

NATIONAL UNIVERSITY OF LIFE SIECE AND ENVIRONMENT OF
UKRAINE

Department storage technologies, processing and standardization of planting
products named after B.V. Lesyk

"APPROVED"

Dean Faculty of Economics

_____ Dr. A.D.Dibrova

" _____ " _____ 2017 _____

REVIEWED AND APPROVED
on meeting of department storage
technologies, processing and standardization
of plant products named after B.V. Lesyk

Protocol №8 from 18.05.2017

Director of Department

_____ prof. G.I.Podpryatov

THE WORK EDUCATIONAL PROGRAM
“TECHNOLOGIES OF STORAGE, PROCESSING AND
STANDARTIZATION OF AGRICULTURAL PRODUCTS”

Direct 07 “Management and administration”
Specialty: 072 «Finance, Banking and Insurance»

Working program made: V.Voytsekhivskiy

Kyiv

1. Опис навчальної дисципліни
 “Технологія зберігання, переробка та стандартизація с.-г. продукції”

Галузь знань, напрям підготовки, спеціальність, освітньо-кваліфікаційний рівень		
Галузь знань	<u>07 «Управління та адміністрування»</u> (шифр і назва)	
Напрямок підготовки	<u>071 «Облік і оподаткування»</u> (шифр і назва)	
Спеціальність	_____	
Освітньо-кваліфікаційний рівень	<u>«Бакалавр»</u> (бакалавр, спеціаліст, магістр)	
Характеристика навчальної дисципліни		
Вид	Вибіркова	
Загальна кількість годин	90	
Кількість кредитів ECTS	3	
Кількість змістових модулів	2	
Курсовий проект (робота) (якщо є в робочому навчальному плані)	_____	
Форма контролю	Диференційований залік	
Показники навчальної Дисципліни для денної та заочної форм навчання		
	денна форма навчання	заочна форма навчання
Рік підготовки	1	1
Семестр	2	2
Лекційні заняття	15 год.	4 год.
Практичні, семінарські заняття	15 год.	4 год.
Лабораторні заняття	-	-
Самостійна робота	60 год.	52 год.
Індивідуальні завдання	-	-
Кількість тижневих годин для денної форми навчання: аудиторних самостійної роботи студента –	2 год. 6 год.	

МІНІСТЕРСТВО АГРАРНОЇ ПОЛІТИКИ УКРАЇНИ

Науково-методичний центр аграрної освіти

ЗАТВЕРДЖЕНО
Департаментом аграрної освіти,
науки та дорадництва
Міністерства аграрної політики
України
21 квітня 2010 р.

**Технологія переробки, зберігання
та стандартизації
сільськогосподарської продукції**

ПРОГРАМА

**навчальної дисципліни для підготовки фахівців ОКР “бакалавр”
напряму “Економіка підприємства”
у вищих навчальних закладах II-IV рівнів акредитації
Міністерства аграрної політики України**

**Київ
“Аграрна освіта”**

СТРУКТУРА ТА ХАРАКТЕРИСТИКА НАВЧАЛЬНОЇ ДИСЦИПЛІНИ

“ТЕХНОЛОГІЯ ПЕРЕРОБКИ, ЗБЕРІГАННЯ ТА СТАНДАРТИЗАЦІЇ СІЛЬСЬКОГОСПОДАРСЬКОЇ ПРОДУКЦІЇ”

Галузь знань	“Облік і аудит”
Напрямок підготовки	“ Облік і аудит ”
Освітньо-кваліфікаційний рівень	Бакалавр
Нормативна чи вибіркова	вибіркова
Семестр	шостий
Кількість кредитів ECTS	3
Модулів (розділів, блоків змістових модулів)	2
Загальна кількість годин	90
Види початкової діяльності та види навчальних занять, обсяг годин:	
<i>Лекції</i>	<i>15</i>
<i>Практичні</i>	<i>15</i>
<i>Самостійна робота</i>	<i>60</i>
Форма підсумкових контрольних заходів	диференційований залік

2.PURPOSE AND TASKS OF COURSE, ITS PLACE IN AN EDUCATIONAL PROCESS

1.1. Purpose of teaching of course

Agricultural complex in our country is the producer of great amount of plant product - cereals, fruits, vegetables, technical cultures and feed products. The major part of this production has post-harvest processing. It is prepare for realization, partially storage and processing in economies.

Forming of parties of different products is impossible without knowing of quality characteristics, influencing factors quantity and quality changes that occur in products. In account with it, the main task of the course “Technologies of plant storage, processing and standardization” is:

- Study of the State system of standardization Ukraine;
- Study of the scientifically grounded indexes qualities entered in standards on the agricultural product of processing, products, which enters agriculture, typical technological processes of processing of products of plant-grower;
- Study of methods of control of quality of products and basically of certification products.
- Giving for specialist-economist the necessary knowledge and skills, that are directed on looses of plant product quantity and quality decreasing;
- Studying of bases of theory and practice of this product storage with minimal looses and wastes;
- Taking minimal knowledge in the field of processing and canning technologies with optimal economical effect;

1.2. Tasks of studying of course

The basic forms of study of discipline is lecture and laboratory works, independent work of students with programmatic material: description and study of basic concepts in industry of standardization of quality management and certification; description and study of basic concepts in industry of quality of products, indexes of quality; to consideration of questions of quality management of products and certification.

At the study of course a future specialist gets the wide picture of consumer cost of products and will be able correctly to organize its production in the appointed terms of the economy with a most economic effect and in interests of national consumption. It is the first task of course.

For the trouble-free providing of population by food stuffs and industry by raw material it is necessary to keep sufficient reserves of every type of product. A plenty of cereals and potato for a year needs to the stock-raising. Considerable part of harvest must be well-kept as seminal funds. In the end, for normal development of economy and life of population in case of crop failure, natural disaster and etc. are necessary reserves. The study of bases of theory and practice of saving of products of plant production is the second task of course.

Directly in the economies, contiguous enterprises the wide assortment of products and commodities both for local consumption is produced from the raw material, and on the sale outside the economy or even district or region. Preparation of specialists and leaders of agriculture in industry of technology of processing of plant production is the third task of course.

1.3. List of disciplines which are needed for mastering of the given discipline

At the study of course “Technologies of plant storage, processing and standardization” students must settle on the knowledge which they got at the study of agriculture with the bases of soil science, plant-growing with the bases of seeding agricultural chemistry, mechanization and electrification of agriculture.

1.4. List of disciplines, to the study of which discipline “Technologies of plant storage and processing” must precede:

Economics, organization, management, law.

3. The program and structure of the course and the approximate distribution of training time hours

Type of educational activity of student	The module (section , block content modules)		The amount of hours for individual training sessions and independent work				
Назва	№	Назва	lecture	Lab. work	independent work		total
1	2	3	4	5	preparation for employment	indiv. task	
Training activities during training sessions		Introduction	1	-	-	-	1
	1.	The technology of processing and storage of plant products	14	15	45	-	75
	1.1.	Base of standardization and certification of agricultural products	6	6	9	-	21
	1.2.	Technology of storage and processing of grain	3	2	9	-	14
	1.3.	Technology of storage and processing of raw crops	2	2	9	-	14
	1.4.	Technology of storage and processing of fruits and vegetables	2	2	9	-	14
	1.5.	Technology of production and storage of feed	2	2	9	-	14
	2.	The technology of processing and storage of animal products	-	-	15	-	15
	2.1.	The technology of processing and storage of meat , meat products	-	-	3	-	3
	2.2.	The technology of processing and storage of milk and milk products	-	-	3	-	3
	2.3.	The technology of processing and storage of poultry products	-	-	3	-	3
	2.4.	The technology of processing and storage of fish	-	-	3	-	3
2.5.	The technology of processing and storage of beekeeping	-	-	3	-	3	
Total hours of the course			15	15	60	-	90

4. Topics of seminars

1	The technology of processing and storage of plant products	2
2	The technology of processing and storage of animal products	2

5. Laboratory works, their names and volume

Module 1.

1. Study of legal and technical documentation VS 1.0-93-1.5-93 of system standardization.

1 hrs.

Independent work under supervision

Mastering the existing requirements for the establishment of regulations. 6 hrs.

2. Indicators of quality seed production of agroindustrial complex and products that come from agriculture: cereals - wheat, barley, rye. 1 hrs.

Independent work under supervision

Usage of existing quality indicators in leguminous products - peas, beans, soya. 6hrs.

3. Indicators of quality fruit and berry production of agroindustrial complex and products that come from agriculture:

grain - apples, pears;

fresh fruit - grapes.

1 hrs.

