

Artical History

Received/ Geliş
15.06.2019

Accepted/ Kabul
20.07.2019

Available Online/yayınlanma
01.08.2019.

Economic feasibility for a livestock venture in turkey

Dr. Nawfal K Ali

Assist Prof (Economic Deve;gment). Head, Dept, Economic & Social Studies

Center for Regional Studies, University of Mosul, Iraq

Abstract

This paper aims at 'presenting a feasibility study for a virtual livestock project by an Iraqi investor in Turkey'. Turkey was chosen as a typical and distinct alternative investment environment for Iraq. The problem of investment is in Iraq, for many decades and still. This is due to the exodus of Iraqi investment funds and the deterioration of the local industrial agricultural sectors.

The best industrial agricultural investment that Iraq needs, among other things, is a livestock production project. The importance of the study is that it provides a scientific vision for industrial agricultural investment for the production of protein foods, which this study calls 'virtual products'. Iraq imports most of its needs for these products. 'The size of the project is supposed to be broad and integrated to reap the benefits of competitive economic externalities for mass production,' the study says. It ensuring the successful entry into the market of competitive meat and dairy products upon studied feasibility. The preliminary economic feasibility study (productivity-marketing) adopted a piece of large project information under incorporation. The Data quoted of the technical file for construction. The study included an introduction and three topics: technical feasibility; economic feasibility (of dairy production); and economic feasibility of meat production.

The study concluded, after successive stages of production and evaluation of Turkish market data, in July 2018, that the site price of red meat, alone, produced in this project by its specifications, is less than the market price of seven Turkish TL per kilogram as an average. Net profit of red meat is 17.45 TL / kg. The production of one cut calf from meat is more than 8,738.4 TL. The total revenue of red meat products alone is more than 412 million TL / year. The same trend with the other products of white meat and dairy products with table eggs.

The valuation conclusion reached many results and proposals, most notably that the costs of production plus the transfer cost of products to the Iraqi markets and the rest of countries in the Middle East (with customs taxes) come at competitive prices and economic returns. It compensates the establishment of the same investment inside Iraq. However, these products contribute to the economic growth of the investment environment.

Keywords: Economic feasibility, Livestock Farming, Economic development.

IEL Codes Guide: Q1, O12, O13.

I. Introduction

To avoid financial loss in new livestock businesses or that do not make a good profit, the feasibility study is required. Many farmers and startups that ignored the importance of a feasibility survey have paid dearly for it (Akinbobola 2019)

The settlement of any economic investment project in the Middle East aims to be successfully distinct, with which choices launched toward Turkey^(*), favoring and guaranteeing opportunities for profit, trade and agricultural and food investment along of Anatolia eastwards to Marmara in west (OKTAMAM Group 2019).

Many decades ago and to date, working papers and researches have dealt with the economic feasibility of raising livestock, producing meat and animal products in a variety of ways and methods, depending on the different economic and productive environments as well as the nature of societies and stages of development and agriculture (Jones 2018; STDF 2017; Madu K et al 2016; Slijepčević and Dosović 2011; Curtis et al 2007; Duncan 1997; Dobbs 1988).

Despite the abundance of domestic resources, investors are escaping out of Iraq, to the environment of support, investment encourages and the acquisition of agricultural land. Turkey has incentives as one of the countries that attract and receive (Invest 4 Land 2019). Iraqi investment there is economizer, of food security, energy supply, virtual water, and required environment, taking into account the new and renewable energies as well as externalities by other sectors, i.e. so-called "virtual investment". It also comes within the official directions supporting the transfer of investments outside of Iraq, and benefiting from the marketing of products to the provinces of Nineveh, Kirkuk, Salahuddin and other provinces of Iraq. Turkey has defied the declining global trend of foreign direct investment. Last year saw strong growth of 14%, recording 13 billion and 163 million dollars. While its the other, for the worldwide, declined 19%, due to increased risks in the global economy and protectionist policies (Alaraby 2019).

This paper aims at conducting a "Feasibility Study of an Animal Wealth Project for Establishment in Turkey". Turkey's economy shortcuts the world's economies by diversification in its natural wealth, multiple productive resources, and its unique environment for agricultural investment, attracting both domestic and foreign investors. The study assumes that "a secure economic environment with the attractive investment climate is crucial to the success and development of a livestock project".

The problem of the study lies in the absence of published studies, its analytical details and based on economic feasibility. This fact limits the interest of feasibility assessments of this study by focusing on the economic costs and returns and the profits at the level of consumption unit counted for the consumer from total costs. This problem is addressed by the current work.

Meanwhile, the problem of Iraq's economy is the deterioration of production, private investment and government investment for decades. It Lieson the simultaneous deterioration of the agricultural sector and the decline of the industrial sector. This is addressed in this study. Local production and also the development of productive capacities are with no interest with the petrodollar. The private sector in serious decay,

and environment-dependent first and foremost in all its investment activities. In fact, there is a reluctance of domestic and foreign investors, as opposed to going to Turkey, for several factors that will be mentioned.

Turkey, Why?

There are many factors motivating the Arab capital to invest in Turkey, the most important, maybe (OKTAMAM Group 2019):

1. Political and social stability enjoyed by Turkey.
2. Facilitation and guarantee of the rights of foreigners to own and obtain life-long stays, renewable annually, in Turkey once they own a property.
3. Neighboring Turkey to the Arab countries, besides the Islamic Arab character spread in all cities.
4. The Turkish ethic and beautiful nature, from the mountains of Trabzon to the waters of the Bosphorus, Bursa Falls and the mild climate in summer and winter.

The question: Is there economic feasibility to invest in Turkey? What is a rewarding project for investment? An example of a joint industrial agricultural investment is a livestock project! This includes the establishment of an integrated production company for protein foods: red meat, cattle and sheep; wild and marine white meat; table eggs; and dairy products. Maybe the project has to produce all primary and intermediate products as well as all production inputs internally, not to buy them from the market. In principle, the study considers two main fundamentals in establishing a livestock production project: first, be economically and commercially viable; and, it requires the establishment of integrated agricultural and industrial projects in miscellaneous fields. Thirdly, the size of the project that supposed to be substantial to achieve competitive externalities from large-scale production and to penetrate the competitive market for meat and dairy.

The study here, is in face with the agricultural and industrial investments. The first one includes farms for various feedstuff, food and peripheral products such as fertilizers, appetizers, detergents, biomass, plastic, packaging, transport and marketing (under the latest types of modern scientific techniques, production lines, quality laboratories, R&D). Poultry farms, turkeys and grandmothers; egg chicken farms; fowls and turkey; fish fields; poultry and turkey slaughter; various meat factories; and filling & canning plant.

The project employs a wide production capacity and should stand for mass production, modern and sophisticated. This requires to start with stages to be integrated, within five years, to rise to 120 thousand heads of prey and 120 thousand sheep. The project with agricultural and service farms requires the employment of at least 3000 employees and workers, all specialized cadres, workers, technicians, operators, supervisors, site managers and departments.

Data and Design Structure

Information and data of the study are based on: (1) The technical study file; (2) Specialized sources of livestock projects; and (3) Wire surveys on exchange rates, marketing, and trade. The study data is distributed among aspects: agricultural, farm-manufacturing, and administrative & professional. The actual areas required for cattle and sheep farms and agricultural production areas shall be recalculated and assessed according to modern scientific-practical measures for breeding and development of plant and animal resources.

