

ANNOTATIONS - / - АННОТАЦИИ

Albota D. Substantiation of the parameters for the decorticator of the baler of roller stem-fiber mass of flax oily

The article deals with the directions of using the stem part of the flax oil crop. A machine for picking rolls of stem-fibrous flax on the field for making small fuel rolls, or for creating conditions for the subsequent maturation of the mass in order to obtain the fiber, is proposed. Interest in growing flax oil is due to many factors: demand for flax oil and high profitability of flax growing. An analysis of the world experience of using flax oily products shows that the important and urgent task today is to use all the potential of the plant with the least loss of fiber, seeds and waste. In order to ensure maximum destruction of wood and minimal damage to the fiber by rollers, it is important to know the physical nature of the process of destructing the stem structure during bending. An analysis of the process of decortication of fibrous materials was carried out and a functional scheme of the machine was proposed, which included a decorticator for the selection of stem-fiber mass of flax oily. The principle of operation of the machine: the conveyor picks up the stem-fiber mass and moves to the decorticator, in which there is a decrease of the elastic properties of the stems. After passing the raw material through the decorticator, the processed straw enters the compression chamber, in which the twisting occurs and the finished roll falls on the unloading conveyor, which feeds the roll onto the trailer. Demand for environmentally friendly products is increasing every day, so it is important to effectively utilize flax oily waste by reasonably processing it into fuel or fiber.

Альбота Д.С. Обоснование параметров декортикатора пресс-подборщика валков стебло-волокнуистой массы льна масличного

В статье указано на направления использования стеблевой части урожая льна масличного. Предложено машину для подбора валков Стеблов-волокнуистой массы льна на поле для изготовления малых топливных рулонов, или создание условий для дальнейшего лезания массы с целью получения волокна.

Brovarets O. Method of calculation of electrical conductivity of agrobiological soil medium by stationary contact method

Modern agriculture involves the implementation of a particular technological operation, according to the appropriate map-task, which is developed pre-based on diverse information. Knowledge of a certain structure of soil cover variability, obtained using information and technical systems of local operational monitoring of agrobiological state of agricultural lands, allows us to adopt effective operational decisions for efficient management of agrobiological potential of agricultural lands.

Obviously, under such conditions, there is a need for fundamentally new approaches to agricultural production, which is to ensure the proper

quality of technological operations. The quality of the implementation of technological operations is an integral indicator of the efficiency of production of agricultural products within the agrobiological field. The necessary quality of implementation of the basic technological processes in plant growing is provided by the integrated information and technical systems of operational monitoring of the agrobiological state of agricultural lands. This opens new prospects for organic farming using such "smart" agricultural machines.

In connection with this, the task is to obtain reliable data on the agrobiological state of the soil environment by reducing the error in determining the magnitude of the electrical conductive properties of the soil, providing individual stabilization of the working electrodes and the mechanism of lifting / lowering the working electrodes, copying inequalities of the soil environment, reducing the intensity of the destruction of the soil structure, self-cleaning of the working contact of the electrode and ensuring the stability of the electrical contact of the electrode with the soil, by instrument design perfection. The task is achieved by using the information and technical system of operational monitoring of the soil environment of the structure to determine the conductive characteristics of the soil environment.

The purpose of this study is to determine the critical loading at the loss of stability by thin-walled working electrodes made in the form of working electrodes of various shapes (thin-walled solid, three-spit and four-spindle discs with different thickness of the rim). Information and technical system of local-operational monitoring of agrobiological state of soil environment of different configurations with one-side compression. .

Key words: information and technical system, local operational monitoring, soil, samples, variability, size, research.

Броварец А.А. Методика расчета удельной электропроводности агробиологического почвенной среды стационарным контактным методом

Современное земледелие предполагает выполнение определенной технологической операции, согласно соответствующей картограммы-задачи, которая разрабатывается предварительно на основе разнообразной информации. Знание определенной структура варибельности почвенного покрова, полученных с использованием информационно-технических систем локального оперативного мониторинга агробиологического состояния сельскохозяйственных угодий, позволяет принять эффективные оперативные решения для эффективного управления агробиологическим потенциалом сельскохозяйственных угодий.

Очевидно, что при таких условиях возникает необходимость в принципиально новых подходах к ведению агропромышленного производства, заключается в обеспечении надлежащего качества выполнения технологических операций. Качество выполнения технологических операций является интегральным показателем

эффективности производства сельскохозяйственной продукции в пределах агробиологического поля. Необходимое качество выполнения основных технологических процессов в растениеводстве обеспечивается за счет интегрированных информационно-технических систем оперативного мониторинга агробиологического состояния сельскохозяйственных угодий. Это открывает новые перспективы для ведения органического земледелия с использованием таких «умных» сельскохозяйственных машин.

В связи с этим ставится задача получения достоверных данных о агробиологическом состоянии почвенной среды путем уменьшения погрешности при определении величины электропроводящих свойств почвы, обеспечение индивидуальной стабилизации рабочих электродов и механизма подъема / опускания рабочих электродов, копирование неровностей почвенной среды, уменьшения интенсивности разрушения структуры почвы, самоочистка рабочего контакта электрода и обеспечения стабильности электрического контакта электрода с грунтом, путем досконаления конструкции прибора. Поставленная задача достигается путем использования информационно-технической системы оперативного мониторинга состояния почвенной среды конструкции для определения электропроводящих характеристик почвенной среды.

