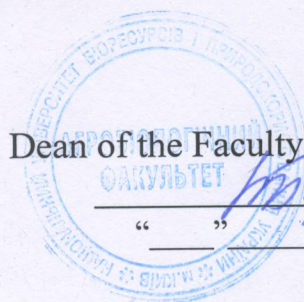


**NATIONAL UNIVERSITY OF LIFE AND ENVIRONMENTAL SCIENCES OF  
UKRAINE**

**DEPARTMENT OF TECHNOLOGY OF STORAGE, PROCESSING AND  
STANDARDIZATION OF PLANT PRODUCTS  
THE NAME OF PROF. B.V.LESIKA**



**“CONFIRMED”**

Dean of the Faculty (Director of Institute)  
\_\_\_\_\_  
“ ” (O.L. Tonkha)  
\_\_\_\_\_ 2023

**“APPROVED”**

at the meeting of the department storage  
technologies, processing and standardization  
of plant products named after B.V. Lesyk  
Protocol №4 dated 25.04. 2023

\_\_\_\_\_  
Head of Department  
( G.I.Podpryatov )

**”REVIEWED ”**

Program Coordinator of EP "Agronomy"  
Program Coordinator EP  
\_\_\_\_\_  
(O.L. Tonkha)

**PROGRAM OF THE COURSE**

**“STANDARTIZATION AND QUALITY MANAGEMENT  
OF PLANTING PRODUCTS”**

Specialization: Agronomy

Educational program: Agronomy

Faculty (Institute): Agrobiology

Developers: V.Voytsekhivskiy, PhD, associate professor

Kyiv

## 1. Description of the course

Standartization and quality management of planting products

<b>Field of knowledge, specialization, educational program, educational degree</b>		
Educational degree	<i>Bachelor's</i>	
Specialization	<i>201 Agronomic</i>	
Educational program	<i>Agronomic</i>	
<b>Characteristics of the course</b>		
Type	Compulsory	
Total number of hours	150	
Number of ECTS credits	5	
Number of content modules	2	
Course project (work) (if applicable)		
Form of assessment	<i>Exam</i>	
<b>Indicators of the course for full-time and part-time forms of study</b>		
	Full-time form of study	Part-time form of study
Course (year of study)	3	
Semester	5	
Lecture classes	<i>30 hr.</i>	<i>hr.</i>
Practical, seminar classes	<i>30 hr.</i>	<i>hr.</i>
Laboratory classes	<i>- hr.</i>	<i>hr.</i>
Self-study	<i>90 hr.</i>	<i>hr.</i>
Individual assignments	<i>hr.</i>	<i>hr.</i>
Number of weekly classroom hours for the full-time form of study	<i>7 hr.</i>	



## 2. Purpose, objectives, and competencies of the course

"Standardization and management quality of plant products" is optional subjects, which provided for educational and vocational programs (EPP) training educational qualification "Bachelor" direction "Agronomic". Educational discipline covers a wide range of problems in the field of agricultural production, and therefore its study helps broaden my horizons and create the necessary theoretical knowledge and practical skills of the future specialists in agronomic for sustainable use of plant products, determine its quality, prompt search and application in producing effective regulations.

The main purpose of learning a discipline - generate knowledge and practical skills for teaching the basics of standardization and quality control of crop production. The program is based on a study of the state of existing laws, regulations, and standards for agriculture. After learning of the course students should

know:

- theoretical foundations of standardization;
- the basis quality management;
- methods for determining the quality of plant products;
- quality and safety of products, which are incorporated in the existing regulations for different types of plant products;
- the basis certification of crop production;

be able to:

- to use educational, methodical and scientific literature for standardization;
  - apply the appropriate methods for determining the quality of products;
  - to determine the quality of the product (purpose);
  - used in the production of various types of control;
  - practically applied in the specific context of existing regulations;
  - prepare a lot of products to certification procedures;

have:

- the method of determining the quality of cereals;
- methods for determining the quality of fruit and berry crops;
- the method of determining the quality of vegetable crops;
- the method of determining the quality of crops;
- operate with terms and definitions are governed by applicable regulations and are used in agronomic.

