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ASSESSMENT OF PACKING AS AN EFFICACIOUS FACTOR IN THE DEVELOPMENT OF HORTICULTURAL PRODUCT EXPORTS

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Abstract: The present study aims to assess packing of horticultural products (garden and greenhouse fruits) as an effective factor in agricultural export development with an emphasis on the need to pay special attention to the importance of using high potential of production and export of the product in terms of marketing according to the Iran's 13 geographical climates through National Union of horticultural products of Iran as the only executive of export and imports to target national and international markets. This is done with the aim of further explanation of packing as a significant contributor to the use of qualitative and quantitative parameters of standard in order to improve valuable and profitable mechanisms in the processing and development of export under the influence of 9 economic, cultural, auspices, production, storage, safety, environmental standard, promotion, and transfer factors in the conceptual model of research. The present study is a survey in the form of a field study performed using a questionnaire (of 55 questions under 9 categories), interviews, and field observations. Statistical sample of the study consists of 92 executive managers and operational personnel in the subsidiary companies of the Union of horticultural products of Iran. According to the results of statistical analysis obtained after determining the validity and reliability by Cronbach's alpha coefficient and measuring fitted model of structural equation, correlation of regression coefficient is used to analyze the 10 basic hypotheses through theoretical model developed by quantitative indices. Finally, according to the correlation coefficients, correlation values of 94% and 56% between the variables of production and safety and between promotion and culture, all hypotheses are positively and significantly proved.

Keywords: packing, export development, value added, brands, distribution channels, competitive advantage, export commitment.

1. INTRODUCTION

As it is known, paying attention to have a top position in production taking into account qualitative standard parameters of commercial products to promote exports is one of the components of economic growth in any country. Accordingly, considering the importance of components of export promotion as a tool to increase foreign currency revenues, as a substrate and proper and effective tool for the growth of GDP, and a weighted factor to increase the positive balance of trade balance at the international level, packing has been accepted and considered as one of the most important factors affecting product export development, particularly in horticultural product exports.

It is also worth noting that today, unions and associations of cooperatives of strategic alliance between farmers, agro-industries and processing, suppliers (in a wide range of exporters, retailers, and wholesalers), potential consumers, as well as end (domestic and foreign) customers, macro and micro trade brokers at the local, regional, national and international level play a special role in the adoption and implementation of market regulation policies and marketing of fruits, types of edible, medicinal and ornamental plants thanks to long-term planning with a strategic approach to the production and supply of these products throughout the world. It is such that support for the horticulture industry and related industries in terms of providing the following facilities is the main activity and goal of horticultural organizations [1]:

1. Providing subsidies required to purchase seeds and fertilizers.
2. Strengthening water supply system required for industrial operation of horticulture cultivation and processing mechanisms.
3. Providing support services for mechanized farming equipment from harvesting phase to cultivation and processing.
4. Allowing the storage of horticultural products in cold storage spaces equipped with the latest technologies of the day.

5. Planning for export of horticultural products to regional and international consumer markets.

6. Creating the proper conditions for investment and increase in the share of exports of horticultural products.

7. Removing traditional market building and heterogeneous and non-standard production in qualitative and quantitative dimensions considering diversity of fruits.

8. Creating a comprehensive market distribution systems for horticultural crops.

9. Supporting the creation and improvement of public facilitator and supportive laws in the agricultural sector and private subsidiary industries.

10. Gaining support from the public sector and expanding cooperation with the private and regional sectors.

Today, horticulture, as a prominent, supplier, and generator industry, is a major part of the food basket of the world. It is such that consumption per capita in the world, especially in developed countries, is higher than the rate of population growth. After more than three decades of the acceleration of the development of agricultural exports in developing countries, the figure has reached about 21 percent share of the global portfolio. It is in a way that the monetary value of imports of fresh and processed fruits and vegetables to the EU countries in the last twenty years reached 37.60 percent of positive increase of monetary exchange base rate of 8.98 billion dollars.

It is worth noting that the following factors have long been always considered by powerful countries in the field of agriculture, such as India, China, Iran, the Netherlands, Australia, Pakistan, Turkey, United Kingdom, France, Japan, Argentina, Chile, Egypt, Lebanon and some countries based in North Africa and Latin America and the Caribbean countries because of the importance of eating fruits and vegetables and earning significant revenues from trade in horticultural products:

1. Food and agricultural products' safety, particularly for the commercial production of vegetables and fresh fruits.

2. Managing existing capacities of the industry in both domestic and foreign activities.
3. Current concern due to the potential damage and disease of products in pre- and post-harvest phases.
4. Strict standards and rules, particularly in Europe and the developed countries.