Цель данного исследования является определение критической нагрузки при потере устойчивости тонкостенные рабочими электродами выполненными в виде рабочих электродов различной формы (тонкостенных сплошных, трехспицевое и четырехспицевых дисков с разной толщиной обода) информационно-технической системы локального-оперативного мониторинга агробиологического состояния почвенной среды различной конфигурации при одностороннем сжатии.

Ключевые слова: информационно-техническая система, локальный оперативный мониторинг, почва, пробы, вариабельность, величина, исследования.

Busnyuk V. Substantiation of the structure and parameters of the drum roller for cleaning flax oily

Traditional flax harvesting technologies are aimed at producing high quality seeds. They do not provide for the preservation of the stem part of the flax in a form suitable for further processing for the purpose of separation of the fiber. As shown by the results of research, during the cultivation of oil flax in the climatic conditions of the Western Polesie of Ukraine it is possible to get except seeds up to 40 kg / ha of straw with fiber content up to 21,0 ... 23,3%. It is advisable to process such a linseed straw into a single fiber having a wide range of uses. Thus, there is a problem with the justification of the technology of harvesting oil flax in the stages of early and early yellow ripeness, when the seeds and fiber are already ripe.

Known methods of accelerating the conditions under which it is possible to collect such seeds by desiccation of crops. The stems with the fiber

are also formed, but the fiber can be isolated from it only in the form of a bast. The world practice of primary processing of stems of bast crops shows that they use a technological operation to decorticate them. The introduction of new technology for the collection of oil flax will increase the profitability of its cultivation, since the obtained raw materials (seeds, fiber, fire, half) from the components of the crop of this crop is suitable for complex waste-free use.

The article proposes a technology for harvesting oil flax, which will provide the opportunity to obtain seeds and use the stalk, taking into account the quality of the fiber. The design of a roller top-lifting apparatus for use on a combine harvester, which takes into account the shortcomings of existing designs of top-lifting apparatuses, is considered. Dependencies are proposed to justify the structural - kinematic parameters of a pair of rollers, the calculation of which confirms the effectiveness of their work.

Буснюк В.В. Обоснование конструкции и параметров вальцового теребильного аппарата для уборки льна масличного

В статье предложена технология уборки масличного льна, которая обеспечит возможность получения семян и использования стеблестоя с учетом качества волокна. Рассмотрена конструкция вальцового теребильного аппарата для использования на зерноуборочном комбайне, в котором учтены недостатки существующих конструкций теребильных аппаратов. Предложены зависимости для обоснования конструктивно - кинематических параметров пары вальцов, расчёт которых подтверждает эффективность их работы.

Holota B., Kirchuk R., Tarasiuk V. Performance simulation of plant residues cutting roller and validation of its design

The modern technology of plant growing is in need of change. These technologies require new agricultural machines. Minimum tillage and direct seeding technology should now be used now. These technologies require new technological operations. There is preparation of the pile surface for machining and milling or grinding of the grilles.

The article provides an overview of cat designs. The process of grinding plant residues in the field was analyzed.

The crop residues (stubble, weed stems, straw rolls) are ground by special machines. Not only do they mow the crop residues, they are also crushed into particles up to 15 cm in length and evenly distributed throughout the field.

After such grinding, the plant residues are reliably covered with a layer of soil, even when cultivated with disc implements that are now widely used by farmers.

The proposed method makes it possible to calculate the parameters of a cat shredder of plant residues.

Голота Б.Н., Кирчук Р.В., Тарасюк В.В. Моделирование работы катки для измельчения растительных остатков и обоснование его параметров

В статье приведен обзор конструкций и выполнен анализ

процесса измельчения растительных остатков в поле для увеличения содержания органики в почве. Представлена модель работы катка и предложена методика расчета его параметров.

Дударев І.М., Гунько Ю.Л., Панасюк С.Г. Визначення конструктивних параметрів конічно-дискового льонобрального апарата.

Стаття присвячена дослідженню можливості використання конічно-дискового льонобрального апарата для збирання льону-довгунця та льону олійного, які переробляються з метою отримання короткого волокна. У статті було запропоновано конструкцію конічно-дискового льонобрального апарата, який можна встановлювати як на спеціалізованій льонозбиральній техніці, так і на зернозбиральному комбайні замість жатки. Також теоретично було обґрунтовано умову витягування стебел льону із ґрунту запропонованим конічно-дисковим льонобральним апаратом. Теоретичне дослідження дозволило отримати залежності для обґрунтування раціональних конструктивних параметрів конічно-дискового льонобрального апарата. У результаті експериментальних досліджень були визначені технічна та повна довжина стебел льону олійного та зусилля, що необхідне для витягування стебел із ґрунту. Враховуючи результати досліджень, було встановлено, що запропонований конічно-дисковий льонобральний апарат може бути використаний для збирання льону-довгунця та льону олійного.

Дударев И.Н., Гунько Ю.Л., Панасюк С.Г. Определение конструктивных параметров конусно-дискового льнотеребильного аппарата.

