

Journal of Agriculture & Horticulture

Open Access, Peer Reviewed Journal

Journal impact factor: 8.1



JAH

Journal of Agriculture & Horticulture

Volume II, Issue X

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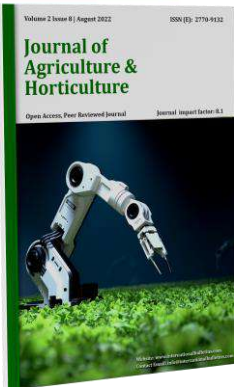
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MODERN TECHNOLOGIES IN TEACHING ENGLISH

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<https://doi.org/10.5281/zenodo.7185858>

Annotation: The digital era is a creator of learning modern English language from the youngest population to the three cycles of the higher education system. Internet connections and technological innovations transformed into modern tools such as computers, tablets, smartphones, smartwatches upgraded with modern platforms such as Moodle, Blackboard, etc., are not only a necessity but also an obligation of every individual and institution for advanced and modern learning of English Language.

Keywords: digital technologies, English language, teaching, Moodle, video clips, movies.

INTRODUCTION

Some of the tools that can be used in the EFL classroom are: digital storytelling, comics, eBooks, videos, images, online speaking avatars and interactive whiteboards that can be accessed via the internet. The advancement of technology is now evident with studies showing about 90% of pupils having access to a mobile device or computer whether at home, school or work. It is therefore not surprising that teaching methods have also evolved towards embracing technology. The new teaching era has been marked with examples of modern teaching such as blended learning, on-line open-source platforms, as well as virtual teaching classrooms that are being endorsed by major education experts. These new teaching methods integrate technology in English language teaching to facilitate teachers, to improve the engagement of the pupil and for everyone involved produce a comprehensive, structured environment for learning. It is therefore evident that educational institutions require transitioning to a more technologically oriented classroom.

MATERIALS AND METHODS

The application of new technologies greatly increases the creativity of teachers in the application of new methods in the study of the English language, and thus, largely, takes the teacher's responsibility [2]. The application of new technologies not only raises the level and quality of English language learning that is functionally related to the modernity offered by new tools and modern software in the presentation of the material, but the new technologies cause a

sense of additional activity and mobilisation of each pupil, listening to the subject material that is presented in the classroom. These take on the role of an additional motivator and stimulator for not only pupils as listeners, but also for teachers who see the challenge in adopting modern tools, which include computers, tablets, smartphones, smartwatches, interactive boards, e-learning platforms (Moodle, Blackboard, and Google Classroom), etc (Figure 1).

Figure. 1. Illustration of modern tools used in English language teaching



RESULTS AND DISCUSSION

With the application of these modern tools, teachers have the opportunity to apply and implement learning methodologies that have proved to be very successful in studying English. Methodologically, this further means that teachers provide a different level of training among the listeners, with full efficiency in the presentation of the material and the exercises [7].

New technology edged up over the years but not everything remained the same. This may be result of the growing concerns over security and the wearing out of some innovations. Those that have stood the test of time possess a solid teaching practice.

Blended learning- here trend is reflected by course material and resources of teachers as they combine technology with the more comprehended traditional mode of teaching. Blended learning is a more preferred classroom interaction model due to fact that it accommodates the learning style of each pupil to reach the highest level of absorbance.

Mobile learning. - it is evident that mobile apps provide more access to online resources. For example, Oxford University Press uses Essential English to give



pupils and teachers free resources that consist of flashcards, lesson plans, phrasebooks, etc.

Gamification were learning occurs through the use of gaming apps and software. Interactive games help language skills to be used to collaborate, negotiate, and create friendships [8].

Embodied learning is not strictly based on remembering, it also entails the use of the body and mind, exploring, discussing and collaborating. For instance, Doodle Town course by Macmillan Education involves hands-on activities, visual and audio to inspire and stimulate the learner thus getting them to be inquisitive, to create and draw. Learning and teaching management platforms - such as Edmodo provide learners with online access to handouts, submit homework, and continue with classroom discussions. Currently, online platforms are being additionally used to communicate with stakeholders and parents, assist in the management of materials and lesson plans, and provide a better curriculum overview for the teachers and the administrative staff.

CONCLUSION

The application of new technologies in ELT in today's conditions is inescapable to maintain the trend of systematic learning of modern English at all levels of education [9]. The Computers, Internet, modern platforms, smartphones and watches are tools that pave the essential way of using modern tools for learning English language fully and quickly. The application of modern technologies at the schools shows a positive trend, which is directly reflected in the percentage of those technologies and their application of the teaching staff. The most commonly used platform is Moodle with 40%, while Google Classroom is used with 10% (but with great progress in the past period). Filmed stories and videos are used regularly by teachers in learning English with 55%, while they are occasionally used in 45% of cases.

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INFLUENCE OF FILLERS ON THE PHYSICAL AND MECHANICAL PROPERTIES OF COMPOSITE MATERIALS BASED ON POLYPROPYLENE

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<https://doi.org/10.5281/zenodo.7207593>

ABSTRACT: It is shown that the introduction of a metal-containing oligomeric flame retardant into polypropylene improves the physical and mechanical properties, and the flammability indicators of the developed polymer matrix composites also increase.

Key words: polymer, metal-containing oligomeric flame retardant, modulus of elasticity, impact strength.

Introduction

In the world, nanoparticles obtained from derivatives of polybasic acids are of particular interest for the development of fillers, plasticizers, additives, modifiers and fire retardants.

In this work, the problem of improving the mechanical properties of filled mixtures of polyethylene and polypropylene, polyamide with metal-containing compounds was solved. The aim of the work is to improve the mechanical properties of filled polyolefin thermoplastic elastomers based on polyethylenes and polypropylenes and metal acetate [1;2]. We developed studies of the obtained materials based on polypropylene containing nanosized modifiers that affect the supramolecular packing of polymer macromolecules and thus its physical mechanical characteristics.

Experimental part

Chemical modification of polypropylene and polyethylene, i.e. a directed change in its physical, mechanical or chemical properties by introducing new functional groups into the macromolecule, crosslinking or copolymerization is of great interest from a scientific and practical point of view [3].

In this work, using the method of destruction of metal oxides directly during compounding, PP + Me nanocomposites of a uniform degree of dispersity of the inorganic phase were obtained. The presence of metal nanoparticles in the polymer matrix transforms the properties of the base polymer, as shown in Table 1

During the analysis of the results, it was found that the introduction of metal oxides into the polymer improves the complex of physical and mechanical properties of polyolefins. It should be



noted that the presence of atomic particles of metals contributes to a significant increase in heat resistance, flexural modulus of the base polypropylene.

Table 1

Physical and mechanical properties of the obtained composite materials based on polypropylene

| Options | Standards | PP- JM350 | PP+5% aluminu m oxide | PP+ 5% Nickel oxide (II) | PP+5% calcium oxide | PP+ 5% iron oxide | PP+5% zinc oxide |
|---|-------------------------------|--------------|-----------------------------|--------------------------------|---------------------------|-------------------------|------------------------|
| Density, g/cm ³ | ASTM D1505 | 0,9 | 0,99 | 0,99 | 0,99 | 0,99 | 0,99 |
| Modulus of elasticity MPa | ASTM D1238 | 1100 | 1270 | 1300 | 1180 | 1310 | 1355 |
| Elongation % | ASTM D790 | 100 | 95 | 95 | 100 | 96 | 98 |
| Elastic force, MPa | ASTM D638 | 24 | 26 | 25 | 25 | 25 | 24 |
| Impact strength according to Izod s/n, at +23°C, kJ/m ² | ASTM D638 | 6,5 | 6,4 | 6,2 | 6,1 | 6,4 | 6,51 |
| Impact strength according to Izod s/n, at -30°C kJ/m ² | ASTM D256 | 3 | 3 | 3,2 | 2,8 | 3,4 | 3,33 |
| Tensile strength, MPa | ASTM D256 | 45 | 47 | 46 | 48 | 50 | 50 |
| Shrinkage 24soat,% | ASTM D648 | 1,2 | 1,05 | 1,05 | 1,05 | 1,15 | 1,6 |
| Burningrate UL-94 mm | Sample thickness 3.2 mm | 45 | ≤40 | ≤40 | ≤40 | ≤40 | ≤40 |

The properties of PP improved significantly after its modification with metal acetates. For example, we see that the modulus of elasticity has increased from 1100 MPa to 1310 MPa, and the bending temperature under load has increased to 45-500C. The modifier had no significant effect on the ability of the composite material to elongate.

To determine the maximum temperature range of matell oxide-reinforced polypropylene, thermograms of the samples were obtained using TGA, the thermal stability was determined and the cold resistance of the composites was assessed by measuring the bending and fracture strength at low temperatures (Fig. 1)



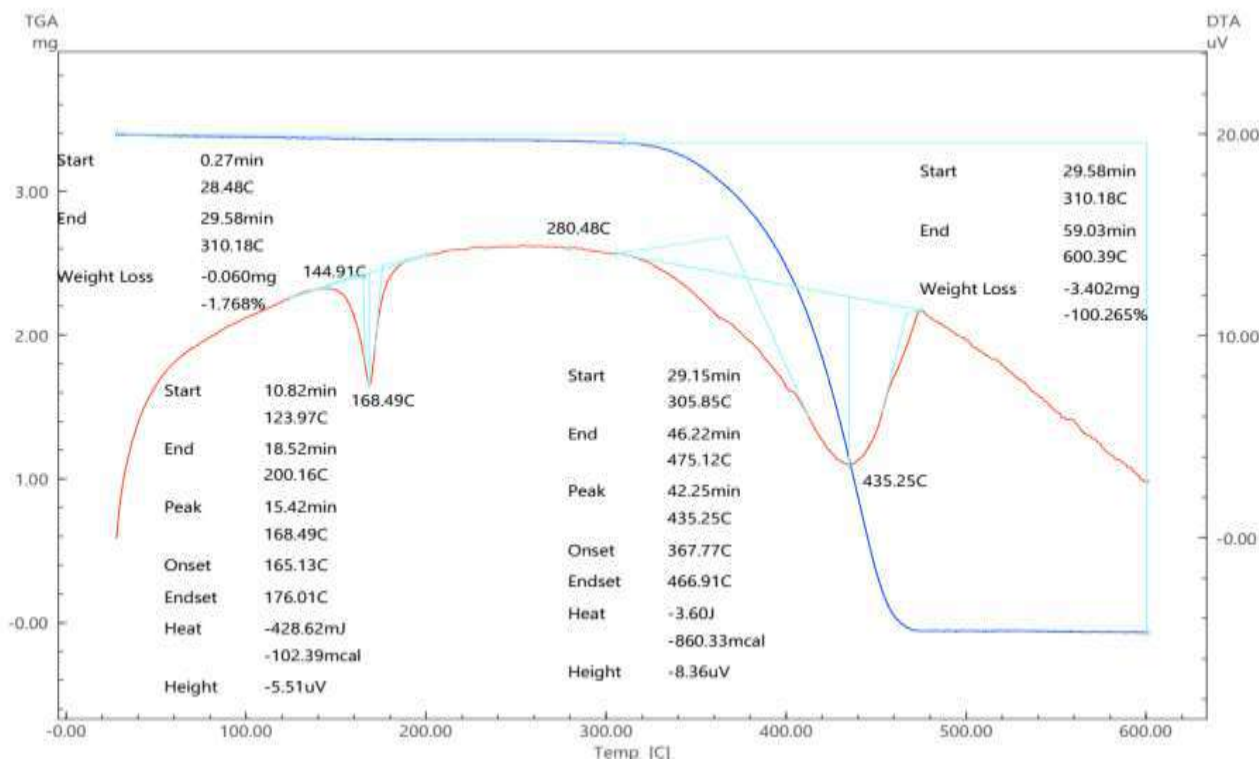


Fig.1. Thermogram of polypropylene samples with the addition of Co and Ni.

