

In the name of God,
the Merciful the ever Compassionate





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Ministry of Agriculture Jihad
Agricultural Planning, Economic
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Research Institute (APERDRI)



CENTRE ON INTEGRATED
RURAL DEVELOPMENT FOR
ASIA AND THE PACIFIC

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Title

The Advantages of Agricultural Intensification in Family Farming The case study Alashtar area IRAN

The initial questions includes:

- Are the policies , programs ,implementations by the government in the field of agriculture a completely reflection of reality?(epistemological based on the structuralism in order to realization)
- Are the government's plans for farmers appropriate to their roles and functions?(functional oriented to solidarity) in sectoral and outputs
- Does the government provide adequate support for the efficiency of agricultural modes? (good governance stability to active adaptation)

The main components and concepts :

- Production modes in Iranian agriculture**
- Peasant and landlord**(agrarian interaction)
- Family farming**
- Advantages**
- Alashtar area**
- Transition**
- Agricultural intensification?**

Obviously at the beginning, we referred to scientific sources and current academic ideas. Because any action without theory is a shot in the dark and that is equal to waste of interests.

Scientific books and reports were reviewed and summarized for this end as formative follows:

1- Historical sources and native views (Endogenous knowledge for example melon cultivation or aqueduct digging techniques ,traditional forms of group farming, lord and farmer, aqueduct water management and water distribution).

Great thinkers like Farabi in his book called and related Utopia he was the first person who emphasized cooperation and social participation for the development of agriculture. Ibn Maskuya was first thinker that he analyzed relationship between population growth and food needs He was born in more than a thousand years ago and about 800 year before maltuse , Khwaja Nasir al-Din Tusi, who was tolerant and peaceful and advised kings to be support for farmers . Mullah Sadra followed Ibn Khaldun in his theory explained the peasant's motivation to cultivate more and increase fertility at the beginning of governments and food shortages and slight population growth at the end of governments. The reasons for the fall of governments depend on the way the rulers treat the peasants, which is initially with love and gentleness, solidarity and in the end to humiliation, more taxes and more harassment. His ideas are still taught in the best universities in the world.

The travelogue written by Ibn Battuta.

Ibn Battuta has observed most of the member countries of cirdap and has valuable information about each of them

(He wrote in his travelogue).

2- Ideas originating from Wittfogel's "Oriental Despotism". (It has become important even today) In Asia, water empires

have become the ruling government. And it has a different nature than Europe where land was important. In Asia, government has been ruled by pseudo-militarism and pseudo-patrimonialism(It has become important even today). In Spencer's theory of the transition from military to industrial societies, theory Progress through the transition of thought from knowledge to science is all the historical support of the theory of agriculture progress. In Spencer's theory of the transition from military to industrial societies, theory Progress through the transition of thought from superstition to science is all the historical support of the theory of agriculture progress.

3- Sources originating from the five stages of Marx and other socialist thinkers, Latin American salvation theology, the great Gandhi and the New Marxists.(Egalitarians oriented)

Based on the multi-analysis, many solutions and models such as the Green Revolution, consolidation of agricultural lands, radical land reform, redistributions , agricultural cooperatives, etc., have failed, and at least they have not succeeded in practice so far according by recent viewer of this school there is a need to new theory based on three principles Complementary-developmental regionalism, acceptance of cultural diversity and biological sustainability ,there are necessary.

4- Attitudes ,theories and models based on the mainstream of development (modernization , mechanization, land reform, consolidation of land, agricultural and industrial companies, Trickle down model)

5- Critical theories such as peasant movements, land distribution, comprador bourgeoisie, Asian production method, emancipatory criticism, bargaining free from domination and cooperative contract

6- Theories and approaches originating from the development of institutional agriculture, such as the theory of integrated rural and agricultural development, Institutionalization of rationality, the return to management based on agricultural and native communities, the theory of the farmer oriented, and the theory of agricultural intensification. Contemporary theorists have explained agricultural development based on this tradition of thought and institutionalism.

