

**A Case Study Developed  
for the  
Agricultural Innovation  
and Commercialization Center**

# **Corn Masa Flour Enterprises**

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## *Corn Masa Flour Enterprises*

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This business plan for *Corn Masa Flour Enterprises* is one of the significant results of the four prototype projects addressed through the AICC. And as part of the process, each prototype used the newly developed *INVenture* to analyze their business idea. The purpose of developing the business plans is to provide *INVenture* users as well as facilitators with helpful real-life business plan examples to refer to throughout the business planning process.

Because each of the new ventures are actual business situations that are unfolding in real time, some of the business plan examples that we have placed to date into *INVenture* are more fully developed than others. This is a natural consequence of the development of each new venture.

Access to relevant examples should provide support to the users and facilitators as they undertake the business planning process.

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# Executive Summary

A group of southern Indiana corn producers are looking to increase their farm income. In an effort to achieve this goal, the farmers have identified the corn masa flour industry as a potential source of profitability. The farm group is eager to explore the possibility that forward integration in the corn masa flour industry will afford them the sought after returns they seek.

To gain market share in the corn masa flour industry, the Corn Masa Flour Enterprises plans to differentiate their product from those in the current marketplace by offering a mix of service qualities which are currently underserved. A study was conducted to determine whether a corn masa flour firm, offering a superior mix of service qualities, would afford the firm a price premium. A further marketing study was conducted to identify and examine market actors, conditions that would influence the entry decision, and venture profitability.

The first step is to begin sourcing equity from each investor for the down payment, and secure financing with a lending institution. The next step is to seek out individuals to fill crucial labor positions including the marketing representative, and a general manager for the plant. Once the marketing representative is hired, that person will immediately begin the process of seeking out new customers and working with the customers who have already committed to purchasing. After those positions are filled, then construction operations can begin and other labor positions can be filled. It is expected that it will take approximately 1 year for the construction to be completed and the facility to be in operable form.

An important factor in the success of this venture is the ability to secure demand and maintain a price premium for the corn masa flour. It will be difficult for this venture to be profitable if the service to customers and quality standards are not met which are critical in achieving the necessary demand levels and price premium. The firm must ensure that personnel hired for marketing and production have strong ties and experience in the corn masa flour industry, and that quality control within the facility is kept to high-level standards.

The initial expected demand in year 1 is 36 million pounds, which is also equal to initial capacity in year 1. After the first year, demand is projected to increase by 10% per year. The average price received for corn masa flour will be \$0.22/pound for white masa flour, and \$0.21/pound for yellow masa flour.

After review of the feasibility studies of the proposed corn masa flour venture, it was determined that the facility can provide a positive rate of return and can create significant wealth to the investors throughout the life of the investment. Most importantly, the studies show that the projected future demand base for corn masa flour has a strong foundation and will grow into the future. Based on this assessment, the decision is to proceed with the investment.

The first step is to begin sourcing equity from each investor for the down payment, and secure financing with a lending institution. The next step is to seek out individuals to fill crucial labor positions including the marketing representative, and a general manager for the plant. Once the marketing representative is hired, that person will immediately begin the process of seeking out new customers and working with the customers who have already committed to purchasing. After those positions are filled, then construction operations can begin and other labor positions can be filled. It is expected that it will take approximately one year for the construction to be completed and the facility to be in operable form.

# Long Term Goals

Corn Masa Flour Enterprises would like to accomplish the following goals:

1. Capture wider profit margins of a value added corn product versus lower profit margins of raw commodity corn. Regardless of whether or not the business is organized under a cooperative format where producers have the ability to be shareholders, or under a corporate structure (i.e. limited liability corporation), the goal of the value added venture which utilizes corn as the primary input is to provide alternative markets for producers of corn and greater market access for producers.
2. Increase net income of investors and provide a long term return on investment sufficiently larger than what is expected for alternative investments.
3. Establish a strong customer base through emphasis on customer service and relationship building. This will provide the opportunity to secure long term demand for corn masa flour production.
4. Provide a reputable product that will successfully compete in the corn masa flour industry and satisfy customer needs and expectations.

# Business Overview

Customers who are expected to purchase the product are relatively small scale end-users of dry corn masa flour. These customers include tortilla producers, tortilla chip and corn chip producers along with restaurant owners. These buyers are those who wish to gain increased serviceability and quality from their masa flour supplier. While the masa flour market is a very large market dominated by a few large firms (both on the input and output side), many small to very small users could potentially be buyers. Often times these small end users have specialty needs and desire more specialized products and services than are obtainable from larger suppliers. These buyers may include small scale tortilla or corn chip producers, or restaurants who serve Hispanic cuisine.

After the preliminary assessment of potential capital requirements and markets, Corn Masa Flour Enterprises has decided to pursue the corn masa flour venture. Based on the assessment of each of the possible value-added corn ventures, the corn masa flour venture fit best with the given strengths of the investing group, while minimizing potential negatives. The viability and success of the venture will depend on many factors including such things as the cost of the project, customer responsiveness to the new product and service, and the price that will be charged.

To gain a competitive edge, the group wishes to provide corn masa flour with superior service compared to what is available in the current marketplace, as it is believed that this is an underserved niche of the market that will be responsive to their product offering. The group will attempt to gain both market share and a price premium over current market prices. Six different types of corn masa flour will be produced including (fine/yellow, fine/white, medium/yellow, medium/white, coarse/yellow, coarse/white). Fine, medium, and coarse refer to the particle size of the masa flour and each is used in a different type of finished product.

One of the major concerns of producing corn masa flour is the wastewater. Agreements have been reached with the local wastewater municipality to construct a lagoon outside the plant, treat the wastewater in the lagoon, and then release it into the public sewer system. Processes have begun to obtain all building and zoning permits to

begin construction when that time arises.

The primary equipment for use in the masa flour production process is: corn storage bins, temporary masa flour holding bins (before packaging), vats for cooking the corn in a limewater system, conveyor systems, and grinders. Two separate buildings will be built, one for the manufacturing process and one for warehousing the product (a section of this building will also contain the offices and lab). An outside contracting firm will complete all construction and setup of equipment and the cost is included in the total investment cost. The plant will initially be set up with only one production line, but will be built in such a way that a second line may be added relatively easily in the future.