In DTA analysis of Co-Ni metals, mass loss is observed, two endothermic and two exothermic processes occurred in two areas.

In the first phase of decomposition of the substances obtained for testing, the process was initiated at 28.480 °C and a mass loss of 0.060 mg or 1.768% was observed at 310.180 °C. This is attributed to the release of nitric oxide during decomposition.

The second phase of the process was the main decomposition phase, starting at 310.180 °C and ending with a loss of 3.402 mg, or 100.265% mass, at 600.390 °C. At these temperatures, metal carbonates remain from the decomposition of metal oxides and nitrogen.

In the DTA analysis of the synthesized product, heat absorption was observed at a temperature of 168.490 °C in the first stage of the endothermic process, during which the decomposition of carbon oxides and metals was observed. In the second stage, the decomposition of metal carbonates and nitrates was observed at a temperature of 435.250 °C. When heat is released, that is, in the first stage of the exothermic process, at a temperature of 144.910 °C, nitrogen oxides are formed. The second stage of the exothermic process is observed at a temperature of 280.480 °C, which leads to the formation of urea and nitrite.

table 2

Composite based on metal oxides with SPP, TGA results

| Nº | Temperature, °C | Lost weight, mg (4.5) | Lost mass, % |
|----|-----------------|-----------------------|--------------|
| 1 | 100 | 0,060 | 1,33 |
| 2 | 200 | 1,125 | 25 |
| 3 | 300 | 2,012 | 44,7 |
| 4 | 400 | 2,896 | 64,4 |
| 5 | 500 | 3,402 | 75,6 |
| 6 | 600 | 4,215 | 93,67 |



Conclusion

Based on the obtained thermograms, the melting temperature of the composite samples and the temperatures corresponding to the maximum endothermic effect of liquefaction, the enthalpy of liquefaction, and the degree of crystallization of the composites were determined.

Based on the data obtained, it can be concluded that an increase in the order of processing polymers with metal compounds, uniformity and The mobility of structural elements leads to a decrease in the defective structure of the modified polymer and an increase in its strength, deformation, thermal stability, and thermophysical properties.

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BIOCHEMICAL PROPERTIES FEEDING PLANT LEAVES

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<https://doi.org/10.5281/zenodo.7233066>

Abstract: In this paper, a complete review of the concept of foliar feeding, when they should be, how nutrients penetrate the plant tissue, and also describes in detail some of the technical limitations.

Key words: nutrition, pesticide, top dressing, plants in nutrition, photoassimilate, pesticide hydrolysis rate, growth hormone, solution pH.

INTRODUCTION

Plants have traditionally been thought to get their nutrition through the soil, where the plant's roots are expected to absorb water and essential nutrients. However, leaf nutrition has evolved in recent years to meet the real nutritional needs of plants.

The development of pressure irrigation equipment, as in the case of drip irrigation, has contributed to the need to use fertilizers that are soluble in water, as pure and purified as possible, in order to reduce the likelihood of emitter clogging. It is unclear when foliar application began, but after the development of fertilizers soluble in water or liquids, farmers began to use them in foliar application of pesticides. Initially, this spray technology was used to correct micronutrient deficiencies, but a quick correction showed that plants can absorb some of the elements through their leaf tissue. As a result, foliar application continued to advance and evolve continuously. Foliar application is currently considered the best addition to soil fertilization to meet the nutritional needs of plants.

MATERIALS AND METHODS

Foliar application is a "workaround" approach that supplements conventional soil fertilization when they are not effective enough. Foliar fertilization overcomes the limitations of soil fertilization, such as leaching, precipitation of insoluble fertilizers, antagonism between certain nutrients, heterogeneous soils that are not suitable for low dosages, and absorption fixing reactions, as in the case of phosphorus and potassium [1-3].

Foliar feeding can be used to overcome problems with roots when they suffer from limited activity due to low and high temperatures (<10°C, >40°C), lack of oxygen in flooded fields, nematode attacks that damage the root system and reduced root activity in the reproductive stages, in which most of the photoassimilates are transferred for reproduction, leaving little for root respiration (Trobisch and Schilling, 1970). Foliar nutrition has proven to be the fastest way to eliminate nutrient deficiencies and speed up plant performance at certain physiological stages (Figure-1).





Figure-1

In conditions of crop competition with weeds, foliar spraying focuses nutrients only on those plants for which they are intended. It has also been found that fertilizers are chemically compatible with pesticides and thus cost and labor savings occur. Certain types of fertilizers can even slow down the rate of hydrolysis of pesticides and growth hormones, it is necessary to lower the pH of the solution, thus achieving efficiency gains or cost savings [4].

THE DISCUSSION OF THE RESULTS.

In the first year of vegetation, a positive effect from foliar feeding was noted in variants with urea-anthranil acid - 1.0 ml/l together with cobalt nitrate-(II) at a concentration of 0.01 ml/l

CONCLUSIONS

This article discusses the concept of plant nutrition with the help of foliar top dressing. It is obvious that such top dressings are a good and reliable method of plant nutrition when soil fertilization is insufficient and ineffective. It is important to understand that this method cannot replace the supply of nutrients through the roots, since the absorption of all plant nutrients through the leaves requires a significant investment of effort and is associated with a high risk of phytotoxicity. Foliar feeding has its limitations and in some cases can be considered labor intensive. However, over the years they have taken an important place in various plant nutrition schemes. The use of highly soluble fertilizers and purified nutrients is essential to achieve the best results with this approach.

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АВТОМАТИЗИРОВАННАЯ СИСТЕМА УПРАВЛЕНИЯ ДЛЯ ПОДСЧЁТА ЯЙЦ

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Аннотация

В работе рассмотрены и изучены методы подсчёта количество яиц. А так же были изучены технические средства автоматике для подсчёта яиц. Было составлено программное обеспечение и выбрано средства автоматике для подсчёта яиц.

Ключевые слова: технологические процессы, защита, режим, средства автоматизации, контроль, управление, программное обеспечение, конфигурация, контроллер, интерфейс.

Введение. Самыми популярными из продуктов питания всегда являются куриное мясо и яйцо. Их по праву называют ещё и социально значимыми продуктами, ведь третью часть необходимых нашему организму белков животного происхождения мы обеспечиваем именно за их счёт. В нашей стране работает не малое количество птицеводческих предприятий. Примерно четвертая часть занимается выращиванием бройлеров, и такое же количество специализируется только на яйце. Примерно 10% птицефабрик занимаются смешанным бройлерно-яичным производством, примерно столько же - племенным. На фермерские хозяйства приходится не более 15%, доля инкубаторно-птицеводческих предприятий. Естественно есть предприятия занимающиеся выращиванием других видов сельскохозяйственной птицы – таких как гусей, индюков, перепелов, уток и т.п [1].

Постановка задач. Главные селекционные признаки яичной продуктивности - масса яйца и яйценоскость. Производство куриных яиц в промышленных масштабах создали несколько операций: получение инкубационных яиц, инкубация, выращивание ремонтного молодняка, содержание курочек-несушек, производство яйца в цехах. Последним этапом идёт сортировка по категориям и упаковка пищевого яйца для отгрузки в торговые сети. Как и все коммерческие предприятия, в том числе и птицефабрики стремятся закрепиться на рынке и обеспечить себе стабильное финансовое положение [2]. Без качественного товара это невозможно. Сортировку по категориям и взвешивание яйца, а также

автоматическое нанесение на его поверхность буквенно-цифрового кода производит яйце-сортировочная машина. На этом этапе применяются следующие серии датчиков: OV A43A5 (оптический датчик с отражением от объекта, излучатель и приёмник объединены в одном корпусе) определяет наличия яйца в ячейки; OV IT61P (оптический датчик диффузного типа, излучатель и приёмник в одном корпусе) определяет наличия грохотки (коробки); OX AC42A5 (оптический датчик с отражением от катафота, излучатель и приёмник встроены в один корпус) определяет положения транспортера [3].

Подсчёт яиц разрабатывает и производит различные виды счетчиков на основе требуемой точности подсчета, способа хозяйствования и устройства птичника. Для оценки процесса производства яиц важно правильно подсчитывать производительность имеющегося поголовья [4]. Счетчик яиц ЕМЕС подсчитывает количество яиц на каждом конвейере с безукоризненной точностью, без какой-либо необходимости выстраивать яйца в один ряд или в определенном направлении. Серия ЕМЕС-30 по 75 счетчики яиц этой серии являются особенно подходящими для подсчета общего количества яиц на собирающем (аккумулирующем) яйца конвейере. Счетчики яиц этой серии могут иметь дисплей, который показывает фактическое количество подсчитанных яиц [5]. Мы также можем извлечь из дисплея информацию о количестве яиц, подсчитанных за день, за последние семь дней. Подключение нескольких счетчиков яиц в птичнике к одному компьютеру Orion позволит получить точную картину текущей производительности птиц. В зависимости от устройства птичника и количества счетчиков яиц использование программы Rainbow+ позволит собрать и вывести на дисплей дополнительные данные по управлению процессом. ORION-EGG - это компьютер для подсчета яиц, который можно использовать для одного или нескольких птичников. В зависимости от расположения счетчиков яйца можно подсчитывать по рядам, по уровням или по птичникам. Компьютер ORION-EGG может применяться в птичниках с одинарной или двойной системой подъема, с одинарной или двойной системой лифтов, а также в птичниках свободного содержания или вольерах [6]. Так как компьютер также может управлять большинством обычных систем подъема, это может привести к значительной экономии на отдельных устройствах управления системами подъема. ORION-EGG может регулировать подачу яиц, регулируя скорость яйцесборных конвейеров, для того, чтобы в систему сбора яиц поступало оптимальное количество яиц.

Постоянный поток яиц имеет важное значение для отлаженной работы по сбору яиц, поступающих на установку для упаковки яиц. Счетчики яиц ЕМЕС и



компьютер Orion с программным обеспечением для оптимизации потока яиц подсчитывают количество яиц, прошедших по боковому конвейеру за один час. Компьютер вычисляет оптимальный поток на каждом яйцесборном конвейере для того, чтобы обеспечить постоянный поток яиц к упаковщику [7]. При необходимости скорость яйцесборного конвейера регулируется автоматически. Кроме того, компьютер отметит, когда яйцесборный конвейер опустеет, и затем отправит лифт в следующее положение.

