objective of this project was to develop alternative uses for mushrooms that were in either over supply or of inferior quality. Since the mushrooms are easily dried and then store almost indefinitely, three value-added products using dried Shiitake were developed. An additional value-added product using lower quality fresh Shiitake was also developed. All four products can be produced in small volumes on the farm if it is licensed for food processing. The products can then be sold in conjunction with fresh product sales. The products could also be produced on a larger scale by a food processor or by a producer cooperative.

The economic impact on Wisconsin agriculture of a more viable Shiitake industry could be substantial. Year around small scale Shiitake operations of 1,000 logs typically yield 1,560 pounds of Shiitake a year. Successful direct marketers of Shiitake can normally secure from \$5.50 to \$8.00 per pound for their mushrooms. This compares with a national average price of \$4.11 per pound as reported by the National Agricultural Statistics Service. At \$5.50 per pound a 1,000 log operation would have a yearly gross of \$8,580 in additional income. At a typical production cost of \$2.50 per pound, a 1,000 log operation would provide a net income of \$4,680. An expansion of the Shiitake industry by just 50,000 logs would represent an additional \$429,000 a year in gross income to Wisconsin farmers. It is hoped that the materials developed by this project will encourage more individuals to grow Shiitake and that there will be an expansion of at least 50,000 additional logs under production.

II. Project Achievements

A. Job Creation

The materials developed by this project are presently being distributed to growers, and thus it will be several years before they can have a significant impact on job creation. Their immediate impact should be to make the job of marketing by current producers more efficient and more profitable. At present only about ten percent of the 250 members of the Shiitake Growers Association can be considered significant commercial producers. As marketing becomes easier, this percentage should increase, and the project anticipates a doubling in the number of commercial growers over the next five years.

B. Capital Investment and Industry Expansion

If the number of commercial growers doubles over the next five years, there will be a considerable expansion in capital investment in the Shiitake industry. A typical full time

commercial facility may contain 8,000 logs and require an investment of \$48,000. If the number of commercial facilities increases by 20 over the next five years as expected, the total increase in capital investment would be \$960,000.

C. New Agricultural Products

At the present time, almost all Wisconsin and indeed American Shiitake is marketed as fresh product. Very little product is marketed in dried form because imported dried Shiitake dominates the main dried market, which is the oriental market. To date there has been very little development in the U.S. of value-added food products that use Shiitake. This project has developed three prototype value-added Shiitake products that use dried Shiitake and that should have consumer appeal beyond the oriental market. The three products are Shiitake Barley and Rice Bake, Pilaf of Shiitake and Barley, and Shiitake Wild Rice Risotto. The products can either be used as the main dish in a meal or a side dish. They are quick and easy to prepare and are similar to prepared products that the consumer is already familiar with. In addition they can be produced in low volume runs at the farm level with a minimum of investment or they can be produced by large scale food processors if the demand for the products is warranted. The on the farm level of production would ensure that the grower has a ready market for his dried product that is not in competition with the oriental dried product.

The other value-added product is Savory Wisconsin Shiitake Sauce, which can be served over steaks, chicken, pasta, and many other foods. It utilizes fresh Shiitake that are not number one grade and that might not otherwise be marketable. It is a canned product that could easily be canned in small volumes on the farm. The four products together would profitably consume a grower's unmarketable surplus and would provide a wide enough product line to obtain shelf space in neighborhood gift shops and specialty stores. The products were designed so that a number of growers in different areas could produce the same product with their own label for local consumption. These products should enable the grower to increase his level of profitability by making use of surplus product.

E. Improvement of Wisconsin's Competitive Position

In the past a large percentage of the Shiitake mushrooms consumed in Wisconsin have come from out of State. This should change as more individuals become aware of the profitability of the crop and decide to go into production. The marketing materials developed by the project should help ease fears of the difficulty of direct marketing. In addition the fear of what to do with any surplus mushrooms should also be eased by knowing

that they can be converted into profitable value-added products. An increase in the number of growers would allow Wisconsin produced Shiitake to gain market share both in the home and regional market.