Independent work under supervision

Usage of existing quality indicators for stone and berry products - cherry-plum, apricot, plum, strawberry, gooseberry, currant: 6 hrs.

4. Indicators of quality vegetable production and agro-industrial complex products, which comes from agriculture:

potatoes, beets, carrots. :

2 hrs.

Independent work under supervision

Usage of existing quality indicators for vegetable production: cabbage, peppers, eggplants.

5. The procedure for certification of agricultural products. 6 hrs.

Total 1 Unit: 7.0 hours

Current control:

Control after passing 1 module.

Module 2.

1. Selection of point sample of grain and average sample of cereals. Determination of indexes of freshness of cereals (color, smell, taste). Determination of grain-unit. 2 hrs.

2. Determination of humidity of cereals. Determination of infection of cereals by pest. - 2 hrs.

3. Determination of content of admixtures in the given standards of cereals. Determination of general glassiness and typical composition of cereals of wheat. 2 hrs.

4. Determination of quantity and quality of gluten in the offered sample of wheat (flour). 3 hrs.

Total 1 Unit: 9.0 hours

Current control:

Control after passing 2 module.

ALL:

15 hrs.

6. Practical courses, their name and volume in hours.

Module 1.

Purpose of practice: to promote practical skills at determination of quality of products of plant-grower; on the basis of knowledge's of indexes of quality of operating standards to define quality corn cultures, grain, vegetable, fruit, technical and products of processing, as provided and realized the enterprises of different patterns of ownership; acquisition of practical skills in relation to the leadthrough of calculations for grain depending on his quality, conduct of account of grain which is kept in granaries.

Contents of practice. Practice includes acquainting and calculation part. Acquainting is conducted as an acquaintance with requirements to the different agricultural cultures (normative documents which are not examined in an educational process).

Calculation part of practice includes: direct receipt by the student of individual task in determination of the having a special purpose setting, quality, fitness, to processing in party of, fruit and vegetable, technical grain-crops, forage, products of processing.

Organization of practice.

First day - students get a calculation task and explanation to his implementation and subsequent consultations - **3 hrs.**

Second day – students expect a task, using a library, department and other evident material, design a report - **3 hrs.**

Third day are students of zakhischiyut' individual tasks as a report - **3 hrs.**

Task of practice.

To learn the method of determination of quality of different cultures.

To familiarize the features of calculations for different cultures.

To define quality of party of grain which prepares on a sale with the set indexes of quality.

To add these determinations to the table 1.

To figure on on test mass of party, taking into account the indexes of humidity, and ruderal admixture.

To define quality of party of fruit and vegetable products with the set indexes of quality.

Registration of results of practice.

Students design a report in which write down a task and motion of work, reporting for the conducted calculations.

Module 2.

1. Efficiency of realization of cereals taking into account quality at the sale to state. **3 hrs.**
2. Quantity-qualitative account of cereals at saving. **3 hrs.**
3. Calculation on active aeration of cereals masses and productivity of grain dryers. Account of cereals at drying. **3 hrs.**

ALL:

20hrs.

7. CONTROL QUESTION, COMPLEX TESTS TO DETERMINE THE LEVEL OF LEARNING STUDENTS.

MODULE 1

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

1. Planning, perspective, optimum, dynamic, systemic, compulsion..
2. Sampling and complete test.
3. Standardizations, unitizations, typifications, complex standardization.
4. Outstripal standardization.
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-hygienic 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. Buying-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.

MODULE 2

Question 1.

100	Components of complement of grain mass are:
	Moisture
	Metal addition
	Microorganisms
	Dry matter
	Ticks and insects
	Air

Question 2.

75	Grain mass has such physical characteristics:
	Table of contents of dry matters
	Friableness
	Capacity for transporting
	Porosity
	Taste
	Sorption properties

Question 3.

75	There are such physiology processes in grain mass as:
	Loss of moisture
	Breathing
	After harvest ripening
	Loss of dry matter
	Life activity of microorganisms

Question 4.

100	Grain mass is well saved at humidity:
	To critical
	Critical
	Higher than critical
	Middle
	High

Question 5.

100	Specify the organoleptic indexes of quality of grain, which determine for every party:
	Color
	Humidity
	Smell
	Taste
	Table of contents of the damaged grains

Question 6.

100	Which from the resulted indexes are not placed up in standards on bread:
	Humidity %
	Output of bread by volume, ml
	Organoleptic indexes
	Percent of sending away

INDIVIDUAL TASKS FOR INDEPENDENT WORK

MODULE 1

- Basic principles of standardization.
- What optimum quality of products.
- That does the maximum norm of quality mean?
- Classification of single indexes of quality.
- Description of single indexes of quality.
- Complex programs of standardization.
- System of quality.
- Audit of quality.
- Primary purpose and principles of certification.
- Rule a certification.
- Certification of food products.

MODULE 2

The task 1. Calculations for grain depending on quality.

On the enterprise has arrived 150 т grains of wheat's. To define a class of grain and the price for 1 т.

Qualities of grains:

Parameters	Values
Humidity, %	16
Trash impurity, %	2,5
Grain impurity, %	6,4
Nature, g/l	730
Quantity of gluten, %	29
Number of falling, sec	200

The task 2. Calculations for grain depending on quality.

On the enterprise has arrived 550 т grains of wheat's. To define a class of grain and the price for 1 т.

Qualities of grains:

Parameters	Values
Humidity, %	12,5
Trash impurity, %	3,5
Grain impurity, %	12,5
Nature, g/l	749
Quantity of gluten, %	29
Number of falling, sec	180

The task 3.

Calculate a loss of a potato in weight 135 т which was stored in trenches, located in a cold zone from September, 1st to April, 1st.

The task 4.

Calculate a loss of a potato in weight 160 т which was stored in trenches, located in a cold zone from September, 15th to April, 15th.

8. Teaching methods

Methods of organization and implementation of teaching and learning of students who used to study subjects:

1. in terms of transmission and perception of educational information : verbal (lecture);
visual (illustration , demonstration);
practical (laboratory work);
2. in terms of logic and thinking:
explanatory, illustrative (presentation);
reproductive (short test papers);
3. in terms of management training:
job training under the supervision of a teacher;
independent work;
4. in terms of a team:
incentives (extra points for abstracts);
5. aspect of self-employment:
Training Module : structural logic scheme;
sample tests.

9. Forms control

Forms of control students used to the discipline: Current, landmark and final control.

Current control knowledge is an integral part of the whole educational process and serves as a means of identifying the degree of perception (learning) training material. Learning management is possible only on the basis of the current control. The tasks are reduced to the current control order:

- 1) identify the scope, depth and quality perception (mastering) of the material being studied;
- 2) identify deficiencies in knowledge and identify ways to address them;
- 3) identify the degree of responsibility of students and their attitudes to work, finding the causes that hinder their work;
- 4) identify the level of mastering the skills of independent work and identify ways and means of development;
- 5) stimulate students' interest in the subject and in the knowledge of their activity.

The main task of this control - to help students organize their work, learn independently, responsibly and systematically study all subjects.

Block (thematic, modular) control of knowledge is an indicator of quality study of selected chapters and topics related cognitive, methodological, psychological and organizational qualities of students.

Final control is carried out with students to assess their knowledge and skills in the discipline. The main goal - establishing actual content in terms of student learning, the quality and depth of skills and apply them in practice.

Final control. In the discipline we apply a differentiated final control of exhibiting total points for the educational process and final control.

10. Distribution Points that receive students

It is foreseen in a curriculum in the first semester of lectures - 15, laboratory - 15, independent work - 60, that in a sum makes 90 hours (3 credita).

The control of knowledges is a test. Duration of educational semester 18 weeks.

1. In accordance with the general amount of hours the calculation rating from discipline makes 100 marks. Ratings from educational work and from attestation determine after the made to order correlations:

$R_{HP} = 0,70 \cdot 100 = 70$ marks;

$R_{OFAT} = 0,30 \cdot 100 = 30$ marks.

Taking into account a volume and structure of programmatic material of discipline, divisible him on 2 **modules**. From every module accept a calculation rating estimation:

the 1th module – is 40 marks

2th – is 30 marks

All – 70 marks.

Determine a minimum rating estimation from every module:

$$R(1)_{OHM} = 0,50 \cdot 40 = 20 \text{ marks};$$

$$R(2)_{OHM} = 0,50 \cdot 30 = 15 \text{ marks};$$

Rating of student is real: from the 1th module – 40 marks, 2th – 30 marks, that in a sum makes 70 marks.