Need for achievement

Collective action



Communal society

Agricultural intensification.

Industrialization

Post development



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Policies and programs

Historical background of agricultural intensification in this habit of thought)

The nineteenth century and the first of the twentieth century are considered as a agricultural intensification transitional period .The important transformation took place in the socio – economic structure of Iranian society under the impact of world's achievements and order based the new regulations. The first attempt involved the establishment of a modern university and the second involved the restructuring of the entire state apparatus on modern model, which had began from the mid – nineteenth century, finally resulted in the Constitutional Movement (1906).semi feudalism relations was limited.



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New commercialization of agriculture and rural modernization

The growing profitability of cash crops (such as cotton, tobacco and silk) for exports made the ownership of land attractive to government officials and local landlords as a main source for accumulation of wealth.

The unequal relationship production in the agricultural system formed a major obstacle to productivity and rural improvement during first phase of modernization period (1925-1941). Other notable policies of the state towards the agricultural development was to encourage a capitalist farming system with cash crops which created another element of the land tenure system in general, during second phases of modernization period (1941-1962).

participation of rural people

According to the principle of non – direct – interference by the Islamic government in agricultural affairs, the participation of rural people in the whole process of rural development – Planning, decision – making, implementation, control ,evaluation – has been seen as the main aim of the service Centers. The Islamic village councils were to be the main channel for people's participation in the process of rural Improvement

The main positive changes in rural areas after the revolution(Of course, the first ten years)

- An increase in per capita income of the rural people,
- Increase output through the provision of facilities for farm mechanization,
- Better access to markets, infrastructures, new services centers.
- The creation of opportunities for the use of farming machinery,
- Improve in standards living in villages
- Increase to political participation

...

1950

Reconstruction after World War II
Rural development. Improvement facilities and better accesses to cities

1960

land reform. Dispatch of knowledge, education and health corps to the villages

1970

Green revolution ,improved infra structures in agriculture

1980

The beginning village identity crisis and increase socio –environmental and economic tensions in rural areas

2000

Continued neglect of family farming and mass migrations from the village

2010

Return to rationality, expansion of new institutionalism, family support, return to agricultural communities >FAO

2023

Collaboration contractor relations ,extended good delivery as five phases of good government ,growth of family farming and rural agriculture tourism

Principle of the Family farming orientation

Institutionalism versus

Territorialism

Cultural pluralism

Sustainable development

Identification

Communication action

Culture oriented

New Regionalism

Boserup has argued that societies across the world have responded to increasing land scarcity in a strikingly similar manner. These societies have moved from shifting cultivation to the sedentary cultivation systems.

The five stages of agricultural intensification process are including;

**Forest fallow ,
Bush fallow,
Short fallow,
Annual cultivation,
Multi-cropping**



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Transition means changing
from one quality or level to
a higher or lower level or
quality

