



Islamic Republic of Iran

Ministry of Economic Affairs and Finance

General Department of Economic Affairs and Finance of North Khorasan

# Grape Syrup & Unripe Grape Juice in Bidak Bojnourd Industrial Park Center of Investment Services of North Khorasan

2021 April

# Summary of Technical-Economical Pre-Feasibility Study

The name: Grape Syrup - Unripe Grape Juice

Sector: Agricultural

Subsector: Alterant Industries

ISIC Code: 1513512489,1513512484

The owner of:

Organization of Economic Affairs and Finance (North Khorasan)



The ADDRESS:

Iran, North Khorasan, Bojnourd

## Table of Contents

1	Abstract.....	4
1.1	Project Profile - Summary Sheet.....	4
2	Project Location.....	6
2.1	Province: North khorasan.....	6
2.2	The County: Bojnourd .....	6
2.2.1	Agriculture Section Advantages.....	6
2.2.2	Tourism Section Advantages .....	6
2.2.3	Mine and Industry Section Advantages .....	7
2.2.4	Urban Development Section Advantages .....	7
2.3	The Project: Grape Syrup -Unripe Grape Juice .....	8
2.4	Access to the Infrastructures .....	8
3	Technical Specifications of Plan.....	9
3.1	Product .....	9
3.2	Project's Requirements .....	10
3.3	Space and Infrastructure Required .....	10
3.3.1	Equipment and Machinery .....	11
3.3.2	Raw Material and Intermediate Components.....	12
3.3.3	Management and Human Resources .....	13
4	Market Study and Competition.....	13
4.1	Examining Supply And Demand Trends .....	13
5	Financial Projection .....	19
5.1	The Cost Estimate .....	19
5.2	Break-Even Analysis.....	20
5.3	Sensitivity Analysis of IRR.....	21
6	Duration of Project Operation.....	22
7	Incentives, Features And Advantages of Project .....	22

# 1 Abstract

## 1.1 Project Profile

Table 1: Summary Sheet

Project Introduction			
<b>Project Title</b>	Grape syrup -Unripe grape juice		
<b>Sector</b>	Agricultural		
<b>Sub Sector</b>	Alterant industries		
<b>Location</b>	Iran, North khorasan, Bojnourd		
<b>The County</b>	Bojnourd		
<b>Products / Services</b>	Grape syrup, Unripe grape juice, Oilseed cakes		
<b>Annual Nominal Capacity</b>	1,500	Ton's	
<b>The Raw Material</b>	Grape and Packaging Equipment		
<b>Employment</b>	21	Person	
<b>Land Area</b>	6,100	$m^2$	
<b>Floor Area</b>	2,425	$m^2$	
<b>Energy and Water Consumption</b>	Water Consumption	40,000	$m^3$ in year
	Electricity Consumption	100	KW
	Gas Consumption	500,000	$m^3$ in year
<b>Fixed Capital</b>	165,400	Million Rial	
<b>Working Capital (The First Year)</b>	66,797	Million Rial	
<b>Payback Period</b>	3.73	Year	
<b>Net Present Value (NPV)</b>	201,584	Million Rial	
<b>Internal Rate of Return (IRR)</b>	43	%	
<b>Modified Internal Rate of Return (MIRR)</b>	26	%	
<b>Break Even Point</b>	29	%	
<b>The Exchange Rate (Dolar)</b>	240,000	Rial	
<b>Description</b>	In this project, all the materials related to the study of the Grape syrup and Unripe grape juice market are examined.		

*Table 2: Legal Authorizations*

Licensure Status	
Descriptions	Issuance Status
Principal Agreement (Establishment licensure)	☒
Land Allocation	☒
Environmental Inquiry	☒
Possibility of Water Supply	☒
Possibility of Electricity Supply	☒
Possibility of Electricity Supply	☒
Possibility of Gas Supply	☒

*Table 3: Total Investment*

Descriptions	Local Currency Required			Foreign Currency Required (Million Euro)	Total (Million Euro)
	(Million Rial)	Rate	Equivalent in (Million Euro)		
Fixed Capital	165,400.4	240,000	0.68	0	0.68
Working Capital	66,796.9		0.27	0	0.27
<b>Total Investment</b>	<b>232,197.3</b>	<b>240,000</b>	<b>0.96</b>	<b>0</b>	<b>0.96</b>

- Value of Foreign Equipment / Machinery: 0 Million Euro
- Value of Local Equipment / Machinery: 0.3968 Million Euro
- Net Present Value (NPV): ): 0.84 Million Euro in Years
- Internal Rate of Return (IRR) (for 10 years): 26%
- Payback Period: 3.73Years

Table 4: General Information

Company Profile	
Project Type	Establishment <input checked="" type="checkbox"/>
Company Name	North Khorasan Organization of Agriculture Jihad
Contact Person (Name and Position)	Mr Rezvan Nikbakht
Email	et.1383@yahoo.com
Mobile	+989379094738
Tel	+9858-32257990
Website	http://portal.nkj.ir
Address	North Khorasan Province, Bojnurd, Chehelodometri Kamarbandi Blvd, North Khorasan Organization of Agriculture Jihad
Company's Legal Structure	Government <input checked="" type="checkbox"/>

## 2 Project Location

### 2.1 Province: North khorasan

### 2.2 The County: Bojnourd

Bojnourd is the capital city of North Khorasan Province, Iran. It is about 701 km from Tehran. Bojnourd is located in the plains enjoying a mild and mountainous weather.

