REPUBLIC OF UZBEKISTAN

MINISTRY OF HIGHER EDUCATION, SCIENCE AND INNOVATION

FERGANA POLYTECHNIC INSTITUTE

FACULTY OF LIGHT INDUSTRY AND TEXTILE

5410500 - EDUCATIONAL DIRECTION"TECHNOLOGY OF AGRICULTURAL PRODUCT STORAGE AND EARLY PROCESSING"

GRADUATES OF THE 2023-2024 ACADEMIC YEAR FINAL CERTIFICATION QUESTION FINAL FOR DAK.

Fergana - 2024.

5410500 – “Technology of storage and initial processing of agricultural products” on the conduct of the Final State A t testing of students of the field of education in the specialty subjects

evaluation

CRITERIA

Are evaluated according to the following requirements in the evaluation criteria developed for conducting Final State Attestation tests in specialized subjects.

1. At the Final State Attestation, a test is held to determine the level of knowledge in specialized subjects, the evaluation criterion is 2, 3, 4 and 5 grades organizes. The test is conducted in written form, the applicant's theoretical knowledge of specialized subjects is assessed. The questions of specialization subjects include 3 questions for each student.

"5" ("excellent") grade in this:

The correct, complete and thorough answer to the given question is written in all respects, the machine, warehouses, products and equipment

- task, scope of work,
- statement of structure,
- scheme,
-working process
- products storability
- to warehouses placement order
- the calculation of the main performance indicators is described in a logical sequence, the records are clear, formalized to the required level, the sentences are clearly structured, various spelling mistakes are not allowed, the length of the answers is less than 5 pages for each question is placed in the cases presented without.

"4" (good) grade:

The correct, complete and thorough answer to the given question is written in all respects, the machine, warehouses, products and equipment

- task
-structure
- scheme
- product shelf life
-procedure of placement in warehouses

The work process is described in a logical sequence, the records are formalized in accordance with the current requirements, the number of spelling errors does not exceed 3-5, and the answers are submitted with a length of not less than 4 pages.

"3" (satisfactory) grade:

The given question is answered correctly, the function, structure, and work process of warehouses, products and equipment are described, but some shortcomings are made in the text, with serious spelling and stylistic errors, the length of the answers is 3 pages. shall be placed in the cases provided, no less.

"2" (unsatisfied) grade:

The given questions are given in the written works presented without correct answers, without following a logical sequence, without elucidating the structure, schemes and working processes of machines and equipment.

“Grain storage and processing technology” subject questions for the final state certification exam

1. What are the tasks of the elevator - warehouse industry?

Basic words and phrases: reception, cleaning, drying, storage

2. Grain and grain products storage technology science how tasks does?

Basic words and phrases: grain, storage, processing, technology, crop, product, quality, energy

3. The main ways to store grain mass?

Basic words and phrases: grain mass, moisture, microorganisms, cold, storage, temperature, hermetic

4. What are the main quality indicators of grain?

Basic words and phrases: degree of damage to grain, moisture, nature, foreign impurities

5. The appearance of the grain and its importance?

Basic words and phrases: sample, morphological character, organoleptic index, grain set, germination, decay, taste, sourness

6. Keeping the pile of grain dry?

Base word and expressions: xeroanabiosis, moisture, long-term, pest, microorganism)

7. Keeping cereal refrigerated?

Base word and expressions: the air temperature, microorganism, cooling, biochemical, physiological process

8. What are the physical properties of grain?

Base word and expressions: dispersion, friction corner granulamorphological, moisture

9. Explain self-sorting of grains?

Base word and expressions: empty, light, alien mixtures, symmetrical flow, asymmetric flow

10. Porosity of grain mass?

Base word and expressions: type of grain, air, density, large - small grain, sorting, storage

11. Spontaneous heating of grain heaps and the fight against it?

Base word and expressions: moisture, nests, mixtures, insects, microorganisms, vertical, layered, gross

12. Physiological processes that occur in the storage of grain piles?

Base word and expressions: air, aeration, saprophyte, moisture, grain heap, microorganisms

13. Measures to increase durability in storage of grain piles?

Base word and expressions: a stranger mixture, cleaning, pest, humidity, ventilation