F. Efficient Resource Use

One of the features of Shiitake production on natural logs is that it enables a low value wood lot material that would normally be sold for firewood to be converted into a high value agricultural product. A typical four foot small diameter log weighing forty pounds will produce at least four pounds of mushrooms over its production life cycle. At \$5.50 a pound this one log will gross \$22.00 for a farmer. When one considers what a cord of firewood sells for, the value of this resource use for Shiitake is clear. In addition the size of the logs required makes it economically feasible to implement timber stand management practices of thinning out unwanted trees.

At present there are many unutilized farm buildings in many parts of Wisconsin. Many of these buildings can be economically converted into Shiitake production facilities. Thus any increase in the number of Shiitake growers in the State should lead to a more efficient use of this important resource.

III. Project Expectations and Results

This project primarily involved the development of marketing materials and value-added products. A seventeen minute videotape was developed with the support of matching funds from the UW-System Applied Research Grant Program. As even the simplest video is expensive to produce, the project was very fortunate to be able to couple UW support to the ADD Program support to develop the videotape. Originally envisioned as a four minute production, the additional funding allowed for a much longer tape. The videotape opens with scenes of a typical Wisconsin outdoor growing facility in order to give chefs some idea of the labor intensive nature of the production process and to help develop a bit of mystique about the oriental origins of the mushroom and the cultivation methods. It is hoped that this will help to justify in the viewers mind the high price that Shiitake should command in the market place.

The tape then explains how Shiitake are graded and what the consumer should look for in terms of a high quality mushroom. After viewing this segment the chef should have no difficulty in discerning the difference between a Shiitake produced on natural logs and one that has been grown on artificial logs and which has typically originated out of State. In the final portion of the video, preparation of a recipe featuring Shiitake mushrooms is

demonstrated by a professional chef in a quantity food production/restaurant setting.

Field testing of the videotape at regional culinary institutes indicated that it was viewed quite favorably. The tape has been distributed to a large portion of the SHII-GAW membership and is provided free to all members who renew their memberships. As it can be duplicated with two home VCRs at an acceptable level of quality and as the Association has no royalty costs, the tape is quite cost effective as a marketing tool. It is being produced at the cost of videotape which is less than \$3.00 per copy.

To accompany the videotape a set of four food service recipes were developed and printed on a file folder. The folder also provides basic information on handling and storage as well as nutritional information. It is designed to hold a grower's price sheet and has space for his own logo and business name. Because it serves as a reference source and is designed as a file folder, it is anticipated that potential customers will keep it on file, which should prove to be a marketing benefit to the grower who provided it. One of the recipes, Chicken with Tarragon Shiitake Mushroom Cream, is also demonstrated on the videotape so that there is an excellent tie in between the two marketing tools. The other recipes include one for a soup, a side dish, and an additional entree. In field testing at regional culinary institutes, most respondents indicated that the recipes were very helpful.

Since the videotape can also be used for point of sales information in a conventional retail store and because many growers also sell directly to the public, three additional recipe brochures were developed. The first brochure features three entrees that were developed by chefs at fine regional restaurants. Chef Terry Bell at The St. Paul Hotel contributed a Mushroom Strudel recipe that features Shiitake. Chef Richard Thomas at The Creamery Restaurant in Downsville provided a recipe for Shiitake Tenderloin, and Chef Scott McGlinchey at Heaven City Restaurant in Mukwonago developed a recipe for Grilled Pheasant and Shiitake. These recipes promote the idea of Shiitake as a gourmet food. A special logo was developed for all the recipe cards that features a chef suggesting that Shiitake mushrooms are a chef's secret from Wisconsin. The recipe card is being printed in two versions. The first version is in several colors and is designed to present to chefs and restaurant owners. The second version is printed in one color and is designed to be cost effective for distribution to the retail customer. The brochures are also designed so that the grower can have his own logo or business name printed on it in a fashion similar to that of the institutional file folder.