Many tortilla and tortilla chip producers (especially small scale producers) desire serviceability from the producers of the masa flour so that the flour is more custom tailored to their needs. Providing a high quality, uniformly consistent product will allow end users to produce high quality tortillas and other products which are uniform in consistency with every production batch. As well, those end users of masa dough rather than flour who are currently looking to diminish in-house cooking techniques and begin purchasing instant dry masa flour because of capital expenditures, rising utility costs, and tightening environmental regulations also may look specifically toward this firm's product to proceed with their dry masa flour needs.

Corn Masa Flour Enterprises will use the following objectives to accomplish the stated goals:

1. The investing group will pool their collective strengths in a manner that will achieve the optimal outcome and put aside individual interests that may conflict with the greater good that is to be achieved collectively.
2. Provide a total corn masa flour product for the customers that incorporates a superior level of service and quality. This can be achieved by constant sampling and testing of the product from the production line, and constant contact with the customers to assess their changing needs.

3. Hire individuals for key positions who have sufficient knowledge and experience in the corn masa flour industry. These people will help to establish relationships in the corn masa flour industry, and will further help to achieve the goals of the venture and build with its customers a partnership to achieve their complementary goals.

Corn Masa Flour Enterprises can use the following strengths to accomplish its vision and goals.

1. The group of investors has strong financing capabilities and borrowing ability.
2. Strong agricultural background. Education in agricultural economics and 20 years of corn production experience.
3. Many investors have management skills from off-farm jobs both in agribusiness and non-agribusiness industries. These skills include personnel management skills, project management skills, and some financial management skills.
4. Corn Masa Flour Enterprises has a close partnership with an industry insider, who can provide detailed and valuable information about the corn masa flour market and customers.

Corn Masa Flour Enterprises needs to be aware of the following weaknesses that may inhibit the venture's success.

1. Lack of specific knowledge regarding the details necessary for conducting the feasibility analysis of value-added ventures. Outside sources will need to be utilized to conduct the feasibility analysis, and these sources need to be very familiar with the industry being studied.
2. Strong experience in the production and marketing of commodity corn, but not much experience in marketing value added corn products.

3. Potential conflicts could arise within the investor group because of the possibility of conflict of interest.

## Product Offering

The company will operate under the name Corn Masa Flour Enterprises, LLC. The corn masa flour will be sold with the brand name MIMITZ. The name will be trademarked with the exclusive rights owned by the investing group. The cost of obtaining legal protection for the trademark of the name MIMITZ will be approximately \$10,000 which will be included in the total project cost.

Quality and consistency of corn masa flour has been identified as a problem among end-users of the product. The goal of a small scale production facility, such as the type of facility being considered for this venture, is to provide a higher quality, more consistent product to end users, and provide better service where necessary, as compared to larger competitors. To accomplish the goal of a consistently high quality end product, high quality trait specific corn has to be used and quality control has to be monitored closely in the production process. Both white corn and yellow corn can be used in the production of masa flour, and traditionally, 80% of the corn used in traditional Mexican foods has been white corn. With recent GMO and Starlink scares, the amount of white or yellow corn used is determined more and more by the end user. However, white corn only accounts for about 1% of the total U.S. corn crop annually, so depending on the region, white corn availability, price premium of white corn over yellow corn, and desired color and consistency of product by the end-user, these factors can all become important components in determining how much of each type of corn is needed, and the total cost of this corn.

Food grade corn used in masa flour production has to have specific traits such as harvest moisture level below 22 percent, stress crack levels below 20 percent, non-GMO (as desired by end users because of Starlink scares), identity preserved, free from aflatoxin and fumonisin, and less than or equal to 3 percent overall damaged kernels, along with complete cleaning of all storage facilities and augers/conveyors. Cracked, broken, and otherwise damaged corn can be quite high in fumonisin (hence the requirement of stress crack levels below 20 percent and damaged kernels less than 3 percent). Often times, the

corn is screened to remove these kernels from normal kernels. Accurate grading of the corn coming into the plant is of utmost importance to be able to produce a high quality end product. Because of the screening process, for every 100 pounds of corn ground, approximately 94.5 pounds of finished masa flour are produced.

The modern industrial nixtamalization process is an adaptation of the traditional process used in rural regions in countries such as Mexico and some Central American countries. The nixtamalization process begins with whole kernel corn (with the appropriate traits discussed previously) being cooked in boiling water and calcium hydroxide (a food-grade form of lime) for up to 50 minutes. The calcium hydroxide is a food ingredient produced from limestone and water. The small amount of lime that penetrates the corn kernel contributes some calcium to the nutritional profile of the final product. Approximately .007 pounds of lime are used per pound of masa produced, or approximately 1% lime based on corn weight. The mixture is then allowed to soak for 60-120 minutes, after which it is washed to remove excess lime and the pericarp. The mixture is then ground to form wet masa dough. At this point, the wet masa dough can be either cut to its desired form and then baked or fried, or dried and reground to form masa flour. Wastewater from the process is high in biochemical oxygen demand (BOD) and total dissolved solids (TDS). Not treating these wastes appropriately can lead to high carbon content of the wastewater and subsequent mortality of fish in public water sources. There are tight municipal regulations on releasing the wastewater, so careful attention has to be given to the treatment process. An aerobic treatment process can be used by releasing the wastewater into a lagoon outside the plant, treating for BOD and TDS, and then releasing the treated water into the public sewer system. There are costs associated with treating each of these wastes as well as a cost for releasing the wastewater into the public sewer system.

Corn Masa Flour Enterprises, LLC has carefully studied the processing requirements and environmental regulations for producing corn masa flour. A site has been located which will offer adequate capacity for the current proposed production facility and possible expansion in the future, including wastewater treatment facilities. The management team is currently in the process of researching vendors who will supply equipment for production and grain storage facilities. Discussions with contractors

are continuing for site preparation, including water, electric and natural gas, along with contractors who will construct the processing and warehousing buildings.

# Industry Profile

## Industry Analysis

Corn masa flour is the primary ingredient used in the production of finished food products such as tortillas and corn chips. The corn masa flour is in the middle of the supply chain (i.e. raw commodity corn is the beginning of the supply chain, and tortillas/corn chips are at the end of the supply chain). Several different types of users of corn masa flour exist, including wholesale tortilla/corn chip producers and restaurants which service Hispanic cuisine. The potential target customers for this firm are relatively smaller scale producers of tortillas/corn chips along with several types of restaurants. The corn masa flour industry is a highly vertically integrated, concentrated industry dominated by one large firm. The parent company is Gruma Corporation, and the corn masa flour producer within this parent company is Azteca Milling. Compared to Azteca, all other masa flour producers are considerably smaller.

