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Калиниченко В.Я. Теоретические и экспериментальные исследования гидравлических пружин / **В.Я. Калиниченко, В.В. Коваленко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 9–10.

Все известные типы гидравлических амортизаторов имеют постоянную характеристику, сопротивление растяжению зависит только от внешней силы. Предложена новая схема амортизатора, в котором сила сопротивления может изменяться, что обеспечивается перемещением поршня-дозатора, который находится всередине основного поршня. При перемещении поршня-дозатора увеличивается длина кольцевой щели и гидравлическое сопротивление амортизатора.
Ключевые слова: гидравлические пружины, амортизатор, ударные перегрузки, сила сопротивления, буферные устройства, закон Гука, дроссель, демпфирование энергии, потенцирование энергии, деаэрированная жидкость.

Радионенко В.Н. Нейросетевое прогнозирование сроков холодильного хранения растительного сырья в модулях с модифицированной средой / **В.Н. Радионенко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 11–15.

Рассмотрено использование компактных контейнеров с модифицированной средой в технологии холодильного хранения продуктов растительного происхождения в камерах бытовых холодильников. На основе ограниченных экспериментальных данных о кинетике порчи яблок в зависимости от различных факторов построены искусственные нейронные сети для предсказания сроков хранения.

Ключевые слова: холодильное хранение, искусственные нейронные сети, прогноз сроков сохранения

Дмитрук Е.А. Совершенствование шелушения зерна тритикале при изготовлении крупы / **Е.А. Дмитрук, В.В. Новиков** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 16–18.

Утверждается, что тритикале в полной мере может удовлетворить потребность производства крупяных продуктов высокой биологической ценности, но высокоэффективные технологии переработки этой культуры отсутствуют. Поэтому основной задачей является оптимизация режимов воднотепловой обработки как основного процесса, влияющего на эффективность производства. Установлено, что выход ядра меняется и значительно зависит от продолжительности шелушения и существенно от влажности и продолжительности отволаживания зерна.
Ключевые слова: тритикале, режим, воднотепловая обработка, шелушение, выход ядра.

Лимонт А.С. Влияние скорости движения и регулировок пресс-подборщиков на повреждение льнотресты в рулонах / **А.С. Лимонт,**

В.М. Климчук // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 19–22.

В зависимости от радиуса повреждение стеблей в рулонах, которые сформированы пресс-подборщиком с прессующей камерой переменного объема, изменяется по вогнутой параболе второго порядка, а в рулонах, сформированных пресс-подборщиком с прессующей камерой постоянного объема – возрастает по криволинейной зависимости. С повышением скорости движения пресс-подборщиков повреждение стеблей в слое рулона с учетом его радиуса уменьшается, а с изменением установки регулятора плотности рулона от минимального до максимального положения – возрастает.
Ключевые слова: лен-долгунец, треста, уборка, повреждение, пресс-подборщик, скорость движения, регулировка, рулон.

Кудря В.А. Результаты производственных испытаний навозоразбрасывателя с навесным модулем при внесении птичьего помета / **В.А. Кудря** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 23–25.

Изложены результаты производственных испытаний научно-технической разработки навесного модуля с боковым выбросом для внесения органических удобрений в малых дозах. Установлено, что экспериментальный образец навозоразбрасывателя обеспечивает внесение удобрений в небольших дозах в соответствии с агротехническими требованиями.

Ключевые слова: навозоразбрасыватель, распределительный орган, фрезбарабаны, транспортер, органические удобрения, навесной модуль, качество распределения, эксплуатационные показатели, птичий помет.

Куценко Ю.М. Усовершенствование конструкции установки для получения биогаза при переработке органических отходов / **Ю.М. Куценко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 26–29.

Проведен анализ основных конструкций установок для производства биогаза. Предложены инженерные решения по усовершенствованию биогазовых установок с целью обеспечения экологичности, качества и надежности их работы. При условии внедрения блока преобразователей и контроля можно добиться полной автоматизации выработки биогаза.

Ключевые слова: биогазовая установка, внедрение энергосберегающих конструкций, органические отходы, экологичность, качество.

Куценко Ю.М. Влияние конструктивных параметров транспортеров зернопунктов на удельные расходы электроэнергии / **Ю.М. Куценко, М.В. Постнікова** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 30–32.