The technical study of the virtual project estimated the total area of the agricultural, industrial and service lands between 506 and 530 thousand dunums (about 130 hectares, or 12 million square meters). The economic study assumes that all these areas of land have to be used for the cultivation of permanent crops, raising those numbers of dairy cattle, and sheep with 10-15% goats, as well as integrated poultry breeding farms. Nutrition requires the cultivation and manufacture of various fiber plants and calorie products that feed and fattening the production of high-quality animal protein, during the first five years. Up to 350 thousand heads of cows and sheep.

The production includes: (1) final products of meat: white meat of poultry and fish; red meat of sheep and calves; dairy products; table eggs; (2) Semi-final products: fertilizers, soap and detergents; electricity; (3) intermediate products of Sugars, such as Dates and Beets Sugar Cane and fruit; olives; and soya; mushrooms and preserves.

The economic study also assumes that a project embodied on the ground began its work on its first day. It focuses on the cost criteria calculated from production reality in order to decide to continue production of each category within the scopes of the project, in the first and second stages of increasing production returns. Increasing aggregate returns, and increasing marginal productivity increasingly; raising aggregate yields in growing increments as the project grows, with declining marginal productivity. The producer in both stages will maximize total production in parallel with the total 'yield increasing' to reach the greatest revenue at the lowest average costs per unit of product. The project should avoid production expansion that may lead to its transition to the third stage of 'declining yields', and continue to cover average revenue rates as well as marketing at competitive market prices.

Structure of the Study: The study comprises three aspects, other than the introduction, namely: technical feasibility structure; economic feasibility for dairy products; and economic feasibility of meat production. At the end valuation and proposals.

II. Data of Economic Feasibility

The economic activity structure consists of three main industrial units:

1. Production of sugars for nutrition: In the warm southernmost on the Mediterranean, in the state of Osmania (Mersin), an area of 25 hectares with 1000 workers, for the production of soy and forage concentrates.

2. Poultry production: In the manner of the basin X in the state of Adana / Ceyhan next to Mersin. It depends on the method of concentrated growing, the area of $110m \times 16 = 1760$ Squared Meter, operating 1000 workers.

3. Dairy production: 120 thousand Milky and birth cows of frize type with their calves in Erzurum.

Production: The project is based on: farms for cattle, sheep, poultry, fish, mushrooms, olives; production of fertilizer, soap, detergents, electricity, recycling, and waste treatment, laboratories, general services unit and construction contracting. The farmer needs 130 hectares, of which 25 hectares for sheep and about 105 hectares for cows (Semental and/or Holstein, Dutch and American), to produce:

1. Red meat 100 tons/day: cows, sheep, and goats; white meat, chicken and turkey
2. Milk 2500 tons/day
3. Organic fertilizers and by-products of 1800 tons/day
4. Protein 450 t / day^(**).



Map 1: Large political and Administrative Map of Turkey with Roads Cities and Airports: Project Geographical settlement As the Technical Study

First: Production of Sugars (Annex 1)⁽¹⁾:

Fruits, fertilizers, fodder, fish, methane (biomass) and processed alcohol, for 60 tons / day molasses; liquid sugar from palm honey; gas and alcohol; 8 t / day of Liquorice; Vinegar 25 thousand liters / day; enzymes 1 t / day; yeast bread 24 t day; and yeast feed 220 t/day.

Fruit: 24 tons / Work shift, fruit concentrates, with juices or nectars and soft drinks 48,000 liters / shift-work; canned cane appetizers such as oil, cucumbers, fruits, and seasonal vegetables 10 tons/day;

Fertilizers, Feed, and Fish: Nuts, crusts, and juice deposits 150 tons/day; feed 1800 tons, organic fertilizer: 200 tons/day caned fish.

Gas & Alcohol: 25 tons/day pure carbon dioxide gas of CO₂ to produce ethanol or tortilla; 200 thousand liters/day, ethanol alcohol +15,000 liters of medical alcohol and 3 tons/day, and aromatic oils. This needs 4500 m³ / day healthy water, producing 25,000 liters / shift-work of bottled water and soda water. (1 m³ = 1000 liters). $4500 \text{ m}^3 = 4500 \times 1000 = 4500000 \text{ liters} = 25000 \div$

Second: Poultry Production: Basin X, in the state of Adana / Ceyhan (Annex 2) ⁽²⁾.

Third: Dairy Production: this requires to Produce: fertilizers and olives; manufacture of soap and detergents; electricity; waste recycling and treatment; public services; As well as sheep farm; mushroom farm; protected plantations; and construction contractors.

The site was selected in the state of Erzurum for the production of milk from 120 thousand dairy cows with their calves, which receive feed and put manure for organic fertilizer.

Bovine Farms: to be settled in the state of Mersin with an area of 70 thousand hectares, 10 stations, i.e. each with a distance of 3 km, comprising 12 thousand dairy cows (15 bull with hybrid modified characteristics of artificial insemination with embryo implantation), with the fertilization of fattening calves after testicle; four automatic rotary bins with a milk preservation system and transport to the central plant; and a dung collection system for producing manure for each of them, pumped to the fertilizer plant with manure transport trucks. The 10 farms are connected to the dairy plant, which operates non-stop throughout the week (from a German company and a Swedish company), including about 12 production lines (Annex 3) ⁽³⁾.

Modern Cows Slaughter: capacity 200 head daily increases to 300 heads with systems of cutting, loading, frozen storage, bone treatment unit, blood, water, and mini tanning.

Factory for Production of Powdered Milk

Sheep & Goats Farms, twin-purpose for very expensive cheesecake, starting with the purchase of two herds of 2500 heads for each race.

Mechanical Unit: tractors, combines, seeds, fertilizing and combating ...

Performance Analysis: this requires:

- 1) open land area for farms
- 2) permanent water sources for irrigation and water, industrial needs and sewage wastewater
- 3) safety conditions of hard & harsh forces
- 4) proximity to the transportation costs and different roads
- 5) electric power sources
- 6) Residential center for workers for all
- 7) Contracting company for the project and its civil and electromechanical works, and installation of equipment
- 8) The possibility of bringing qualified Iraqi Jordanian technical experts Experiences
- 9) Contracting with local suppliers instead of externals
- 10) accessible sites of productive farms of poultry

and cows .. Industrial production locations such as warehouses and others, Safety from theft and assault, protected by control systems and monitoring 11) scientific cooperation agreement with universities.

Sheep Farm: With the following units:

Olive farm: on an area of 25 thousand hectares (100 thousand dunums) allows the raising of 5 heads of sheep/dunums. It could be invested to about 350,000 sheep (70,000 dunums of them, i.e. 70%). The herd is to be annually renewed by 15% with a production age of 5 years for oysters and five times for annual birth and milk. Includes:

- a) **Closed Farms:** for feed and water for sewage.
- b) **Automatic Milking:** Dairy factory for the production of yogurt, cheese and butter, "animal fat and free fat".
- c) **The Massdunum:** for a flock of 350 thousand heads, automatical massaging thousand head a day for 300 days, and Islamic slaughter with all the requirements: slaughterhouse to cut meat and collect blood and dry it.

Organic Fertilizers.

Mechanical Unit: to serve the soil, tillage, control, prevention, irrigation, spraying, fertilization, seeding, harvester, cutting, conveying, packaging, selj production, transportation and distribution of concentrated and green feeds. It needs a central clinic and by-product unit, such as wool, leather and animal grease.

Economic considerations: growing 60 thousand sheep require to produce milk, cheese, butter and Chewing milk; 60 thousand birth head to produce meat; 60 thousand goats for milk and fattening cattle for slaughter at reaching the ideal weight.

Mushroom Farm: Due to the area of land, fecal waste, hot water, steam and biotechnology, fungus sweets are produced for families consumption, group and tourist restaurants, mushroom produces as an organic food free of industrial and chemical additives. Production reaches 10,000 kg/day and increases up to 25 thousand kg per day.