14.Explain the sorption properties of grain?
Base word and expressions: steam, moisture, smell, liquid, gas, pile of grain
15.What do you mean by grain dispersion?
Base word and expressions: silo, modern elevators, rise and fall, sphericity, grain surface
16.What is the activity of microorganisms in the pile of grain?
Base word and expressions: microorganism, moisture, saprophyte, phytopathogen bacteria, yeasts
17.Explain the respiration of grain and seed?
Base word and expressions: dissimilation aerobic, anaerobic, oxygen
18.Explain the ripening of grains and seeds after harvesting?
Key words and phrases: ripening, temperature, biochemical process
19.What do you understand by grain germination during storage?
Key words and phrases: moisture, heat, chemical composition, dry matter
20.Explain the description and classification of grain microflora?
Base word and phrases: bacteria, mold fungi, yeasts, phytopathogen microorganisms
21.Thermal conductivity of a pile of grain?
Base word and expressions: mixture, heat capacity, humidity, grain heap, air
22.Factors affecting grain quality?
Base word and phrases: geographical factor, biological, climate, moisture soil, storage
23. A pile of grain without air in the environment save?
Base word and expressions: without oxygen atmosphere, fodder, carbonate anhydride, moisture
24. Collect new from the grain itself heat?
Base word and expressions: breath availability, humidity, cleanliness, quality, temperature, storage the smell
25. Distribution of substances in the components of grains and seeds?
Base word and expressions: anatomical part, endosperm, gluten, aleurone layer, layer
26. General indicators of grain and seed sets intended for food, fodder and technical purposes?
Base word and expressions: variety, purity, main seed, grade, fertility, seed grain, group
27. Technological processes in grain cleaning enterprises?
Basic words and phrases: separation, aerodynamic, trier, mineral mixture
28. Processing grain to get flour?

Base word and expressions: grain grinder, mill, technological process, chemical composition, white flour, black flour

29. Grains each different a stranger of mixtures cleaning technology?

Base word and expressions: grain cleaning, noisy separators, air separator, small grain, hydrothermal processing to give

30. Omukhta feed work release technology?

Base word and expressions: full ration, concentrate, raw materials, dispenser, bunker, small grains

31. Talsk of grain crops used for grain?

Base word and expressions: getting groats, groat production methods, husk cleaner, range of groat quality, groat storage

32. Types of crushing and classification of grain?

Base word and expressions: sample, morphological character, organoleptic index, grain set

33. Factors affecting the amount and quality of gluten in grain?

Base word and expressions: flour, standard, gluten, dough, dry substance, pore, hydration, suspension

34. Grain pests common Description?

Base word and expressions: rodents, insects, conditions, storage, grain, damage

35. The original weight of grain purity indicators determination?

Base word and expressions: nature, 1 liter, spray, moisture, mixtures composition, grain shape

3 6. Grain moisture and him determination method?

Base word and expressions: sample, hygroscopic water, drying wardrobe, mill

3 7. On the surface of the grain in the mill processing to give process?

Base word and expressions: dry, processed give, wet, hydrothermal, grain

38. Grinding grain of the process main duties?

Base word and expressions: simple grinding, chemical composition, hard, selective get, endosperm

39. Cereal endosperm softening of the process importance?

Base word and expressions: humidity, temperature, microcrack, washing equipment, of the form change, hydrolytic process

40. Omukhta feed work in release applied main raw items definition and Description?

Base word and expressions: raw material, grain, quality indicators, protein, vitamin

41. Cereal in the industry used raw items?

Base word and expressions: wheat, barley, rice, aleron layer, endosperm

42. Grain chemistry composition and nutritional value?

Base word and expressions: soft wheat, hard wheat, protein, carbohydrate, aleurone floor

43. Grain storage warehouses types?

Base word and expressions: permanent, elevator, temporary, standard, iron, concrete

44. Placement of grain acceptance and quality indicators?

Base word and expressions: sample, color, smell, taste, orgonoleptic evaluation

45. From wheat and rye types of flour obtained?

Base word and expressions: flour, standard, protein, dough, variety flour, endosperm, aleuron

46. Grain and grain products natural decrease when you say what do you understand

Base word and expressions: biological, mechanical, breathing get, by itself heat, rodents, shedding

47. A pile of grain by itself in the heat of microorganisms place?

Base word and expressions: fermentative, microbiological, mold fungus, pennicillium

48. Grain mass microflora come output?

Base word and expressions: microorganisms, microbiological process, epiphytes, parasites

49. Purpose, tasks and importance of storage of grain and grain products

Base word and expressions: flour, cereal, flour, warehouse, flour, warehouse, grain

50. How grain quality is determined organoleptically

Base word and expressions: grain mass, grain batch, grain color, smell, taste

51. Explain the determination of purity indicators

Base word and expressions: grain batch, grain color, smell, taste, quantity wastage

52. Explain the types of elevators

Base word and expressions: storage, fertility, warehouse, grain

53. The general tariff for the storage of grain piles?

Base word and expressions: storage, warehouse, warehouse, storage, storehouse, grain