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Приведены результаты теоретических исследований влияния конструктивных параметров транспортеров зернопунктів на удельные расходы электроэнергии. Доказано, что на мощность электродвигателей транспортеров влияют: в транспортерах скребковых – производительность, длина, КПД передачи, а в загрузочных нориях – еще и высота нории и ее КПД.
Ключевые слова: конструктивные параметры транспортеров, зернопункти, мощность электродвигателя, производительность.

Рева Н.П. Рекультивация и мелиорация пойменных участков малых рек Украины / **Н.П. Рева, В.Н. Шастун, А.Н. Луценко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 33–37.

Рассмотрены инженерные методы рекультивации пойменных речных долин. Предложены технологические схемы их выравнивания и схемы сезонной мелиорации пойменных участков в системе лиманного орошения. Найдены высокотехнологические решения накопления и рационального использования скидных талых вод.

Ключевые слова: каскад прудов, мелиорация, капиллярная вода, дренаукладчик.

Лепеть Е.И. Культиватор для работы в условиях природного земледелия по технологии Strip-Till / **Е.И. Лепеть** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 38–41.

Предложена конструкция комбинированной стрельчатой лапы, которая сочетает в себе две операции борьбы с сорняками: вычесывание и подрезание. На основе этих лап разработана конструкция агрегата, который последовательно разделяет корневые системы обработанной и необработанной полос: вычесывает с обработанной полосы сорняки и направляет вычесанную массу на подрезающую лапу; подрезает вычесанную корневую систему.

Ключевые слова: Strip-Till, комбинированная стрельчатая лапа, сорняки.

Теслюк Г.В. Аналитическое обоснование кинематических параметров копача корнеплодов и луковичных культур / **Г.В. Теслюк, Б.А. Волик, И.М. Когут** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 42–46.

Предложена новая конструкция вибрационного копача столовых корнеплодов и луковичных культур, построенного на принципах объемного действия замкнутых вибрирующих стоек. Подкапывание происходит бесконтактным способом, т.е. в процессе работы поверхности копача не соприкасаются с объектом подкапывания. Проанализирована кинематика рабочего органа и определены рациональные параметры кинематического режима для различных вариантов подкапывания.

Ключевые слова: столовые корнеплоды, луковичные культуры, виброкопач бесконтактного действия.

Лимонт А.С. Моделирование перемещения стеблей льна-долгунца по расстилочному щиту льноуборочного комбайна / **А.С. Лимонт, Т.Л. Коваль** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 47–51.

Приготовление льнотресты росной мочкой при комбайновой уборке связано с расстилом соломы в ленту соответствующей плотности и с соблюдением других качественных показателей. Качественные показатели такой ленты, помимо других регулировочно-режимных параметров комбайна и его рабочих органов, зависят от скорости схода стеблей с расстилочного щита. Используя метод Даламбера и составив дифференциальное уравнение движения стебля по плоскости расстилочного щита, получили зависимость для расчета скорости перемещения стеблей по расстилочному щиту. Для усредненных условий использования льноуборочного комбайнового агрегата определена скорость схода стеблей с расстилочного щита.

Ключевые слова: льноуборочный комбайн, расстилочный щит, стебель, движение, скорость.

Толстенко А.В. Метод мобильного измерения вибрации / **А.В. Толстенко, И.Н. Цаниди** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 52–53.

Рассматривается возможность использования мобильных компьютеров для измерения вибрации на рабочем месте механизатора или оператора сельскохозяйственной техники или оборудования. Преимущества предлагаемого метода: портативность, мобильность, обмен информацией по беспроводной сети, несколько измерений одновременно, определение места положения с помощью навигационных систем, работа с большими массивами информации, мониторинг в режиме online.

Ключевые слова: вибрация, мобильный компьютер, акселерометр, безопасность, комфорт, продуктивность труда, уровень вибрации.

Цоцко В.И. Скорость кристаллизации поверхностного слоя проушин траков в контексте поверхностного легирования отливок / **В.И. Цоцко, Б.Г. Пелешенко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 54–59.

Исследована динамика распределения температуры в системе литейный стержень–расплав в форме в процессе кристаллизации ушек отливок траков. Поставленная задача о фазовом переходе для поверхностного слоя ушек решалась методом конечных разностей с использованием неявной схемы для сборки системы разностных уравнений.