Решение задач. Видеосчетчик предназначен для автоматического подсчета яиц на конвейере в процессе яйцесбора. Архитектура системы: Основным компонентом точки подсчета является видеокамера, установленная над конвейером внутри пирамидального кожуха, позволяющего устранить влияние внешней засветки [8]. Для устранения засветки снизу используются откидные поддоны. Видеоизображение с камер через локальную сеть птицефабрики передается на персональный компьютер. На ПК специализированная программа обрабатывает данное изображение и подсчитывает проходящее по конвейеру яйцо. Данные по всем точкам подсчета накапливаются в единой базе данных (рис.1).

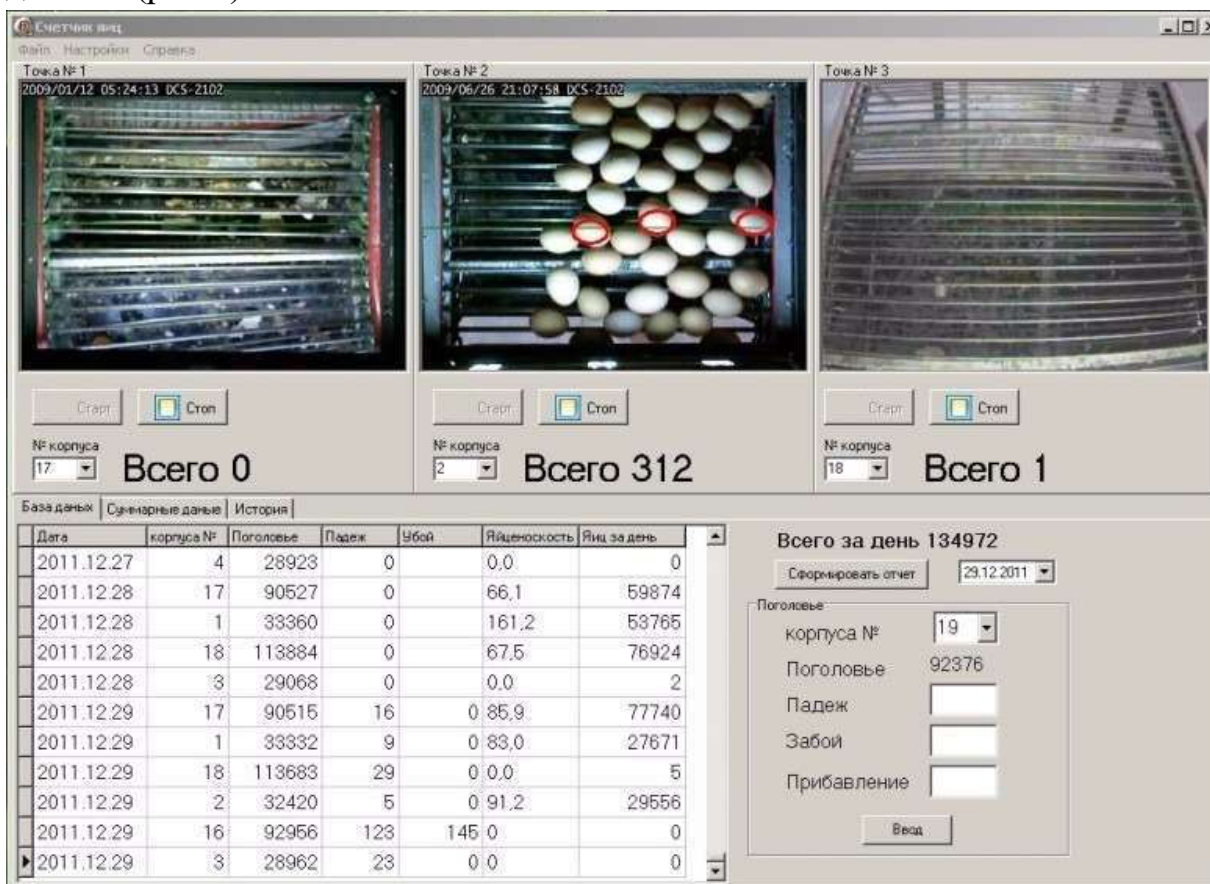


Рис.1. Программный продукт для подсчёта яиц.

Обслуживание данной системы включает в себя: периодическая чистка поддонов под конвейером; ежедневный ввод количества умершей и забитой



птицы; изменение настроек ПО при существенных изменениях освещенности в помещении [9].

Вывод. Данная разработка имеет положительные стороны и решает несколько основные вопросы: легкость в обслуживании и настройке; подключение к одному персональному компьютеру до 16 точек подсчета; возможность установки счетчиков на конвейеры различной ширины; на точность подсчета не оказывает влияние цвет и размеры яйца; сохранение результатов подсчета в единой базе данных; учет поголовья птицы в корпусах; автоматический подсчет яйценоскости; формирование и распечатка отчетности.

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THE ROLE OF STRUCTURE IN ARCHITECTURE

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<https://doi.org/10.5281/zenodo.7265047>

Abstract: The article covers is concerned with the programmatic aspects of the relationship between architecture and structure. In particular, deals with the process by which the form and general arrangement of structures for buildings are determined - with the design of architectural structures. Moreover, several fundamental issues according to architecture were discussed.

Key words: philosophical preoccupation, armature, programmatic, resolution, architectural design, space-enclosing elements, subsequent, masonry, masonry.

The architect who considers him or herself to be an artist, dealing through the medium of built form with the philosophical preoccupations of the age in which he or she lives, is surely engaged in a titanic struggle. One aspect of that struggle is the need to determine building forms which are structurally viable. All artists must acquire mastery of the technology of their chosen medium but few face difficulties which are as formidable as those who choose buildings as their means of expression. The sculptor has to contend with similar structural problems but his or her difficulties are trivial by comparison with those of the architect. The difference is one of scale - the size of a building, compared to that of a work of sculpture, means that the technical hurdle which must be surmounted by the architect is of a different order of magnitude to those which are faced by most other artists. The structure of a building is the armature which preserves its integrity in response to load. It is a bulky object which is difficult to conceal and which must somehow be incorporated into the aesthetic programme. It must therefore be given a form, by the building's designer, which is compatible with other aspects of the building's design.

Several fundamental issues connected with the appearance of a building including its overall form, the pattern of its fenestration, the general articulation of solid and void within it and even, possibly, the range and juxtaposition of the textures of its visible surfaces are affected by the nature of its structure. The structure can also influence programmatic aspects of a building's design because the capability of the structure determines the pattern of internal spaces which is possible. Its span potential will deter mine the maximum sizes of the internal spaces and its type affects the extent to which the sizes and shapes of the spaces can be varied both within an individual storey and between storeys. The relationship between structure and architecture is therefore a fundamental aspect of the art of building. It sets up conflicts between the technical and aesthetic agendas which the architect must resolve. The manner in which the resolution is carried out is one of the most testing criteria of the success of a work of architecture. This book is concerned with structural design for architecture. It complements my previous volume, Structure and Architecture, and discusses the selection of structure type, the selection of structural material and the determination of structural form.



It deals primarily with the development of the idea of the structure for a building - that first stage in the structural design process which is concerned with the determination of the elementary form and arrangement of the structure, before any structural design calculations are made. It is intended primarily for architects and it is hoped that it will enable students and members of the profession to gain a better understanding of the relationship between structural design and architectural design. The final form which is adopted for a work of architecture is influenced by many factors ranging from the ideological to the severely practical. This book is concerned principally with the building as a physical object and, in particular, with the question of the structural support which must be provided for a building in order that it can maintain its shape and integrity in the physical world. The role of the building as an aesthetic object, often imbued with symbolic meaning, is, however, also central to the argument of the book; one strand of this argument considers that the contribution of the structure to the achievement of higher architectural objectives is always crucial.

Technical issues are accordingly considered here within a wider agenda which encompasses considerations other than those of practicality. The relationship between the structural and the non-structural parts of a building may vary widely. In some buildings the space-enclosing elements - the walls, floors and roof - are also structural elements, capable of resisting and conducting load. In others, such as buildings with large areas of glazing on the exterior walls, the structure can be entirely separate from the space-enclosing elements. In all cases the structure forms the basic carcass of the building - the armature to which all non-structural elements are attached.

The visual treatment of structure can be subject to much variation. The structural system of a building can be given great prominence and be made to form an important part of the architectural vocabulary. At the other extreme, its presence can be visually played down with the structural elements contributing little to the appearance of the building. Between these extremes lies an infinite variety of possibilities. In all cases, however, the structure, by virtue of the significant volume which it occupies in a building, affects its visual character to some extent and it does so even if it is not directly visible. No matter how the structure is treated visually, however, the need for technical requirements to be satisfied must always be acknowledged. Structural constraints therefore exert a significant influence, overt or hidden, on the final planning of buildings. Information on basic forms of structure - the range of structural possibilities - is essential to the success of this process; this is provided in subsequent chapters which deal separately with the four principal structural materials of steel, reinforced concrete, masonry and masonry.

The principal forms of loading to which buildings are subjected are gravitational loads, wind pressure loads and inertial loads caused by seismic activity. Gravitational loads, which are caused by the weight of the building itself and of its contents, act vertically downwards; wind and seismic loads have significant horizontal components but can also act vertically. To perform satisfactorily a structure must be capable of achieving a stable state of static equilibrium in response to all of these loads - to load from any direction, in other words. This is the primary requirement; the form and general arrangement of a structure must be such as to make this possible. The distinction between the requirements for stability and equilibrium is an important one and the basic principles are illustrated in Fig. 1.5. Equilibrium occurs when the reactions at the foundations of a structure exactly balance and counteract the applied load; if it were not in equilibrium the structure would change its position in response



to the load. Stability is concerned with the ability of a structural arrangement which is in equilibrium to accommodate small disturbances without suffering a major change of shape.

The first of the beam/column frameworks in Fig. 1.5 is in a state of static equilibrium but is not stable and will collapse if subjected to a small lateral displacement. The insertion of a diagonal bracing element in the second framework prevents this and renders the system stable. Most structural arrangements require bracing for stability and the devising of bracing systems is an important aspect of structural design. As the simple diagrammatic structure in Fig. 1.6 illustrates, the structural elements of a building provide the link between the applied loads and the foundation reactions in order that equilibrium can be achieved. To be effective the elements must be of adequate strength. The strength of an element depends on the strength of the constituent material and the area and shape of its cross-section. The stronger the material and the larger the cross section the stronger will be the element.

To sum up, it should be noted that it is possible to produce a strong element even though the constituent material is weak by specifying a very large cross-section. In the case of a particular structure, once the requirements for stability and equilibrium have been met, the provision of elements with adequate strength is a matter firstly of determining the magnitudes of the internal forces which will occur in the elements when the peak load is applied to the structure. Secondly, a structural material of known strength must be selected and thirdly, the sizes and shapes of cross-sections must be chosen such that each element can safely carry the internal force which the load will generate.

