

# **New Product Development for Pork Niche Marketers**

Report Presented to the Pork Niche Market Working Group

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# **New Product Development for Pork Niche Marketers**

## Section 1: Before You Get Started

### What is This Report?

This report is a basic guide to new product development for niche pork marketers. This section describes who should use this guide and how, and it also provides definitions of two key terms. Section 2 discusses why pork marketers need to develop new products and what the opportunities are. Section 3 describes the new product development process. Section 4 provides a list of resources that can assist you in developing new products. Section 5 contains a directory of both slaughter and processing facilities and describes their willingness to manufacture your new products.

Interspersed between the various sections are a series of brief interviews conducted with niche pork marketers who have gone through the new product development process. Their observations help keep this guide grounded in reality. There are also several appendices at the end of this report. Of particular note is the last appendix, which contains recipes for many of the products mentioned throughout this guide.

### Who Should Use This Report

This guide has been written for beginners, people who are thinking about developing new niche pork products but who haven't done it yet. It addresses new product development in its most basic form. It should also be a good refresher course for experienced niche pork marketers who may get a few new ideas from it.

### How to Use This Guide

If you've never developed new pork products, we suggest you first read this report from cover to cover. Determine what steps of the process you're going to handle by yourself and which ones you'll need outside help with. Use the directories in Section 4 and Section 5 to find the help you need. Remember – you're not alone in the new product development process. There are many people willing to “partner” with you. These include customers, land grant universities, the facility you chose to manufacture your product, ingredient suppliers and many others. We discuss the role each of these can play in Section 3 and Section 4.

### Definitions

There are several terms that you will encounter in this report that are worth defining up front.

#### Co-packer

Since many of you reading this guide will not own your own production facilities, you will be using co-packers to produce your products. The term co-packer (a contraction of “contract

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packer”) refers to any facility you contract with to manufacture your products. You may have a co-packer slaughter your hogs, cut them up (also called fabrication), process them into ham, bacon or sausage, or perform any other part of the manufacturing process.

#### Consumer vs. Customer

“What’s the difference between a consumer and a customer?” you might well ask. In this guide, we use consumer to mean the person who actual consumes the product (either in their own home or in a restaurant). We use customer to mean the company that buys the product from you (the retailer, restaurant chain or distributor).

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### Introduction

Pork niche marketers often find markets for part of the hog (the loin, for example), but struggle to sell the rest of the carcass. As a consequence, the loin must carry a disproportionate burden making it uncompetitive from a price standpoint. One answer to this problem is to develop new products that generate better returns for other parts of the hogs.

As a rule of thumb, about one-third of all pork consumed in the US is eaten as fresh pork (chops, ribs, roasts, etc.). The remaining two-thirds are eaten as further processed pork (ham, bacon, sausage, franks, etc.). Fresh pork can have its value increased by boning, cutting into exact portion sizes (usually called portion control and normally for the food service industry), marinating, saucing (like for ribs) and pre-cooking. The primals/subprimals most commonly associated with value-added fresh pork are the loin with all its component parts and the spare ribs which are attached to the belly primal.

Processed pork items add significant value to the carcass. According to Study on Iowa-Based Differentiated Pork conducted for the Pork Niche Marketing Working Group by Food & Livestock Planning, Inc., processed pork products can add 25% more to the value of a carcass (or \$32 given the pricing and other assumptions used at the time of the study). The primals/subprimals most commonly associated with processed pork are the shoulders, legs (hams), bellies, and trimmings.

While there are very few Iowa plants which offer high value-added fresh pork opportunities such as pre-cooking, breading and battering and sauced and cooked items on a custom basis, this is a growth area. Foodservice customers have led the way in demanding these additional steps, but there are now expanding opportunities for these value-added products in the retail meat or deli case as well.

There are a number of Iowa plants that process pork into ham, bacon and sausage. See Section 5 of this guide for a directory. These products are sold in both the retail and the foodservice sales channels. For many readers of this guide, developing new processed products will be the quickest way to add value to the hog. Therefore, this guide is focused on how to go about doing that.

### Fresh Meat vs. Further Processed Products

Why do producers need to consider developing a line of further processed products?

- Further processed products provide a ready means to differentiate the item
  - By spices and other additives
  - Can create a signature product
  - By distinctive packaging

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- By creating a unique shape
- Further processed products can have better margins than fresh meat
- Further processed products lend themselves readily to branding
  - Branding helps develop consumer loyalty
  - Branded products generally command higher prices
  - A brand is more than just a label - it connects product attributes or qualities with a visual look (a logo or distinctive packaging)
  - Brands need to be supported with marketing and/or in-store signage
- Further processed products generally have a longer shelf life
- Further processed products more fully utilize the whole carcass
- Further processed products can utilize trimmings from other operations

### Types of Processed Products

This section will be a general discussion of some of the more common processed products. Included in the appendices are some common recipes or formulas for selected items.

#### Hams

The USDA classifies hams into four categories: ham, ham with natural juices, ham with water added and ham and water. The first two types are more likely to be offered as bone-in varieties, or boneless, while the latter two are always boneless. Often these types of boneless hams are called sectioned and formed hams. The basic pork leg has four muscles: inside, outside, knuckle and shank. Most hams usually contain the first two mentioned muscles and usually the knuckle as well.

Hams are skinned, defatted and usually deboned before being injected with a curing solution called brine which normally includes nitrite as well as salt and dextrose (sugar) which gives the product a nice pinkish color and is also important for shelf life. Trimmings from the deboning process are usually destined for sausage production. How much additional moisture the ham is subjected to determines which USDA category the product falls into. Injected hams are then either placed into molds or hung on racks and usually then proceed to a smokehouse for cooking. However, some hams are water cooked as well. After cooking, the product is usually ready for distribution although some will be sliced for retail consumption at the plant.

#### Bacon

Bacon is derived from the belly primal. In the preparation of bacon, the spare ribs are removed and are almost always sold as a fresh product to be barbecued. The remaining belly

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is then trimmed and made into a rectangle with the trimmings going into sausage production. The resultant product is then injected with curing brine which is very similar to that for ham.

The product then goes into the smokehouse where it is cooked and smoked. Upon removal from the smokehouse the bacon is cooled and then sliced and packaged. Retail consumers prefer 12oz or 16oz packages where the slices are shingled while food service customers want larger packages of 2lbs or more where the bacon is presented in “lay-out” fashion”.

#### Sausages

Sausages fall into several categories: fresh or cooked, emulsion, and dried and semi-dried. While all of these sausage products can be made with only pork as the meat raw material, it is more common to see a mixture of beef and pork in the formulation; in recent years comminuted chicken has become quite popular in more economical formulations. An exception to this blending of animal proteins would be breakfast sausage. The following is an attempt to briefly describe these different categories.

#### Fresh Sausage

These are usually bratwurst, Italian or breakfast sausage (either a link or patty form). Because of their very short shelf life, distribution in a fresh state is a critical issue. Often these products are frozen.

#### Cooked Sausage

As the name implies these sausages are cooked in a smokehouse. They are normally of a coarse grind variety and are sometimes called dinner sausages although some types are eaten in a bun. Often these dinner sausages are at least 4ozs and sometimes 6 or 8ozs in individual piece size. Often they are accompanied by potatoes, vegetables and sauerkraut when eaten.

#### Emulsion Sausage

These are very finely textured products and the undisputed king of this category is the frankfurter or hot dog. Other emulsion products include bologna and a whole panoply of luncheon meats. Examples would be luncheon meat with cheese and pickle and pimento sausage.

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### Dried and Semi-dried Sausage

These are the “old world” type sausages that are familiar to many. The most dominant ethnic origins for these products are Italy and Germany. Italian pepperoni, cotto salami, hard salami and coppa, are just a few of the more popular types found in the US. German origin specialties include Thuringer, cervelat, and bundefleisch. American iterations include our styles of pepperoni, salami, and summer sausage.

As 100% carcass utilization is the ultimate goal, it is evident that sausage production and sales is the traditional key to that end. However, pates also allow for the utilization of carcass trimmings. As a product category they have been in existence for many years and have recently had resurgence in popularity. Companies like Marcel & Henri and Tres Petites Cochins (Three Little Pigs) are significant players in this niche.

### New Product Opportunities in Ethnic Food

Ethnic foods offer great opportunities for new product development. Italian specialties such as cappicola, prosciutto and sausages like salami and cotto have become mainstays in the US market. Another old world tradition has its roots in the Germanic culture and its surrounding neighbors. Sausages such as kolbaca, thuringer, bratwurst and cervelat have long been popular as well as Westphalian ham. The large Mexican population in the US has their favorites like fajitas and carnitas as well as chorizo sausage. Asians like thinly sliced meat for stir-fried dishes; such cuts could come from the knuckle or the cushion. Cajun specialties such as andouille sausage and tasso have long been favorites regionally but now are gaining favor throughout the country.

Ethnic foods appeal to groups like Mexicans and Asians who are rapidly growing but also to a wider American population base. Italian food is the most popular of all foreign cuisines followed by Mexican fare. The opportunities are much greater than they initially appear.

These are just some of the examples of ethnic products that can be made by the processor for specific end use ethnic markets. It should be noted that most of the sausage items are made from a combination of several animal proteins. That is, pork is only one of the meat ingredients, the other most common ones being beef and/or poultry. Don't limit your thinking to just pure pork products. The opportunities are there and are growing.

