

## АННОТАЦИИ. КЛЮЧЕВЫЕ СЛОВА. БИБЛИОГРАФИЯ

**Стюрко М.А.** Формирование всхожести семян гибридов кукурузы в условиях Северной Степи Украины / **М.А. Стюрко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2016. – № 1(39). – С. 5–10.

Определены параметры, характеризующие процесс созревания семян гибридов кукурузы – динамику их влагоотдачи и накопление сухого вещества. Установлено значение влажности и сроков уборки, при которых семена формируют кондиционную всхожесть, высокую силу роста и продуктивные растения.

**Ключевые слова:** семена кукурузы, влажность, влагоотдача, масса 1000 семян, всхожесть.

**Папка О.С.** Геоморфологические детерминанты вегетационного индекса NDVI сельскохозяйственных угодий Полтавской области / **О.С. Папка** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2016. – № 1(39). – С. 11–16.

Установлена вариабельность фитомассы растительного покрова сельскохозяйственных угодий экспериментального полигона с использованием индекса NDVI. Определен характер влияния на него рельефа, выраженного с помощью геоморфологических показателей. Показано, что геоморфологические предикторы весной способны объяснить 13 %, в конце лета – 11 % вариабельности индекса NDVI. Кроме того, на показатель NDVI влияет такой геоморфологический признак, как топографический индекс поверхностного смыва почвы (LS-фактор). Геоморфологические предикторы в рамках общей линейной модели способны обосновать 21 % вариабельности диапазона изменчивости NDVI в конце лета.

**Ключевые слова:** вегетационные индексы, Landsat, NDVI, пространственная вариабельность, цифровая модель рельефа.

**Ридей Н.М.** Теоретико-методологический анализ экологического мониторинга агрофосферы в организации рекреационной деятельности / **Н.М. Ридей, Т.Ф. Хитренко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2016. – № 1(39). – С. 17–24.

Проанализировано современное толкование понятийно-категориального аппарата экологического мониторинга по научным, научно-методическим, нормативно-правовым источникам. Актуализирована необходимость теоретического и правового обоснования понятия “мониторинг рекреационных территорий”, разработки и совершенствования системы мониторинга рекреационных территорий

агрофосферы Украины. Структурированы по классификационным признакам составляющие экологический мониторинг, окружающей среды в целом. Разработана структурно-логическая схема экологического мониторинга агрофосферы для организации рекреационной деятельности.

**Ключевые слова:** мониторинг, экологический мониторинг, рекреационные территории, агрофосфера, агроэкологический мониторинг.

**Цилюрик А.И.** Влияние минимальной обработки почвы и удобрения на рост и развитие растений подсолнечника в условиях северной Степи / **А.И. Цилюрик, В.Н. Судак** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2016. – № 1(39). – С. 25–31.

Обоснована целесообразность применения мелкой мульчирующей обработки почвы (чизелевание, плоскорезное рыхление) и улучшенной системы удобрений ( $N_{60}P_{30}K_{30}$  + пожнивные остатки предшественника) в технологии выращивания подсолнечника после озимой пшеницы, что обеспечивает оптимальный рост и развитие растений, а также высокий уровень продуктивности подсолнечника (2,51–2,72 т/га), который по урожайности семян практически не уступает отвальной вспашке (2,53–2,67 т/га).

**Ключевые слова:** подсолнечник, обработка почвы, пожнивные остатки, минеральные удобрения, рост и развитие растений, биометрические показатели, элементы структуры урожая, урожайность.

**Гармаш С.Н.** Биоконверсия отходов аграрного сектора экономики с целью получения биоэтанола / **С.Н. Гармаш** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2016. – № 1(39). – С. 32–36.

Показана актуальность получения альтернативного источника энергии биоэтанола из целлюлозосодержащих отходов промышленности и аграрного сектора экономики. Представлены результаты исследований получения биоэтанола из плодовоовощных отходов и соломы пшеницы. Обсуждаются оптимальные условия проведения гидролиза исследуемых отходов. Установлены преимущества использования дрожжей *H. polymorpha*, позволяющих проводить одновременно процессы осахаривания и ферментации.

**Ключевые слова:** биоэтанол, очистки картофеля, солома пшеницы, яблочно-виноградные выжимки, дрожжи *H. polymorpha*, осахаривание и ферментация.

**Цьова Ю.А.** Экоморфическая структура банка семян сорняков агроэкосистем / **Ю.А. Цьова** // Вісник Дніпропетровського державного

## АННОТАЦИИ. КЛЮЧЕВЫЕ СЛОВА. БИБЛИОГРАФИЯ

аграрно-економічного університету. – 2016. – № 1(39). – С. 37–42.

Установлено, что сорняки могут выступать как индикаторы экологических условий своего местообитания. С использованием экоморфического анализа оценена экологическая специфика сообществ сорняков, что является основой для разработки экологически обоснованной борьбы с ними. Определено, что в сообществе сорняков значительную часть составляют однолетники. Проанализирована трофоморфическая структура сорняков. Трофотоп поля – среднебогатый; гиротоп – свежесватый. Представители мезотермов составляют подавляющее большинство сообществ. Разнообразная термоморфическая структура сообщества сорняков свидетельствует о высоком уровне их адаптации к значительному диапазону термических условий. Разнообразные пути разнесения семян приводят к формированию значительного потенциала дистрибуции сорняков в пределах и за пределами поля.

**Ключевые слова:** сорняки, индикаторы, экоморфы, банк семян.

**Кирпа Н.Я.** Комплекс механизированный для сушки–очистки семян кукурузы в хозяйствах / **Н.Я. Кирпа, М.А. Стюрко, Л.Н. Бондарь** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2016. – № 1(39). – С. 43–47.

Разработано технико-технологическую схему механизированного комплекса, включающего камерную кукурузосушилку, линию очистки–сортировки–упаковки готовой продукции сезонной мощностью 100–120 т семян кукурузы. Приведены результаты испытания новой кукурузосушилки и линии, на которой получены семена с высокими показателями всхожести семян кукурузы, силы роста и урожайных свойств. Комплекс предназначен для обработки семян родительских форм гибридов кукурузы в условиях семеноводческих хозяйств.

**Ключевые слова:** кукуруза, сушилка, линия для очистки семян, качество семян, энергозатраты.

**Чурсинов Ю.А.** Исследование изменения состава ферментированного солода при сушке / **Ю.А. Чурсинов, О.А. Пивоваров, Е.С. Ковалёва** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2016. – № 1(39). – С. 48–52.

Приведены результаты исследований процесса сушки ферментированного солода, полученного по классической технологии и по специальной технологии с использованием

плазмохимически активированных водных растворов. Определены изменения состава солода при его сушке, исследованы содержание сахаров, аминокислотный состав и наличие меланоидинов в готовом продукте. Сделаны выводы о динамике изменения показателей.

**Ключевые слова:** солод ржаной, ферментированный солод, термическая обработка, температура сушки, сахара, аминокислотный состав, меланоидины, меланоидинообразование.