While the corn masa flour will be produced in southern Indiana, customers all over the United States will be targeted. Therefore, it is best to consider the overall nature of the economy and trends in consumer purchasing behavior (small scale and large scale consumers). The food industry is increasingly becoming customer driven. Companies that can adapt and meet the increasingly diverse customer demands have the potential to gain market share and increase profitability. These profits will result from either higher prices from customers, or more likely at the expense of those firms or farmers lower in the value chain. Firms most able to identify customer trends and move to serve them will stand the best chance of success and survival.

There are several demographic trends that will continue to shape the overall food market and resulting demand for corn masa flour. The largest of these trends, identified for their potential impact on corn masa flour demand, are characterized by a population being increasingly aged, increasingly affluent, more mobile, more time conscientious, and having greater access to product information. Undoubtedly these trends will continue to work in concert to change the dynamics of the food industry. The interaction of trends can best be viewed by the fact that increasingly, the value of food is less realized by the raw food, but

rather in the value added activities that occur post-production.

Following is an overview of the corn masa flour industry as viewed through a Porter's Five Forces analysis.

1) Bargaining Power of Suppliers The bargaining power of suppliers can many times have an effect of the probability of success and profitability of a venture. Some cases where suppliers may have extreme bargaining power and could potentially negatively affect the profitability of the venture are: inputs are only available from a small number of suppliers, input purchases do not represent a significant portion of the supplier's business, suppliers can sell directly to customers, etc. The primary input that has to be sourced for the production of corn masa flour is raw commodity corn which will be supplied by local corn producers around the production facility. The corn will be sourced from a number of suppliers. For the most part, the bargaining power of the corn suppliers is low because white and yellow corn can be easily attained from other producers. Offering a substantial premium for white and yellow food grade corn will entice farmers to deliver the corn to the facility. Potentially, for some farmers, contracted production to Corn Masa Flour Enterprises, LLC could represent a significant portion of their production (if not total production, then a significant portion, if not all of their specialty grain production). It is not really feasible for corn producers to sell directly to customers because the corn masa flour is a value-added product and these customers don't have the facilities to convert the corn to corn masa flour. The only real concern with suppliers of corn is the possibility of a nearby elevator or corn processing plant which could potentially drive up the premium for corn and entice producers to deliver there. However, Corn Masa Flour Enterprises, LLC has projected that offering a \$0.45/bushel premium for white corn and \$0.25/bushel for yellow corn will be an adequate premium to secure sufficient quantities of commodity corn to meet demand. Other inputs for production include lime, and utilities such as water/wastewater, electricity and natural gas. Lime is a commodity product and is easily attainable from anywhere in Indiana, so no bargaining power exists for suppliers of this product. Since there is only one potential supplier for each of the utilities, the firm could potentially be at risk for price inflation. However, the production plant will represent a relatively significant portion of usage which should negate this possible price risk due to bargaining power of these suppliers.

2) Substitute Products In general, substitute products are those which can perform similar or the same functions as the product in question. A substitute product which can be used in place corn masa flour is wheat. Wheat flour tortillas can be used as substitutes for corn flour tortillas, but historically the largest percentage of tortillas have been made with corn masa flour, due to taste and texture preferences for each. Most traditional formulations of tortillas and corn chips still require corn masa flour over wheat flour. More generally, when only considering the corn masa flour market, corn masa flour from different producers can be substituted relatively easily in terms of the function that each product performs. However, recently many customers have had problems with quality and consistency of the flour and find other suppliers not willing to take responsibility for the problems. This is the area where Corn Masa Flour Enterprises will combat the problem of substitute products by ensuring a high level of service and a uniformly consistent product. This will be the primary area of focus for differentiating a product, which in terms of function, can be easily substituted. Not only will Corn Masa Flour Enterprises be selling a product, but will also bundle a service with the product.

3) Bargaining Power of Buyers Some of the threats to firms that aid in strengthening bargaining power of buyers include: the buyer purchases a large portion of an industry's total output, the product accounts for a significant portion of the buyer's costs, or switching costs are low to switch to another product. The masa flour market and tortilla/tortilla chip markets are highly concentrated markets. There are only a few large suppliers of corn masa flour (i.e. Azteca) and a few large buyers of corn masa flour (i.e. Mission Foods, Frito Lay, Taco Bell). However, there are many other significantly smaller buyers. These are buyers this Corn Masa Flour Enterprises will focus on. Therefore these buyers will not have power in the sense that they do not purchase a large portion of the industry's total output. Buyer's would not have bargaining power in terms of switching costs because switching costs are actually quite high in the corn masa flour industry, partially due the high market concentration of the industry. Also, most individual buyers of corn masa flour have different formulations for their end product, as the production of tortilla production is in many ways an art over a science. Buyers tailor their production methods and facilities and to the product they are currently buying and may find it expensive to switch to another firms product. While the high switching costs may have

decrease the bargaining power of buyers, it could also potentially limit the ease of entry of Corn Masa Flour Enterprises, LLC into the corn masa flour market. Offering a differentiated product could potentially convince buyers to switch though and continually offering a differentiated product helps keep the buyers because then it becomes more expensive for them to switch from this product back to another competitor.

4) Threat of new entrants New firms entering into a market can potentially be threatened by barriers to entry developed by existing competitors. This is one of the major challenges for Corn Masa Flour Enterprises, LLC due to possible retaliation from Azteca, the largest supplier of corn masa flour. Azteca could potentially retaliate by driving the price of masa flour down, which could also potentially convince even small suppliers to lower the prices. Corn Masa Flour Enterprises will combat this retaliation by offering a superior mix of quality and service with the flour and use these attributes as the focal point of receiving a higher price. A marketing representative who has many industry contacts with buyers will also be used as the person can secure demand within the industry by searching out niches in the industry and customers who are willing to pay the premium for more service and quality. Due to the high concentration of the masa flour industry, information is scarce and publicly available market data is difficult to obtain. With the insider information from the marketing representative, demand can be secured initially from this individual's contacts and new customers can be sought out after the product has been introduced to the market. As well, a large supplier such as Azteca has already developed economies of scale and could easily expand production (most plants aren't running at full capacity) which could also potentially drive down the price. However, many customers value quality over quantity, so traditional supply and demand theory may not hold in smaller niche markets within the corn masa flour industry. There will be technical inefficiencies within the production process in the startup year, so production will be low. The ability to learn to overcome these inefficiencies will prove vital to the success of the venture.