Ratings estimations are from the modules

Term of studies weeks	Number semantic module	Educational loading, hours.	Credits ECTS	Rating estimation of the module, marks		
				minimum	calculation	real
1-9	1	60	2	20	40	22
10-17	2	44	1,0	15	30	16
All	2	104	3,5	35	70	68

From additional work a student got 10% from **R** ДИС, and his rating makes from additional work

$$R = 0,10 \cdot 104 = 10,4 \text{ marks.}$$

$$R_{shtr.} = 5\% R \text{ of } \text{np} = 5,2 \text{ marks}$$

Taking into account **R** and **R**_{shtr.}, the total rating of student makes from educational work

Rating from educational work is 70 marks

Estimation national	Estimation ECTS	Determination of ECTS	marks	
“Fine”	A	Fine	63	70
“Well”	B	Very well	57,4	62,3
	C	Well	52,5	56,7
“Satisfactorily”	D	Satisfactorily	46,2	51,8
	E	Sufficiently	42	45,5
Unsatisfactorily”	FX	Unsatisfactorily	24,5	41,3
	F	Unsatisfactorily	0,7	23,8

For admitting to attestation a student it is necessary it was to collect from educational work not smaller 50% from the calculation rating from educational work: **0,50 x 70 = 35 marks**. Calculation **R_{hall} = 30 marks**.

Rating from final attestation is estimated for a comfort the maximal amount of marks - 100 (in one semester from discipline one type of final attestation is foreseen).

Rating is from attestation on a 100 ball scale

2. Additional marks can be proposed students after: timeliness of handing over of exhaust laboratory works, lecture at conference, participating in an olympiad, writing of abstracts. A sum of additional marks is not more than 10% from the general rating (from 100 marks) – 10 marks.

3. Rating can lower inopportuneness of mastering and calculation of tasks students on the module. The sum of marks must not exceed 5% from rating of educational work.

4. At admission (1–2 weeks) of employments at the end of semester, from good reasons (a certificate or permission is from a dean's office), on the consent of teacher a student can retake a that or other theme (module).

5. In the case when during a semester rating from educational work less than 35 marks, a student to examination is shut out and must repeatedly take a course which is studied.

6. On current control there are 70 marks on discipline, in a that number after the separate modules.

An estimation of knowledges of students is at the modul'no–reytingoviy system of study of course from discipline.

Rating from educational work is conducted in form control of knowledges of student for to the modules from discipline which is studied, engulfs all material and conducted in a few stages, moved in time.

The general amount of the modules at the study of discipline makes 2 modules. The amount of marks got at the study of the module consists of 3–kh of constituents: lecture employments, laboratory works and independent preparation, are under the direction of teacher. Rating from each it is determined the module on such principle:

1 Module: lecture – 5 marks (as a result of visit and writing of control), laboratory – 3 marks (exhaust and protected); independent under the direction of teacher – 30 marks (test tasks).

2 Modules: lecture – 5 marks (as a result of visit and writing of control), laboratory – 3 marks (exhaust and protected); independent under the direction of teacher – 30 marks (test tasks).

The maximal amount of marks for the module makes 35 marks. Maximal amount of marks which can be got for 2 modules makes 70 marks.

Rating from attestation is proposed as a result of writing examination (tests) which is estimated the proper amount of marks:

- work is executed without errors – >90% maximally possible amount of marks – 27–30 marks;
- work is executed with insignificant errors – 75–89% maximally possible amount of marks – 23–26,9 marks;
- work is mainly executed, or executed without of principle errors – 60–74% maximally possible amount of marks – 18–22,9 marks; • work mainly is not executed or executed with of principle errors – < 18 marks.

Condition:

- test tasks from 30 questions are estimated as follows – at an answer for a 1 question a 1 mark is set off. Maximal sum of marks – 30.

11. Educational-methodical materials from discipline.

BASIC

1. Workbook for Laboratory Classes from "Technology of storage, processing and standardization of plant products" for the students major in "Economics" //S.M. Gunko, V.I. Voitsehivskiy – «Centre of information technologies». – 2009. – 80 p.

2. Gun'ko S.M., Podpriatov G.I. Handbook "Technology of grain storage". – К.: «Centre of information technologies». – 2009. – 221 p. Колтунов В.А., Подпратов Г.І. Продовольча сировина: Практикум = Commodity research of food stuff: the practical work. – К.: Київ. нац. торг. – екон. Ун-т, 2006. – 174 с. (переклад А.П. Рябченко).

3. Колтунов В.А., Подпратов Г.І. Продовольча сировина: Практикум = Commodity research of food stuff: the practical work. – К.: Київ. нац. торг. – екон. Ун-т, 2006. – 174 с. (переклад А.П. Рябченко).

4. Подпратов Г.І., Скалецька Л.Ф., Сеньков А.М., Хилевич В.С. Зберігання і переробка продукції рослинництва. – К.: Мета, 2002. - 495 с.

5. Подпратов Г. І., Скалецька Л. Ф. Технологія виробництва борошна, крупи та олії. К., видавництво НАУ, 2000.

6. Подпратов Г.І., Скалецька Л.Ф., Духовська Т.М., Сеньков А.М. Технологія зберігання і переробки продукції рослинництва. Практикум. К., «Вища освіта», 2004.

7. Подпратов Г.І., Скалецька Л.Ф., Войцехівський В.І., Мацейко Л.М. Стандартизація та контроль якості продукції рослинництва: Практикум / За ред. В.І.Войцехівського. – К.: Вид-во НАУ, 2008. – 294 с.

8. Подпратов Г.І., Войцехівський В.І., Мацейко Л.М., Рожко В.І. Основи стандартизації, управління якістю та сертифікація продукції рослинництва: Навчальний посібник. – Київ: Арістей, 2004. – 615 с.

ADDITIONAL

1. Подпратов Г.І., Сеньков А.М., Войцехівський В.І. Технологія зберігання, переробки та оцінка якості кормів. – К.: Видавництво НАУ. – 2003.

2. Подпратов Г. І. Технологія обробки, переробки зерна та виготовлення хлібопекарської продукції. К., видавництво НАУ, 2000.

3. Хилевич В.С. и др. Стандартизація и контроль качества продукции в сельском хозяйстве. – Киев: Высш. школа, 1987. – 255 с.

4. Шаповал М.І. Основи стандартизації, управління якістю і сертифікації. – К.: Вид-во Європейського університету фінансів, інформаційних систем, менеджменту і бізнесу, 2004. – 120 с.

Provision by technical means, computing engineering and methodical materials to them.

1. Educational laboratories are equipped by the necessary modern technological equipment for estimation of quality of plant products, accordant to the methodical materials and standards.

2. On a department there are several projectors for demonstration of films, sliding nomograms and etc.

13. Information Resources

AgroUA <http://agroua.net>

ZernoUA.info <http://www.zernoua.info>

Технология хранения и переработки зерна <http://www.twirpx.com/files/food/grain>

Современная техника и оборудование активного вентилирования зерна <http://fermer.zol.ru>

Title of themes and its content	Volume of credits
<i>Credit 1. Base of Standardization of products.</i>	
<i>Lectures</i>	
State standardization system in Ukraine and methodological base of standardization.	6
Quality products, quality index and their characteristics.	6
Standardization of planting products.	6
Introduction to quality management.	6
Base of certification and metrology.	6
<i>Lab work</i>	
Legal requirements for grains wheat	10
Legal requirements requirements for apple fruit	10
Legal requirements requirements for cucumber fruits	10
Legal requirements requirements for potatoes	10
<i>Independent work</i>	
Methods of standardization.	1
Methods, types and kinds of quality control.	2
Forms of expression evaluations in product standards.	2
Requirements for barley, apricots, berries	2
The human factor in quality management.	2
Responsibility for violations of metrological rules.	1
<i>Credit test</i>	20
<i>Total for 1 credit</i>	100
<i>Credit 2.</i>	
<i>Lectures</i>	
Technology of storage and processing of grain	10
Technology of storage and processing of raw crops	10
Technology of storage and processing of fruits and vegetables	10
Technology of production and storage of feed	10
<i>Lab work</i>	
Determination of humidity of cereals.	5
Determination of content of admixtures in the given standards of cereals.	5
Determination of general vitreousness and typical composition of cereals of wheat.	5
The determination of quantity and quality of raw gluten in the wheat grain	5
<i>Independent work</i>	
The grain payment depending on its quality	5
The determination of autolytic activity of grain and flour by the falling number on the device of Hagberg-Perten	5
Storage of potatoes and vegetables in the temporary (field) storehouses	5
Nature losses of fruit and vegetables	5
<i>Credit test</i>	20
<i>Total for 2 credit</i>	100

ABSTRACT OF LECTURES WITH DISCIPLINES

MODULE 1

LECTURE 1

THE STATE SYSTEM OF STANDARDIZATION IN UKRAINE AND METHODOLOGICAL BASES OF STANDARDIZATION.