### Acquisition of competencies:

- **integral competence (IC):** The ability to solve complex specialized tasks and practical problems in agronomy, which involves the application of theories and methods of the relevant science and is characterized by complexity and compliance with zonal conditions

- **general competencies:** 3. Ability to abstract thinking, analysis and synthesis; 4. Ability to communicate in the state language both orally and in writing; 5. Ability to communicate in a foreign language; 6. Knowledge and understanding of the subject area and understanding of professional activity; 7. Ability to apply knowledge in practical situations; 8. Skills to carry out safe activities; 9. Ability to search, process and analyze information from various sources.

- **professional (special) competencies:** 8. Ability to solve a wide range of problems and tasks in the process of growing crops, by understanding their biological characteristics and using both theoretical and practical methods; 9. Ability to manage complex actions or projects responsibility for decision-making in specific production conditions.

- **programmatic learning results:** 4. Compare and evaluate modern scientific and technical achievements in the field of agronomy; 5. Conduct a literature search in Ukrainian and foreign languages and analyze the information received; 6. Demonstrate knowledge and understanding of fundamental disciplines to the extent necessary to possess relevant skills in the field of agronomy.

According to the normative part of the OS "Bachelor" with the direction "Agronomic" the study of the discipline allocated 150 hours, including 30 hours of lectures, 30 hours of laboratory work, 90 hours - independent work. Control of knowledge and skills of students is carried out by verbal questioning during laboratory classes, writing tests and module tests, preparation of differentiated credit.

Control of students' knowledge and skills is carried out in the form of an exam. The final form <https://elearn.nubip.edu.ua/course/view?id=3866>.

### **3. Program and structure of the course for:**

– complete full-time (part-time) form of study;

#### **3.1 The program of the course**

##### **Introduction**

Subject and methods of discipline its task. Educational activities, training sessions and individual tasks independent work. The value of the course in the formation of OCD experts "Bachelor" direction " Agronomic ". Intersubject communication. Suggested Reading. Historical overview of standardization in Ukraine and abroad. Function and purpose of standardization. Terms and concepts in standardization. Value problem as crop production. The role of standardization to improve the effectiveness, technical level and quality of crop production. Trends in standardization of crop production.

#### **Content module 1. The theoretical basis of standardization and of quality management**

##### **Lecture 1.1. Organizational principles of standardization in Ukraine**

The state system of standardization. Standardization bodies and services in Ukraine. Categories and types of standards. Classification standards. Objects of standardization. Major standards organizations of Ukraine. Order of the development, adoption and implementation of standards. Preparation enterprises to implement standards. State supervision and control of departmental implementation and compliance with the standards, specifications and as instrumentation. Goals, objectives and functions of state supervision.

##### **Lecture 1.2. Methodical bases of standardization**

General preconditions for the emergence and development of the theory of standardization. The principles of standardization. Methods of standardization: standardization, standardization, aggregation, complex standardization, proactive standardization and barcoding. Types of standardization. The value of international cooperation on standardization and quality control for the development of science and technology and economic relations of Ukraine with foreign countries. International Organization for Standardization, Metrology and quality. International, European and international standards. The use of ISO standards - the path to world-class product quality and competitiveness in the global market.

##### **Lecture 1.3. Qualimetry - the scientific basis for evaluating the quality**

Basic terms and definitions in the field of quality management. Classification and characteristics of quality. Factors that affect product quality. The role of human factors in solving quality problems. Competitiveness and product quality. Types and characteristics of quality. Methods for determining quality. Methods for evaluation of quality: the differential, integrated, mixed. Factors that affect the change in quality during harvesting and post-harvest handling and storage.

##### **Lecture 1.4. Technical quality control**

Classification of technical control. The task of controlling service quality. Characteristics of the main types and methods of control. Performance evaluation as a form of commodity production. Standardization of measurement. Evaluation of the quality of labor in agriculture. Metrological measurements in agriculture.