The followings points are also under the focus as efficient governmental levers to control regional supply and demand:

1. Raising awareness of the consumer society, particularly the urban population, about the importance and positive effect of fruit consumption.
2. Certain climatic conditions in the two hemispheres and the need to meet the fruit needs of residents and cold seasons.
3. Trying to obtain a significant share of the consumer market of the Scandinavian countries, North America, and Alaska.
4. The existence of trade agreements and changes in trade rules and tools of financial transactions between the countries in the world in the form of international organizations such as the European Union, ASEAN Assembly, NAFTA, the Barcelona Declaration and the Doha Round.
5. Economic integration and development of gardening through the countries of Netherlands, Italy, France, India and China toward New Zealand and Australia, and similar actions in South America and Africa in order to create large and expertise gardening groups with a limited number in the field of fruits, vegetables, ornamental flowers and herbs.

It is worth mentioning that Asia Pacific countries including South Korea, Taiwan, China, Singapore and Malaysia are the largest importers of fruit and vegetables in South West Asia such that Singapore's the largest importer and accounts for 6 percent market share in the import of fruits and vegetables.

It should also be noted that the European Union is the largest industrial hub of importer of fruits and vegetables in the world, making up about 27 percent of total fruit imports market share in the world.

In order to help horticultural industry and its development in the Member States, EU has attempted to adopt certain policies on the basis of major policies of the Union in order to provide domestic support for horticultural products produced by members of the European Union, which led to increase in income of the horticulture industry and positive economic impact on commercial relations globally. Accordingly, it has taken effective enforcement measures, such as paying subsidies to member growers and gardeners, to support the horticultural industry. It is noteworthy to mention some of these efforts:

1. Paying more attention to the moral and cultural dimensions in line with green production with the need to conserve natural resources.
2. Enjoying the right to reduce the use of chemical pollutants in fruit cultivation environments.
3. Adopting the policy of arable soil reform and increase.
4. Increasing use of laboratory services in the field of soil texture and substrates for greenhouse cultivation of fruits.
5. Increasing research on toxins and pest and controlling product pathogens.
6. Growing world population.
7. Globalization and the need for sustainable economic development, free trade and international development.
8. Preference of the consumer market to effective communicative interaction between producers and consumers.
9. Tendency toward consumer trends.

These efforts are an important part of factors providing a new face for the horticultural industry and also providing the possibility of export development in today's world in order to increase and manage horticultural products.

As result, it has led to the strengthening of the leading and dynamic trend toward horticultural industry and the use of long-rang commercial network in terms of the geographical origins of supply and demand on the network of global supply chain as well as improvement and innovation of system of distribution of horticultural products in

international target markets ([2], [3], [4], [5], [6], [7], [8], [9], [10], [11], [12]).

Also to emphasize the importance of the role of unions and cooperative organizations in the procedure of horticultural product export development and the need for new and scientific research to contribute to the development and growth of horticultural products industry in Iran, it is worth to have a glimpse of the activities of the National Union of Iranian agricultural products.

Iranian Union of agricultural products is one of the most powerful reference organization from a range of exclusive national activities to a range of strategic marketing activities in the field of market planning and decision-making in order to achieve the operational objectives in a specific and specialized manner as an interface ring between small and medium-sized manufacturing enterprises and state organizations in terms of the economic factors, policies of major fruit market of the country, coverage and defense of the rights of members in the field of national and international commercial rights with a scope of favorable activities with 56 members of the best companies and businessmen in harvesting and issuing and registering of agricultural products and ornament plants. The union has centers in Tehran, Isfahan, Fars, and Alborz, with headquarter located in Tehran and it is the leader of industrial horticultural industry as the largest national commercial agricultural set in Iran.

The brilliance of this huge export complex in valid national and international exhibitions anywhere in the world shows the importance of the export and development of horticultural products through a national organization, as an efficient model with considerable potentials. Some of the activities of this national complex in domestic and foreign fields and its main tasks are as follows:

1. The fourth international exhibition of agriculture-animal husbandry: Havana (Cuba).
2. The first international exhibition of gardening: Iran.
3. Exhibition of boxes, printing and packing: China.