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Получена временная зависимость перемещения фронта кристаллизации в графической и аналитической формах. Определены скорости охлаждения поверхностных слоев ушек отливок траков в процессе их кристаллизации, которые позволяют оценить величину механических напряжений и темпы изменения коэффициентов диффузии компонентов поверхностного легирования ушек. **Ключевые слова:** ушки отливок траков, уравнение теплопроводности, скорость кристаллизации, нестационарное температурное поле, расплав, поверхностное легирование.

Исследование трибологических свойств силикато-фуллеренового геомодификатора для поверхностей трения / **А.Д. Деркач, Б.Г. Харченко, О.С. Кабат, Д.А. Макаренко, Г.Я. Мищенко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 60–62.

Изложены результаты лабораторных исследований трибологических свойств защитного слоя, полученного силикато-фуллереновым геомодификатором. Установлено, что применение геомодификатора снижает коэффициент трения в 2 раза.

Ключевые слова: надежность, трение, износ, испытание, силикато-фуллереновый геомодификатор, коэффициент трения, шероховатость.

Тищенко С.С. Исследование кинематических параметров движения частицы грунта по прямолинейному лезвию рабочего органа / **С.С. Тищенко, В.Н. Швайко, В.О. Гурідова** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 63–66.

Представлена модель движения частички грунта переменной массы в окружающей среде. Показано, что в этом случае с началом движения частички после контакта с лезвием нормальная реакция лезвия снижается, а со временем становится постоянной. Одновременно масса частички увеличивается, а ее скорость после контакта с лезвием стремится к постоянному значению. В отличие от классической, предложенная модель позволяет стабилизировать скорость частички, хотя на практике она часто стремится к нулю, а в идеале частичка останавливается (залипание ее к лезвию).

Ключевые слова: частичка грунта, переменная масса, лезвие грунтообрабатывающего рабочего органа, движение грунта, скорость, сцепление, распушенный грунт.

Кравченко Ю.Г. Функция распределения контактной температуры нагрева по длине и глубине лезвия / **Ю.Г. Кравченко, Б.Г. Пелешенко, О.Ю. Кузнецова** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 67–70.

Выведена формула температурного поля лезвия (прямого клина) в главной секущей плоско-

сти по глубине от поверхности нагрева и его среднего значения. Определена система уравнений взаимовлияния контактных температур на передней и задней поверхностях.

Ключевые слова: температурное поле, нагрев, мощность, источник, лезвие.

Кобец А.С. Обоснование конструкции четырехлопастного центробежного разбрасывателя минеральных удобрений. / **А.С. Кобец, Н.Н. Науменко, Н.А. Пономаренко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 71–76.

Предложен роторный рабочий орган, конструкционные особенности которого позволяют улучшить равномерность рассеивания минеральных удобрений. Выведены достаточно простые для инженерного использования математические выражения, которые дают возможность обосновывать параметры конструкции предлагаемого дискового разбрасывателя удобрений, а также рассчитать абсолютную скорость вылета гранул с диска и угол вылета, которые необходимы для определения ширины захвата рабочего органа.

Ключевые слова: минеральные удобрения, разбрасыватель центробежного типа, лопасти, центробежный рабочий орган, диск, равномерное размещение гранул.

Ващенко В.В. Дифференцирующая способность сред по признаку общая кустистость сортов ячменя ярового / **В.В. Ващенко, А.А. Шевченко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 77–80.

Анализ факторов, определяющих специфичность поведения генотипов в экологии (реакцию на среду, взаимодействие с ней), является необходимой предпосылкой выведения сортов, сочетающих высокую продуктивность и ее стабильность в разнообразных условиях среды. Приведены теоретическое обобщение и решение важной научной проблемы – установление селекционно-генетических особенностей адаптивной селекции ячменя ярового в условиях недостаточного увлажнения. Установлены селекционно-генетические особенности изменчивости, уровня проявления, зависимости от генотипа и гидротермических условий, комбинационной способности, генетического контроля наследования признаков продуктивности с участием одиннадцати сортов ячменя ярового. Установлены особенности параметров сред разных сортов как фона для отбора по признакам.

Ключевые слова: ячмень яровой, сорт, дифференцирующая способность среды, общая кустистость, эффекты среды, коэффициент линейности, коэффициент компенсации.

Фокин А.В. Модель снижения резистентности фитофагов к химическим инсектицидам / **А.В. Фокин** // Вісник Дніпропетровського дер-

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жавного аграрно-економічного університету. – 2014. – № 2(34). – С. 81–85.