1. Organs are from standardization in Ukraine.
2. Substantive provisions of the state system of standardization of Ukraine.
3. Organization of works from standardization and general requirements is to the standards.
4. An order of introduction of standards and state supervision is to their using.
5. Tendencies and basic directions of development of standardization are in Ukraine.
6. Efficiency of works is for standardizations.

The state system of standardization of Ukraine determines a primary purpose and principles of management, form and general organizationally technical rules of implementation of all types of works from standardization. It shows by itself the complex of interconnected rules and positions which regulate organization and order of conducting of works on all questions of practical activity in the field of standardization of country.

Major structural elements of SSS: organs and services of standardization; the checking system is after introduction and implementation of normative documents; complex of normative documents.

Substantive provisions of SSS. Subjects of standardization: technical committees, central organ of executive power, advice of standardization. Categories of normative documents: intergovernmental standards, state standards of Ukraine, industry standards, standards of scientific and technical and engineering societies and unions of Ukraine, technical terms, standards of enterprises. Types of standards: fundamental, on products and services, on processes, on the methods of control. Objects of standardization are after categories and types of standards. Main and base organizations are from standardization of products of AIK.

Order and stages of development of standards. Order of introduction of standards. Preparation of enterprises is to introduction of standards. A state supervision and department control is after introduction and inhibition of standards, technical terms and state of measurings devices. Purpose, task and functions of state supervision. Economic efficiency of standardization.

Task of international cooperation: increase national products and its competitiveness; an improvement of the normative providing of collaboration of Ukraine is with foreign countries; harmonization of the state system of standardization with international, by the regional and progressive national systems of foreign countries with the purpose of increase of level of domestic standards and forming of optimum fund on the basis of wide application of international and regional standards.

International organizations: international organization from standardization (ISO); international electrical-engineering commission (IEC); international organization of legislative metrology (OIML). Basic directions of activity of ISO. Short description of ISO.

Regional organizations are from standardization: The European committee is on standardization (SEN); The European committee is on standardization in the electrical engineering (CENELEC); European organization is from quality; intergovernmental Advice is from standardization, metrology and certification of countries of the CIS.

Basic modern progress of works trends in industry of standardization, evaluation and certification of the systems of quality, their introduction and application, it is possible to define thus: distribution and working out in detail of those elements, structure and functioning of enterprises which are included in the system of quality and standardizations are subject within the limits of standards of ISO of series 9000 and 10000, and also working out in detail of the standardized functions and providing and quality management, development of methods, facilities of technology of planning of the systems of quality; a concentration of works is in relation to introduction of the systems of quality, their certification, accreditation of organs from the certification of the systems of quality, preparation and in-plant of personnel training, preparations of experts of public accountants from the systems of quality in more certain and clear organizational forms through creation of international and regional organizations which operate on the base of the proper programs.

Methods of standardization: method of the system of prevailing numbers, standardization, unitization of machines and mechanisms, typification, complex and passing ahead standardization, outstripping of standardization.

The recommended literature

1. *Подпрятков Г.І., Войцехівський В.І., Мацейко Л.М., Рожко В.І. Основи стандартизації, управління якістю та сертифікація продукції рослинництва: Навчальний посібник. – Київ: Арістей, 2004. – 615 с.*
2. *Хилевич В.С. и др. Стандартизація и контроль качества продукции в сельском хозяйстве. – Киев: Выssh. школа, 1987. – 255 с.*
3. *Шаповал М.І. Основи стандартизації, управління якістю і сертифікації. – К.: Вид-во Європейського університету фінансів, інформаційних систем, менеджменту і бізнесу, 200. – 120 с.*

Control questions

1. *What does show by itself SSS? Basic structural elements of SSS.*
2. *Describe organization of works from state standardization in Ukraine.*
3. *Functions of Dergspogivstandartu in Ukraine.*
4. *Categories of normative documents which operate in Ukraine. Their short description.*
5. *Types of standards.*
6. *Name the basic stages of works in relation to development of state standards.*
7. *What features are in development and assertion state standarts and standarts of enterprise?*

LECTURE 2

QUALITY OF PRODUCTS, INDEXES OF QUALITY AND THEIR DESCRIPTION

1. Terms and determination in industry of quality of products.
2. Classification of indexes of quality of products.
3. Description of single (Individual) indexes of quality

Quality is an aggregate of descriptions of object, which touch him ability to satisfy the set and foreseen necessities.

An index of quality is quantitative description of one or a few properties of products, which make its quality and examined in relation to the certain terms of its creation and consumption.

All of indexes of quality of products are depending on character of tasks, which decide at the estimation of level of quality of products, classified after different signs: 1. After properties which are characterized: setting, reliability, ergonomics, aesthetically beautiful, to technologicalness, standardization and standardization, transporting, patent-legal, ecological, to the unconcern, interchangeability. 2. On the method of expression: in cost units; in be what units. 3. After the amount of properties which are characterized: single, complex (group, generalized, integral). 4. In relation to an estimation: relative, base. 5. After the stage of determination of indexes: prognosis, project, production, operating.

The indexes of setting characterize properties of products of, which determine it basic functional setting. To them belong: classification, functional, structural, will make structures.

The indexes of technologicalness are characterized by properties of products. That stipulate optimum allocation of materials charges, facilities of labour and time at technological preparation of production, making and exploitation of products. To the basic indexes of technologicalness take: indexes of labors intensiveness, materiality and coefficient of the use of materials.

The indexes of standardization and standardization characterize the scope of products standard, compatible and original component parts, and also level of standardization with other wares. The coefficient of adaptation, coefficient of repetition, coefficient of mutual standardization and other, belongs to these indexes

Economic indicators characterize charges for development, making, exploitation or consumption of products. To the economic indicators charges belong on a production and test of pre-production models.

The legal providing of standardization and quality management is one of functions of state control the system by quality products. Types of activity: legal adjusting; legal activity; law-enforcement activity.

The legal adjusting is development and claim of legal norms (standards, rules, standards and others like that). Legal activity is providing of effective application of operating norms and rules, their introduction and inhibition. Law-enforcement activity is legal responsibility after the observance of norms which are ratified a legislative way.

The recommended literature

1. *Подпратов Г.І., Войцехівський В.І., Мацейко Л.М., Рожко В.І. Основи стандартизації, управління якістю та сертифікація продукції рослинництва: Навчальний посібник. – Київ: Арістей, 2004. – 615 с.*

2. *Хилевич В.С. и др. Стандартизація и контроль качества продукции в сельском хозяйстве. – Киев: Выси. школа, 1987. – 255 с.*

3. *Шаповал М.І. Основи стандартизації, управління якістю і сертифікації. – К.: Вид-во Європейського університету фінансів, інформаційних систем, менеджменту і бізнесу, 200. – 120 с.*

Control questions

1. *What do you understand under quality of the products?*
2. *Classification of indexes of quality of the products.*
3. *Description of single indexes of quality.*
4. *What sign of products?*

LECTURE 3

STANDARDIZATION OF INDEXES OF QUALITY OF PRODUCTS OF AGROINDUSTRIAL COMPLEX

1. Standardization of grain and leguminous cultures.
2. Standardization of fruit, vegetable and berry cultures.
3. Standardization of technical crops.
4. Standardization of products which enters agriculture.

Cereals. To the group of grain and leguminous cultures, which are processed in our country, belong; wheat, rye, barley, oat, corn, rice, millet, buckwheat, sorghum, pea, kidney bean, lentil, vetch, china, nut, lupin, bobs are the forage.

Quality of grain is determined as an aggregate of properties grains which stipulate his fitness to satisfy certain necessities in accordance with setting.

On grain of all of grain and leguminous cultures of, which is provided, there are state standards. On separate cultures (wheat, rye, barley, oat, millet, buckwheat, pea) the standards of technical terms are ratified and operate separately on grain which is provided and is supplied on the having a special purpose setting (for industry of groats, on a malt in an alcoholic production, to the auction network, on an export). The unique standards, in which requirements are set both on that grain which is provided and on grain which is supplied after the certain setting, operate on other cultures.