Long
time
fallow

Short
time
fallow

Annual
fallow

Multic
ultiv
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Mix
agri
cult
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Gr
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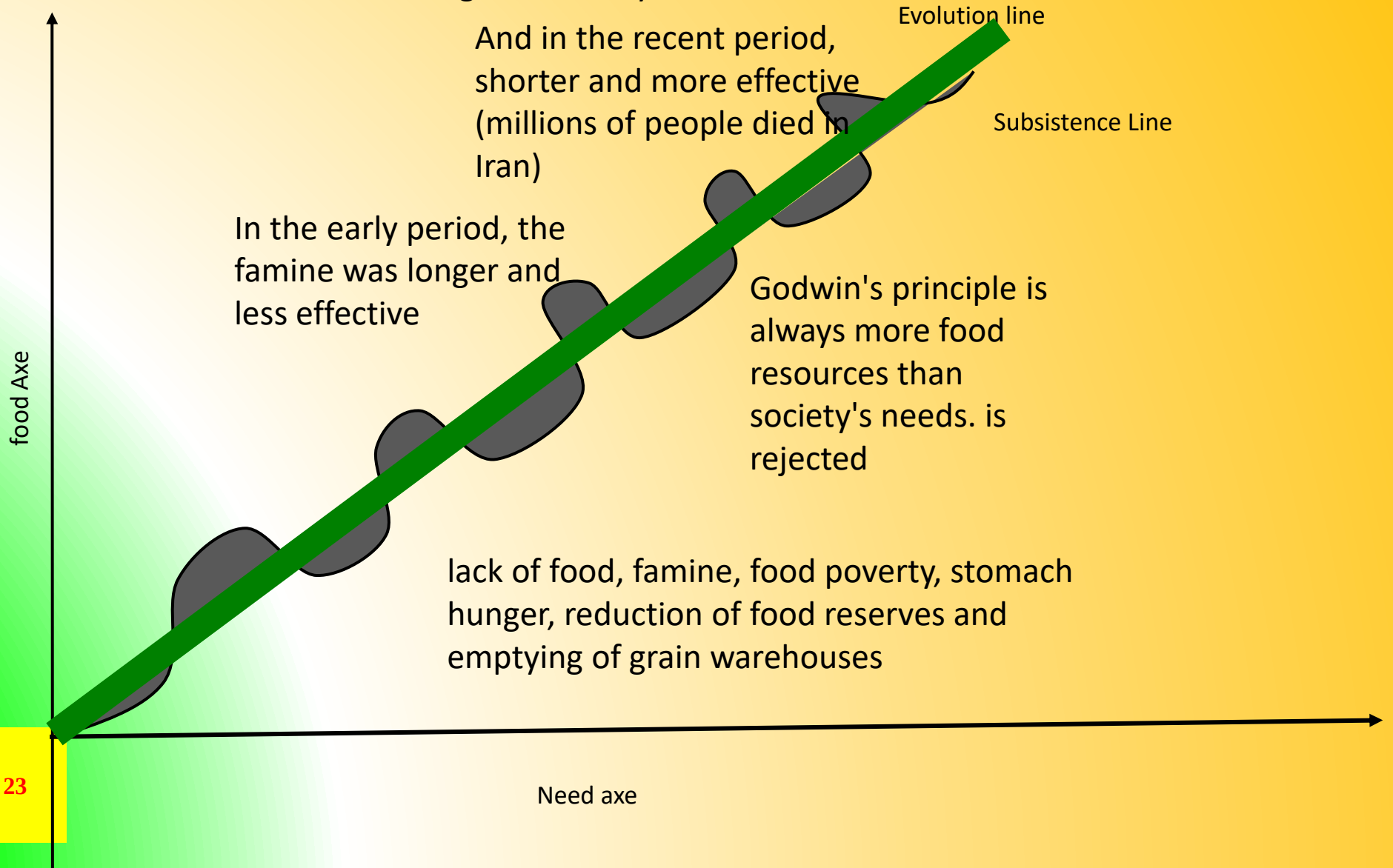
Agricultural intensification

Agricultural intensification transition is the process of increasing the inputs of agricultural resources (includes seeds, labor, fertilizers, pesticides, technologies, knowledge) to increase the level of yield per unit of farmland or pasture. Agricultural intensification is not always clearly or consistently defined and is often confused with the term intensive agriculture, agricultural intensification is a transition that can apply, in principle, to any type of agricultural production. Examples of agricultural intensification may range from using new pesticides in mix agriculture to intensifying the use of indigenous and context-specific knowledge in local farming practices. Although agricultural intensification can take many forms, it always involves the intensification of some types of agricultural input with a view to increase levels of yields

Population growth, war, disease, invasion, and natural disasters have been the five causes of food crisis throughout history.