Представлена модель снижения резистентности комплекса вредителей к химическим инсектицидам в агроценозе крестоцветных. Построенная модель позволяет оценивать скорость элиминации генов резистентности из комплекса популяций насекомых фитофагов определенного агроценоза.

Ключевые слова: резистентность, фитофаги, защита растений, инсектициды, энтомокомплекс, биогазация.

Носов С.С. Биометрические показатели и зерновая продуктивность гибридов кукурузы в зависимости от сроков посева и густоты стояния растений северной подзоны степи Украины / **С.С. Носов** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 86–90.

Приведены результаты исследований изучения реакции гибридов кукурузы на приемы сортовой агротехники. Определено их влияние на высоту растений в разные фенологические фазы, высоту прикрепления початков, диаметр стебля. Проанализированы полученные данные урожайности зерна культуры, которые находятся в непосредственной связи с исследуемыми агроприемами и погодными условиями вегетационного периода.

Ключевые слова: кукуруза, гибриды, сроки посева, густота стояния растений, биометрические показатели, зерновая продуктивность.

Ковалев Н.Н. Содержание азота в гумусном горизонте черноземов типичного и обычного Бугско-Днепровского междуречья

/ **Н.Н. Ковалев** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 91–94.

Исследована функциональная агроэкологическая связь ГТКV-IX среднегодового количества осадков с параметрами содержания гумуса и азота, плотности почвы и общей скважности в распространенных почвах региона. Установлено, что сельскохозяйственная деятельность человека влечет за собой уплотнение почв агроэкосистем и ускорение процессов их деградации.

Ключевые слова: черноземы типичные и обычные, плотность грунта, общая скважность, гумус, скважность азотации.

Кирпа Н.Я. Исследование процесса и параметров аэродинамического сепарирования однокомпонентных семенных смесей / **Н.Я. Кирпа, С.О. Скотар, О.О. Рослик** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 95–98.

Выявлен нестабильный процесс аэродинамического сепарирования однокомпонентных семенных смесей на примере гибридов кукурузы. Не установлена достоверная прямолинейная связь между фракциями и всхожестью семян, поэтому

процесс рекомендуется выполнять только в режиме очищения и выделения легких примесей.

Ключевые слова: кукуруза, семенная смесь, фракции, аэродинамическое сепарирование, технико-технологические признаки.

Гаевая. Е.В. Содержание тяжелых металлов в цепи "почва–растение" в условиях юга Тюменской области / **Е.В. Гаевая, Е.В. Захарова, Л.Н. Скипин** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 99–102.

Полученные экспериментальные данные о содержании тяжелых металлов свидетельствуют о том, что по основным критериям загрязнения почв относительно ПДК все изучаемые участки юга Тюменской области соответствуют градации с относительно-удовлетворительной ситуацией. Содержание свинца, кадмия, ртути и мышьяка в растительных кормах находилось в пределах установленных нормативов.

Ключевые слова: тяжелые металлы, концентрация, почва, растительные корма.

Юст Н.А. Изменение водопотребления и урожайности сои при различных режимах орошения в условиях южной зоны Приамурья / **Н.А. Юст, Н.С. Шелковкина** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 103–106.

Представлены результаты изучения водопотребления сои при орошении на фоне паровых предшественников и минеральных удобрений, обеспечивающих повышение урожайности сои на мелиорированных землях в условиях муссонного климата южной зоны Приамурья. По результатам исследований наиболее продуктивным следует считать режим орошения, с предполивной влажностью почвы 80% НВ, после сидерального пара, так как здесь были получены наибольшие значения урожайности - 1,9 т/га.

Ключевые слова: соя, водопотребление, суммарное водопотребление, среднесуточное водопотребление, орошение, южная зона Приамурья.

Кириленко Л.В. Урожайность козлятника восточного в зависимости от сортовых особенностей и инокуляции семян / **Л.В. Кириленко, В.П. Патика** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 107–109.

Обобщены данные исследований о взаимодействии активных штаммов клубеньковых бактерий *Rhizobium galegae* с различными сортами козлятника. Установлено, что предпосевная обработка семян козлятника восточного штаммами клубеньковых бактерий *Rhizobium galegae* активизирует усвоение молекулярного азота и обеспечивает повышение урожайности зеленой массы этой многолетней бобовой травы разных сортов, что свидетельствует о наличии в отобранных ризобиях комплементарности к широкому спектру сортов.