5) Competing firms or direct rivals Many times, competition among firms in an industry can drive prices down with price wars. Some of the factors which can cause intense competition and rivalry among competing firms include: an industry is dominated by a few large firms who desire to become the industry leader, there high fixed costs of

production which pressures firms to produce close to full production which could saturate the market, perishable products that need to be sold quickly, or there are high costs for exiting the business. There are only a few large firms who dominate the industry, so price wars are possible. As well many a large firm such as Azteca is high vertically integrated (i.e. owns both the masa flour production facility and tortilla production facility) so the exit cost would be very high because they would then lose their major supplier of masa flour for their tortilla production facilities. Many times product differentiation can actually increase rivalry because price competition is decreased, (a highly concentrated industry can still realize price impacts because of the power of the large firms), but placing itself in a smaller niche market (utilizing quality and service attributes) Corn Masa Flour Enterprises, LLC can utilize the differentiation to its advantage by staying out of the mainstream industry price wars. This is also helped by the fact that Corn Masa Flour Enterprises will target relatively smaller buyers. With several large established companies dominating the market, they realize economies of scale resulting in fixed costs being a lower percentage of fixed costs and providing less pressure to produce at full capacity. Even the Corn Masa Flour Enterprises will be a new company, the projected fixed costs as a percentage of total costs are low and economies of scale will develop into the future.

## Competition

Azteca is the single largest producer of corn masa flour with an 80% market share. Approximately 89% of their production goes to Mission Foods (also owned by Gruma) and Frito Lay. The other 11% goes directly to the retail market. Several other masa flour producers also exist, who produce many types of corn masa flour. However, these producers are relatively small when compared to the industry leader, Azteca. Azteca and other masa flour producers offer a wide variety of types of masa flour. Masa flour can be several different particle sizes and colors depending on how the flour is ground and screened and the types and mixtures of corn used in the production process. Other masa flour producers also offer several different types of masa flour. This firm seeks to remain on a relatively small scale and produce only a few traditional types of flour to be able to maintain the highest quality product.

While the corn masa flour market is dominated by Azteca and only a few other firms, many times the quality or consistency of the product may be of question. This is where Corn Masa Flour Enterprises, LLC will provide a product which can't be matched by large scale masa flour suppliers in terms of quality and service. A large scale firm such as Azteca could potentially try to drive the price down once this firm's product enters the market, but it is believed that the price premium for this firm's product can still be achieved by actively participating in the production process of buyers and working with them to provide a product which most closely meets their needs. Ultimately, providing excellent service and a high quality product will afford Corn Masa Flour Enterprises, LLC the opportunity to capture the higher price and sustain the price premium.

# Market Potential and Competitor Analysis

Tortillas and tortilla chips are traditionally made with corn masa flour. The U.S. Department of Commerce Census of Manufacturing Report (1997) indicates that approximately 70% of tortilla production utilizes corn flour. The U.S. Department of Agriculture, Economic Research Service (ERS) estimates that the per capita consumption of corn flour and meal (the category which includes corn masa flour) was 6.3 pounds per year in 1970-74, but rose to 17.5 pounds by 2000. This represents an increase in consumption of 178%. It is estimated that the total corn flour market in 2002 was 6.1 billion pounds, and the total masa flour market represented 1.5 billion pounds.

The corn masa flour industry is highly concentrated. The concentration is evidenced by the low number of purchasing categories, and the low number of purchasing firms within each category. The demand for corn masa flour is dominated by producers of tortillas and tortilla chips. Frito-Lay has by far the largest share of the tortilla chip market. Grupo Maseca's Gruman Corp. and Grupo Bimbo have a large share of the tortilla market. The masa flour market is primarily dominated by Azteca Milling, which encompasses approximately 80% of the total masa flour market.

The corn masa flour market is a niche market in the overall corn flour industry in the sense that regular corn flour cannot be used as a substitute for corn masa flour due to physical characteristics of each product. Nixtamalized corn masa flour is cohesive when wetted, due to the presence of partially gelatinized amylase and amylopectin generated during the cooking stage of production of masa flour. Corn meal (or regular corn flour which is finely ground corn meal), when wetted, is sticky, but not cohesive, and cannot be sheeted to make tortillas. The largest corn masa flour producer is Gruma owned Azteca Milling, which encompasses approximately 80% of the corn masa flour market in the U.S. amounting to a total production of 1.2 billion pounds annually. This means that the total masa flour market is approximately 1.5 billion pounds. 40 percent of the production of Azteca is consumed by Gruma (same parent company that is producing the masa flour under the Azteca name) owned tortilla producer Mission Foods (480 million pounds). After sales to its other primary customers, which are Frito Lay and Taco Bell,

approximately 11 percent of the total production of Azteca goes directly to retail markets, which is approximately 132 million pounds of masa flour.

Aside from Mission Foods, Frito Lay, and Taco Bell, the remaining total retail masa flour market is 432 million pounds for other producers of masa flour to capture based on the initial estimate of the total market at 1.5 billion pounds. Removing the 132 million pounds of Azteca masa flour on the retail market leaves 300 million pounds of remaining market for corn masa flour. Table 1 shows the breakdown of the corn masa flour industry.

This remaining 300 million pound market is only the market for users of dry corn masa flour, so it does not include the potential market for tortilla and corn chip producers who still use conventional in-house methods of producing masa dough for use in their products. With the current market masa flour being dominated by a few large firms, for Corn Masa Flour Enterprises, LLC to gain market share, some, if not many end users of masa flour are going to have to switch from Azteca (the largest producer) or another leading national brand, to this firm's masa flour. This may be difficult based on the findings of a research project conducted by Tim Zimmer of Purdue University. In this project, based on a mailing of surveys to masa flour users, of 25 respondents, 56 percent of the surveyed purchasers of corn masa flour preferred the Azteca brand masa flour to non-brand name masa flour, while only 24 percent preferred a brand other than Azteca. There was no significant difference in the other 20 percent of respondents.