Protected Farms: Greenhouses for the production of vegetables with the use of organic fertilizers to produce pickles, cucumber, cauliflower, and cabbage.

Construction Contracting.

Synopsis of Production.

Slaughtering more than 1000 tons of meat; 400 tons of chicken; 30 tons of turkeys; half a ton of ostrich; 2 tons of sheep and goats; Red and white meat production 100 tons/day.

Dairy: 2500 tons/day dairy production

Poultry meat: 1055 tons of chicken; 1000 boxes/day of eggs. Mothers 850 thousand birds. Feed industry of 150 tons/hour.

Agricultural Land for Livestock

Lands for meat production and dairy production are divided into:

Area for breeding sheds: The healthy and safe breeding of large cows requires the allocation of distinct areas of the barn, which can respond to all activities of life and growth, including:

- A. Area of 1.5 hectares for each dairy cow and her son to cover grazing. or
- B. Area of 0.5 ha each cow with its calf for living in the case of feeding.

This space ensures that the cow will be able to yield milk, including a cow's area that is half open for monitoring and checking for rashes, for 120,000 cows. The area requires 60 thousand hectares.

Production Areas: Every 100 cows require a common cow or sub-center. In the case of this study, the number of sub-compounds is 1200 sub-centers, each consisting of 30 ha, for the following uses:

- 1- Automatic milking sheds and milk assembling and processing
- 2 - Buildings equipped with coolers to fill the milk until it is transferred to the place of production and manufacturing
- 3 - Special calves for the newborn calves and another for fattening
- 4 - Stores for feed
- 5 - Shelter for the sick cows

The total area of the sub-centers is 36,000 ha. In addition, 4000 hectares of road network space. The area of the centers with the road network will be 40 thousand hectares. Thus, the cattle farm needs a total area of 60 thousand + 40 thousand = 100 thousand hectares. It can be grown with palm trees and/or sugary fruit trees. The estimated area of the technical file indicates that cows farms and walnut trees 200 thousand dunums and equal 50 thousand hectares ($1.7 \text{ dunums/cow} = 0.35 \text{ ha/cow}$) are incorrect estimates. They receive feed and provide fertilizer and manure for organic fertilizer plant). Area of cattle and sheep farms are: $130 - (25 + 0.176) = 104.824 \text{ ha}$ (1: 2), i.e. $69.9 (= \text{about } 70) \text{ ha}$ for cattle + $34.9 (= \text{about } 35) \text{ ha}$ for sheep.

Also, sheep and goat farm for the production and industry of dairy products, especially very expensive cheeses. They are supposed to start with two flocks, each of 10,000 head (not 5000 headers as the technical file) within stages. Breeding of these herds (flocks) requires the availability of large natural grazing areas along with healthy fodder. As is known, for sheep are the most prolific mammalian species in a positive consensual manner with the grazing.

With the annual doubling number, the ten thousand keens to the project to become twenty thousand heads in the second year. In the third year, it grows to forty thousand, in the fourth to 80 thousand and in the fifth to 160 thousand head. In the sixth year, the farm will have 320 heads, 240,000 of which will be kept: while 120,000 head of eats for

births and milk, this size will be maintained later and the more goes on to produce meat in a selective manner.

Sheep farming requires 5 heads of sheep/dunum, and pastures are also bordered by olive farms. With the trees, types of feed and herbs are grown. They are invested to raise 350,000 sheep (70,000 dunums). The herd is to be annually renewed by 15% with a producing age of 5 years for ewe five-year annual births + her milk + slaughter. For optimal development and multiplication requires a ratio of land/sheep at least 50 m / sheep head grazing cultivar feed species. In light of this ratio the target size of the number of sheep of each type requires a land area of 150,000 dunums for 120,000 sheep in the first year, i.e. $1.25 \text{ dunums/sheep's head}$. The number of 350 thousand sheep in the sixth year: ie: $1.25 \times 350,000 = 437,500 \text{ dunums} = 109,375 \text{ hectares}$

For cows 200,000 dunums to be allocated, of which 120,000 thousand cows in the first year, by a ratio of 1.667 dunums/head of cattle. For the number of 350 thousand cows in the sixth year: $1.667 \times 350,000 = 583,333 \text{ dunums} = 145,833 \text{ hectares}$.

AS a Whole, for cattle and sheep farms together: $109,375 + 145,833 = 255,208 \text{ hectares}$. The farm needs: 255,208 hectares of cattle and sheep farms + 25,000 hectares for olive farms + 19,925 hectares for the rest items listed in the introduction of the study (olive groves, beets, sugarcane, poultry halls, palm farms, grapes, apples, oaks, fish, shrimps, warehouses, slaughterhouses, fertilizer, electric power, plastic houses, refrigerated warehouses and contracting unit), The total equals 270,133 hectares. That's to say more than 270,000 hectares of agricultural land, to be distributed among three states in Turkey.

Economic Analysis

All products from the Sugar Industry Unit are intermediate inputs for the final products of the consumer, represent the main weight compared to the white meat. Therefore, the analysis of the proceeds of white meat is recommended in the detailed economic feasibility study and with its actual cost analysis.

Detailed analysis is based on the available production capacities, and alongside it, the share of the project (the company later) in the market, to identify the levels of competition in light of actual accounts of similar companies with the ability to quickly introduce technological developments in the technical aspects of production. As well as the exchange rate of the TL.

The economic feasibility study for poultry production requires a survey of samples and accurate information on the final prices of poultry and meat products from pre-direct production of meat and eggs due to the large changes in product prices and the effect of inflation on the prices of poultry products. They are three weights of 1.25, 1.72 and 2.25 kg Chicken meat with eggs and other types of birds such as turkeys.

III. Economic Feasibility of Dairy Production

With the population growth of the Middle East, the livestock products market is growing and consumer demand also simultaneously. With high rates of economic growth, the capacity of existing competitive projects is expanding to cover demand. However, maximum production capacity is determined at optimal operating levels, due to the diminishing yield law. The productivity of projects that rely on mass production cannot be matched by small and medium enterprises. Large projects come to invest in supply opportunities that cover the growth of demand for livestock products. Therefore, from time to time, smaller projects are quit from the market and giving up their share in favor of big projects.

In light of the technical file data, the project considered a real investment opportunity for a typical cows farm, from all aspects. Livestock projects and investment in Turkish agricultural development are supported by the government. We expect to attract such investments because of privileges and preferences. Once established, it can be disposed of as desired by the investor or sold to a Turkish citizen or to foreigners.

The expansion of food supply depends on the cost of producing one kilogram of milk and meat. The cost of milk production depends on the cost of producing compost and calves. Therefore, the average cost of production per kilogram of milk is estimated after the value of compost, the value of the production of calves and any other income. After subtracting from the total costs we get the net cost of milk production alone. By dividing the average cost on the average quantity of dairy from cows, we obtain the average cost of producing one kg of produced milk.

Total costs - (value of fertilizer + value of calves and other revenue) = net total costs.
And the average cost of producing a kg of milk produced = net total costs / average quantity produced.

Production Expansion: The productivity of livestock can be increased by one of two options: increasing the volume of production in the light of the same costs, or reduce specific production costs. The first option is the best as the volume of production increases as long as the marginal costs of producing unit are equal to its marginal revenue (the price per kilogram of milk) and thus achieve a higher level of profit.