АННОТАЦИИ

Ключевые слова: *Rhizobium galegae*, козлятник, симбиотическая система, азотфиксация, штамм

Морозов Р.В. Тенденции развития рынка риса: мировой и отечественный опыт / **Р.В. Морозов, В.В. Дудченко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 110–114.

Проанализированы особенности развития мирового рисоводства с позиции удовлетворения спроса на рис как одну из высокоурожайных культур мирового земледелия. Акцентировано внимание на структурных аспектах мировой торговли рисом. Рассмотрены факторы конъюнктуры рынка риса в Украине. Сделан вывод, что страны, которые имеют мощный земельно-ресурсный потенциал и способны производить большие объемы зерна риса, могут получать не только стабильные доходы, но и иметь геополитические преимущества.

Ключевые слова: рис, рисоводство, конъюнктура рынка, мировой рынок, внутренний рынок.

Кирпа Н.Я. Характер дозревания и формирования всхожести семян гибридов кукурузы в условиях северной Степи Украины / **Н.Я. Кирпа, М.О. Стурко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 115–119.

Определены основные факторы созревания семян гибридов кукурузы - динамику их влагоотдачи и накопления сухого вещества. Установлено значение влажности, при которой семена достигают кондиционной всхожести, высокой силы роста и продуктивности. Рекомендуются сроки уборки гибридов кукурузы, что даст возможность получать более качественные семена, сокращая их потери и увеличивая выход.

Ключевые слова: семена, влажность, влагоотдача, масса тысячи зерен, всхожесть, продуктивность гибридов кукурузы.

Артеменко С.Ф. Использование водорастворимых соединений фосфора при предпосевной инкрустации семян сои и внекорневой их подкормки / **С.Ф. Артеменко, С.М. Крамарев** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 120–123.

Проведенными исследованиями установлено, влияния предпосевной инкрустации семян и внекорневой подкормки растений водорастворимыми соединениями фосфора на продуктивность посевов сои. Использование водорастворимого фосфоросодержащего препарата Антистрес в дозе 200 г/т вместе с протравителем при инкрустации семян обеспечивало формирование наибольшей продуктивности сои 2,44 т/га. Внекорневое использование препарата Антистрес в дозе 1,5 л/га обеспечивало увеличение на корнях количества азотфиксирующих клубеньков, а также их массы и площади листьев. Однако из-за не-

достаточного увлажнения и засухи, которые обычно наблюдается во второй половине вегетации и совпадает с периодом формирования бобов и созревания зерна, эти показатели не реализуются в урожае, а даже несколько снижали продуктивность данной культуры. **Ключевые слова:** инкрустация, протравитель, водорастворимые соединения фосфора, внекорневая подкормка, посевы, соя.

Ткалич Ю.И. Особенности фотосинтетической деятельности гибридов подсолнечника в зависимости от биопрепаратов / **Ю.И. Ткалич, М.П. Ниценко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 124–130.

Установлено, что улучшение условий питания подсолнечника путём использования для инокуляции бактериальных препаратов Диазофит, КЛ-9, Диазофит + Фосфоинтерин и регулятора роста Вымпел в фазе 3–4 пар листьев обеспечивает повышение уровня основных показателей фотосинтетической деятельности посевов и урожайности подсолнечника на 0,13–0,32 т/га. **Ключевые слова:** биопрепараты, гибриды, подсолнечник, урожайность.

Лядская И.В. Динамика физических и водно-физических свойств педоземов по профилю никопольского марганцеворудного бассейна / **И.В. Лядская** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 131–133.

Определены физические и водно-физические свойства педоземов по профилю, которые влияют на направление и темпы экологической сукцессии на рекультивируемых землях. Утверждается, что показатели максимальной гигроскопической влажности, влажности увядания растений, плотности твердой фазы и пористости распределены равномерно по профилю, а показатели полевой влажности, плотности почвы, доступной влаги – неравномерно и образуют гомогенные слои.

Ключевые слова: почвенные конструкции, рекультивация, педоземы, физические и водно-физические свойства.

Сравнительная оценка содержания подвижного фосфора в различных генетических горизонтах чернозема обыкновенного на пахоте относительно целины в условиях Северной Степи / **С.М. Крамарьов, О.С. Крамарьов, С.Ф. Артеменко, С.И. Жученко, А.О. Христенко, В.А. Сироватко, К.В. Сироватко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 134–138.