Статья посвящена исследованию возможности использования конусно-дискового аппарата для уборки льна-долгунца и льна масличного, которые перерабатываются с целью получения короткого волокна. В статье предложена конструкция конусно-дискового льнотеребильного аппарата, который можно устанавливать на специализированной льноуборочной технике и на зерноуборочном комбайне взамен жатки. Также теоретически было обосновано условие вытягивания стеблей льна из грунта предложенным конусно-дисковым льнотеребильным аппаратом. Теоретическое исследование позволило получить зависимости для обоснования рациональных конструктивных параметров конусно-дискового льнотеребильного аппарата. В результате экспериментальных исследований были определены техническая и полная длина стеблей льна масличного и усилие, которое необходимо для вытягивания стеблей из грунта. Учитывая результаты исследования, было установлено, что предложенный конусно-дисковый льнотеребильный аппарат может использоваться для уборки льна-долгунца и льна масличного.

Dudarev I., Khilchuk O., Kipen I. Research of the particle of bulk material movement by the sieve of the scissor-type separator.

Reducing the energy consumption of the separation process is a key

task in developing equipment for the separation of bulk materials or mixtures of materials. The main direction of reducing energy costs for the separation process is to choose a method of separation taking into account the physical and mechanical properties of the bulk material or mixture of materials. The gravitational separators are the most promising designs of separators. The principle of operation of the gravitational separators is based on consideration of the physical and mechanical properties of bulk materials. In the gravitational separators, energy is not consumed by the drive of working bodies or surfaces. The design of the gravitational scissor-type separator is proposed in the article, as well as the results of theoretical studies of the bulk material particles movement by the separator sieve are released in the article. The proposed design of the gravitational scissor-type separator allows separating of bulk materials with different physical and mechanical properties due to the change of the angle of installation of the sieves. In addition, the proposed scissor-type separator is compact and easy to operate, and does not require energy costs for the separation process. As a result of the study the equations and conditions for substantiation of the rational parameters of the gravitational scissor-type separator which consider the physical and mechanical properties of the bulk material were obtained.

Дударев И.Н., Хильчук А.С., Кипень И.А. Исследование движения частицы сыпучего материала по решетке сепаратора ножничного типа.

Разработка оборудования для сепарации сыпучих материалов или их смесей для разных областей промышленности должна происходить в направлении уменьшения энергоемкости технологического процесса. Одно из направлений уменьшения энергоемкости процесса сепарации и повышения его эффективности – это выбор способа сепарации сыпучих материалов или их смесей с учетом физико-механических характеристик материала. Наиболее перспективными в этом направлении конструкциями сепараторов являются гравитационные сепараторы, в принципе работы которых учтены физико-механические характеристики материалов и в которых, как правило, не используется электроэнергия для привода рабочих органов и поверхностей. В статье предложена конструкция гравитационного сепаратора сыпучих материалов ножничного типа и представлены результаты теоретических исследований движения частицы сыпучего материала по решетке сепаратора. Предложенная конструкция гравитационного сепаратора ножничного типа разрешает производить сепарацию сыпучих материалов и их смесей с разными физико-механическими характеристиками за счет изменения угла наклона решетки. Кроме того, предложенный сепаратор компактный и удобен в эксплуатации, а также процесс сепарации в нем происходит без использования электроэнергии. В результате теоретического исследования получены зависимости и условия, которые разрешают обосновать рациональные параметры предложенного сепаратора с учетом физико-механических характеристик сыпучих материалов.

Zabrodotska L., Petrov V., Kirchuk R., Khomych A. Improvement of rapeseed dryer design

The paper presents a theoretical generalization of existing rapeseed drying technologies and proposes a new solution that is to improve the technological process of rapeseed drying by intensifying drying by loosening

and mixing a layer of material in the drying chamber of the dryer. The need for loosening and mixing of dispersed agricultural material, in particular rapeseed, during the drying process is confirmed by the analysis.

The mechanical mixing system is located in the drying chamber of the dryer. This system is vertical augers. The augers move the seeds up and down. This loosens and mixes the grain layer.

The method of calculation of energy costs for the mixing system is proposed. This leads to the conclusion that it is advisable to use such drying methods.

The use of the proposed design of the drying chamber, as well as methods of calculating its parameters, will significantly reduce energy consumption in general.

***Забродоцька Л.Ю., Петров В.Л., Курчук Р.В., Хомич А.В.
Совершенствование сушилки семян рапса***

В статье приведен обзор методов и средств сушки семян рапса. Обоснована целесообразность модернизации сушилок механическими системами перемешивания слоя зерна. Предложена схема сушилки, позволяющая существенно уменьшить энергозатраты на процесс сушки мелкодисперсных сельскохозяйственных растительных материалов.

Kovalchuk N. Squares of the city of Lutsk and their functional significance

The article analyzes and reveals the functional significance of squares in urban ecosystems, based on the example of Lutsk. Their area is determined and the negative impact of urbanization processes on urban ecosystems and their place in human beings is considered. The main problems of city development and the formation of urban squares in urbanization are highlighted.

Keywords: square, city, ecosystem, green plants, phytomelioration, urbanization.

Ковальчук Н.П. Скверы города Луцка и их функциональное значение

В статье произведен детальный анализ и раскрыто функциональное значение скверов в городских экосистемах на примере г. Луцка. Определена их площадь и рассмотрено негативное влияние процессов урбанизации на городские экосистемы и место в них человека. Выделены главные проблемы развития города и формирование городских скверов в условиях урбанизации.

