



Islamic Republic of Iran
North Khorasan Organization of Economic Affairs and Finance

Sterilized Fortified Non-Fat Milk

**Center of Investment Services of
North Khorasan**

2021 April

Summary of Technical-Economical Pre-Feasibility Study

The Name: Sterilized Fortified Non-Fat Milk

Sector: Agricultural

Subsector: Alterant Industries

ISIC Code: 1520612564-1520612565

The owner of:

Organization of Economic Affairs and Finance (North Khorasan)



The ADDRESS:

Iran, North Khorasan, Bojnourd

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1 Abstract

1.1 Project Profile

Table 1: Summary Sheet

Project Introduction			
Project Title	Sterilized Fortified non-Fat Milk		
Sector	Agricultural		
Sub Sector	Alterant Industries		
Location	Iran, North khorasan, Bojnourd		
The County	Bojnourd		
Products / Services	Sterilized Fortified non-Fat Milk, Sterilized Fortified Low-Fat Milk, Cream		
Annual Nominal Capacity	2,000	Ton's	
The Raw Material	Milk, Sodium Hypochlorite, Packaging Equipment		
Employment	32	Person	
Land Area	6,000	m^2	
Floor Area	3,100	m^2	
Energy and Water Consumption	Water Consumption	12,400	m^3 in year
	Electricity Consumption	400	KW
	Gas Consumption	143,000	m^3 in year
Fixed Capital	176,159	Million Rial	
Working Capital (The First Year)	36,825	Million Rial	
Payback Period	5	Year	
Net Present Value (NPV)	69,724	Million Rial	
Internal Rate of Return (IRR)	28	%	
Modified Internal Rate of Return (MIRR)	22	%	
Break Even Point	50	%	
The Exchange Rate (Dolar)	240,000	Rial	
Description	In this project, all the materials related to the study of : the Sterilized fortified non-fat milk market especially domestic and foreign supply and demand, 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	176,159.5	240,000	0.73	0	0.73
Working Capital	36,825		0.15	0	0.15
Total Investment	212,984.5		0.88	0	0.88

- Value of foreign equipment / machinery: Million Euro
- Value of local equipment / machinery: 0.1006 Million Euro
- Net present value (NPV): 0.290 Million Euro in 15 years
- Internal Rate of Return (IRR) (for 10 years): 28%
- Payback period: 5 years

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.

This project will be construct in part 020 with coordinates (521691,4147026) in Bidak Bojnourd Industrial Park. Proposed location of project is shown in Figure 1.

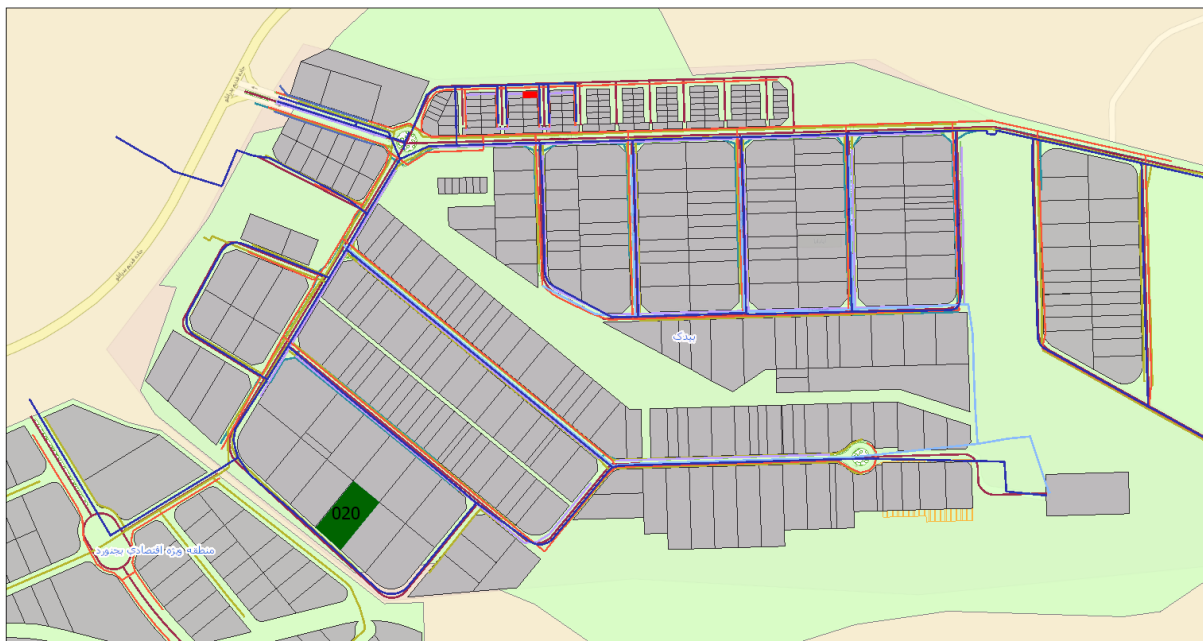


Figure 1: Location of Proposed Land in Bidak Bojnourd Industrial Park

2.3 The Project: Sterilized Fortified non-Fat Milk

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 Product	ISIC Code	Customs Tariff	Environmental Category
Sterilized fortified non-fat milk	1520612564	04029900 04011000	3
Sterilized fortified non-fat milk	1520612565	04029900 04011000	3
Cream	1520412622	04015010	3