Доказано, что реальная естественная обеспеченность фосфором пахотного слоя чернозема обыкновенных отвечает границе низкой и средней обеспеченности этим элементом питания растений, что подтверждается известными эмпирическими данными о высокой эффективности фосфорных удобрений на этих почвах.

АННОТАЦИИ

Повышенным или высоким уровнем обеспеченности фосфором характеризуются лишь пахотный слой почв, который содержит остаточные фосфаты удобрений, а также верхний гумусовый горизонт целинных почв.

Ключевые слова: чернозем, удобрения, обеспеченность подвижным фосфором, методы определения, грунтовый раствор, урожайность.

От расчёта влагозапасов к созданию геоинформационной системы режима почвенной влаги / **В.В. Коваленко, Л.Н. Рудаков, В.И. Доценко, И.Ю. Бугаёва** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 139–141.

Представлено развитие известного агрогидрометеорологического метода расчёта влагозапасов под посевами сельскохозяйственных культур с использованием информационного портала “расписание погоды” gr5.ua для создания ГИС режима почвенной влаги. Утверждается, что нормализация эмпирических параметров агрогидрометеорологического метода расчёта влагозапасов в ГИС, с учётом агрогидрологических свойств почв, даст возможность определить запасы влаги на любой территории.

Ключевые слова: метод расчёта влагозапасов, геоинформационные системы режима почвенной влаги.

Узбек И.Х. Солевой режим эдафотопов степного Приднпровья / **И.Х. Узбек** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 142–144.

Показано, что эдафотопы техногенных ландшафтов степной зоны Украины характеризуются различной засоленностью, которая влияет на их уровень биологической активности. Четвертичные отложения (лессовидные суглинки и насыпанный на них слой массы чернозема толщиной 40 см) слабо засолены. Третичные отложения (красно-бурая и серо-зеленая глины) имеют значительно высокий уровень засоленности. Характерной чертой всех эдафотопов является разложение под воздействием времени и растений.

Ключевые слова: техногенный ландшафт, эдафотоп, солевой режим.

Чайка Н.И. Экологическая оценка проективного покрытия шахтных отвалов в центральном Донбассе / **Н.И. Чайка, Н.Н. Харитонов, А.А. Козлова** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 145–148.

Выявлено, что в составе растительного покрова на территории породного отвала шахты “Трудовская” выявлено 55 видов высших растений. Сложение растительного покрова характеризуется высокой пространственной неоднородностью. Показано, что оценка биоморфологического спектра флоры породного отвала является

важным критерием, который определяет разнообразие экологических ниш в фитоценозе, доминирующую жизненную форму, экологические условия фитоценоза и его изменения.

Ключевые слова: растительный покров, проективное покрытие, видовой состав, жизненные формы, шахтные породы.

Чернобай С.В. Формирование урожайности зерна различными системами стеблей ячменя ярового в зависимости от влияния норм посева и внекорневых подкормок / **С.В. Чернобай, А.О. Рожков** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 149–153.

Представлены результаты исследований относительно определению доли системы главных и боковых стеблей в общей биологической урожайности зерна растений ячменя ярового сорта Докучаевский 15 при различных вариантах норм посева и внекорневых подкормок. Установлена оптимальная норма посева – 5,0 млн/га, которая обеспечивает формирование наибольшей биологической урожайности зерна именно за счет системы главных стеблей растений. Урожайность системы главных стеблей была существенно выше, чем при других нормах посева.

Ключевые слова: ячмень яровой, комплексные удобрения, микроэлементы, урожайность, система стеблей, норма посева, внекорневые подкормки.

Клименко О.Е. Использование биопрепаратов для повышения эффективности выращивания привитых саженцев алычи / **О.Е. Клименко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 154–157.

Приведены результаты оценки эффективности биопрепаратов при выращивании привитых однолетних саженцев алычи в плодовом питомнике. Установлено, что биопрепараты оказали положительное воздействие на всхожесть семян, рост и развитие сеянцев и саженцев алычи. Самый высокий выход стандартных саженцев получен при использовании Азотобактерина и Комплекса биопрепаратов, которые можно рекомендовать для применения при выращивании привитых саженцев алычи.

Ключевые слова: биопрепараты, сеянцы, саженцы алычи, плодовый питомник.