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THE PLACE OF PRECEDENT NAMES IN UZBEKI AND ENGLISH ARTISTIC TEXTS

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<https://doi.org/10.5281/zenodo.7267411>

Abstract: The role of precedent names in the Uzbek and English literary texts are analyzed in this article.

Key words: onomastic units, language poetics, language culturology, antraponomial, toponyms, zoonyms, analytical method.

As we all know, there are various means of creating an artistic text, which bring the text to life in all its aspects. It should be said that the means of forming the artistic text are considered different, and among them precedent units have a special place. What is a predicate unit?

Precedent unit is a tool that exists in the linguistic memory of these people as a language unit, and is repeatedly referred to in the formation of an artistic text. To determine the precedent units, it is necessary to work with the context, the meaning obtained from it serves to clarify the precedent units. One type of precedent unit is precedent nouns. Precedent units are one of the main objects of study of linguo-cultural studies, which is one of the leading directions of language system research. Personal names, stable phrases, sentences, and texts that are well known to the speakers of a certain language and are stored in their linguistic memory, are repeatedly referred to in their speech activity, are recorded as precedent units. In his research on intertextuality, N. Pego-Gro divides precedent units into four:

1. *Quote;*
2. *Reference;*
3. *Extract without quotes;*
4. *Allusion.*

Precedence is related to the concept of intertextuality, or rather, it is a phenomenon included in it. Precedence is one of the manifestations of intertextuality, and it is characterized by the fact that it is well known to the main layer of language speakers and is used repeatedly in speech. Among precedent units, precedent names have a special place. According to V.A. Maslova, personal names associated with well-known texts or events can be precedent names. A writer can create a text using only one precedent name tool. For example: Ali Baba is the name of the hero of the tale "One Thousand and One Nights". The name of the hero of the fairy tale repeated in the poem does not require any further explanation as it is a precedent name. It is easily understood by the reader. This anthroponym served to form the intonation structure of the poem. At the same time, he created multi-layeredness based on intertextuality. *Ali Baba*, There are still people in this world, Bob. Let the human bird look for the good ones, get used to the bad ones and sometimes make mistakes, make mistakes! (*A. Abidjan. Grandfather Ali*).

Precedent nsoms are different according to the motive of appearance. They can be related to artistic texts, religious texts, famous and interesting events, legends, narratives, fairy tales,



anecdotes, songs, and movies. For example, names such as *Layli*, *Majnun*, *Shum bola*, *Sotti*, *Nasriddin Efandi*, *Khizr*, *Karabotir*, *Tahir-Zuhra* are popular among Uzbeks. Precedent names can be connected with the national mentality of representatives of a certain nation, but also of a global nature. For example, an Uzbek student can easily understand the content of texts with names such as Napoleon, Columbus, Buratino, Charlie Chaplin, Othello, Don Juan, Robinson Crusoe, Jackie Chan, and Mr. Bean. An important psycholinguistic feature of precedent names in a literary text is that they require the actualization of non-textual meaning in the mind of the reader of the text, that is, additional information related to the text, but not included in its verbal structure. It is important for the reader to know the importance of non-textual meaning in the pragmatic structure of the text. For example: Gulliver is the hero of Jonathan Swift's *Gulliver's Travels*. A dwarf man. In the poem, the lyrical hero writes that he fell into the land of dwarfs in a dream. It has a figurative meaning. That is, under the pretext of saying that it is difficult to live among small people, small-talking people are condemned. That's the point - I was Gulliver in my dream and fell into the pits, but I didn't go away because of them, I died and woke up, my husband... (*B.Isu. I was Gulliver in my dream...*)

We will cover the precedent names in more detail with examples. *JAYHUN* is one of the ancient names of Amudarya. The Jayhun hydronym was used in poetic texts instead of the name Amudarya and was a tool for creating a high poetic style. Also, the archaic hydronym of Jayhun creates in the reader's mind the association that Amudarya is an ancient river. This is how Jayhun is beating down below, and night is falling on the bosom of Sahara. (A. Oripov. August). You waved like a river of Jayhun... You are a jewel in my heart, Motherland. (*M. Ollomurodov. Motherland*). The flowers opened like the expression of longing, the winds of Esar Jayhun like the performance of flower girls. (S. Sayyid. Esar Jayhun winds). We will also give examples of precedent names from world literature. *COLUMBUS* Christopher Columbus (1451-1506) was a Spanish explorer who discovered America for Europeans in 1492. Referring to this meaning through the name of Columbus caused the emergence of metaphorical imagery in the artistic text.

Sharia! This belief is unrelentingly repeated, dragging me towards mysterious discoveries. The flag of my loyalty to you is that, every time, in every poem, every time I kick my heart, if I am in my own heart, Columbia. (O. Matjon. Poetry). And suddenly you notice: not people, but ships are sailing across the street - they are going to open America, not to the office, not to the pub. You want to shout and congratulate them, And suddenly you realize: You are also a Columbus. (U.Azim. Kolumb). The cited examples show that the precedent phenomena existing in the linguistic consciousness of Uzbek and world language speakers have created a unique microsystem in the language system.

As a conclusion, we can say that precedent names, which are considered a certain type of precedent units, are used in the text, together with references to historical and famous persons, they contribute to the more impressive and meaningful output of the text. Whether they are concrete or abstract depends on the discretion of the author, and it is appropriate for poets to comment on unknown precedent names.

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EFFECTIVE WAYS OF GIVING STUDENTS AN UNDERSTANDING OF MUSIC CULTURE

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<https://doi.org/10.5281/zenodo.7267434>

Abstract: In this article, opinions are given about effective pedagogical methods of raising students' understanding of musical culture and musical art.

Key words: Student and teacher, educational system, pedagogy, musical culture, K.D. Ushinsky.

Our great ancestors mentioned in their works that the role of music is important in the formation of perfect personality and human intelligence. The scientific and educational importance of the art of music culture education is highly appreciated among the specific "subsidiaries" of this field. That is why scholars who have gained worldwide recognition in the field of science, culture and art (Abu Nasr Farabi, Abdul Qadir Maroghi, Al Kindi, Abdurrahman Jami, Ibn Sina, Darvesh Ali Changi, Alisher Navoi) also in the field of science, they looked at it with special respect as both art and a means of education, and created large works and treatises on its various problems. These works, as the historical basis of musical-theoretical knowledge, have not lost their scientific and educational prestige even today. However, as in any field, there are modern requirements for the formation of a person in musical education, which is on the agenda as an order and need for education of every social era.

Singing in music classes not only has a positive effect on children, but also effectively affects the formation of their musical taste and musical outlook. Therefore, the complex of musical knowledge provided in the appropriate content and methodology will cultivate a stable interest in music in children, and the main thing is that they learn to distinguish between good music, genres, folk and classical music.

The results of the research conducted in the Lola preschool in Karshi showed that children began to sing, listen to music, and learn about the lives of composers with interest. Even the children who were indifferent to music lessons at first, eventually started coming to music lessons in high spirits, with the intention of learning something new. Children's interest and desire for various activities within the Music lesson increased. Many children have developed the skills to listen to music, sing songs, perform rhythmic movements in a literate, i.e., consciously approach.

Formation of skills in children to analyze the means of expression and form of a musical work has formed in them the skills to freely express their thoughts. The use of new pedagogical technologies in music training has increased children's interest in musical knowledge, including musical literacy. Children can easily solve musical puzzles, know notation, understand sound and its properties, and have a clear understanding of the means of musical expression.

Experiments have shown that the effectiveness of training depends on their proper organization. The "language" of music is understandable and close to everyone. Therefore, it is



an invaluable helper in shaping the young generation as a person, along with raising the spirit of people, giving joy and pleasure. Singing activities Music plays a leading role in children's education. This type of activity is close and understandable to children compared to other types of activity. Children love to sing. Singing is the leading activity of children's performance, and it occupies an important place in the musical and aesthetic education of children. A good song makes a child happy, develops and educates in all aspects. Unlike musical instruments, singing has a strong emotional impact. Because the song shows the artistic unity of text and music. Singing has a comprehensive effect on the development of a child's personality. The song serves to increase a person's intellectual maturity, expand his worldview, and enrich his imagination about the world around him.

In the process of singing, they perceive music more deeply, express their experiences and feelings more actively. The text of the song helps children understand the content of the music and learn the melody more easily. Children perceive better a melody performed by voice than a melody performed on an instrument. In the process of singing, children develop musical abilities: musical hearing ability, musical memory, sense of rhythm, and singing develops musical abilities: sense of meter and rhythm, musical hearing, sense of rhythm. The activity of singing in a group is necessary for the development of children's musical ability and performance skills. In the process of singing as a group in a group, the child tries to control his own voice performance, hear and observe the performance of his teachers and accompany them together, the feelings of collective unity, organization, and mutual friendship are cultivated.

It has been proven in practice that learning songs helps to form not only musical literacy, but also musical worldview, musical taste, musical thinking and similar qualities. From the first days when children come to preschool educational institutions, they have a high desire and interest in art, especially music. Therefore, special attention should be paid to the formation of children as individuals in music classes. It depends on the knowledge and creativity of the leader as a specialist, a master of his field.

Singing gives children a cheerful mood. It develops children not only mentally but also physically. Because when a child sings, his mouth, nose, respiratory tract, chest, and in general all his organs are active. During singing, the child should sit upright and freely. Education of singing skills in preschool children. In the process of singing, the respiratory tract also develops.

In the process of singing to children, attention is paid to the text and melody when the text and music are in harmony. In the song, the text and the musical melody are combined, having an emotional effect on the listener and evoking various feelings. This sensitivity is of great importance in child education. Even if the child does not understand the meaning of the song, even if he does not understand its content and music, he expresses an emotional reaction to the child from a young age. As the child develops, his speech and life skills help him to understand the song as a whole.

The process of singing unites children with a common mood, they learn to work together. They hear their comrades hurrying or lagging behind and call them to sing at the same pace. Singing is the main means of musical education. It is very close for children compared to other activities. By singing, they perceive music more actively. The text of the song helps to understand the melody of the song. In singing activities, children's musical abilities develop, as well as hearing memory and a sense of rhythm. Singing develops children's speech. When



singing as a group, the melody has a stronger effect on the child than the text. As K. D. Ushinsky noted: "In the song, especially in the choral group, there are emotions that educate the soul and bring it to jumbush»¹.

In many cases, we can observe a boy walking and singing a march, and a girl holding a doll. A child's voice is a natural instrument, because this instrument is present from a young age. That's why it accompanies him throughout his life and is used in various games. In addition, the song is used in other activities of the child's life. For example, when dancing, singing, playing children's instruments. Improvement of hearing ability develops from a young age of children. They hear the song, tune or melody when the music director or teacher sings it and sing it accordingly. Younger children can listen to songs between 2-3 notes. Children listen to adult tunes and then they try to sing the same tune as adults. In preschool children, the voice apparatus is not fully developed (vocal chords are not developed, thin, breath is weak, etc.). As the child develops, the body and singing organs also improve. A preschooler's voice will not be bright enough.