##### **Lecture 1.5. Quality management**

The purpose and main objectives of the quality management system. Quality as a management object. Milestones quality systems. The essence of quality management. Functions and principles of quality management. Stages of product life cycle. The need for development interrelated organizational, technical, economic, social and legal measures, methods and means to maintain the required level of quality at all stages of the life cycle. Planning for improving product quality, regulatory and technical support. Procedure development and implementation of a comprehensive quality management system of labor and production in agriculture. The requirements of international

standards for quality management. Structure of the ISO 9000 series of standards for quality management systems.

## **Module 2. Standardization and quality control plant cultivation products**

### Lecture 2.1. Standardization of cereal and pulse crops

National, european and international requirements as to the crops. Scientific and economic justification of quality in the current standard documentation for production of crops. Normalization of quality grain. Indicators of the quality of grain of various purpose. Signs of fresh corn. Contamination of grain weight control. Humidity and grade of grain. Quality indicators parties grain and seed crops a particular purpose: nature, Vitreousness, similarities. Standardization of methods for assessing the quality of grain. The basic requirements of quality standards for wheat, barley, rye, oats, soybeans, peas, beans and other crops.

### Lecture 2.2. Standardization of fruit and berry crops

National, european and international requirements as to fruit crops. Scientific and economic justification of quality in the current standard documentation for production of fruit and berry crops. Features standardization of fruit and berries as objects of standardization. Structure standards for pome fruit, stone fruit and berry crops. The main sections Standards: Introduction, specifications, rules of acceptance, methods for determining quality, packaging, labeling, transportation, storage. Process indicators are normalized standards for fruit. The basic requirements of quality standards for pome (apple, pear), stone fruit (plum, peach, apricot) and berries (currants, gooseberries, strawberries) cultures.

### Lecture 2.3. Standardization of vegetable crops

National, european and international requirements as to vegetable crops. Scientific and economic justification of quality in the current standard documentation for production of vegetable crops. Features standardization vegetables. Structure standards for vegetable crops. Basic requirements for the quality of potato tubers different purpose, cabbage, carrots, beets, onions, tomatoes, cucumbers, peppers, other vegetables.

### Lecture 2.4. Standardization of technical crops

National, european and international requirements for crops. Scientific and economic justification of quality in the current standard documentation for production crops. Quality of sugar beet as a raw material for the sugar industry. Accounting sugar content during harvesting sugar beet. The influence of this parameter in the calculations. Methods of evaluation and quality control of sugar beet. Quality requirements lubovoloknystyh crops (flax, hemp). Quality of raw tobacco in accordance with national standards: ripeness, color, presence of dark green. Mechanical damage, disease and pest infestation, infestation, humidity. Description of commodity grades of raw tobacco. Requirements for raw materials used in the tobacco industry. Acceptance and methods for evaluating the quality of raw tobacco. Commodity Classification and requirements for quality of hop cones during harvesting. Acceptance and methods of quality assessment. Payment for sold raw hops, depending on the content of alpha acids.

### Lecture 2.5. Standardization seeds and planting materials

National, european and international requirements for crop seeds and planting material. Scientific and economic justification of quality in the current regulatory documentation for seed and propagating material. Indicators of quality seeds of cereals, legumes, forage crops and grasses. The current requirements for varietal purity, germination, pollution and disease infestation. Requirements for planting material pome (apples, pears), berries (blackberry, strawberry) cultures.

### Lecture 2.6. Standardization of plant protection products and fertilizers

Requirements for Pesticides and doryv reflected in the current legal documentation. Requirements regarding pesticide pollution. Mastering the basic terms and definitions in plant protection. Using international regulations when using crop protection products.

### Lecture 2.7. Basics product certification

Development of certification in the world and Ukraine. Terms and definitions in the field of certification. Types and certification system. The main provisions of the state system of certification

Ukraine (Certification). Basic principles and general rules of UkrCEPRO. Accreditation and certification laboratory or production. Rules, schemes and procedures for certification. Liability in case of violation of the certification.