There may be other potential markets for corn masa flour with tortilla and corn chip producers who are currently doing in-house cooking of corn to form wet masa dough. In 1997, it was estimated that 70 percent of all corn and tortilla chips were produced with corn masa flour, rather than using traditional masa dough formulations (i.e. tortilla and corn chip producers cooking corn in-house to make masa dough rather than purchasing dry corn masa flour and rehydrating). More and more, tortilla and corn chip producers are switching to dry corn masa flour for reasons including: capital expenditures for in-house cooking, utility costs, tightening waste/environmental regulations, and most importantly, consistency of product.

For this firm to be able to reach demand levels that will provide a positive rate of return, a marketing strategy which incorporates high product quality, differentiation, serviceability, and consistency needs to be utilized. One of the primary reasons end users

use corn masa flour is that they are able to use the same formulation and equipment to produce the same product time and time again when they have access to consistent, quality masa flour.

The tortilla industry is the fastest growing sector of the U.S. baking industry as indicated by Information Resources Inc. and the Tortilla Industry Association. In 2000, tortilla sales were approximately \$4.4 billion, and rose to \$5.7 billion in 2002. The Tortilla Industry Association estimates that 2004 sales of tortillas will exceed \$6 billion, and maintain an annual growth rate of 12%. Figure 1 shows the tortilla market share by production method of producing corn masa flour.

A large portion of this growth is due to the vastly growing Hispanic population in the U.S. The Hispanic population is the fastest growing demographic segment in the United States, growing 11.4% between 1999 and 2000 (U.S. Census). In addition to the Hispanic population segment having higher levels of natural growth (births minus deaths), no other segment has nearly the expected level of immigration. By the year 2020, the U.S. Census Bureau estimates that the Hispanic segment of the population will increase from 12.6% to 18% of the total U.S. population (total population estimated to be between 331 and 362 million people). Figure 2 illustrates the breakdown of demographic segments of the U.S. population for 1980, 2000, and projected 2020 demographics.

Tortilla chips have nearly reached or surpassed the saturation level of product awareness. Future sales growth will not derive from novelty and product popularity, but from direct competition within the salty snack food category. Given this, its prior sales growth will probably not be a good indication of future sales growth, as the growth of sales should begin to slow. Future sales growth will likely be limited to increased sales at the expense of competitive goods within the salty snack food category, or more likely, with increased spending on the category as a whole. Tortilla chip consumption increased by 5% in 2001, while the salty snack food category as a whole increased by 5.1%. Figure 3 portrays 2001 sales of various salted snack food categories.

As expected, tortilla chips sales are increasing only at the approximate rate of overall product category growth. In 2001, tortilla chips maintained approximately 19% of the salty snack food category. The tortilla chip market is even more concentrated than the tortilla market. Frito-Lay Inc. dominates the tortilla chip industry by maintaining 81% of

the market share, despite challenges from other industry leaders. According to ACNielsen, tortilla chip consumption has increased steadily, averaging an annual growth rate of approximately 2.5%.

From the previous analysis, the growth of the Hispanic population and the growth of Hispanic based foods such as tortillas and tortilla chips, a stable demand base is provided for corn masa flour, and should continue to grow in the future. At this point, Corn Masa Flour Enterprises, LLC is assuming a total market availability of 36 million pounds in the first year and is expected to grow at a rate of 10 percent per year.

# Marketing Plan

The corn masa flour will be shipped in 50 pound bags using several local truck carriers, with the possibility of future bulk rail delivery. Corn Masa Flour Enterprises, LLC will be responsible for providing the shipping to customers. Typically, approximately 50,000 pounds (25 tons) of bagged flour can be carried on one truckload. The distribution area will cover nearly all the continental U.S. Since shipping costs are built into the price paid by customers, for loads that are shipped farther than average, slightly higher shipping costs will be incurred by the firm, and thus a slightly higher price to the buyer. A manufacturer-direct distribution system will be used. It is assumed that each customer purchases the corn masa flour directly from the manufacturer. Therefore, this firm owns and controls the masa flour up until the time customers buy it. The firm will use a marketing representative (employed by this firm) who has close ties to the industry to help market the product so this business is entirely responsible for all aspects of marketing up to the customer purchase. This strategy will require a warehouse for inventory storage capacity which has been included in the financial analysis.

A marketing representative will be employed who will have significant experience in the corn masa flour industry. It is expected that most of the marketing will be word of mouth marketing done by this marketing representative to each individual company. In the startup year, it is projected that approximately 10 companies will buy. To obtain maximum sales levels, assuming that new buyers purchase the same amount on average that the original buyers are purchasing, and the original buyers purchase the same amount per year on average, 12 new customers will need to be found over a 5 year period. A large percentage of these new customers should be able to be found through word of mouth marketing and personal selling from the marketing representative. Before construction operations even begin, the marketing representative will already be out catering to customers who have already agree to purchase as well as sourcing new customers.

Some methods which may be utilized to help promote the product include a website and e-mail. The marketing representative will be required to develop an electronic database of current and potential customers to allow for email marketing campaigns over

the internet. Corn Masa Flour Enterprises, LLC will also have a company website which will be searchable by the general public, existing customers, and potential new customers. Customers are becoming increasingly affluent with electronic web-based media, so a website and e-mail should prove to be an efficient promotional tool.

Personal selling will be the primary form of marketing via the marketing representative. The marketing representative will not need training as this individual has over 20 years in the corn masa flour industry. The marketing representative will be paid a base \$50,000 per year salary plus a percentage of the after tax net proceeds. So, the percentage of net proceeds will represent the actual amount spent on advertising and will vary from year to year depending on demand and sales in each year.

One other significant promotional tool which will be utilized by Corn Masa Flour Enterprises, LLC will be to set up booths will be set up at food industry conventions throughout the U.S. offering samples of the corn masa flour and some of the finished products that are made using the corn masa flour. A lab and testing facility will be on site for making end products which utilize corn masa flour in small batches so samples will be able to be offered. However, Corn Masa Flour Enterprises, LLC will also work in conjunction with some of its customers making tortillas or corn chips from the corn masa flour so that they may offer some of their end products at the conventions as well.