The second recipe brochure features side dishes including two soups, a salad, and a pasta dish. The third brochure features four recipes for grilled mushrooms. It is designed to be used in the summer when Shiitake sales are sometimes slow and when people often entertain outdoors with meals cooked on the grill.

With an increasingly nutrition-conscious public, accurate information on the nutritional composition of Wisconsin-grown Shiitake was thought to be an important marketing tool. The project therefore published a manual that discusses the nutritional values for Wisconsin log grown Shiitake in both fresh and dried form. The manual is designed to familiarize the grower with nutritional information so that he can use the information during his sales promotions. In addition the information has been summarized in a card format that the grower can reprint and distribute to consumers.

The project also successfully developed four value-added products that use Shiitake. This was discussed in detail above. The products are important in that they make use of surplus mushrooms that otherwise might be dumped on the market at low prices or mushrooms of low quality that otherwise might not be sold at all. In addition the products can be produced in low volumes without high capital costs, which makes them ideal for on the farm production; thereby generating additional farm income.

The project benefited from having subcontracted the University of Wisconsin-Stout to develop the bulk of the marketing materials and the value-added products. The University's reputation for food product development is well known and added credibility to the materials. Dr. Janice Timmer and Dr. Anita Pershern of the Food and Nutrition Department were the project investigators and produced excellent materials. They deserve a special note of commendation and the thanks of SHII-GAW for the many hours they spent on the project.

If the project had a serious fault it was our failure to predict how long it would take to complete the project. Since work on the project had to be fitted into a very busy academic schedule, final development of all materials took much longer than expected. One additional problem was that some of the original designs for the marketing materials and the packaging for the value-added products were too costly to produce to be cost effective for the individual grower. To solve this problem a graphic design firm, Drawn By Design, was contracted to develop a simpler design for the recipe brochures, the food service file folder and the value-added package labels. An unanticipated benefit of using the graphic designer was that a design was developed that gave unity to all three materials. In addition a logo was developed that can be used by SHII-GAW if it should

decide to cooperatively produce and or market the value-added products.

Because the development of the value-added products took much longer than anticipated, there was no opportunity to publicly test the products. Instead Field and Forest Products, Inc. was contracted to produce enough prototype packages of the three dried mushroom products so that samples can be distributed to all SHII-GAW members. The members are being asked to field test the products and to return a survey form that will give feedback on consumer acceptance of the product. This approach has the virtue of introducing to all the growers the potential for their producing the products. All growers will receive copies of the product recipes and will have the option to secure their own food processing licenses for on the farm production. SHII-GAW will retain the option of using the prototype package design for cooperative marketing if this option appeals to the membership and appears to be feasible.

The UW-Stout team also produced a series of four food photographs that were designed to accompany the four food service recipes. The main objective of the food photography was to create an "appetite" for each dish through visual presentation. The recipes were evaluated for such design characteristics as color, shape, and texture. Appropriate accompaniments to complement each recipe were chosen using basic design principles. Tableware and background materials were selected accordingly. Tight close-ups of the products were used to emphasize qualities of the mushrooms. In field testing at culinary institutes the photographs were judged to be a very effective means of promoting the product. Unfortunately no cost effective way was found by SHII-GAW to reproduce the photographs. The developers original intention was for a set of four photographs to be included in each file folder. SHII-GAW found that while growers liked this idea, they could not afford the cost of the photographs for mass distribution. This was one of the main reasons that a graphic designer was retained to simplify the materials. The photographs are being used, however, on a more limited scale in displays that SHII-GAW presents at such public events as Farm Progress Days.