4. The fourth specialized exhibition of Iran - Erbil (Iraq).

5. Exhibition of food, catering, pharmaceutical: Taipei (China).

6. Exhibition of packing: Taipei (China).

7. Specialized exhibition of Iran - Kenya.

The main tasks are:

1. Providing facilities and marketing services for products under the scope of union activity.

2. Deploying the trade delegation abroad.

3. Cooperation with research centers to provide information and statistics to determine export varieties, harvest, storage of horticultural crops and ornamental plants.

4. Providing consulting services and training members in various fields in cooperation with national and international research universities and higher institutions for scientific and operational achievements and publication of results in specific bulletins of the Union.

5. Effort to gain more opportunities to expand and improve the quality and quantity of export goods.

6. Cooperation with Institute of Standards and Industrial Research in the field of:

- 6-1- Defining the standard for horticultural and ornamental products according to international standards.

- 6-2- Adopting domestic standards with international standards.

- 6-3- Educating members about observing standards needed to improve the quality of cold storage.

- 6-4- Horticultural and ornamental products' specialized transportation fleet operating system management.

- 6-5- Export packing and cooperation in doing inspection and clearance of goods covered by the relevant authorities [13].

With regard to the potential of the Iranian National Union of agricultural products as a useful lever to

explain the importance of growth and development indices of export products, competence and the need for applying a conceptual model with an applied nature in the form of a systematic process (Figure 1) with the aim of greater emphasis on qualitative and quantitative standard indices to test the interactions

between the most important factor (packing) and correlation with 9 other factors, it is worth mentioning that the methodology and findings sections are presented as the fundamental base of the study to set theory and perform statistical analysis of hypotheses and extract and adjust the results.

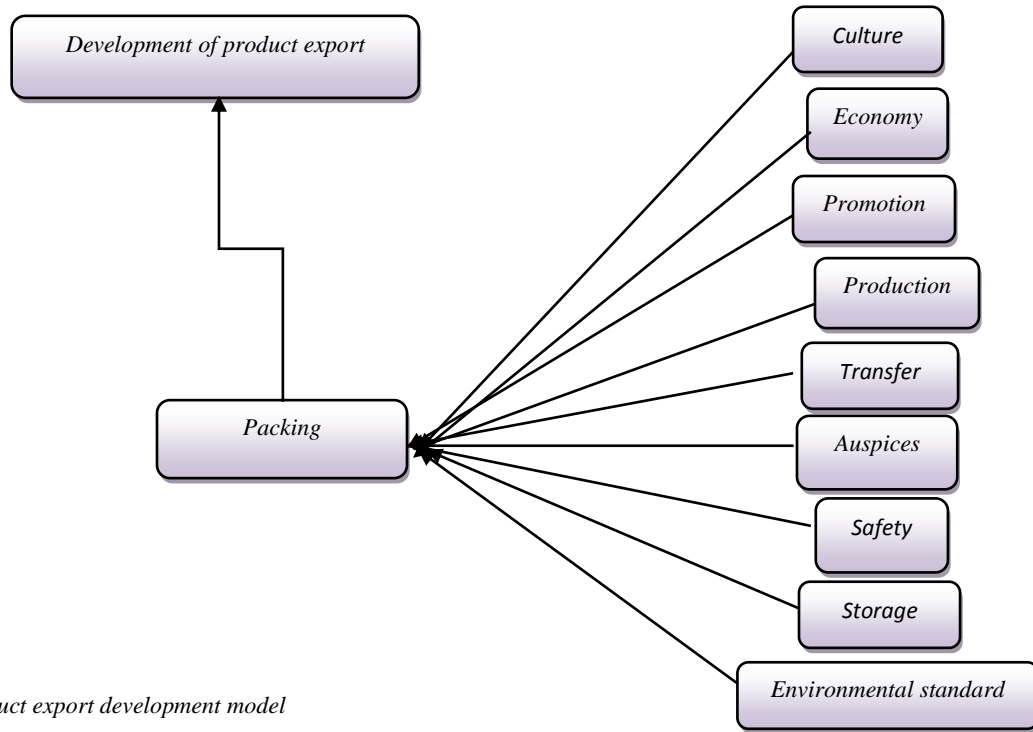


Figure 1: Product export development model

The history of packing industry goes back to 8000 years BC. It is worth noting that the packing industry, as one of the most important and decisive factors in the global market, has now grabbed the attention of all global production and trade activities.

