**NovFeed**

2009

**Fish Feed Production**

**Business Plan**

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lIMPORTANT NOTICE

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**1.0 Executive Summary**

Aquaculture is booming throughout the world as a sustainable way to feed a growing population and Tanzania is no exception, Production nearly quintupled between 2011 and 2013. Despite this growth, the challenge of providing fish farmers access to reasonably priced, high-quality feed persists. The current solutions available to fish farmers in Tanzania are either not affordable, not sustainable, not nutrient rich, or a combination of all three.

In culturing fish in captivity, nothing is more important than sound nutrition and adequate feeding. If the feed is not consumed by the fish they are unable to utilize the feed because of some nutrient deficiency, then there will be no growth. An undernourished fish cannot maintain its health and be productive, regardless of the quality of its environment, this reduce fish farmers profit margin and do not provide the nutriational requirements for consumers who consume the farmed fish.

NovFeed is a revolutionary, for-profit aquafeed company. We produce, process and formulate a new cost effective, sustainable and better quality fish feed made from maggots and aquatic plant as an alternative to fish and soy bean meal.

NovFeed helps to divert food waste, reduce greenhouse gas emissions, and replace ocean trawling. NovFeed’s superior product will increase the yields of farmers, helping to increase their profitability while supplying the food insecure in the region with healthier animal protein. We aim to produce a pelletized, commercial-grade feed, which then will be sold to fish feed distributors that will sell to the fish farmers

Projected annual business capital investment required in term of initial budget outlay is US$ 20,000. NovFeed expect turnover US$100,700 in year 1 and US$ 510,150 in year five, The financial model indicates that the investment in the NovFeed mill will break even in year one making it a highly-profitable business.

* 1. **Introduction**

Tanzania has great potential for aquaculture production. Its climate is ideal for farming indigenous fish species including tilapia and African catfish, being the favoured species for Tanzania’s lower- and middle-income classes. Market demand for fish is growing rapidly due to population growth and rising incomes. However, supply from wild catch is dwindling as natural water bodies are overfished and enforcement of regulations on fishing is limited at best. This situation results in an estimated fish demand deficit of 480,000 tons per annum. These combined factors have been driving up fish prices, making fish less affordable for the lower- and middle-income segments of the population. This development presents both a food security issue but at the same time an economic opportunity to supply the market with locally produced fish.

The annual fish consumption in Tanzanian is estimated at 7-8 kg per capita, being much lower than the global average consumption of 20 kg but close to average African per capita consumption of 8 kg per year, indicating the large market potential.

During feasibility study we have identified some issues this include issues with the availability of (imported) feed: no timely delivery, farmers run out of feed during the grow out phase of the fish. Farmers would be willing to pay extra for logistical services; e.g. feed delivery or storage under good conditions, Low quality of feeds, fish growth resulting in minimal, high FCR ’slow efficiency. The price of feed is too high as compared to its quality and results.

Farmers see the potential of fish farming, but are unable/unwilling to invest since they know the current bottlenecks prevent their business from being profitable. The price of the feed per kilo is relevant, as long as it is of the promised quality and will make the fish grow at efficient FCR’s. Farmers indicated that they are willing to pay between Tzs 2500 and 2800 (approx. $1.17 to $1.3 per kilo). Overcoming the bottlenecks of access to good quality fish feed will make the sector more attractive to invest in and could have a snowballing effect on its further development.

* 1. **Problem Context**

Diverting food waste to grow maggots and make fish feed is at the heart of what our company does. There is a huge dearth of nutritionally adequate and affordable feed in Tanzania either it is imported and prohibitively expensive, or locally produced and very poor quality. Feed typically consists of 60-80% of a fish farmer's costs, and it is not uncommon for bagged feeds to be up to 30% gravel. As a result, many fish farmers formulate their own feed on-site using seasonal ingredients and omena (small trawled fish). In addition, farmers in the country experience huge post-harvest losses while tons of organic waste from markets is thrown out every day. We want to address both issues with one elegant solution that uses organic waste to grow insect larvae, which is then dried, ground into a protein-rich meal, and incorporated into a finished pelletized feed. Numerous studies have shown that feed made with insect protein is nutritionally comparable to conventional feeds and far more environmentally sustainable. In a survey of nearly 150 fish farmers in Tanzania, the problem most frequently mentioned was lack of access to fish feed, and was listed twice as much as the second biggest problem (water quality). There is an evident and urgent need for a more sustainable and nutritious form of fish feed.

* 1. **NovFeed Idea**

NovFeed produce, process and formulate new cost-effective fish feeds based on indigenous, locally produced and sustainable ingredients such us (duckweed, Azzolla, Spirodela Polyrhize (Lemnae family), Opomoea aquatica), and maggots. This is alternatives Novel indigenous non-conventional feed ingredients which are potential rich source of nutrients for aqua-feed, Macrophytes are monocotyledon species of green floating flowering plant and has high concentration of trace minerals and pigments especially xanthophylls, beta carotene, the proximate composition is crude protein 24- 45%, crude lipid 3-7%, crude fiber 5-16%, carbohydrate 14.1-43.6% , ash 12-27% by dry weight respectively, Macrophytes has high growth rate and can easily be produced in earthen and cemented ponds, the crude protein responds to the nutrients contents of growing media, if grown in fertilized water the crude protein increase up to 45%. Crude fiber in Macrophytes can be reduced by hydrolyzing duckweed meal by using sheep rumen liquor enzyme which is a source of alternative materials that are cheap and easily used as a source of hydrolase hence improve digestibility. And farming of maggots they require very little land and water to raise, contain high proportions of protein, fat, and micronutrients, and can be easily dried and stored. In their larval stage, they feed on organic matter and can eat a wide variety of feedstocks, from kitchen scraps to chicken manure. As the larvae mature, they consume this organic waste ravenously for 2-4 weeks before reaching the prepupae stage, at which point they are at optimal nutritional content and can be harvested, They are then dried and ground into a fine protein rich meal that can be used as a raw input and mix with other ingredients for the manufacturing of fish feed pellets. The Idea has potential for commercialization and patenting, considering the food security issue in future we will need to obtain protein from other sources than crops which compete with human food and animal feed this give us opportunity to produce feed that will meet the current and future need.