54. Keeping a pile of grain dry?

Key words: storage, warehouse, warehouse, storage, storehouse, grain

55. Explain the quality indicators of grain products

Base word and expressions: geographical area climate, temperature, humidity, factor, storage, to cultivate, to grow a crop

56. Explain measures to increase their durability when storing grain piles

Base word and expressions: temperature, humidity, factor, storage, full maturity, biosis, anabiosis, sioanabiosis, abiosis

57. Explain the management of grain properties during storage

Base word and expressions: air, elements of the warehouse structure, in the container

58. Elucidate the nature of spontaneous heating and its effect on the quality of grain mass

Base word and expressions: grain self-sorting, grain porosity, grain, asymmetric flow, symmetrical flow

59. Illustrate heat conduction in a pile of grain

Base word and expressions: grain porosity, grain, asymmetric flow, symmetric flow, grain dispersion

60. Explain the physiological processes that occur in grain during storage

Base word and expressions: resistance of cereal seeds, microbiological, mesobotic, anaerobic and aerobic respiration

61. Explain the effect of pests on the grain pile

Key words and phrases: Microorganisms, preventive measures, exterminating measures, disinsection, insects, birds, eggs, larvae

62. Explain the activity of microorganisms in the grain heap

Base word and expressions: Microorganisms, preventive measures, exterminating measures, disinsection

6 3. Explain the effect of pests on the pile of grain

Base word and expressions: Microorganisms, exterminating measures, eggs, larvae, favorable conditions

64. Seed wheat storage and cleaning technology light up

Base word and expressions: Geographical area climate, temperature, moisture, factor, storage, cultivation, crop production, free water, ripening, milk ripening, wax maturity, full maturity, biosis, anabiosis, cyanobiosis, abiosis

65. Grain storage factors that affect the composition and properties of the process?

Basic words and phrases: moisture, factor, storage, cultivation, cropping, free water, ripening, milking, wax maturity, full maturity

66. Characteristics of processed grain

Base word and phrases: grain condition, gas exchange, shelf life, dry storage, refrigerated storage

67. Explain the technological processes of flour production

Base word and expressions: endosperm, sieve, color, mechanical effect output, variety, percentage, high, first, second crushing, grain cleaning, separator

68. Bread products work release main processes and their illuminate the sequence of

Base word and phrases: product quality, product quality management, product quality management system, respiration coefficient, food ratio, protein substances, organoleptic method

69. Explain the technology of semolina production from spiked grains

Base word and expressions: *physiological norm, cereal ratio, calorie, culinary, extraneous additive, high pressure, steam hydrothermal*

70. Definition and description of the main raw materials used in the production of dry fodder.

Key words and phrases: *soft feed, types of soft feed, loose, briquetted, granulated and galetted feeds, complete ration soft feed, soft feed concentrates, ration, feed unit, exchangeable energy, wet gluten, wet protein, ration, technological process, technological process efficiency*

Developer: D.N.Abdukarimova

Questions for the final state certification exam in the subject " Technology of agricultural products storage and processing".

1. Brief history of product storage?

Key words and phrases: biosis, anabiosis, abiosis, temporary storage, stationary storage method

2. Explain the appearance of storage warehouses, the initial processes in them and the characteristics of the types of agricultural products stored in them?

Basic words and phrases: coolers, burts, trenches, sorting, calibration, temperature, relative humidity

3. Types of storage facilities and creation of storage warehouses light up

Basic words and phrases: refrigeration, controlled atmosphere, burt, trench, yum, ventilating system

4. Explain the types of permanent and temporary storage warehouses and storage preparation departments, their structure and operation?

Basic words and phrases: temperature, relative humidity, sorting, calibration, initial cooling

5. Additional transport equipment and techniques used in storage warehouses light up

Basic words and phrases: conveyor, calibrator, psychrometer, thermometer, scrubber, drying, cooling, ventilation, freezing, creation and control of gas environment

6. In the analysis of the cold chain system and its nature, the experiences of many cold storage developed countries are used light up

Basic words and phrases: temperature, storage mode, relative humidity, coolers, hydro-wetting, rapid cooling, initial cooling

7. Temporary storage warehouses light up

Basic words and phrases: burt, trench, soil layer, product placement, ventilation system

8. Compote types and production technology?

Basic words and phrases: raw materials, assortment, sugar, syrup, sorting, calibration

9. Tools and equipment for creation and control of technological regimes in permanent warehouses? The principle of their operation light up

Basic words and phrases: Thermometer, scrubber, ventilation system, compressor, fan, humidifier

10. How to store fruits, vegetables and potatoes?

Basic words and phrases: storage modes, classification, cold storage

11. How to store vegetables in an airtight container?

Basic words and phrases: fasovka, zakatka, degree of hermeticity, methods of closing tara

12. Preparation of harvested agricultural products for storage and their quality indicators light up

Key words and phrases: quality indicators, condition, varieties, sorting, calibration, packaging

13. Methods of determining the quality indicators of products, organization of equipment and laboratories?

Basic words and phrases: color, maturity level, dry matter content, refractometer, petenometer, pH meter

1 4. How to store fruits and vegetables in refrigerators?