Production of Dairy Cows According to Official Figures

Variable costs of dairy production often account for more than two-thirds of total costs, namely: 70% of total production costs and fixed costs: 30%. Large dairy cows produce between 25 and 30 kg of milk, some of which are low in production due to feed composition, mostly due to summer heat. An average of 20 kg of milk is taken daily, with the exception of bovine cows and pregnant ones. The common type is the Dutch cow. When the average price of raw milk is 2.14 TL / liter.

The average monthly revenue of one dairy cow is 1280 TL, equivalent to US\$ 272 at market exchange rates of (\$ 1 = TL4) in July 2018's. The average daily revenue is 42.6 TL. The estimated average monthly operating expenses per cow are 680 TL, equivalent

to 144 dollars. The average cost is 22.6 TL / day, which is more than half the average daily revenue.

According to animal investment, the Turkish government gives 500 TL to support every calf given by a cow in the investor's fold. If the farm has 12 thousand cows and each year births, and the price of the newborn cow in Turkey is about 3,200 TLs, the government gives 6 million TL (equivalent to USM \$ 1.276) each year as support for the farm. This is what distinguishes investment in livestock in Turkey.

Productivity of Dairy Cow from Reality:

A net Yield account requires two things: First, costing: divided into direct and indirect costs: Direct costs, in turn, are two types: fixed and variable. The fixed one in general always occupies 70% of total costs, including:

1. The cost of the annual lease of the farmland
2. Annual depreciation value of construction, equipment, tools, and animals
3. Annual insurance costs on animals
4. Risk costs

(i) **Variable costs:** mainly include:

- 1) The animal feed costs account for approximately 57% of the total variable costs
- 2) Labor costs, represent 11%
- 3) Interest costs on capital, represent 16%
- 4) The cost of breastfeeding for the birthed calves is 7%
- 5) Replacement costs for animals, represent 8%
- 6) Costs of veterinary care and artificial insemination, which are internal within 1%.

Nutrition costs represent the largest proportion of variable costs at about 57%. It can be reduced by providing alternatives to traditional diets, from the residues of sugar products plus feed prepared within the project to raise milk production and fat ratio.

Indirect or Implied Costs: it includes:

- 1) Public administration costs
- 2) alternative opportunity costs for capital investment.

Average Daily Income from Milk

The amount of milk produced from herds of 120 thousand cows is estimated at 2.4 thousand tons/day (= 120000 x 20 kg). Their value is 5,136,000 (five million and 136 thousand) TL / day (i.e. =2,400,000 kg x 2.14). Therefore, the monthly revenue is 154,080,000 TLs or the **equivalent of more than 3 million dollars (1 \$ ~ TL5).**

Daily Average Total Costs

The cost of production depends on the factors needed for production, including cash costs such as wages and salaries; interest on loans; the purchase price of raw materials; and costs of various services. Some of these costs may appear in accounting records and others do not, such as capital goods consumption (maintenance); annual depreciation; animal extinction costs; and an alternative opportunity costs for capital. These costs are calculated and added to the costs paid and include the estimated wages of the farm owner's work because the income he pays for his work is economically known as the opportunity cost.

Labor Costs

1000 workers work in the dairy industry. Wages are estimated at \$ 340 (at the prices of July 2018 = 1,600 TL / worker / month or = 53 TL / worker / day = 5.3 TL / worker / hour).

The worker at a farm in Turkey was paid 1,600 TL (\$ 424) as of 5/2/2018. And about \$ 340 in July 2018. The average wage of the Turkish agricultural worker per day = $1600 / 18.156 = 30 \div$ TL.

Nutrition Costs

The large-calorie cow needs 12 kg daily feed (18% protein) + 6 kg straw (hay, beekeeping or dried herbs) to produce 25.2 kg of milk (eg, DCM, 1/2 cm), Ipek, unal yem .. etc. The ton of fodder is 2370 TL (= 506 \$) or 2.37 EL / kg. The cost of 15 kg 35.55 RL / day or a cow.

The production capacity of feed is 150 tons / hour, 8 hours / day = 1200 tons / day. Which is:

1200,000 kg divided by 120,000 cowhead = 10 kg / head. Since the need is 12 kg feed / cow head, the work of daily production to produce animal feed required is 12 hours for 1,800,000 tons / day.

1,800,000 kg / 1,200,000 head = 15 kg / day.
12 kg for each head, and the remaining 3 kg for each head of sheep.

This is in addition to the juice remnants, such as cores, crusts and juicing sediments produced by the project, with a capacity of 150 tons/day. Noting a productive feed of 1 kg of concentrated food/day versus daily 2.5 liters of milk. This percentage decreases in the summer unless external cooling of the crops is carried out as is the case recently.

Turkish Feed: In the case of feeding cows with concentrated feed produces more than 20 liters of milk/day and the amount provided is:

4 kg of concentrated feed (as a preservative) + 8 kg of concentrated feed (as a productive mixture) = a total of 12 kg of concentrated food/day. Feed Cost Ratio / Cow Rate 0.03.

Each 5 cow heads need 100 square meters, half of which is covered and half uncovered. A weekly veterinary detector. Its return is 300% within 6 years.

Table 1: Calculation of Average Cost of Production per Kilogram, Milk

<p>1. An average ratio of 1 kg of milk of nutrition costs = Average daily feeding costs per head / average daily Milk production $= 35.55 / 20 = 1.78 \text{ TL}$</p>
<p>2. Average share of 1 kg milk of average labor costs = Average daily working hours × Average wage / herd size × Average daily production per head $= [(12 \times 53) \times 1,000 \text{ workers}] / 120000 \times 20 = 636,000 / 2,400,000 = 0.265 \text{ TL}$</p>
<p>3. The average share of 1 kg of labor costs = Total monthly labor costs / [herd size × Average daily head count × 30] $[(12 \times 53) \times 1000 \text{ workers}] \times 30 \text{ days} / [1200 \times 20] \times 30$ $= 19,080,000 / 72,000,000 = 0.265 \text{ TL}$</p>
<p>4. Average share of 1 kg of veterinary care costs = Total annual veterinary care costs / herd size × average daily head count × 365 $203.7 \times 120000 / 120000 \times 20 \times 365 = 0.028 \text{ TL}$</p>
<p>5. Total variable cost per 1 kg of milk: $= 1.78 + 0.265 + 0.028 = 2.073 \text{ TL}$</p>
<p><i>The detailed Economic Feasibility Study covers all economic and technical indicators:</i></p>
<p>6. Mean share of 1 kg milk from value of equipment and equipment depreciation = Total annual depreciation of tools and equipment / herd size × average daily head count × 365 $= 468 \text{ for } 25 \text{ cows } (\times 120000 \text{ } 864,000,000 / (25 \div$ $= 468 \times 4800 / 864 \text{ million} = 2246400 / 864,000,000 = 0.0026$</p>
<p>7. Average annual share of 1 kg milk from annual value of construction depreciation = Total annual decomposition of construction depreciation / (herd size × Average daily head's production × 365 = $23 \text{ for } 25 \text{ cows } (\times 120000 \text{ } 25 \text{ } 25) / 110400 / 864,000,000 = 0.00013$</p>
<p>8. Average share of 1 kg Lin of annual insurance costs = The annual insurance value of herd / herd size × Average daily head production × 365.</p>
<p>9. The average share of 1 kg milk of annual rental costs = Annual rent (paid) / Herd size × Average daily head production × 365</p>
<p>10. The average share of 1 kg of milk is the average cost of risk = Average risk cost per head per year / average daily head production × 365.</p>
<p>11. The average share of 1 kg of milk costs of the management = Average</p>

headcount per administration / average daily head production x 30

There are similar projects in other countries, but they are different because of currency differences, the dollar exchange rate and the dollar's value varies from period to period (Harfuch 2016).