Of course, when we move forward in the history, rise of the Industrial Revolution has caused an outstanding transformation in the production system and performance of classic systems with the expansion of human knowledge and the importance of science and world is faced with the abundance of goods in a new way with the ability to compete and trade in the transnational area.

Considering the ergonomic and social aspects of products on the basis of a new psychological approach to the consumer society with a focus on

customer in the trade and economy plays an important role in the development of export.

Today, packing of products has become an industry in developed countries and all experts in the field of product management attempt to process with advanced facilities and modern technologies and super-engineering and selling and exporting horticultural products with the aim of improving the contribution and profitability of target markets through the use of the latest marketing methods and policies.

At present, the necessity of the importance of packing in the eyes of businessmen and exporters in general as well as innovatively and specifically for the community of Exporter unions and cooperatives of agricultural products in the form of a supplement

industry in the chain of production, distribution, and consumption is obvious due to the capabilities of this important factor affecting the innovation and development of processing industry, especially in the field of agriculture and organic and horticultural products [14]. Packing is not a new concept in the economy. However, packing itself is an evolved industry that has had a significant progress in recent years with regard to market demand and with the use of experts' knowledge and experience.

Many business and market management researchers including Jerome McCarthy in the early 60s devoted a special place for packing as the fifth P in the 4 famous marketing mix Ps, including product, price, place, promotion and also from their perspective, a standard and proper packing is definitely effective with respect to quality and economic criteria. Its importance should not be ignored in the direction of creating differentiation power and increasing competitive power compared with similar products of competitors in the field of trade [15].

The functional role of this factor in the control process of supply chain system of agricultural products, monitor and correct information of the physical condition and the fruit quality during processing, particularly in modern mechanized and automat systems of industry, from the harvest phase to packing and tracking in warehouses and target markets is necessary and fundamental.

In other words, in order to maintain in target markets with proper and economic justification along with an approach to inhibit the production costs, taking into account planning for processing operations and industrial transformation of horticultural products with the use an economic model with considerations such as:

1. The correct and economic estimation of the needs of the community,
2. Optimal management of processing power of products ordered by market,
3. Coverage and leading storage systems and designed distribution,

It is necessary to advance based on the objectives of sales and market regulation policy, which

significantly helps predict and realize revenues of sale and behavior of consumption, sale, and inventory control functions in the points in the supply chain.

For a better emphasis on the need for applying economic models and the influence of indicator elements on processing system with a view to efficiency and with the goal of reducing horticultural crops' supply chain costs, a clear schematic is presented in the form of a programming model of the processing and packing processes (figure 2).

Considering the need to balance the efficiency of each of the 7 modules of the following model in the design and optimal operation of the industrial model is of great importance. In addition to the coverage of all processing stages from picking to placing in definition modules based on the nature of fruits at each transform stations and also with the consideration of hygiene standards applicable to each of the modules of quality inspection of fruits, output of modules is finally sent to warehouses and target markets taking into account the cost factors and expected profit of fruit sales in the form of definition packing.

Even with technical assumptions such as the following points, designing the structural model even with the help of super-intelligent computer systems is not without limitations and possible operational weaknesses.

1. Estimating the number of machines and scheduling operation in definition shifts and capacity of packing lines.
2. The amount of order and the correct timing for: storage and distribution, and finally sending the products to the target customers to ensure and maximize customer satisfaction.
3. Considering the characteristics of fruit in terms of external quality and internal physical parameters.
4. General conditions: genetic characteristics of a product, the climatic conditions for growing, and harvesting periods.
5. Considering marketing and sale committees and horticultural products' distribution and export agencies ([16], [17], [18]).