There are several reason for investing in bojnourd, such as:

#### 2.2.1 Agriculture Section Advantages

- Suitable and diverse climatic conditions and having relatively suitable rainfall
- Having far more livestock per capita than the national average
- Having a considerable supply of diverse fruits
- The Possibility of establishing agricultural conversion industries in industrial parks

#### 2.2.2 Tourism Section Advantages

- Having the presence of different ethnicities and producing handicrafts related to the culture of each ethnic group
- Being in a special geographical position and traveling 24 million passengers annually (ten percent of the total number of traveling passengers in the country) through North Khorasan

### 2.2.3 Mine and Industry Section Advantages

- Having large industries of alumina, steel, piping, petrochemical, cement and the availability of the development of industrial activities in downstream industries and creating a value chain.
- Conducting mineral exploration studies in Bojnourd, and valuable minerals for processing
- The existence of the Bojnord special economic zone has distinct advantages, including the shortest distance to the provincial capital among all special economic zones in the country, as well as its proximity to the Bidak industrial town.

### 2.2.4 Urban Development Section Advantages

- Appropriate and significant justification of urban and commercial projects and plans according to the characteristics and advantages of tourism, agriculture and industrial areas.
- The existence of transferable lands with suitable location.
- The need for commercial and tourism spaces in Bojnord due to the low per capita of these spaces.

This project will be construct in part 021 with coordinates (521730,4146987) in Bidak Bojnourd Industrial Park. Proposed location of project is shown in Figure 1.



Figure 1: Location of Proposed Land in Bidak Bojnourd Industrial Park

### 2.3 The Project: Grape Syrup -Unripe Grape Juice

### 2.4 Access to the Infrastructures

Table 5: Access to Infrastructures

No.	Needed Infrastructures	Distance to the Project	The Supply Infrastructures
1	Water	0	is provided
2	Electricity	0	is provided
3	Gas	0	is provided
4	Telecommunications	0	is provided
5	High way	<1 km	is provided
6	Sub way	0	is provided
7	Airport	8	is provided
8	Amirabad Port (Behshahr)	417	is provided
9	Bandar Abbas Port	1,493	is provided
10	Rail way station of Joveyn	170	is provided
11	Rail way station of Jajarm	192	is provided



### 3 Technical Specifications of Plan

#### 3.1 Product

Table 6: Project Specifications Based on ISIC Code

The Project	ISIC Code	Customs Tariff	Environmental Category
Grape Syrup	1513512489	13021900	3
Unripe Grape Juice	1513512484	20098090	3

In this project, all the materials related to the study of the Grape syrup and unripe grape juice market are examined. The purpose of the project is to strengthen the export sector, replace imports, etc.

According to studies on the supply and demand of Grape syrup, the production of this product from 2,021 to 2,025 will have an increasing trend that reassures new investors. Also, the import chart is bearish and this is a good opportunity for domestic production to replace imports. The amount of product exports is also expanding; therefore, new factories can enter this competition. Finally, domestic demand for Grape syrup is increasing from 2,021 to 2,025. Also, between 2,020 and 2,023, there is a shortage of about 2,200 tons, which must be compensated by the construction of new factories. In addition, the factory can plan for exports. Therefore, it is suggested that the investor invest in this project.

Undoubtedly, the most important reasons for justifying a project are based on its economic considerations. Gaining a suitable share of the domestic or foreign market, expanding the target market, and having appropriate financial and economic indicators (NPVR, IRR), and so on are among the most important goals of an economic enterprise to create or develop an industrial plan. In addition, the national and macroeconomic aspects of the project should be considered.

Also, the study of the effect of project implementation on social and cultural indicators at the national and regional levels such as unemployment, labor migration, cultural effects, and finally the political considerations of the feasibility study, both nationally and internationally, can justify the necessity of implementing a project. Getting out of dependence on the outside, increasing domestic production, etc. can be studied and analyzed in this section.

### 3.2 Project's Requirements

In order to perform quality control, the necessary controls must be performed from the beginning of the import of raw materials. These controls include reviewing the properties of raw materials required for production, quality control during production, and quality control of the product. The raw materials used in this industrial unit, such as grapes, and other raw materials used in the preparation of Grape syrup and unripe grape juice, have a direct impact on the quality of the final product. Therefore, first of all, it seems necessary to know the relative quality factors of each raw material.