**Паляничка Н.А.** Определение путей снижения энергозатрат процесса гомогенизации молока / **Н.А. Паляничка** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2016. – № 1(39). – С. 53–56.

Обсуждается решение проблемы снижения энергоёмкости процесса гомогенизации молока с использованием импульсного гомогенизатора. В полнофакторном эксперименте доказана зависимость между энергозатратами на процесс импульсной гомогенизации, амплитудой колебаний поршня-ударника, частотой колебаний и подачей молока в импульсный гомогенизатор.

**Ключевые слова:** энергозатраты, гомогенизация, молоко, импульсная гомогенизация, частота колебания, амплитуда колебания, подача молока, поршень-ударник.

Влияние плазмохимически активированной воды на физиологическую полноценность зерна пшеницы для производства цельнозерновых продуктов / **С.Ю. Мыколенко, А.А. Пивоваров, Ю.А. Чурсинов, В.Ю. Соколов** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2016. – № 1(39). – С. 57–63.

Изложены результаты исследования влияния воды, обработанной контактной неравновесной плазмой, на физиологические показатели зерна пшеницы с целью дальнейшего его использования для производства зерновых продуктов нового поколения. Установлено положительное действие такой воды на зерновое сырье с низкой энергией и способностью к прорастанию, на усиление физиологических процессов при влаготепловой обработке. Описаны изменения показателей качества зернового сырья в зависимости от продолжительности хранения и влияние на них плазмохимически активированной воды. Рассмотрены проблемы производства цельнозерновой продукции и предложены пути их решения.

**Ключевые слова:** зерно, гидротермическая обработка зерна, физиологические показатели, плазмохимически активированная вода.

## АННОТАЦИИ. КЛЮЧЕВЫЕ СЛОВА. БИБЛИОГРАФИЯ

**Самойчук К.О.** Аналитические исследования условий диспергирования жировой фазы молока в пульсационном гомогенизаторе / **К.О. Самойчук, Л.В. Левченко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2016. – № 1(39). – С. 64–67.

На основе критерия разрушения Вебера разработана модель диспергирования жировой фазы молока в пульсационном гомогенизаторе, которая дает возможность определить ускорение эмульсии – ключевой фактор, для нахождения степени гомогенизации молока. Доказано, что для повышения степени диспергирования необходимо уменьшать площадь живого сечения поршня и повышать частоту и амплитуду его колебаний.

**Ключевые слова:** диспергирование, гомогенизация, молоко, пульсационный гомогенизатор, скорость, ускорение.

**Черных С.А.** Особенности хранения зерновых запасов с использованием охлаждения и мониторинг складских вредителей / **С.А. Черных, Н.В. Грекова, Ю.О. Чурсинов** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2016. – № 1(39). – С. 68–72.

Установлено, что показатели суммарной плотности и загрязнения зерна пшеницы выше, чем у других культур. На уровень показателей видового разнообразия преимущественно влияли условия и режимы хранения зерна, абиотические факторы, использование средств против вредителей и защиты. Обсуждается возможность вентилирования зерна при различных температурных режимах хранения. Приведена возможность выбора вентиляционной установки для охлаждения зерна в силосах элеваторов. Использование природных источников холода для консервирования зерновых масс является доступным и наиболее экономически выгодным вариантом.

**Ключевые слова:** зерновые запасы, хранение зерна, охлаждение, вентилирование, мониторинг, плотность вредителей, видовой состав.

**Ялпачик В.Ф.** Изменение клейковины пшеницы в процессе хранения в зернохранилище с применением охлаждения / **В.Ф. Ялпачик, В.О. Верхованцева** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2016. – № 1(39). – С. 73–76.

Рассматриваются линейные и нелинейные зависимости, которые прогнозируют эффективность хранения пшеницы при определенных температурах и сроках хранения. Исследован такой показатель качества зерна пшеницы, как клейковина, после охлаждения

в зернохранилище, при различных температурных режимах хранения. Зависимости, полученные с помощью программы MathCad, дают возможность прогнозировать изменение влияния условий хранения на уровень клейковины, а также рекомендовать оптимальные технологические параметры хранения пшеницы.

**Ключевые слова:** хранение, зернохранилище, зерно, пшеница, клейковина, температура, результирующие признаки, матрица коэффициентов корреляции.

**Харитонов А.И.** Моделирование процесса проращивания зерна ячменя при производстве пива / **А.И. Харитонов, В.А. Алексеенко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2016. – № 1(39). – С. 77–82.

Рассматривается моделирование процесса проращивания ячменя, построенное на основе полного факторного эксперимента второго порядка, позволяет определить рациональные параметры, которые влияют на увеличение длины ростков ячменя. Для проведения эксперимента взято наиболее влияющие факторы – доза излучения ионизации воздуха, толщина слоя зерна и влажность солода.

**Ключевые слова:** доза, излучение, качество, толщина слоя, влажность солода, полный факторный эксперимент, критерий.

**Алексеенко В.А.** Обоснование производительности и конструктивных параметров пресс-гранулятора / **В.А. Алексеенко, А.А. Червоткина** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2016. – № 1(39). – С. 83–86.

Утверждается, что в Украине недостаточно полно используются вторичные сырьевые ресурсы плодоовощной отрасли промышленности; перспективной и актуальной является переработка вторичного сырья сокового производства (выжимки, пюре-отходы), которое не потеряло пищевой ценности. Представлены результаты исследования условий, при которых можно формировать гранулы, устанавливать параметры и основные показатели технологических операций, создавать совершенные технические средства.

**Ключевые слова:** гранулирование, матрица, гранулятор, отходы сокового производства, зубчатый валец, канал прессования, фильеры матрицы, сжатие материала.

**Самарец Н.Н.** Современное состояние деятельности сельских домохозяйств в Украине / **Н.Н. Самарец** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2016. – № 1(39). – С. 87–92.

## АННОТАЦИИ. КЛЮЧЕВЫЕ СЛОВА. БИБЛИОГРАФИЯ

Рассмотрены основные характеристики домохозяйств в сельской местности Украины в 2014 году на основе средних и относительных показателей, характеризующих их производственные ресурсы: размера земельных участков, находящихся в пользовании сельского населения, структуры посевных площадей, наличия скота и птицы, хозяйственных построек и техники. Показаны место и роль домохозяйств в национальной экономике.

**Ключевые слова:** площадь земли, регион, сельские домохозяйства, структура посевных площадей, техника.

**Багорка М.О.** Формирование эколого-экономического механизма маркетингового управления в аграрном производстве / **М.О. Багорка** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2016. – № 1(39). – С. 93–98.

Доказано, что сегодня человечество больше осознает необходимость коренной перестройки взаимоотношений общественного производства с окружающей естественной средой. Ведь сложная экологическая ситуация в стране побуждает как производителей, так и потребителей к поиску оптимального соотношения между уровнем собственной прибыли и уровнем расходов на природоохранную деятельность. В связи с этим формирование и дальнейшее развитие экологически ориентированного аграрного сектора экономики в Украине делает вопрос экологического маркетинга и усиления его роли в процессе ведения сельскохозяйственного производства очень необходимым и актуальным.