Figure make
by me for
AITA

F=N Seldom
F>N long times
F<N Sort times



In the analysis of epistemology, the causality of the evolution of societies is the development of infrastructure and the growth of productive forces and means of production, or the struggle for survival, natural selection, competition for possession, or the advancement of thought from divine and priestly to scientific, or the development of consciousness, unconscious rationality, or other types. It is psychological and environmental factors.

In this theory, the basic causality is rooted in the feeling of necessity of some people to find solutions to increase food and meet food needs(Food Supply). These agricultural innovators succeeded in social assistance

Instruments. skill	Transition	Land preparation	planting operations	harvesting operations	products processing
long fallow and tree planting					
several years fallow (To remove weeds in eggplant cultivation for seven years)			+++++	+++++	
one-year fallow (wheat, barley)			Tools Changes Technology changes Skills changes		
Annual cropping					
Several crops per year (wheat, tomato and radish)			Shovel, scythe, iron bull, harrow, plow, axe, pickaxe, saw, wooden		
Mix Agriculture (rice-fish)			shovel, iron shovel, furrower, hoe,		
Tourism agriculture (greenhouse, hydroponic) and Renting some farm places to rest 2023			hoe, tractor, combine machine, thresher, rice thresher, soil softener ETC.		

At each stage compared to before

- **A) Technology becomes more complex and advanced.**
- **B) The yield per hectare increases.**
- **C) Food security increases.**
- **D) Livelihood dependence on the climate will decrease.**
- **E) Surplus production increases.**
- **F) The use of labor force increases.**
- **G) The work on the ground will increase.**
- **H) The work on the ground becomes deeper.**
- **I) Operations and functions and agricultural activities in each of the stages of planting, growing and harvesting will increase.**
- **J) Technological livelihood becomes more than biological livelihood.**
- **K) Labor productivity is lower in the beginning and increases in the long term.**
- **I) The return rate of investment on land is low at the beginning and increases in the long term.**
- **L) Cultivation becomes more stable**

ADVANTAGES of FAMILY in home economy activity

- The family has unique emotional, educational, cultural and motivational functions.
 - The family provides the livelihood of its entrepreneurial members for years
 - They have the advantages of small organizations, including the high power of adapting to technological changes.
 - According to the economic conditions, they can quickly adjust and coordinate their capital, workforce, products and management methods.
- The family network is still the most reliable institution for joint cooperation.
- The family is able to provide many strategic resources including food, labor, capital and information through social, communal and internal networks.

ADVANTAGES of FAMILY FARMING

The family farmers are independent and therefore their beneficiaries have high incentives to agricultural intensification and invest more in the unit.

- Family farming has the support and help of all family members- Have a variety of complementary agricultural activities (agriculture, animal husbandry, poultry farming)

- Family farming is intensive labor -oriented, and the cultivation of crops such as saffron, which requires hard work with patience and precision, is institutionalized in family farming in Iran.

Researchers who have studied the development of Iran's agriculture for decades believe that the consistency and continuity of the country is the result or consequence of the sustainability of peasant and family agriculture.

High ability to adapt to environmental and technological changes

- Researchers who have worked on agricultural development for decades believe this land reform and expansion of family-owned units in Taiwan, Japan, and South Korea had positive economic and institutional consequences- High level of income distribution, wealth and well-being