For more information on exactly what fresh pork cuts are preferred by Hispanic consumers in the US, see <http://www.porkboard.org/docs/SPANISHmeatcutschart.pdf> or <http://www.nichepork.org/latino%20meat%20guide.pdf>. For guidance for those interested in



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marketing niche pork products to Hispanic consumers see <http://www.nichepork.org/frontend%20guide%20value%20added%20.pdf>.

#### New Product Opportunities by Sales Channel

There are several different sales channels in the food business, each with its own requirements for new products. These channels include:

- Retail - grocery stores, both chain stores and independents grocery stores
- Foodservice – this refers to restaurants, usually broken into three segments including fast food (like McDonald’s), casual dining (like Applebee’s) and white table cloth (fancy restaurants).
- Industrial – further processors who buy pork products from you and do something else to them (like a company who might buy your organic pork, cook it and sell it to an organic frozen dinner manufacturer).

For more about sales channels, see Niche Pork Marketing Opportunities, produced by R Parker & Associates, Inc for the Pork Niche Market Working Group (available at <http://www.agmrc.org/pork/pnmwg/marketingopportunities.pdf>)

For more information about foodservice meat cuts, consider buying the Meat Buyers Guide from the North American Meat Processors Association. It contains more than 295 illustrations of foodservice beef and pork cuts, buying and ordering procedures, nutrition data, food safety, USDA grading standards, NAMP/IMPS identification numbers, and foodservice reference materials. For more information or to order go to [http://www.namp.com/namp/Meat\\_Buyers\\_Guide.asp?SnID=26426500](http://www.namp.com/namp/Meat_Buyers_Guide.asp?SnID=26426500).

Many of the products mentioned in the previous section are more appropriate for one sales channel or another. Items such as sausages and luncheon meats are geared towards the retail consumer and are sold via the supermarket. Items that can function as bar snacks are more appropriate for foodservice. Riblets, pork rinds and pork filled “roll” type appetizers have a leg up on some other competitive meat proteins. These types of products are tasty, relatively inexpensive and with a variety of different spices can take on widely different flavor profiles from Thai to Southwestern to barbeque. Typically some of these snacks are “freebies” while others are appetizer menu items. The more successful of these types of foods often eventually make it to the supermarket.

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### Interview 1: Tim Beeler, Beeler's Naturally Pure Pork

Tim says that most of Beeler's processed pork products were developed back when they had a retail store. Tim's brother would play around with formulas. Buy books on old world recipes and use those as a starting point. When he had something he liked, they would give free samples to their retail consumers and get instant feedback. They would complete development of only those products that got at least a 75% approval rating. After a while Tim and his brother got to the point where they could predict what products and formulas would get a 75% approval rating and they started following their own judgment. But in the early days, the retail store gave Beeler's a unique connection to the consumer.

The toughest challenge that Beeler's had was finding a federally approved processing plant, especially one small enough that they would do what Beeler's wanted. The biggest surprise was how long it took to develop a new product. Every step seemed to take longer than expected. Tim recommends that after you find a processing plant that you give them some kind of reward to "get on it." Otherwise your priority will never become their priority.

Tim was also surprised at how much everything cost. Whether developing the formula or developing the packaging, it all cost more than he expected it to at first. Tim estimates that the cheapest you can do the process from start to finish is \$2,000. He cautioned that most federally approved plants are going to have equipment that is geared to run 2,000 to 5,000 pounds per batch. "They'll charge you as if they're running 5,000 pounds even if all you want is a few hundred pounds," Tim says.

Regards marketing research, Tim recommends that you sample new products with your friends, your kids, the local school – whomever you can get. "Get at least 20 people to try your new product," he says.

Tim's final words are don't give up if at first you don't succeed. "We had some disasters but we kept trying until we got it right."

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#### Nine Step Process

The process for developing new products has nine steps. They are:

1. Develop an Idea
2. Identify the Target Consumer
3. Develop Prototype Products
4. Determine How Well the Prototype Products Meet the Consumer's Needs
5. Determine How the Prototype Products Compare to Competitive Products
6. Fine Tune the Products as Needed
7. Commercialize the Prototype Products
8. Develop the Label or Package
9. Get USDA Approval

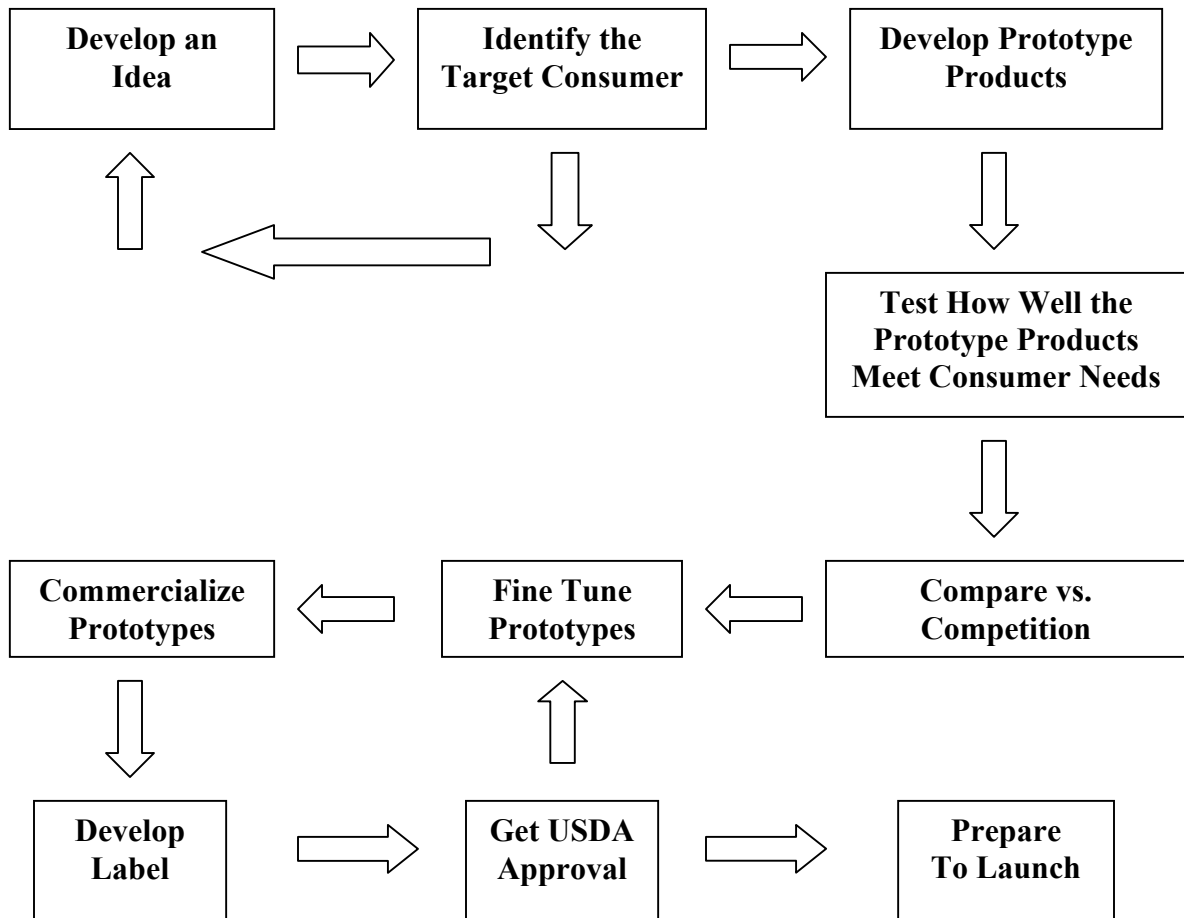
On the following page we've illustrated the process flow. Note that sometimes what you learn in a certain step leads you to circle back and go through an earlier step again. This is why new product development is often called an iterative process. You need to repeat steps until you get it right.

We've discussed each of these steps on the following pages. And throughout this section we talk about how large meat companies handle the new product process and offer some suggestions for how you can take a similar approach but at a lower cost.

To get another perspective on new product development, consult The National Pork Board's New Product Guidelines at <http://www.porkscience.org/documents/Other/qualityfactnewproductguide.pdf>.

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### Start with an Idea

Many large companies will start with consumer research in an effort to identify “unmet consumer needs.” If you’re reading this report, you probably don’t have the luxury of spending a lot of money or taking a lot of time to go fishing for unmet consumer needs. You need to start with an idea for a new product and use your limited research budget to fine tune it. (“We need to add a hot dog to our line. What kind of hot dog should it be?”) You may already have a new product idea you’re hot on. If so, skip down to step #2. If not, read this step and figure out how you’re going to come up with such an idea.

There is no one place to get your new product ideas. Often the best ideas start with something that’s already in the market and improve upon it. You should be open to ideas from all over, from both inside your company and outside the company. Sources of ideas include:

- a. Your own observations,
- b. Family and friends,
- c. Customers,
- d. Competitors,
- e. Consumer research,
- f. Food magazines,
- g. Restaurants and
- h. Products sold in other countries.

Whatever the source, it is important that your new product idea either be better than the existing products in the market, cheaper than the existing products, or different in some way that is meaningful to your target consumer. If your new product is a copy of an existing product, you will have a difficult time getting customers to buy it and consumers to try it.