The indexes of quality of grain is: smells - smutal, mould, wormwood, musty, malt, stranger; admixtures: grain, weedy, mineral, organic, harmful, metaly-magnetical, difficultly separated; defects of grain - damaged, spoiled, puny, beaten, pressed, freezebeat, discoloured, germinating, not fully ripe, brought down, damaged wreckers, smut grain, fuzarim grain, pinkishcoloured, and for rice - red, glyutinozne, pozhovtivshe; fuzariozne, rozhevozabarvlene, and for rice - red, glyutinozne, gluteny; infection of grain by wreckers - in an obvious and hidden form; consistency - glassy grain, farinaceous, partly glassy. The indexes of quality, entered in standards, is also humidity of grain, plivchastist', color, quality of gluten, ability of germination, viability, ash value, number of falling, output of grain from cobs, mass 1000 grains.

Oil cultures. To the oil -bearing cultures which are processed in our country, the seed of which are utilized for the industrial processing, belong: a sunflower, castor oil, mustard, oily flax, oily poppy, saflor, rape, perilla, lallelantia and other. For the receipt of oil industry processing the seed of other cultures much: flax-long-stalk flax, hems, kenaf, cotton plant, soy, peanut.

One of basic indexes which determine qualities of seed, quality of butter which is made from him is an acid number which shows, what amount caustic potassium in milligrams goes to neutralization of fat acids which are contained in a 1 gramme of butter. What acid number below, the higher quality of butter.

A standard is developed on the basis of information about quality of beet taking into account his mechanized harvesting, deliveries from the field on a factory in the turgorly condition and application of modern methods of providing of optimum terms of his storage. A standard is instrumental in the subsequent applying in industry of complex mechanization of till and collection of sugar beet, development of intensification of beet grower.

Products of bast-fibrely cultures. After raising of straw or trusts in the field of it immediately order to the processed enterprise and when such possibility is not - make for temporal storage on verge of the field or elsewhere in order to execute this work in not tense for a transport time. The stay of sheaves and rolls in the field is impermissible: they become wet and deteriorate.

Quality (number) of straw and trusts of flax for GOST set lengths on indexes, by maintenance of bast in the stems of straw and fibre in stems trusts, by bursting effort, fitness to treatment, color of stems at a straw and fibre in trusts, diameter of stems, they are determined by such devices, as longmeasured DL-3 and DL-2, clamping shoe trees with a comb for combing, crusher of ML-3, dynamometer of DKV-60, drying closet for drying of tests, stalkmeasured of S-2, SP-50, and such index as color - organoleptic.

Hop. On this time on a hop standards operates a "Hop-raw. Technical terms" and "Hop is pressed. Technical terms".

Operating standards determine brewing advantages of hop cones after maintenance of alpha-acid, most valuable for brewing of component of bitter matters, that adds beer to 80 % bitter taste. The estimation of hop after this index allows more rationally to using raw material which is provided.

Fruit and vegetable production. Standardization of fruit and vegetables directed on the improvement of their quality its guarantees, increases of the labour and decline of unit cost productivity, liquidation of unjustified variety of requirements to quality of the same types of products and their arrangement, cutback of spending at a production, storage, transporting, trade or processing, facilitation of process of acceptance of handing over of products for its best use.

For fruit and some vegetable cultures requirements are set the row of to integrity and presence of fruit stem, as at the precipice of peduncle fabric of fruit which results in contamination and it is death is damaged.

The characteristic feature of standards on fruit and vegetable products are the so-called «admissions», that possible rejections in size and quality from norms. It is caused the features of products, it relatively by low firmness to the damages, difficulty of calibration and sorting at high exactness.

Requirement to quality of potato «Fresh potato requirements at preparation and delivery. Technical terms» and «Fresh potato for processing on the products of feed. Technical terms», but it is needed to know and follow also «Fresh potato. Governed acceptance and methods of determination of quality».

The recommended literature

1. Подпратов Г.І., Войцехівський В.І., Мацейко Л.М., Рожко В.І. *Основи стандартизації, управління якістю та сертифікація продукції рослинництва: Навчальний посібник.* – Київ: Арістей, 2004. – 615 с.

2. Хилевич В.С. и др. *Стандартизація и контроль качества продукции в сельском хозяйстве.* – Киев: Выси. школа, 1987. – 255 с.

3. Шаповал М.І. *Основи стандартизації, управління якістю і сертифікації.* – К.: Вид-во Європейського університету фінансів, інформаційних систем, менеджменту і бізнесу, 200. – 120 с.

Control questions

1. List the indexes of quality on grain of wheat.
2. What cultures do behave to grain?
3. What indexes are brought in standard on sugar beets for the technical processing?
4. How do determine the sort-number of flax?
5. What base bitter taste of cones of hop which is utilized in brewing?
6. How many commodity sorts of apples of late term of ripening?
7. What rejections to sizes are assumed in a standard on the tubers of potato which providing?

LECTURE 4

GENERAL INFORMATION ABOUT DOMESTIC AND FOREIGN EXPERIENCE OF MANAGEMENT BY QUALITY OF PRODUCTS

1. Factors which stipulate quality of products.
2. Quality of products is a typical object of management.
3. Domestic control the system by quality products.
4. Experience of the industrially developed countries is in the management by quality of products.
5. A human factor is in the management by quality of products.
6. Ways of improvement of domestic control the system by quality products.

Quality of products - it set characteristic of products (process, favour) which can ability satisfy the content and surpassing (foreseen) are necessities.

In the conditions of market relations quality is provided and guaranteed an enterprise. The far of factors, which operate both independently and in intercommunication, between itself, influences on quality of products, both on the separate stages of life cycle of products and on a few. All of factors are incorporated in 4 groups: technical, organizational, economic and subjective.

To the technical factors belong: construction, ents, technology of making, facilities of technical service and repair, technical level of base of planning, exploitation and other

To the organizational factors belong: division of labor and specialization, forms of organizations of production processes, rhythm of production, form and control methods, order of producing and handing over the products, form and methods of transporting, storage, exploitation (consumption), technical service, repair and other.

To the economic factors belong: price, prime price, forms and level of pay-envelope, level of expenses on technical service and repair, degree of increase of the public labour productivity and other.

Human factors are related to activity of man, that depend on a capacity and relation of people for implementation of production functions: professional trade, general level, psychological composition of man, personal interest in a result of labour.

Control the system by quality products is on national enterprises: faultless making of products; system of faultless labour; quality, reliability, resource, is from the first wares; scientific organization of work is with the increase durability of engines; complex control the system by quality products; complex control the system by quality products, effective use of resources; complex system of increase of efficiency of production.

Basic principles of management by quality: an orientation on user, leader, bringing in of workers, process approach, system approach of the management, permanent improvement, making a decision on the basis of facts, mutually beneficial relationships with suppliers.

The recommended literature

1. *Подпратов Г.І., Войцехівський В.І., Мацейко Л.М., Рожко В.І. Основи стандартизації, управління якістю та сертифікація продукції рослинництва: Навчальний посібник. – Київ: Арістей, 2004. – 615 с.*

2. *Хилевич В.С. и др. Стандартизація и контроль качества продукции в сельском хозяйстве. – Киев: Вышш. школа, 1987. – 255 с.*

3. *Шаповал М.І. Основи стандартизації, управління якістю і сертифікації. – К.: Вид-во Європейського університету фінансів, інформаційних систем, менеджменту і бізнесу, 200. – 120 с.*

Control questions

1. *What factors influence on quality of commodity?*
2. *What classes and groups industrial products part on?*
3. *Name the basic stages of loop of quality?*
4. *What domestic systems on perfection of quality you known? Describe them.*

LECTURE 5

BASES OF CERTIFICATION

1. General information about development and modern status of certification.
2. Primary purpose and principles of certification.
3. Substantive provisions of the state system of certification of UKRSEPRO.

4. Rules and documents on conducting of certification.
5. General rules, charts and order of conducting of certification of products, are in Ukraine.
6. Certification of System of Quality.

A certification is procedure by which the third party gives a writing guarantee, that products, process or favour, answer the set requirements

The certification of products is carried authorized organs from a certification (by enterprises, establishments and organizations) with a purpose: prevention realization of products, dangerous for life, health and property of citizens and natural environment; an assistance an user is in the competent choice of products; creation of conditions for participating of subjects of entrepreneurial activity in international economic, scientific and technical cooperation and international trade.

Types of certification. An obligatory certification is confirmation authorized on that by the organ of accordance of this products, process or favour to the obligatory requirements of standard.

A voluntarily certification is a certification, which is conducted on voluntarily basis on initiative of producer (performer), salesman or user of products.