- Increasing farmers' motivation to diversify their agricultural activities

- Increasing agricultural productivity

- Agricultural intensification

- Increasing the use of labor force and thus reducing unemployment

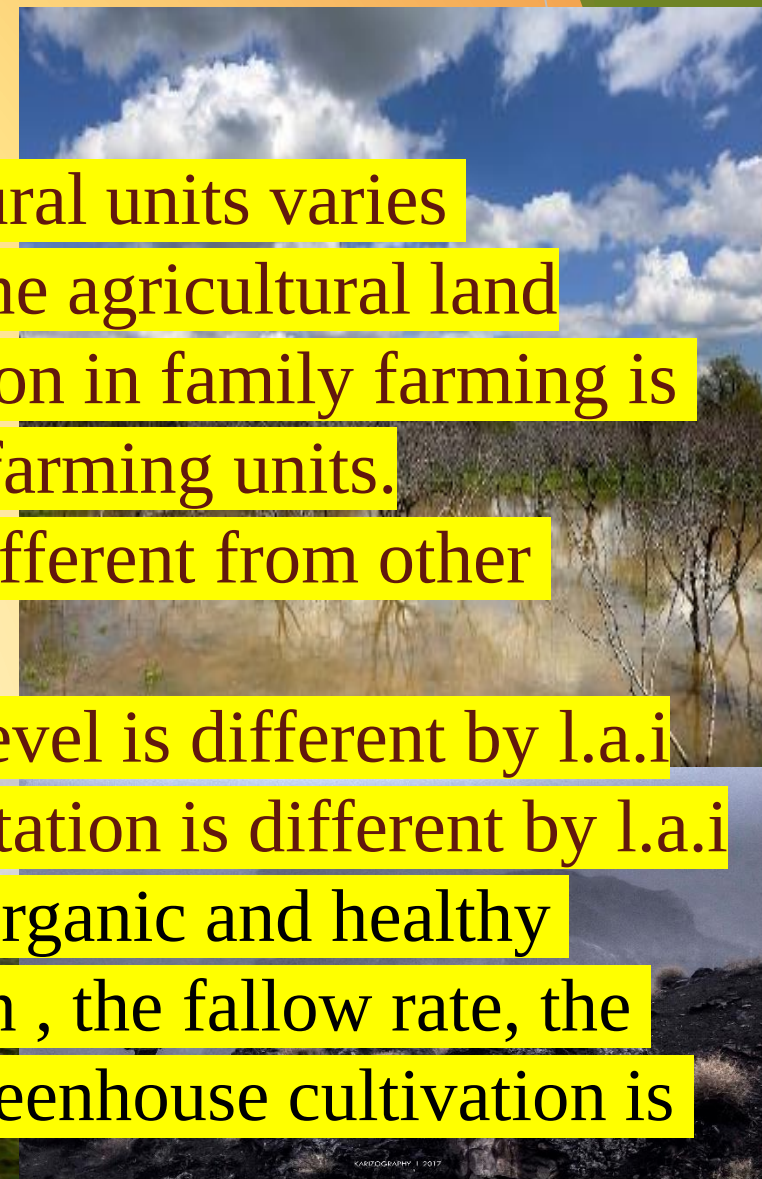
- Increasing farmers' demand for industrial goods and inputs

- Increased investment in land

- Economic and food security of the family and expansion of democratic structures in the family

Research assumptions

- The yield per hectare in agricultural units varies according to the area and size of the agricultural land
- The cost of each unit of production in family farming is different compared to large-scale farming units.
- Cultivation of user products is different from other technologies in agriculture
- The agricultural intensification level is different by l.a.i
- Social and environmental adaptation is different by l.a.i
- The difference in the quality of organic and healthy products ,the growth rate irrigation , the fallow rate, the growth rate of hydroponics and greenhouse cultivation is significant.by l.a.i





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Method and procedures

Method and data collection

The research method is surveying. For this purpose we used data from general population and housing censuses from 1956 to 2016 and from agricultural censuses from 1960 to 2014 as well as agricultural production reports.

In addition, it was tested in the Alashtar area of Lorestan province through a participatory evaluation method(2023). ,

In field study using differentiation analysis techniques and internal comparison of agricultural land use levels.

At multiple analysis doing have eight million data from censuses, reports and fields of 100 villages and large-scale farms.

(During decades of field study, I have been present in about two thousand villages).