Ключевые слова: сквер, город, экосистема, зеленые насаждения, фитомелиорация, урбанизация.

Limont A., Limon Z.t. The specific load-carrying capacity and mass of trailers as means of flax stock transportation.

According to the technology of harvesting flax stock and under the conditions of transporting rolls from the field to the places of raw storage or to the points of their primary processing, along with other transportation means tractor and transportation units consisting of tractor of various classes and tractor trailers of the corresponding load-carrying capacity and tractor trains are used. During the research the trailers were divided into 2 groups. The first group consisted of the trailers produced in the factories of the former Soviet Union and the second group comprised trailers produced abroad. The samples of the 1st and 2nd groups included 15 and 21 trailer models each. The correlation between their nominal load-carrying capacity and mass of transportation means was accepted as the specific mass of trailers. The variation scale of the nominal load-carrying capacity of trailers from the 1st and 2nd groups amounted to 2-13 and 5-24 t respectively, the mean arithmetic values and average deviation amounting to 6.0 and 3.3 13.2 and 6.0 t respectively. The variation scale of the mass of trailers from the 1st and 2nd groups amounts to 0.7-6.34 and 1.2-7.1 t respectively, and their mean arithmetic values and mean square deviations being 2.8 and 3.6 2.1 and 1.6 t accorder to the same sequence. The specific load-carrying capacity of the 1st group trailers varied from 1.85 to 2.83, and of the 2nd group-from 3.38 to 5.50. The mean arithmetic value and the square mean deviation of the 1st division group of trailers amounted to 2.27 and 0.30, and of the 2nd group of trailers-from 4.29 to 0.58 respectively. According to the specified Student-t-test and Fisher's ration-test criteria the compared totalities of the specific load-carrying capacity of tractor trailers of various producers prove statistically different in both mean arithmetic values and dispersions. Between the specific load-carrying capacity of tractor trailers of the 1st and 2nd groups and their mass one can reveal the negative correlation amounting to minus 0.701 and minus 0.434 respectively. It has been found out that depending on the mass of trailers the change in the specific weight of their load-carrying capacity can be presented by the equations of negative slope-intercept form of the equation of a straight line. As for the trailers produced in the factories of the former Soviet Union and abroad, the equation absolute terms were 2.63 and 4.78 respectively. The slope-intercept forms of the equation amounted to 0.133 and 0.153 respectively. Taking into account the equation absolute members one can indirectly maintain that on the average the specific load-carrying capacity of trailers of foreign production as compared to domestic production trailers. A 1.82 times higher. The above must be taken into account when designing and producing tractor trailers with the aim of decreasing their materials and metal specific consumption that will contribute to their eco-oriented use under transporting load in general, and flax stock in particular.

Key words: flax stock, transportation, tractor trailers, load-carrying capacity, mass, correlation, regression.

Лимонт А.С., Лимонт З.А. Удельная грузоподъемность и масса тракторных прицепов как средств транспортирования льнотресты

Исследованы распределения номинальной и удельной грузоподъемности тракторных прицепов. Изучена и проанализирована масса этих транспортных средств. Освещена статистическая связь удельной грузоподъемности и массы тракторных прицепов. **ЛЬНОТРЕСТА, ТРАНСПОРТИРОВАНИЕ, ТРАКТОРНЫЕ ПРИЦЕПЫ, ГРУЗОПОДЪЕМНОСТЬ, МАССА, КОРРЕЛЯЦИЯ, РЕГРЕССИЯ.**

Magats M., Goshko Z., Synii S. Mini-aggregat for digging potato.

An important place in the group of mobile power tools for potato harvesting is occupied by motor-blocks and mini-aggregates based on them. The use of such equipment in Ukraine is growing rapidly. Therefore, the actual issues of research are studying and improving the constructions and conditions for the aggregation of such mobile power tools. In the work the analysis of literary sources on the subject of equipment, operation and technical characteristics of aggregates of the specified type is carried out. On the basis of the analysis, the necessity of improving the equipment assembly in the course of its work, improving the technical and economic indicators, improving the maneuverability of the aggregate is disclosed.

The article describes the process of operation of the modernized mini-aggregate "motoblock + paw-digger" for harvesting root crops. Presents the results of experimental studies for basic and modernized mini-aggregates. Conducting experimental research involves determining the limiting values of traction effort, fuel consumption and maneuverability of the modernized mini-aggregate. The experimental tests were performed on two sites (the first - is no weediness, the second - is weedy), covering an area of 500 m². The results of the research proved the ability of the upgraded mini-aggregate to dig potatoes on weed soils with performance better than the performance of the basic mini-aggregate.

Магац М.И., Гошко З.О., Синий С. В. Мини-агрегат для выкапывания картофеля.

В статье описан процесс работы модернизированного мини-агрегата «мотоблок + лапа-копатель» для сбора корнеклубнеплодов. Приведены результаты проведенных сравнительных экспериментальных (полевых) исследований, на основе которых доказана его способность осуществлять выкапывание картофеля на засоренных почвах с показателями работы, лучшими за показатели базового мини-агрегата.

Satsiuk V., Krasovsky Y., Fedoruk V. Research process of preparation of a drying agent in a solar thermal collector

Article describes the construction of the solar collector. The article contains the results of the research of the influence of the geometric and technological parameters of the collector and the ambient temperature on the

temperature of the prepared drying agent.