### Identify the Target Consumer

Who’s going to consume your new products? If you don’t know, then you can’t perfect your product, determine where to sell it, or how to advertise it. In other words, everything else flows from determining the target consumer and their preferences. If you already sell products and are merely looking to sell more to the same consumers, then this is pretty straight forward. If you’re trying to beat a competitor, who buys their product? Marketing research can help you figure this out, but you can also do some digging on your own. Talk to your local grocery store meat department manager and ask him who buys the competitive product. If you’re targeting restaurants, go to a restaurant (during a less busy time of day) and talk to the manager or chef. Armed with this information, make an appointment with the grocery store chain buyer or the restaurant chain buyer. Tell him what you’re trying to do and

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pick his brain. He may have data on his consumers (like age, sex, income, ethnicity and/or food preferences) that will help provide you with key insights for your new product's development. And even if he doesn't have data, he's likely to have strong opinions.

The market for niche pork items is segmented by quality (gourmet, middle of the road and lower quality/lower price), ethnicity (German, Italian, Mexican and Asian to name but a few) and natural/organic (antibiotic free, growth promotent free, humanely handled, etc). You need to know if your target consumer falls into any of these categories or has any other special needs or preferences.

Insights about the target consumer will help drive decisions you make about ingredients, packaging, pricing and advertising. For example, if you determine that your target consumer has a higher income, you should use higher quality ingredients, classier looking packaging and charge a premium price. If you determine that your target consumers are first or second generation Mexican Americans, then you need to use cuts of meat, seasoning profiles and terminology that are familiar to them.

#### Develop Prototype Products

Once you determine what the consumers want or need, use that information to give direction to whoever is developing your formula and process. You may have someone on staff that is developing your formula, or you may want to use an outside resource, such as someone who develops formulas as a business. We've listed some such people in section 4. Or you may want to depend on your co-packer to develop your formulas. We've listed potential co-packers in section 5.

The advantage of involving your co-packer early is that many problems can be worked out at the beginning of the process instead of at the end (when you may be in a big rush to go to market). A disadvantage is that the co-packer may steer you in a direction that makes life easier for their business, but that may or may not be the best outcome for you. The co-packer may also want you to use a formula that they have already developed. This saves time and money, but means your product is less unique. If you develop a proprietary formula, you should make sure it meets your consumer's needs, and then if you should ever need to leave your co-packer, you can take your unique product (and formula) with you. Just make sure that you have your co-packer sign a Non Disclosure Agreement before you give him your formula and process.

#### Determine How Well the Prototype Product Meets Your Consumer's Needs

Regardless of who develops your formula, remember that it is best to have several alternatives developed and to test them with your target consumers so that you can find out

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which one they like best. Ideally you want to conduct a taste test with your target consumers. In this kind of test you have each consumer try two or three different versions of your new product and one competitor's product. Then you have the test participant to fill out an evaluation. At its most basic, the evaluation form should inquire about:

- a. Appearance (on a 5 point scale with 1 = Very Appealing and 5 = Not Very Appealing)
- b. Taste (on a 5 point scale with 1 = Taste Very Good and 5 = Does Not Taste Good)
- c. Texture (on a 5 point scale with 1 = very good texture and 5 = very poor texture)
- d. Willingness to Purchase (on a 5 point scale with 1 = Very Likely to Purchase and 5 = Very Unlikely to Purchase)

Typically in this kind of test, participants are told what kind of product they will be tasting (German sausage, for example) but not which one is yours and which one is the competitors. That way you get an unbiased reaction to the product.

Where do you find your target consumers? One way is to determine where your target consumers shop or gather and meet them there. Get permission from the local grocery store manager to do a taste test and hand out surveys in the store. Or if you are targeting women with children, speak at a local PTA meeting. If you're targeting businesses, speak in front of the local Chamber of Commerce. If all else fails, hold a party at your house and conduct a taste test with your family and friends.

You can use this kind of test to determine which of several versions of your new product is preferred by consumers. You can use it to find out if your product is preferred to the competitor's. You can also use it to get information to improve your product. Figure out what are the most important 2 or 3 characteristics (ie appearance, taste and texture) of your kind of product (with Hot Wings, for example, it would be their reddish-orange color and their spiciness), and ask participants how each product in the test measures up on those characteristics. Use the information to adjust the formula until the product is perfect!

### Determine How the Prototype Products Compare to Competitive Products

It's important to understand how you stack up to competition. We often meet people who are so passionate about their new product that they think it is better than every thing on the market – without even trying the competitive products! We once heard of a small meat company salesman who met with a potential customer to present a new product only to have the customer pull out a competitive product and do a comparison right in front of the salesman. The difference was so pronounced that even the salesman had to agree that the competitive product was superior!

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If you do the taste test as described in Step 4 above, you will have a head start on Step 5. But you can't stop there. In order to fully understand the competition, you need to:

- a. Evaluate the product on the shelf and in the package.
- b. When evaluating competitive product on the shelf, look for:
  - i. Shelf position. Eye level is best. Down near the floor worst. Note whether products are behind posts or otherwise obstructed.
  - ii. Number of facings. More is better.
  - iii. Signage
  - iv. How visible is brand name?
  - v. Does the product look appetizing?
- c. When evaluating the product in the package, look at:
  - vi. Overall appearance.
  - vii. How appealing are name and logo?
  - viii. What does the packaging tell you about the product? Are there any special claims? Does the package tell you how to use the product? Is it designed to appeal to one audience over another?
  - ix. Does the product look appealing?
  - x. What do the nutritionals tell you? Try to measure this in context. High fat may be good if it's supposed to be a product with old fashioned taste, for example.
  - xi. What does the ingredient list tell you? Artificial ingredients are bad if you're trying to sell the product as home made, for example.
- d. When evaluating the product out of the package and before cooked/heated up (with participants unaware of which product is which), look at:
  - xii. Product appearance
  - xiii. Color
  - xiv. Visual evidence of texture, seasoning or other product attributes
- e. When evaluating the product fully cooked/heated (with participants unaware of which product is which), check out:
  - xv. Appearance
  - xvi. Smell. Any off smells? Does it smell like what it's supposed to smell like (German style sausage, for example?)
  - xvii. Taste (Try to measure this vs. specific expectations.)
  - xviii. Texture (Ditto)



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#### Fine Tune the Products as Needed

Take what you learn in steps #4 and #5 and make the final improvements to the product.

#### Commercialize the Prototype Product

It's one thing to make small quantities of a new product in a lab and another thing to make large quantities in a production facility. Often adjustments have to be made in either the formula or process or both. You should compare the production run product to the final prototype to make sure the changes haven't affected the product adversely. It's important that your production plant or co-packer allow time to make adjustments and rerun the product as many times as you need. It's during this step that you should develop a good idea of product cost.

#### Develop the Label and Get USDA Approval

A label or package should clearly communicate the brand and the consumer benefits of the product. If you are selling a high quality/higher price product, then your brand name should be consistent with this positioning of the product, such as having a classy looking package. If you are selling an ethnic product, then your brand name and package design should communicate that ethnicity. If you are selling a line of Italian style sausages, use a package design that incorporate the colors of the Italian flag (red, green and white), for example. If you are going to make claims about your product on the package or label (such as "natural," "organic" or claims having to do with how the animal was raised), make sure they are approved by the USDA. For more information about USDA claims, see <http://www.fsis.usda.gov/OPPDE/larc/Claims.htm>. If your product is organic, make sure it meets the requirements of the National Organic Program. See <http://www.fsis.usda.gov/OPPDE/larc/Organic.htm>.

The USDA must approve all package or label designs for products shipped across state lines. If you want to find out more about this process, a good place to start is <http://www.fsis.usda.gov/OPPDE/larc/Index.htm>. To download the USDA's "labeling 101" presentation, go to <http://www.fsis.usda.gov/OPPDE/larc/Policies/Label101/Index.htm>. Keep in mind that a label is approved for use in a specific facility, so it is essential that you involve your co-packer at this point. Many companies depend on outside firms for their label advice and to complete the USDA label approval applications and present them to the USDA. We list a few such companies in section 4. If you want to handle this process yourself, the procedures are described at <http://www.fsis.usda.gov/OPPDE/larc/Procedures.htm>. The application itself is contained at <http://www.fsis.usda.gov/fsisforms/7234-1.pdf>.

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The USDA requires that all raw or partially cooked meat products carry a safe handling statement. See <http://www.fsis.usda.gov/OPPDE/rdad/FSISDirectives/7260.1.pdf> for answers to commonly asked questions.

Pork products with more than one ingredient that have been more than minimally processed (that is, everything except raw pork) are required by the USDA to include a nutritional analysis on the package/label. There is a standard format for presenting this nutritional analysis called a Nutrition Fact Panel (NFP). See <http://www.fsis.usda.gov/OPPDE/rdad/FSISDirectives/7260.1.pdf> for answers to commonly asked questions. We list resources to help you develop an NFP in section 4.