(ii) Revenue Calculations

Because milk production is the main objective of dairy farming, the daily return of milk is the main source of daily income. Thus, the average selling price of one kg of milk is a basic criterion. This to be multiplied by the average daily production of the farm to obtain the total revenue of milk per day. This gives the average daily direct income of the farm within a certain month or year. There is also other indirect income such as return from births; return from development; and return from fertilizer. The study Focuses on a high-production count of cattle breeding (20 kg/day):

Seasonal Return on Cow Production:

The monthly revenue of one cow is estimated at $\$ 396 \times 4.7 = 1,579.2 \text{ TL} / \text{month}$ $30 \div$ and $2.632 = 20 \div \text{ TL}$. Revenue of milk-liter is 2,632 TL, which is higher than the average cost per liter estimated 2.073 by 0.559 TL or equals 26.9% of the cost. These costs and revenues are exclusively for milk, far from additional costs and additional revenues for other products. The receipt of raw milk with a capacity of 2,500 tons / day provides total revenue = 1,397,500 TL / day, or about 42 million TL/ month (MUS \$ 8.9), namely 41,925,000 TL / month.

Except for other products such as a delivery line of sterilized milk vai UHT and 30 ton/hour sterile packaging system. And a pasteurizer system with filling machine and packing machines 15 tons/hour. An integrated production line of Mozzarella cheese of 2 tons/ hour, EDAM.GOUD cheese production line with capacity 3 tons/hour, a production line of cream (sterile cream) 30% fat with a filling line 2 tons/hour, and an integrated line of milk production with a filling system 10 tons/hour, as well as production line of butter 2 tons/hour.

IV. Economic Feasibility of Meat Production

Large cattle or mothers are a breeding project, which is raised for the purpose of milk and births. They treated as fixed assets and fixed costs, calculated after determining the useful life of the cows for the purpose of calculating the depreciation. It is probably five years, although some species such as the Dutch Hachinke Friesen up to seven years. As well as other fixed cost items such as: purchase costs of mothers; land rent; destruction of buildings, machinery and equipment; interest on capital; alternative opportunity costs and family work; work that includes salaries of permanent staff; In addition, the variable production costs of feed, vaccines, and medicines are included in veterinary care; casual labor; water; and electricity.

Through this, the total and average costs to be counted, fixed and variable costs also calculated for the maternal growing up the project. These costs are isolated from the costs of the calves' fattening project, which is generated from the maternal project (or purchased from the market for the purpose of sometimes fattening). These calves are subject to fixed costs, such as the amount of extinction of the breeding and other equipment, for the period of the calves remaining on the farm for one year, depending on the period of fattening, ie marketing, plus the fixed costs mentioned above, plus the variable cost items. From which total, average and marginal costs can be calculated.

The costs of the new calves do not require the addition of fixed costs as long as they are moving and will communicate, and do not constitute a burden on the place as a fixed cost. The planned production of the project is 100 tons/day. The project has two options:

(A) Quantity Shall be all Red Meat

This amount equivalent to 200 cows/day. The project's growth requires enough to make up for a year (about 36.5 thousand tons/year) by means of calves' births: $200 \text{ cow} \times 365 \text{ days} = 73,000 \text{ cows/year}$.

(73000) extra cows are supposed to provide in addition to the original number, compensation, either male or the categories of the lack of appetite or do not give birth or cut milk after the age of 5 years presumed. Oftenly a combination of these categories.

Births:

120,000 births mean $120,000 \text{ calves} \times 35 \text{ kg / baby} = 4,200,000 \text{ kg}$ (i.e. 4200 tons birth weight) represent:

$4200 \text{ tons} \div 36,500 \text{ tons} = 0.115$. In fact 11.5% of the meat produced from 73000 cows slaughtering / first year, how is it compensated?

An adult animal weighing 500 kg needs to grow to about double: $(500 \text{ kg} \div 35 \text{ kg calf weight at birth}) = 14.3$ times to reach this weight by assuming that the weight monthly doubles. Note that the females of the calves be mature and ready to reproduce at the age of 12 months and males at the age of 15 months.

While in terms of quantity of meat produced, compensation needs to increase the weight of births by 36,500 tons, and $4,200 \text{ tons} \div 36,500 \text{ tons} = 0.115$. Then: $500 \text{ kg} \div 35 \text{ kg / calf} = 14.3$ times, as well as: $36,500 \text{ tons} \div 3000 = 12 \text{ tons per month}$... the growth of all newborn calves. This is left to the project to adopt a feeding method that achieves annual compensation for the slaughtered calves.

B) Amounts of Red and White Meat

This is a favored case for the project from the first year of the project. The ratio of red meat production to white meat may be 1: 2, which means that two-thirds of the above quantity is red, adjusted 66 tons/day, and: $66 \text{ tons} \times 360 = 23,760 \text{ tons/year}$, red meat to be marketed. They refer to 132 cows at a daily slaughter, at 48,180 cows/year. That's: slaughtering accomplishes 40% of the amount of cows project after a full year, remaining: 71,820 cows.

Births:

In case of cows that are outside the period of pregnancy and childbirth to be isolated for the purpose of the slaughter throughout the year, we are in front of the remaining number of dairy cows, giving: 71,820 births. This number \times 35 kg / per born = 2,513,700 kg or 2513 tons birth weight.

According to the method of feeding, modern or traditional! The modern method is based on a growth rate of 1.4 kg/day, calf weighing 500 net meat within a full year. If the rate of growth 0.8 kg/day per month in the traditional way, grows 24 kg/month and therefore the calf needs 20 months to complete this net weight, i.e. about double years to two months.

Case 1: a Growth rate of 1.4 kg/day

Meat Quantity: Over a year we assume 71,820 calves are fully developed. Multiplying this number by 500 kg = 35,910 tons Quantity of meat covering half the amount of meat consumed.

As numbers of calves: $71.820 / 120,000 = 60\%$. In other words, 40% of the cows are harvested and 60% remain, compensated after one year, the puberty, they are for one and a half times the number of slots. The total number of cases is 20% higher than the original number: $120,000 \times 1.2 = 144$ thousand cows. The profit is in the year of producing meat 48,180 cows + increase in the next year 24 thousand new cows .. reserving the original number remains as it is.

Case 2: a Growth rate of 0.8 kg/day

With this, deliveries need a period of 20 months for puberty. That's to say: completeness profit in three years, not two, the year of production of meat 48,180 cows + in the following year increase 24 thousand calves, It takes 20 months to become 24,000 new cows, with the original number still the same.

Economic Factors in the Feasibility of Meat Production

1. Increase the difference between the costs of births and their feeding versus the price of meat
2. Reduce the loss of the death of cows and the weak and sick cases to a minimum of zero or equal, as the principle adopted by the project, zero losses.
3. Utilization of price fluctuations for basic feed materials and the use of non-traditional and modern feeds.

Production Costs of Animal Meat

Variable Costs

- 1) Nutrition costs (concentrated - feed - non - traditional feed and green feed).
- 2) Labor costs and living care.
- 3) Veterinary care costs.

Fixed Costs

- 1) Annual costs of assets: sheds; equipment; machines; animal mortality.
- 2) Administrative expenses
- 3) Loan interests
- 4) Value of animal insurance

(First): The Economic Feasibility of Cattle Breeding

Cost of Nutrition and Growing

The average consumption of one calf is 12 kg feed + 6 kg hay or straw a day. Calf weight at birth is about 35 kg or more. At the growth stage, the growth rate estimated 0.85 kg/day. Duration of puberty is 12 months for females and 15 months for males (360-450 days). A cost of a calf at birth is what has been spent since vaccination and its growth as a gene with health care and embryonic nutrition. The average cost of buying a cow is \$ 600.