IV. Description of Educational Materials and Informational Presentations

The materials developed by the project such as the videotape, institutional file folder, recipe brochures, and Nutrition Manual have all been described above. These are presently in the process of being distributed to SHII-GAW members. The marketing materials will be accompanied by a brief manual on their purpose and how they can be used by the grower. The value-added products will be distributed with a manual

that provides the product recipes and a rough cost analysis of producing the product in small volumes on the farm. In addition all project materials will be displayed and reviewed at the SHII-GAW Annual Meeting in September, 1993. Presentations on various aspects of the project have been given to growers at other scheduled meetings over the past two years. In addition Drs. Timmer and Pershern have made presentations on the videotape and nutritional information at the 1991 Annual Meeting.

V. Future Projections

This grant has provided Wisconsin Shiitake growers with badly needed marketing tools. These tools could not have been developed without the resources provided by the ADD program as most Shiitake growers are small scale producers without the financial means to develop elaborate marketing materials. In addition the grant has made possible the development of prototype value-added products that have the potential to improve the overall profitability of Shiitake operations. Food product development is extremely expensive and was well beyond the means of individual growers or SHII-GAW. This project should thus enable Wisconsin's Shiitake industry to continue the transition from a minimally profitable, small scale, seasonal type of agriculture to a commercially viable one based on serious investment in year around production. As more potential growers become aware of the profit potential of year around production, we anticipate a further shift away from small scale seasonal production to larger scale indoor production. If this occurs Wisconsin should become a market leader in the upper Midwest, and it should significantly increase its share of the national production of Shiitake mushrooms.

VI. Other Information

SHII-GAW would like to take this opportunity to express our thanks to the Wisconsin Department of Agriculture, Trade and Consumer Protection for the financial support given this project. In particular we would like to express our appreciation to ADD Program Director "Bud" Sholts and his staff for all the helpful support and patience that they have extended to SHII-GAW during the course of this project.

The project has provided many side benefits to SHII-GAW as an organization including exposure to the media and to the public at such events as State Fair. This has made the public more aware of Shiitake and increased market demand. In addition the many materials produced by the project are seen by members as important reasons for joining the Association or maintaining their membership. As a result SHII-GAW is generally viewed as one of the strongest grower associations in the country.

**Shiitake Marketing and
Value Added Development
Program**

**Contracting Agency:
Shiitake Growers Association of Wisconsin**

**Funding Agency:
Wisconsin State Agricultural
Development and Diversification Program**

**Project Investigators:
Janice Timmer, Ph.D.
Anita Pershern, Ph.D.
University of Wisconsin-Stout**

November, 1992

OBJECTIVES

This project was undertaken in cooperation with the Shiitake Growers Association of Wisconsin with funding by the Wisconsin State Agricultural Development and Diversification Program.

The objectives of the Shiitake Marketing and Value Added Development program were to:

- 1) Develop promotional materials targeted for culinary institutes, universities and technical schools with Restaurant Management Programs.
- 2) Disseminate the promotional materials and test for marketing effectiveness.
- 3) Develop at least three value added products using shiitake.
- 4) Develop package design/graphics and labeling for the value added products.

PROMOTIONAL MATERIALS

Promotional materials included a prototype seventeen-minute videotape and a folder which contained an introductory and informational letter, four laminated standardized foodservice recipes, full color photographs of each recipe and a laminated card with nutrition, storage and handling information. A survey and return envelope were also included. This packet was mailed to 28 culinary institutes, universities and technical schools with Restaurant Management Programs in a six state area (Illinois, Indiana, Iowa, Michigan, Minnesota, Wisconsin) (see Appendix). Seven responses were received for a return rate of 25%.

The videotape opens with scenes of a typical Wisconsin log grown shiitake mushroom operation. Interspersed with information on traditional Japanese growing methods are comments from the grower. The next segment of the video features shiitake mushroom quality and grading standards. In the final portion of the video, preparation of a recipe featuring shiitake mushrooms is demonstrated in a quantity food production/restaurant setting. Respondents indicated that the videotape was very helpful (57%) to helpful (43%) (see Table 1), and 100% would incorporate the video into a classroom setting (see Table 2).