#### Prepare to Launch

This ends the new product development process, but there's a lot more to do to prepare to launch a new product. These additional steps include:

1. Develop a sales plan
2. Develop a logistics or transportation plan
3. Develop a marketing plan
4. Develop sales support material, Point of Sale material and marketing material
5. Produce samples for the broker or sales force and customers (facilities like ISU's Meat Lab can be used to make sample size quantities – see Section 4 for a list of resources).
6. Sell
7. Produce product
8. Ship

These steps are outside the scope of this guide, but are important nonetheless. One big challenge for the niche pork marketer, for example, is effective and affordable delivery of product to customers. Sometimes called logistics and sometimes called just transportation, this is a key to a niche player's success. By effective we mean, "Is the product delivered on time and in good shape?" But effectiveness is not enough; transportation has to be affordable too. One must try to think "out of the box" like sharing trucks with noncompetitive manufacturers who make compatible goods. Examples include shipping meat with chilled pasta or using the empty truck space of a Midwestern truck carrier whose primary business is carrying vegetables from California to the heartland. It should be noted that it does not pay to try to save a few dollars on transportation costs if the goods are going to be delayed by circuitous routing etc. The retailer or food service distributor does not want to be stranded on the shipping dock wondering when his order will arrive. The Pork Niche Market Working Group has developed a trucking report titled LTL Trucking Terms and Process Guide to help with this topic (available at <http://www.agmrc.org/pork/pnmwg/ltltruckingterms.pdf>).

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### Section 3: The New Product Development Process

#### Big Companies vs. Small Companies and New Product Development

Big companies often have money and other resources that small companies can't match. For example, Swift & Company follows a fairly traditional, stage-gate approach that takes consumer insights and customer insights at the front end then puts them through Discovery – Validation – Assessment – Commercialization – Launch. They use a management tool called the “base plan” that moves with each project through the stages. As a new product reaches its final stages of development, a new product development steering committee must sign off before the product is approved to launch. This keeps the company from wasting valuable resources on low potential new products.

One of the biggest differences between big companies and small companies is in their use of marketing research. Big companies will often test every facet of the product and package, such as: 1) new product concept, 2) product, 3) name, 4) packaging and 5) advertising. They may also introduce products in test markets or use simulations to estimate how the products would perform in the market. Marketing research is expensive, but can often provide valuable insights that increase your chances of success. We list marketing research companies in section 4.

#### Cost

The cost of your new product development process depends on how much you do yourself and how much you pay someone else to do. If you do your own research, have a co-packer who is willing to work with you and have a relative who can design your label, you should be able to develop a new product for under \$1,000. If you use an outside research agency, pay someone to develop recipes, pay a lab to develop nutritionals and pay an artist to develop your label, it's going to cost you tens of thousands of dollars to develop a new product. We suggest you do a little self analysis before you start a new product development project and determine where you need the most help. Focus your dollars on that part of the process and do the rest yourself (or with the help of family and friends). Develop a realistic timetable and budget at the beginning of the process and keep track of how you do. Use this information to improve the process next time you develop a new product.

## **New Product Development for Pork Niche Marketers**

### Interview 2: Dave Kronlage, Manager, Delaware County Meats

Dave suggests that “If you’ve got an idea for a product, don’t just develop one recipe but three or four. Then do a taste test to see which one tastes best. If you’re making a brat, for example, there are lots of ways to season it. If possible, taste test with your customer. We wanted to sell a link to the school system. They didn’t want it spicy because most kids don’t like spicy foods. So we came up with a maple flavored link. The kids loved it.”

When asked about who was involved with the development process, Dave said, “We work closely with the locker plant that makes our product to develop new items. They know what they can make and who the different ingredient suppliers are. Typically we come up with an idea and then they develop several different versions of the product. For example, we decided we wanted to add an all pork hot dog to our line. Our locker plant made several recipes with different spices.”

We asked Dave what the biggest pitfall was. He said, “Not planning for enough time. Things seem to take longer than you expect. For example, label approval. When we started out we were state inspected. It took us almost 3 months to get the state to approve our labels. And you couldn’t rush them. So make sure you allow plenty of time.”

# New Product Development for Pork Niche Marketers

## Section 4: Resources

### Product Development

The technical resources listed below can help you with development of your new product and, in some cases, testing.

1. Randy Petersohn, Manager  
Iowa State University Meat Lab  
Ames, IA  
515 294 5321  
[randall@iastate.edu](mailto:randall@iastate.edu)

The ISU Meat Lab has the experience and capability to create almost any type of further processed pork product. Often the facility has not only been used to create new or improve existing products, but also to produce sufficient quantities for test marketing. There are various contractual options at the ISU Meat Lab ranging from “full service” arrangements where everything is done for the client to where ISU only provides the basic infrastructure. The ISU Meat Lab will not design or develop new products. They will take your recipes or use standard ones to formulate the end product.

2. Ken Prusa, Professor  
Food Science and Human Nutrition  
Iowa State University  
Ames, IA  
515-294-4323  
[kprusa@MAIL.FCS.IASTATE.EDU](mailto:kprusa@MAIL.FCS.IASTATE.EDU)

Dr. Prusa teaches a class in new product development and also conducts research. If you have plenty of time but not much money, you may want to consider allowing his students to conduct your new product development. He would use senior undergraduate and/or graduate students in Food Science that have had previous or concurrent product development experience. The students would be supervised and have direct contact with the client.

Dr. Prusa is also heavily involved with the Sensory Center in the Center for Designing Foods to Improve Nutrition. It is a great resource for pork quality evaluation in conjunction with your product development. The ISU Sensory Center is under the administration of the Food Science Department. All food related campus entities like the Center for Designing Foods, the Meat Lab and the Food Science Department can and usually use the Sensory Center. Both trained and untrained panels are available to test products.

## New Product Development for Pork Niche Marketers

### Section 4: Resources

3. University of Nebraska Lincoln Food Processing Center  
143 Food Industry Complex  
Lincoln, NE 68583-0930  
402/472-2832  
402/472-1693 FAX  
Email: [fpc@unl.edu](mailto:fpc@unl.edu)  
Web page: <http://fpc.unl.edu/>

The Food Processing Center helps companies large and small achieve their goals with new product development, marketing research and a host of other services.

- Food Product Development
- Food Business Development
- Laboratory Services
- Pilot Plant Services
- Food Entrepreneurs Program
- Food Allergies

4. Rust Associates, Inc  
Robert E. Rust, Professor Emeritus  
118 E. 16<sup>th</sup> St.  
Ames, IA  
515 233-9207  
[rustre@qwest.net](mailto:rustre@qwest.net)

Bob Rust has more than 40 years in the meat industry as a teacher, researcher and extension specialist at Iowa State University. He also worked as a consultant before he retired from his full time university position. He is now a full-time consultant and participates in some university activities as requested by ISU. Rust has worked with some of America's largest meat companies as well as some smaller Iowa companies during his career. Rust's noted expertise is in processed meat products.

5. ESCA Enterprises, Inc.  
491 Wilmington Pike  
Glen Mills, PA 19342  
[www.escaenterprises.com](http://www.escaenterprises.com)  
Allan D. Samson, Ph.D., President  
Phone: 610-558-1902  
Fax: 610-558-3306  
e-mail: [esca@mindspring.com](mailto:esca@mindspring.com)

ESCA Enterprises brings over 20 years of experience in providing a wide range of services to the meat & poultry industry. ESCA's core competencies include Product Development, Operations and Quality Assurance and Marketing Services. ESCA promises to add value to

## **New Product Development for Pork Niche Marketers**

### Section 4: Resources

your business far in excess of project costs via great tasting products, increased sales, and reduced production costs and by providing you with an edge over your competition with exceptional product design, superior technical support and consumer-driven marketing services. Highlights of ESCA's work in the pork industry include:

- Case Ready Systems for Fresh Pork
- Fresh Raw Marinated Pork Products.
- Fresh RTE Cooked Pork Products.
- Innovation in Processing of Value-added Fresh Pork.
- Fresh RTC Pork Entrees

ESCA believes in establishing a partnership with its clients to provide all essential services to increase profitability and growth of your business via successful new products.

6. Francois Vecchio  
407 Washington Blvd.  
Half Moon Bay, CA  
(650) 712-9975  
[franvec@earthlink.net](mailto:franvec@earthlink.net)

European trained, but has lived in the US for more than 25 years. Vecchio is the former owner of a CA based Italian specialty sausage company. Currently he is engaged in developing a line of further processed pork products for the nation's leading niche integrated pork company. His expertise is in high quality Italian specialty items.

### Other Product Development Resources

Some meat industry suppliers are willing to help you develop your new products in hope that you will give them your business. This is most common with companies that sell ingredients (like spices, flavorings and additives like salt, dextrose or phosphates) and with companies that sell processing equipment. If you represent potential business, they will often give you the assistance of their technical people for free. They may also be willing to give you enough ingredients to make samples or let you test equipment for free. They are great resources that large meat companies take advantage of often.

For example, let's assume you want to make an apple flavored loin at XYZ plant and your plant doesn't have the apple flavoring and the other additives necessary for the brine. If you represent a significant potential business, you could approach one or more ingredient suppliers who would give the items necessary to develop alternative "test" products. The same would hold true for the equipment supplier. You could convince him to lend a vacuum tumbler to the plant for the experiments. Many times suppliers have some ideas for new

## **New Product Development for Pork Niche Marketers**

### Section 4: Resources

products of their own and are just looking for a forward thinking company like yours to whom they can give their ideas to. It is tacitly understood that if the product is successful in the marketplace then the suppliers who helped you develop it would get your business. Two Iowa suppliers who have done this sort of thing before are Dupey Equipment Company (515) 223-0700 and Todd's, Inc. (515) 266-2276.