Oftenly calf served 12 kg of feed per day, w something of breastfeeding. The cost of feeding was estimated in the previous paragraph, between \$ 380 and \$ 500 or = between 1786 and 2350 TL / kg. The rate is 2 TL / kg for feed. So, feed price = 2 TL x 12 kg = 24 TL / day / cow.

The calf is also provided with 6 kg/day hay or straw. Price per ton of straw is 120 TL (= \$ 25), which is = 0.12 TL per kg. Since the days after birth, the calf is separated from the mother and given milk and feed. After a month, the calf feeds itself. So, 0.12 TL x 6 kg=0.72 TL.

So the price of feed + hay; 24 TL + 0.72 TL / day. Total 25 TL for feed and hay/cow/day, which is higher than the mean with the official figures referred to in the cow dairy production in Turkey at official prices of 22 TL /cow/day. Accordingly, the cost of nutrition during the whole year; $25 \times 365 = 9,125$ TL /calf/year.

Labour Cost

The per kilogram.milk from work was estimated at 0.265. For 20 kg / day can be counted the cost of labour / cow / day at 5.3 TL / cow (or / calf) a day. The cost will be

$5.3 \times 365 = 1935$ TL / calf / year. This assumes that the same number of 1,000 workers to be employed in the cattle farm/year. In the next year, new workers can be employed as the new cows start to produce milk and pregnancy with a third generation and so on.

Cost of Medical Care

Medical care focuses on the costs of raising calves born and medical care for pregnant females. In this study, we have estimated that the share of one kg of milk from medical care is 0.028 TL. Of which 20 kg will be 0.56 TL / day, and the cost of medical care is cow/day = the cost of medical care for the new calf/day at birth. Within a year the costs will be $0.56 \times 360 = 201.6$ TL.

Average Variable Costs

The total average variable costs, ie, per new calf, are:

$$\begin{aligned} & \text{total nutrition costs} + \text{labor cost} + \text{veterinary care} + \text{cost of death} \\ & = (9,125 + 1935 + 201.6 + 0) = 11,261.6 \text{ TL / calf / year.} \end{aligned}$$

If the net amount of meat produced from the new calf farming each 500 kg. This is supposedly equivalent to the amount of meat weight of the pre-slaughter cow to produce 500 kg also, a net meat production.

Considering the weight of the cow has fallen below this level, the amount of the reduction of this weight is subtracted. Also, most of the breeds of the Dutch Friesen after the age of five years is more than 600 kg, some 700 kg. The figures adopted in this study deal with the net weight of meat produced in the project after the introduction of weights of the viscera, horns, heads, and skins, which are supposed to take full advantage of them in other productive uses for other products.

(Second) The Economic Feasibility Analysis of Meat Production

Here is a calculation of the average cost per kg. The context is the costs of new calves do not require the addition of fixed costs, as already stated just before.

The price of kilograms of high-quality beef meat in Turkey, as of July 2018 = 60 TL. It refers that the total revenue of 500 kg of meat is 30,000 TL, equivalent to nearly three times the cost of 11,261.6 TL /calf/year, which is the variable cost of new calves. It represents one-third of the total cost of the project. Or that fixed costs are twice as a variable.

Note that fixed costs shared by old calves (mothers) with new births, the latter accounting for half of the annual quota of fixed costs. The calculated variable costs are approximately equal to the fixed costs. Multiplying the variable cost of the new one, its share of total costs will be $11,261.6 \times 2 = 22,523.2$ lire. It is equal to marginal costs as well as average total costs per cow.

Calculation of Net Total Revenue

The price of selling one kg beef in markets of Turkey in July 2018 = 47 TL. With the price of the farm (wholesale) 40 TLs, the difference will be quite feasible to proceed with production.

Net profit of meat = $40 - 22,523.2 = 17.45$ TL / kg. The production of one slaughtered calf is estimated at 8,738.4 (Eight thousand seven hundred and eighty-eight) TL and half. The total amount of revenue = $[48,180 \text{ cows} \times 8,738.4] = 421,016,112$ TL. The Red Meat project alone gives more than 412 million TL / year.

Table 2: Return on Cost in 1st year for 250 Heads

Benefit and Cost	TL	\$	Feasibility = Total Cost/benefit
Fixed Cost	2,000,000	500,000	22.49%
Operational cost	2,269,000	567,260	
Annual return	960,260	240,065	

Adoption of exchange rate \$ 1 = TL \$ at current prices for 2017.

Table 3: Return to Cost in 1st year for 24,00 Heads

Benefit and Cost	TL	\$	Feasibility = Total Cost/benefit
Fixed Cost	192,000,000	48,000,000	24.74%
Operational cost	217,824,000	54,456,000	
Annual return	92,184,960	23,046,240	

Adoption of exchange rate \$ 1 = TL \$ at current prices for 2017.

* There is capacity internalities (project size) estimated at 10% increase in returns between 250 heads and 24,000 heads.

V. Conclusion

According to the estimates of the Turkish Ministry of Agriculture and Livestock and the World Food Organization data for 2017, the average contribution of animal protein in the diet of Turkish citizen is lower than his peer's in developed countries. Relating cows meat, production decrease and a high tariff on imports will lead to prices increases. Therefore, the Turkish government represented by this Ministry aims to compensate for the shortage in the livestock sector and to double the amount of red meat consumption (from 11 to 20 kg per capita) over the next ten years. According to this fact it is planned to lower prices than current, which requires raising domestic production of (800 to 1440 thousand tons a year) an increase of 75%.

The mentioned ministry plans to remedy the difference in the supply and demand balance in this sector via encouraging investment, offering a package of support to producers, including support for cows' food and health care, as well as a material incentive for production and various financing facilities for every project. Hence, the foreign investor has the opportunity to invest in an attractive sector with increasing

demand, with limited supply, and with the support of the state, which increases profitability and increases the investment safety factor.

It may be appropriate to propose or suggest the establishment of a cattle farm in Turkey to start a first stage of 10,000 or 12,000 heads of cattle in the first half of the start of the project as a first stage followed by a second phase of the same number in the second half of the year, with 24,000 heads a year. At the end of the fifth year bringing the number to 120,000 cow heads (Tables 2, 3).

The total cost of a 24,000-head project is about \$ 102.5 million, the first year for cattle farms, including the cost of purchasing this number of cows, about 50 million dollars imposing cow price is \$ 2000. This is in addition to the costs of sugar and chicken fields, which need to be studied within a detailed feasibility study.

Recommendation

The study recommends of making the decision to invest in livestock, adopting a project and starting the foundation once the license specifications have been completed, and the allocation of land required and the possible financing by the ownership guarantee from the necessary declaration to the infrastructure and metadata, as well as research and development, addressing the Detailed Feasibility for this purpose of maintaining accuracy of the financial and investment situation.

Requirements of Detailed Feasibility Study

An evaluation study of the project, directly before the commencement of production work.

Detailed feasibility study requires detailed and actual information:

Cost of land if it is a property. If it is rent, the value is zero. Annual rent is calculated as part of variable costs, not fixed costs.

The cost of construction for the accommodation and abattoir of animals such as barns, feeding yards, warehouses, dairy collection and factories, departmental buildings, water network costs, sewage systems, water tanks, and a power grid. Annual depreciation 5%.

The cost of machinery and equipment, the generators of electric power (spare in the case of dependence on the electric power of the state, as well as agricultural tractors or fenders, trailers and work trucks for the distribution of feed and the transfer of products and refrigerated trucks with refrigerated stores and finally production tools such as lactating bactuses and hygiene tools, etc. Depreciation 10%.