Lecture 2.8. Fundamentals of metrology

The basic premise of metrology. Metrological traceability. The state metrological system of Ukraine. Metrological service of Ukraine. The main types of metrology. State metrological control and supervision over the observance of standards and measuring instruments. Metrological assurance of product quality.

Lecture 2.9. Legal and economic aspects of standardization

Legal support standardization and quality control. Legislation in the field of standardization. Responsibility for violation of legislation on product quality. Economic efficiency standards. The method of calculation of economic efficiency improvement of product quality.

### 3.2. Structure of subject

Names of content modules and topics	Number of hours															
	Full-time form							Part-time form								
	weeks	total	including					total	including							
			l	p	lab	ind	self		l	p	lab	ind	self			
1	2	3	4	5	6	7	8	9	10	11	12	13	14			
<b>Content Module 1. Theoretical basis of standardization and of quality management</b>																
1.Introduction	1	4	2	2	-	-	-	62	1	-	-	-	-	-		
2.The theoretical basis of standardization and of quality management	2	4	2	2	-	-	-			-	-	-	-	-	10	
3.Organizational principles of standardization in Ukraine	3	13	2	2	-	-	9			-	-	-	-	-	10	
4.Methodical bases of standardization	4	13	2	2	-	-	9			-	-	-	-	-	10	
5.Qualimetry the scientific basis for evaluating the quality	5	13	2	2	-	-	9			1	-	-	-	-	10	
6.Technical quality control	6	13	2	2	-	-	9				-	-	-	-	-	10
7.Quality management	7	13	2	2	-	-	9				-	-	-	-	-	10
<b>Total for content module 1</b>	73		14	14	-	-	45	2	-	-	-	-	60			
<b>Content Module 2. Standardization and quality control plant products</b>																
1.Standardization of cereal and pulse crops	8	11	2	2	-	-	7	88	1	-	2	-	10			
2.Standardization of fruit crops	9	11	2	2	-	-	7			-	2	-	10			
3.Standardization of vegetable crops	10	11	2	2	-	-	7		1	-	2	-	10			
4.Standardization of technical crops	11	11	2	2	-	-	7			-	2	-	10			
5.Standardization seeds and planting materials	12	11	2	2	-	-	7		1	-	-	-	10			
6.Standardization of fertilizers	13	11	2	2	-	-	7			-	-	-	6			
7.Basics product certification	14	9	2	2	-	-	5		1	-	-	-	7			
8.Fundamentals of metrology	15	8	1	2	-	-	5			-	-	-	7			
9.Legal and economic aspects of standardization	15	1	1	-	-	-	-			-	-	-	6			
<b>Total for content module 2</b>	77		16	16	-	-	45	88	4	-	8	-	76			
<b>Total hours</b>	150		30	30			90	150	6	-	8	-	134			
<b>Course project (work) on (if included in the curriculum)</b>			-	-	-		-		-	-	-		-			
<b>Total hours</b>	150		30	30			90	150	6	-	8	-	134			

#### 4. Seminar topics

№	Topic title	Number of hours
1	The theoretical basis of standardization and of quality management	
2	Standardization and quality control plant cultivation products	

#### 5. Practical class topics

№	Topic title	Number of hours
1	Standardization of wheat	2
2	Standardization of barley	2
3	Standardization of legumes (soybeans, peas)	2
4	Standardization of cereals (buckwheat, oats)	2
5	Standardization of oilseeds (sunflower, rape)	2
6	Standardization of cereal seeds	2
7	Standardization of vegetable seeds	2
8	Standardization of fruit crops (apples, pears)	2
9	Standardization of stone fruit crops (peaches, apricots, plums)	2
10	Standardization of berries (strawberries, gooseberries, currants)	2
11	Standardization root crops (carrots, beets)	2
12	Standardization of vegetable crops (cucumber, tomato)	2
13	Standardization of potatoes	2
14	Standardization of cabbage vegetables	2
15	Standardization of sugar beet	2