Recipes for a soup, a side dish and two entrees were developed and refined for inclusion in the informational packet. The four standardized food service recipes were shiitake double mushroom soup, shiitake wild rice risotto, chicken with tarragon shiitake mushroom cream, and shiitake pasta primavera (see informational packet). Respondents indicated that the recipes cards were very helpful (43%) to helpful (57%) (see Table 1) and 100% would foresee using the recipes in their operation (see Table 2).

The main objective of food photography was to create an *appetite* for each dish through visual presentation. Recipes were reevaluated for such design characteristics as color, shape, and texture. Appropriate accompaniments to complement each recipe were chosen using basic design principles. Tableware and background materials were selected accordingly. A professional photographer with experience in food photography created a *studio* in proximity to the laboratory used in recipe development. Tight closeups of the products were used to emphasize qualities of the mushrooms. Photographs of the four recipes are included in the informational packet. Respondents indicated that the photos were very helpful (71%) to helpful (29%) (see Table 1) and 100% stated that the photos did influence them to try the recipes (see Table 2).

With an increasingly nutrition-conscious public, accurate information on the nutritional composition of Wisconsin-grown shiitake mushrooms is essential. The nutrient content of shiitake mushrooms has been studied by several

researchers but the results vary considerably according to method of analysis and area of cultivation. Therefore, nutritional values for Wisconsin log grown shiitake mushrooms (Timmer et al., 1990) were used for the information card provided in the packet. Responses relating to nutritional information ranged from very helpful to somewhat helpful (see Table 1). Responses to this question were the most variable.

Table 1. Percents and frequencies of responses to shiitake marketing information.

	<u>Very Helpful</u>		<u>Helpful</u>		<u>Somewhat Helpful</u>		<u>Not Helpful</u>	
	%	frequency	%	frequency	%	frequency	%	frequency
Videotape	57	4	43	3	0	0	0	0
Recipe Cards	43	3	57	4	0	0	0	0
Photographs	71	5	29	2	0	0	0	0
Nutrition Information	39	2	43	3	29	2	0	0

N = 7

Table 2. Percents and frequencies on question relating to future use of shiitake mushrooms.

	<u>Yes</u>		<u>No</u>	
	%	frequency	%	frequency
Do you foresee using the recipes?	100	7	0	0
Did photos influence you to try recipes?	100	7	0	0
Would you incorporate the videotape into a classroom setting?	100	7	0	0

N = 7

VALUE-ADDED PRODUCTS

Background information was gathered on successful value added products that were being marketed at the time this research was conducted. Two categories of products were purchased and evaluated: 1) dry mix products with minimal preparation and additional ingredients required, and 2) bottled or jarred sauces which could be used as is or heated. Four graduate students assisted with the development of three dry mixes and one sauce. The three dry mixes incorporated freeze dried or air dried shiitake mushrooms while the sauce utilized the fresh shiitake. Food ingredient manufacturers provided a wide range of specialty ingredients and flavorings which were tested for inclusion in the value added products. These commercial ingredients would be readily available should SHIGAW consider pursuing commercial production.

Informal creative sensory analysis was conducted by the research team to select the optimum level and type of flavorings and ingredients. The products that were developed were judged to be superior in flavor, texture and appearance to similar products that were available commercially.

Facility requirements for production of the value added products would be minimal. Shelf life for both the dry mixes and sauce should be good. For the sauce, the ingredients and production method given are for one jar of product. For commercial production, parameters for either retort or aseptic processing would need to be determined. Batch quantities using larger scale pressurized home canning equipment would be feasible if the appropriate permits were obtained. A minimal investment would be required for production of the dry mixes. Depending upon the sophistication of the packaging materials selected, SHIGAW could consider packaging the product themselves or contracting for the packaging.