Transportation such as pick-ups cars and buses. Depreciation 20%.

Cattle Dying for natural reasons, depletion with health care accounts for 2% of their value.

For variable costs:

Annually consumed feed costs

Annual wages and salaries of employees
Annual medical care costs and allowances.
Annual electricity costs and fuels of all types
Cost of tools and spare parts
Taxes and insurance.

References

- A., Akinbobola (2019) "How to Conduct a Feasibility Study for a New Livestock Farm," Livestocking, January 30, 2019: <https://www.livestocking.net/conduct-a-feasibility-study-livestock-farm-business>
- Curtis, Kynda R., et al (2007) "Locally Produced Livestock and Marketing Feasibility Assessment" Technical Report UCED-2006. University of Nevada, Reno: <http://cecentralsierra.ucanr.org/files/114199.pdf>
- Daily Sabah Journal: www.dailysabah.com/turkey/, Visited 2018/02/05.
- Dobbs, Thomas L., "Economic Feasibility Methods: New Agricultural and Rural Enterprises" (1988). Bulletins. Paper 708: http://openprairie.sdstate.edu/agexperimentsta_bulletins/708
- Duncan, Marvin R., Richard D. Taylor, David M. Saxowsky, and Dr. Won W. Koo, (1997) "Economic Feasibility of the Cattle Feeding Industry in the Northern Plains and Western Lakes States", Agricultural Economics Report No. 370-S, NDSU, Fargo: <http://agecon.lib.umn.edu/ndsu.html>
- Harfuch, Leila, Gustavo Palauro, and Wilson Zambianco (2016), Economic-Analysis of Investment for the Cattle Ranching Expansion, Agroicone INPUT, Gordon & Petty Moore Foundation, São Paulo, Argentina. https://www.inputbrasil.org/wp-content/uploads/2016/11/Economic-analysis-of-investment-for-the-cattle-ranching-expansion_Agroicone_INPUT.pdf
- Invest 4 Land Co. (2019), Invest in Planted & Managed Walnut Farmlands: <https://www.invest4land.com/>
- Jones, Aled Rhys (2018) "Livestock Market Feasibility Study Final Report", Gareth Davies Project Services: <https://www.valeofglamorgan.gov.uk/Documents/Working/Regeneration/Rural%20Regeneration/100918-ValeLivestockMarketFeasibilityStudy-FinalReport-English.pdf>
- Madu H K, Omar N A, and Zailani S A (2016), "Feasibility for a Sustainable and Profitable Local Goats Production", Journal of Fisheries & Livestock Production, 4:3: <https://www.omicsonline.org/open-access/feasibility-for-a-sustainable-and-profitable-local-goats-production-2332-2608-1000181.php?aid=78175>
- OKTAMAM Group (2019), Invest in Turkey: <https://oktamam.com/استثمر-في-تركيا/>

Presidency of the Republic of Turkey, Investment Office, "Invest in Turkey: The Ten Most Important Reasons for Investment in Turkey" (2019):

<http://www.invest.gov.tr/ar-SA/investmentguide/Pages/10Reasons.aspx>

Republic of Turkey, President Office, Investment Office, Technical File of Jamal M. Rachid's Project for Agricultural and Animal Investments and Products Manufacture Via Modern Methods, Operation Capacity of 3000 workers, Ankara, June 2018.

Slijepčević, Saša and Amela Dosović (2011), "Goat Farm Feasibility Study, Sustainable Business and Inclusive Markets, Medid, Sarajevo:

https://www.undp.org/content/dam/bosnia_and_herzegovina/docs/Research&Publications/Poverty%20reduction/BiH_Goat-Farm-Feasibility-Study.pdf

STDF Project Preparation Grant (2017), Feasibility study for establishment of FMD-free fresh meat producing cattle subpopulations in Zimbabwe, (STDF/PPG/550):

https://www.standardsfacility.org/sites/default/files/STDF_PPG_550_ToRs.pdf

The New Arab (2019): <https://www.alaraby.co.uk/economy/2019/2/25/تركيا-تحقق-قفزة-قوية-للاستثمار-الأجنبي-المباشر>

USAID Firms Project (2014), Pre-feasibility Study Report Animal Fattening Project:

<http://www.sbi.gos.pk/pdf/Feasibility/livestock/Animal-fattening-feasibility.pdf>

Notes & Annexes

* As the nature of the population, qualified and competitive workforce, climate of liberal investment, the continuation of reforms, strong infrastructure, geographical position, and the customs union with the European Union .. etc.

** A protein source of waste from: (3% poultry losses), slaughtering residues as: blood, head of birds, insemination, feathers, and cattle slaught waste. (Here is the use of the bio-nano technology for advanced company that is scientific rights).

¹ (Annex 1)

Sugar Production units: techniques of sugars production in the state of Osmania (Mersin): Cultivation of 25 hectares that employs 1000 workers to produce soy and concentrates feed. The industry includes 21 units:

1- Central Extraction Unit: for Juices production: Dates and other fruits and their products. pumped to all units with a concentration of 20 Brix with the conversion of fibers and residues.

2- Concentrated molasses Unit: To produce and commercialize dates honey by 60 tons / day.

3- Liquid sugar Unit: to produce 60 tons / day palm honey with purification and removal of color and flavor of dates with intensification and treatment to concentrate 75% of the final consumer.

4- Processing Unit: of cores, crusts and sediments of guicing to produce about 150 tons / day with drying rotary kiln and grinding to add as additives feed for poultry, cows and fish. Plus **fiber pool unit**: Purification of juice residues and boiling with auxiliary compounds for use in the enzyme production unit.

5- Fodders Unit: The production unit of the compass card manufacturers for the production of 150 tons/hour for the manufacture of macabuses, poultry, cattle, fish, shopping surplus + Templates Unit: receive waste and processed products to be treated as cubes for cattle.

6- Bread Yeast Unit: To produce 24 tons / day of dry and soft yeast with additives to produce bread improvers, therapeutic yeast extract and produce appetizers for marketing.

7- Lemon Salt Unit: 98% Concentrated with Biotechnology and raw materials for sugar juice packed with commercial packaging.

8- Suction Squeegee Unit: Produces 8 tons / day Extracts concentrates of Liquorice, a wild herb, with the use of fiber for other units.

9- Vinegar Unit: to produce 25 thousand liters / day of sugar juice; dates, grapes, apples and molasses from unit 1, with 6% concentration of the German method of bacterial isolates of vinegar.

10- Alcohol / Ethanol Unit: 200 thousand liters / day Alcohol concentration 99.98% and 15 thousand liters of medical alcohol from the sugar juice from unit 1 or from the accessories of yellow corn powder and its treatment for the production of ethanol (and conversion of biomass to fodder compounds) and benefit of the fuel oil, and the establishment of a unit for fragmentation and production of essential oils and resinoids perfumery, the amount of 3 tons a day + The production unit of the fodder yeast / Turela: 220 tons per day, which is complementary to fodder from the remnants of the juice unit and extraction except cores.

11- Concentration Unit: to produce 24 tons / shift - produced from local or imported seasonal fruit concentrates to extract concentrates by physical treatment without preservatives, supplementing the previous units, to produce 48 thousand liters / shift - the work of juices diluted with seasonal fruits marketed as juices or Nectar and soft drinks.

12- Sanitary Water Unit: Assemble needs 4500 m³ / day water by adding this unit to produce 25000 liters / shift of bottled water and soda water. (1 m³ = 1000 l, 4500 m³ = 4500 × 1000 = 4500000. Therefore 4500000 ÷ 25000 = 180 working shift)

13- Plastic Unit: for the production of Packets Packing and rolling membranes.