**Ключевые слова:** экологический маркетинг, эколого-экономическое управление, аграрное производство, экологически безопасная продукция, социальная ответственность.

**Харченко Е.Н.** Повышение эффективности выбора препаратов для защиты растений с использованием эконометрического анализа / **Е.Н. Харченко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2016. – № 1(39). – С. 99–103.

Показана целесообразность комплексной оценки выбора препаратов для защиты растений на базе эконометрического анализа. Для установления формы исследуемых факторов, влияющих на защиту растений, предлагается, кроме эконометрического анализа, проводить графический анализ в среде приложения Microsoft Excel, что сможет повысить как достоверность проведенного анализа, так и эффективность выбора и использования химических и биологических препаратов в защите растений.

**Ключевые слова:** защита растений, эконометрия, статистическая обработка, корреля-

ционно-регрессионный анализ, агрономия, Microsoft Excel.

**Захарченко Ю.В.** Стратегический маркетинг экспорта пшеницы / **Ю.В. Захарченко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2016. – № 1(39). – С. 104–109.

Проанализированы и раскрыты тенденции экспорта пшеницы за 1990–2015 гг. Получены результаты спектрального анализа функции, описывающей динамику экспортных продаж пшеницы. Сформулирована стратегическая задача маркетинга экспорта пшеницы, которая содержит внутренние противоречия. Предложены первоочередные задачи для формирования маркетинговой стратегии экспорта пшеницы.

**Ключевые слова:** зерновые культуры, пшеница, экспорт, частотный спектр, рынок сбыта.

**Вильхова Т.В.** Затратно-отраслевое обоснование направлений усовершенствования землепользования сельскохозяйственных производителей / **Вильхова Т.В.** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2016. – № 1(39). – С. 110–115.

Проанализирована динамика структуры затрат на производство продукции растениеводства. Предложен затратный профиль обоснования направлений совершенствования землепользования. Даны рекомендации агропроизводителям по внедрению инновационных энергосберегающих технологий, сокращению посевов технических культур, повышению урожайности зерновых до уровня генетических возможностей сортов, увеличению площадей под овощными и кормовыми культурами и др.

**Ключевые слова:** землепользование, затраты, семена, техника, удобрения, эффективность производства, зерновые и технические культуры, овощные и кормовые культуры.

**Мищенко Д.А.** Использование методов статистического моделирования для повышения эффективности и качества производства аграрной продукции / **Д.А. Мищенко, Н.А. Черная, О.В. Шевченко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2016. – № 1(39). – С. 116–120.

Изучены показатели степени концентрации аграрного производства, что позволяет количественно и качественно оценить такое экономическое явление, как распределение ресурсов та результатов производства. Приведены корреляционно-регрессионные модели для изучения причинно-следственных связей между факторами и показателями производства.

## АННОТАЦИИ. КЛЮЧЕВЫЕ СЛОВА. БИБЛИОГРАФИЯ

**Ключевые слова:** кривые Лоренца, коэффициент Джини, аграрное производство, концентрация аграрных угодий, аграрные предприятия, корреляционно-регрессионный анализ, цена, рентабельность.

**Васильева Л.Н.** Формирование инновационной модели развития национальной экономики / **Л.Н. Васильева** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2016. – № 1(39). – С. 121–124.

Определено, что активизация инновационной составляющей экономического развития требует формирования модели инновационного развития. Установлены тенденции и проанализированы источники финансирования инновационной деятельности предприятий Украины. Сформулирован ряд мероприятий по переводу национальной экономики на инновационную модель развития, направленных на приведение системы государственного управления в модель экономического роста.

**Ключевые слова:** государственное управление, инновации, модель, национальная экономика, развитие.

**Гаврылко Г.П.** Анализ сильных и слабых сторон Закарпатской области в контексте развития санаторно-курортной сферы и рекреации / **Г.П. Гаврылко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2016. – № 1(39). – С. 125–128.

С помощью ситуационного анализа проведена оценка внутренней среды и эффективности использования имеющихся рекреационных ресурсов Закарпатской области. Приве-

дены результаты внутреннего аудита, с помощью которого определены сильные стороны и недостатки, систематизированы рыночные возможности и угрозы в работе курортов Закарпатья. С использованием инструментов SWOT-анализа выделены сильные и слабые стороны санаторно-курортной деятельности области, а также потенциальные выгоды и вероятные угрозы.

**Ключевые слова:** курорт, санаторно-курортная сфера, конкурентные преимущества, потенциальные выгоды, потенциальные угрозы, инвестиции, санаторно-курортная инфраструктура.

**Лупыч О.О.** Организационные основы создания отечественного гостиничного оператора / **О.О. Лупыч** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2016. – № 1(39). – С. 129–132.

Обоснована целесообразность создания отечественного гостиничного оператора, предложена соответствующая методика, состоящая из логических и последовательных уровней, которые можно условно разделить на следующие три этапа: подготовительный, организационный, практический. Раскрыты суть и содержание, сформирован перечень задач для реализации каждого из этапов. Систематизирован перечень основных услуг, которые гостиничный оператор может предоставить действующему отелю. Разработан перечень рекомендаций, правил и принципов успешной деятельности отечественного гостиничного оператора.

**Ключевые слова:** гостиница, гостиничный оператор, гостиничная сеть, контрактное управление, эффективность деятельности гостиницы, инвестиции, гостиничная услуга.

## ABSTRACTS. REFERENCES. KEYWORDS

### **Formation seed germination of corn hybrids in a Northern Steppes Ukraine (p. 5–10)**

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Germination is the main indicator of quality seeds, which mainly characterizes his crop suitability and performance. Corn grown over the years, even with identical sowing qualities is often different in terms of similarities. Formation of similarity depends greatly on the conditions and biotic-abiotic factors arise in the process it ripening, harvesting and post-harvest processing. The main factors in the maturation include dynamic impact humid and dry matter accumulation and humidity at which seed is collected. Conditions affecting the intensity of moisture impact and the collecting moisture are complex. This temperature and precipitation during the growing season, group and phase maturity hybrids, type and structural features of grains and ear.

In recent years, significantly changing agro-climatic conditions that directly affect the maturation of maize seed is formed and the process of forming seed germination. It remains unclear relationship between germination, moisture, humidity, impact and accumulation of dry matter, making it difficult to obtain in the present conditions of the domestic high-quality seed corn hybrids.

**The aim of our research** was to determine the features maturing corn hybrids in various, primarily arid conditions and determine the moisture, which is formed by the certified seed germination of corn.

Research carried out in 2011–2014 In Agricultural Steppe zone Institute of the National Academy of Agrarian Sciences of Ukraine and SE "DG Dnepr". The process of maturing corn hybrids tested for breeding institutions that belong to different groups of ripeness: Dniprovskiyi 181 CB, Kremin 200 CB, Liubava 279 MB, Rozovsky 311 CB, Zbruch.