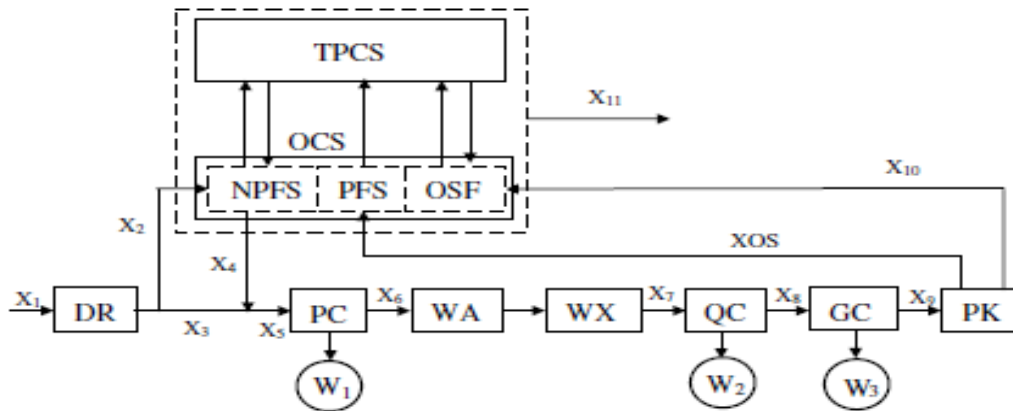


Figure 2: a schematic of the economic model of fruit processing and packing

In the figure above,

X: Fruit symbol, based on the priority, and the model cycle stages from processing to packing based on modules index

DR: module of fruits ready for the moisture level

PC: module of classification and disposition

WA: module of waxing and brushing

WX: module of polishing through spray

QC: module of quality control

GC: module of measurement by standard criterion

PK: module of packing

As a result, intelligent diagnostic systems capable of utilizing radio frequency (RFID) embedded on the labels containing magnetic barcodes that have the ability of exchanging data required by quality control and sale users have the greatest influence on the accuracy of traceability throughout the product storage and grading phases and are of abundant used in modern horticultural product supply chain systems.

As with tracking pathogens and pests of fruits and vegetables, tracking focused inputs (fertilizer, seed, pesticide type, etc.), contributing to the sustainability of agriculture, improving the economic merits in the development of reliable and efficient technologies,

crisis management in the field of edible products, and enhancing the level of customer satisfaction, records can be obtained according to the needs of farmers, manufacturers, exporters, and marketers from the beginning of growing fruit on the tree to its picking and transfer to the processing and final packing place and also its transition to the final consumer. In addition, the effect of climatic condition on products, even in the farthest corners of the world, can be investigated in this situation ([19], [20], [21]).

Today, governments around the world support the development of export as one of the important strategies for economic prosperity in the new global landscape. In other words, focusing on exports as an engine of economic growth is deemed valuable even in large countries that are managing large volumes of domestic demand and is considered as income generating factor that increases the level of national and citizens' prosperity.

Due to the importance of exports in obtaining competitive advantage using committed behavior in accordance with marketing tactics, especially in foreign markets, adoption of companies' export behavior with marketing program is essential because of the importance of competition and environment of business activities in conjunction with the economic parameters and strategic parameters.

In the present era that companies work in the direction of globalization, export performance continuously has a large share in the whole level of companies and is one of the main activities of the company. Therefore, conditions prevailing in the global market and the growing trend of globalization, even for monopolist companies in the competitive environment, are a challenging space for survival and increase of commercial activities' guarantee rate.

Export performance can be considered as the extent of access to strategic objectives in the form of macro policies of cooperative and industrial companies and organizations for economic product exports considering economic parameters to expand the market, increase product market share and ultimately, develop export to foreign markets [22].

The role of companies, especially at senior and executive management level, in commitment to export duties as a lever affecting the increase in management's desire to make an attempt to achieve the international goals that align with the company's mission focused on decision by the organization to be present in foreign market should not be ignored.

Today, researchers deal with export commitment from two attitudinal and behavioral perspectives. From the attitudinal perspective, export commitment can be the tendency of management to the allocation and provision of financial, managerial and human resources in creating competitiveness in potential and actual markets, which is the result of fundamental look to corporate resources in the field of exports.

Although export commitment can be shown in different forms, none of the export commitment items are able to reflect the adoption of what the company tends to with the desires, expectations and needs of foreign customers. However, the presence in foreign markets is a great opportunity for exporter corporates to develop target markets and improve opportunities in these markets. In addition, although the output of the strategies of these companies has a high degree of risk due to the presence of unfamiliar languages, different business cultures, and different economic and political environments, companies are required to meet the foreign market.

Thus, by adopting the right strategy and selecting the right policy, it can be hoped that unions and

associations and cooperatives in agriculture industry, especially in horticultural products, can gain competitive advantages at the regional and international markets so as to perpetuate growth of companies in the area of product export in the near future [23].