In this project, all the materials related to the study of the Sterilized fortified non-fat milk market especially domestic and foreign supply and demand, 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 milk, the production of this product from 2,021 to 2,025 will have an increasing trend that reassures new investors.

According to studies, demand is upward until 2,025, so that from 2,020 to 2,023, about 200 tons can be added to the country's production. Now, if we assume that factories with physical progress (above 75%) reach production, the shortage of demand in the country will be the same as 200 tons. It should be noted that the capacity of the factory is 2,000 tons, so 1,800 tons of it requires serious planning in the sales market, which seems to be necessary for the export market and also the replacement of the product instead of imports. 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

The growth and development of the world's industries are largely due to competition between industrial units. In this regard, each industrial unit by increasing the quality of its products, tries to gain more market share and this trend over time has improved the quality of products and as a result the quality growth of industrial communities. Quality control is necessary to determine the accuracy of the production operation, according to the technical

specifications specified for the product. This operation prevents the loss of capital while reducing the production of defective products and reduces the cost of the product.

In general, quality control objectives can be summarized as follows:

- Maintaining the set standards
- Detection and improvement of deviations in the production process
- Identify and improve products outside the standard

3.3 Space and Infrastructure Required

Table 7: land Purchase Costs (Million Rial)

Specifications	Area (m ²)	Price per m ²	Cost		
			Paid Cost	Needed Fund	Total
A piece of land in Bojnourd	6,000	1.5	0	0	9,000

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

Description	Working Capacity	Unit	Unit Price	Paid Cost	Needed Fund	Total
Excavation	1,800	cm	0.3	0	0	540
Wall Construction and door	640	Sm	9	0	0	5,760
street construction (5% of the amount of land)	300	Sm	7	0	0	2,100
Green space and Lighting (1% of the amount of land)	60	No	8	0	0	480
Total				0	0	8,880

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

Description	Area (m ²)	Unit Price	Paid Cost	Needed Fund	Total
Production Hall	2,100	25	0	0	52,500
Raw Material Warehouse	300	30	0	0	9,000
Product Warehouse	500	25		0	12,500
Office Building	100	45	0	0	4,500
Welfare, Guardroom	100	45	0	0	4,500
Total			0	0	83,000

Table 10: Infrastructures

No	Description	Unit	Annual Consumption	Unit Cost (Rial)	Total (Million Rial)
1	Water consumption	m^3	12,400	7000	86.8
2	Electricity consumption	Kw	1,943,000	1100	2137.3
3	Gas consumption	m^3	143,000	1200	171.6
4	petaol	$Litr$	5,400	30,000	162
	Others			120,000,000	120
Total					2,677.7

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)		
Reservoir	250	250	240,000	0	0	250
centrifugal Electropump	180	360		0	0	360
Steel heat exchanger	900	1,800		0	0	1,800
Volumetric meter	450	450		0	0	450
Raw milk storage tank	700	1,400		0	0	1,400
Electropump	120	240		0	0	240
Plate sterilization	2,500	2,500		0	0	2,500
Milk separator	2,800	2,800		0	0	2,800
Milk homogenizer	2,000	2,000		0	0	2,000
Triple wall tank	380	380		0	0	380
Milk storage tank	700	700		0	0	700
Milk packing machine	1,900	1,900		0	0	1,900
Blender	380	380		0	0	380
Cold water production system	1900	1900		0	0	1900
Washing system	2400	2400	0	0	2400	

Description	Unit Cost	Costs Required			Total	
		Local Costs	Costs Of Currency			Cost To Complete
			Rate	(Million Euro)		
cold store	3200	3200		0	0	3200
Tank	690	690		0	0	690
Sterile tank	810	810		0	0	810
Total Cost of Machinery		24160		0.1	0	24160

- 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	ton	-	-	32722.75
Salary	Rial	-	-	3750
Energy costs				
(fuel, electricity and water)	L/KW/CM	-	-	2677.7
Repair and maintenance	Rial	-	-	5775.1
Total				49925.55

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)	-	-	8	62.81	6030
2	manpower (in Production sector)	-	-	24	57.19	16470
Total				32		22500

- Number of skilled personnel required: 23
- Number of non- skilled personnel required: 9
- Total number of personnel required: 32

4 Market Study and Competition

4.1 Examining Supply and Demand Trends

The amount of domestic supply or production of sterilized and pasteurized milk 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 (Tons)
2015	1,513,741
2016	2,523,521
2017	3,814,521
2018	6,236,598
2019	7,807,810
2020	10,653,541

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 (Tons)
2015	581,446
2016	969,314
2017	1,465,191
2018	2,395,552
2019	2,999,073
2020	4,092,152

The following chart shows the prediction of production of sterilized and pasteurized milk according to the Table 20 based on linear regression.