#### Nutritional and Shelf Life

There are a number of labs that can help you run nutritional and/or develop a Nutritional Facts Panel. There are both local labs as well as labs with multiple locations around the country. Silliker Labs has an extensive network of locations:

Silliker Labs  
Corporate headquarters  
900 Maple Road  
Homewood, IL 60430  
708-957-7878

Iowa facility  
405 Eighth Avenue SE  
Cedar Rapids, IA 52401  
(319) 366-3570

There are also companies like Prime Label (contact info below) that do not perform lab tests but will use government established standard nutritional values for common ingredients to generate Nutritional Fact Panels. They can also use lab tests you provide. In addition, they can facilitate the review of a new label by the USDA if you so request.

Prime Label  
536 7th St., S.E.  
P.O. Box 15240  
Washington, D.C. 20003  
202-546-3333

#### Marketing Research

1. Ashcraft Research  
Chicago, IL  
312-475-0034

Ashcraft does concept testing, general research, central location tests and mall intercept tests.



## **New Product Development for Pork Niche Marketers**

### Section 4: Resources

#### 2. Clarion Focus

Winnetka, IL

847-446-7483

Carol Blake of Clarion is a focus group moderator.

#### 3. In Focus

Chicago, IL

312-867-7700

Nancy Comstock of In Focus is a focus group moderator.

#### 4. Luhrs Marketing Research

Chicago, IL

312-944-4400

Luhrs does product testing, general research, central location tests, mail intercept tests and in-home product tests.

5. If you have time, you might consider approaching the business school at Iowa State University or the University of Iowa. You might be able to find a marketing research class that would be willing to do research for you for little or no cost.

## **New Product Development for Pork Niche Marketers**

### Interview 3: Cody Lane, President, Pederson Natural Farms

Most of Pederson's new product ideas come from customers, but some are generated by the Pederson's staff. Typically a customer asks, "Can you do this?" Then Pederson's staff figures out how to do it and in many cases what would make it more marketable. Early on, Cody Lane, president of Pederson's Natural Farms, talks to customers and consumers to see what they think of the new product idea. "We don't have the money that big companies have to do testing," Cody says. He talks to family, friends and neighbors. In particular, he likes to talk to shelf stockers in grocery stores. "They know what moves better than the store managers or department managers. And they know what questions consumers ask." According to Cody, package size, type of packaging and price point are every bit as important as the product itself.

Typically, Pederson's has most of the nutritional information they need for a new product on file. "We have nutritionals on all meat blocks," says Cody. "So we can focus our analysis on what's changed. A new flavor, more salt . . . something like that." For a totally new product, Pederson's has an outside lab run nutritionals. "When we created a beef bacon we needed to run nutritionals from scratch. We had a lab do it and it cost us \$1,000 to get the product analyzed and a USDA Nutritional Facts Panel developed. We use Food Safety Net or Silliker Labs."

Cody also cautions that shelf life is a critical part of new product development. "Once you decide whether your new product is going to be sold frozen or fresh, you need to determine what the shelf life is. We work with Food Safety Net or Silliker Labs to get that testing done. There's no shortcut to getting a new processed pork product tested for Lysteria and Salmonella."

Cody's advice for small company's undertaking new product development:

1. Marketing – be first to market. Don't settle for being second.
2. Hold the cost of development down by taking advantage of what you've learned in the past (or what your lab or co-packer have learned). Don't pay to re-invent the wheel.
3. Don't introduce a product unless you like it. It's hard to sell a product if the "salesman" isn't sold on it.

## **New Product Development for Pork Niche Marketers**

### Section 5: Slaughter and Processing Facilities

#### Identifying Facilities

Unfortunately, after the events of Sep 11, 2001, which culminated in the creation of the Department of Homeland Security, neither written nor electronic information is available for USDA meat and poultry facilities. This fact not only makes it harder to document those plants accorded an Establishment Number under the FSIS/USDA system, but it also make it hard for producer groups to locate facilities to accommodate their specific needs. Fortunately, some people still have access to old records where most of the information is still valid and there are others, notably state departments of agriculture, state departments of economic development and livestock/meat commodity groups, who have some knowledge in this area. However, it is important to recognize that there are no complete and comprehensive lists of all USDA federally inspected plants.

#### Slaughter Facilities

##### Background

This market segment is always in a state of flux because of their relatively small size in comparison with their larger and usually more competitive brethren. Smaller slaughter plants are inherently not only less cost competitive, but they increasingly find access to markets more difficult as there are fewer potential customers to buy the output from these smaller slaughterhouses. Therefore, it is readily apparent that as more and more of this category of slaughter facility closes across the country, the remaining ones, while real survivors, are usually in a precarious financial position. Thus, they normally cannot be relied upon as long term strategic partners for those producers looking for custom slaughter facilities for their niche market pork.

##### Calculation of Charges

Toll slaughter charges are determined on a per head basis usually after some discussion as to volume on a daily, weekly or other basis. Most slaughter plants that accommodate producer groups charge between \$ 15-25/head with the toll plant cutting the carcass into the four main primals: bellies, hams, shoulders and loins. The slaughterhouse keeps the head and offal (usually worth \$3-7/head depending if the plant skins or scalds the pig). Additional charges are levied for further boning work.

Initially in the negotiations between both parties it is assumed that the producer will take all four primals of their animals. However, realistically they do not have the expertise to market effectively all the components of their pigs. Thus, the toll slaughter facility will sell these items for the producer. It should be remembered that the meat belongs to the producer and

## **New Product Development for Pork Niche Marketers**

### Section 5: Slaughter and Processing Facilities

not to the slaughterhouse and the latter usually does not have a great incentive to receive the best prices for primals the individual producer/producer group cannot sell. At best some of this meat which entered the system with all intentions of becoming a specialty or niche product has now been relegated to a simple commodity meat item.

#### Iowa Slaughter Facilities

Dakota Pork  
Estherville, IA  
712 362-2578

This plant, which has a daily kill capacity of about 600 head (far fewer for fabrication), seems to be in more capable hands now. They are the fourth owner in five years. Currently the plant is not interested in doing any custom slaughter and is looking to expand its boning capabilities so as to match its slaughter size.

Pine Ridge Farms (formerly Iowa Packing Co)  
Des Moines, IA  
515 266-4100

Having just transferred ownership in mid-January 2004, it is too early to ascertain what form and style these plants will take. Actually there are two separate USDA facilities: one plant slaughtering market hogs with a capacity of about 3500 per day and the other plant primarily designed for heavy sows and boars that can do about 1500 animals daily. It is this federally inspected facility that will remain open while the plant designed to slaughter butcher weight animals will be temporarily closed until market conditions permit re-opening. Although the former owners did very little custom slaughtering, new ownership may find that this is a potentially profitable niche for them.

Sioux Preme Packing Company  
Sioux Center, IA  
712 722-2555

With an approximate daily capacity to kill 2600 head, this carcass only facility has transformed itself from mainly a commodity butcher hog slaughterer to the toll slaughter facility of choice among niche pork producers. Realizing several years ago that they would also need to further cut carcasses into primals and, in some cases subprimals, they leased a plant in Sioux City to accomplish that task. Sioux Preme is an experienced operator in the niche custom slaughter field. It is not surprising that the three largest niche producers have chosen this company to accomplish this task.

## **New Product Development for Pork Niche Marketers**

### Section 5: Slaughter and Processing Facilities

Hospers Packing  
Hospers, IA  
712 752-8666

This former beef slaughter plant was converted several years ago to do pork only. For the first several years it only fabricated hog carcasses. Recently the plant, which has a slaughter capacity of about 700 head per day, has commenced the slaughter of pigs, albeit on a very uneven schedule. Currently they are actively seeking producer groups to do custom slaughter at this facility; however, it should be noted that it appears that this plant would like to deal with only several very large customers and not small groups or individual producers.

### Other Iowa Firms Capable of Doing Federally Inspected Toll Slaughter

Iowa Lamb Company  
Hawarden, IA  
712 551-1126

Although the firm has expressed an interest in doing custom slaughter for hogs (permitted by FSIS/USDA), it is unknown whether they have ever done so.

SIG International  
Boyden, IA  
712 725-2172

This processing firm operates several niche pork programs, including an Antibiotic Free/Non-GMO program and a 100% Certified Berkshire program. Products are marketed primarily to Japan. They also do custom slaughtering for various customers, as well as custom boning.

Triple T Specialty Meats  
Ackley, IA  
641 847-0031

This is relatively new USDA facility that combines slaughter with complete processing capabilities.

Edgewood Locker  
Edgewood, IA

Edgewood Locker is a relatively new USDA facility which is able to slaughter and then further process pork products.

## **New Product Development for Pork Niche Marketers**

### Section 5: Slaughter and Processing Facilities

W&G Marketing  
Jewell, IA  
515 827-5436

This facility is constructed to do small roasting pigs only. It is thought that they will not entertain any custom slaughter.

Vershoor Meats  
Sioux City, IA  
712 252-1847

Vershoor Meats is a long time small slaughter plant. In recent years they have concentrated on cull butcher pigs; those are usually light weight pigs or have some type of birth defect. They have not been involved in custom slaughter.