A child's natural voice is re 1 - si 1, that is, when the child sings higher and lower notes, the sound can be strained and compressed. This can cause damage to children's vocal cords. In order to avoid these problems, it is necessary to choose a well-thought-out and well-targeted repertoire. We focus on the range of singing.

Age Range

2 - 3 years old mi 1 - la 1

3-4 years re 1 — la 1

4-5 years re 1-si 1

5-6 years re 1 — si 1 (do 2)

6-7 years do 1 (re 1)-do 2

The given table contains the lower, upper and working range of children's voices. What should be considered when teaching children to sing and choosing a repertoire? Each song is selected with a view to the implementation of certain pedagogical goals. In it, each new song strengthens and develops the singing skills developed from the previous one. The diatonic of the song should be suitable for children's voice, artistic content, children's outlook and age.

It is recommended to choose songs according to the following requirements:

- ❖ *Appropriateness of the song's educational value, ideological content, musical structure and character to the age of the children.*
- ❖ *The simplicity of the song's text, its artistic quality, its compatibility with children's vocabulary, and the fact that it serves to develop their speech and thinking.*
- ❖ *The tone of the song, its character (cheerful, cheerful, march, melancholy, sad, festive, upbeat), key and tessitura, voice range should be suitable for the age of the children.*
- ❖ *Artistic features and expressiveness of the song, compatibility with children's perception, harmonic structure and melodiousness.*
- ❖ *The form of the song (1, 2-part or couplet) presence of refrain.*

When choosing a song, children are told a short, meaningful, figurative and interesting story. It inculcates the ideas of morality, nature, Motherland, and love in the minds of children and arouses interest in them. After the song is learned perfectly, their interest increases even

¹ Ushinskiy K.D. tom, publish. —M.: L., 1998.



more. Also, changing the forms of training (non-traditional training) prevents children from getting bored during training and keeps them interested.

Children are expected to learn 10-12 songs during the year. Tasks to achieve this: formation of pure intonation and singing skills in children; singing to children alone and with a tutor, performing in a cappella style; to develop the ability to hear music, the pitch of the melody, their length, the direction of the melody, the ability to hear oneself (when singing), the ability to hear one's mistakes during performance; voice development, achieving natural performance; to develop children's creative skills, to use their songs in choirs and games.

Singing skills In order for a child to sing properly, it is necessary to develop singing, vocal-choir skills. Singing skills. This is singing in the right position. In the process of singing, the child should sit leaning on the back of the chair instead of lifting the body. His hands are placed on his knees.

Vocal skills. This is voice production, breathing and diction. Breath should be short, light and noiseless. The words are pronounced clearly and burro.

Choir Qualifications. This is the interdependence of ensemble and structure. "Ensemble" is a French word that means "harmony" (slitnost), that is, a combination of strength and volume of voices. In this process, we need to achieve unison singing and timbre alignment.

Development of singing skills. Singing skills develop in the process of memorizing and teaching songs. Skill develops as the piece becomes more complex. In the process of education in kindergarten, he should know: Small and middle group - the music leader should be able to sing simple, uncomplicated songs with the help of a musical instrument. A large group - sings without an instrument only with the help of a music director or without a music director to the accompaniment of a musical instrument, must be able to distinguish the pitch and length of sounds, sit straight, upright, shoulders raised while singing.

Preschool preparatory group - can sing a memorized song expressively, remember to sing a previously memorized song, can hear the children next to him during the singing process, and the disadvantage - he can correct his mistakes, distinguish between up and down movement of sounds, must know the short length of the notes and the names of the notes.

Methods and ways of teaching to sing a song. Before teaching a song to children, the music director should introduce the song, tell about the composer, the text, the content of the work, in a word, the children should learn this song. is to arouse their interest in learning.

Song difficulties and ways to overcome them:

- ✓ *There are many jumping movements in the song. These are difficult for children to sing. Therefore, it is necessary to pay special attention to pure singing.*
- ✓ *Dotted rhythms are widely used in the song and they should be pronounced clearly.*
- ✓ *League notes. Such notes are mostly found at the end of sentences, and it is necessary to achieve correct and pure singing.*

The influence of the family environment on the formation and development of a child's personality is very large. The most important individual characteristics of a child are formed under the influence of the existing social and psychological environment in the family. The desire for the melody of the song is developed in the mind of the child through the mother. The relationship between parents and family members, and the relationship to art and musical culture play an important role in this. That is why it is not for nothing that family education is considered at the level of state policy in our Republic.



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CHARACTERISTICS OF DEVELOPMENT OF CHILDREN WITH HEARING IMPAIRMENT

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<https://doi.org/10.5281/zenodo.7269729>

Abstract: The article describes the characteristics of children with hearing impairment, ways and methods of early development. The importance of starting education early, as well as information about the main rules that parents should know about the preschool education of children with hearing impairment.

Key words: Phonetics, communication, speech, intellectual, skills, dactyl speech, deaf pedagogy, character, perception

It is very important to start teaching children with hearing loss early. Pre-school age is an important, one might say, decisive stage in a person's life. During this period, basic habits and skills are formed, character is defined, that is, the foundations of the whole future life are built. At the same time, in the history of deaf pedagogy, there are many examples of people with congenital hearing impairment reaching a very high level of development, communicating freely with hearing people and even learning foreign languages. This was not a miracle. Daily, hourly work, will, faith in success, patience, gentleness, responsibility and love shown by parents and pedagogues allowed these people to achieve so much. There are many examples of people with congenital hearing impairment who have acquired various labor skills even without receiving special education, being illiterate or having low education. Many of them worked in various enterprises, earned the respect of the country, and were awarded state awards. There are people with hearing impairment who have received higher education: engineers, teachers, artists, sculptors. An analysis of cases of high mental development of people with hearing impairment shows that almost always this is the result of early initiation of education. Although the general directions of development of hearing and hearing-impaired children match, deaf and hard-of-hearing children need to be educated in a special school. Deaf and hard of hearing children have a number of characteristics. Them:

- insufficient development in terms of visual perception, including low speed of perception and recognition of objects;
- slow development of imitation, as well as difficulties in choosing an example;
- there is a lack of speech and a deficit of pre-speech communication.

All of the above causes lag in the development of cognitive activity and logical thinking. It is for this reason that it is necessary to pay great attention to the mental education of children with hearing impairment.

A number of tasks of mental education of preschool children can be distinguished:

1. Forming ideas and concepts about the environment.
2. Development of psychological processes of knowledge.
3. Formation of primary methods of intellectual activity.
4. Formation of oral speech.



All the listed tasks should be performed in the process of play, special training and work. Many philosophers and scientists have commented on the importance of early education. Researches of psychologists also prove that goal-oriented, that is, specially organized education from the first days of life is of great importance for human development.

That is why preschool education is considered the first link of the general system of public education, including education of children with hearing impairment. Preschool education is of particular importance for deaf and hard of hearing children, because the difference between hearing and deaf children is not so noticeable in the first period, until about one year of age, until the child's language emerges. Gradually, as the hearing child acquires speech, this difference increases. A child with a hearing impairment does not begin to speak, and his development goes without language, his speech is limited, it is impossible to tell or explain something to the child. He should be specially trained to speak and understand speech. Therefore, the earlier the child is taught to speak, the smaller the difference in his development with the hearing child and the more opportunities for further education. In the kindergarten, deaf teachers and educators teach him everything they teach a hearing child of his age: drawing, gluing, building, counting and even dancing. Like all children, he is taught to work hard, to be neat and polite. In this, many vitally important concepts and skills, which are formed at an early age and are a direct result of education, such as mine-ours, possible-impossible, true-false, begin to be formed.

Teaching a hearing-impaired child to speak is not only teaching him to pronounce sounds, although this is unique in the education of a deaf child and requires special skills, but the main thing is to teach him to understand the content of speech and to use oral speech in communication. , teaching the speaker to understand and speak intelligibly based on the movements of the lips.

It is possible to educate children with hearing impairment at home, but this requires the additional participation of a specialist and requires parents to know the main features of the development and upbringing of a deaf or hard of hearing child, even if the child is placed in a special institution. Parents of a hearing-impaired child need to acquire elementary knowledge of education in order to prepare the child for a special preschool educational institution. For example, the diagnosis is made, there are five months until kindergarten. What if the child gets sick? What if the family is in a remote area with no preschool for deaf children?

Education cannot be delayed. Because, during this period, with every word that a hearing child hears and remembers, the difference between a hearing-impaired child and a hearing child increases.

In order to properly approach the child's education and upbringing, it is necessary to learn the principles of education that form the basis of the recommendations of experts. After mastering them, it will be possible to consciously follow these recommendations in accordance with the child's individual characteristics and living conditions.

Parents should know three important preliminary rules for preschool education of hearing impaired children.

The first. A child with a healthy hearing has no less intellectual development opportunities than a hearing child. Love, combined with a high level of demand and qualified education - these are the conditions that make it possible to realize these opportunities. Believing in success, being able to nurture this belief in a child is an important factor in helping a child



with a hearing impairment to be happy and not to feel his own disability, at least not to suffer from it.

The second. The general issues of education, the education of his feelings, behavior are not secondary to special education, but form the basis of special education. After all, a child, first a child, and then a child with a hearing impairment. It should not be forgotten. his spiritual image, upbringing of his personality - this is the main aspect that determines every situation of special education. In this case, it is necessary to approach the upbringing of the behavior of a child with a hearing impairment in the same way as the upbringing of the behavior of his hearing peers.

The third. It is necessary to use all means to protect the child from being dumb, to teach him to communicate with others. One of the increasingly effective and convenient means (for parents) of teaching a hearing-impaired child is dactyl (finger) speech. He had a hearing impairment at a young age it is widely used in teaching children.

What is digital speech and what is its role in education? The need to use this unusual form of speech in teaching children with hearing impairment is often the cause of objection and opposition from parents.

Dactyl speech is a powerful tool for teaching children with hearing impairment, it can multiply the vocabulary and the quality of speech acquisition, as well as the general level of development of children with hearing impairment. Parents and other people raising children with hearing impairment not only to use it correctly in communication with the child, but also to those whose thoughts, or rather, the judgments they make knowingly, give halal to the full-blooded upbringing of the child. To explain its importance, they must understand the importance of dactyl speech.

Formation of speech is a multifaceted process. It is necessary to develop its various forms, first of all, oral speech, which forms the basis of communication. Formation of pronunciation skills in deaf and hard-of-hearing children is carried out first of all in the form of imitation of an adult, using hearing aids. Activation of the baby's sound reactions is carried out in the process of conducting exercises aimed at supporting these reactions and creating new sounds. These exercises are carried out in the process of communication, when an adult "talks" with a child using various sounds and sound combinations, using them together with gymnastic elements. An important task of working on oral speech of a one and a half to two-year-old child is to form the need for oral speech in the child. Therefore, during games and household activities, an adult names objects, events, toys, actions, and encourages children to imitate their names as much as they can. The most important thing is that the child tries to pronounce sounds, syllables and words following the adult. Imitation of speech is inextricably linked with imitation of actions. Therefore, it is necessary to pay special attention to teaching imitation of body movements. As the child learns to imitate adults, he completes the movements with sounds, syllables, and pronunciation of words. From this period, phonetic rhythmic training begins. Phonetic rhythmicity is one of the main methods of working with children of pre-school age and preschool age on their pronunciation.