## Product/Service Offering

Corn masa flour is the primary product offering, as well as a small amount of hog feed by-product. The hog-feed by product will be sold to local hog producers. Initially, six different types of masa flour will be offered differing in color and particle size. These types of flour are:

- 1) White, finely ground
- 2) White, medium ground
- 3) White, coarse ground
- 4) Yellow, finely ground
- 5) Yellow, medium ground
- 6) Yellow, coarse ground.

These six types of masa flour are based on the requirements of the customers who have already committed to purchasing. The products will be processed in a continual processing system rather than a batch processing system (i.e. the same product will be

produced for one month, and then the production facility will switch to a new product the next month). The batch processing system causes too much downtime. It is expected that demand information for existing customers and new customers will be available at least six months in advance to allow for continual processing. In the future, more types of masa flour may be offered depending on how customers' needs change and how technical efficiency of the plant evolves. Coarse ground masa flour is used for extruded corn chips because the large-size granules reduce blistering when they are fried. Finer particle sizes, which absorb more oil, are used for making table tortillas, which retain more water and are more flexible.

The primary customers targeted are small scale producers of tortilla and tortilla chips along with restaurants which serve Hispanic style food who prize serviceability and responsiveness of their supplier. Primarily these customers are small tortilla and tortilla chip producers who want to use instant dry masa flour as opposed to producing their own wet masa dough. These customers primarily produce tortillas and corn chips for wholesale distribution to grocery stores. However, the masa flour from this firm will not be sold directly to grocery stores due to significant competition for shelf space in the stores. It may be possible to target those customers who are currently making their own masa dough for use in their tortillas, etc, and who wish to quit that process and begin purchasing instant dry masa flour. While the masa flour production facility will be located in Indiana, customers throughout the continental U.S. will be targeted. Customers will be given 90 days after the date of delivery to pay for the product. Corn Masa Flour Enterprises, LLC will own the masa flour up to the point the product arrives to the customer. Once the customer takes delivery and accepts the product, the customer then owns the product and is responsible for payment. The terms will be cash only due within the 90 day grace period. Any potential quality problems with the flour will be handled in a timely and appropriate manner if that problem arises.

The most important attributes that come with this firm's masa flour are quality of the product and serviceability. Often times, tortilla and tortilla chip producers wish to have a representative for the masa flour producer visit their operation and assist in the production of the tortillas and help make changes where necessary, but the service is not available from many masa flour suppliers. Serviceability of the product is an attribute

often overlooked by other producers of corn masa flour, which provides this firm a way to differentiate the product by offering the extra service. As well, with the extra service the firm hopes to gain a price premium for the product. Instant dry masa flour can also save customers time in that they do not have to worry about producing their own masa dough/flour and further don't have to be concerned with getting their own formulation right every time. By obtaining a uniformly consistent product from this firm, their end product will be the same every time, and will provide more efficiency in their individual operation. Corn Masa Flour Enterprises, LLC will utilize an on site lab and testing facility will provide the ability to test the corn masa flour coming off the product line for quality and also provide the ability to prepare small batches of end product (tortillas, corn chips, etc.) to monitor how the masa flour will perform for customers.

## Product Pricing

Based on available industry data, the current price per pound is \$0.21/pound. By utilizing a marketing representative who is very closely tied to the industry and has significant experience in the production processes, this firm will charge approximately a \$0.01/pound premium due to the high quality of the product and the increased serviceability. Including the \$0.01/pound premium, the price for white masa flour will be \$0.22/pound, and for yellow flour, \$0.215/pound. It is projected that this final prices of approximately \$0.22/pound for white flour and \$0.215/pound for yellow flour will be paid by buyers and can provide a positive rate of return for the venture based on the costs of production. These prices include shipping costs, so prices to individual customers may vary slightly depending on the shipping distance (Corn Masa Flour Enterprises, LLC will be responsible for providing shipping).

Even though this firm will be a new firm entering into an established market, it is projected that the firm can sustain the premium prices of \$0.22/pound and \$0.215/pound for white and yellow flour, respectively. Some discounts might be included to those customers who buy a substantially larger amount than the average amount bought by other customers, as well as customers who are willing to sign a long term contract for use of the flour, securing demand for the business. To gain new customers, a price discount will be given for the first 10,000 pounds of flour purchased. The shipping cost will vary

depending on the distance the customer is from the production plant so the actual price paid by customers may be higher or lower depending on their distance from the plant. On average over the long run, though, this firm's price will be higher than the market price due to increased serviceability and quality. It is assumed that this premium can be held due to the increased service.

The product offering will be geared towards smaller producers who are lacking a relationship with their current supply source. Other competitors deliver their product and then do not follow up on the sales order. Once the product leaves their manufacturing facility they feel they are no longer responsible. Corn Masa Flour Enterprises, LLC will, however, retain responsibility for quality of the product and provide any service necessary to make the best use of the masa flour and provide the ability for the end user to produce the highest quality and most consistent product possible. Since the firm will produce several different types of corn masa flour, each type will specifically meet the needs of each customer.

# Operation and Management Plan

While the investors have significant experience in the production and marketing of commodity corn, there is not much experience in producing or marketing a value-added product such as corn masa flour. Therefore, key personnel will be sought for key positions such as marketing (securing demand and working with customers) and production. The investors/owners have decision making power in the overall structure of the business (including financing, etc), but specifics of marketing and production will be handled by experienced individuals outside of the original investing group. These individuals, as well as other people in managerial/supervisor roles will have proven track records in leadership roles. While there is a chain of command set up in the company with the general manager having the most decision making power, a team atmosphere will be emphasized to encourage feedback and problem solving ideas from all those people involved in making the business run efficiently, from top management to general laborers. All legal and accounting requirements will be handled by independent outside, personnel which will be hired by the original group of investors.

The single most important position to be filled will be the marketing representative, as this person will be the critical link between producer and customer. This person will be paid an \$80,000 per year salary, along with a percentage of after tax net proceeds from operations. The additional pay to the marketing representative will vary from year to year based on demand. The higher the demand levels and after tax profits are each year, the higher the additional compensation to the marketing representative will be.

The organization chart in Figure 4 shows the hierarchical ordering and chain of command within Corn Masa Flour Enterprises, LLC.

The corn masa flour will be produced using an adaptation of the traditional nixtamalization process. This process is illustrated in Figure 5.