Lynch Packing  
Decorah, IA  
319 382-0022

Lynch Packing is a new operation in a former plant designed to kill ostriches. Their niche is roasting pigs for both their own BBQ teams for resale. It is unknown whether they would consider doing any custom slaughter at this Northeastern Iowa facility.

### Out of State Slaughter Facilities

Pork King  
Marengo, IL  
815 568-8024

Lorentz Meats  
Cannon Falls, MN  
507 263-3617

Spectrum Preferred Meats  
Mt Morris, IL  
815 946-3816

Geneva Meats and Process Service  
Geneva, MN  
507 256-7214

## **New Product Development for Pork Niche Marketers**

### Section 5: Slaughter and Processing Facilities

Jersey Packing (Wards)  
Jerseyville, IL  
618 498-4423

Pork Packers International  
Downs, KS  
785 454-3398

Dawson Pork  
Dawson, MN  
320 769-4810

Alcester Meats  
Alcester, SD  
605 934-2540

#### Iowa Processing Facilities

This section lists Iowa facilities that process pork into ham, bacon, sausage, franks or some combination of all four.

There are a number of issues to keep in mind when looking for a processing facility to work with. Processors who do custom jobs are sensitive to both the volume and specifications demanded by the niche pork producer. Most do not want to be bothered by low volume processing - i.e. only a few dozen bellies for bacon or formulas that call for too many unique ingredients or processing steps. The setup time and cleanup procedures consume most of the total production period, and thus they do not want to be bothered with such short production runs.

Therefore it is imperative that the niche producer shop around until he finds a good fit with a processor(s) who can fulfill his needs. The objective would be to establish a long term working relationship between the two entities.

Another factor is the trimmings generated during the preparation of the products. Whether it is bacon which needs to be squared and then trimmed or loins that are boned, a certain amount of trimmings are generated. Normally these products form the base for fresh or cooked sausage. If the custom processor does not have the capability to produce those products or the niche producer cannot sell those items, then these trimmings must be disposed of on the commodity marketplace.

## **New Product Development for Pork Niche Marketers**

### Section 5: Slaughter and Processing Facilities

It not only takes a lot of skill and experience to produce these further processed pork products, but the processor must have a substantial amount of invested capital in the equipment. Therefore, it is difficult to find any single processor who can make all the different products.

Bee Lor Inc/Beelers Naturally Pure Pork  
Brunsville, IA  
712 533-6042

Although theoretically being able to produce a full line of processed pork products, Beeler is out of capacity to do hams or bacon, but would entertain doing custom work for cooked sausages. It is a very small plant.

Schleswig Specialty Meats  
Schelswig, IA  
712 676-3324

This plant, which once did custom sausages, etc.. no longer has any further processing capabilities and now concentrates on doing custom fabrication/ boning work.

Northwood Meats  
Northwood, IA  
641 324-1466

This small company also does custom fabrication work. It has no capability to do any further processing.

Webster City Custom Meats  
Webster City, IA  
515 832-1130

Webster City is a specialized processor for hams and bacons. They produce a considerable amount of contract private label product as well as selling product under their own label. They also have the capability to do private label fresh breakfast sausage as well as larger diameter fresh and cooked sausages such as bratwursts and smoked cooked products.

Mary Ann Specialty Foods, Inc.  
Webster City, IA  
515 832-4740



## **New Product Development for Pork Niche Marketers**

### Section 5: Slaughter and Processing Facilities

Mary Ann's has the capability to cure, smoke, make bacon and sausage. Niman Ranch gets there bacon and hams done here. It is believed that Mary Ann has limited available capacity right now.

Iowa Pacific Processors  
Des Moines, IA  
515 288-5435

They do no custom or private label work.

Carriage House Foods  
Ames, Iowa  
515 232-2273

Carriage House has the capability to cure, smoke, portion control and bread pork items. They also do boil in the bag and microwaveable pork items.

Curly's Foods, Inc.  
Sioux City, IA  
712 255-1955

Curly's makes BBQ pork products, cooked ribs and pulled shoulder pork products. They do not make ham or bacon. Curly's is a wholly owned subsidiary of Smithfield. It is unclear whether Curly's is willing to co-pack or not.

## **New Product Development for Pork Niche Marketers**

### Interview 4: Al Shelton, Vice President, Ellison Meats

Ellison created a new, natural, fresh pork line for white table cloth restaurants. They knew that in addition to the natural benefits (no antibiotics, no growth promotents, adequate space and humane handling), their target customers insisted on a consistently high degree of tenderness and taste. Working with Dr. Ken Prusa at Iowa State University, they tested breeds and producers for color, texture, Warner Brasser shear force and pH. Using learning from this testing, they developed a set of protocols designed to guarantee the quality they needed. With the product and the story they were able to successfully penetrate the white table cloth restaurant segment.

Al Shelton advises anyone developing new pork products to:

1. Know your customers' needs,
2. Have customers ready to buy before you produce product,
3. Sell 100% of the hog,
4. Make sure you have a solid relationship with a good slaughter facility,
5. Give communications with your customers, your producers and your processor the time and effort it deserves, and
6. Go through USDA process verification. It's a good discipline.

# **New Product Development for Pork Niche Marketers**

## Appendices

Appendix 1: Helpful Reports and WebPages

Appendix 2: Biographies of the Authors

Appendix 3: Formulas for Selected Pork Products

# New Product Development for Pork Niche Marketers

## Appendix 1: Helpful Reports and WebPages

### Hispanic Market

<http://www.porkboard.org/docs/SPANISHmeatcutschart.pdf>

Fresh pork cuts for US Hispanic target consumers.

<http://www.nichepork.org/latino%20meat%20guide.pdf>

A guide to Latino fresh pork cuts.

<http://www.nichepork.org/frontend%20guide%20value%20added%20.pdf>

Front end guidance for those interested in marketing niche pork products to Hispanic consumers.

### Case Studies

<http://www.nichepork.org/valueaddedprodmktngbk.pdf>

Niche pork company case studies.

### New Product Development

<http://www.porkscience.org/documents/Other/qualityfactnewproductguide.pdf>

A guide to pork new product development.

### Pork Cut Specifications

[http://www.namp.com/namp/Meat\\_Buyers\\_Guide.asp?SnID=26426500](http://www.namp.com/namp/Meat_Buyers_Guide.asp?SnID=26426500)

The Meat Buyers Guide contains more than 295 illustrations of foodservice beef and pork cuts, buying and ordering procedures, nutrition data, food safety, USDA grading standards, NAMP/IMPS identification numbers, and foodservice reference materials. Available from the North American Meat Processors Association.

### Packers and Processors

<http://www.nichepork.org/packerSearch.asp>

This is a list of packers and processors broken down by state.

### General Info

<http://www.agmrc.org/pork/porkprocessing.html>

General information about the pork market.

## **New Product Development for Pork Niche Marketers**

### Appendix 2: Biographies

Rick Parker,  
R Parker & Associates, Inc.

Rick Parker, the marketing professional responsible for developing such best selling food products as Armour Guaranteed Tender Pork, Tyson Hot Wings and Betty Crocker Twice Baked Potatoes, launched R Parker & Associates, Inc. in the fall of 2001. RP&A focuses on business strategy, marketing and new product development for the meat and poultry industry. It provides services to all facets of the industry, including producers, manufacturers, and suppliers. Clients have included ConAgra Signature Meats Group, Fletcher's Fine Foods, the Iowa State Value Added Agriculture Group, Practical Farmers/Pork Niche Marketing Working Group, VandeRose Foods and Verity Farms.

Parker has over two decades of experience in the food business. He started Swift & Company's value added pork division and served as the division's general manager in the early years. Parker developed the "Feeding You Like Family" advertising campaign for Tyson, the "Chillin' and Grillin'" in-store promotion for ConAgra Beef and major publicity campaigns for ConAgra's beef and pork companies. He led the team that acquired Zoll Foods for Swift & Company and the teams that integrated Weaver Chicken and Louis Kemp into Tyson Foods.

Parker, who served as VP of Marketing for Tyson Foods, ConAgra Beef Company and Swift & Company, also worked in marketing at General Mills and in marketing research at Quaker Oats. Parker received an MBA from the University of Chicago and a BA in English from the University of Iowa.

## **New Product Development for Pork Niche Marketers**

### Appendix 2: Biographies

#### A. Severin Johnson

Winnebago Agribusiness Research and Consulting LLC

Sev Johnson has been a private consultant to the meat industry for twenty years. In addition to his private consulting, Johnson does Special Projects for Value Added Agriculture at Iowa State University. Formerly, he was Assistant Director of Technology Transfer for the Utilization Center for Agricultural Products. He joined ISU in 1984 and was an original employee of the Meat Export Research Center.

Johnson was born in Illinois and received a BA in economics from the University of Wisconsin in Madison, WI. He then attended Stanford University in Palo Alto, CA where he received a MA in Latin American Studies. After serving as an officer in the US Army for three years, he continued his education earning an MBA in marketing from the University of Missouri.

Johnson's business career began in 1975 when he entered the meat industry with Townsend Engineering, a meat equipment firm, as their Latin American representative. Following a five year stint there, he joined the US Meat Export Federation as their Latin American representative prior to joining ISU.