Children are taught to react and understand various household noises, natural sounds, and traffic signals at the same time with special exercises aimed at developing auditory perception. Listening to audio recordings also helps in the development of auditory perception. An adult moves with the child to the beat of the music, encourages the child to perform dance movements.



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HAZARDOUS HYDROMETEOROLOGICAL PHENOMENA AFFECTING THE OBJECTS OF THE NATIONAL ECONOMY AND RAIL TRANSPORT

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<https://doi.org/10.5281/zenodo.7273548>

Annotation

This article discusses the issue of hydrometeorological phenomena affecting the objects of the national economy and railway transport. Next, the issue of precipitation is considered as a source of water resources in the region, largely determining the nature of natural landscapes and water availability of agricultural production. The distribution of precipitation over the territory of Uzbekistan depends on the geographical location of the area, relief and features of atmospheric circulation.

Keywords

Weather, temperature, precipitation, frost. precipitation, mountain places, mudslides, landslides, climatic conditions.

Hazardous weather phenomena include meteorological situations in which individual elements of the weather deviate significantly from the average values. Hazard criteria, of course, are different for different types of activities and even their stages. Thus, in the agricultural production of Uzbekistan, for some cultivated plants, air temperatures below -10°C at rest, below 0°C (frost) - at the beginning of the growing season and the final phase of crop ripening, $+39-40^{\circ}\text{C}$ - throughout the growing season. For other plants, these boundaries may be different.

However, some phenomena are always considered particularly dangerous. This is an air temperature above 45°C and below -20°C , drought, low air temperatures and frosts, wind with a speed exceeding 15 m/s , precipitation with a semi-daily amount of 15 mm or more, dust storms and fogs with low visibility, etc. To hydrometeorological hazards formed under the influence of climatic factors, affecting the underlying surface, include snow avalanches, mudflows.

Accounting for such phenomena and the adoption of adaptation measures that contribute to the reduction or reduction of the damage caused by them is necessary to ensure the functioning and sustainable development of agriculture and industry of the republic.

Hazardous meteorological phenomena (heavy precipitation, hail, fog, dust storms)

Precipitation are a source of water resources in the region, determining to a large extent the nature of natural landscapes and the water supply of agricultural production [2]. The main amount of moisture is brought by air masses from the Atlantic Ocean, the Mediterranean Sea and the Persian Gulf [1, 2]. The moistening effect of the Aral Sea is



limited to

a narrow coastal strip and continues to decrease with the reduction of its area. Most of the flat arid areas, especially in the west. On average, from 80 to 250 mm falls here annually.



Figure 1. Impact of strong mudflows on the railway (Angren-Papal direction of the railway)

In the foothills, their number varies from 100 to 500 mm. There is more precipitation in the mountains: on the windward slopes of the Western Tien Shan at high altitudes, their annual amount exceeds 2000 mm. A lot of precipitation also falls on the windward slopes of the Zeravshan Range (at Amankutan station - 960 mm/year).

The most important characteristic of precipitation is its intra-annual distribution. In Uzbekistan, the maximum precipitation occurs in March-April and the minimum - in the summer months. A consequence of very dry and hot summers is that most crops need to be cultivated only on irrigated land.

Liquid precipitation are possible on the territory of Uzbekistan all year round, but in the mountains their number rapidly decreases with height due to an increase in the amount of solid precipitation (snow). Snow falls on the plains and in the foothills from October to April, in the south of the republic - from November to March, and in the mountains, at altitudes of more than 1000 m - from October to May.

Snow cover on the plains of Uzbekistan, they form at the end of November, in the southern regions - in the third decade of December, a stable snow cover that persists for at least a month with interruptions of no more than three days is regularly observed only on the Ustyurt plateau and in mountainous regions. The average number of days with snow cover in the north of Uzbekistan exceeds 60, and in the mountains - 100. The timing of the appearance and disappearance of snow cover and the duration of its occurrence vary from year to year, and the average height of snow cover on the plains is 1-8 cm, the maximum is about 30 cm, in the foothills - 10-20 and 60 cm. In mountainous areas, the average snow depth exceeds 60 cm, and the maximum is 1.5-2.0 m.

Snowstorms have a significant impact on the spatial redistribution of snow cover, especially in mountainous areas. Both snow that fell (deposited) earlier and formed in clouds and has



not yet

reached the Earth's surface can participate in the formation of blizzards. A favorable factor for the occurrence of a snowstorm is freshly fallen snow at an air temperature of at least -5°C, and mandatory - wind at a speed of at least 6-8 m / s. Snow that has lain for several days, especially during thaws, which are frequent in Uzbekistan, is inactive.

On the flat and foothill territory of Uzbekistan, snowstorms are not so common, which is associated with the occurrence of a slight snow cover. Naturally, they are most often observed in the north of Uzbekistan: on the Ustyurt plateau, for example, the maximum number of days with a snowstorm reaches 20, with an average long-term of 7 cases per year. In the southern regions, snowstorms do not occur annually - 1-5 times per decade.

In the Ferghana Valley at altitudes of 500-1500 m a.s.l. blizzards occur only 1-4 times in 10 years. And only in its westernmost part, where the frequency of strong winds is increased, the number of days with a snowstorm increases on average up to 2-3 times a year.

In mountainous areas, starting from a height of about 1500 m, a stable snow cover is formed annually, therefore, the number of days with a snowstorm increases. First of all, this applies to passes and open windward slopes. In the high-mountainous part of the Surkhandarya region, their annual number reaches 36, with an average long-term - 11, and in the mountains of the Western Tien Shan - up to 30 (on average - 19-20).

Dangerous it is customary to consider precipitation, the amount of which in 12 hours or less exceeds 15 mm with rain and 7 mm with snow over 30% of the territory. The corresponding criterion for especially dangerous precipitation, which is considered as a natural phenomenon, is considered to be 30 mm in rain and 20 mm in snow over the same period.

- On the flat territory of Uzbekistan, heavy precipitation (30 mm / 12 hours or more) was practically not observed - absent or single cases were noted in November-February in Karakalpakstan, Khorezm, Bukhara, Surkhandarya provinces and the north of Samarkand province.

- Precipitation of 15 mm/12 hours and more rarely occurs in Karakalpakstan, Khorezm and Bukhara provinces. As the mountains approach, their probability increases and depends to a large extent on the exposure of the slopes in relation to moisture-bearing flows [1].

- An increased frequency of heavy precipitation is observed at the foothill and mountain stations of the Tashkent, Samarkand, Jizzakh and Kashkadarya regions.

- There are four areas with a relatively high frequency of heavy precipitation [1]:

river valley open to the west. Chirchik, where the maximum average frequency of heavy precipitation is 2-3 cases (half a day) per year;

river valley open to the southwest. Akhangaran with a maximum average frequency of 3-6 cases per year;

western spurs of the Hissar Range (Kashkadarya region) with a maximum average frequency of 1-3 cases per year;

western spurs of the Zeravshan Range (Samarkand region, Amankutan region), where the maximum average frequency reaches 5 cases per year (Table 1).

Long heavy rains and short-term downpours impede traffic, washing away roads and runways at small airfields, and sometimes destroying buildings. In addition, they are the cause of another dangerous phenomenon - mudflows. Large snowfalls create additional



loads on

structures and complicate the work of transport, are the cause of the formation and avalanches.

Icy frost formations – deposition of atmospheric ice on tree branches, wires of power lines, on the surface of structures, on road surfaces, airfields, etc. These deposits can reach large sizes and cause damage to various sectors of the economy. The deposition of ice on the soil surface and shrubs interferes with the extraction of food by animals, branches of ornamental and fruit trees break under the weight of ice. Icing of power transmission wires leads to their breakage and breakage of supports.

Table 1.

Number of days with precipitation of 15 mm or more in 12 hours (1961-2016)

| Station | Months | | | | | | | | | | | | Year | Average annual for 1961-2016 |
|--------------|--------|----|-----|----|----|----|-----|------|----|----|----|-----|------|------------------------------|
| | I | II | III | IV | V | VI | VII | VIII | IX | X | XI | XII | | |
| Kungrad | 1 | 0 | 7 | 7 | 6 | 5 | 1 | 0 | 0 | 1 | 2 | 1 | 31 | 0,8 |
| Nukus | 2 | 0 | 6 | 2 | 6 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 19 | 0,5 |
| Urgench | 0 | 1 | 6 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 18 | 0,4 |
| Chabankazgan | 0 | 1 | 3 | 2 | 3 | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 14 | 0,3 |
| Kulkuduk | 0 | 1 | 1 | 5 | 2 | 2 | 0 | 0 | 0 | 0 | 1 | 2 | 14 | 0,3 |
| Tamdy | 1 | 3 | 5 | 6 | 3 | 0 | 3 | 1 | 0 | 1 | 1 | 2 | 26 | 0,6 |
| Nurata | 4 | 5 | 17 | 19 | 12 | 1 | 2 | 1 | 0 | 3 | 5 | 5 | 74 | 1,8 |
| Navoi | 2 | 5 | 11 | 9 | 8 | 0 | 1 | 0 | 0 | 0 | 2 | 3 | 4 | 1,0 |
| Bukhara | 2 | 5 | 9 | 8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 30 | 0,7 |
| Karshi | 8 | 6 | 22 | 17 | 8 | 1 | 0 | 0 | 0 | 2 | 7 | 7 | 78 | 1,9 |
| Samarkand | 7 | 5 | 25 | 28 | 18 | 1 | 1 | 0 | 1 | 12 | 12 | 14 | 124 | 3,06 |
| Jizzakh | 10 | 16 | 30 | 30 | 21 | 2 | 2 | 0 | 1 | 21 | 25 | 20 | 178 | 4,3 |
| Syrdarya | 8 | 9 | 17 | 17 | 15 | 2 | 0 | 0 | 0 | 11 | 8 | 18 | 105 | 2,6 |
| Yangier | 8 | 8 | 13 | 27 | 12 | 2 | 1 | 0 | 1 | 9 | 11 | 9 | 101 | 2,5 |
| Tashkent | 12 | 25 | 41 | 34 | 22 | 3 | 1 | 0 | 1 | 16 | 19 | 28 | 202 | 4,9 |
| Pskem | 40 | 45 | 64 | 69 | 45 | 9 | 7 | 4 | 8 | 68 | 77 | 68 | 504 | 12,3 |
| Oygaing | 9 | 22 | 37 | 51 | 31 | 19 | 10 | 7 | 11 | 53 | 35 | 32 | 317 | 7,7 |
| Kyzylcha | 42 | 52 | 58 | 77 | 42 | 10 | 8 | 4 | 9 | 52 | 61 | 65 | 480 | 11,7 |
| Kamchik | 7 | 14 | 20 | 27 | 17 | 4 | 3 | 4 | 5 | 19 | 22 | 18 | 160 | 3,9 |
| Kasansay | 1 | 0 | 3 | 3 | 3 | 2 | 4 | 0 | 0 | 7 | 2 | 2 | 27 | 0,7 |
| Fergana | 4 | 3 | 4 | 2 | 2 | 2 | 3 | 0 | 2 | 9 | 3 | 0 | 34 | 0,8 |
| Sarykanda | 2 | 2 | 5 | 15 | 21 | 8 | 5 | 2 | 5 | 5 | 5 | 2 | 77 | 1,9 |
| Minchukur | 33 | 42 | 95 | 73 | 38 | 8 | 5 | 1 | 0 | 15 | 30 | 52 | 392 | 9,6 |
| Termez | 0 | 2 | 10 | 5 | 4 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 24 | 0,6 |



Thunderstorms and hail fall are also hazardous weather phenomena. On the territory of Uzbekistan, thunderstorms are observed mainly in May-June, less often in autumn. On the plains, their number decreases from north to south. So, on the Ustyurt plateau, the annual number of days with a thunderstorm is on average 7-10, and in the southern regions of the Kyzylkum desert - 4-6. In the foothills, on average, from 10 to 20 days with a thunderstorm are observed per year, in mountainous areas at altitudes of 1000 m or more - up to 30. In some years, the number of days with a thunderstorm can increase significantly: on a flat territory - up to 20-24, in foothills - up to 30 days per year. The most frequent thunderstorms in the low-mountain zone - on the windward slopes of the Western Tien Shan - 40-50 per year.