SHIITAKE BARLEY AND RICE BAKE

Dry Mix Ingredients for one package:

- 9 g Dried SHIITAKE Mushrooms
- 25 g Dried Onion Flakes
- 104 g White Barley Flakes
- 95 g Long Grain Rice
- 0.8 g Rosemary
- 2.5 g Garlic Powder
- 1.5 g Dried Parsley
- 10 g Dried Carrot Flakes
- 12.5 g Granulated Chicken Bouillon
(FIDCO 33-C bouillon)
- 3.5 g Salt
- 0.5 g Black Pepper

PACKAGE AND LABEL INFORMATION

Instructions:

Preheat oven to 350 degrees Fahrenheit.
Boil 3½ cups of water with 3 Tbsp. butter in a 1 quart saucepan.
Empty package contents into a 1-1½ quart casserole dish.
Pour boiling water into dry mix.
Cover casserole dish with lid.
Bake for 25 minutes.
Remove from oven.
Let stand for 5 minutes.
Serve hot.

Yield: 4½ cups

Ingredients:

White Barley Flakes; Long Grain Rice; Dried Onion; Dried SHIITAKE Mushrooms; Granulated Chicken Bouillon (FIDCO 33-C bouillon); Carrot Flakes, Parsley Flakes, Garlic Powder; Salt; Black Pepper; Rosemary.

PILAF OF SHIITAKE AND BARLEY

Dry Mix Ingredients for one package:

- 12 g Dried SHIITAKE Mushrooms
- 25 g Dried Onion Flakes
- 120 g Barley Flakes
- 3 g Dry Parsley Flakes
- 7 g Beef Flavoring (Robust 150)
- 0.4 g Summer Savory
- 0.3 g Basil
- 5.2 g Salt

PACKAGE AND LABEL INFORMATION

Instructions:

Empty contents of package into medium saucepan.
Add $\frac{1}{4}$ cup butter or margarine & $2\frac{1}{2}$ cups water.
Cover.
Bring to a boil.
Simmer for 15 minutes.
Let stand 5 minutes.
Stir before serving.
Yield: 4 cups.

Ingredients:

Barley Flakes (Minnesota Grain Pearling); Dried Onion Flakes; Dried SHIITAKE Mushrooms; Beef Flavoring (Robust 150, Griffith Labs); Salt; Dry Parsley Flakes; Summer Savory; Basil.

SHIITAKE WILD RICE RISOTTO

Dry Mix Ingredients for one package:

100 g Large Broken Wild Rice
4.4 g Dried SHIITAKE Mushrooms
15.0 g Dried Onion Flakes
6.0 g Beef Flavoring (Robust 150)
3.5 g Salt
0.5 g Pepper

PACKAGE AND LABEL INFORMATION

Instructions:

Empty package into medium saucepan.

Add $1\frac{3}{4}$ cups water, $\frac{1}{4}$ cup Dry White Wine and 2 Tbsp. Butter.

Bring to a boil.

Reduce heat and simmer for 40 minutes covered or until liquid is absorbed and rice is tender.

Stir in 1 cup grated Monterey Jack cheese until melted.

Let stand 2-3 minutes.

Yield: 4 cups

Ingredients:

Large Broken Wild Rice; Dried Onion Flakes; Beef Flavoring (Robust 150, Griffith Labs); Dried SHIITAKE Mushrooms; Salt; Pepper.

SAVORY WISCONSIN SHIITAKE SAUCE

Ingredients for one jar:

70 g Butter
30 g Minced Onion or Shallots
90 mL Dry Red Wine
30 mL Dry Sherry
125 g Tomato Puree
1 small Bay Leaf
3.5 g Salt
0.5 g Pepper
112 g SHIITAKE Mushrooms, Fresh
7 g Flour
3 g Beef Flavoring (Robust 150, Griffith Labs) dissolved in 1 cup hot water

Production Method:

In small saucepan, melt 35 g butter. Saute onion until soft. Add wine, sherry, puree, bay leaf, salt and pepper. Bring to boil and simmer 20 minutes, uncovered. While wine mixture is simmering, prepare mushrooms by removing and discarding stems. Slice caps. In medium skillet, melt remaining butter. Add mushrooms and saute for 5 minutes. Blend in flour and cook 2 minutes. Stir in prepared broth gradually and cook 3 to 5 minutes. Lower heat and simmer 10 minutes, stirring occasionally. Remove bay leaf from wine mixture. Stir wine mixture into mushroom mixture and heat through. Yield: 12 oz.