Damaged corn that is screened in the initial cleaning process will be sold to hog producers at a \$0.15/bushel discount to the nearby Chicago Board of Trade corn futures price. The primary raw inputs are white and yellow food grade corn, which will come from local corn producers primarily from southern Indiana. The procurement manager will handle all the sourcing of the corn. Production from farmers will be secured on a yearly contract basis. Farmers will contract a set number of bushels for each year, but will have the option to price the corn whenever they choose. White corn is prominently grown in areas of southern Indiana and acreage and yield projections show that supply should not be a problem. As well, food grade yellow corn will also be easily attainable from the southern Indiana area where the plant will be located. Farmers will be responsible for hauling the product to the production plant. A \$0.45/bushel premium for white corn and \$0.25/bushel premium will be paid to farmers over the Chicago Board of Trade futures price according to the nearby futures contract. This will cover the premiums for white corn, food grade corn in general, increased costs to the farmer for storage and handling, and transportation costs.

The other main raw input is lime, which is used in the cooking phase of the nixtamalization process, and is readily available throughout most areas of southern Indiana. White corn is prominently grown in areas of southern Indiana and acreage and yield projects show that supply should not be a problem. All utilities (including electricity, natural gas, and water/wastewater) will be supplied/handled by local municipalities.

The final product will be stored initially in bins and then bagged into 50 pound bags to be stored in the warehouse facility on site. The product will then be loaded onto trucks to be shipped to the customer. Approximately 50,000 pounds will be shipped per truck load (1000 50 lb. bags per load). The procurement/inventory manager, who also handles sourcing of inputs, will also control inventory and timing of shipping operations.

Corn Masa Flour Enterprises, LLC will also utilize an on-site lab which will provide the ability to closely monitor quality control of the corn masa flour. As well, the lab will house a small scale facility which will allow for small batch processing of tortillas and tortilla chips to test the quality of end products where the masa flour is used. Costs for this lab facility have been included in the financial analysis.

Safety is one of the primary concerns within the production facility. All workers and management will be initially certified according to the latest industry standards and will be required to have yearly certification for safety qualifications.

## Legal Organization of Corn Masa Flour Enterprises, LLC

Originally, the business structures considered were a limited liability corporation, and a cooperative structure. It was determined that sufficient equity may not be raised to start the business under the cooperative structure due to fears of downside risk and the potential for a conflict of interest within the producers/shareholders. Therefore, the limited liability corporation provides the best format for the interests of the investing group. The primary ownership in the business will include 5-7 investors. Each investor will have an equal share of ownership in the business, equally sharing both the downside risk and upside potential of the venture. It is assumed that these 5-7 investor/owners of the business will be the sole owners of the business throughout the life of the venture. The amount of equity required by the lending institution (approximately 25% of the total project cost) will come equally from each investor. If an expansion occurs in the future, these same investors will again be the providers of equity just as they provided the start-up capital.

The structure of the business will be a normal type corporate framework, with the general manager of the operation being the individual with the most decision making ability. The general manager will be elected among the original group of investors. Next in line (in order) are: plant manager, marketing representative, procurement/inventory manager, office manager, production supervisor, warehouse supervisor, shift supervisors, line operators, warehouse operators, and general office employees. Each general labor position will report to their respective supervisor. Each supervisor will report to the plant manager. The plant manager will report to the general manager. While management structure is set up in a hierarchical form, as mentioned previously, a team atmosphere will be encouraged. Everyone will have input into making necessary changes (whether from a business standpoint, marketing standpoint, or production standpoint), to keep the operation running efficiently and smoothly. Customers will immediately realize when there is unrest within the company which could mean potential disaster for the venture.

# Financial Plan

After working with the marketing representative and doing the preliminary assessment of the corn masa flour venture, 36 million pounds of initial demand was secured. This demand will come from 10 customers, with each customer purchasing an average of 3.6 million pounds. While combinations of products from the six listed above desired by each of the customers is different, on average, equal amounts of each of the six products are desired. On average, each customer wishes to purchase approximately 600,000 pounds of each of the six products.

Since the first year is the startup year, it is believed that efficiency in the plant will be low because it will take time to work out technical and manufacturing problems within the plant. However, even in the startup year, the plant will be able to produce the initial secured demand of 36 million pounds per year. In succeeding years as technical efficiency increases and problems subside, it is projected that the plant will be able to produce according to increasing demand secured by the marketing partner which is expected to be 10% per year growth.

The most significant cost is the corn cost. The projections for corn costs were calculated using statistical methods which utilized historical corn prices (Chicago Board of Trade Futures Prices and historical marketing year average prices as published in the USDA, NASS reports). These methods were used in conjunction with forecasted marketing year average prices as reported by the Food and Agricultural Policy Research Institute at the University of Missouri.

Other direct costs such as utilities (electricity, natural gas, water, wastewater) and lime were obtained from local municipalities who will be providing the service to the corn masa flour production facility, along with the expected inflation rates that could be expected for these services into the future. Direct labor costs were found from research which sought to find expected wage rates in Indiana for workers working in manufacturing facilities. It is expected that higher than average wage rates will be paid to direct laborers as the firm wishes to acquire excellent workers who have considerable manufacturing experience in the food industry (primarily the corn masa flour industry). The above

average wages will also be paid to ensure that there is not a high labor turnover.

Fixed costs (indirect costs) were based on contact with consultants close to the corn masa flour industry as well as from the legal team who is assisting the group in starting up the business.

The first step in determining how much capital would be required by the investors was to contact a lending institution (i.e. Farm Credit Services) to determine the amount of down payment and the loan terms based on the original investment cost estimate. Farm Credit requires 25% down payment, so 25% of the total project cost will be raised by the group of investors, and the remaining 75% will be financed. Each investor will supply an equal share of the needed 25% capital. Each investor will use their own equity for their portion of the required capital to begin the venture. Some investors will use their built up money/equity and others will obtain private financing for their share.

The minimum acceptable rate of return on equity is 15%. This is the estimated opportunity cost that the investors believe can be achieved by investing money in alternative investments. If the projected rate of return on equity is smaller from the corn masa flour venture, it will be a no go investment. To ensure that this rate of return is achieved, the price premium must be achieved. Very small changes in the masa flour price can affect the probability of success in this venture. Quality standards and serviceability to customers are critical components in determining the price received for the masa flour and these components must be monitored closely. Since there are other producers of masa flour who will be competing against the production of this firm, the only real way to differentiate this firm's product is through a uniformly consistent and quality product to be able to achieve this required rate of return.