In order to control the raw materials during production and the final product, various tests must be performed. These tests are performed in two ways, tests in which the material and product are visually controlled and tests in which the material and product are examined for physical and chemical properties. The criteria of these tests for Grape syrup is the national standard of Iran No. 2,685 and for unripe grape juice, the national standard of Iran No. 1,815.

### 3.3 Space and Infrastructure Required

Table 7: Land Purchase Costs (Million Rial)

Specifications	Area (m <sup>2</sup> )	Price per m <sup>2</sup>	Cost		
			Paid Cost	Needed Fund	Total
A piece of land in Bojnourd	6,100	1.5	0	0	9,150

Table 8: Site Preparation and Development Costs (Million Rial)

Description	Working Capacity	Unit	Unit Price	Paid Cost	Needed Fund	Total
Excavation	6,100	cm	0.3	0	0	1,830
Wall Construction and door	636	Sm	9	0	0	5,724
street construction (5% of the amount of land)construction	305	Sm	7	0	0	2,135
Green space and Lighting (1% of the amount of land)	61	No	8	0	0	488
<b>Total</b>				<b>0</b>	<b>0</b>	<b>10,177</b>

Table 9: Civil Works, Structures and Buildings Costs (Million Rial)

Description	Area (m <sup>2</sup> )	Unit Price	Paid Cost	Needed Fund	Total
Production Hall	1,000	25	0	25,000	25,000
Raw Material Warehouse	600	30	0	18,000	18,000
Product Warehouse	525	25		13,125	13,125
Office Building	150	45	0	6,750	6,750
Welfare, Guardroom And Scales	150	45	0	6,750	6,750
<b>Total</b>			<b>0</b>	<b>69,625</b>	<b>69,625</b>

Table 10: Infrastructures

No	Description	Unit	Annual Consumption	Unit cost (Rial)	Total (Million Rial)
1	Water consumption	m <sup>3</sup>	40,000	7,000	280
2	Electricity consumption	Kw	437,000	1,100	480
3	Gas consumption	m <sup>3</sup>	500,000	1,200	600
4	Gasoline	Litr	10,000	30,000	300
5	Unforeseen cost				146
<b>Total</b>					<b>1,806</b>

### 3.3.1 Equipment and Machinery

Table 11: Plant Machinery and Equipment Costs (Million Rial)

Description	Unit Cost	Costs Required				Total
		Local Costs	Costs of Currency		Cost to Complete	
			Rate	(Million Euro)		
Water purification system	800	800	240,000	0	0	800
steam generator	1,250	1,250		0	0	1,250
Primary preparation of input materials	1,200	2,400		0	0	2,400
Conveyor transport system	1,500	1,500		0	0	1,500
Washing	520	1,040		0	0	1,040
Separator	850	1,700		0	0	1,700

Description	Unit Cost	Costs Required				Total
		Local Costs	Costs of Currency		Cost to Complete	
			Rate	(Million Euro)		
Cutter machine	700	1,400		0	0	1,400
Filter press	350	350		0	0	350
Baking system	2,000	2,000		0	0	2,000
Packaging system	1,950	3,900		0	0	3,900
Pasteurization system	3,500	3,500		0	0	3,500
<b>Total Cost of Machinery</b>		<b>19,840</b>	<b>240,000</b>	<b>0.08</b>	<b>0</b>	<b>19,840</b>

The exchange rate is: 1 € = 240,000 Rial

### 3.3.2 Raw Material and Intermediate Components

Table 12: Raw Material and Intermediate Components (Million Rial)

Description	Unit	Total Consumption of the Raw Material	Price per Unit of Raw Material	Annual Cost of Providing Material
Raw material & Packaging	<i>ton</i>	-	-	64,039.5
Salary	<i>Rial</i>	-	-	2,475
(fuel, electricity and water)	<i>L/KW/CM</i>	-	-	1,806
Repair and maintenance	<i>Rial</i>	-	-	4,971.04
<b>Total</b>				<b>73,291.54</b>

### 3.3.3 Management and Human Resources

*Table 13: Salary of Administrative Staff(Million Rial)*

No.	Position	Number of Shifts	Personnel per Shift (No.)	Total Staff (People)	Monthly Salary (per Person)	Annual Salary
1	manpower (in Administrative sector)	-	-	6	65	4,680
2	manpower (in Production sector)	-	-	15	56.5	10,170
<b>Total</b>				<b>21</b>		<b>14,850</b>

- Number of skilled personnel required: 14
- Number of non- skilled personnel required: 7
- Total number of personnel required: 21

## 4 Market Study and Competition

### 4.1 Examining Supply And Demand Trends

The amount of domestic supply or production of Grape Syrup and Unripe Grape Juice based on license (according to the information of the Ministry of industry, Mine and Trade) from 2015 up to 2020 is presented in Table 14.