PACKAGE AND LABEL INFORMATION

Instructions:

Heat contents of jar on medium heat, stirring constantly.

Ingredients:

Tomato Puree; Dry Red Wine; Butter; SHIITAKE Mushrooms; Dry Sherry; Onion; Flour; Beef Flavoring (Robust 150, Griffith Labs); Salt; Black Pepper; Bay Leaf.

Serving Suggestions:

Serve over steaks, chicken and pasta.

PACKAGE DESIGN/GRAPHICS

Specialty retail value added products were collected and package design and graphics were evaluated. For the dry mix products, a carton with a cutout to display the color and texture for the ingredients was the package style selected. For the sauce, an octagonal jar was the selected container. Susan Hunt, a graphic artist in the Art Department at University of Wisconsin-Stout, was contracted to develop the prototype package design logo and labeling for an upscale market niche. A color Xerox of the carton design and jar label is provided.

Chicken Breasts with Tarragon Shiitake Mushroom Cream

Portion: 2 oz. sauce per
Chicken Breast
No. Serving: 50

SHIIGAW Foodservice Recipes

INGREDIENTS	WEIGHT	MEASURE	DIRECTIONS
SHIITAKE Mushrooms	2 lbs.		<ol style="list-style-type: none"> 1. Remove stems from mushrooms. Discard. Slice Caps. 2. Melt butter. Add mushrooms. Saute for 10 minutes. 3. Stir in cream, salt, and tarragon. Simmer for 45 minutes until thickened and lightly browned. 4. Cook chicken breasts. 5. Serve 2 oz. ladle sauce over top of each chicken breast.
Butter	6 oz.	3/4 cup	
Salt		1.0 Tbsp.	
Heavy Cream		3.0 qts.	
Dried Tarragon		1/4 cup	
Boneless Chicken Breasts		50 each	

Shiitake Pasta Primavera

Portion: 4oz. pasta, 4 oz. vegetables
6 fl. oz. sauce, 1 oz. cheese
No. Serving: 52

SHIIGAW Foodservice Recipes

INGREDIENTS	WEIGHT	MEASURE	DIRECTIONS
Cauliflower Florets	6.5 lbs.	7.75 qts.	<ol style="list-style-type: none"> 1. Steam cauliflower and broccoli florets until crisp-tender. 2. Remove stems from mushrooms. Discard. Slice caps. 3. Melt butter. Add mushrooms. Saute for 10 minutes. 4. Stir in flour. Cook 2 minutes. 5. Stir in chicken broth. Simmer 10 minutes. 6. Stir in sherry, cream, and pepper. Simmer 10 minutes. 7. Cook and drain pasta. 8. Serve 4 oz. pasta, 4 oz. vegetables, 6 oz. ladle of sauce and top with 1 oz. parmesan cheese.
Broccoli Florets	6.5 lbs.	3.0 gals.	
SHIITAKE Mushrooms	6.25 lbs.		
Butter	1.5 lbs.	3.0 cups	
All-purpose Flour	6.5 oz.	1.5 cups	
Chicken Broth		4.5 qts.	
Dry Sherry		1.0 qt.	
Heavy Cream		1.5 qts.	
White Pepper		4.0 tsp.	
Fresh Pasta	6.0 lbs.		
Parmesan Cheese, fresh grated	3.25 lbs.	5.0 qts.	