In addition

The research develops by applying survey and micro information, field observations, participatory appraisal, interviews with purposive samples, as well as reports on crop production and has analyzed the differences between the area of land use and yield per unit area using comparative techniques of agricultural land use. The field of study was Selseh plain in Lorestan province .The purpose of field research was to compare and analyze family farming systems with other agricultural systems

Axioms related survey research

- The level of development of agricultural infrastructure has a positive and significant relationship with the sustainability of cultivation
 - Sustainable cultivation is higher in villages located in plain and lowland areas
 - The variety of agricultural and livelihood activities has a positive and significant - relationship with the process of sustain of cultivation.
- There is significant correlation appropriate with the amount of the distance from exchange centers:
 - Level of agricultural intensification is lower in mountainous villages with cold climate –
 - Level of agricultural intensification is corelate with the level of development of infrastructure and agricultural facilities is lower
- The total agricultural land and the proportion of irrigated land is differ by Level of agricultural intensification

Multivariate regression model was used to control the correlation



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Data Analysis and Measurement

Matrix of correlation coefficients between agricultural intensification indices

Size of orchards fertile to the total agricultural land and its growth rate	1	0.860	0.3	- 0.725
Ratio of agricultural land to total land and its growth rate		1	0.860	0.860
irrigation land ratio and its growth rate			1	0.835
Fallow land ratio and its growth rate				1

To measure the agricultural intensification component, both time series and synchronic-diachronic techniques were used. That is, the positive or negative growth rates of the indicators of Level of agricultural intensification were calculated over time from 1975 to 2017, and the ratios of simultaneity and then factor analysis were performed.

Correlation between all variables was significant at the level of 0.999.

The value of data suitability for factor analysis (K.M.O) was 0.847. This represents the suitability of the data at a very good level for factor analysis as well as M.S.A for evaluation the reliability of each variables to enter the factor analysis stage.

The Bartlett,s test with approximate value of chi-square function equivalent to 1332725 (Approx. Chi-Square = 13272944) and degree of freedom equivalent to 6 df = 0.999 showed significant difference between the variables matrix and the unit matrix.

Factor analysis was used to analyze the principal component and finally one factor was extracted that explained common variance at 91%

The correlation coefficient of each variable with the factor is given in the below table .

Matrix of factor scores coefficients

Indices for measuring agricultural intensification	scores coefficients
The ratio of fruitful orchards to total agricultural lands	0.327
Ratio of cultivated land to total agricultural land	0.357
Ratio of irrigation land to total agricultural land	0.225
Ratio of fallow agricultural land to total agricultural land	0.340

Correlation coefficients between level of agricultural intensification and independent variables an component

Factors and Variables	R	SIG
1) Growth rate of cultivated lands	0.421	Positive
2) Fallow ratio	- 0.627	Negative
3) The ratio of land under cultivation	0. 118	Positive
4) Yield index per ha	0.625	Positive
5) Agricultural entrepreneurship index	0.835	Positive
6) Innovation Index	0.823	Positive
7) Increase of irrigation lands	0.345	Positive

- Entrepreneurship and innovation rates are higher regard to increasing proportion of family farming systems
- Level of agricultural intensification was higher regard to increasing proportion of family farming systems(p.c)
 - The area under cultivation was to increasing proportion of family farming systems(p.c)
 - The fallow rate was lower appropriated with increasing proportion of family farming systems(p.c)
 - The proportion of irrigated land was higher associated to increasing proportion of family farming systems(p.c)
 - Yield was higher per hectare according increasing proportion of family farming systems(fai)
- The Level of agricultural intensification in 2017 was significantly more than in 1993

Size of agricultural land, Agricultural production and Agricultural intensification ratio

Classes by size and rate	Size of agricultural land(ha)	agricultural production (tones)	Percentage of agricultural land	Agricultural intensification ratio =K.W
1) Small farmers	645450	2668550	4/9	25
2) The average peasant	1588210	5231800	5/18	28
3) Average peasants above	2167230	6108460	6/21	20
4) The prosperous peasantry	4617800	9999730	3/35	22
5) Moderate land capitalism	790370	1662470	9/5	3
6) Large Capitalist Lands	379520	943740	3/3	1