Key words and phrases: fruit, vegetable, shelf life, chemical composition, container, box, packaging

15. Storage of vegetables in permanent warehouses?

Key words and phrases: vegetable, heap, box, ventilation system, varieties, storage modes

16. Meat storage warehouses?

Basic words and phrases: meat, refrigeration, chamber, freezing, autolysis, temperature, pre-cooling

17. Storage warehouses for milk and milk products?

Basic words and phrases: milk, pasteurization, microorganism, spores, sterilization, ultrapasteurization

18. Gas atmosphere controlled storage warehouses?

Basic words and phrases: gas composition, hermeticity, normal atmosphere, subnormal atmosphere, carbon dioxide, nitrogen

19. Storage chambers with rapid freezing systems?

Basic words and phrases: freezing, minus temperatures, vitrification, defrosting, ice crystals

20. Requirements for storage products?

Basic words and phrases: maturity level, size, dry matter, chemical composition, variety

21. Factors affecting the product during storage? Requirements for them?

Key words and phrases: temperature, degree of maturity, size, dry matter, chemical composition, variety, relative humidity

22. The role and importance of storing fruits and vegetables in the national economy?

Basic words and phrases: vitamins, oxygens, nutritional value, shelf life, degree of maturity

23. Technological methods of primary processing of fruits and vegetables?

Base s nouns and phrases: biosis, anabiosis, senoanabiosis, abiosis, biological bases of fruit and vegetable storage

24. What are the processes that take place in the storage of fruits and vegetables?

Basic words and phrases: physiological, microbiological, biological processes, respiration, moisture evaporation

25. Fruit and of vegetables physicist properties and them in storage changes?

Basic words and phrases: breath get, weight, color change, humidity evaporation

26. Getting products with added sugar from fruit?

Basic words and phrases: sugar, concentrate, jam, jam, povidlo, syrup, finished product

27. Povidlo preparation technology?

Basic words and phrases: fruit, degree of ripeness, rubbing, syrup, concentrate, cooking

28. Jam preparation technology light up

Basic words and phrases: fruit, ripeness, rubbing, syrup, concentration, cooking

29. Fruit and vegetable juice processing technology?

Basic words and phrases: juice, types of juice, grinding, rubbing, homogenization, packaging, sterilization

30. Strained and unstrained juices light up

Basic words and phrases: raw materials, grinding, filtration, presses, packaging

31. Types of juices light up

Basic words and phrases: nectars, strained, unstrained juices, coupage juices

32. General description of technological processes of juicing?

Basic words and phrases: washing, sorting, crushing, pressing, filtration, homogenization

33. Tomato recyclable products?

Basic words and phrases: puree, paste, concentration, dry substance, crushing, concentration

34. General description of technological processes of preparation of tomato paste?

Key words and phrases: receiving raw materials, preparing the product for processing, processing, condensing the juice and packaging the solution

35. Fruit compote preparation technology?

Basic words and phrases: compote, types, raw materials, maturity level, syrup, sugar

36. Vinegar technology of vegetables and fruits?

Base s nouns and phrases: vinegar acid, concentration, pH indicator, crude the item preparation

37. Fruit marinades, requirements for raw materials?

Basic words and phrases: fruit, ripeness level, filling, Acetic acid, concentration,

pH indicator

38. A general description of the main technological processes in the production of marinades?

Basic words and phrases: reception of raw materials, preparation of products for processing, processing, preparation of marinade liquid of different concentrations. placing fruits, pouring marinade, sterilization and sealing

39. Learning to cook vegetable caviar?

Key words and phrases: vegetables, requirements for raw materials, caviar, types of caviar, preparation of raw materials for processing

40. Microbiological of vegetables and fruits method again work?

Basic words and phrases: milk acidic achish, yeast, sours, sugars, bijgish

41. Fermented cabbage preparation technology?

Basic words and phrases: milk acidic achish, yeast, sours, sugars, bijgish

42. Fruits to dry light up

Basic words and phrases: raw material, requirements, drying methods, dryers, drying agent

43. Cucumber and tomato salting?

Basic words and phrases: milk acidic achish, achitki, turush, sugars, bijgis

44. Raspberry fruit freezing technology?

Basic words and phrases: fruit, quality, demand, freezing, cryoscopic point, temperature