It was established that in conditions wet Northern Steppe impact humid has increased significantly and is 0,8–2,2 % daily depending on hybrids and is higher compared to the long-term data. Accumulation of bulk dry substance completed with a moisture content of 22–30 %, but it may decrease depending on hybrids by an average of 3–9 % due to moisture and intense breathing seeds.

Against the background of rapid impact humid changing nature of the seed germination of corn hybrids. Conditioned similarity (92 % per DSTU 4138) studied the seed of hybrids achieves already at 47–53 % moisture or less, depending on hybrids. High field similarities and productivity humidity 32–40 % depending on the maturity of hybrids. Based on the speed impact humid, predicted indicative deadlines early harvesting corn

hybrids of different maturity groups such intervals humidity: 38–40; 30–32; 22–20 %.

**Keywords:** corn seed, humidity, moisture recoil, weight of 1000 seeds, germination.

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### **Geomorphological determinants of vegetative index NDVI of agricultural grounds of the Poltava area (p. 11–16)**

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Variability of phytomass of a vegetative cover of agricultural lands experimental to range within the Poltava area by means of index NDVI have been established and character of influence on it of a relief expressed by means of geomorphological indicators have been defined. Statistical distribution of values of index NDVI during the spring period is described by gamma distribution, and in the end of summer by normal distribution. Geomorphological predictors have

## ABSTRACTS. REFERENCES. KEYWORDS

been established to be capable to explain 13 % of variability of index NDVI in the spring. Along with the field area, statistically authentic predictor indicator NDVI is FAR. At the initial stages of the vegetative period the quantity of a solar energy which arrives in a surface of the Earth in the conditions of the Poltava area, is intensity of growth of plants solving for stimulation on fields. Geomorphological predictors in the end of summer are capable to explain 11 % of variability of index NDVI. Along with the sizes of a field indicator NDVI is influenced by such geomorphological sign, as a topographical erosion index (LS-factor). Geomorphological predictors within the limits of the general linear model are capable to explain 21 % of variability of such indicator, as a range of variability NDVI within a field in the end of summer. It testifies that throughout the vegetative period limiting influence on a vegetative cover of the factors which redistribution is caused by a relief increases.

**Keywords:** vegetation indexes, Landsat, NDVI, spatial variability, digital elevation model.

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### **Theoretical-methodological analysis of ecological monitoring of agrosphere in the organization of recreational activity (p. 17–24)**

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Prevention of the degradation of the environment is one of the tasks of environmental control, for conducting which is used information base of environmental monitoring, thus monitoring depending on the assigned tasks may be a function, form or instrument for environmental control.

The purpose of the study consists in establishment of the role of environmental monitoring of recreational territories in the preservation of natural resource potential and ensuring the balanced development agrosphere. There was analyzed the interpretation of conceptual and categorical apparatus of environmental monitoring for scientific, methodological and normative legal sources, actualized needs of theoretical and legal clarification of the concept of and monitoring of recreation territories, including agrosphere. It was established structure of ecological monitoring of classification features, location monitoring of recreational territories agrosphere in the system of general environmental monitoring. There was determined the components of monitoring of recreational territories agrosphere, their classification features. Based on the analysis there was developed structural and logical scheme for ecological monitoring of agrosphere of organization recreational activities. The results of theoretical and legal analysis will contribute to development of a modern system of ecological monitoring of recreational territories of agrosphere, the implementation of environmental control over the proper use of recreational resources, burden on recreational territory and the adoption resource-saving organizational and management decisions for their environmental and sustainable development.

**Keywords:** monitoring, environmental monitoring, recreational territories agrosphere, agroecological monitoring.

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***Influence of minimum tillage and fertilizers on the growth and development of sunflower plants in the conditions of Northern Steppe (p. 25–31)***

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**Problem.** The sunflower cultivation is one of the most profitable areas of agricultural production; it requires further improvement of the methods and systems of tillage during its proceedings in connection with the trend towards energy conservation, minimization, and leaving crop residues on the field surface. Recently in the technology of sunflower cultivation the significant spread is become the small multivalley cultivation of the soil, which eliminates the possibility of the topsoil turning and provides for the previous crops by-products usage.

**Research results.** As it is known, the temperature at the initial stages of sunflower development, moisture content and effective soil fertility are among the major factors that directly affect the phenology, biometric parameters and the elements of oilseeds productivity. Taking into consideration of the weather conditions the biggest height of plants (166–175 cm), diameter of stem (2,1–2,9 cm) and number of leaves on 1 plant (17–22 pieces) in the flowering phase was registered in a favorable years 2011 and 2013. In droughty 2012 year the figures were respectively 125–134 cm, 2,0–2,7 cm and 15–18 PCs./ plant.

It is observed a positive effect of complex mineral fertilizers, especially with high nitrogen content, on the sunflower biometrics. The difference in the plant height between fertilized (N60P30K30) and not fertilized backgrounds was not significant; the diameter of stem and number of leaves per 1 plant were significant and amounted to an average respectively 0,3–0,4 cm and 1,3 to 2,2 PC.

Characteristic symptom, which was appeared itself in the vegetation period of the oilseed crops, this was the slowed growth and development of plants on a natural background on turning and chisel cultivation before the antheridium formation phase. This is primarily due to the difference of the placement topography of post-harvest predecessor residues (winter wheat), different degrees of mixing and separation of the soil mass, which were significantly influenced on the quality of sowing and the fluxion of microbiological processes.

As consistent with biometric indicators the key elements of sunflower productivity were changed. The highest pre-harvest plants density (43,5–45,8 thousand/ha) was recorded in 2011 and 2013, less one (37,8–41,7 thousand/ha)



## ABSTRACTS. REFERENCES. KEYWORDS

was in unfavourable 2012, when some of them perished from an anomalous soil-air drought in the first half of July, and some suffered from the intense rainfall and hurricane in the second decade of August.

**Conclusions.** On the plots without fertilizer application (no fertilizer + post-harvest predecessor residues) the turning plowing provides the best conditions for growth, development and formation of sunflower productivity (2,35 t/ha), and on a balanced organic-mineral background (N60P30K30 + post-harvest predecessor residues) with subsurface cultivator and chisel cultivation, biometric and structural indicators of the plants (height is 160,1–160,3 cm, diameter of the stem is 2,7–2,8 cm, leaf area index is 3,18–3,29 m<sup>2</sup>/m<sup>2</sup>, the diameter of the antheridium is 22,1–22,4 cm, weight of seeds from the antheridium is 65,3–66,2 g) are equal to the turning cultivation and provide approximately the same yield of seeds (respectively 2,53–2,67; 2,57–2,72 and 2,51–2,64 t/ha).

Minimizing tillage under sunflower gives the opportunity to improve the economic indicators of the oilseeds production, namely to increase the level of production profitability by 12–15 % and a payback period of one hryvnia production costs from 2,32 to 2,44–2,74, to increase the energy ratio from 3,01 to 3,19–3,20, and to save fuel 12,3–13,8 l/ha.

**Keywords:** sunflower, tillage, residues, mineral fertilizers, growth and development of plants, biometric rates, elements of yield structure, crop capacity.