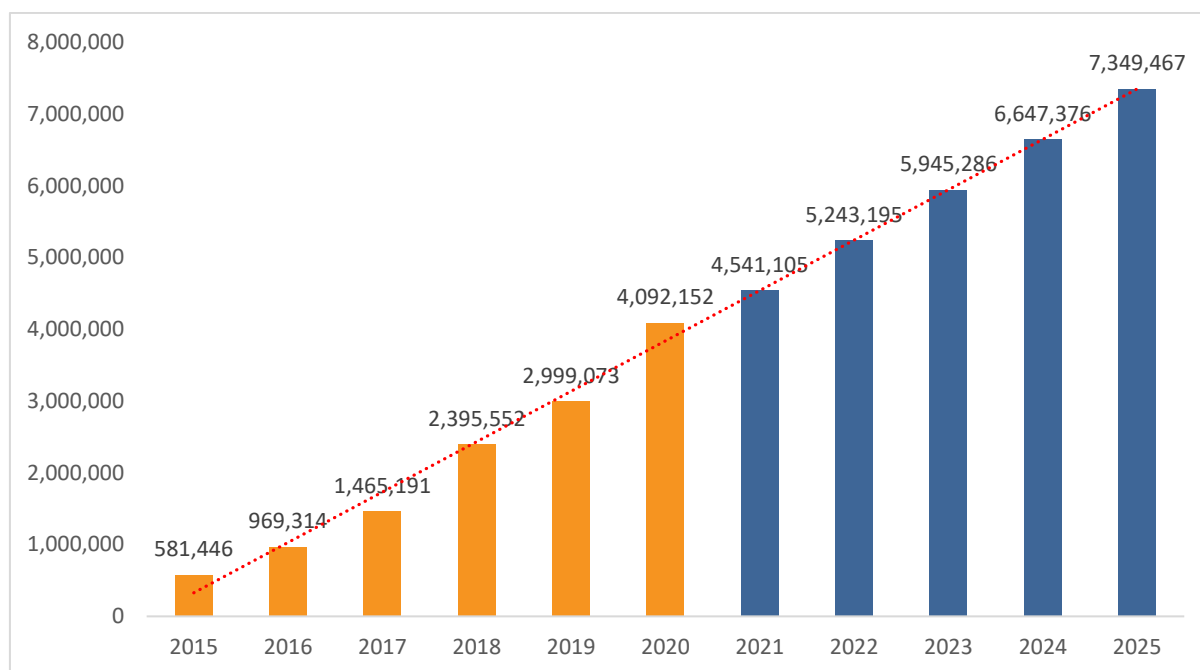


Figure 2: Prediction of Production

As the Figure 2 shows, the amount of sterilized and pasteurized milk 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

Year	Customs Tariff	Weight (Tons)	Major Countries
2015	04029900 04011000	0	-
2016	04029900 04011000	0	-
2017	04029900 04011000	3	UAE
2018	04029900 04011000	0	-

Due to the small amount of milk imports into the country, the amount of imports is not considered in forecasting demand.

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	04029900 04011000	171	Afghanistan, Iraq, Turkmenistan, Tajikistan, Pakistan, Turkey, Kuwait, Malaysia
2016	04029900 04011000	251	Afghanistan, Iraq, Turkmenistan, Qatarm Tajikistan, Pakistan, Azerbaijan, Kuwait
2017	04029900 04011000	110	Afghanistan, Iraq, Turkmenistan, Philippines, Tajikistan, Pakistan, Azerbaijan, Kuwait
2018	04029900 04011000	91	Iraq, Afghanistan, Pakistan, Kuwait, Qatar

In the Table 18, the information of the units that have obtained license is presented based on the amount of progress.