Consulting activities have included projects for several European firms, both as principal and as a subcontractor. They include Mars Pet Food, SARC and a long term and current relationship with GIRA who is the largest European based meat consulting firm. He just finished collaborating with GIRA on a meat differentiation/niche market study of the US. He has also has done work independently for the US Meat Export Federation, Monsanto, the National Pork Producers Assn, AMPC/Proliant and several small meat companies.

## New Product Development for Pork Niche Marketers

### Appendix 3: Formulas for Selected Pork Products

#### **HAM AND BACON - INJECTION CURING (Ham - 25% Pump)**

Ingredients for brine:

Salt 11.0%  
Sugar 6.6%  
Sodium tripolyphosphate 2.2%  
Sodium erythorbate 0.295% (99.8g for 100 Ibs. of brine)  
Sodium nitrite 0.08% (28.3 g for 100 Ibs. of brine)  
Water 80.2%

Procedure:

- 1) Make up brine by dissolving with phosphate first, then add remainder of ingredients.
- 2) Bone out hams completely. Remove as much fat and connective tissue from the seams and exterior as possible.
- 3) Pump to -25% of green weight.
- 4) Hams may be tumbled (or massaged) with a portion of brine for 8-24 hours. Use 10 min "on" and 50 min "off" for each hour tumbled. This will allow the final addition of brine to be exactly 25% if hams are pumped to slightly less.
- 5) Stuff into pre-stuck fibrous casings and neat process as appropriate.

Heat Processing:

Time	Program	Temperature	Hams Moisture	MI	Core temperature
30 min	Reddening	40°C	--	--	--
30 min	Drying	40°C	--	--	--
90 min	Hot smoke 1	50°C	40°C	90	--
--	Hot air finish	75°C	65°C	90	66°C

## New Product Development for Pork Niche Marketers

### Appendix 3: Formulas for Selected Pork Products

#### ROUND BACON

An interesting product developed and promoted at Iowa State University is bacon in a round form such that a slice is circular and fits into sandwiches much better than a strip. This basically requires pumping lean bellies, followed by tumbling, stuffing into a casing where two bellies are overlapped and rolled together lengthwise. Heat processing then achieves binding between the bellies to create intact slices of round bacon.

Brine (12% pump):

Salt 12.75%  
 Sugar 4.75%  
 Phosphate (Bac-N-Fos) 4.25%  
 Smoke flavoring 1.06%  
 (Red Arrow P-50)  
 Sodium Nitrate 0.104%  
 Sodium Erythorbate 0.458%  
 Water 77.13%

Procedure:

- 1) Prepare brine dissolving phosphate first. Add remaining ingredients when phosphate is dissolved.
- 1) Use lean bellies with exposed lean surfaces and pump to 12% over green weight.
- 2) Vacuum tumble for 20 hours using 10 min of each hour "on" and 50 min "off."
- 4) Roll two bellies (lean sides together), lengthwise with about 50% overlap, together and stuff into # 10 prestuck fibrous casing. Pull casing tight and clip as tightly as possible.

Heat Processing:					
Time	Program	Temperature	Moisture	MI	Core temperature
3 hours	Reddening	40°C	30°C	85	--
1 1/2 hours	Hot Smoke	50°C	49°C	90	--
2 1/2 hours	Reddening	50°C	49°C	90	--
--	Hot air finish	75°C	65°C	85	60°C



## New Product Development for Pork Niche Marketers

### Appendix 3: Formulas for Selected Pork Products

#### CANADIAN-STYLE BACON

Procedure:

- 1) Select high-quality pork loins in the 12-14 lb. class and remove all bones and surface fat.
- 2) Pump the loins to 20-25% of green weight with the same brine as used for hams. The loins should be 2-3°C before injecting.
- 3) Remove loins, wash surface and stuff into cellulose casings. Stuffing must be very tight to encourage uniformity. Stuffed casing can then be hung on smoke trees for processing.
- 4) Smokehouse processing is as follows:

Time	Program	Temperature	Moisture	MI	Core temperature
15 min	Reddening	54°C	0	0	--
1 hr	Reddening	54°C	40°C	80	--
1 hr	Hot smoke	66°C	50°C	80	--
--	Hot air finish	71°C	65°C	80	62°C
	Cold shower				43°C

- 5) Allow casings to dry after showering and transfer to cooler for chilling.
- 6) Keep refrigerated to prevent spoilage.

#### TURKEY HAM

Procedure:

- 1) Obtain the following meat ingredients:  
80 lbs. boneless turkey thighs (well trimmed of fat and connective tissue) 20 lbs. mechanically deboned turkey (optional).
- 2) Place turkey thighs in the following curing brine for 24 hours (15% target pickup of brine):

Salt	6.7%
Sugar	3.3%
Sodium tripoly-phosphate	3.0%
Sodium nitrite	0.08%
Sodium erythorbate	0.37%
Water	86.5%

## New Product Development for Pork Niche Marketers

### Appendix 3: Formulas for Selected Pork Products

- 3) Remove thighs from brine and drain for 10 minutes. Place in mixer with one pound (per 100 pounds of meat) of salt, and mix until sticky. Add mechanically deboned meat and other seasoning if desired. Continue mixing for 2-3 minutes. Add brine if necessary to achieve 15% over green weight of all meat ingredients. Alternatively, the thigh meat may be tumbled with 150% brine for 2-4 hours or until the brine is absorbed and the product is tacky.
- 4) Stuff into large diameter fibrous casings and hang on smoketrees.

### FRESH PORK SAUSAGE

#### Procedure:

- 1) Obtain fresh, high-quality pork trim as soon after slaughter as possible. Use a ratio of:

50%	50 trim (50% fat)
50%	85 trim (15% fat)

Chill trim to 0-1 °C and grind through a 3/16-inch plate. Analyze for fat and formulate at about 30%. An interesting variation in this product is to make the product with pre-rigor meat. Hot-boned pork can be coarse ground (kidney plate), chilled with *CO<sub>2</sub>* to 30°F and processed. Storage color stability under refrigeration will be noticeably better with the pre-rigor sausage.

- 2) Mix trim with salt and spices as follows: (an antioxidant may also be included)

Salt	1 lb. 12 oz (0.6 kg) (1.75%)	} For 100 lbs. of meat
Ice	3 lb. (1.4 kg) (3.0%)	
White pepper	3 oz (84 grams)	
Nutmeg	3/4 oz (21 grams)	
Ginger	1 oz (28 grams)	
Thyme	1 oz (28 grams)	
Sage	2 oz (56 grams)	

Use mechanical mixer and be careful not to overmix. Two to three minutes should be sufficient.

- 3) Regrind mixture through 1/8-inch plate.
- 4) Stuff into small diameter 17-19 mm collagen casings taking care to keep temperature at 0-1°C. Product may also be formed into patties or placed into chubs.
- 5) Regardless of stuffing method, immediately package and transfer to chill cooler below 0°C. This product is very perishable so cleanliness and temperature control are critical during manufacturing.
- 6) Product may be frozen for longer storage.

# New Product Development for Pork Niche Marketers

## Appendix 3: Formulas for Selected Pork Products

### FRESH BRATWURST (ISU)

Procedure:

- 1) Obtain fresh, high-quality trim as follows:

60% 80 pork trim (20% fat)  
40% 50 pork trim (50% fat).

Salt	2 lbs. (0.9 kg)	
Sugar	0.25 lbs. (112 grams)	
Black pepper	5 oz (141.8 grams)	
Sage	3.5 oz (99.2 grams)	
Ginger	2.5 oz (70.1 grams)	
White pepper	2.0 oz (56.7 grams)	} For 100 lbs. of meat
Coriander	0.7 oz (19.8 grams)	
Nutmeg	0.7 oz (19.8 grams)	
Ground celery seed	0.6 oz (17.0 grams)	
Caraway	0.6 oz (17.0 grams)	
Cardamon	0.6 oz (17.0 grams)	
Savory	0.25 oz (7.1 grams)	

- 2) Grind meat through 3/8-inch plate.
- 3) Add trim to mixer and mix briefly but completely with spices.
- 4) Transfer to silent cutter and chop to a coarse texture (rice kernel size particles) or regrind using 1/8-inch plate.
- 5) Stuff into 28-30 mm collagen casings and link.
- 6) Transfer immediately to cooler to keep temperature at 1-2°C or below.
- 7) Package and freeze for longer storage.

## New Product Development for Pork Niche Marketers

### Appendix 3: Formulas for Selected Pork Products

#### FRESH ITALIAN-STYLE SAUSAGE

Ingredients needed:

Meat block should consist of pork trim with at least 25% fat but no more than 35% fat. This is appropriate for the antioxidants included.

50 Ibs. 80/20 Pork trimmings

50 Ibs. 60/40 Pork trimmings

Salt	1.2 Ibs. (0.55 kg)	
Whole Fennel Seed	5 oz (136.2 grams)	
Ground Fennel Seed	5 oz (136.2 grams)	
Black Pepper	8 oz (227 grams)	
MonoSodium Glutamate	4 oz(118 grams)	
Sugar	3.2 oz (90.8 grams)	} For 100 Ibs. of meat
Spanish Paprika	2.9 oz (81.7 grams)	
Garlic Powder	0.6 oz (18.2 grams)	
Ground Parslev	0.3 oz(9.1 grams)	
BHA	0.032 oz (0.91 grams)	
Propyl Gallate	0.01 oz (0.32 grams)	
Citric Acid	0.008 oz (0.23 grams)	

Procedures:

- 1) Prebreak pork trimmings through a 1 1/2" grinder plate.
- 2) Mix in salt and then other spices.
- 3) Regrind pork trimmings through a 1/8" bone collection plate.
- 4) Stuff into 32mm fresh sausage casing. This may be in a 32mm natural (hog intestine) or 32mm edible collagen casing.