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### *Bioconversion of agriculture wastes for obtaining of bioethanol (p. 32–36)*

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Ethanol is one of the bio-energy sources with high efficiency and low environmental impact. Various raw materials have been used as carbon source for ethanol production. The aim of our work was to study investigation of bioethanol production from potato peel waste, wheat straw, apple and grape pomace. It is suggested to use yeasts *Hansenula polymorpha* for the process of simultaneous saccharification and fermentation. The industrial use of these yeasts is conditioned by their capacity for the accumulation of considerable biomass in a fermenter, that provides the high exit of foods. The main stages of this process are: thermal treatment of raw material, hydrolysis of starch, fermentation, separation of liquid, cooling, distillation of solution. In industry from 100000 tons of wastes it is possible to get from 13 to 21 million l of bioethanol that contains 65–72 % of ethanol. The offered technology will allow to receive an alternative energy source (bioethanol), and also will allow to utilize wastes. Introduction of the offered technology of bioutilization of wastes will allow to improve an ecological situation on territories of an enterprise. A bioethanol is a perspective and an alternative energy source. It is expedient to produce a bioethanol from wastes of cellulose. Power potential of Ukraine for the production of bioethanol is the 370 thousand tons of conditional fuel. Wastes of production of bioethanol can be used as a fertilizer and forage additions for animals, birds etc. Offered technology is economically and ecologically advantageous for agricultural enterprises.

**Keywords:** bioethanol, potato peel waste, wheat straw, apple and grape pomace, yeast *H. polymorpha*, saccharification and fermentation.

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### **Ecomorphic structure of agroecosystem weeds seeds bank (p. 37–42)**

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In work efficiency of A.L. Belgard ecomorphic analysis application to communities of the plants which seeds make agroecosystems bank of seeds has been shown. Weeds have been established to be able to act as indicators of ecological conditions of the given habitat. The ecomorphic analysis allows to estimate ecological specificity of communities of weeds that is a basis for working out of ecologically proved struggle against them. It is established, that in community of the weeds which seeds it is revealed in soil of a research field, annuals make 99,37 % from total of seeds, whereas perennials – 0,63 %. The community trophomorphes structures analysis of weeds allows to make representation about features of a edaphotopes mineral nutrient condition. The trophotopes of the investigated field has been defined as medium rich. Among hygromorphes prevail xeromesophytes (77,83 %). Hygotopes of the investigated field it is possible to define as fresh. The overwhelming majority of community is made by representatives of mesoterms (56,62 %) who oc-

cur from a moderate belt. Variable termomorphic structure of community of weeds testifies to high level of their adaptation to a considerable range of thermal conditions. Diasporohoria among investigated grouping it is carried out by means of three main types: balist (45,59 %), barohores (25,34 %), synzoohores and balists (28,36 %). Various ways of distribution of seeds lead to formation of considerable potential of distribution of weeds in limits and outside of a field.

**Keywords:** weeds, indicators, ecomorphes, seeds bank.

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### **Complex mechanized drying–cleaning corn seeds in farms (p. 43–47)**

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To prepare and obtain high-quality corn seed should apply the recommended (typical) post-harvest handling technology and material and technical base for its implementation. Typical technology includes a number of operations and regulations, which must take into account the biological and physical parameters corn during its processing; depending on the quality seeds are formed. These indicators include humidity, heat resistance, Weight, size, strength of grains that affect crop quality, in particular vigor, germination and growth of seeds force. The regulations must also be optimal to energy costs associated with processing, answered scientifically substantiated standards.

Material and technical base complex postharvest treatment represented mainly specialized corn processing plant of different capacities – from 1,5 to 5,0 thousand tons of seeds per season. A characteristic feature of these plants was that they worked for the typical process scheme, from the stage of acceptance ears to the storage of finished products. Most plants were designed

for receiving, processing and storage of seeds sorts and hybrids of the first generation, which can be used for the same type of process steps and the same regulations drying, cleaning, sorting, sizing.

However, the seed production corn is grown and cultivated seed as parental forms of hybrids. Parental forms include different categories. They need some material base that will provide training of high quality seed with optimal power consumption.

**The aim of our research** was to develop a set of mechanized for basic technical and technological operations postharvest corn processing (cleaning, sorting) that affect seed quality and energy consumption. The complex must meet the conditions of its construction and operation in seed farms that grow the parental forms of hybrids of corn and small parties most common and new hybrids.

Analysis of literature data and reputed technical and technological solutions for the scientific direction; the latest engineering and design work; experimental and production test equipment; determining seed quality laboratory and field methods; mathematically-static analysis of the reliability of research results.

Developed technical and technological scheme of complex mechanized postharvest treatment of seed corn in the conditions facilities. Postharvest treatment includes: preparation, drying and threshing of ears, cleaning, sorting and enrichment of seed, dosing and packaging of finished products from the seasonal total capacity of 100-120 tons. During processing at the complex got a high seed germination and growth and yield strength, reduced energy costs (fuel, electricity) compared with those specialized plants.

The complex is especially recommended for the treatment of seeds parental forms of hybrids of corn, and the relatively small batches of new hybrids, which were first introduced in production. During processing provides high varietal purity, eliminate any contamination and injury to the finished product.

**Keywords:** corn, drying, cleaning line for seed, seed quality, energy consumption.

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### **Researching of changes in composition of fermented malt during the drying (p. 48–52)**

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The researching results of fermented malt drying, obtained by traditional technology and by special technology with using of plasma chemical activated water solutions. Were identified the changes of malt composition during his drying, researched the content of sugars, amino acid composition and presence of melanoidins in the finished product. Were made a conclusions about the dynamic of indexes change. This characteristic of malt drying process with the task to obtain the product for technological qualities (color, flavor, aroma) and to decrease its moistness to regulations standards. Was detected the amino acid composition of malt with using of ion-exchange chromatography methods. The samples of fermented malt obtained by special technology with using of plasma chemical activated water solutions, have a higher content of soluble protein. Was showed what color, flavor and aroma of rye fermented malt shape by the formation of coloring and aromatic substances – melanoidins, which appear during the drying.

**Keywords:** rye malt, fermented malt, drying, heat treatment, drying temperature, sugars, amino acids, amino acid composition, melanoidins, forming of melanoidins.

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### **Identify ways to reduce energy consumption homogenization of milk (p. 53–56)**

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The article devoted to solution of the problem of energy consumption the homogenization process. Deciding this problem is possible the use for homogenization of milk of impulsive homogenizer. For the leadthrough of researches the laboratory standard of impulsive homogenizer was constructed. The device comprises a working chamber with piston-drummer, who are vibrated through the rod. A basic piston-drummer is rigidly fixed the rod, and further connected to the main by means of a spring. For possibility control the frequency of oscillation of the piston-drummer uses a DC motor. Theoretical energy consumption depending on the homogenization process in momentum homogenizer were identified. Conducted experiment has allowed to establish the relationship between the energy consumption in the process of impulse homogenization, oscillation amplitude, the piston-drummer, frequency fluctuations and supply of milk in a homogenizer. As a result, it was determined that the impulse milk homogenizer with supply  $Q = 1800–2250$  kg/h, oscillation amplitude of  $h = 10–12$  mm, and an oscillation frequency of  $f = 43–59$  Hz energy consumption for the homogenization process is 1,5 kW, and the specific energy – 0,83 J/kg, which is much less than the valve homogenizer (7,4 J/kg).