2. Methodology

The present study is applied in nature and aims to acquire the required knowledge and understanding of determining an effective tool (product export development model) to overcome obstacles to the horticultural product export development with regard to high potential of agriculture and horticulture society using qualitative descriptive tools to investigate and analyze the effect of 9 economic, cultural, auspices, production, storage, safety, environmental standard, promotion, and transfer factors on the packing type of horticultural products and consequently, its effect on horticultural products' export development.

The present study is also descriptive-survey since a questionnaire of 55-items, field observation, and interviews with managers and experts have been used to investigate the amount and relationship between variable to find an answer for a scientific problem in the real world.

2.1. Hypotheses

In order to investigate the structure of product export development model variables through the proposition of 10 hypotheses presented in Table 1, it is attempted to test the reciprocity and solidarity of all variables. Structural modeling analysis (multivariate analysis, simultaneous analysis of «K independent variables» and «n dependent variables») is one of the main methods of analyzing complex data structures to investigate the effects of variables on each other. This approach is a combination of mathematical and statistical factor analysis, multivariate regression, and path analysis based on which it is attempted to test research hypothesis.

Table 1: research hypotheses

	Hypothesis
1	Production (processing) has a positive significant effect on packing.
2	Storage (maintenance) has a positive significant effect on packing.
3	Promotion has a positive significant effect on packing.
4	Environmental standard has a positive significant effect on packing.
5	Auspice (trust) has a positive significant effect on packing.
6	Safety (integration) has a positive significant effect on packing.
7	Transfer (transport) has a positive significant effect on packing.
8	Economic factor has a positive significant effect on packing.
9	Culture has a positive significant effect on packing.
10	Packing has a positive significant effect on product export development.

2.2. Statistical population

The population of this study includes managers and experts of the 49 companies active in the production (processing), import, export of agricultural and horticultural products (fruits) member of the Iranian National Union of agricultural products with 105 administrators and senior officers. To determine the sample size of the study, Cochran's random sampling formula has been used (Equation 1).

Accordingly, a pilot group was selected from the target population. Then, according to the index of standard deviation of the pilot group, which was .7, sample size turned out to be 92 people.

$$n = \frac{NZ^2_{\alpha/2}\sigma^2}{e^2(N-1)+Z^2_{\alpha/2}\sigma^2}$$

(1)

N is the population size, **n** is sample size, **e** is error coefficient (.05), **δ** is standard deviation of the pilot group (.6),

z = .25, and the value of standard normal stochastic variable (1.96) with a confidence level of 95%.

2.3. Reliability and validity

To test the reliability of the questionnaire, in other words, to ensure the effectiveness of the questionnaire to measure the expected results, Cronbach's alpha coefficient has been used. The reliability value should be higher than .7 for the questionnaire to be reliable.

Here, content validity and construct validity are used to measure the validity of research tool. To test the validity of the questionnaire and ensure the sufficiency of the number of questions required to measure the effect of research variables, content validity has been used. Confirmatory factor analysis is used to measure construct validity to test the correlation of research variables.

3. Findings

3.1. Results of reliability test

Cronbach's alpha coefficient has been used to calculate internal consistency of the questionnaire in the present study. According to calculations and results presented in table 2, the coefficient value is greater than .7 for all variables.

Table 2: Cronbach's alpha coefficient for main research variables

Variable	Cronbach's alpha coefficient
Production	.971
Storage	.976
Promotion	.984
environmental standard	.950
Auspices (trust)	.962
Safety	.959
Transfer	.904
Economic	.941
Culture	.977
Packing	.953
Product export development	.934

3.2. Results of validity test

Before the evaluation of proposed structural model, it was necessary to investigate the significance of regression weights (load factor of different constructs of the questionnaire, as well as their size in predicting relevant items (questions)) in order to ensure fitness of measurement model and acceptability of indicators in measuring structures.

Amos software and two important indicators of this software, i.e. parameters of kurtosis with a tolerance of ± 7 and skewness with a tolerance of ± 3 have been used to ensure normality of the data collected. Table 3 presents results of factor analysis for the items of the questionnaire. As shown in Table 3, kurtosis of all data is between ± 7 and their skewness is between ± 3 , indicative of data normality. The basis of significance of items is that their significance

value must be under .05. Accordingly, in the factor analysis model fitted in the first phase, regression weights (factor loadings) of all relevant variables in predicting relevant items have been significantly different from zero at a confidence level of .95; therefore, none of the items of the questionnaire has not been removed.