The state system of certification is created by the Statutory committee of standardization, metrology and certification of Ukraine - national organ of Ukraine on a certification, which carries out and coordinates work in relation to providing of its functioning, namely: determines basic principles, structure and governed systems of certification in Ukraine; asserts the lists of products which is subject an obligatory certification and determines the terms of its introduction; appoints organs from the certification of products; accredit defined ts organs from a certification and tester laboratories (centers)

Circuit of certification is composition and sequence of executions of the third party at the estimation of accordance of products, services, system of quality and personnel. A certification is conducted after charts, set systems of certification of homogeneous products.

Accreditation of tester laboratories is official confession of that a tester laboratory has a right to carry out defined tests or defined types of tests. Criteria of accreditation are an aggregate of requirements, which are utilized an organ from accreditation, which a laboratory must answer in an order to be accredited.

Attestation of laboratory is verification of tester laboratory with the purpose of determination of its accordance of establishment criteria, by a necessity for its accreditation. Attestation of production is official confirmation by an organ from a certification or other authorized for this purpose by the organ of presence of necessary and sufficient terms which provide the productions of certain goods of, stability of requirements to it, which are set in normative documents and controlled during a certification.

.The recommended literature

1. *Подпратов Г.І., Войцехівський В.І., Мацейко Л.М., Рожко В.І. Основи стандартизації, управління якістю та сертифікація продукції рослинництва: Навчальний посібник. – Київ: Арістей, 2004. – 615 с.*

2. *Хилевич В.С. и др. Стандартизація и контроль качества продукции в сельском хозяйстве. – Киев: Выси. школа, 1987. – 255 с.*

3. *Шаповал М.І. Основи стандартизації, управління якістю і сертифікації. – К.: Вид-во Європейського університету фінансів, інформаційних систем, менеджменту і бізнесу, 200. – 120 с.*

Control questions

1. *What is mean a certification?*
2. *What have Purpose and principles of certification?*
3. *What is certification?*
4. *Rulesis certification.*
5. *Order of certification of products.*

MODULE 2

Lecture 1.

Introduction of course. Cereals mass how the object of saving.

1. *Value of saving of products of plant-grower pertaining to national the economy.*
2. *Basic tasks in industry of saving.*
3. *Fight against the losses as and quantities of products.*
4. *Composition of cereals mass, description of its components.*
5. *Physical properties of cereals mass.*
6. *Physiology processes, that take place in cereals masses at saving.*

The value of saving of plant products opens up as food and forage facilities, raw material for different industries of industry. Problems of saving and upgrading plant products, reduction of losses at harvesting, saving and processing. Rise of biological, power and technological value of products - one of facilities of abbreviation of deficits of food stuffs in Ukraine and world. Basic tasks of saving of plant products. The folk-economy value of development of processing of plant products in the conditions of state, collective and individual enterprises. Short history review of development and scientific bases of study of course.

Composition of cereals mass and description of its components opens up. Physical properties: friableness, self-sorting, porosity, sorption of power, thermalphysic properties, their value in practice of after harvesting processing and saving of cereals the masses.

General description of physiology processes, that take place in cereals the masses. Breathing of cereals during saving. Factors, that affect intensity of breathing of cereals. Value of forms of breathing at saving of cereals of a different setting having a special purpose. Consequences of breathing.

Post-ripening of cereals, his biochemical origin. Longevity of cereals and seed, their practical value. Germination of cereals and seed at saving. Microorganisms and pest of bread supplies, their role at saving of cereals and seed. The phenomenon of self-warming of cereals the masses, his origin and terms which cause him. Measures of fight against self-warming.

List of literature

1. *Подпрятюв Г.І., Скалецька Л.Ф., Сеньков А.М., Хилевич В.С. Зберігання і переробка продукції рослинництва. – К.: Мета, 2002. - 495 с.*
2. *Лесик Б. В., Трисвятський Л. О., Снежко В. Л. Зберігання і технологія переробки сільськогосподарських продуктів. К., "Вища школа", 1980.*

Control questions

1. What the value of saving of plant production pertaining to national the economy consists in?
2. Methods of fight against the losses as and quantities of products?
3. Name the components of cereals mass?
4. What physical properties of cereals mass you do you know? Which from them are used for construction of grain and zernosoushilnih cleaners?
5. Name physiology properties of cereals mass?

Lecture 2

Modes and methods of saving of cereals the masses. Description of modern types of granaries

1. *Basic modes and methods of saving of cereals the masses.*
2. *Ways of rise of firmness of cereals masses at saving.*
3. *Active aeration of cereals the masses.*
4. *Modern types of granaries.*
5. *Preparation of granaries to the reception of cereals.*

There are three regime saving of cereals the masses: 1) in the dry state, that is with humidity near to critical; 2) in the cooled state, that is subject to the condition, when temperature their lowered to such scopes, that she considerably brakes the vital functions of components of cereals mass; 3)

without access of air. Perspective also chemical canning of cereals the masses, that is treatment by their some organic acids. Saving of cereals can be temporal - from a few days to one-three the months or long-term - from a few months of to a few years. Cereals masses save by an embankment or in a packing. The first method is basic and most widespread. In a period the collection of cereals cultures there is a necessity at the manage temporal saving of cereals - in bundle.

Cleaning of cereals. Cleaning methods. Computation of productivity of grain cleaners. Drying of cereals. Methods and modes of drying of cereals and seed of different cultures depending on initial humidity and setting having a special purpose. Consideration of productivity of grain dryers. Determination of losses of mass of cereals at drying.

Active aeration of cereals mass consists in its blowing by atmospheric air out. He is conducted for saving of quality of raw and moist cereals, prevention of development of fungi and wreckers of bread supplies.

Dry and chilled cereals is saved for the most long period. A granary should be good isolated from atmospheric and groundwater and from the sharp overfalls of temperature; it is protected from penetration of rodents and insects - wreckers of bread supplies; to have machineries for loading and unloading and rapid moving of cereals masses; to provide saving of a few parties of seed, preventing their mixing. In addition, in granaries there must be terms for the control of process of saving of cereals and seed and conducting of prophylactic and health measures.

Granaries are built from different materials: wood, stone, brick, reinforced concrete, metal and ect.

The order placing of cereals in granaries relies on his kind, quality and aim setting. High-quality indexes of dry, clean, uninfected by wreckers and the chilled cereals the losses his minimum do not change almost. The actual and imaginary losses of cereals, exposed on granaries during taking of inventory and clean of granaries out, are distinguished. The imaginary losses are conditioned by errors in determination of mass and quality cereals during his acceptance and expense. The actual losses divide into natural (normative) and behind normative. They can be conditioned by failing in organization and technology of conducting of operations with a cereals. After the nature the actual losses are mechanical and biological.

List of literature

1. Подпратов Г.І., Скалецька Л.Ф., Сеньков А.М., Хилевич В.С. Зберігання і переробка продукції рослинництва. – К.: Мета, 2002. - 495 с.

2. Подпратов Г. І., Скалецька Л. Ф. Технологія виробництва борошна, крупи та олії. К., видавництво НАУ, 2000.

3. Подпратов Г.І., Скалецька Л.Ф., Духовська Т.М., Сеньков А.М. Технологія зберігання і переробки продукції рослинництва. Практикум. К., «Вища освіта», 2004.

Control of question

1. What modes and methods of saving of cereals masses you do you know?
2. Ways of rise of firmness of cereals masses at saving?
3. Do you know the constituents of process of after harvesting processing of cereals the masses?
4. What types of granaries do you know?
5. In what consist preparation of granaries to the reception of cereals?

Lecture № 3

Bases of technologies of processing of grain and seed. Bases technologies of saving of potato, vegetables, garden-stuffs and production of preservative.

1. Production of flour. Indexes of quality of flour.
2. Production of groats. Setting of norms by the state standards of quality of groats and raw material for their production.

3. *Production of vegetable oil and requirements of state standards to its quality. Methods of getting of butter, and their comparative description.*

4. *Saving of potato, vegetables and garden-stuffs in stationary and temporal depositories.*

5. *Methods and modes of saving. Active aeration as a technological mean.*

6. *Canning of berries, garden-stuffs and vegetables.*

A grain - is raw material for chalk flour industry. Flour as raw material for making bread, macaroni and pastry wares. The types of grades are their description. Output and sorts of flour, methods of their production. Technological charts of preparation of grain to the mill, milling grain on the mills of agricultural type. Indexes of quality of flour on state standards depends on quality and output of flour from initial qualities of grain. Production of wheat and rye flour. Technology of saving of flour. Processes, that take place in the flour by its saving. Wastes chalk flour industry production and their use in agriculture. There are such technological properties of grain of groats cultures: common state, groats properties and users of quality of groats. Description of indexes of the common state of groats properties of grain.