45. Q freeze strawberries?

Basic words and phrases: fruit, quality, demand, freezing, cryoscopic point, temperature

46. Biochemical basis of canning of fruits and vegetables?

Basic words and phrases: Preservation methods, lactic acid, microorganism, spore

47. What processes take place in fruits and vegetables during quick freezing?

Basic words and phrases: freezing, cryoscopic point, ice crystals, vitrification, d efrosta t sia

48. Methods of drying fruits and vegetables?

Key words and phrases: convective, conductive, heat agent, aerofontan, boiling bed

49. Preparing fruits and vegetables for the drying process?

Basic words and phrases: washing, cleaning, cutting, cleaning, blanching etc

50. Defrosting fruits and vegetables?

Basic words and phrases: freezing, temperature, cryoscopic point, defrosting

51. In the production of sauerkraut, what numbers are found in the finished product?

Key words and phrases: darkening, browning, softening of cabbage, storage conditions, microorganism

52. Vegetable juice production technology?

Basic words and phrases: *raw materials, technological scheme, types of juice, coupage*

53. Tariff as a storage facility for fruits, vegetables and potatoes?

Basic words and phrases: *raw materials, fertility, respiration, biochemical processes*

54. Physical properties of piles of fruits, vegetables, potatoes?

Basic words and phrases: *self-heating, porosity, sorption properties, mechanical hardness*

55. What microbiological processes occur during the storage of fruits, vegetables and potatoes?

Basic words and phrases: *microorganism, mycoses, bacteriosis, viruses*

56. Factors affecting the storage of fruits, vegetables and potatoes?

Basic words and phrases: *variety, climatic conditions, agrotechnics, irrigation regimes, harvesting*

57. Basics of product storage mode in BGM?

Basic words and phrases: *gas environment, atmospheric composition, gas generators, scrubber*

58. Ways to place and store products?

Basic words and phrases: *ya sh ik, container, heap, pod, rack*

59. Get a warehousing invoice?

Basic words and phrases: *decrease, cost, firing, storage mode, product loss*

60. Natural loss of fresh fruits, vegetables and potatoes?

Basic words and phrases: *respiration, evaporation, disease, damage, absolute chi q ind*

61. Storing potatoes light up

Basic words and phrases: *pile, ventilation, storage stages, treatment period, temperature,* humidity

62. Save the root light up

Basic words and phrases: *pile, ventilation, storage stages, treatment period, temperature, humidity*

63. How to store cabbage and cabbage-related vegetables?

Basic words and phrases: *pile, ventilation, storage stages, treatment period, temperature, humidity*

64. Biological characteristics of cabbage heads as a storage object?

Basic words and phrases: *pile, ventilation, storage pressure, treatment period, temperature, humidity*

65. How to store onion vegetables?

Key words and phrases: *heap, ventilation, storage stages, treatment period, temperature, humidity*

66. Storing garlic onions?

Basic words and phrases: pile, ventilation, storage stages, treatment period, temperature, humidity

67. Onion storage technology?

Basic words and phrases: pile, ventilation, storage stages, treatment period, temperature, humidity

68. Storing wet fruit? (cucumber, tomato, eggplant, hot pepper)?

Basic words and phrases: ventilation, storage stages, treatment period, temperature, humidity

69. Diseases during storage of vegetables?

Basic words and phrases: gray rot, wet rot, microorganism, pathogen, spore

70. Fruit and vegetable processing methods and scientific basis?

Basic words and phrases: factor, chemical, microbiological, storage, resistance

Developer: RMNazirova

Questions for the final state certification exam in " Agrobiotechnology ".

1. Subject, purpose and tasks of agrobiotechnology.

Key words and phrases: microorganisms, technical (industrial) microbiology, water microbiology, geological microbiology, medical microbiology, sanitary microbiology, livestock microbiology, soil or agricultural microbiology.

2. Branches of agrobiotechnology.

Key words and phrases: technical (industrial) microbiology, water microbiology, geological microbiology, medical microbiology, sanitary microbiology, livestock microbiology, soil or agricultural microbiology.

3. The relationship of agrobiotechnology with other sciences.

Basic words and phrases: biology, botany, microbiology, breeding, zoology, genetics, plant science.

4. Development stages of agrobiotechnology.

Key words and phrases: AVLevenhuk, MMTerekovskiy, CH. Darwin, Louis Pasteur, Ya. Schlesing, A. Munze, F. Manjeko, SNVinogradsky, L. Omelyansky, DIIvanovsky.

5. Microorganisms and their classification.

Basic words and phrases: viruses, mycoplasmas, rickettsiae, bacteria, actinomycetes, fungi prokaryotes, eukaryotes.