**Keywords:** energy consumption, homogenizer, milk, impulse homogenizer, oscillation frequency, oscillation amplitude, milk supplying, piston-drummer.

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### **Investigations of the changes of wheat grains physiological parameters with the use of water, subjected to the influence of contact nonequilibrium plasma (p. 57-63)**

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The article deals with the current approaches and existing problems of production of whole grain products from raw sprouted dispersed. The problems that arise in the choice of grain raw materials with optimum performance of physiological and technological properties. It are considered is found that to improve the quality of raw materials and finished products is necessary to use the whole grains processing of silver nanoparticles, quantum LED light,

electrolysis with nanosecond electromagnetic pulses, acoustic waves. The results of the effect on periods of wheat grain storage on its physiological usefulness are obtained. The changes of the process of wheat parameters depending on the storage period are shown. It is found that under increase the duration of raw materials storage, the energy and the ability to germinate as well as water sensitivity decreases. The influence of distilled water backbone, subjected to the effect of contact nonequilibrium plasma on germination energy and the capacity to germination of grain of different wheat storage duration is studied. It is shown that the use of the treated water increases the energy and the ability to germinate on average 30% compared to the control samples. His described the influence of plasma and chemical activated water on water sensitivity of wheat. It is found that in test samples with water use, treated by contact nonequilibrium plasma, water sensitivity increases in half. The features of hydrothermal treatment of processing using the treated water changes and moisture absorption processes are considered, the increase of absorbed water amount in the moisture-heat treatment is shown. The optimal parameters of wheat hydrothermal treatment under the use of plasma chemical activated water for the production of whole grain products and the ways of grain raw materials use with reduced physiological indicators are chosen.

**Keywords:** grain, hydrothermal treatment of grain, physiological parameters, plasma-chemical activated water.

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**Analytical researches of condition of milk fatty phase dispergating in pulsation homogenizer (p. 64–67)**

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Considering the problem of increased power inputs for modern homogenizers which make emulsion with a high dispersion degree, it is suggested to use impulsive (pulsation) homogenization. High rate difference of fatty and dispersible phases results in high efficiency of pulsation homogenizers.

The article aims at developing mathematical model of dispergating process of milk fat emulsion in the pulsation homogenization in the classical machine with one piston.

Analytical researches were based on Verber's criterion for liquid drops destruction. On the basis of classic dependences of hydrodynamics and mechanics we described the piston and milk emulsion movement and derived equations that connect determinations of fluid consumption, velocity and product flow accelerations with the piston diameter, its amplitude and oscillation frequency, number and diameter of openings in the piston. Determination of emulsion acceleration allows forecasting dispergating degree in the homogenizer.

Optimal conditions are found to increase homogenization degree in the investigated machine.

Thus to increase dispergating degree it is necessary to decrease the piston open area and increase its oscillation frequency and amplitude. Determining equations to find milk emulsion acceleration is the key for developing mathematical model of fat globules destruction in the pulsation milk homogenizer.

**Keywords:** dispergating, homogenization, milk, pulsation homogenizer, velocity, acceleration.

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### **Features of grain stocks storage using cooling and monitoring of warehouse pests (p. 68–72)**

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It was established that the total density and contamination of wheat is higher than in other cultures. On species composition indicators mainly influence conditions and grain storage modes, abiotic factors, use of instrument against pests and protection. Was discussed the possibility of grain aeration under different storage temperature conditions. Was showed an ability to select aeration settings for cooling of grain in elevator siloses. Using of natural cold sources for conservation of grain masses is available and the most cost-effective technique.

It is proved that with a temperature of 5–6 degrees grain storage life tripled increases. It was found that it necessary to make cooling in cold and dry weather, with help of aeration or using of active aeration installations. It was found that for cooling it is imperative to determine the weighted average moisture content of grain (on plate or table) and compare with the actual humidity. It is proved that when the actual figure is lower, carry out effective aeration. Was proved, a more efficient way of cooling the grain is the use of the piece-cooled air (performed by apparatus "Kolos 500", H MV-1-30). In many countries air cooling is used to cool the grain with the aim of struggle with pests in grain storage.

In research of granaries were mainly studies the following pests: flour mite, common predatory mite, rice weevil, warehouse and grain Shashel. During the research the wheat has a relatively high level of total density of infection and pollution in contrast to other cultures.

**Keywords:** grain stocks (reserves), grain storage, cooling, aeration, monitoring, pests density, species composition.

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### **Changing of wheat gluten during storage process in the granary with application of cooling (p. 73–76)**

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The paper is devoted to the study of changes in gluten of wheat stored in granary with cooling. The article deals with the definition of optimization of parameters for grain storage in a refrigerated state. As a result of the research, the factors under consideration were storage period (x1 factor) and the average temperature (x2 factor). These parameters enable to predict the technological characteristics that determine baking quality of wheat grain, in particular the quality of gluten. Linear and parabolic dependences are presented. They show the index of grain quality, particularly gluten. MathCad was used to analyze the results of the study. The conditions for two granaries with temperatures from 0–7 °C and 7–14 °C have been analyzed. After optimization according to the data obtained it can be concluded that the most favorable period of storage is 6 months at a temperature not more than 8,4 °C, when gluten makes up 27,8 %. The obtained results showed that cooling used in a granary makes it possible to improve the technological parameters which define baking properties of wheat grain particularly the quantity and quality of gluten. We came to the conclusion that values deviations are minor, so obtained mathematical model is adequate and enables to predict grain yield depending on the storage temperature with sufficient degree of accuracy.

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**Keywords:** storage, grain storage, grain, wheat, gluten, the temperature, the resulting symptoms, the matrix of correlation coefficients.

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### Simulation of barley seeds germination process in brewing (p. 77–82)

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Simulation of barley seeds germination process in brewing, built on the basis of a second-order complete factorial experiment, has been considered in the article. It enables to define the reasonable parameters affecting acceleration of sprout growth. We have also designed a plan for screening during the experiment based on the standard matrix.

Using the results of the experiment we have created a first-order linear model and a second-order curvilinear model enabling to predict the speed of barley sprouts growth. All the experimental measurements during investigation have been performed three times to avoid any random errors. The second-order regression equation

has been used to locate the optimum point of the response function. Seed sprout length simulation based on a second-order complete factorial experiment has been considered.

The rendered above linear first order model [7] built on the basis of the complete factorial experiment makes calculations used during the experiment for data processing considerably easier, still it gives no possibility to find optimal value of the factors.

To conduct the experiment we have taken the most significant factors – dose of air ionizing, seed coat thickness and malt humidity. Values of the experimental data and theoretical value of response are presented as matrices.