*Table 14: The Amount of Domestic Supply*

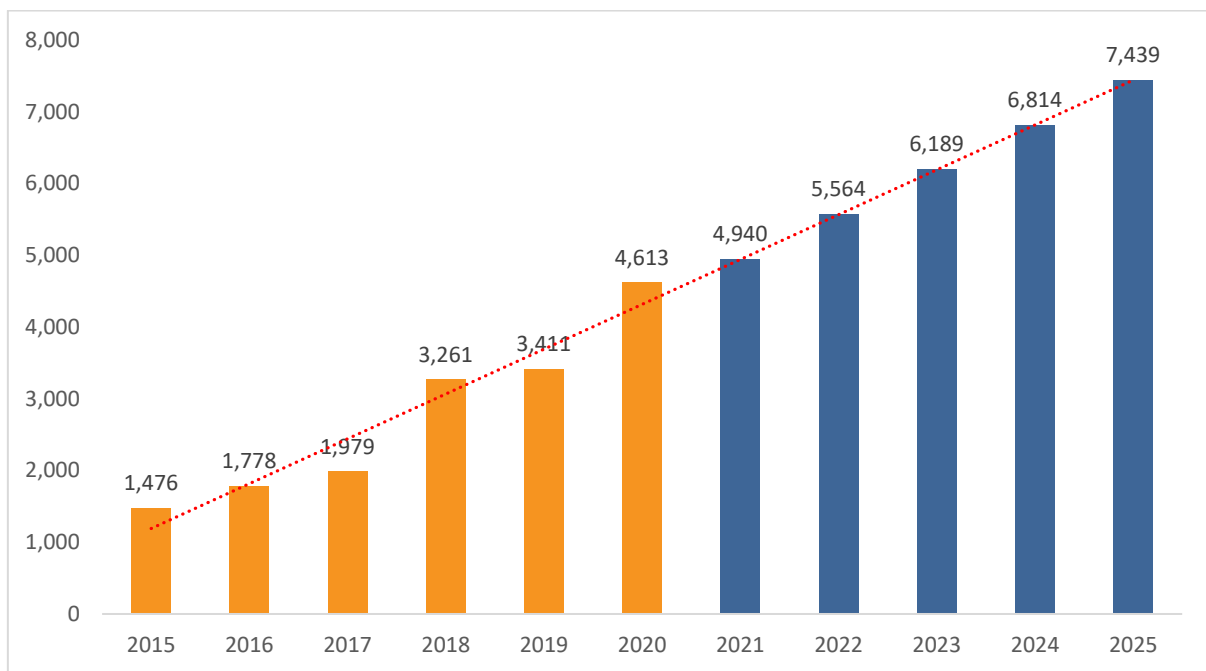
Year	Nominal Capacity of Grape Syrup (Tons)	Nominal Capacity of Unripe Grape Juice (Tons)
2015	3,683	1,734
2016	4,438	1,734
2017	4,938	1,734
2018	8,138	1,764
2019	8,513	1,764
2020	11,513	1,764

The real production capacity of active units in 2015 up to 2019 is shown in Table 15.

*Table 15: The Real Production Capacity of Active Units in 2015 up to 2019*

Year	Nominal Capacity of Grape Syrup (Tons)	Nominal Capacity of Unripe Grape Juice (Tons)
2015	1,476	1,734
2016	1,778	1,734
2017	1,979	1,734
2018	3,261	1,764
2019	3,411	1,764
2020	4,613	1,764

The following chart shows the prediction of production of Grape Syrup according to the Table 15 based on linear regression.



*Figure 2: Prediction of Production of Grape Syrup*

The following chart shows the prediction of production of Unripe Grape Juice according to the Table 15 based on linear regression.