* 1. **Vision Statement:**

*“*To become a world class, innovative, competitive and profitable company in fish feed Industry and key player in local and international market”

 1.5  **Mission statement**

“Our mission is to find innovative and sustainable way to feed the world”

* 1. **Objectives:**

The objectives of NovFeed:

* To produce quality fish feed using improved production, value addition and marketing innovation for multiple benefit
* To processes and market quality fish feed product at price high enough to meet all production, marketing and management cost along the way making profit.
* To form mutual beneficial partnership with individual farmers, local and foreign investors, farmer group/associations, traders, wholesales and enter strategic partnership with serious investors in agri-business
	1. **Keys to Success**

The key factors to making NovFeed to a success is

* Presenting the highest level of quality achievable in its product line
* Growing and maintaining relationships with customers and the community to generate repeat sales while constantly adding new ones;
* Allocating a significant and consistent budget in grass roots marketing;
* Being able to quickly fish feed to buyers and maintain a steady delivery of goods in order to ensure the company’s reputation and profitability;
* Leveraging from a single pool of expertise into multiple revenue generation opportunities
* We make our products and services available at places where demand exists.
* Popularize our products by designing brand
* Keep the supply chain to a minimum number of steps to ensure convenience for our target market.
* Constant research of industry to keep knowledgeable of market needs.
	1. **Unique Selling Propositions (USP)**
* On time delivery schedule will be strictly adhere
* You can buy your daily requirement of freshly harvested produce and no excess quantity purchase is required.
* We have designed tools which forecast the demand of individuals which enables us to produce/ procure and stock only the quantity required
1. **Scope of Diversification**

NovFeed has huge scope for diversification in various other products include not limited to poultry feed, pig feed and cattle feed, NovFeedhas huge opportunity for company expansion the market base as it will less capital expenditure. In near future NovFeed Plan to procure macrophytes from out-growers and opening up new production line which will open flood opportunity for the company trading with other organized fish feed retail store and wholesale open

Through the company have many opportunities it will insist more on sticking to the core business of fish feed business. The company want to build strong brand for fish feed. Expansion of the production will be core focus of the company growth and expansion.

1. **Industry and Market Analysis:**

World Fish feed Industry estimated to be USD 54.41 Billion by 2020 this market expected to register an estimated CAGR 7.5%. in Tanzania total fish farmers are 19,223 with total ponds 21,300 and market size for fish feed in Tanzania approximately USD 22.8M, NovFeed plan to capture 10% of the total market share with first five years with driving force of selling affordability quality fish feed at $0.95/kg compared to $1.62/Kg of competitors price, the reason behind is that our competitors use soy and fish meal as main source of protein which account over 80% of fish feed total cost with our replacement using maggots and aquatic plant will be 30% cheaper than that of competitors and its sustainable.

1. **Competitors**

Our competitors include medium sized feed manufacturers in Tanzania or the region. These suppliers are either professional feed manufacturers (e.g. UgaChick in Uganda, Unga in Kenya, Skretting & Aller Aqua in Zambia). With consideration of competitor’s strength-weakness and the situation, we made strategies to deliver consistent product at competitive price 30% Cheaper than competitors. NovFeed is better in quality, taste and digestibility than competitors feed. This would compete against some of the manufacturers or feed producers and would reduce the import rate of feed The unit aspires to deliver quality products which would be beneficial for the health of the Fish and productivity. It is expected that there would be a demand pull at the customer end which can be further strengthened through innovative promotional strategies. The demand pull is estimated to be significant thereby ensuring lowering of costs through economies of scale. It is expected that some of the competition would eventually get eliminated

1. **SWOT Analysis**

The following SWOT analysis captures the key strengths and weaknesses within the company, and describes the opportunities and threats facing NovFeed products.

**5.1 Strengths**

* The team has had some commercial Fish feed experience.
* Leadership has great passion for agribusiness and will not abandon the business in tough times
* accessibility to the target markets
* People prefer local product over the imported ones
* Our production system has the ability to reuse waste into maagots and reducing the amount of inputs required.
* Stable and predictable production allows for consistent production and financial projections.
* NovFeed has the ability to adapt to market demands and produce alternative produce.
* We are able to meet increasing consumer demand without compromising quality.
* The business is relatively cost effective to start and maintain, thus it is a very profitable feed business
	1. **Weaknesses**
* Poor brand image
* This is a start-up business and thus there are many lessons to learn along the way in order to break into the market, remain a strong competitor, and expand;
* significant capital requirement
* Established supply chains for designated target market are used to the current product and may be hesitant to switch to a new product.
* The small staff may not be able to handle a strong start with huge demand from our targeted market
	1. **Opportunities**
* There are also very few fish feed producers in our area, none that would be to our scale of production.
* Full market is not met
* Difficult degree of entry into the sustainable fish feed production due to amount technical skill and knowledge required.
* Year-round supply at a consistent price for regional fish feed distributors.
* The current lack of competition within target markets reduces the immediate production competition.
* Growing population in our target market that will lead to increase in demand
* The Government is not imposing any strict fish feed requirements against start-up innovative business;
	1. **Threats**
* The market is currently open for larger agricultural companies to enter a relatively untapped market.
* Not being able to raise the desired start-up funds may hamper growth immensely
* A competition rising to secure sales territories may constrict NovFeed growth.
* Ruthless completion by other businesses.