14- Carbon Dioxide Unit: 25 t / day pure liquefied gas free from diabetic fermentation processes to produce ethanol or taurillo fodder, as a byproduct of steam generating exhausts for project uses and externally marketing the surplus while preserving the environment.

15- Enzymes Unit: producing 1 ton / day. With the reception of fiber dates and fruits from the units of guicing and treatment and enrich it with sugar juice. It is used to cultivate micro-organisms to produce enzymes for industry.

16- Appetizer Unit: produces 10 tons / day of canned pickle, oil, cucumber, fruit and seasonal vegetables.

17- Sauce and Ketchup Unit: produce 16 tons / day of canned remnants from juicing and extraction and from fruit, producing vinegar as byproduct and auxiliary material with waste manufacturing.

18- Fish Farm Unit: 200 tons / day, consisting of 300 aluminum aquariums with intensive breeding system. Sea and river fish species are produced in closed halls with 30 basins per group. Or tubs lined with 50 x 15 m black rubber for marine fish, seafood, shrimp, lobster, and the remnants of massdunums can be used to breed them.

+ Canned Fish Production Unit: A daily production of 200 tons / day and utilization of waste treatment and recycling.

19- Central Laboratory Educational Unit: To provide the requirements of hybrid genetic slip and support scientific research for local graduate students and develop the capabilities of the scientific company.

20- Organic Fertilizer Production Unit: The principle of non-waste is adopted as a philosophy of the study. It includes the production of 1800 tons of fecal waste for poultry and cattle and its conversion after drying into organic fertilizer for the farms and nurseries. This is an environmental treatment of waste with dead animals instead of burning it as animal protein as an intermediary for the development of micro-organisms and the production of fertilizer compounds for consumption and plant production, saving the environment from impurity and odors.

² (Annex 2) It includes:

1. Production Unit of Poultry Industry: 1000 tons / day, meat; 1000 egg box / day
 2. Fodder Unit, Light broiler (table and export): 105 tons / day Net weight, ten courses per year 32-33 days each: Slaughting, washing, cleaning and sterilizing within 24 hours.
 3. Medium broiler for the table: 500 tons / day, eight courses 42-44 days each.
 4. Heavy chicken manufacturing: 450 t / day net. Seven breeding courses, 47-48 days as context.
- Capital Turnover: 1055 tons of chicken.
5. Production, Mothers Chicken Unit: putting, 500 according to typical economic program. - Laying Chickens Unit: Intensive production, 1000 boxes / day, Cages of vertical breeding to produce 1000 standard eggs boxes 12×30= 360 thousand eggs / day, typical marketing.
 6. Feed unit: Of four parts: Soybean plant: with production plant of 100 t/ hour of dried soybeans for the production of soybean chips, continuous operation with grain crushing line and extraction of crude oil. Half the amount of crude table oil is refined as oil, to be made as margarina butter. The remainder is partly consumed by the feed factory.
 7. Fodder Factory: capacity 150 ton / h. A one-month central feed store to be held in the center of the project to cover the needs of the company and other store to satisfy the project consumption for seven days of birds fodder to the age requirement of each category, equipped with 40 specialized trucks for transport and distribution.
 8. Grandmothers Unit D8: An advanced hybrid for the production of laminated chicken lambs to provide efficient chicks.
 9. Mothers Unit: As a flock of 850 thousand bird, veins selected from herd of grandmothers.
 10. Hatching and Incubator Unit: receives eggs from previous units.
 11. Growing Unit: Breeding for broiler chickens in three categories:
A: 10% daily 2 weights of 1250 g and 1300 g net table meat chicken.
B: 50% per day 2 weights 1600 g and 1750 g net meat for marketing.
C: 40% daily with a weight of 2250 g Net meat for use in meat processing unit attached to the project.

fodded units B: of 3 parts:

12. Unit of Slaughter and Slaughterhouse: 1000 tons net meat in three lines: 1200 birds / h each line of cleaning and distinct packaging and marketing for table consumption, mentioned in A above or for manufacturing inside the company, with the benefit of the slaughting remnants and manufacturing as well.
13. Preparation Unit: Manufacture meat, 400 tons of chicken + 30 tons turkey + 500 kg ostrich + 2 tons sheep and goats + 100 tons beef, adding seasoning, to be marketed as chopped Sliced pieces of chicken Loose Bone + marmalade, salami, steak, crispy assorted chicken, with meat products such as kubba, pastrami, Eastern cuisine (Turkish, Iraqi Shami, etc.) with desserts, packing and packaging.
14. Recycling & Treatment Unit: Receive from unit of waste: blood, feathers bones, heads, fats, and skins, to produce protein for feed and natural compounds to produce organic fertilizers. Method: Hatching eggshells, be collected, pooled, bally washed mill to become finely chopped. Chicken blood collected and sift to centrifuge system for the production of serum, a preliminary material for the manufacture of

veterinary medicines. Drying of the idle and slacks to produce protein for feeding cows, after artificial processing.

Collection of Glaucoma: collect poultry fecal waste in two phases: methane gas and residues.

Organic Fertilizer Plant: collect the outputs of the previous units to produce more than 1800 tons per day.

Production Unit of turkey: proposal under study

Unit of Motherhood: chicks - massdunum - treatment of recycling of liver packaging

15. **Manufacture of Olive Oil (Typical Farm for Oil):** It consists of a turret of modern Turkish cooking equipment and production of pure and synthetic oil for industrial and medical detergents for marketing and consumption. Olives, It is preferred high-quality Spanish olives to be grown in Balacir state, north-western Turkey, need a 2,500 hectare farm to produce genetically modified, highly enriched olives oil with a density of 1600 seedlings / ha. Also fields of green fodder crops for growing grit, alfalfa and maize. Next to this, field of bees to pollinate flowers, and nearby soap factories, soybean oil and milk with olive oil to produce margarine. This is an integrated industrial assemblage of 10 productive units.

16. **Drying Unit:** to get rid of moisture and industrially treated as raw material for feed industry. Drying the cores after their guicing for industrial purposes.

17. **Manufacture of Detergents and soaps:**

Plant: food with a total package of 45-65 thousand tons / year. Production of Poultry Residues and fats of birds and cows. Materials for the manufacture of soap up to 220 tons / day; Soybean oil 850 tons / day;

18. **Electric Generating Unit,** to be equipped with a 45-mb dual-purpose gas turbine unit and hot water and steam production for slaughterhouses.

19. **Industrial Services Unit:** Electric Power: The project needs:

- 7 megawatt for sugars, 3.5 megawatt for feed plant
- 2.5 mass dunum and meat factory
- 1.5 for feeding and hatchery
- 15 Chicken Breeding Farm
- 14 Mother 's Farm
- 3 Fertilizer and Packing Factory
- 6 Central Stores

³ (Annex 3):

- 1) Line of receipt of raw milk capacity 2500 tons / day
- 2) UHT Line of receipt of sterilized milk 30 t / h sterile packaging system
- 3) Pasteurizing system and packing machines 15 tons / hour
- 4) An integrated line producing mozzarella cheese capacity 2 tons / h
- 5) EDAM.GOUD cheese production line, 3 tons / h
- 6) Cream production line (sterile cream) 30% Fat with capacity filling line 2 tons / h
- 7) An integrated milk production line with a 10 ton-hour capacity filling system
- 8) Production line of butter capacity 2 tons / h
- 9) The production line of marquina butter 3 t / h
- 10) Ice Cream production line savoured 3 t / h
- 11) Packing line and packing bags weighing 20 kg, 1.5 kg and stores
- 12) Production line of butter and canning.