Shiitake Double Mushroom Soup

SHIIGAW Foodservice Recipes

Portion: 6 oz.
No. Serving: 60

INGREDIENTS	WEIGHT	MEASURE	DIRECTIONS
Butter	1.5 lbs.	3.0 cups	<ol style="list-style-type: none"> 1. Melt butter. 2. Finely chop onions. Add to butter. 3. Sprinkle sugar over onions. Stir. Cook until golden; about 30 minutes. 4. Remove stems from SHIITAKE & button mushrooms. Finely chop stems in food processor. 5. Slice caps. Add mushroom pieces to onion mixture. Saute for 10 minutes. 6. Stir in flour. Cook for 2 minutes. 7. Stir in chicken broth, vermouth, water, salt & pepper. Simmer uncovered for 10 minutes. 8. Serve with 6 oz. ladle.
Onions	4.5 lbs.	2.0 qts.	
Granulated Sugar		4.0 tsp.	
SHIITAKE Mushroom	4.0 lbs.		
Button Mushrooms	4.0 lbs.		
All-Purpose Flour	8.75 oz.	2.0 cups	
Chicken Broth		1.0 gal.	
Dry Vermouth		1.5 qts.	
Water		1.0 qt.	
Salt		2.0 Tbsp.	
Black Pepper		2.0 tsp.	

Shiitake Wild Rice Risotto

SHIIGAW Foodservice Recipes

Portion: # 10 Scoop or 3.2 oz.
No. Serving: 55

INGREDIENTS	WEIGHT	MEASURE	DIRECTIONS
Boiling Water	2.0 qts.		<ol style="list-style-type: none"> 1. Pour boiling water over rice. Let stand 15 minutes. Drain. 2. Remove stems from mushrooms. Finely chop stems in food processor. Slice caps. 3. Melt butter. Add mushrooms & onions. Saute for 10 minutes. 4. Add rice, broth, wine, salt & pepper. Stir. Simmer, covered for one hour or until rice is tender. 5. Stir in Cheese. 6. Serve with #10 scoop.
Wild Rice	1.5 lbs.	1.0 qt.	
SHIITAKE Mushrooms	1.5 lbs.		
Butter	6.0 oz.	.75 cup	
Onions, Chopped	14 oz.	3.0 cups	
Beef Broth		3.0 qts.	
Dry White Wine		1.5 cups	
Salt		1.0 Tbsp.	
Black Pepper		1.5 tsp.	
Grated Monterey Jack Cheese	1.5 lbs.	1.5 qts.	

Shiitake Mushrooms

Cultivated and used in Oriental cuisine for centuries, the SHIITAKE mushroom is the major edible mushroom in all Asia. Prized for its unique and woody flavor, the SHIITAKE mushroom is now becoming popular world-wide. Enjoy serving log-grown SHIITAKE mushrooms cultivated in Wisconsin using traditional Japanese techniques.

Nutrition Information					
Nutrient	2 oz Serving	Vitamin	% USRDA	Mineral	% USRDA
Protein	0.01 gram	Vitamin C	2.50 %	Sodium	3.36 %
Fat	0.005 gram	Thiamin	3.30 %	Copper	33.50 %
Carbohydrate	0.07 gram	Riboflavin	5.88 %	Magnesium	12.10 %
Water	44.80 gram	Niacin	17.40 %	Iron	5.80 %
		Vitamin E	0.10 %	Calcium	0.10 %
** 40% is Essential Amino Acids		b-Carotene (pro-Vitamin A)	TRACE	Potassium	61.10 %
** 75% is Essential Fatty Acid (Linoleic)		Ergosterol (pro-Vitamin D)	0.29 %	Manganese	35.70 %

Storage and Handling

For short-term storage, wrap loosely with a moist towel in an unsealed plastic bag for up to 10 days. Before use, wipe mushrooms with a moist towel to clean. The stems are fibrous but may be used in recipes for added flavor. To use stems, trim and discard 1/2" off bottoms of stems then chop the remainder finely in a food processor.