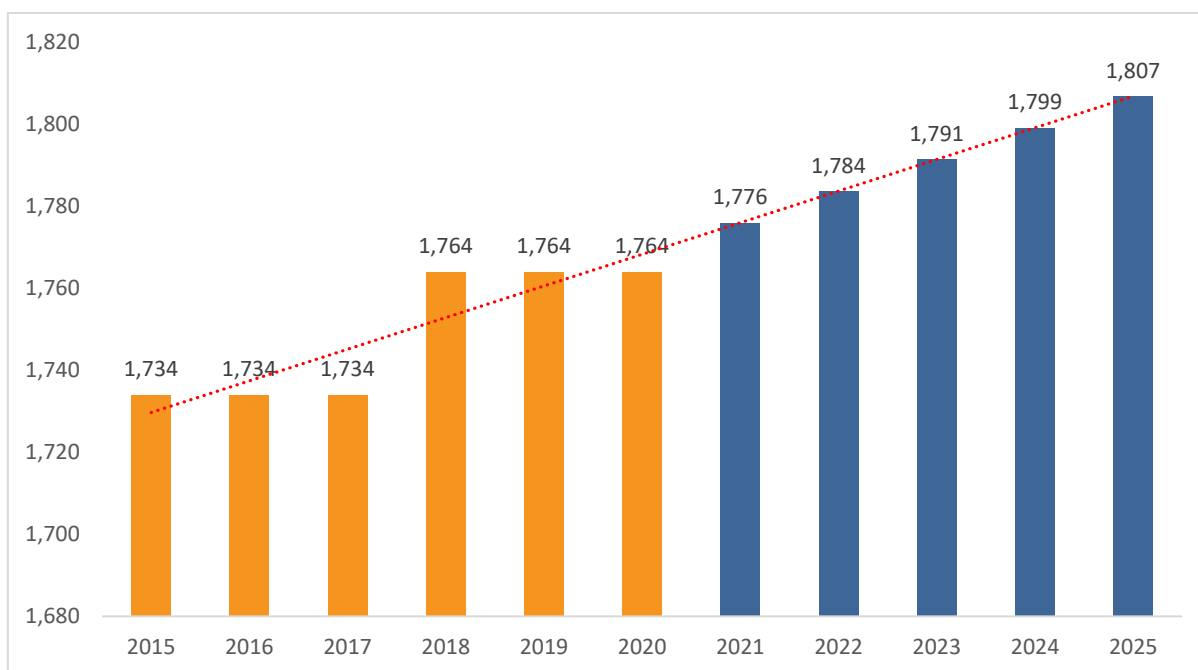


Figure 3: Prediction of Production of Unripe Grape Juice

As the Figure 2 and Figure 3 show, the amount of Grape Syrup and Unripe Grape Juice production is increasing.

The amount of imports to the country is based on the information of the Tehran Chamber of Commerce, Industries, Mine and Agriculture at <http://tccim.ir> is presented in Table 16.

Table 16: The Amount of Imports of Grape Syrup With Custms Tariff 3021900

Year	Weight (Tons)	Major Countries
2015	961	China, India, France, Netherland, Spain, Turkey, Korea, Australia, Germany, Italy, Swiss, Chile, Canada
2016	381	China, Afghanistan, India, France, Netherland, Spain, Turkey, Australia, Germany, Italy, Swiss, Austria, Canada
2017	367	China, UAE, India, France, Netherland, Afghanistan, Turkey, Australia, France, Swiss, Austria, Canada
2018	225	China, UAE, India, France, Netherland, Turkey, Georgia, Australia, France, HongKong, Slovenia

Due to that Customs Tariff is relate to vegetable juice, so for getting grape syrup stat, All Numbers are divided by 10. So the amount of imports of grape syrup are 96,38,37,23 Tons respectively. The amount of imports of unripe grape juice with customs tariff 2009890 to country is zero.

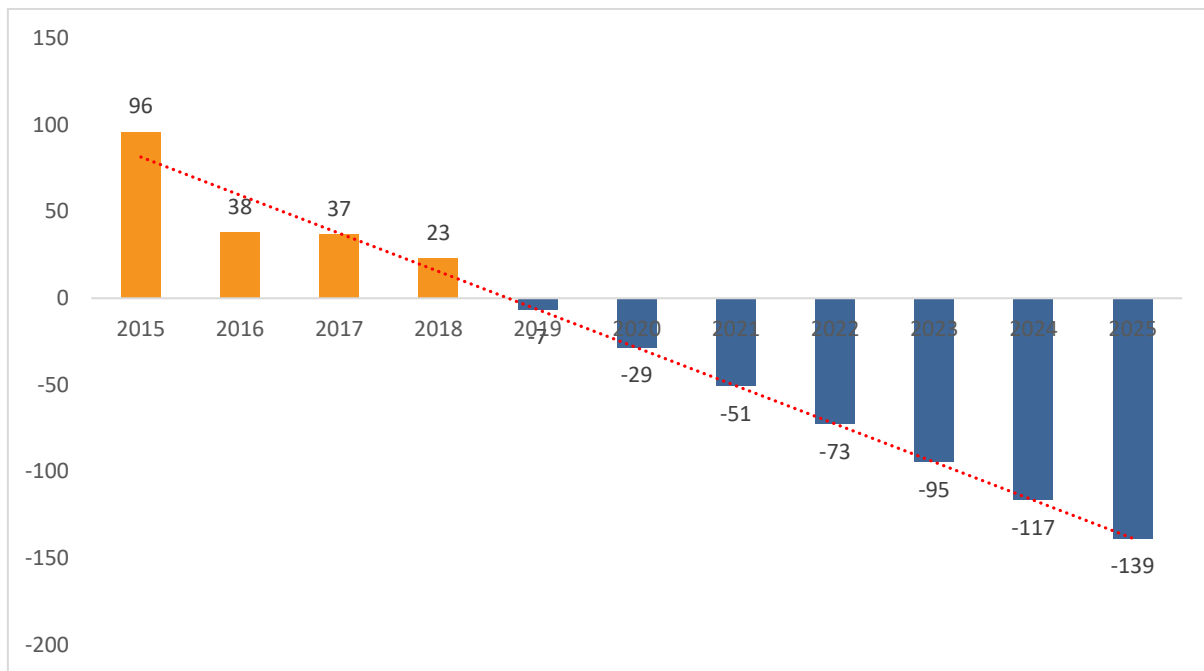


Figure 4: The Prediction of Imports of Grape Syrup

As Figure 4 Shows, the prediction of imports of grape syrup is decreasing and is about zero.