The SWOT analysis leaves a positive picture of the Fish feed Production, strengths and opportunities are perceived to be significant; threats are not limiting the potential development and weaknesses are many but they are on technical level, which can be easily surpassed. The SWOT analysis leaves the Fish feed Industry with bright future perspective.

One of the main strength of the business could be the easy access to the market, since the local people chooses more of homemade products than that of imported ones, moreover the price of the products would be lower comparing to the products sold in the market. Although there is poor brand image in the market, the business would target towards providing trainings and other necessary skills and developments and work towards becoming largest supplier of feed products in the country which could eliminate the threat of the existing as well as upcoming feed producers in the country.

1. **PRODUCTION PROCESS FLOW AND TECHNICAL DESCRIPTION**

**6.1 The plant.**

It is assumed that during the first year of operation, optimum production is not likely to be achieved as the workers learn to grapple with machinery and production problems. It is hoped that the production staff would gain more experience in production process and be able to increase capacity utilization in later years. It is, therefore, assumed that initial capacity utilization would be 70% of installed capacity in the first year of operation. The required machine for production line is indicated below, with specification and image of the machine,

|  |  |  |
| --- | --- | --- |
| **Description** | **Specification** | **Fact Picture** |
| Hammer Mill TDH-250 | 3KW Single phaseProduction Capacity 50kg/h |  |
| Dust Collector | Power 0.75\*2bin0.5-1.0m3 |  |
| Mixer | 20kg/batch,10-15mins/batch |  |
| Fish Feed Extruder TD40-C | main power:4cuttingpower:0.4feedingpower:0.4Production Capacity 40kg/h |  |
| Cyclone &air fan | air fan:2.2kwdischarger:0.75kwProduction: 200kg /  |  |
| Vertical Dryer | barrel capacity 50kgsair fan: 0.18kwMain power:4.8kwFeeding:1.1kw |  |
| Oil sprayer | mainpower:0.75kwoilpump:0.37kw |  |

**6.2 Production Process.**

The Macrophytes (Duckweed and Azzolla) will be cultured or farmed under controlled media fertilized with organic manure in concrete tanks and ponds. Then will be harvested after 6-10 days, and dry under the sun then followed drying in the oven for 24hours, after that will be grinded into powder form as main source of protein and will be hydrolyzed by cow/goat/sheep enzyme to reduce crude fiber, The Macrophytes (Duckweed and Azzolla) are cultured or farmed under controlled media fertilized with organic manure in concrete tanks and ponds. Then harvested after 6-10 days, and dry under the sun after that grinded into powder form as main source of protein and will be hydrolyzed by cow/goat/sheep enzyme to reduce crude fiber and maggots during In their larval stage, they feed on organic matter and can eat a wide variety of feedstocks, from kitchen scraps . As the larvae mature, they consume this organic waste ravenously for 2-4 weeks before reaching the prepupae stage, at which point they are at optimal nutritional content and can be harvested. They are then dried and ground into a fine protein rich magmeal then mixed with other ingredients which are source of Vitamin, Carbohydrate, minerals and lipid in fish feed formulation. The mixer will be entered to extruder machine to making floating pallets. after that will be dried into oven within 24 hours, and then will be packed into plastic bags.The firm intent to have package of 25kg, 50 kg and 100 kg we pack in different size in order for the farmer to afford to purchase,the shelf life for the fish feed is one years and proximate composition and storage instructions will be shown on the package.

**6.3 Choice of the technology**

The business would have only one production line with the production of feeds for fish. The production requires four types of machineries which includes crusher machine, mixer machine, pelleting machine and conveyor machine which works simultaneously one after another accordingly.

**Steps in fish feed preparation**



**7. Nutritional Requirement for Fish Feed**

**7.1 Nutritional Requirement for Supplemental Feed**

Prepared or artificial diets may be either complete or supplemental. Complete diets supply all the ingredients (protein, carbohydrates, fats, vitamins, and minerals) necessary for the optimal growth and health of the fish. Most fish farmers use complete diets, those containing all the required protein (18-50%), lipid (10-25%), carbohydrate (15-20%), ash (< 8.5%), phosphorus (< 1.5%), water (< 10%), and trace amounts of vitamins, and minerals. When fish are reared in high density indoor systems or confined in cages and cannot forage freely on natural feeds, they must be provided a complete diet.

In contrast, supplemental (incomplete, partial) diets are intended to support the natural food (insects, algae, and small fish) normally available to fish in ponds or outdoor raceways. Supplemental diets do not contain a full complement of vitamins or minerals, but are used to help fortify the naturally available diet with extra protein, carbohydrate and/or lipid.