Model fitness indices (confirmatory factor analysis) along with their theoretical and actual values are presented in Table 4. These indices indicate good fitness of measurement models and confirm the significance of factor loadings of each observed variable to the relevant latent variable. Therefore, based on data normality shown in Table 3, Pearson correlation coefficient of all research variables is also calculated and presented in table 5.

Table 3: results of confirmatory factor analysis of the first phase for items of the questionnaire

Variable	Item	Kurtosis	Skewness	Regression weight	Sig. level
Production	Q1	-.330	-.920	.953	.000
	Q2	-.341	-.954	.949	.000
	Q3	-.607	-.762	.926	.000
	Q4	-1.042	.015	.930	.000
	Q5	-1.184	-.109	.899	.000
Storage	Q6	-1.227	-.041	.947	.000
	Q7	-1.114	.126	.945	.000
	Q8	-1.006	-.462	.951	.000
	Q9	-1.449	-.130	.932	.000
	Q10	3.236	2.040	.949	.000

Promotion	Q11	-1.114	-.447	.939	.000
	Q12	-1.285	-.059	.959	.000
	Q13	-1.206	-.234	.934	.000
	Q14	-1.280	-.150	.952	.000
	Q15	-1.093	-.154	.962	.000
	Q16	-.863	-.577	.963	.000
	Q17	-1.196	-.248	.935	.000
environmental standard	Q18	-.628	-.708	.983	.000
	Q19	-.568	-.806	.919	.000
	Q20	-.534	-.818	.888	.000
Auspices (trust)	Q21	-.394	-.929	.984	.000
	Q22	-.401	-.923	.931	.000
	Q23	-.529	-.861	.924	.000
Safety	Q24	-.625	-.691	.964	.000
	Q25	-.611	-.650	.908	.000
	Q26	-1.230	-.286	.957	.000
Transfer	Q27	-1.098	-.244	.721	.000
	Q28	-1.131	-.392	.949	.000
	Q29	-.628	-.782	.950	.000
Economic	Q30	-.564	-.751	.782	.000
	Q31	-.754	-.644	.944	.000
	Q32	-.353	-.900	.958	.000
	Q33	-.463	-.868	.907	.000
Culture	Q34	-.838	-.534	.970	.000
	Q35	-.646	-.647	.975	.000
	Q36	-.825	-.618	.955	.000
Packing	Q37	-.635	-.747	.771	.000
	Q38	-.837	-.565	.791	.000
	Q39	-.650	-.755	.430	.000
	Q40	-.393	-.913	.703	.000
	Q41	-.448	-.899	.486	.000
	Q42	-.437	-.865	.351	.000
	Q43	-.746	-.709	.390	.000
	Q44	-.494	-.804	.339	.000
	Q45	-.490	-.817	.492	.000
Product export development	Q46	-.609	-.717	.907	.000
	Q47	-.751	-.629	.897	.000
	Q48	-.684	-.663	.845	.000
	Q49	-.454	-.831	.428	.000
	Q50	-.624	-.750	.441	.000
	Q51	-.854	-.468	.407	.000
	Q52	-.768	-.604	.377	.000
	Q53	-.817	-.605	.460	.000
	Q54	-.636	-.732	.393	.000
	Q55	-.366	-.868	.294	.000

Table 4: Theoretical model fitness indices and values of the research model

Index	Optimal level	Actual value	Value of measurement model
Degrees of freedom (df)	-	177	194
Chi-square (χ^2)	$2df \leq \chi^2 \leq 3df$	377.977	560.485
Significance level of (χ^2)	Higher than .05	.079	.07
Optimized chi-square (df / χ^2)	Lower than 3	2.135	2.889
Goodness of fit (GFI)	Higher than .8	.822	.861
Root mean square of residual (RMR)	Lower than .09	.057	.051
Comparative fit index (CFI)	.9	.920	.955
Root mean square error estimation (RMSEA)	Lower than .08	.078	.014