The average duration of a thunderstorm varies from 0.1 to 2.5 hours, but sometimes the duration of thunderstorm activity reaches 8-17 hours on the plains and 18-22 hours in mountainous areas.

A direct lightning strike on ground objects causes fires, electrical discharges disrupt radio communications and damage power lines. Thunderstorms pose a great danger to people and animals in open areas.

Hail usually falls along with heavy rain, sometimes accompanied by squally winds and thunderstorms. On the flat territory of Uzbekistan, hail rarely falls: in 10 years it is possible from 1 to 6-7 days with hail. In the foothills, on average, 1-2 hail days are observed per year (Table 2). In the low-mountain zone (1000-2000 m) it falls on average 3-5 times a year.

On the plains and foothills, the duration of hail usually does not exceed 15 minutes, however, cases have been recorded when hail fell within 45 minutes.

In the mountains, the average duration of hail falls increases to an hour or more. The area of distribution of individual cases of hail, as a rule, is small, but occasionally it can cover a large area at the same time. The degree of damage from hail (in which agriculture is damaged) depends on the size of the hailstones, their density, intensity of fallout, as well as on the type of crops. For example, young cotton seedlings are affected by moderate to severe hail with a diameter of 6-8 mm, while sunflowers, corn and orchards are affected by hail over 10 mm in diameter. Cattle die when large hail falls, starting from a diameter of 30-40 mm. In the most hail-prone areas of Uzbekistan, mainly in the Namangan region, impacts are made on thunderclouds in order to prevent this dangerous phenomenon.

Fog - when the visibility is less than 1 km, it is considered a dangerous phenomenon, when the visibility is 50 m or less, it is considered as a particularly dangerous weather phenomenon. Fog of any intensity creates an unfavorable situation for the movement of all types of transport. The distribution of fogs over the territory of Uzbekistan is associated with the presence of water bodies, the characteristics of the soil, and the relief. On the plain, the average long-term number of days with fog decreases from north to south: from 25 on the Ustyurt plateau and in Muynak to 10 in the southern and central parts of the Kyzylkum desert. There are many days with fog on the coast, on the drained part and on the islands of the Aral Sea, which is explained by the contrast in the temperature of the sea surface and land.

table 2.



Number of days with hail for the period 1971-2016

| Station | Months | | | | | | | | | | | | Year | Average annual for 1961-2016. |
|-----------|--------|----|--------|----|--------|----|-----|------|----|--------|----|-----|------|-------------------------------|
| | I | II | III | IV | V | VI | VII | VIII | IX | X | XI | XII | | |
| Pap | - | 1 | 5 | 7 | 3 | 6 | - | - | - | - | - | - | 22 | 0,8 |
| Namangan | - | - | - | 1 | 2 | 2 | - | - | - | - | - | - | 5 | 0,3 |
| Fergana | - | - | - | 2 | - | 1 | - | - | - | - | - | - | 3 | 0,6 |
| Baysun | - | 1 | 1 | 14 | 7 | 3 | - | 2 | - | 2 | - | - | 30 | 1,0 |
| Huzar | 1 | 1 | - | 3 | 4 | 1 | - | 1 | - | - | - | 1 | 12 | 0,4 |
| Sherabad | - | - | 1 | 1 | - | - | - | - | - | - | - | - | 2 | 0,1 |
| Tashkent | 1 | - | 2 | 9 | 3 | 2 | - | 2 | - | 2 | - | - | 21 | 0,7 |
| Kasansay | - | - | 3 | 7 | 6 | 5 | 3 | 2 | 1 | - | - | - | 27 | 0,9 |
| Denau | 1 | 2 | 3 | 7 | 5 | 1 | 1 | - | - | 1 | 1 | - | 22 | 0,8 |
| Termez | 1 | - | 1 | 5 | - | - | - | - | - | - | - | - | 7 | 0,2 |
| Akrabat | 1 | 2 | 1 5 | 20 | 1 6 | 9 | - | - | - | 2 | 4 | 1 | 70 | 2,4 |
| Samarkand | 2 | 3 | 7 | 16 | 8 | 1 | 1 | - | 2 | 1 | - | - | 41 | 2,5 |
| Kokand | - | - | - | - | - | 1 | - | - | - | - | - | - | 1 | 0,03 |
| Andijan | - | - | - | 1 | 1 | 2 | - | - | - | - | - | - | 4 | 0,2 |
| Tamdy | - | - | 2 | 1 | 1 | - | - | 1 | - | 1 | - | 1 | 7 | 0,2 |
| Jizzakh | - | 6 | 2 | 12 | 4 | 3 | - | - | - | 1 | - | - | 28 | 0,95 |
| Bogarnoe | - | 6 | 6 | 20 | 8 | 3 | 2 | - | - | 1 | 1 | - | 47 | 1,6 |
| Kushrabad | - | - | 2 | 9 | 7 | 1 | 1 | - | - | - | 2 | - | 22 | 0,8 |
| Kyzylcha | - | - | 2 | 25 | 3 2 | 28 | 13 | 11 | - | 6 | 3 | - | 120 | 4,1 |
| Zaamin | - | 1 | 4 | 5 | 9 | 2 | 1 | - | - | 2 | 1 | - | 25 | 0,8 |
| Dukant | - | 1 | 8 | 59 | 4 8 | 32 | 17 | 11 | 6 | 1 0 | 5 | - | 197 | 6,8 |
| Bekabad | - | - | 1 | 1 | 4 | 3 | - | - | - | - | - | - | 9 | 0,3 |
| Sanzar | - | - | 1 6 | 17 | 1 7 | 13 | 7 | 3 | - | - | 1 | - | 74 | 2,6 |
| Minchukur | - | 3 | 1 2 | 56 | 3 8 | 9 | 8 | - | 2 | 4 | 4 | - | 136 | 4,4 |



| | | | | | | | | | | | | | | |
|------------|---|---|---|----|---|---|---|---|---|---|---|---|----|-----|
| Pskem | - | - | - | 2 | - | - | 1 | - | - | - | - | - | 3 | 0,1 |
| Dehkanabad | 2 | - | 5 | 11 | 1 | - | - | - | - | - | - | - | 33 | 0,8 |
| Nurata | - | 2 | 6 | 3 | 7 | - | 1 | - | - | - | 1 | - | 20 | 0,7 |
| Urtatokay | - | - | 2 | 4 | 9 | 9 | 2 | 3 | - | - | - | - | 29 | 1,0 |
| Shurchi | - | - | 3 | 3 | 5 | - | - | - | - | - | - | - | 11 | 0,3 |
| Karshi | - | 2 | 4 | 11 | 3 | 1 | - | - | - | - | - | - | 21 | 0,4 |

The largest annual number of days with fog in the long-term context (Table 3) is observed in the Jizzakh and Syrdarya regions and reaches 35-50. In areas with strong winds, the number of days with fogs is less: in Yangiyer - 17, Termez - 9. Fogs are most often observed from November-December to February-March, mainly during anticyclonic processes, frontal fogs are less common.

As the height of the terrain increases, the frequency of fogs increases. At altitudes of 1000 meters or more, it averages 60-70 days a year. As a rule, in the mountains they are more often observed in spring (March-April) and their number varies on average from 10 to 14 per month.

Table 3

Number of days and duration of fog in regions of Uzbekistan (1950-2016)

| Republic, viloyat | Number of days in a year | | in just a year | Duration, h | |
|-------------------|--------------------------|---------|----------------|----------------|---------|
| | average | maximum | | on a foggy day | |
| | | | | half a year | |
| | | | cold | cold | |
| Karakalpakstan | 15-28 | 35-50 | 100-140 | 4,5-5,7 | 2,0-6,0 |
| Navoi | 11-30* | 22-55* | 6-240 | 5,0-5,3 | 1,0-2,0 |
| Tashkent | 21-32 | | 120-490 | 5,0-6,0 | 1,5-2,5 |
| (the mountains) | 45-50 | 40-83 | | | |
| Khorezm | 15 | - | 80 | 5,0 | 3,5 |
| Bukhara | 11-16 | 19-27 | 55-80 | 5,0-5,5 | 2,0-2,5 |
| Namangan | 20-30 | 25-30 | 80-150 | 5,0-6,0 | 2,5-3,0 |
| Andijan | | 35-65** | 160 | 7,0 | 2,5 |
| Fergana | 20-30 | 35-65 | 110-250 | 5,5-8,0 | 1,5-2,5 |
| Syrdarya | 15-35 | 60 | 200 | 7,5 | 3,0 |
| Jizzakh | 20-40 | 40-90 | 200-400 | 8,0-9,0 | 3,0-5,5 |
| Samarkand | 17 | 35-45 | 65-75 | 4,0-4,5 | 2,0-2,5 |
| Kashkadarya | 13-15 | 28 | 60-66 | 5,0 | 3,5 |
| (the mountains) | 30-60 | 75-85 | 250-450 | | |
| Surkhandarya | 9 | 20-25 | 35-45 | 4,0-6,5 | 3,5-5,5 |
| (the mountains) | 35 | 60 | 300 | | |

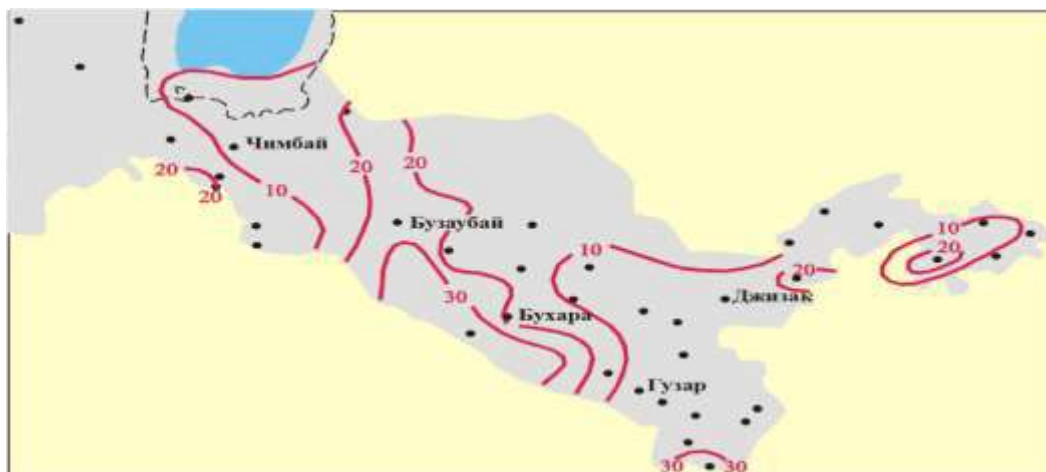
Note: * Nurata ** Namangan



Dust

storms It is disastrous to distinguish local dust storms from frontal ones. In the first case, the phenomenon covers a small area. Frontal dust storms can cover large areas, in some cases 500-1000 km across.