**7.2 Protein**

Because protein is the most expensive part of fish feed, it is important to accurately determine the protein requirements for each species and size of cultured fish. Proteins are formed by linkages of individual amino acids. Although over 200 amino acids occur in nature, only about 20 amino acids are common. Of these, 10 are essential (indispensable) amino acids that cannot be synthesized by fish. The 10 essential amino acids that must be supplied by the diet are: methionine, arginine, threonine, tryptophan, histidine, isoleucine, lysine, leucine, valine and phenylalanine.

Methionine and Lysine are the first two limiting amino acid in feeds which is usually present in fishmeal which can not replaced by any of the plant sources, that’s why desired quantity of fish meal must be use in healthy fish feed production.

Protein levels in aquaculture feeds generally average 18-20% for marine shrimp, 28-32% for catfish, 32-38% for tilapia, 38-42% for hybrid striped bass. Protein requirements usually are lower for herbivorous fish (plant eating) and omnivorous fish (plant-animal eaters) than they are for carnivorous (flesh-eating) fish, and are higher for fish reared in high density (recirculating aquaculture) than low density (pond aquaculture) systems.

Protein requirements generally are higher for smaller fish. As fish grow larger, their protein requirements usually decrease. Protein requirements also vary with rearing environment, water temperature and water quality, as well as the genetic composition and feeding rates of the fish. Protein is used for fish growth if adequate levels of fats and carbohydrates are present in the diet. If not, protein may be used for energy and life support rather than growth.

**7.3 Lipids (fats)**

Lipids (fats) are high-energy nutrients that can be utilized to partially spare (substitute for) protein in aquaculture feeds. Lipids supply about twice the energy as proteins and carbohydrates. Lipids typically comprise about 15% of the fish diet, supply essential fatty acids (EFA) and serve to transport fat-soluble vitamins.

Simple lipids include fatty acids and triacylglycerol’s. Fish typically require fatty acids of the omega 3 and 6 (n-3 and n-6) families. Fatty acids can be: a) saturated fatty acids (SFA, no double bonds), b) polyunsaturated fatty acids (PUFA, >2 double bonds), or c) highly unsaturated fatty acids (HUFA; > 4 double bonds). Marine fish oils are naturally high (>30%) in omega 3 HUFA, and are excellent sources of lipids for the manufacture of fish diets. Lipids from these marine oils also can have beneficial effects on human cardiovascular health.

**7.4 Carbohydrates**

Carbohydrates (starches and sugars) are the most economical and inexpensive sources of energy for fish diets. Although not essential, carbohydrates are included in aquaculture diets to reduce feed costs and for their binding activity during feed manufacturing. Dietary starches are useful in the extrusion manufacture of floating feeds. Cooking starch during the extrusion process makes it more biologically available to fish.

In fish, carbohydrates are stored as glycogen that can be mobilized to satisfy energy demands. They are a major energy source for mammals, but are not used efficiently by fish. For example, mammals can extract about 4 kcal of energy from 1 gram of carbohydrate, whereas fish can only extract about 1.6 kcal from the same amount of carbohydrate. Up to about 20% of dietary carbohydrates can be used by fish.

**7.5 Vitamins**

Vitamins are organic compounds necessary in the diet for normal fish growth and health. They often are not synthesized by fish, and must be supplied in the diet.

The two groups of vitamins are water-soluble and fat-soluble. Water-soluble vitamins include: the B vitamins, choline, inositol, folic acid, pantothenic acid , biotin and ascorbic acid (vitamin C). Of these, vitamin C probably is the most important because it is a powerful antioxidant and helps the immune system in fish.

The fat-soluble vitamins include A vitamins, retinols (responsible for vision); the D vitamins, cholecaciferols (bone integrity); E vitamins, the tocopherols (antioxidants); and K vitamins such as menadione (blood clotting, skin integrity). Of these, vitamin E receives the most attention for its important role as an antioxidant. Deficiency of each vitamin has certain specific symptoms, but reduced growth is the most common symptom of any vitamin deficiency. Scoliosis (bent backbone symptom) and dark coloration may result from deficiencies of ascorbic acid and folic acid vitamins, respectively.

**7.8 Minerals**

Minerals are inorganic elements necessary in the diet for normal body functions. They can be divided into two groups (macro-minerals and micro-minerals) based on the quantity required in the diet and the amount present in fish. Common macro-minerals are sodium, chloride, potassium and phosphorous. These minerals regulate osmotic balance and aid in bone formation and integrity.

Micro-minerals (trace minerals) are required in small amounts as components in enzyme and hormone systems. Common trace minerals are copper, chromium, iodine, zinc and selenium. Fish can absorb many minerals directly from the water through their gills and skin, allowing them to compensate to some extent for mineral deficiencies in their diet.