The amount of exports is based on the information of the Tehran Chamber of Commerce, Industries, Mine and Agriculture at <http://tccim.ir> is presented in Table 17.

Table 17: The Amount of Exports

Year	Customs Tariff	Weight (Tons)	Major Countries
2015	13021900	12,541	Iraq, Turkey, Malaysia, UAE, France, Germany, Kuwait, Afghanistan, Georgia, Russia, Bulgaria, India, England, Azerbaijan, Czech republic, Korea, Australia, Denmark, Canada
2016	13021900	941	Iraq, Malaysia, Turkey, Germany, UAE, Afghanistan, England, Kuwait, Swiss, Netherland, Russia, Australia, Azerbaijan, Oman
2017	13021900	6,773	Iraq, France, Singapore, Malaysia, Turkey, Germany, UAE, Afganistan, Czech republic, Japan, Turkmenistan, Kuwait, Pakistan, Qatar, Russia, Australia, Azerbaijan
2018	13021900	9,420	Iraq, Malaysia, Turkey, Germany, UAE, Afghanistan, Tailand, Kuwait, Singapore, Russia, Australia, Azerbaijan, Oman



Due to that Customs Tariff is relate to vegetable juice, so for getting grape syrup stat, All Numbers are divided by 10. So the amount of imports of grape syrup are 94,254,1,677,942 Tons respectively.

The following chart shows the prediction of exports with unlinear regression.

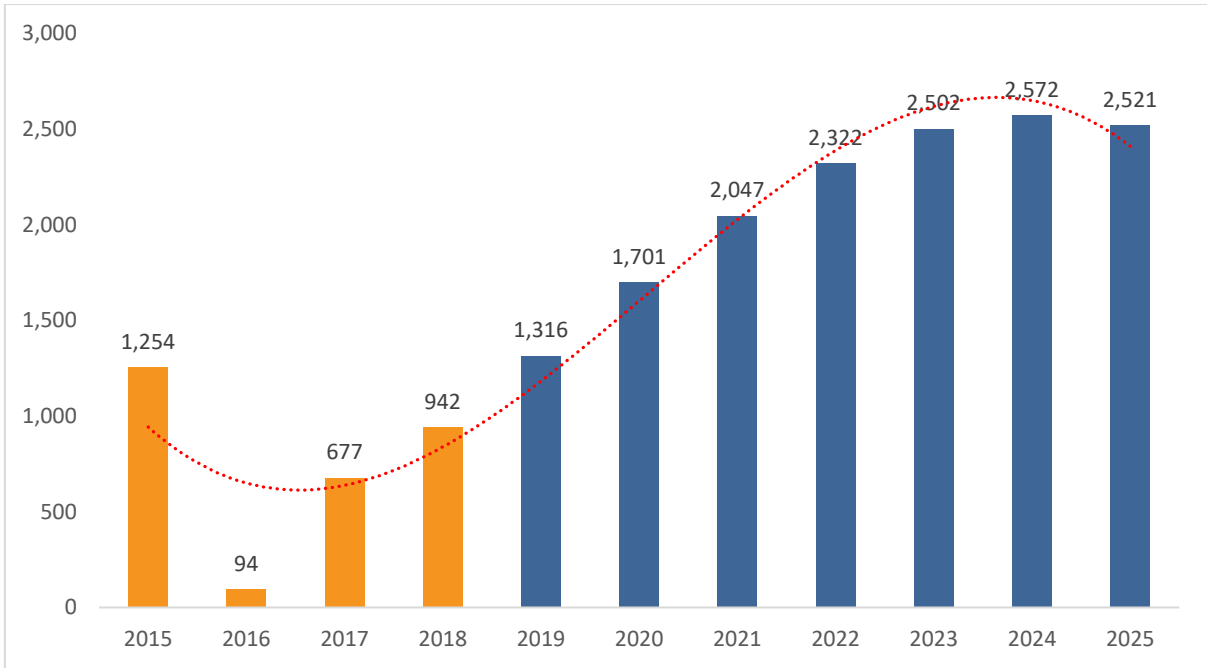


Figure 5: The Prediction of Exports of Grape Syrup

Unripe Grape Juice exports is Zero.