A necessary condition for "local" dust storms is the presence of small loose, relatively light soil particles (dust, sand) and impact on agriculture and livestock, complicate the work of transport, especially aviation. The presence of a large amount of sand and dust in the air



disrupts the operation of gas pipelines and power lines.

Rice. 2. Frequency (days/year) of dust storms in Uzbekistan.

In Uzbekistan, such conditions are found on the plains and in the foothills. Dust storms begin mainly at a wind speed of 10-14 m/s, however, in a number of places (Nukus, Samarkand, Termez) wind speeds of 6-9 m/s are already sufficient for the occurrence of such a phenomenon.

A good indicator of the intensity of a dust storm is the visibility range, which can often drop to almost zero, especially at the beginning of the storm. However, this rarely happens, most often visibility drops to only 3-4 km. A decrease in visibility to 1 km or less is observed during dust storms in the Termez region. The continuous duration of dust storms usually does not exceed three hours. The longest dust storms in Uzbekistan are observed in the Termez region, where in about 5% of cases they last a day or more.

On the flat territory of Uzbekistan, the average long-term annual number of days with dust storms, depending on the type of soil and wind speed, ranges from 3-5 to 30 or more, especially where there are local wind intensifications, for example, in the Termez region. There are significant fluctuations in the number of days with dust storms. In the foothills, the average number of dust storms per year mainly does not exceed 10, in areas where local winds develop, their number reaches 30 or more (near the cities of Yangiyer, Kokand, etc.).

In the mountains, due to stony or vegetated soils, rocks, snowfields and glaciers, local dust storms are rare, frontal storms predominate here, bringing dust from the flat areas. On average, there are 2-5 cases per year, and in some places only 2-4 cases are possible in 10 years. There are almost no dust storms in mountainous regions.

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AGROTECHNICS OF OKRA CULTIVATION IN SURKHONDARYO REGION.

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<https://doi.org/10.5281/zenodo.7302781>

Abstract: Okra is a non-traditional crop, and it is one of the vegetables that is becoming popular in our country every year. Okra is a very useful vegetable, its fruit contains healing vitamins and minerals. Okra can be used to make a variety of preserves. The main goal of the research work is to introduce new varieties of okra in the dry and harsh continental climatic conditions of Surkhondarya region, to evaluate their morpho-biological and economic characteristics, and to develop important elements of cultivation technology.

Key words: Okra, carbohydrate, protein, oil, iron, calcium, fiber, thiamin, nicotinamide, riboflavin and ascorbic acid, variety, introduction, seed, climatic conditions, plant height, number of joints, pod, length, yield.

Okra, Gambo (*Hibiscus esculentus* L.) is an annual plant belonging to the hibiscus family, up to 2.5 m tall. It resembles cotton in appearance and flowering. Homeland - East Africa. Varieties are divided into vegetable and fiber groups. Fiber varieties are grown in India, Africa and the USA. Unripe cosaksim fruit is used as a vegetable in liquid food and salads. The fruit contains 3% protein, 0.5% fat, 8% carbohydrates, ripe seeds contain 18% oil. The fruit can be eaten raw, cooked, fried, canned. The stem gives a white coarse fiber, artificial coffee is made from the roasted seeds. It is grown mainly as a vegetable crop in tropical and subtropical countries, North America, Southern Europe, the Caucasus, Crimea, southern Ukraine, partly in Central Asia.

Okra is a non-traditional crop for our region, and it is one of the vegetables that is gaining popularity in our Republic year after year. There are ways to use okra as a food crop and in industry. Edible okra fruits contain carbohydrate, protein, oil, iron, calcium, fiber, thiamin, nicotinamide, riboflavin and ascorbic acid. 100 grams of ripe okra seeds contain up to 20% fat and 20-23% crude borlysine, high protein and vitamin C. Okra is not only a vegetable crop, but the dried seeds can be used to make vegetable curd, or the roasted and ground seeds can be used as a coffee substitute. Technically ripe okra fruits can be boiled, fried, smoked, cooked with other vegetables or eaten on their own. In addition, okra can be used to make various preserves. Okra is a very useful vegetable, its fruit is valued for the presence of healing vitamins and minerals.

Today, the okra plant is grown on more than 120,000 hectares of land around the world. 10.1 million in 2019. tons, including: 6.5 million in India, 6.0 million in China, 3.6 million in Nigeria, 3.2 million in Sudan, 2.8 million in Mali, 1.7 million in Cote d'Ivoire, 1 in Pakistan 2 million, 1.0 million in Cameroon, 74 thousand in Ghana and 68 thousand in Iraq.

Decree of the President of the Republic of Uzbekistan No. PF-5995 of May 18, 2020 "On additional measures to ensure that the quality and safety indicators of agricultural products comply with international standards", dated May 23, 2019 No. PF-5853 dated October "On



approval of the strategy for the development of agriculture of the Republic of Uzbekistan for 2020-2030", No. 504 of the Cabinet of Ministers dated August 25, 2020 "The loss of agricultural crops To a certain extent, this research work contributes to the implementation of the tasks specified in the decrees and decisions of "On the restoration of endangered local varieties with unique signs and characteristics and measures to organize their original seed production" and other regulatory documents. serves.

The introduction and cultivation of this vegetable type, which is new for the soil-climatic conditions of the southern region of our country, has low yield, is resistant to diseases, and is high-quality and rich in valuable substances. allows to further expand the assortment of vegetable crops.[1]

The purpose of the study is to introduce new varieties of okra in the conditions of Surkhandarya region, to evaluate their morpho-biological and economic characteristics, and to develop important elements of cultivation technology.

The tasks of the research are as follows: selection of promising variety samples based on evaluation of morphobiological and economic characteristics of okra plant varieties.

As the object of the study, 3 samples of okra varieties "Okra-120" (USA), "Okra-69" (India), "Okra-152" (India).

The subject of the research is to test samples of 3 varieties of okra and to study the morphological characteristics of the varieties, growth, development and productivity indicators.

Methods of research: The research work of V.F. Belik "Metodika polevogo opita v ovoshevodstve i bahchevodstve" (1992), B.J. Azimov., B.B. Azimov's "Methodology of Experiments in Vegetable, Potato and Potato Cultivation" (2002).

The scientific research work was carried out in the experimental farm fields of the Termiz Institute of Agro-Technology and Innovative Development. The soil of the experimental field is sandy soil, very poorly supplied with nutrients, the groundwater is deep (14 meters), the climate of the region is dry and sharply continental. Before planting, the experimental field was lightly plowed with 150 kg/ha of phosphorus and 50 kg/ha of potassium (physically). The experiment was arranged in triplicate.

The seeds of okra varieties were sown in the third ten days of March on March 28 with a thickness of 70x40 and watered to collect the seeds. When the complete germination of the sown seeds was observed, 75% of seeds of Okra-69 variety germinated on April 8, Okra-120 variety on April 9, and Okra-152 variety on April 11. Also, the first leaves of all varieties appeared between April 15-17.

Among the studied varieties, the first harvest elements appeared in the Okra-69 variety on May 12, in the Okra-120 variety on May 15, and in the Okra-152 variety on May 19.

It can be seen from Table 1 that as the duration of the vegetation period increased, the difference in the biometric parameters of the plant between the varieties was clearly observed. In particular, as of July 15, the height of the plant in the Okra-120 variety is 57.2 cm; 14.2 harvest units; the number of formed crop elements is 20.8, of which 7.9 pods and 1.1 flowers; combs 9.8 pieces, respectively 50.2 cm in Okra-152 variety; 9.2 units; 13.3 units; 5.8 pieces; 0.1 piece; 7.4 units; also 63.8 cm in Okra-69 variety; 12.6 units; 17 pieces; 6.6 pieces; 0.6 pieces; It was 9.8 pieces.

1-table

Morphobiological characteristics of the okra plant. (as of 15.06.2022)



| Varietal name | The height of the plant | Harvest horn | Product elements | | | |
|-------------------|-------------------------|--------------|------------------|-----------|------------|-------|
| | | | Dukkagi soni | Guli soni | Shona knot | Total |
| Okra-120(AQSH) | 57.2 | 14.2 | 7.9 | 1.1 | 9.8 | 20.8 |
| Okra - 152(India) | 50.2 | 9.7 | 5.8 | 0.1 | 7.4 | 13.3 |
| Okra -69(India) | 63.8 | 12.6 | 6.6 | 0.6 | 9.8 | 17 |

When studying the size of the fruits, the average length of the fruit of the Okra-120 variety is 12 cm, the diameter is 3.9 cm, the average length of the fruit of the Okra-69 variety is 21 cm, the diameter is 2.8 cm, and the length of the fruit of the Okra-152 variety is 18 cm. , the diameter was 3.2 cm.

Table 2

Weight of 1000 grains and yield indicators.

| Nº | Varietal name | 1000 seed weight | Productivity t/ga |
|----|------------------|------------------|-------------------|
| 1. | Okra 120 (AQSH) | 64.4 gr | 9,8 |
| 2. | Okra 69 (INDIA) | 59,3 gr | 10,9 |
| 3. | Okra 152 (INDIA) | 59,4 gr | 9,1 |

When analyzing the weight of 1000 grains, the lowest result was 64.4 grams in the sample of okra-120 variety, okra-69 and okra-152 varieties, this index did not differ much from each other (Table 2).

According to the analysis of yield results, the highest marketable yield was 10.9 tons of okra 69, 9.8 tons of okra 120, and 9.1 tons of okra 152.

In summary, among the samples of the studied okra variety, okra variety 69 showed better potential compared to other varieties in the extreme climatic conditions of the region.

This research work is ongoing and other analytical results will be published in future articles.

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