Process of processing of grain on the peeling mill of agricultural type consists in cleaning party of grain from admixtures, sorting after size, shelled and kernels from tapes are separated, treatment of kernel, sorting of prepared products. Description of technological operations of process of processing of grain to groats. Requirements to quality of groats. Estimation of quality of groats after its chemical composition, technological and consumer properties.

Production of groats of new kinds, by enrichment of different albuminous and vitamins additions in certain correlation. Features of saving of groats.

Food and technical value of butter. Basis raw materials to produce butter in Ukraine are: seed of sunflower, flax, winter ripac, mustard, soy and so on. Dependence between quality of seed and quality of butter. Two methods of production of butter: mechanical, or press, and method of dissolution of butter in volatile organic solvents, or extractions, their description. There are primary and deep Cleaning of butter affinage. Classification of butter of its degree of cleaning and objects mean. Indexes of quality of butter. Quality of butter can be defined organoleptic and instrumental methods (acid and iodine number, number saponify). Wastes of processing of seed of oil-bearing cultures and uses of them. Description of mill cake and shrot after chemical composition. Saving of mill cake and shrot.

Potato, vegetables, garden-stuffs and berries as objects of saving. Physical properties, which take into account during collection, transporting and saving. Physiology and biological processes, that take place in a potato, vegetables and garden-stuffs during saving. Physiology and biochemical essence of ripening and senescence of garden-stuffs and vegetables in a period saving. Degrees of maturity of products (technical, consumer, biological).

Influence of features, immunity, receptions of agrotechnics, methods of commodity treatment and transporting of high quality on well-kept of potato and products fruit and vegetable.

General description of the modes of saving of potato, vegetables and garden-stuffs. Bases of the mode of saving of products fruit and vegetable in the chilled state. Methods of saving and book-mark on saving of potato, vegetables and garden-stuffs (stationary, field). Requirements to potatoes and vegetable stores of modern type. Preparation of depositories to the book-mark in them of a new harvest. Types of the vent systems. Saving of berries, garden-stuffs and vegetables in the managed gas environment and in the polyethylene packages, boxes, containers with the polyethylene insertions and in containers with the diffusive insertions.

Description and development of canning, starch – molasses, dry vegetables industry in the system of APC. Requirements of processing industry to the quality of the raw material. Physiology and biochemical bases of the salted foods, pickling and pickling of vegetables, garden-stuffs and berries.

Saving of the pickled and pickled products. Methods of drying of potato, vegetables, garden-stuffs and berries (air-sun, thermal, vacuum, soublimation). Setting of norms of quality of the dried products by state standards. Packing and saving of the dried products.

Freezing of vegetables, garden-stuffs and berries. Saving of the frozen products. Production of the fruit and berry juices lighted and unlit up. Canning of garden-stuffs and berries by sugar. Chemical canning.

List of literature:

1. Подпратов Г.І., Скалецька Л.Ф., Сеньков А.М., Хилевич В.С. Зберігання і переробка продукції рослинництва. – К.: Мета, 2002. - 495 с.
2. Подпратов Г. І., Скалецька Л. Ф. Технологія виробництва борошна, крупи та олії. К., видавництво НАУ, 2000.

Control questions

1. What is production of flour principles based on?
2. Indexes of quality of flour.
3. Receiving of groats. The indexes of quality are important for groats making.
4. Methods of receipt of plant oil.
5. What types of cleaning are applied at the receipt of plant oil?
6. What are methods of saving potato and products fruit and vegetables?
7. What is canning of products fruit and vegetables?
8. What are the most widespread methods of canning?

Lecture №4

Technology of collection, primary treatment and saving of products of technical crops.

1. Technology of collection and preparation of trusts of flax-long-stalk.
2. Chart of technological process of processing trusts to a fibre.
3. Technology of after harvest treatment of hop.
4. Collection, after harvest treatment and saving of tobacco and makhorka.

The methods of preparation of trusts. Technology of collection to flax-long-stalk and preparation of trusts. Chart of technological process of processing trusts to a fibre. Commodity classification of flax production. Something new in saving and primary treatment of straw and trusts of flax-long-stalk.

Collection methods of cones of hop. Chemical composition of cones. Active aeration of the latest gathered hop. Modes of drying. Description of dry-hop-machine. Aeration of cones at the humidity, adding of sulphate, pressing and packing of hop. Modes and methods of saving of hop. Something new in processing and uses of cones of hop. Aromatic and skeletal sorts of tobacco. Chemical composition of tobacco and makhorka. Technology of collection of tobacco and makhorka. Methods of drying of tobacco. Modes and methods of drying of tobacco. Modes and methods of fermentation of tobacco. Modes of drying of makhorka. Modes and methods of drying and fermentation of makhorka.

List of literature:

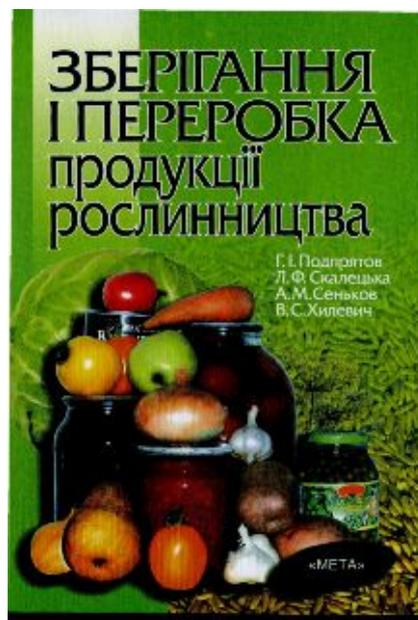
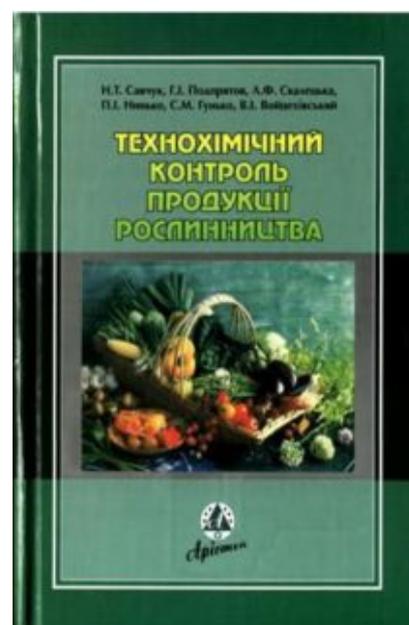
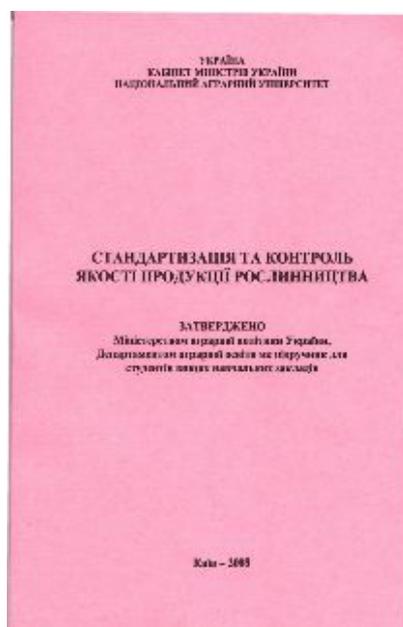
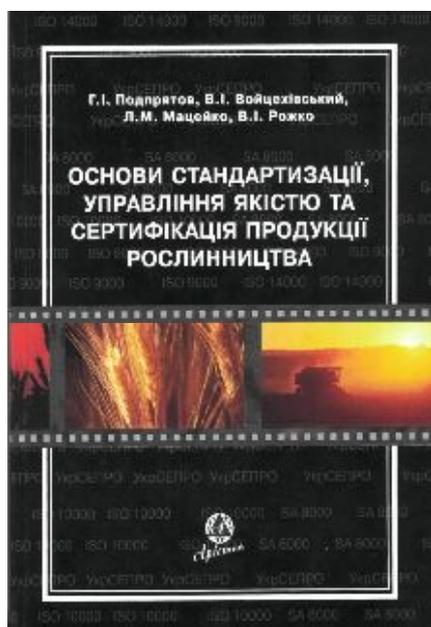
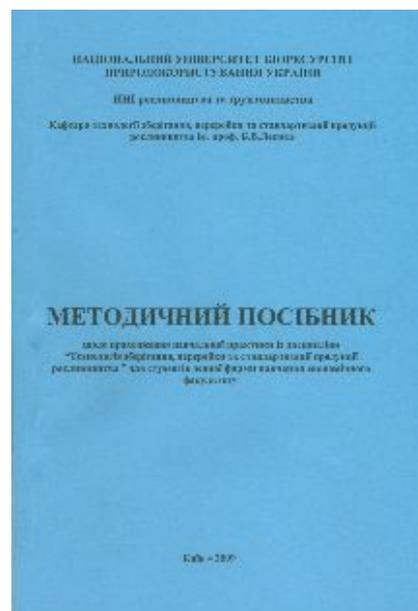
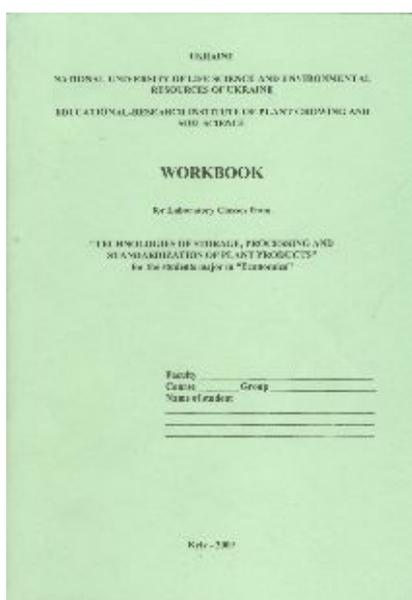
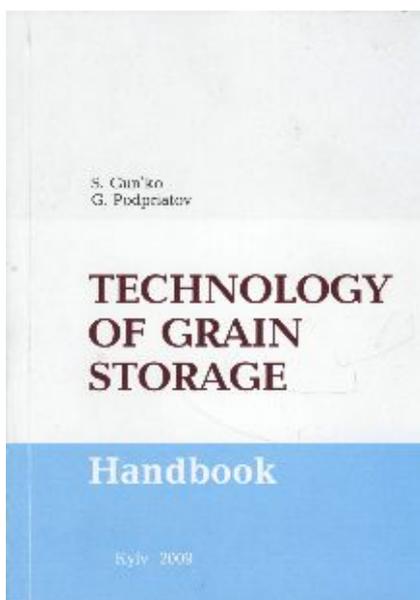
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2. Технические культуры / Я.В.Чубанов, С.Ф. Тихвинский, Е.П. Горелов и др.; под. ред. Я.В.Чубанова. М.: “Агропромиздат”, 1986