**7.9 Types of Feed**

* Dried (about 10% moisture): easy to made, store transport and feed Moist
* (about 30-45% moisture) more palatable & attractive
* Wet (>50% moisture)

**8 PRODUCT DESCRIPTION**

The fist line of our business will be production of quality fish feed which are in pellet form and floating. The product produced will be packed in different size. Product name will be Our business will have have four different product based on protein requirements at different stage of fish growth. Product 1. Early larvae or (Fry), Product 2 Late larvae or fry Product 3 Post larvae and fingerings product 4. Juveniles adult fish)

**Table A. Shape and Size of Fish Feed**

| **Shape/Farm**  | **Particle Size**  | **Stage of Development**  |
| --- | --- | --- |
| Powder | 50-125 µM | early larvae or fry Granule |
| Granule | 500 µM | Late larvae or fry  |
| Crumble | 0.5 -2 mm | post larvae and fingerling |
| Pellets | 2-8 mm | juveniles, adults |

**Table B. List of Feed Ingredients Available Locally**

| **Meal (Animal Source)** | **Meal (Plant Source)**  | **Plant Source** | **Vitamins &Mineral** |
| --- | --- | --- | --- |
| Fish meal (Maggots meal) | Cotton seed cake and meal | Broken rice | Vitamins Premix |
| Bone meal | Mustard oil cake | Broken corn | Mineral premix |
| Bone meal | Sunflower meal | Wheat flour | Yeast (Binder) |
| Blood meal | Macrophytes Azolla or  | Wheat bran |  |
|  | Peanut meal | Rice polish |  |
|  | Soy bean cake | Rice bran  |  |

**8.1 Packaging & Transportation**

Large loads of fish feed stuffs will be packed into bulk bags. If the ingredients have to travel greater distances packaging sags are used to assist in stability and maximize the load. Machines and the market will be filled with printed Open Mouth Bottom Weld, Block Bottom and Valve Sacks printed to the individual requirements of the product and company however the proposed business would mainly use Woven Polypropylene Sacks since it have a significant role within this sec-tor predominantly because of their inherent strength.



It needs to satisfy the following objectives:

* Protects the quality of the product.
* Provide information to buyers, such as variety, weight, specification of the product, quality grade, producer’s name, country, area of origin

**8.1 PRODUCTION CHALLENGE AND MITIGATION STRATEGIES**

| **Challenge**  | **Mitigation strategies**  |
| --- | --- |
| Failure to produce desired volume of Macrphphyte Duckweed (Lemna minor and azolla) | Can be mitigated through triying another type of organic manure due to fact that maximum production of Macrophytes depends on the quality of organic manure used to fertilize water. |
| Technical issue or failure to manufacture appropriate feed  | Can be mitigated partly through knowledge of nutrient composition (protein, lipid, carbohydrate ratios ) adequate processig and controling inclution level of ingredients. Therefore, it is not percieved that this will be major challenge.  |
| Failure of nutritional on farm trial  | Is well known in nutritional trial which can be negatively affected by feed inadequate problems and an expected loses of experimental animals through disease / infection Food formulation will be based on standard nutrition principle and designed to satisfy known nutrient requirement. No major feed related problem likely to require a trial to be terminated as anticipated. As always fish feed trial in fish feed trial careful designed, appropriate replication and appropriate biodivesity prescribe that complete failure of a trial is generally unlike scenerio in the less intensive system. Person involve in fish trial are highly exprienced. |

**8.2 Environmental Impact**

The environmental impact assessment will be dealt before the commencement of the project. The measures related to environmental conservation will be observed. In establishing the project the environmental aspect will be considered. Bio-security is the term used to describe as an overall strategy or succession of measures employed. Although no hazardous chemical is used fish feed production, noise production machinery constitute nuisance to the environment. We will take adequate measures to minimize or eliminate the dangers posed by the pollutants and released during production. Adequate monitoring scheme such as regular environmental impact assessment by qualified personnel will be implemented to ensure that the measures put in place are working.

1. **Marketing plan**

To measure the effectiveness of the marketing plan and in order to adapt with the drastic changes in the market and develop new product, the business engages into research. This is conducted on a regular basis to assist the business with its overall goals. The plan is measured how far the effectiveness of the marketing strategies exerted by the business. Tracking customer’s fast changing needs. Customers would want something new yet affordable in their products and services. A competitor may offer a lower price with fair service to them. What NovFeed is offering are products with reasonable price yet excellent service.

**Research Plan**

| **Objectives** | **Strategies** | **Action Plans** |
| --- | --- | --- |
| To continue toimprove theproducts andServices offerings every month. | Keep abreastwith thelatest news inthe industry | Attend customerService seminars workshops fornew service offerings Participate in theProducts updates mentored by thesuppliersBusiness meetings arealso sourced of new information on how toimprove the business |
| To continue todevelop newmarketing andsales promosthat will suit thecustomers’needs | Soliciting feedbacksfrom the customerswould be the best way to know what they really need | Giving out customerfeedback forms and perform surveys to know their pulsesabout the current offerings |
| To continue to study the changes in market in order to develop new marketing Strategies. Research should be included in pre-operating activities and will be done semi-annuallyfor the next two years | Keep on tracking thelatest updates on business environmentand determine ifthe marketing strategieshave been very effective | we will participate in business expositions to develop information gathering on businessdevelopment. Performing surveys tocustomers is thebest form ofresearch plan inorder to improveproduct offering. |

**9.1 Target Market**

In our initial phase we are targeting Fish feed Distributors , We have 6 fish feed distributors who have shown interest. Using distributors simplifies the logistical complexities of distribution and working with so many customers, and allows us to outsource that aspect of the business to fish feed distributors that is much more well equipped and experienced in dealing with those challenges. This will also allow us to much more comfortably predict inventory and production requirements which will simplify our supply chain and reduce inventory costs. However, we are able to maintain our brand through co-branding efforts, and our product is still reaching smallscale farmers at reasonable price.