6. The structure, multiplication and spread of viruses.

Basic words and phrases: reproduction, distribution, types, sizes, A. Mayer, Dmitri Iosifovich Ivanovsky, M. Beyernik, U. Stanley, properties of viruses, types according to their form.

7. Structure, reproduction and distribution of mycoplasmas.

Basic words and phrases: reproduction, distribution, types, sizes, of mycoplasma to himself special characteristics, form according to types, increase.

8. Bacteria and their systematics and reproduction.

Basic words and phrases: reproduction, distribution, types, sizes, their specific features, types according to the shape, reproduction, membrane, mycelium.

9. The structure, reproduction and distribution of actinomycetes

Basic words and phrases: increase, distribution, types, sizes, their specific features, types according to the form, increase.

10. Morphology, structure and reproduction of fungi.

Basic words and phrases: increase, distribution, types, sizes, their specific features, types according to the form, increase.

11. Bacteriophages.

Basic words and phrases: increase, distribution, types, sizes, their specific features, types according to the form, increase.

12. Moisture and temperature of microorganisms g a effect

Base s nouns and phrases: humidity, temperature, psychrophile, thermophile, mesophile milroorganisms.

13. Effects of environmental reactions on microorganisms

Key words and phrases: soil solution, pH indicators, effect on alkaline, neutral, acidic environment, durability.

14. Reaction of microorganisms to oxygen

Basic words and phrases: obligation aerobic microorganisms, anaerobic microorganisms, facultative anaerobic our microorganisms.

15. Effect of sunlight reaction on microbes.

Key words and phrases: sunlight radiation, photosynthetic bacteria, VIPaladin, sun's violet, violet, ultraviolet rays.

16. Cycle of carbon dioxide and oxygen.

Key words and phrases: the importance of microorganisms in the cycle of carbon and oxygen, photosynthesis, organic substances, proteins, amino acids, fibers, lignin, cellulose, fats.

17. Alcohol dressing and its importance.

Basic words and phrases: yeasts, ethyl alcohol, carbonate anhydride, bijgish, microorganisms, alcohol of the bridegroom importance.

18. Acidification of milk and its importance

Basic words and phrases: Louis Pasteur, Streptococcus lactus, heterofermentative milk acidic bijg'ish, bifidobijgish, milk acidic to dress up importance.

19. Fatty acid tanning

Basic words and phrases: oil acidic to dress up significance, clostridium my graduation bacteria, reactions, obtained products.

20. The transition of nitrogen substances from one state to another in the soil.

Key words and phrases: the transition of nitrogenous substances from one state to another in the soil, Ammonification processes, Nitrification and its stages

21. Understanding of ammonification processes.

Basic words and phrases: ammonification, ammonium acids, decomposition, ammonia harvest to be, aerobic, anaerobic bacteria, fungi

22. Nitrification and its stages.

Basic words and phrases: ammonia, nitrite, nitrate, bacteria, S. N. Vinogradsky, bond aerobes, nitrification, stages

23. Understanding the process of dentrification.

Basic words and phrases: denitrification process, decomposer bacteria, nitrogen, nitrogen from the soil loss.

24. Discovery of molecular nitrogen assimilating microorganisms and free nitrogen assimilation.

Basic words and phrases: molecular nitrogen, SNVinogradsky, M.Beyerink, G.Gelrigel and G.Vilfarta, legumes.

25. Biological cycle of sulfur compounds.

Key words and phrases: biological cycle of sulfur compounds, oxidation and reduction of inorganic sulfur compounds, Thiobacteria.

26. Oxidation and reduction of inorganic sulfur compounds.

Base s nouns and phrases: Inorganic sulfur compounds Photosynthesizing purple and green sulfur bacteria, oxidation and return

27. Changes in organic compounds with phosphorus

Basic words and phrases: phosphorus compounds, them disintegration, change, in it participation doer microorganisms.

28. Changes in phosphorus inorganic compounds.

Basic words and phrases: phosphorus compounds, them disintegration, change, in it participation doer microorganisms.

29. Mineralization of organic compounds containing iron

Basic words and phrases: phosphorus compounds, their decomposition, change, microorganisms participating in it, iron compounds redox

30. Microbiological basis of crop rotation

Basic words and phrases: interchangeably planting methods of microorganisms effect, alternately in planting crops choose

31. Microbiological processes in the preparation of organic fertilizers.

Basic words and phrases: the role of microorganisms in increasing soil fertility, ammonifiers in manure, nitrifiers and various types of mesophilic microorganisms.