The temperature of the prepared drying agent increases with increasing inlet air temperature and the area of the heat collector. An increase in the flow rate of the collector is accompanied by a decrease in the temperature of the drying agent. The highest temperature of the drying agent is observed at the working area of the collector $S=6\text{m}^2$. Mathematical method of planning the experiment, using a symmetric non-composite plan for the implementation of the second-order Box-Bank experiment allows to study the process of heating the drying agent in the solar thermal collector.

To obtain a mathematical model of the process of heating the drying agent by passing air through the solar collector, a three-factor experiment was conducted.

Received a mathematical model of the heating process and conducted a three-factor experiment.

Conducted the results of a three-factor experiment, according to a three-level second-order plan on a computer (using Mathcad 14), obtained a regression equation, where the function of response is the temperature of the drying agent.

The obtained regression equations make it possible to construct the response surfaces and their two-dimensional sections, as well as to analyze the dynamics of change in the agent temperature at the outlet of the reservoir.

Сацюк В.В., Красовский Е.А., Федорук В.В. Исследование процесса приготовления сушильного агента в тепловом коллекторе

В статье описано конструкцию солнечного теплового коллектора. Приведены результаты исследования влияния геометрических, технологических параметров коллектора и температуры внешней среды на температуру приготовленного сушильного агента.

Sirko Z., Korenda V. Method of manufacturing of non-flammable plywood

Modern construction of industrial and civil objects, wagons (railroad cars, metro cars) requires the use of wood and other materials on the basis of its improved performance characteristics, which primarily relate to fire resistance and extended service life. One of the most common structural materials on the basis of wood is plywood - slab material with increased physical, mechanical and operational parameters used in construction, machinery and transport construction shipbuilding, wagon construction, furniture production and other wares.

Despite considerable advantages over other structural gluing materials, plywood has, like all wood-based materials, one significant drawback - it is a combustible flammable material and combustion products contain toxic substances. Therefore, the creation of technology for the manufacture of fire-resistant plywood is relevant in the field of safety of life and fire safety. Until recently, fire-proof plywood in Ukraine was not manufactured. Instead, heavy-duty plywood is manufactured in many countries around the world with the technology of impregnating the peeled

veneer and its subsequent gluing in plywood slabs. The technology is complicated, expensive and involves the use of harmful substances (phenolic resins, sodium fluoride, ammonia compounds).

As evidenced by the results of studies, all samples of plywood can be characterized as heavy. In addition, with an increase in the thickness of plywood, heavy-duty properties are improved. Additional treatment of samples with silicone hydrophobic "Silol" to some extent reduces the effectiveness of fire protection, but the samples belong to a group of heavy materials.

The essence of the method for determining the index of flame propagation is to evaluate the ability of the material to engage in, allocate heat and distribute the flame to the surface under the influence of external heat flux. For example, which is set at an angle of 30° to the vertical, there is a heat flux density of 12 to 32 kW / m² from the vertical placed radiation panel. Depending on the index of distribution of flame materials are classified as those, what:

- do not spread the flame on the surface - the index of flame propagation is 0;

- slowly spread the flame on the surface - the index of flame propagation from 0 to 20 inclusive;

- quickly spread the flame on the surface - the index of flame propagation is greater than 20.

Сирко З.С., Коренда В.А. Способ изготовления огнезащитной фанеры

Современное строительство промышленных и гражданских объектов, вагонов (железнодорожные вагоны, вагоны метро) требуют применения древесины и других материалов на ее основе повышенных эксплуатационных характеристик, к которым в первую очередь относится огнестойкость и повышенный срок службы. Одним из распространенных конструкционных материалов на основе древесины является фанера - плитный материал с повышенными физико-механическими и эксплуатационными показателями, применяемый в строительстве, машино- и транспортостроении, судостроении, вагоностроении, в производстве мебели и других изделий широкого потребления.

ФАНЕРА, ПРОПИТКИ, АНТИПИРЕНЫ, ФИЗИКО-МЕХАНИЧЕСКИЕ СВОЙСТВА, ОГНЕСТОЙКОСТЬ.

Sirko Z., Vyshnyakov I., Protasov O., Birkivska N. Reconstruction of existing steam boilers into biotech

The article is devoted to the clarification of the essence and content of reconstruction problem of existing steam boilers operating on biomass into Biotech.

BIOMASS, ELECTRICITY, STEAM-PISTON COGENERATION UNIT, AGRICULTURAL WASTE, WOOD WASTE.

This article is intended to consider a project for the reconstruction of a steam boiler in a steam power plant (Biotech), which works on biomass (agricultural waste, wood waste) in order to generate and sell electricity at the "green" tariff.

Ukraine has enormous potential in the form of an alternative energy source such as biomass. These are products, waste and residues of forestry and agriculture (pellets, cod, sawdust, sunflower husk, straw, etc.), fish farming and technologically related industries as well as an integral part of industrial or household waste, capable of biological timetable.

The use of biomass is based on highly efficient combustion, which allows environmentally safe processing of plant raw materials into electric energy, which are sold at a reduced "green" tariff, and heat for the needs of the enterprise (drying of biomass, drying grain, heating industrial and administrative premises, providing hot water for sanitary purposes -public needs, heating of the greenhouse).