The amount of domestic demand of grape syrup, which is equal to the amount of domestic production plus the amount of imports minus the amount of exports, for the three products is given in the Table 24Table 18.

Table 18: The Amount of Domestic Demand

Year	Canned Fruit, Vegetables and Pulses (Tons) The Amount of Domestic Demand of
2015	318
2016	1,722
2017	1,339
2018	2,342

The following chart shows the prediction of domestic demand of grape syrup according to the Table 18 based on linear regression.

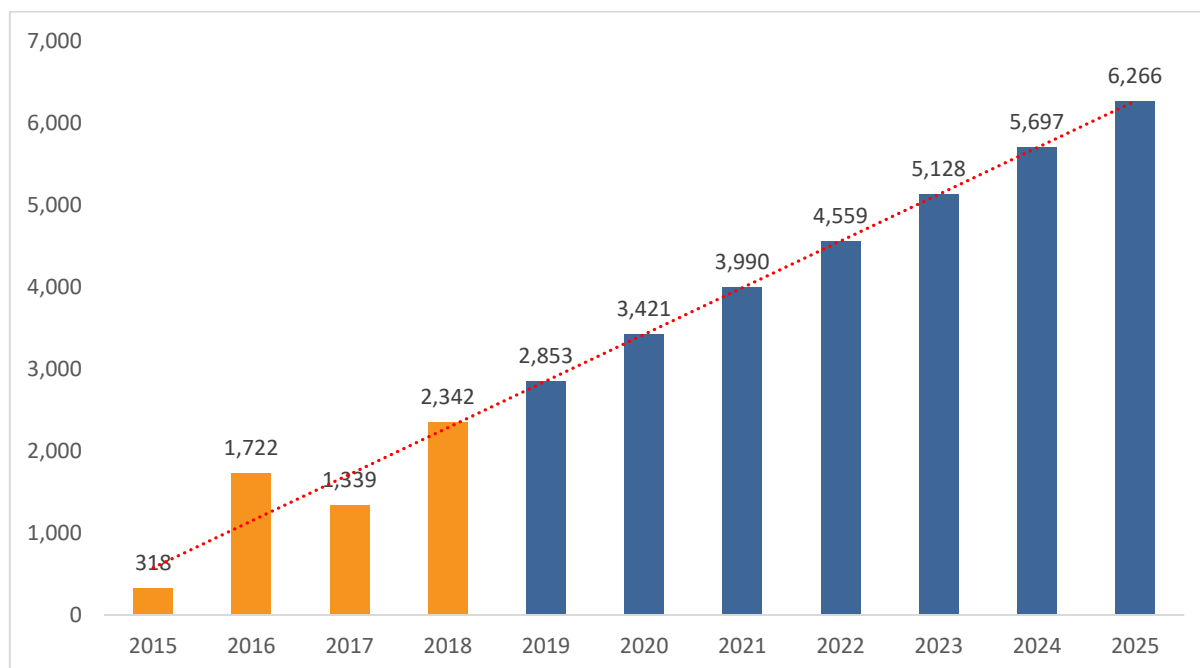


Figure 6: the prediction of domestic demand of grape syrup

As Figure 6 Shows the prediction of domestic demand of grape syrup is increasing.

Considering that, domestic demand of unripe grape juice equals to production amount (because the amount of imports and exports is zero).

In the Table 19, the information of the units that have obtained license is presented based on the amount of progress.

Table 19: The Information of The Units that have Obtained License

Progress Percent	Capacity of Grape Syrup (Tons)	Capacity of Unripe Grape Juice (Tons)
0% - 25%	100	1,800
25% - 50%	2,035	0
50% - 75%	100	450
75% - 100%	0	0

## 5 Financial Projection

### 5.1 The Cost Estimate

Table 20: Total Investment (Million Rial)

No.	Subject	Cost
1	Fixed Capital	165,400.4
2	Working Capital	66,796.9
<b>Total Investment</b>		<b>232,197.3</b>

Table 21: Fixed Capital (Million Rial)

Subject	Paid Cost	Cost Required			Total cost	
		Local Cost	Foreign Exchange Cost			Needed Fund
			Rate	(€)		
Land Purchase	0	9,150	240,000	0.03	0	9,150
Landscaping	0	10,177		0.04	0	10,177
Building	0	69,625		0.29	0	69,625
Equipment and Machinery	0	19,840		0.08	0	19,840
Laboratory And Workshop Supplies And Equipment	0	5,850		0.02	0	5,850
Facilities	0	16,460		0.06	0	16,460
Transportation	0	1,413		0	0	1,413
Office And Services Equipment	0	678		0	0	678
Pre-Operation Costs	0	17,171		0.07	0	17,171
Unforeseen (10% Of The Above Items)	0	15,036.4		0.06	0	15,036.4
<b>Total Fixed Investment</b>	<b>0</b>	<b>165,400.4</b>	<b>240,000</b>	<b>0.68</b>	<b>0</b>	<b>165,400.4</b>