The abovementioned factors have been checked and analysed according to the three criteria – Cochran's test (tests for dispersion homogeneity), Student's t-test (test for statistical significance of coefficients), Fisher's ratio test (test for model adequacy). Diagrams of barley sprouts length dependency on seed coat thickness, dose of air ionizing and malt humidity are given in the article.

**Keywords:** dose, coat thickness, malt humidity, complete factorial experiment, criterion.

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### **Rationale for productivity and design parameters press granulator (p. 83–86)**

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The work deals with the press granulator to form granules from waste juice production. Given that Ukraine is not fully used secondary raw materials of fruit and vegetable industry, is promising and timely processing of secondary raw juice production (bagasse, mash – waste that is not lost nutritional value).

For useful juice production waste is necessary to examine the conditions under which one can form granules, set the parameters and the main indicators of technological operations, finally, to create a sophisticated technical means.

The process of forming the granules includes a capture material gear space, compression and indentation upper bounds of the compacted material in the die matrix. Under the action of the tooth cavity on the incoming compacted material is extruded through the holes of the matrix channel. Outgoing channel granules break off knives and conditioning split into pellets and chips, the latter is returned to the tank for re-granulation.

In the process of compression significantly affect the elastic, viscous and frictional properties of the material are granulating. These primarily include the Young's modulus, Poisson's ratio, coefficients of friction and viscosity. It is necessary to find a state of the masses, in which the lowest energy consumption possible to obtain pellets satisfy

**Keywords:** granulation, matrix, granulator, waste juice production, toothed roller, pressing the channel matrix die, compression material.

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### **The current state of activity of rural households in Ukraine (p. 87–92)**

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Agricultural activity of rural households, which serves a significant source of self-sufficiency and profit, plays an important role in market transformation of economy. The problem of improvement of rural households functioning efficiency got special urgency in connection with the transition to market mechanisms of economic regulation. The article considers the main characteristics of the households in rural areas of Ukraine in 2014 on the basis of average and relative indicators characterizing the industrial resources of households in the field of agriculture: the size of land which is in use by the rural population, the structure of sown areas, the availability of livestock and poultry, farm buildings and machinery. It is shown that farms of different sizes have corresponding advantages and disadvantages depending on the operating conditions. In 2014 the largest was the percentage of small households – 51,1, they occupied 11,7 % of the land; the smallest was the percentage of large households – 21,6, but they occupied the largest area – 72,5 %. The sown area of grain and leguminous plants was 49 % of land part which was planted by all households for the harvest of 2014; small households mostly planted corn (66,3 %), large – mostly wheat (40,2 %). Small households were equipped with machinery the least of all, large ones were equipped the most of all. The share of large rural households, which owned several kinds of machinery, was 76,5 %; the relevant share of small households was 53,2 %. Possible way of improvement of rural households functioning efficiency will be interaction with agricultural enterprises and promoting of inter-economic relations.

**Keywords:** land area, region, rural households, structure of sown area, machinery.

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**Forming of ecology-economic mechanism of marketing management in agrarian production (p. 83–98)**

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Brought today humanity a little rather anymore realizes the necessity of native alteration of mutual relations of public production with a natural environment. In fact a difficult ecological situation in a country induces both producers and consumers to the search of optimal betweenness by the level of own profit and level of charges on nature protection activity. In this connection forming and further development ecologically oriented agrarian to the sector of economy in Ukraine does the question of the ecological marketing and strengthening of his role in the process of conduct of agricultural production very a necessity and actual.

Agrarian politics in Ukraine must be built in accordance with new modern requirements, principles, standards of quality of leading ecology-economic and social world tendencies and requirements. An important step on this way is development of mechanism of ecology-economic management in an agrarian production. The ecological marketing that will provide adaptation of main processes of marketing management

taking into account nature protection requirements must become the important constituent of such mechanism, and also will allow to take into account in the process of production the requirement of man in ecological safety.

For effective introduction of ecology-economic mechanism of marketing management it is necessary to take into account the features of all his elements at effective cooperation of natural, productive, social factors and features of marketing management in an agrarian production.

**Keywords:** ecological marketing, ecology-economic management, agrarian production, ecologically safe products, social responsibility.

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**Improved selection agents in plant protection by econometric analysis (p. 99–103)**

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The upraised questions were being followed by chemical and biological pesticides which are about to protect particular plantations. Having accurate basis in precise analysis and researches the overall assessment in pesticide to be

## ABSTRACTS. REFERENCES. KEYWORDS

chosen, for exact greenery protection, referred to econometric assay. The scope of the disquisition is proposed to be taken into account not as far as very econometric assay but the graphic parsing as well. The analysis is about to be done in Microsoft Excel what should be provided to the better authenticity of the research with more choice efficiency in using plant protecting preparations.

The econometric assay is offered to conduct a variety of investigated factors of data series to improve the efficiency of biological and chemical agents.

In order to choose the right calculating method of specific correlation indicators and regression analysis in MS Excel according to the mold is being formed in linear or curvilinear figure of exploring factors.

The correlation and regression analysis computation is suggested to be performed in MS Excel which allows putting in a great deal of data in the same rage of cells with the results being responded instantly. Comparing the indicators in correlation and regression analysis which is the most effective in plant protection, and accurate assess of qualitative and quantitative indicators, i.e. correlation coefficient, toxicity, cost, etc.

Finally, the proposed calculation program in correlation and regression analysis is reckoned for being appeared in all economy fields either for exploration or for particular purposes.

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**Keywords:** protection of plants, econometrics, statistical analysis, correlation and regression analysis, agronomy, Microsoft Excel.

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**Strategic marketing of export the wheat (p. 104–109)**

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The article describes and analyzes the trends of wheat exports for the period 1990–2015 years. The results of spectral analysis of the function describing the dynamics of the export sales of wheat are described.

## ABSTRACTS. REFERENCES. KEYWORDS

The priorities for the formation of a marketing strategy of export of wheat are proposed. The proposed goal of strategic marketing contains an internal contradiction. This causes the use of both standard tools of economic analysis and non-typical ones to determine economic factors which influence the dynamics of wheat's export. Thus, the strategic marketing goal of wheat's export is based on the initial conditions which require to maintain, the existing market shares in African and Asian countries with a simultaneous increment of supply to the EU.

It demands to identify the factors that shape the curves of the dynamics of wheat's production and its export to other countries. Attainment of the mentioned goal is beyond the range of a direct impact on the economic system of grain production. Such impacts include an increase in wheat production and its cost reduce. It is necessary to analyze the indirect factors: changes in the structure of domestic demand, availability of advanced technologies, global trends of growing grains, and a structure of legal restrictions on the domestic markets – where our potential consumers of wheat operate. This calls for a complex study of operations within the strategic marketing of grain.

**Keywords:** cereals, wheat exports, the frequency spectrum, market.

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### **Expenses and branch grounds of directions for improvement of land use by agricultural producers (p. 110–115)**

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The research has been focused on the grounds of directions for improving the land use by means of information technologies that is an actual task for increasing effectiveness in Ukrainian agrarian sector. The irrational land use resulted in a decrease of profitability in a crop production down to the level that does not provide an expanded agricultural reproduction.