Table 5: Mean, SD, and correlation of research variables

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10
Production	3.4	.82	1									
Storage	3.9	.69	.842**	1								
Promotion	4.31	.65	.735**	.649**	1							
environmental standard	4.30	.66	.943**	.729**	.934**	1						
Auspices (trust)	4.19	.58	.929**	.631**	.848**	.938**	1					
Safety	4.23	.66	.946**	.638**	.850**	.529**	.753**	1				
Transfer	3.4	.55	.872**	.765**	.853**	.845**	.852**	.856**	1			
Economic	3.3	.67	.909**	.899**	.597**	.882**	.599**	.612**	.928**	1		
Culture	3.7	.56	.930**	.738**	.561**	.912**	.835**	.741**	.866**	.900**	1	
Packing	3.6	.89	.881**	.845**	.837**	.836**	.851**	.855**	.884**	.875**	.838	1
Export development	4.0	.75	.882**	.688**	.877**	.862**	.772**	.900**	.766**	.690**	.767	.904

** : significance at $p < .01$ significance level

All the correlation coefficients are positive and acceptable. According to the coefficients presented in table 5, it is concluded that the highest correlation coefficient belongs to the correlation between safety and production as .943. The smallest correlation coefficient belongs to the correlation between culture and promotion as .561. The mean of responses was higher than the average for all variables.

3.3. Hypotheses testing through structural model analysis

After ensuring the reliability and validity of the research tool and for analyzing the hypotheses, it was necessary to process the theoretical model to determine to what extent collected data support the theoretical model. In order to answer this question, qualitative indices of model fitness (CFI, GFI, RMR, and ...) have been used. After ensuring the overall indices, interactions within the model were studied in the next step. These interactions were regression coefficient (coefficient of determination) of the hypotheses and factor loadings of each item.

Therefore, to test the acceptability of these coefficients (coefficient of determination of factor

loadings) according to Table 6, P value has been used, which turned out to be lower than .05 for acceptable values.

According to the estimated path coefficient and p-values that were equal to .000 and less than the significant value of .05, it can be concluded that the

path coefficient is significant at an error level of .05. That is:

1. All factors from 1-9 have a positive and significant impact on packing.
2. Packing has a positive and significant impact on export development.

Table 6: regression coefficient and significance of the effect of research variables on packing

Hypothesis	Direct path	Regression coefficient	p-value	Result
1	Production ⇨ packing	.28	.000	Significant
2	Storage ⇨ packing	.12	.000	Significant
3	Promotion ⇨ packing	.15	.000	Significant
4	Environmental standard ⇨ packing	.12	.000	Significant
5	Auspices ⇨ packing	.17	.000	Significant
6	Safety ⇨ packing	.83	.000	Significant
7	Transfer ⇨ packing	.31	.000	Significant
8	Economic ⇨ packing	.10	.000	Significant
9	Culture ⇨ packing	.22	.000	Significant
10	Packing ⇨ export development	.37	.000	Significant

In order to evaluate the priority of factors influencing packing, Friedman test with a sig. level of less than .5 has been used, and the computational results and

indicators are presented in Tables 7 and 8 (The greater the mean, the more important the factor).

Table 7: Friedman test means

Factor	Rate	Priority
Production	5.84	First
Economic	5.50	Second
Transfer	5.21	Third
Environmental standards	4.94	Fourth
Promotion	4.93	Fifth
Safety	4.77	Sixth
Auspices	4.70	Seventh
Culture	4.69	Eighth
Storage	4.43	Ninth

Table 8: The index of Friedman test

Friedman test indices	Obtained values
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Chi-square	82.623
df	8
Sig.	.000

4. Achievements

The following achievements are presented as business topics and important goals affecting long-term planning with a strategic approach, which represents a manifestation of the index of the capability of export development model for National Union of Agricultural Product Export:

4.1 The importance of the correct use of valuable and profitable mechanisms to appropriately meet the demand of target markets.

4.2 Creating a new need due to the changing environment, particularly at macro and world-class level.

4.3 Emphasis on organizational operational status of packing unit as a dynamic and key sector and the need to strengthen the expert and fluent staffing having a knowledge of packing in accordance with the relevant quality standards in the packing industry of horticultural crops.

4.4 Efficient use of production capital capacity of industrial member companies of the National Union of agricultural products in the processing and the cultivation of horticultural crops along with the use of technologies with a focus on efficient use of efficient manpower with a knowledge of management and engineering of national and international markets.

4.5 Necessity to pay more attention to the cultural, economic, and production indices by setting a marketing strategy in order to more fully cover the target markets in accordance with qualitative and quantitative standards of consumer market in order to increase the utility and acceptance of horticultural crops.

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