Маслиев С.В. Урожайность початков сахарной и зерна лопающейся кукурузы после различных предшественников / **С.В. Маслиев, Н.И. Конопля** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 158–162.

Приведены данные о влиянии на урожайность зерна лопающейся и початков молочной спелости зерна сахарной кукурузы различных предшественников у полевых и овощных севооборотах Левобережной Степи Украины.

АННОТАЦИИ

Ключевые слова: полевой и овощной севообороты, предшественники, урожайность, сахарная кукуруза, лопающаяся кукуруза.

Зайцева И.А. Количественная оценка функциональной связи оводненности тканей листьев и гидротермических факторов вегетационного периода / **И.А. Зайцева, М.Н. Поворотная** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 163–168.

Рассмотрены возможности использования аналитического подхода в решении задачи количественной оценки зависимости оводненности листьев от температуры и количества осадков на примере интродуцированных в степное Приднепровье родовых комплексов *Philadelphus L.*, *Deutzia Thunb.*, *Syringa L.*, *Acer L.* Получены значения показателя количества осадков, необходимого для нормального функционирования видов древесно-кустарниковых растений. Установлена связь рассчитанных критериев с засухоустойчивостью растений, что позволяет прогнозировать реакцию интродуцентов на стрессовые условия произрастания.

Ключевые слова: водный режим, засухоустойчивость, гидротермические факторы, нелинейная регрессия, растения-интродуценты, степная зона.

Свитовый В.М. Цинк и медь в черноземе оподзоленном и выращенной на нем озимой пшенице / **В.М. Свитовый, А.М. Геркиял, И.Д. Жиляк** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 169–171.

Определено содержание цинка и меди в черноземе оподзоленном и выращенной на нем озимой пшенице. Доказано, что почва и зерно озимой пшеницы безопасны для человека по содержанию указанных элементов. Предполагается, что применение микроудобрений с этими элементами будет иметь определенную эффективность на черноземе оподзоленном при выращивании озимой пшеницы.

Ключевые слова: тяжелые металлы, почва, пшеница озимая, оподзоленный чернозем.

Шкваря Н.Н. Состояние эритропоэза коров красной степной породы под влиянием микроэлементов в условиях техногенного загрязнения / **Н.Н. Шкваря** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 172–174.

Доказано, что в условиях техногенного загрязнения Западного Донбасса на систему эритропоэза коров позитивно влияют соли микроэлементов меди, цинка и кобальта отдельно и в сочетании между собой. При этом наибольший эффект проявляет кобальт в органической форме.

А именно, количество эритроцитов у коров возрастает под влиянием сульфата меди на 45 %,

сульфата цинка - на 46 %, хлорида кобальта - на 46 %. При скармливании коровам смесей солей меди, цинка и кобальта количество эритроцитов выросло только на 28 %.

Ключевые слова: техногенное загрязнение, Западный Донбасс, эритропоэз, медь, цинк, кобальт, кровь, коровы.

Сидашова С.А. Результативность воспроизводства дойного стада и функциональная асимметрия яйчников коров / **С.А. Сидашова** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 175–181.

Изложены результаты сравнительного анализа популяционных профилей латеральной дифференциации парных гонад лактирующих коров двух стад украинской красно-пестрой молочной породы, отличающихся уровнями продуктивности и оплодотворяемости.

Подтверждены теоретические положения эволюционной концепции о закономерности явления латерального диморфизма парных органов у животных. Выявлено, что популяционные профили коров одной породы имеют значительные структурные различия на протяжении полового цикла.

Ключевые слова: корова, ректальная пальпация, яйчники, фолликулы, желтые тела, функциональная асимметрия, латеральная дифференциация, пропорциональная структура.

Бобрицкая О.Н. Способы определения функционального состояния иммунной системы у собак / **О.Н. Бобрицкая, К.Д. Югай** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 182–185.

Приведены сравнительные результаты использования диагностического комплекса ПАРКЕС-Д и лабораторных исследований крови, а также их эффективность при определении функционального состояния иммунной системы у собак. Установлено снижение фагоцитарной активности нейтрофилов, фагоцитарного индекса, фагоцитарного числа на фоне повышения бактерицидной и лизоцимной активности сыворотки, что согласуется с данными исследований комплексом ПАРКЕС-Д.

Ключевые слова: иммунная система, электромагнитные излучения, резонанс, функциональное состояние, диагностический комплекс ПАРКЕС-Д, лабораторные исследования крови.