32. Importance of rhizosphere microorganisms for plants

Key words and phrases: exosmos phenomenon, rhizosphere, microorganisms, mycorrhiza, endotroph, exotroph.

33. Effectiveness of use of microbiological preparations

Basic words and phrases: microbiological preparations, types, effectiveness, composition of microorganisms species, azotobacteria.

34. Microorganisms around plant roots.

Basic words and phrases: apple, amber, lemon and show off acids, roots around microorganisms, rhizosphere microorganisms, rhizoplane.

35. Mycorrhizal and endophytic microorganisms.

Key words and phrases: F.M.Kamensky, mycorrhiza phenomenon, ectotrophic mycorrhiza, endotrophic mycorrhiza, Endophytic microorganisms, M. Schleiden.

36. The subject and tasks of biotechnology.

Basic words and phrases: biotechnology, modern biotechnology, classical biotechnology, industrial biotechnology, cell engineering, gene engineering, culture, microorganism, molecular biotechnology, directions, tasks, applied methods.

37. Development history of biotechnology.

Basic words and phrases: scientists who contributed to the development of biotechnology, events, modern biotechnology. Classical biotechnology.

38. Genetic engineering

Basic words and phrases: DNA structure, DNA synthesis, replication, translation, transcription, polymerases, gene structure, DNA fragments, enzymes of gene engineering, enzymes isolated from microorganisms, inhibitors, markers.

39. Genetic engineering

Base s nouns and phrases: matrix synthesis, transcription, DNA replication, translation, restrictases, ligases.

40. Obtaining recombinant DNA

Basic words and phrases: transformation, bacteria from plasmids in cloning use, vector. To *the vector molecule main requirements.*

41. Genetic engineering in plant science

Basic words and phrases: agrobacteria, microparticles, vectors, gene expression, plasmids, protoplasts, regeneration, retroviruses, animal cells.

42. Cell engineering

Basic words and phrases: plant cells, artificial nutrition, alkaloids, steroids, glycosides, hormones, essential oils, plant health, tissue culture, callus tissue, meristem, clonal micropropagation, in vitro morphogenesis, regeneration.

43. Techniques of in vitro culturing of plant cells and tissues

Basic words and phrases: explant, plant materials sterilization, food environments, culture condition.

44. Callus tissue culture

Basic words and phrases: callus culture, differentiated cells, callus of cells features, callus cells genetics

45. Clonal micropropagation of plants

Key words and phrases: stages and methods of clonal micropropagation of plants, clonal micropropagation, advantages, plant tissue culture techniques at different stages of clonal micropropagation.

46. Effect of genetic, physiological, hormonal and physical factors on clonal micropropagation of plants.

Key words and phrases: Clonal micropropagation of plants, genetic factors, physiological factors, hormonal factors, physical factors

47. Substances controlling the growth and development of plants.

Basic words and phrases: artificial regulators, phytohormones, phytohormones of influence molecular mechanism, control of gene expression

48. Classification, structure and function of phytohormones

Key words and phrases: classification, structure and function, auxin, cytokinin, gibberlin, ethylene, abscis acid, brassinosteriod and physicotoxins

49. Phytohormones and artificial regulators of plant growth and development in biotechnology

Basic words and phrases: management of ontogeny, root harvest to be sprout harvest to be, hormone status changed transgene plants get

50. Phytohormone and growth regulators in plant science

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51. Reaction of microorganisms to oxygen

Base s nouns and phrases: obligation aerobic microorganisms, anaerobic microorganisms, facultative anaerobic our microorganisms.

52. Microorganisms around plant roots.

Basic words and phrases: apple, amber, lemon and show off acids, roots around microorganisms, rhizosphere microorganisms, rhizoplane.

53. Microbiological processes in the preparation of organic fertilizers.

Key words and phrases: The role of microorganisms in improving soil fertility, ammonifiers in manure, nitrifiers and various types of mesophilic microorganisms.

54. Phytohormone and growth regulators in plant science

55. Mineralization of organic compounds containing iron
Basic words and phrases: phosphorus compounds, their decomposition, change, microorganisms participating in it, iron compounds oxidation-reduction
56. Microbiological basis of crop rotation
Basic words and phrases: interchangeably planting methods of microorganisms effect, alternately in planting crops choose
57. Microbiological processes in the preparation of organic fertilizers.
Basic words and phrases: the role of microorganisms in increasing soil fertility, ammonifiers in manure, nitrifiers and various types of mesophilic microorganisms.
58. Importance of rhizosphere microorganisms for plants
Key words and phrases: exosmos phenomenon, rhizosphere, microorganisms, mycorrhiza, endotroph, exotroph.
59. Effectiveness of use of microbiological preparations
Basic words and phrases: microbiological preparations, types, effectiveness, composition of microorganisms species, azotobacteria.
60. Microorganisms around plant roots.
Basic words and phrases: apple, amber, lemon and show off acids, roots around microorganisms, rhizosphere microorganisms, rhizoplane.