The dynamics of cost structure, including seeds, mineral fertilizers, oil products, amortization, and land rental in a crop production have been analyzed in this article. The cost profiles for estimating the effectiveness of the land use from 1990 to 2014 have been created for Ukraine and one of the leading agricultural enterprises in Dnipropetrovsk region. The national agrarian producers got recommendations to concentrate their efforts at the implementation of innovative energy-saving technologies, use of modern

## ABSTRACTS. REFERENCES. KEYWORDS

highly productive seeds' material, application of organic fertilizers, and cooperation for machinery modernization, according to the mechanisms of state programs for development of Ukrainian agrarian sector.

The sown area structure and gross harvest of agricultural field crops have been considered in the article. The branch profiles for estimating the land use at macro- and micro-economic levels have been created. It has been clarified that in order to increase the effectiveness of the land use the agricultural producers must comply with demands of crop rotation schemes, reduce sown areas of industrial crops, according to restrictions of an ecological balance, increase yields of grain crops up to the level of the sorts' genetic abilities, enlarge sown areas of vegetables and fodder crops for a natural renovation of the agricultural lands' fertility and maintaining fodders for an animal production.

**Keywords:** land use, expenses, seeds, machinery, fertilizers, effectiveness of production, grain and industrial crops, vegetables and fodder crops.

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### **Using the method of data analysis to increase the effectiveness and quality of agricultural production (p. 116–120)**

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Studied the performance level of concentration of production, allowing to qualitatively and quantitatively assess economic phenomena such as the allocation of resources and results of production enterprises. It is noted that the main trends of the current state of agricultural enterprises is to create agricultural holdings. That the process of increasing the concentration of agricultural land in several enterprises is growing, in contrast to the uniformity of its distribution among the participants agricultural production. In recent years, the share of agricultural land owned by large agricultural enterprises increased. This process meets the requirements of the market that determines the range of agricultural products, produced and its volume. As the market economic system is dynamic, it requires state control system structure of farms that meet market requirements. The analysis of the degree of concentration of agricultural land in Ukraine suggestions as to the application of the Lorenz curve to determine the degree of differentiation performance of agricultural enterprises. Established that it is appropriate to introduce widespread practice of using Lorenz curves and Gini coefficient estimates for uniform distribution of lands, isolating areas of rational allocation and those in need of correction, to analyze the uniformity of distribution of economic indicators and factors of production of agricultural enterprises.

Assessed efficiency and predicted amount of agricultural production by using unlinear regression analysis. Noted that most natural processes in the field of plant protection, characterized by linear correlation. Shown that productivity of crops dependence from amount fertilizers as a polynomial regression.

## ABSTRACTS. REFERENCES. KEYWORDS

It is necessary to promote the use of computer technology and modern information technology for visual presentation and statistical data that will help improve the economic efficiency of agricultural enterprises through the adoption of rationalization weighed and scientifically grounded management decisions.

**Keywords:** Lorenz curves, Gini coefficient, agriculture, concentration of agricultural land, farms, cost, Correlation and regression analysis, profitability.

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### **Formation of innovative model of development of the national economy (p. 121–124)**

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It was determined that the activation of the innovation component of economic development requires the formation of an innovative model of development. Trends innovation of recent years indicate that there are significant problems and a low level of development of innovative activity in Ukraine. In most countries, budgetary funds are the main source of funding for innovation, Ukraine is characterized by a very different approach with minimal state participation. Formulated a series of measures to put the national

economy on the innovative development model, aimed at bringing the public administration in the economic growth model, namely, the concentration in one state innovation process management body; improving the investment policy mechanisms, the direction of public funds for long-term research and innovation capabilities with self-sufficiency in the short term; the formation of innovative infrastructure development with an effective institutional support of innovative processes; creation of a state of stimulation of innovative activity of economic entities mechanisms; improving the legal framework for the development of innovation and investment processes; dissemination of innovative international cooperation.

**Keywords:** public administration, innovations, model, national economy, development.

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### **Analysis of strength and weaknesses of the Transcarpathian region in the context of the development of resort areas and recreation (p. 125–128)**

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The current economic and political situation in Ukraine largely affects on the conditions of sanatorium and resort industry. The scientific approach of effective and innovative usage of natural resources and efficient marketing policy are able to distinguish real ways of overcoming the crisis in sanatorium areas.

Issues, which elaborate and systematize the main strength and weaknesses of the develop-

## ABSTRACTS. REFERENCES. KEYWORDS

ment of resort and recreation areas in the Transcarpathian region, are still insufficiently investigated. Those issues include competitive advantages, marketing strategies, innovation, etc.

By using situational analysis, assessment of the internal environment and efficient usage of available recreation resources of Transcarpathian region was conducted. Two stages of this estimation are highlighted. It is the results of internal audit (the first step), by which were outlined strengths (good physical and geographic location, competitive advantages in the availability of natural resources, tourism and recreational facilities, ecology, advantages in climate peculiarities of the territory, qualitative and environmentally friendly food) and weaknesses of the Transcarpathian region (inefficient usage of available resort potential, poor marketing system of recreational product, low quality of recreational services). On the second stage of the assessment, market opportunities and threats in the resorts were systematized. As a result the main strengths and weaknesses of the Transcarpathian region were highlighted, and also potential opportunities and possible threats were distinguished by using SWOT-analysis tools.

**Keywords:** resort, resort area, competitive advantages, potential benefits, potential threats, investment, resort infrastructure.

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**Organisational basis for the creation of domestic hotel operator (p. 129–132)**

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Today, one of the key aspects of the development and establishment of the hotel business in Ukraine is the creation of national hotel chains based on a contractual management. However, the contractual hotel management is not widespread in Ukraine, and thus research of the prospects of contract relations in the hotel industry is not among the top priorities of modern economics. Here occurs the need for organizing, developing and substantiating the main stages of creating of national hotel operator.

In the article is substantiated the feasibility of establishing of national hotel operator, offered an appropriate methodology that consists of logical and consistent levels which can be conditionally divided into three stages: preparatory, organizational and practical. Here is revealed the essence, content and is formed a list of tasks for the implementation of each stage. At the preparatory stage it is recommended to analyze the hotel services market, define market segments and strategies of market coverage, define the target consumer groups, develop brand and standards for the company. The organizational stage includes development and concluding of the agreements about providing consulting services and trust management, creating of a web-page and the central reservation system and staff selection. Practical stage is branding, marketing strategy development, monitoring and verification of quality standards compliance. In this article is systematized the list of the main services that the hotel operator can provide to operating hotel (expert assessment of the hotels conditions, hotel's development of growth concept, hotel management). Moreover, there are recommendation list, rules and principles of successful functioning of the domestic hotel operator.

**Keywords:** hotel, hotel operator, hotel chain, contractual management, efficiency of hotel functioning, investment, hotel service.

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