**9.2 Pricing Strategy**

Extensive work and research will go into pricing of NovFeed , including local research, national research, and review of unit costs. Prices will be established based on four items:

* + Unit costs (production, transportation, etc.)
	+ Market value (locally)
	+ National averages
	+ Quantity available

NovFeed will participate in extensive unit costing analysis in conjunction with national market data. We will also survey the local market on a weekly basis for pricing trends. In addition to local research, we will consult company around the country that produce similar products.

**9.3 Promotional Strategy**

Our promotion strategy will be based primarily on informing potential customers of our existence and making the right information available to our target customer. Since we are/shall be targeting different segments the promotional tools and messages may vary slightly to match the intended market. However in all cases the marketing will convey the sense of quality and professionalism in every picture, every promotion and every publication. Our product has unique selling arguments to the attention of the potential buyers by the following means.

* Visiting potential buyers and having discussions with them
* Writing letters or sending text messages to potential buyers
* By the word of mouth from satisfied customers
* Radio jingle
* Product exhibitions-To promote public confidence and traceability of product
* A website will be constructed to allow potential and existing customers of NovFeed to place orders, view product information and discover the image of NovFeed. Costs will be associated with this website to keep it secure and functioning properly.

**9.4 Technological changes that could impact costing**

One of the biggest technological changes that can impact the way the unit would conduct business in the future would be the progress of information technology in shaping e-commerce and its adaption in the Tanzanian economy

It may be used to find out the customers on line. Similarly, it may be possible to generate and respond to customer’s enquiries on line and transact business with those who stay outside the country.

It has been found that most of the raw materials are imported. So, if these things are produced within the country it would make the product more cost effective. The basic impact of all this would help to reduce the cost and therefore the price of the product.

**10. Management**

Our management is expected to use resource wisely, operate profitably and abide by law and regulations. The ultimate goal of all our employees is to meet or exceed our customers' expectations. They are all empowered to take any reasonable action to avoid a customer leaving our premises dissatisfied. Our continuous improvement policy encourages all employees to continually look for ways to keep updated with the latest technology, to improve processes, reduce costs and save time. This approach serves the goal of reducing costs and delivery times, and increasing the service quality and customer satisfaction A list of the staff and their roles are listed below.

**Roles and Responsibilities**

**Managing director (Diana Orembe, Bsc)**

* Increases management’s effectiveness by recruiting, selecting, orienting, training, coaching, counseling, and disciplining managers; communicating values, strategies, and objectives; assigning accountabilities; planning, monitoring, and appraising job results; developing incentives; developing a climate for offering information and opinions; providing educational opportunities.
* Responsible for providing direction for the business
* Creates, communicates, and implements the organization’s vision, mission, and overall direction – i.e. leading the development and implementation of the overall organization’s strategy.
* Responsible for signing checks and documents on behalf of the company
* Evaluates the success of the company

**Production Manager (Msc).**

* Responsible for the planning, management and coordinating production activities across the various sections on behalf of the organization
* Supervise other section staffs
* Ensures compliance during project executions
* Provides advice on the management of farming activities across all section
* Responsible for carrying out risk assessment
* Uses IT systems and software to keep track of people and progress of the growth of vegetables and fruits
* Responsible for overseeing the accounting, costing and sale vegetable and fruits
* Represent the organization’s interest at various stakeholders meetings
* Ensures that our farm goals desired result are achieved, the most efficient resources (manpower, equipment, tools et al) are utilized and different interests involved are satisfied.
* Responsible for preparing financial reports, budgets, and financial statements for the organization
* Oversee the smooth running of the fish feed production activities across the various sections.

**Feed Formulator** (Qualification-Diploma in aquaculture)

* To formulate fish feed
* Assessing the relative nutritional value of various feeds
* Working with clients to formulate diets that meet their requirements
* Assess nutritional and caloric requirements based on fish condition.
* To record all information on fish feed production schedules

**Administrator / Accountant (Certificate in Accounts)-To be hired**

* Responsible for overseeing the smooth running of HR and administrative tasks for the organization
* Defines job positions for recruitment and managing interviewing process
* Carries out staff induction for new team members
* Responsible for training, evaluation and assessment of employees
* Responsible for preparing financial reports, budgets, and financial statements for the organization
* Responsible for financial forecasting and risks analysis.
* Responsible for administering payrolls
* Ensures compliance with taxation legislation
* Handles all financial transactions for the farms
* Serves as internal auditor for the farms

**Sales and Marketing Officer (certificate of sales and marketing)-To be hired**

* Identifies, prioritizes, and reaches out to new partners, and business opportunities et al
* Identifies development opportunities; follows up on development leads and contacts; participates in the structuring and financing of new business
* Writes winning proposal documents, negotiate fees and rates in line with company policy
* Responsible for handling business research, marker surveys and feasibility studies for clients
* Responsible for supervising implementation, advocate for the customer’s needs, and communicate with clients
* Develops, executes and evaluates new plans for expanding increase sales
* Documents all customer contact and information
* Represents the company in strategic meetings
* Helps to increase sales and growth for the company

**Field Workers / Contract Staff (skilled)**

* Responsible for feed production as instructed by the production manager
* Responsible for all fish feed production activiities as instructed by the supervisor
* Responsible for cleaning the warehouse
* Handles production implements and machines as instructed by the section manager / supervisor
* Assist in transport working tools and equipment from the production site and back to the designated store room
* Handles any other duties as assigned by the production manager