Table 18: The Information of The Units that have Obtained License

Progress Percent	Capacity (Tons)
0% - 25%	1,322,685
25% - 50%	357,050
50% - 75%	15,591,859
75% - 100%	190,270

5 Financial Projection

5.1 The Cost Estimate

Table 19: Total Investment (Million Rial)

No.	Subject	Cost
1	Fixed Capital	176159.5
2	Working Capital	36825
Total Investment		212984.5

Table 20: Fixed Capital (Million Rial)

Subject	Paid Cost	Cost Required				Total cost
		Local Cost	Foreign Exchange Cost		Needed Fund	
			Rate	(€)		
land purchase	0	9000	240,000	0.03	0	9000
Landscaping	0	8880		0.03	0	8880
Building	0	83000		0.34	0	83000
equipment and machinery	0	24160		0.1	0	24160
Laboratory and workshop supplies and equipment	0	5000		0.02	0	5000
Facilities	0	14630		0.06	0	14630
Transportation	0	4476		0.01	0	4476
Office and services equipment	0	1129		0	0	1129
Pre-operation costs	0	9870		0.04	0	9870
Unforeseen (10% of the above items)	0	16014.5		0.06	0	16014.5
Total Fixed Investment	0	176159.5		0.73	0	176159.5

Table 21: Working Capital (Million Rial)

Subject	Day	Total
Packaging material (2 months raw materials and packaging)	60	32,722.75
Salary (2months salary)	60	3,750
Imprest fund (15 days of water, electricity, fuel and repair costs)	15	352.2
Total		36,824.95

Table 22: Fixed and Variable Costs

.No	Production Cost	Fixed Cost		Variable Cost	
		%	Cost	%	Cost
1	Raw material	0	0	100	196,337
2	Energy & utility	20	536	80	2,142
3	Repair & Maintenance	20	1,155	80	4,620

.No	Production Cost	Fixed Cost		Variable Cost	
		%	Cost	%	Cost
4	Production salary	70	15,750	30	6,750
5	Depreciation	100	13,218	0	0
Total Production Costs			30,658		209,849

5.2 Break-Even Analysis

Table 23: Break-even Analysis

Period	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Break-even ratio (%)	50.13	48.17	46.38	44.76	43.0	40.87	39.74	38.72	37.80	36.95

5.3 Sensitivity Analysis of IRR

Table 24: Sensitivity Analysis of IRR

Variation (%)	Sales Revenue	Increase in Fixed Assets	Operating Costs
-20.00%	-40.99%	33.80%	54.23%
-16.00%	-6.86%	32.48%	49.10%
-12.00%	5.86%	31.27%	43.95%
-8.00%	14.28%	30.16%	38.77%
-4.00%	21.50%	29.12%	33.51%
0.00%	28.15%	28.15%	28.15%
4.00%	34.53%	27.25%	22.60%
8.00%	40.77%	26.40%	16.70%
12.00%	46.93%	25.60%	10.16%
16.00%	53.05%	24.85%	2.29%
20.00%	59.15%	24.14%	-11.16%

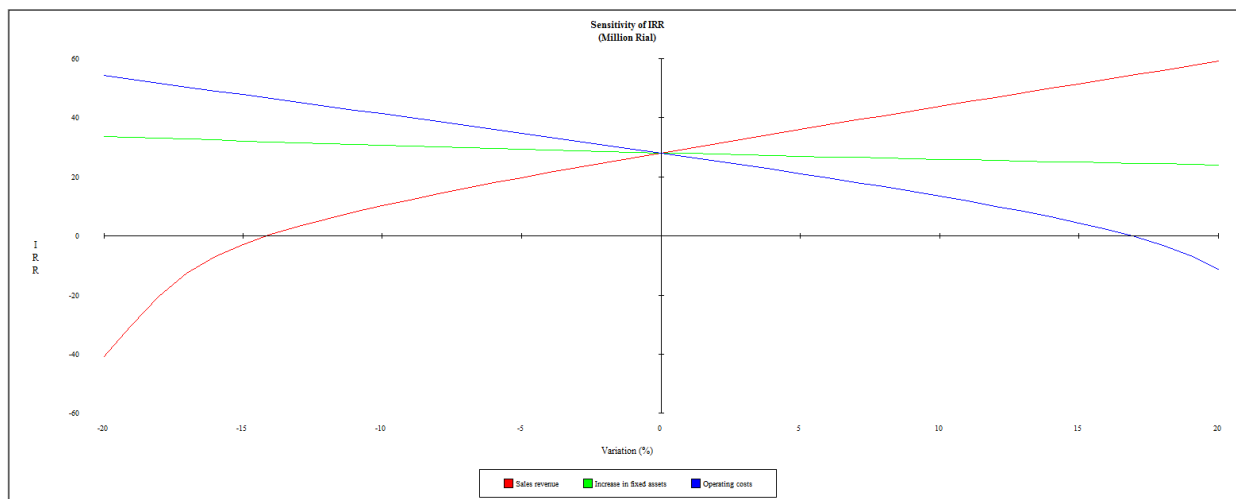


Figure 3: Sensitivity Analysis of IRR

6 Duration of Project Operation

The time of doing early stages and completing its process is about 24 months.

Table 25: 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.