Developer: MAMirzaikromov

Recommended reading list

Basic textbooks and study guides

1. Shaumarov XB, Islamov S.Ya. "Technology of storage and primary processing of agricultural products", Study guide. - T.: ToshDAU, 2011. -194 p.
2. Boriyev Kh.Ch., Jorayev R., Alimov O. "Preservation of field crops and their preliminary processing", Textbook. - T.: UzME., 2004. -175 p.
3. Boriyev Kh.Ch., Jorayev R., Alimov O. "Storage and processing of grain products", Textbook - T.: Mekhnat, 1997. -250 p.
4. Boriyev Kh.Ch., Jorayev R., Alimov O. Storage and preliminary processing of grain products (practical training), Training manual – T. ToshDAU, 2002. -175 p.
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6. Mirkhalikov TT, Aykhodjayeva NK "Storage of grain and grain products" Textbook. - T.: Labor, 2004. -173 p.
7. S. Tursunova, Z. Muqimov, B. Norinboyev Grain storage and processing technology. Tashkent "Ijad-Press" 2019
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9. RAkhaitov, VERadjabova, ZZShukurov "Technological equipment of grain processing enterprises" Tashkent-2005
10. Nazirova RM, Sulaymanov ON, Usmanov NB//Storage warehouses and technologies of agricultural products// Tutorial. Premier Publishing s.r.o. Vienna - 2020. 128 pages.
11. RMNazirova, MXXhamrakulova, NBUsmanov. Technology of storage and processing of oilseeds. Study guide. Fergana-Vinnytsia: OO "European Scientific Platform", 2021. – 236 c. https://doi.org/10.36074/naz-xam-usm.monograph .
12. Uma Shankar Singh, Kiran Kapoor. Introductory microbiology. Oxford book company. Jaipur. India. Edition 2010. Printed at: Mehra offset press, Delhi. P. 316
13. Artikova R., Murodova SS Village economy biotechnology. Study manual. Tashkent, "Science and " Technology " publishing house, 2010. -252 p.
14. Zuparov MA and others From microbiology laboratory training. Study manual. StoneDAU publishing house, 2014. -116 p.
15. Zuparov MA and others Village economy biotechnology (lab training transfer for study manual). StoneDAU publishing house, 2016. -98 p.

Additional literature

1. Mirziyoyev Sh.M. Together we will build a free and prosperous democratic country of Uzbekistan. Tashkent, "Uzbekistan" NMIU, 2017, 56 p.
2. Mirziyoyev Sh.M. The supremacy of the law and the provision of human interests are the guarantee of the development of the country and the well-being of the people. "Uzbekistan" NMIU, 2017, 47 p.
3. Mirziyoyev Sh.M. We will build our great future together with our brave and noble people. NMIU "Uzbekistan", 2017, 485 p.

4. Mirziyoyev Sh.M. Critical analysis, strict discipline and personal responsibility should be the daily rule of activity of every leader. NMIU "Uzbekistan", 2017, 103 p.
5. Decree No. PF-4947 of the President of the Republic of Uzbekistan dated February 7, 2017 "On the strategy of actions for the further development of the Republic of Uzbekistan". Collections of legal documents of the Republic of Uzbekistan, 2017, No. 6, Article 70.
6. Speech of the President of the Republic of Uzbekistan at the meeting of the Cabinet of Ministers of the Republic of Uzbekistan on the results of 2016 and prospects for 2017. //People's word newspaper. January 16, 2017, #11.
7. Boriyev Kh.Ch., Jorayev R., Alimov O. "Preservation of field crops and their preliminary processing", Textbook. — T.: UzME., 2004. -175 p.
8. Khaitov RA and others. "Evaluation and control of the quality of grain and grain products", Textbook — T.: Uzbekiton, 2000. -290 6.
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Internet sites

1. www gov.uz Government portal of the Republic of Uzbekistan
2. www lex.uz national database of legal documents of the Republic of Uzbekistan
3. www.maslo/technologiya polucheniya
4. http://www.khranenie korneplodov

5. http://www.pererabotka korneplodov
6. http://www.bankreferatov.ru
7. http://www. khranie i pererabotka ovosheyhttp://www. cotton technology http://www. cotton storage technology — technology chranenia cloth syrtsa
8. www.gov.uz - the government portal of the Republic of Uzbekistan.
9. www.lex.uz - national database of information on legal documents of the Republic of Uzbekistan.

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