Control questions

1. What methods of collection of flax-long-stalk you know do you know?
2. What processes take place at processing of straw on trust?
3. What after harvest treatment of hop consists in?
4. What are the modes and methods of saving cones of hop?
5. What are the features of collection and after harvest treatment of tobacco consist in?
6. What is the technology of collection, after harvest treatment of makhorka, consist in?

10. Educational-methodical materials from discipline

1. Подпратов Г.І., Сеньков А.М., Войцехівський В.І. Технологія зберігання, переробки та оцінка якості кормів. – К.: Видавництво НАУ. – 2003. – 214с.
2. Подпратов Г.І., Войцехівський В.І., Мацейко Л.М., Рожко В.І. Основи стандартизації, управління якістю та сертифікація продукції рослинництва: Посібник. - К.: Вид-во Арістей. 2-е видання перероб. і допов. – 2006. - 620 с.
3. Подпратов Г.І., Скалецька Л.Ф., Войцехівський В.І., Мацейко Л.М. Стандартизація та контроль якості продукції рослинництва / Практикум – К.: Вид-во НАУ. – 2008. – 279 с.
4. Подпратов Г.І., Скалецька Л.Ф., Сеньков А.М., Хилевич В.С. Зберігання і переробка продукції рослинництва. – К.: Мета, 2002. - 495 с.
5. Подпратов Г. І., Скалецька Л. Ф. Технологія виробництва борошна, крупи та олії. К., видавництво НАУ, 2000.
6. Подпратов Г. І. Технологія обробки, переробки зерна та виготовлення хлібопекарської продукції. К., видавництво НАУ, 2000.
7. Подпратов Г. І., Скалецька Л. Ф., Духовська Т.М., Сеньков А. М. Технологія зберігання і переробки продукції рослинництва. Практикум. К., «Вища освіта», 2004.



11. TASK OF PRACTICE

MODULE 1.

Purpose of practice: to promote practical skills at determination of quality of products of plant-grower; on the basis of knowledge's of indexes of quality of operating standards to define quality corn cultures, grain, vegetable, fruit, technical and products of processing, as provided and realized the enterprises of different patterns of ownership; acquisition of practical skills in relation to the leadthrough of calculations for grain depending on his quality, conduct of account of grain which is kept in granaries.

Contents of practice. Practice includes acquainting and calculation part. Acquainting is conducted as an acquaintance with requirements to the different agricultural cultures (normative documents which are not examined in an educational process).

Calculation part of practice includes: direct receipt by the student of individual task in determination of the having a special purpose setting, quality, fitness, to processing in party of, fruit and vegetable, technical grain-crops, forage, products of processing.

Organization of practice.

First day - students get a calculation task and explanation to his implementation and subsequent consultations - . **3 hrs.**

Second day – students expect a task, using a library, department and other evident material, design a report - **3 hrs.**

Third day are students of zakhischiyut' individual tasks as a report - **3 hrs.**

Task of practice.

To learn the method of determination of quality of different cultures.

To familiarize the features of calculations for different cultures.

To define quality of party of grain which prepares on a sale with the set indexes of quality.

To add these determinations to the table 1.

To figure on on test mass of party, taking into account the indexes of humidity, and ruderal admixture.

To define quality of party of fruit and vegetable products with the set indexes of quality.

Registration of results of practice.

Students design a report in which write down a task and motion of work, reporting for the conducted calculations.

MODULE 2.

To study organization of preparation of granary to acceptance of new cereals, to define the order of accounting of cereals, that to come from combines on a granary, method of computation of losses of mass of cereals due to the change of humidity and admixture, to carry out a journey to organizations, which buy the products of plant-grower. To study technology of postharvesting processing of cereals, vegetables, garden-stuffs, to familiarize with production of vegetable and other can foods, forages of vegetable origin.

Volume of practice: 15 hours.

Contents of practice.

Module 2.

Practice includes acquainting and technological part. Introduction is conducted as departure employments, directly in the economies, that have the well equipped complex, cannery, typical granaries, exhibition center.

Students will familiarize with front-rank technologies on saving and processing of plant products.

Technological part of practice includes:

Direct participation of students in the processes of after harvesting treatment of the plant products, intended for the book-mark of products on saving; participation in the book-mark of products on the protracted and brief saving; conducting of computations for the realized products; conducting of computations on writing of losses of cereals, on active aeration.

Organization of educational practice.

The first day: acquaintance with the order of handing (sale) over of cereals of the different setting to purveying organization having a special purpose, with the order of computations for the sale of cereals.

The second day: conducting of quantitative-high-quality consideration of cereals.

The third day: conducting of computations on active aeration of cereals masses and productivity of grain dryers. Consideration of cereals at drying.

Registration of results of practice.

Students conduct diaries, report for the conducted computations. At the end of practice the students hand over a test.

12. МЕТОДИЧНІ ВКАЗІВКИ І ЗАВДАННЯ ДЛЯ СТУДЕНТІВ ЗАОЧНОЇ ФОРМИ НАВЧАННЯ.

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. – 2003. – 13с.
2. Подпратов Г.І., Скалецька Л.Ф., Войцехівський В.І., Мацейко Л.М. Стандартизація та контроль якості продукції рослинництва: Практикум / За ред. В.І.Войцехівського. – К.: Вид-во НАУ, 2008. – 294 с.
3. Скалецька Л.Ф., Сеньков А.М., Подпратов Г.І. Технологія зберігання та переробки продукції рослинництва. Методичні вказівки до вивчення дисципліни та самостійної роботи студентів економічних спеціальностей (дистанційна форма навчання) /Видавничий центр НАУ. – 2006. – 60 с.
4. Подпратов Г.І., Скалецька Л.Ф., Сеньков А.М., Савчук Н.Т., Нинько П.І., Рожко В.І. Методичні вказівки до вивчення дисципліни «Технологія зберігання та переробки продукції рослинництва» і завдання для контрольної роботи студентам заочної форми навчання агрономічних та економічних спеціальностей / Видавничий центр НАУ. – 2003. – 25 с.
5. Сеньков А.М., Нинько П.І., Рожко В.І., Гунько С.М., Бобер А.В., Завгородній В.М. Методичні вказівки до вивчення дисципліни «Технологія зберігання та переробки продукції рослинництва» і завдання для контрольної роботи студентам заочної форми навчання агрономічних та економічних спеціальностей / Видавничий центр НАУ. – 2006. – 24 с.