#### 6. Independent work topics

№	Topic title	Number of hours
1	The current state of standardization and certification	9
2	State System of standardization	9
3	ISO on agricultural products	9
4	Standards for agricultural products	9
5	Standards for quality monitoring	9
6	Standards for agricultural products	9
7	Factors that determine the quality	9
8	Current state certification of agricultural production	9
9	Activity metrological service of Ukraine to ensure product quality	9
10	Certification of quality systems	9

## **7. Samples of control questions, tests for assessing the level of knowledge acquisition by students.**

### **Task 1. Specify, what of you know principles of standardization?**

1. Planing, perspective, optimum, dynamic, systemic, compulsion..
2. Sampling and complete test.
3. Standardizations, unitizations, typifications, complex standardization.
4. Outstripal standartizacya.
5. Public, expert, instrumentation.

### **Task 2. Transfer, that on the whole it is possible to attribute standardizations to the objects.**

1. Products, processes, services.
2. Grain, tubers, apples, alcohol.
3. State system of standardization.
4. System of certification.
5. Methods of standardization.

### **Task 3. What is attributed to the normative documents?**

1. Rule technicians of safety, sanitary-hygenic requirements to the production.
2. Standards, collections of rules of regulations.
3. Recommendations, documents from a certification.
4. Quality certificates.
5. Documents are from accreditation of laboratory or production.

### **Task 4. What does mean a term „standard“?**

1. High-quality products.
2. Buhigh-quality products.
3. Standard, norm, standard of quality.
4. Quality certificate
5. Documents are from accreditation of laboratory or production.

### **Task 5. What character of action does standardization have on Ukraine?**

1. Prominent.
2. Local.
3. Regional.
4. World.
5. State.

- Give determination: standard, standardization, quality, certifications.
- Basic principles of standardization.
- Standardization as normative base.
- Objects of standardization.
- Order of development of standards.
- As is standardization linked with other sciences?
- Categories of normative documents.
- A role of standardization is in the decision of problem of quality of products.
- Types of standards.
- Features of standardization of products of plant-grower.
- That does the base norm of quality mean?
- That does the maximum norm of quality mean?
- What optimum quality of products.



- That you understand under quality of products.
- That is the attribute of quality of production means
- What indexes of quality of products do you know?
- Classification of single indexes of quality.
- Description of single indexes of quality.
- Methods of determination of quality of products.
- Forms of expression of estimations of quality of products.
- Kinds and varieties of control of quality of products.
- Kinds and applications of standards of ISO of series 9000.
- The use of methods of standardization is in an agricultural production.
- Complex programs of standardization.
- Essence of quality management of products.
- System of quality.
- Audit of quality.
- Objects of quality.
- Basic concepts of certification.
- Primary purpose and principles of certification.
- Obligatory and voluntarily certification.
- Rule a certification.
- Order carrying out of certification of products.
- Certification of food products.
- State system of providing of unity of measurements.

## **8. Teaching methods.**

9. Methods of organization and implementation of training and learning of students used in the study subjects.
- 10.1. in aspect transmission and perception of educational information: verbal (lecture); visual (picture, demonstration); practical (laboratory work);
- 11.2. in the aspect logic and thinking: explanatory, illustrative (presentation); reproductive (short test control);
- 12.3. in the aspect of learning management: job training under the guidance of the teacher; independent work under the guidance of the teacher;
- 13.4. in the aspect of of a team: incentives (extra points for abstracts);
- 14.5. in the aspect of self-employment: training module: stukturno-logic; sample tests.

**15.**

## 9. Forms of assessment

Forms of control students used in the study subjects: current, quizzes and final control.

Current control knowledge is an integral part of the entire educational process and serves as a means of detecting the degree of perception (learning) training material. Academic Regulations only possible on the basis of the current control. The task of this control are as to: 1) identify the scope, depth and quality perception (assimilation) of the material under study; 2) identify gaps in knowledge and identify ways to address them;

3) identify the degree of responsibility of students and their attitudes to work, finding the reasons that prevented them from working;

4) identify the level of self-mastery skills of and identify ways and means for their development;

5) stimulate students interest in the subject and their activity in cognition.