Terms of transfer of the territory for placing Biotech are subject to a separate agreement and clarification.

Joint Implementation Mechanism operates on a joint implementation basis, in which the investor finances project activities, receiving instead officially issued emission reductions. The legislation of Ukraine provides for a number of privileges regarding taxation of activities related to the development and implementation of energy saving measures and energy efficient projects.

Ukraine's dependence on imports of major energy sources forces the government and business to develop alternative energy, which now occupies 0.2% of the total energy balance of the country (in the European Union its share reached 10%).

The economic feasibility of the Project was created due to the adoption of the Law of Ukraine "On Electric Power" dated October 16, 1997, on which electricity is purchased, produced using alternative energy sources. The current "green" tariff makes the construction of biomass as an economically attractive project.

Сирко З.С., Вишняков И.Ю., Протасов А.С., Биркивская Н.В. Реконструкция существующих паровых котельных в биоТЭЦ

Статья посвящена освещению сущности и содержания такой проблемы как реконструкции существующих паровых котельных, работающих на биомассе в БиоТЭЦ.

БИОМАССА, ЭЛЕКТРОЭНЕРГИЯ, ПАРОПОРШНЕВАЯ КОГЕНЕРАЦИОННАЯ УСТАНОВКА, АГРООТХОДЫ, ДРЕВЕСНЫЕ ОТХОДЫ.

Sirko Z., Korenda V., Vyshnyakov I., Protasov O., Birkivska N. Prospect for the using of heat pumps for heating of buildings in enterprises

Heat pump - a device for transferring thermal energy from a source of low potential thermal energy to a consumer with a higher temperature. The thermodynamic cycle of a heat pump is similar to a refrigerating machine.

Depending on the principle of operation, heat pumps are divided into compression and absorption. The most commonly used compression heat pumps.

In recent years, numerous publications on the use of heat pump technology in heating and hot water supply facilities of various spheres - from individual homes to residential neighborhoods have appeared in various media.

The authors of the publication have many years of experience in joint scientific and technical cooperation with leading technical universities and industrial organizations in the field of development and practical use of heat pump technology.

The authors analyze the possibilities of introducing heat pumps at enterprises and organizations of the State Reserve System of Ukraine. It has been shown that the amount of expenses in comparison with central heating or operation of gas and electric boilers of similar power is several times smaller. It is noted that the implementation of heat pumps is a promising direction in the use of alternative energy sources to meet the heating, ventilation and hot water supply needs of buildings. The payback period from the introduction of heat pumps at enterprises is 4-9 years, depending on the location of the object and the type of source of low-temperature heat.

The article meets the requirements of the State Tax Code of Ukraine and can be recommended for publication.

HEAT PUMP, THERMAL ENERGY, INSTALLATION, HEAT SUPPLY.

Сирко З.С., Коренда В.А., Вишняков И.Ю., Протасов А.С.,

Бирковская Н.В. Использование тепловых насосов для отопления зданий на предприятиях

Статья посвящена обоснованию сущности и содержания такой проблемы, как использование установок, работающих на альтернативных источниках энергии для отопления, вентиляции и горячего водоснабжения зданий, а именно тепловых насосов. Тепловые насосы используют для своей работы низкопотенциальное тепло, которое берется из воздуха, водоемов и недр земли. Предприятия и организации имеют различные источники низкопотенциальной тепловой энергии: пожарные водоемы, свободные земельные участки на территориях и др.

ТЕПЛОВОЙ НАСОС, ТЕПЛОВАЯ ЭНЕРГИЯ, МОНТАЖ, ТЕПЛОСНАБЖЕНИЕ.

Tolstushko M., Pavliuk V., Tolstushko N. Diagnosis of power supply systems and start-up of wheeled vehicles

Today, vehicles contain more and more electrical equipment, requiring an increase in the specific power of the power supply and start-up systems. The quality of transport depends on the maintenance of its proper technical condition, and the reduction of repair costs is realized by preventing malfunctions and correctly identifying the reasons for their elimination. A significant role in this is given to diagnosing the work of both individual units and mechanisms, as well as systems and systems of electrical equipment.

Many tractors have classic construction and are equipped with internal combustion engines. According to statistics, a significant proportion of the failures of electrical equipment of cars falls on the systems of energy supply and startup of internal combustion engines. To date, a number of diagnostic measures have been identified to establish the technical condition of the individual subsystems, units and their mechanisms under consideration. The process of diagnosis and testing, as a rule, does not cause much difficulty in the presence of appropriate equipment for diagnostic, regulatory and control operations. Functionality of such devices determines their cost and availability of introduction in the educational process of training of specialists of the relevant direction and qualification. Therefore, to determine the basic parameters and characteristics of certain electrical equipment, there is a need to develop individual modules and complexes of a certain complexity.

The purpose of the study is to formulate the basics of the development of measuring and recording equipment for complex diagnostics of power supply systems and start-up of internal combustion engines of wheeled vehicles with the possibility of its further introduction into the educational process for conducting laboratory classes.

The above considerations may be the basis for the development of laboratory measuring and recording equipment for comprehensive diagnostics of power supply systems and start-up of internal combustion engines of wheeled vehicles.

DIAGNOSTICS, ELECTRICAL EQUIPMENT, INTERNAL COMBUSTION ENGINE, MEASURING AND RECORDING EQUIPMENT, POWER SUPPLY.