# New Product Development for Pork Niche Marketers

## Appendix 3: Formulas for Selected Pork Products

### RING BOLOGNA

Obtain high-quality meat in the following ratio:

60% 90 beef trim  
40% 50 pork trim

Seasoning:

Ice	20 lbs. (7.1 kg)	
Salt	2.5 lbs. (1.14 kg)	
Sugar	1.0 lbs. (0.45 kg)	
White pepper	4 oz (112 grams)	
Nutmeg	2 oz (56 grams)	
Coriander	2 oz (56 grams)	
Mustard seed	2 oz (56 grams)	} For 100 lbs. of meat
Garlic powder	½ oz (14 grams)	
Sodium nitrite	¼ oz (7 grams)	
Sodium erythorbate	7/8 oz (24.5 grams)	

An alternative spice mixture might be:

Ice	20 lbs. (9.1kg)	
Salt	2.5 lbs. (1.14 kg)	
Non-fat dry- milk	5 lbs. (2.28 kg)	
Fresh onions	2 lbs. (0.91 kg)	
White pepper	7 oz (196 grams)	
Ground mustard	2 oz (56 grams)	
Ground caraway seed	2 oz (56 grams)	} For 100 lbs. of meat
Fresh garlic	2 oz (56 grams)	
<i>or</i> garlic powder	1/2 oz (14 grams)	

Procedure:

- 1) Grind meats through 3/8-inch plate. Utilize the Anyl-Ray or other means of fat analysis to find the fat content of the ingredients. Combine appropriately to give 25% fat in the final product.
- 2) Mix ingredients with meat, then regrind through 1/8-inch plate. The silent cutter may also be used to chop the mixture to the desired coarse texture.
- 3) Stuff into beef round (40-42 mm) and tie into circle. Hang on smoketree.
- 4) Smokehouse processing as follows:

## New Product Development for Pork Niche Marketers

### Appendix 3: Formulas for Selected Pork Products

Time	Program	Temperature	Moisture	MI	Core temperature
30min	Reddening	54°C	40°C	--	--
45min	Hot smoke 1	70°C	60°C	85	--
	Hot air finish	80°C	70°C	85	71°C
10min	Shower (cold)	--	--	--	--

- 5) Remove to chill cooler at 0-1 °C.
- 6) Vacuum package.

### COTTO SALAMI

Meat ingredients:

60% 90 beef  
40% 50 pork

Seasoning:

Ice water	15 lbs. (6.8 kg)	
Dried skim milk	3.5 lbs. (1.59 kg)	
Salt	3.0 lbs. (1.36 kg)	
Garlic powder	1-1/2 oz(42.5 grams)	} For 100 lbs. of meat
Ground black pepper	4 oz (113.4 grams)	

Procedure:

- 1) Grind meat materials separately through 1/8-inch plate.
- 2) Mix lean meat and about 1/2 of the water with all ingredients except the cheese.
- 3) Add the fat meat and remaining water: mix until tacky.
- 4) Regrind through 1/8-inch plate.
- 5) Transfer to the mixer, add the cheese and mix briefly.
- 6) Stuff into large diameter (105-155 mm) fibrous casings.
- 7) Heat process according to the following schedule:

## New Product Development for Pork Niche Marketers

### Appendix 3: Formulas for Selected Pork Products

Time	Program	Smokehouse Process		MI	Core temperature
		Temperature	Moisture		
1 hr 30 min	Reddening	71°C	49°C	85	--
1 hr 30 min	Hot smoke 1	79°C	60°C	85	--
3hrs	Hot air finish	87°C	74°C	85	71°C
3 min	Shower (cold)	--	--	--	--

8) Chill, slice and package.

### POLISH SAUSAGE

Obtain high-quality meat trimmings as follows:

30% 90 beef trim  
 30% 50 pork trim  
 40% 80 pork trim  
 or 100% pork trim formulated to 25% fat may be used.

Seasoning:

Ice or water	20 lbs. (9.1 kg)	} For 100 lbs. of meat
Salt	2.2 lbs. (1.0 kg)	
Sugar	0.5 lbs. (227 grams)	
Ground black pepper	3 oz (84 grams)	
Garlic powder	1.8 oz (52 grams)	
Marjoram	1.2 oz (36 grams)	
Allspice	0.4 oz (11 grams)	
Sodium nitrite	0.25 oz (7 grams)	
Sodium ascorbate	0.875 oz (24.5 grams)	

Procedure:

- 1) Grind all meat individually through 1/8-inch plate.
- 2) Use a vacuum mixer to mix meat with the spices and curing ingredients. Mix for about three minutes under vacuum. If a silent cutter is used, chop all meat with ice and seasoning for about 3 minutes or until a desired coarse texture (rice crispie kernel size) is achieved.
- 3) Stuff into 32-35 mm hog casings or collagen casings and link at about 5 inches.
- 4) Place links on smoketrees for smokehouse processing.
- 5) Smokehouse processing is as follows:

## New Product Development for Pork Niche Marketers

### Appendix 3: Formulas for Selected Pork Products

Time	Program	Temperature	Moisture	MI	Core temperature
30min	Drying	43°C	0	—	—
30min	Hot smoke 1	55°C	35°C	70	—
15 min	Hot smoke 1	65°C	44°C	70	—
—	Hot air finish	71°C	49°C	70	71°C (check manually)
2 min	Cook, scald	—	—	—	—
3 min	Shower (cold)	—	—	—	49°C

- 6) Chill in 0-1 °C cooler, allow to dry and package. Keep under refrigeration.

#### **HOT ITALIAN-STYLE SAUSAGE (Sausage for Pizza)**

Meat ingredients:

65 pork trimmings (35% fat)

Seasoning:

Salt	2.0 Ibs. (0.91 kg)	} For 100 Ibs. of meat
Red pepper, crushed	6.5 oz (180 grams)	
Black pepper	3.5 oz(92 grams)	
Garlic powder	1.8 oz(46 grams)	
Fennel seed	10.0 oz (280 grams)	

Procedure:

- 1) Grind pork trim through 1/2-inch plate.
- 2) Mix ground meat with all other ingredients.
- 3) Regrind through 1/8-inch or 3/16-inch plate.
- 4) May be made into patties, stuffed and linked or used in bulk. Storage should be in frozen form unless the product is to be used within a few days.



## New Product Development for Pork Niche Marketers

### Appendix 3: Formulas for Selected Pork Products

#### SLIM GEORGE'S

Meat ingredients:

50% 50 pork trim  
50% 90 beef trim

Seasoning:

Ice	3 lbs.(1.36kg)	
Salt	2.8 lbs. (1.27 kg)	
Sugar	1.0 lb. (0.45 kg)	
<i>or</i> corn syrup solids	2.0 lbs. (0.91 kg)	
Ground red pepper	4.25 oz( 120 grams)	
Anise seed	3 oz (84 grams)	} For 100 lbs. of meat
Garlic powder	1 oz (28 grams)	
Sodium ascorbate	7/8 oz (24.5 grams)	
Sodium nitrite	1/4 oz(7 grams)	
Liquid smoke*	200ml	

(\*Liquid smoke may be omitted if natural smoke is used.)

Procedure:

- 1) Chop beef with ice, salt and dissolved cure ingredients (nitrite and ascorbate).
- 2) Add pork trim, remaining spices and liquid smoke.
- 3) Chop to desired texture, stuff in 19-21 mm diameter collagen casings and form 12-13 inch links.
- 4) Heat process as follows:

Time	Program	Temperature	Moisture	MI	Core temperature
30 min	Reddening	60°C	43°C	85	--
30 min	Reddening	82°C	63°C	85	--
--	Hot air finish	82°C	72°C	85	71°C (check manually)

# New Product Development for Pork Niche Marketers

## Appendix 3: Processed Pork Product Recipes

### SMOKED PORK LINKS

Meat ingredients:

Pork trim - formulate to desired fat content in range of 25-35%.

Seasoning:

Salt	2 lbs. (0.91 kg)	
Sugar	1 lb. (0.45 kg)	
White pepper	4 oz (112 grams)	
Sage	1 oz (28 grams)	} For 100 lbs. of meat
Ginger	1 oz (28 grams)	
Mace	1.5 oz (42 grams)	
Onion powder	1 oz (28 grams)	
Erythorbate	7/8 oz (24.5 grams)	
Nitrite	1/4 oz (7 grams)	

Procedure:

- 1) Grind through 3/16 or 1/8-inch plate depending on choice.
- 2) Mix with spices and cure, stuff into collagen casings (24-26 mm) and link at 5-6 per pound.
- 3) Smoke and cook according to the following:

Time	Program	Temperature	Moisture	MI	Core temperature
15 min	Reddening	54°C	--	--	--
15 min	Drying	60°C	--	--	--
45 min	Hot smoke 1	66°C	44°C	85	--
--	Hot air finish	81°C	59°C	85	(insert core probe after smoke) 71°C (check internal temp.)