The main objective of the current control - to help students organize their work, learn independently, responsibly and systematically explore all subjects.

Watershed (thematic, modular, block) control knowledge is an indicator of the quality of the study of individual sections and topics related cognitive, methodological, psychological and organizational skills of students.

Quizzes may be provided orally and in writing, in the form of tests, either individually or in a group.

Final assessment of students is conducted in order to assess their knowledge and skills in the discipline. The main goal - the establishment of actual content in terms of student learning, the quality and depth of skills and apply them in practice.

The main form of knowledge control is control the lectures on laboratory work, in extracurricular time for consultations and examinations.

Control of the lectures we spend as selective (oral questioning students) or the use of tests (the previously laid material).

Testing during lectures designed to teach students to systematic elaboration covered material and prepare for the upcoming lectures, establish the degree of assimilation theory to identify the most difficult students to read chapters from the following explanation of them.

Current control on laboratory studies conducted to elucidate ready students for employment in the following forms:

1. Selective oral examination prior to employment.

2. Front standardized survey for cards, tests for 5-10 min.

3. Front check homework.

4. Notice to board individual students for self-solving, written answers to specific questions, data on laboratory work.

5. Assessment of student activity in the course of employment, the proposals made, innovative solutions, additions previous answers and so on.

6. Writing (45 min.) Control work.

Control of extracurricular time.

1. Check the progress of homework and tests. Assessed the quality and accuracy of performance, accuracy and originality of solutions, reviewing the literature, the presence of elements of the study, the assignment of the prescribed amount according to set deadlines.

2. Checking lecture notes and recommended literature.

3. Testing and evaluation of the essays in the lecture course, which itself proroablyuyetsya.

4. Individual interviews with the student at the consultations.

Advice. The purpose of consultations - to help students understand the complex issues to resolve those students who can not understand yourself. Simultaneously consultations provide an opportunity to monitor students' knowledge to make a correct understanding of the progress and results of research work. Credits. In studying the discipline we apply differential test of performance appraisal on a five point scale.

Credits are taken from laboratory work on each task. The student takes notes, calculations. Exemptions from educational practice tabulated on the basis of these reports, and the characteristics of the head. Credit - differentiated, and evaluation consists of medium ratings from all sections of practice.

Standardized control of knowledge (exam).

## 10. Distribution of grades received by students.

Evaluation of student knowledge is carried out on a 100-point scale and is converted to national grades according to Table 1 "Regulations and Examinations and Credits at NULES of Ukraine" (order of implementation dated 26.04.2023, protocol №10)

Student rating, points	National grade based on exam results	
	Exams	Credits
90-100	Excellent	Passed
74-89	Good	
60-73	Satisfactory	
0-59	Unsatisfactory	Not passed

In order to determine the rating of a student (listener) in the discipline  $R_{dis}$  (up to 100 points), the rating from the exam  $R_{ex}$  (up to 30 points) is added to the rating of a student's academic work  $R_{aw}$  (up to 70 points):  $R_{dis} = R_{aw} + R_{ex}$ .

## 11. Educational and methodological support.

More than 200 tables, drawing, diagrams are used for lectures and practices classes.

Demonstration stands on the standardization of crop production. Natural samples of grain of different cultures, fruits of different cultures, vegetables of different cultures. Instruments and equipment of the laboratory for testing grain and fruit products are used.

Devices for determining quality indicators: Collapsible boards, commodity scales 150-VP-2 pcs.; set of laboratory sieves - 32 pcs.; water distiller - 1 pc.; purka PX-2 - 1 pc.;

Standards for grain of different cultures, fruits of different cultures, vegetables of different cultures.