**Balance Sheet**

<b>Assets</b>	Startup	Year1	Year2	Year3	Year4	Year5
Current						
Cash		\$2,470,682	\$2,771,317	\$3,287,967	\$3,440,586	\$4,490,525
Inventory	\$250,000	\$250,000	\$275,000	\$300,000	\$325,000	\$350,000
Non Current						
Startup Costs	\$1,000,000					
Machinery and Equipment	\$2,880,000	\$2,520,000	\$2,160,000	\$1,800,000	\$1,534,500	\$1,161,000
Buildings and Structures	\$2,200,000	\$2,053,333	\$1,906,667	\$1,760,000	\$2,002,533	\$1,828,067
Land	\$75,000	\$75,000	\$75,000	\$75,000	\$172,000	\$172,000
Trucks and Vehicles	\$0	\$0	\$0	\$0	\$0	\$0
<b>Total Assets</b>	\$6,405,000	\$7,369,016	\$7,187,984	\$7,222,967	\$7,474,620	\$8,001,592
<b>Liabilities</b>						
Term/Mortgages	\$6,491,250	\$6,126,734	\$5,717,372	\$5,257,646	\$4,741,360	\$4,161,556
<b>Total Liabilities</b>	\$6,491,250	\$6,126,734	\$5,717,372	\$5,257,646	\$4,741,360	\$4,161,556
<b>Owner's Equity</b>						
Retained earnings		-\$1,007,718	\$228,330	\$494,709	\$767,939	\$1,106,777
Contributed Cash Capital	\$2,163,750					
Contributed in-kind Capital	\$0					
Owner's Equity	-\$86,250	\$1,242,282	\$1,470,611	\$1,965,321	\$2,733,259	\$3,840,036
Total Liabilities + Owner's Equity	\$8,655,000	\$7,369,016	\$7,187,984	\$7,222,967	\$7,474,620	\$8,001,592

**Income Statement**

	Year1	Year2	Year3	Year4	Year5
<b>Income</b>					
Gross sales	\$7,830,000	\$8,613,000	\$9,474,300	\$10,421,730	\$11,463,903
<b>Expenses</b>					
Materials, Labor, Utilities	\$5,400,000	\$5,940,000	\$6,534,000	\$7,187,400	\$7,906,140
<b>Total Direct Expenses</b>	\$5,400,000	\$5,940,000	\$6,534,000	\$7,187,400	\$7,906,140
<b>Gross Profit</b>	\$2,430,000	\$2,673,000	\$2,940,300	\$3,234,330	\$3,557,763
<b>General and administrative expenses</b>					
Non-production wages	\$270,000	\$275,400	\$280,908	\$286,526	\$292,257
Occupancy Costs	\$100,000	\$102,000	\$104,040	\$106,121	\$108,243
Taxes and licenses	\$85,000	\$86,700	\$88,434	\$90,203	\$92,007
Transportation/shipping	\$0	\$0	\$0	\$0	\$0
Advertising	\$100,000	\$102,000	\$104,040	\$106,121	\$108,243
Other Expenses	\$0	\$0	\$0	\$0	\$0
Office Supplies	\$70,000	\$71,400	\$72,828	\$74,285	\$75,770
Travel	\$100,000	\$102,000	\$104,040	\$106,121	\$108,243
Start-up Costs	\$1,000,000				
Depreciation	\$506,667	\$506,667	\$506,667	\$547,967	\$547,967
Total G & A Expenses	\$2,231,667	\$1,246,167	\$1,260,957	\$1,317,342	\$1,332,730
Earnings before interest and taxes	\$198,333	\$1,426,833	\$1,679,343	\$1,916,988	\$2,225,033
Interest Expense	\$798,618	\$753,772	\$703,408	\$646,848	\$583,330
Income Taxes	\$407,433	\$444,731	\$481,226	\$502,201	\$534,926
<b>Net Profit</b>	-\$1,007,718	\$228,330	\$494,709	\$767,939	\$1,106,777

<b>Statement of Cash Flows</b>	Year1	Year2	Year3	Year4	Year5
Initial Cash	\$2,250,000	\$2,470,682	\$2,771,317	\$3,287,967	\$3,440,586
Cash From Operations					
Sales Income	\$7,830,000	\$8,613,000	\$9,474,300	\$10,421,730	\$11,463,903
Cash Expenses	\$7,923,618	\$7,433,272	\$7,991,698	\$8,603,624	\$9,274,233
Net	-\$93,618	\$1,179,728	\$1,482,602	\$1,818,106	\$2,189,670
Cash from Capital Purchases/Sales					
Capital Investments	-\$5,405,000	-\$25,000	-\$25,000	-\$647,000	-\$25,000
Cash from Financing					
New Capital	\$6,491,250	\$0	\$0	\$0	\$0
Principle Payments	-\$364,516	-\$409,362	-\$459,726	-\$516,286	-\$579,805
Net	\$6,126,734	-\$409,362	-\$459,726	-\$516,286	-\$579,805
Taxes	-\$407,433	-\$444,731	-\$481,226	-\$502,201	-\$534,926
Ending Cash	\$2,470,682	\$2,771,317	\$3,287,967	\$3,440,586	\$4,490,525

#### **Valuation**

Investment Outlay	\$8,655,000
Discount Rate	12.3%
Net Cash Income	
Startup Period (year 1)	\$1,297,567
Average yearly cash flow (years 2-5)	\$4,354,335
Value of Business	
Minimum (net assets in business at the end of five years)	\$3,840,036
Projected	\$1,674,457
Internal Rate of Return	19 %

#### **Breakeven Analysis**

<b>Breakeven Volume (average)</b>	Year1	Year2	Year3	Year4	Year5
	50,929,163	37,901,862	39,804,536	42,291,534	44,454,123

1. Total Direct Costs	\$3,437,718	\$2,444,670	\$2,445,591	\$2,466,391	\$2,450,986
2. Per unit revenue (average)	\$0.22	\$0.22	\$0.22	\$0.22	\$0.22
3. Per unit costs (average)	\$0.15	\$0.15	\$0.16	\$0.16	\$0.16