This result means more yield per hectare in family farming is also true for cereals, rainfed wheat, irrigated wheat, rice, irrigated and rainfed legumes and the following crops and products:

barley, peas, beans, cucumber, tomato, potato, onion, eggplant, okra, fodder,



Size of agricultural land, agricultural production and Agricultural intensification ratio

Classes by size and rate	Size of agricultural land(ha)	agricultural production (tones)	Percentage of agricultural land	Agricultural intensification ratio =100
1) Retail farmers	645450	2668550	4/9	154
2) The average peasant	1588210	5231800	18/5	123
3) Average peasants above	2167230	6108460	21/6	105
4) The prosperous peasantry	4617800	9999730	35/3	81
5) Moderate land capitalism	790370	1662470	5/9	79
6) Large Capitalist Lands	379520	943740	3/3	93
7) Large cultivation units	399110	1719470	6	161
Sum	10587690	28334220	100	100-- 43

Correlation coefficients between independent variables and agricultural intensification factor in Alashtar plain of lorestan province

Independent factor and variables	Non- standardized coefficients	Standardized coefficients	sig
Ago climatic density	117/45	0/17	0/0001
The degree or extent of technology and innovation used	260 18	0/2 919	0/0002
Level of local development	389 / 38	0/180	0/0000
Distance from Exchange Centers	730/203	-0/213	0/0001
Topography of agricultural lands	288/1992	0/119	0/0002
Mode of Ownership of Agricultural Land	208/7 49	0/38 0	0/0000
Level of use of indigenous knowledge	351/5 017	0/ 251	0/0001
The rate of investment and intensive activity in agricultural lands	712 2/51	0/1963	0/0002
Constant values	227/143	0/1022	0/0000

- Correlation between agro-climatic densities of sustainable cultivation was more positive and significant in **Alashtar** plain. It is necessary to explain that in relation to agro-climatic density: The application of this population density measure as a basis for predicting the level of agricultural intensification and standardization of arable land in terms of soil and climate quality is essential.
- There is positive and significant correlation between the level of agricultural intensification and the extent to which technology is used and the achievement of innovation in agriculture. It is very important that in family farming systems the use of new technologies is avoided because such holders are mostly use rental technologies . In large scale agricultural systems such as agro-industrial units the ownership of agricultural machinery such as tractors, combines, and other production tools is much wider and broader. because of this, such systems have to use older, worn-out technologies and are therefore; especially compared to family farmers; less productive and have less degree of agricultural intensification. In addition, highly valuable and civilizing innovations in Iran such as aqueduct originated from family-owned systems

- Higher prices and constant demand for agricultural products which signify an increase in the final benefit of the activity and encourage farmers to more produce. In empirical case, then, farmers would plant more crops and try to increase their production levels as much as possible.

- Increasing labor income and wages, along with decreasing travel and transportation costs, leading to labor migration from other regions to the Alashtar region. Research in 2022 shows a positive and significant correlation between the level of agricultural intensification with:

- Improved transportation facilities
- Access to exchange centers

The process of changing the agricultural system from traditional agronomic systems to constant cropping in a given climate situation is subject to growth and increased levels of farm income. In their view, the increase in farmers' income is also subject to two factors:

- The level of development of commercial structures such as transportation
- The level of price increase for agricultural products

Given the above results and the findings of more than twenty case studies, such as conclusions can be drawn.

local results

Converting fruitful orchards to arable land and annual planting

Contrary to the theories and forecasts, the area of orchard lands increases every year. It is surprising. (walnut, apricot, plum, cherry, nectarine, apple and fig)

Three points need to be mentioned

First, these are done by family farmers

Second, growth production is also on the rise.