Толстушко Н.Н., Павлюк В.И., Толстушко Н.А. Диагностика систем энергоснабжения и пуска колесных транспортных средств

В статье приведены соображения по разработке измерительно-регистрирующего оборудования для комплексной диагностики систем энергоснабжения и пуска двигателей внутреннего сгорания колесных транспортных средств. Дан перечень и схему функциональных связей между элементами комплекса измерительно-регистрирующего оборудования.

ДИАГНОСТИКА, ЭЛЕКТРООБОРУДОВАНИЕ, ДВИГАТЕЛЬ ВНУТРЕННЕГО СГОРАНИЯ, ИЗМЕРИТЕЛЬНО-РЕГИСТРИРУЮЩЕЕ ОБОРУДОВАНИЕ, ЭНЕРГОСНАБЖЕНИЕ.

Tolstushko M., Tolstushko N., Yukhymchuk S. Analysis of the output of the flax harvester output device

The results of the analysis of the output of the flax harvester output device are presented in the article. The individual parameters of the flax harvester output device are substantiated.

The output devices of the flax harvesting machines carry out the process of spreading the stem of flax on the surface of the flax. Moreover, the stem ribbons are characterized by such indicators as the relative elongation and distortion of the stalks in the ribbon, the thickness of the ribbon. It is

important to improve the quality of spreading flax stem tape on the basis of improving the design and justification of the parameters of the output devices of flax harvesters.

Analysis of recent studies and publications indicates that there are many theoretical, experimental and theoretical-experimental studies dedicated to the output of flax harvesting machines. The development of new designs of flax harvesting machine outputs continues in many countries of the world.

In flax harvesters, output devices with active, passive and combined working bodies are used. Functionally, the output devices of the flax harvesters are divided into those that can perform, in addition to spreading the stem tape, the following operations: alignment, flipping, flattening, rotation of the stem tape. Combining several operations with the stem tape in the output device of the flax harvester is an urgent task.

The purpose of the study is to analyze the work of the output device of the flax harvester.

FLAX HARVESTING MACHINE, OUTPUT DEVICE, OUTPUT CONVEYOR, PASSIVE SURFACE, ACTIVE SURFACE, SPREADING, FLAX STEM TAPE.

Толстушко Н.Н., Толстушко Н.А., Юхимчук С.Н. Анализ работы выводящего устройства льноуборочной машины

В статье приведены результаты анализа работы выводящего устройства льноуборочной машины. Обоснованы отдельные параметры выводящего устройства льноуборочной машины.

ЛЬНОУБОРОЧНАЯ МАШИНА, ВЫВОДНОЕ УСТРОЙСТВО, ВЫВОДНОЙ ТРАНСПОРТЕР, ПАССИВНАЯ ПОВЕРХНОСТЬ, АКТИВНАЯ ПОВЕРХНОСТЬ, РАССТИЛ, СТЕБЛЕВАЯ ЛЕНТА ЛЬНА.

Tolstushko N., Yukhymchuk S., Tolstushko N., Sylyvonyuk A. Dynamometer of a flax harvester output device

The article describes the method and results of the dynamometer output of a flax harvester output device. The traction effort of the drive of the flax harvester output device was determined. Existing flax harvester output devices must ensure good spreading of the flax stem strip on the flax. The operation of these flax harvesting machines greatly influences the important characteristics of flax stem strips. Therefore, it is an urgent task to ensure the high quality of spreading the stem tape by flax harvesting machines.

An analysis of recent research and publications indicates that there is a large body of research on the output of flax harvesting machines. The study of the output of flax harvesting machines is continuing.

The purpose of the study is to determine in laboratory conditions the traction force of the drive of the output device with the active working surface of the harvester.

The traction force of the drive of the output device was determined for two cases where the finger of its rocker arm was located near the center of

rotation of the support-drive wheel and when - on its periphery. Here the dynamometer was filmed in the same way as to determine the traction effort of the trolley drive.

The experiments were performed in triplicate. The values of traction effort obtained were recorded in a workbook and processed. Then, subtracting the traction drive of the trolley with the output device traction drive only the trolley, determined the traction drive of the output device.

FLAX HARVESTER, OUTPUT DEVICE, TROLLEY, DRIVE, TRACTION, TORQUE, FLAX TAPE.

Толстушко Н.Н., Юхимчук С.Ф., Толстушко Н.А., Сыльвонюк А.В. Динамометрирование выводного устройства льноуборочной машины

В статье приведена методика и результаты динамометрирования выводного устройства льноуборочной машины. Определено тяговое усилие привода выводного устройства льноуборочной машины.

ЛЬНОУБОРОЧНАЯ МАШИНА, ВЫВОДНОЕ УСТРОЙСТВО, ТЕЛЕЖКА, ПРИВОД, ТЯГОВОЕ УСИЛИЕ, ДИНАМОМЕТРИРОВАНИЕ, ЛЕНТА ЛЬНА.