**Front Desk Officer**

* Welcomes guests and clients by greeting them in person or on the telephone; answering or directing inquiries.
* Ensures that all contacts with clients (e-mail, walk-In center, SMS or phone) provides the client with a personalized customer service experience of the highest level
* Through interaction with clients on the phone, uses every opportunity to build client’s interest in the company’s products and services
* Manages administrative duties assigned by the administrator in an effective and timely manner
* Consistently stays abreast of any new information on the company’s products, promotional campaigns etc. to ensure accurate and helpful information is supplied to clients
* Receives parcels / documents for the company
* Handles any other duties as assigned my the line manager

**Part-time Personnel:**

* We expect seasonal hiring of part time employees. Because we will offer no benefits to our employees in the first year, full time employees will not be hired (nor are they necessary for the first year.) We foresee hiring six or seven part-time employees besides the two owners to begin working upon completion of the build-out.

**10.1 Assess the need for skill development**

As the workforce is mostly unskilled, there is a need to develop their skills according to the need of the industry. Workshops or on-site short term trainings may be organized by the suppliers of machineries on how to control the temperature, operate machineries etc. The training should be a combination of theory sessions, on the job coaching sessions and on the job supervision. For people joining with no relevant experience training in their respective functional area would be mandatory. There should be a periodic skill assessment done by the management on the basis of observation of on the job performance. Based on the findings, a training calendar needs to be drawn up

**11. Progress to date**

NovFeed has made excellent progress to date. We have completed what we consider Phase I. We have a small scale functional prototype facility for maggots and aquatic plant farming, have validated that we can successfully grow these maggots and aquatic plants (Macrophytes), completed lab test ,on farm trials and customer discovery we are ready to Phase II. At this time we will begin building a scaled production line capable of producing five tons of Fish Feed per month, which will be our primary operational facility starting upon completion (April 2020). We view this as a midlevel scaling effort where we can continue to learn about maggots growth and biology, but on a larger scale and with a greater level of financial sustainability. This midscale facility will be instrumental in continuing to develop our understanding of the biological aspects of the process as well as the refining of our business model, preparing us for another scaling effort.

**12. Financial Plan**

The financial evaluation of the business cover a five year period, the calculations on production and financies in this business plan are based on the general assumption below

1. This is a scalable fish feed business.
2. Production will be 12 month in a year
3. Direct Cost expected growth rate projected over the years by 40%
4. Other cost are projected 10% annually
5. Normal loses of 5% are assumed annually
6. Marketing/ distribution expenses are equivalent to 5% of sales
7. Insurance is equivalent to 2% of the cost of fixed asset
8. The project will attract at tax of 30%
9. Depreciation is on straight line basis
10. Company aspires to grow 50% growth rate year to year
11. Salary and wage will be increased by 3% year to year
12. Company will increase advertisement by 50% year to year basis
13. Volume of order have been considered instead of individual item
	1. **Financial Viability and Sensitivity Analysis**

The financial model indicate that the investiment in NovFeed will breakeven in the second year, making hight profitable business.

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| **COST OF THE PROJECT**  |
| **Particulars**  | **Amount in USD** |
| Production Line (Machinery) |  11,982  |
| Weight machine |  125  |
| Preliminary expenses |  1200  |
| Working capital  | 5400  |
| Computer (Available) |  -  |
| **Total**  | **18,707** |

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| PRELIMINARY AND PREPARATORY EXPENSE |
| Particulars | Amt in Tzs |
| Legal Expense (Completed) |  65  |
| Project Preparation |  600  |
| Market research (Completed) |  250  |
| Initial advertisement expense |  125  |
| Total  | 981  |
| Depriciation ` |
| Particulars | Amt in Tzs |
| Computer (10%) | 55  |
| Production machine  | 1198  |
| **Total**  |  **1,253**  |
| **REQUIRED INFRASTRUCTURE AND FACILITIES**  |
| Particulars | Qt |   | Amount |
| Fish Feed Production Line  | 1 |  11,892 | 11,892  |
| Total  |   |   |  11,892  |

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| **Expected Operational Efficiency**  |
| Average customer interaction time delivery time (Payments) | 3 minute |
| Delivery Mileage  | 100Km/ltr |
| Average customer packing time  | 5 minute |
| Average order taking time | 5 minute |

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| **Other assumption**  |
| Expected amount per order | 2000 |
| Packaging cost  | 240 |
| Transport Route of vehicle (2 routes for a vehicle per day) | 150km/route |
| Electricity per day  | 120 unit |
| Average customers per day  | 50 |

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| ADMINISTRATIVE EXPENSES |
| **Particulars** | **Montly**  | **Yearly**  |
| Stationary and Printing |  10  |  120  |
| Telephone |  15  |  180  |
| Legal charge |  20 |  1,200  |
| Travelling  |  125  | 1,500 |
| miscellaneous |   | 230  |
| Total  |   | 3,110  |

Travelling expenses includes fuel of the person collecting orders

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| **SELLING AND DISTRIBUTION EXPENSES** |
| Particulars |   |
| outward carriage |   |
| Delivery expenses (fuel cost) |  2,130  |
| Vehicle rent  |  1,200  |
| Packing expense  |  2,130  |
| Total  |  5,460  |