Table 22: Working Capital (Million Rial)

Subject	Day	Total
Packaging material (2 months raw materials and packaging)	60	64,039.5
Salary (2months salary)	60	2,475
Imprest fund (15 days of water, electricity, fuel and repair costs)	15	282.4
<b>Total</b>		<b>66,796.9</b>

Table 23: Fixed and Variable Costs

.No	Production Cost	Fixed Cost		Variable Cost	
		%	Cost	%	Cost
1	Raw material	0	0	100	384,237
2	Energy & utility	20	361	80	1,445
3	Repair & Maintenance	20	994	80	3,977
4	Production salary	70	10,395	30	4,455
5	Depreciation	100	12,298	0	0
<b>Total production costs</b>			<b>24,049</b>		<b>394114</b>

## 5.2 Break-Even Analysis

Table 24: Break-even Analysis

Period	2020	2023	2024	2025	2026	2027	2028	2029	2030	2031
Break-even ratio (%)	29.37	28.00	26.76	25.63	24.48	23.37	22.55	21.80	21.12	20.51

### 5.3 Sensitivity Analysis of IRR

Table 25: Sensitivity Analysis of IRR

Variation (%)	Sales Revenue	Increase In Fixed Assets	Operating Costs
-20.00%	-62.42%	50.77%	89.42%
-16.00%	-15.92%	48.85%	80.00%
-12.00%	6.95%	47.08%	70.61%
-8.00%	20.01%	45.46%	61.24%
-4.00%	31.51%	43.95%	51.90%
0.00%	42.56%	42.56%	42.56%
4.00%	53.51%	41.26%	33.15%
8.00%	64.48%	40.04%	23.49%
12.00%	75.48%	38.91%	13.06%
16.00%	86.51%	37.84%	0.28%
20.00%	97.58%	36.83%	-27.04%

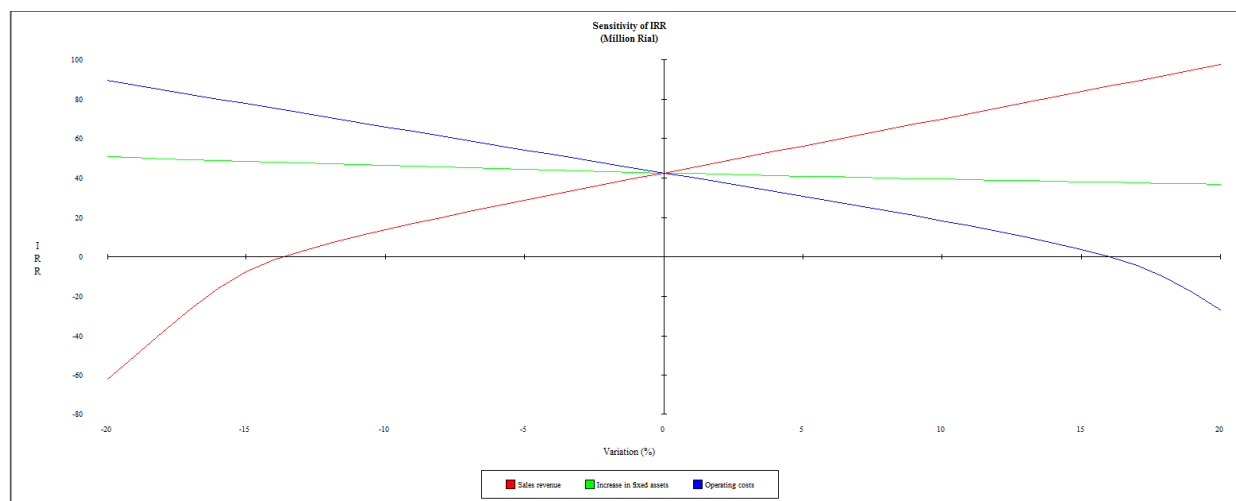


Figure 7: Sensitivity Analysis of IRR

## 6 Duration of Project Operation

The time of doing early stages and completing its process is about 16 months.

Table 26: Action Plan and Implementaion Schedule

Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Land Purchase	■																							
Constructing Buildings		■	■	■	■	■	■	■	■															
Execution of Facilities						■	■	■	■	■	■													
Order, Purchase of Machinery								■	■	■	■	■	■											
Landscaping											■	■	■	■	■									
Machinery Strat-up and Trial Production													■	■	■	■								

## 7 Incentives, Features And Advantages of Project

North Khorasan Province is a province located in northeastern Iran. Bojnord is the capital of the province. This province contains many historical and natural attractions, such as mineral water springs, small lakes, recreational areas, caves and protected regions, and various hiking areas. Advantages of the agriculture of this province involves favorable and diverse climatic conditions and other parameters affecting growth.