Khitrov I., Bundza O., Babych Y. Key standards of quality service buyers at building technology at dealer enterprise

The formation of the modern market of machines, technical and industrial services, especially in the context of the financial and economic crisis, requires the introduction of new approaches in the relationship between its subjects through the development and introduction of the latest standards of quality, which is exactly what this article is devoted to. The standards define the most important aspects of the relationship between the buyer and the dealer, as well as the financial success of the dealer company in the future. It describes the key aspects of the executive functions of the service personnel for the provision of appropriate services. Based on customer satisfaction standards, questionnaires were developed to find out the effectiveness of the work of service departments, parts and sales equipment. An expert evaluation of the effectiveness of the dealer and the company as a whole is given. Directions of further scientific researches about possibility of their application in the further practical activity are planned.

Keywords: dealer, dealership, dealer standards, buyer.

Хитров И.А., Бундза О.З. Национальный университет водного хозяйства и природопользования Ключевые стандарты качества обслуживания покупателей при покупке техники на предприятии дилера

Статья посвящена ключевым стандартам качества обслуживания покупателей на дилерском предприятии. Стандарты раскрывают важнейшие аспекты взаимоотношений между покупателем и дилерским предприятием. Проанализированы исполнительные функции обслуживающего персонала и его роль в организации технического сервиса машин. Дано экспертную оценку эффективности работы дилера. Намечены направления дальнейших научных

исследований относительно возможности их применения в дальнейшей практической деятельности.

Ключевые слова: дилер, дилерское предприятие, стандарты дилера, покупатель.

Tsyz I., Kvach I., Tsos V., Khvesik V., Lavrenchuk V. Granule conveyor cell size study

One of the most affordable ways to create slow-acting forms of fertilizer is to produce complex granular fertilizers using an organic sapropel matrix.

A device for granulating organic-mineral fertilizers, the basis of which is a granulating mesh conveyor, is able to work with sapropel of natural humidity and to provide maximum yield of a commodity fraction of final humidity. The purpose of this study is to determine the patterns for calculating the cell size of the granulating conveyor, taking into account the shrinkage of the granules during the drying process.

As a result of the study, a formula was obtained for calculating the cell size of the granulating conveyor, which will provide the required final granule size. For practical use of the obtained formula, the coefficient of volumetric shrinkage of organic-mineral mixtures based on sapropel was determined experimentally.

It was also found that for all the studied types of organic-mineral fertilizers, it is possible to choose the ratio between the organic and mineral parts in which the initial cell size of the granulating conveyor will be 8 ... 10 mm, and the final diameter of the granules will not exceed 6 mm.

Цызь І.Є., Квач І.В., Цьось В.В., Хвесик В.В., Лавренчук В.В. Исследование размера ячейки гранулирующего транспортера

Одним из самых доступных путей создания медленно действующих форм удобрений является производство комплексных гранулированных удобрений с использованием органической матрицы сапропеля.

Устройство для гранулирования органо-минеральных удобрений основой которого является гранулирующий сетчатый транспортер способен работать с сапропелем естественной влажности и обеспечивать максимальный выход товарной фракции конечной влажности. Целью данного исследования является определение закономерности для расчета размера ячейки гранулирующего транспортера с учетом усадки гранулы в процессе сушки.

В результате исследования получена формула для расчета размера ячейки гранулирующего транспортера, которая обеспечит необходимый конечный размер гранул. Для практического использования полученной формулы определен экспериментально коэффициент объемной усадки органо-минеральных смесей на основе сапропеля.

Также было установлено, что для всех исследуемых видов органо-минеральных удобрений можно подобрать соотношение между органической и минеральной частью при которых начальный размер ячейки гранулирующего транспортера будет составлять 8 ... 10 мм, а конечный диаметр гранул не превысит 6 мм.

Yukhimchuk S., Yukhimchuk S., Tolstushko M., Datsyuk L. Substantiation of the pulling link of the chain flaxs-pulling apparatus

The article describes the design and principle of operation of a

fundamentally new chain flax-pulling apparatus, the use of which will allow to eliminate the stretching of the stems in the tape when harvesting flax. And also, theoretically substantiated the main parameters of the pulling link of the chain flax-pulling apparatus

The principle used for picking flax stems is to clamp the stems between the rotating roller and the fixed clamping plate. The following tasks were solved: 1) the speed of the chain was selected; 2) justified the step of placing the pulling-lifting links on the chain; 3) the radius of the roller and the angular velocity of its rotation are selected; 4) the size of the coverage area of the roller by the pressure plate is determined — the zones of pinching of the stems in the pulling link during pulling.

According to the established parameters, the layout scheme of the pulling link was developed.

Юхимчук С.Ф., Юхимчук С.М., Толстушко Н.Н., Дацюк Л.М.
Обоснование параметров теребильного звена цепного льонотеребильного аппарата

В статье дано описание конструкции и принципа работы принципиально нового цепного теребильного аппарата, использование которого позволит при уборке льна устранить растянутость стеблей в ленте. А также, теоретически обоснованы основные параметры теребильного звена цепного льонотеребильного аппарата.

Использован принцип теребления стеблей льна заключается в заделке стеблей между вращающимся роликом и неподвижной прижимной пластиной. Были решены следующие задачи: 1) подобрано скорость движения цепи; 2) обосновано шаг размещения теребильных звеньев на цепи; 3) подобрано радиус ролика и угловую скорость его вращения; 4) определена величина зоны охвата ролика прижимной пластиной - зоны защемления стеблей в теребильном звене при тереблении.

По установленным параметрам была разработана компоновочная схема теребильного звена.