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| **Profit and Loss statement (in USD)** |
| ` | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| Turnover | 100,700 | 151,050 | 227,050 | 340,100 | 510,150 |
| Production (tonnes)/y  | 106 | 159 | 239 | 358 | 537 |
| Production capacity in Kg/h  | 100 | 100 | 100 | 100 | 100 |
| Sales price per tonne | 950 | 950 | 950 | 950 | 950 |
| Production Line | 11,892 |   |   |   |   |
| Raw materials | 15,400 | 23,100 | 34,650 | 51,975 | 77,963 |
| Gross margin | 73,408 | 127,950 | 192,400 | 288,125 | 432,188 |
| Labor costs | 11,270 | 16,905 | 25,358 | 38,036 | 57,054 |
| Technical assistance | 2,100 | 2,100 | 2,100 | 2,100 | 2100 |
| Energy and water | 3,250 | 4,875 | 7,313 | 10,969 | 16,453 |
| Maintenance and spare parts | 980 | 980 | 980 | 980 | 980 |
| Administrative expense | 3,110 | 4,665 | 6,998 | 10,496 | 15,744 |
| Packing and transportation | 5,460 | 8,190 | 12,285 | 18,428 | 27,641 |
| Other manufacturing costs | 900 | 1,350 | 2,025 | 3,038 | 4,556 |
| Total operational costs | 27,070 | 39,065 | 57,058 | 84,046 | 124,529 |
| **EBITDA** | 46,338 | 88,885 | 135,343 | 204,079 | 307,658 |
| Depreciation | 1,253 | 1,253 | 1,253 | 1,253 | 1,253 |
| Result before taxation | 45,085 | 87,632 | 134,090 | 202,826 | 306,405 |
| Profit tax (30%) | 13,526 | 26,290 | 40,227 | 60,848 | 91,922 |
| Net income | 31,560 | 61,342 | 93,863 | 141,978 | 214,484 |

**11.2 Long-term financial Plan**

In addition to the enclosed financial information contained in this business plan, NovFeed would like to make the following observations that were not emphasized in this business plan:

The business plan covers only five years of operations. We consider these initial financial projections to be reasonable. Growth is limited to financing capabilities and is not hindered by limited demand. While developing this plan we were only able to talk with several potential customers in Tanzania. As our research shows, that the demand for quality and affordable fish feed very large and continuing to grow. We feel that many more potential customers exist. Market prices of fish feed have been increasing rapidly and were not incorporated into our sales forecast. As prices increase, NovFeed product will become increasingly profitable.

12. **Controls and business Risks**

The Fish Feed market has been growing steadily over the last several years. With this in mind we intend our marketing service an products and expand accordingly. We project sales to increase accordingly, as we continue establishing a reputation for ourselves, especially in Feed Industry. Throughout the year we intend to undertake regular evaluations of our business and marketing strategies so as to ensure that we are in line with our intended objectives. In summary we intend to undertake the following:

* Tracking and follow-up: we intend to have the discipline, as company, to track results of the business plan and make sure that we implement.
* Market segment focus: we intend to have the discipline to maintain the market segment focus.
* Saying no: though difficult initially we intend to be able to say no to special deals that take us away from the target focus and are unprofitable.

**12.1 Business Risks and Assumptions**

Risk assessments have been mentioned throughout this business plan and the following table summarizes the important challenges and our mitigation approaches.

| **Type of Risk** | **Measures proposed** |
| --- | --- |
| Unfair aggressive marketing by fish feed large processing companies | Market survey will be undertaken to determine strategies and marketing tactics being used by competitorsPeriodic scenario mapping will be done to forecast market behaviors among competitors on emerging changes |
| High inflation and fuel price increases | Efficiency measures will be take to ensure that changes does not significantly lead to rise in product prices so as to sustain our sales margins  |
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| Fish Feed price variability  |

 | Work with market advisor to identify price opportunities |
| Changing policy and trade factors. | Take time to monitor events in the policy and trade arenas that might impact on feed business objectives. |
| Low Sales | Regular customer feedback, Proven demand for products, Diversity of markets and Options to reduce expenses, if necessary |
| **Assumptions** |  |
| Agri-product supply dynamics will keep prices stable | Diversified markets and product branding strategies will enhance business competitiveness  |
| Grants will initially be secured in the short term then loans in the long term | Proposals to donor agencies will be developed and shared to attract funding |

**12.2 Internal control**

Our accountant is experienced in this type of business which includes international trade in future. He will help set up a system of internal controls to make sure that the company will receive all of its income without any of it being siphoned off by waste, fraud, dishonest employees or carelessness. Included in an internal control policy is who can sign for goods and services and who controls the release of goods and services out the door. Included in the internal control policy will be the requirement that the only person authorized to sign purchase orders, make capital acquisitions and sign check

**13.3 Contingency plans**

As we considered these risks we have also made contingency plans for unprecedented events or occurrences. We intend to watch our results very carefully. We may need to concentrate less on certain product than others, if we intend to get the margin up or clients become difficult to attract. We might be able to avoid the straight competition with the major companies by focusing more on the previously mentioned product market and marketing research. contingency plan we will make is insurance that will protect our assets. One of the risks we have to face mentioned earlier, the occurrence of a fire outrage will be curbed by placing fire extingusher. We understand the success of the company thus hinges on meeting our sales targets each year and on maintaining a price nearly identical to the suggested price. It will be more difficult to change the sales price than the sales quantity due to the competitive nature of this business. However, if these targets are not met, NovFeed will further investigate sales relations with our core customers e.g wholesales and chain retail stores.

**Appendices**