This means every year compared pervious year fruits production increases more and more and their price becomes more expensive by scale



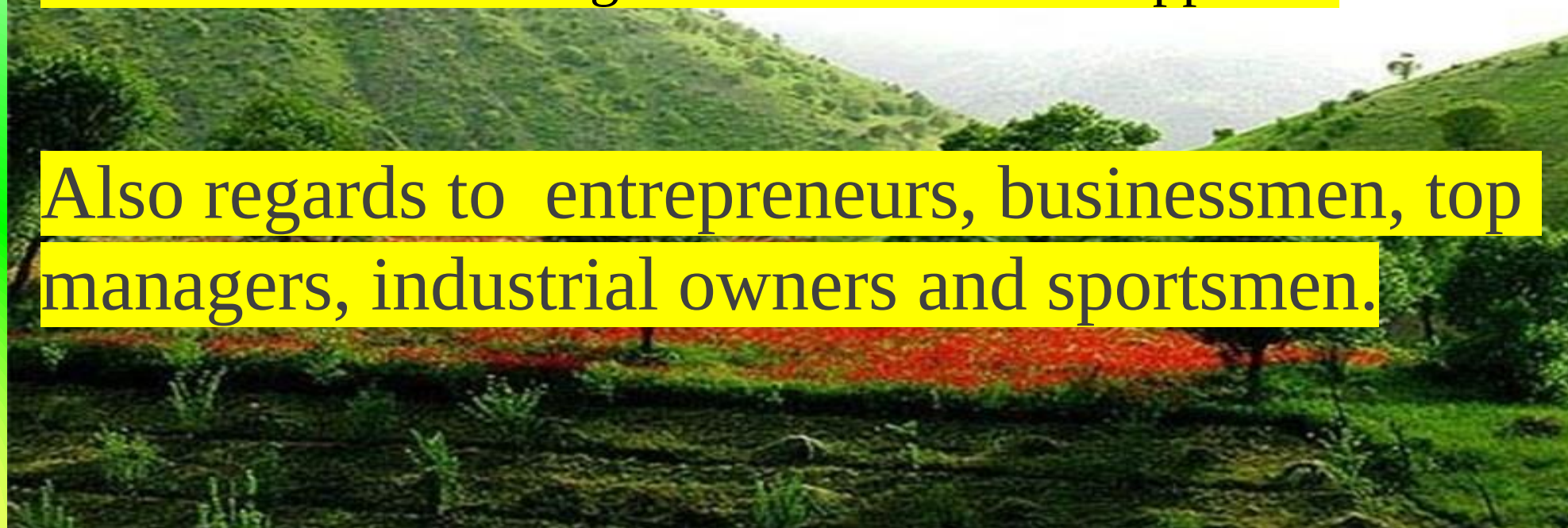
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Third :The increase of village-born scientists is a positive consequence of agricultural intensification in selseleh and Iran. That means in terms of AIFF transition from biological subsistence to technological subsistence has happened.

Also regards to entrepreneurs, businessmen, top managers, industrial owners and sportsmen.





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Conclusions

Conclusion

The one of more than eight researches during two decade showed that the yield per hectare of nineteen products... in the units under ten hectares was more than 5.5 tons and in the units above ten hectares was less than 3 tons. In addition, the amount of fallow land in units under ten hectares was less than 20% and in units above 50 hectares it was 42%. The inverse correlation between the size of the exploitation unit and the intensification factor of cultivation, which was also significant with the control of environmental, natural, spatial and technical variables; Mainly affected by the coordinated management, having local knowledge of thousands of years in cultivation, low overhead costs, the ability to adapt to environmental changes, high motivation, acceptance of innovations and work done by members in family units compared to large units(are some advantages).



unstable

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CIRDAP

Fundamental questions that need to be researched in the future: and for complete this theory

Why family farming units are more entrepreneurial, more innovative and use more technology compared to large-scale units.

**Why, unlike the scale of production in the industry, in the agricultural sector, small units have both a higher yield per hectare and lower costs.
Why are government agricultural and industrial units do not have the expected profitability?**



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The webinar ended, but the content continues

**Thank you for your
consideration**