## 12. Recommended sources of information

### Basic

1. Подпратов Г.І., Хилевич В.С., Мацейко Л.М., Войцехівський В.І. Методичні вказівки до вивчення дисципліни “Стандартизація і управління якістю сільськогосподарської продукції” і завдання для контрольної роботи студентам заочної форми навчання агрономічних та економічних спеціальностей / Видавничий центр НАУ. 2011. 13с.
1. Подпратов Г.І., Сеньков А.М., Войцехівський В.І. Технологія зберігання, переробки та оцінка якості кормів. К.: Видавництво НАУ. 2013. 214с.
2. Подпратов Г.І., Войцехівський В.І., Мацейко Л.М., Рожко В.І. Основи стандартизації, управління якістю та сертифікація продукції рослинництва: Посібник. К.: Арістей. 2-е вид. перер. і доп. 2017. 620 с.
3. Подпратов Г.І., Скалецька Л.Ф., Войцехівський В.І., Мацейко Л.М. Стандартизація та контроль якості продукції рослинництва / Практикум. К.: НАУ. 2012. 279 с.
4. Войцехівський В.І., Подпратов Г.І. Методичні вказівки щодо вивчення дисципліни "Стандартизація та сертифікація продуктів переробки з рослинницької сировини", виконання самостійної роботи та самоконтролю знань для студентів заочної форми навчання агробіологічного факультету напряму, за спеціалізацією «Транспортування, зберігання, переробка продукції рослинництва». К.: Видавничий центр НУБіП України. 2012. 99с.
5. Войцехівський В.І., Піддубний О.Ю. Методичні вказівки щодо вивчення дисципліни «Стандартизація та правознавство у захисті рослин» , виконання самостійної роботи та самоконтролю знань для студентів заочної форми навчання. К.: Копмрінт. 2019. 142 с.

### Recommended Literature

1. Койфман Ю.І. та інші. Принципи, методи та досвід роботи у сфері забезпечення якості і сертифікації: система якості, правила сертифікації. Посібник. – Львів-Київ, 1995.-348 с.
2. Сертифікація в Україні. Нормативні акти та інші документи. – К.: Основа. – Т.1.-1998. – 368с.
3. Цюцюра С.В., Цюцюра В.Д. Метрологія, основи вимірювань, стандартизація та сертифікація. – К.: Знання, 2005. – 242с.
4. Якість в Україні – шлях до відродження, шлях в Європу: Матеріали 7-го Міжнародного форуму "Дні якості в Києві-98". – К.: Українська асоціація якості, Міжгалузевий центр якості "Приріст", 1999. – 151 с.
5. Лежерон І. Натуральне вино. К.: ВСЛ, 2019. 224.
6. Липовецький Л. Червоне, біле і трохи рожевого. Х.: Vivat, 2019. 368.
7. Кокс Д. Все про виноград і вино. К.: Лілея НВ, 2017. 223.
8. Зінченко, В.І. Органолептичний аналіз вин. К. Виноград. Вино, 2009. 202.

## 13. Інформаційні ресурси

<http://www.leonorm.com/>;

<http://www.ukrcsm.kiev.ua>

<https://uk.wikipedia.org/wiki/%D0%A1%D1%82%D0%B0%D0%BD%D0%B4%D0%B0%D1%80%D1%82%D0%B8%D0%B7%D0%B0%D1%86%D1%96%D1%8F>

[https://pidru4niki.com/1478071850432/marketing/derzhavna\\_standartizatsiya\\_ukrayini\\_mizhnarodna\\_standartizatsiya](https://pidru4niki.com/1478071850432/marketing/derzhavna_standartizatsiya_ukrayini_mizhnarodna_standartizatsiya)

[http://www.agrosvit.info/pdf/20\\_2019/8.pdf](http://www.agrosvit.info/pdf/20_2019/8.pdf)

<https://magazine.faaf.org.ua/standartizaciya-vnutrishnogospodarskogo-kontrolyu.html>

<https://www.me.gov.ua/Documents/Detail?lang=uk-UA&id=2bf5371d-79eb-4a92-8117-%2027f19ac3bb18&title=NatsionalniiOrganStandartizatsii>

<https://nubip.edu.ua/node/91376>