Пономарь С.И. Эффективность дегельминтизации при смешанной нематодозной инвазии свиней / **С.И. Пономарь, Х.Н. Шендрик, О.В. Кручиненко, Ю.В. Кичилук** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 186–190.

Определен антигельминтный эффект нематодцидных препаратов при аскаридозной, эзофаго-стомозной, стронгилоидозной и трихуридозной

АННОТАЦИИ

инвазиях свиней (в различных ассоциациях). Утверждается, что при смешанных гельминтозах определяющую роль играют лекарственная форма, доза и кратность введения препарата. Так, 100 % ЭЭ и ИЭ констатировали при дегельминтизации животных препаратами бензимидазолов, макроциклических лактонов и левамизола в определенных схемах их применения. Однако ни одним из испытуемых препаратов не достигнуто полной элиминации из организма свиней трихурисов.

Ключевые слова: смешанная нематодозная инвазия свиней, эффективные схемы дегельминтизации, препараты фенбендазола, альбендазола, левамизола, ивермектина и моксидектина.

Ситюк Н.П. Определение уровня постинфекционных нейтрализующих антител в сыворотках крови диких кабанов против вируса репродуктивно-респираторного синдрома свиней / **Н.П. Ситюк** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 191–194.

Приведены данные о специфических нейтрализующих антителах против вируса репродуктивно-респираторного синдрома свиней в сыворотках крови диких свиней, отстрелянных на территории Украины в 2001–2013 гг. Представлены показатели исследованных образцов сывороток крови от диких кабанов по сезонам охоты, полученные иммунопероксидазным тестом в реакции нейтрализации с использованием перевиваемой культуры клеток MARC-145. Определены серопревалентность диких свиней к вирусу репродуктивно-респираторного синдрома свиней и соотношение титров нейтрализующих антител в их сыворотках крови.

Ключевые слова: репродуктивно-респираторный синдром свиней, дикие кабаны, иммунопероксидазный тест в реакции нейтрализации, титры антител.

Милостивая Д.Ф. Показатели обмена белков и ферментативная активность у молодняка крупного рогатого скота разного возраста под влиянием меди / **Д.Ф. Милостивая** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 195–198.

Установлено, что включение в рацион молодняка украинской мясной породы неорганической соли меди приводит к увеличению белоксинтезирующей функции печени. Это находит отражение в увеличении активности ферментов переаминирования, повышения уровня общего белка в крови за счет глобулиновых фракций.

Ключевые слова: общий белок, фракции белка, сульфат меди, молодняк, украинская мясная порода, АСаТ, АЛаТ.

Маршалкина Т.В. Эпизоотологические особенности эймериоза кур в хозяйствах Днепропетровской области / **Т.В. Маршалкина** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 199–201.

Показано значительное распространение эймериоза кур в хозяйствах разной формы собственности и с разной технологией содержания. Результаты эпизоотологического мониторинга подтвердили сезонную динамику эймериозной инвазии кур на территории Днепропетровской области. Получены данные об экстенсивности и интенсивности заболевания кур эймериозом в зависимости от возраста и сезонных факторов; установлен видовой состав возбудителей.

Ключевые слова: куры, эймериоз, ооцист, экстенсивность и интенсивность инвазии.

Есина Э.В. Некоторые патоморфологические и этиологические аспекты синдрома некрозов кончиков ушей свиней в условиях украинских свинохозяйств / **Э.В. Есина, В.В. Сентюрин, Т.С. Пазуцан** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 202–204.

Обсуждается патологогистологическая картина некрозов ушей у свиней, что характеризуется продуктивным воспалением мелких сосудов и капилляров, вызывает коагуляционный некроз кожи и окружающих тканей. Состав воспаленного инфильтрата указывает на аутоиммунный характер заболевания. Лечение патологического процесса будут способствовать нормализация технологических параметров, в частности обеспечение контроля уровня влажности, постоянный мониторинг качества кормов и т.д.

Ключевые слова: некроз кончиков ушей, свиньи, диагностика заболеваний, стрептококковая инфекция.

Пинчук С.М. Влияние “гумилида” на лейкоцитарный профиль крови поросят раннего возраста / **С.М. Пинчук** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2014. – № 2(34). – С. 205–207.

Обсуждается повышение адаптационных способностей молодых продуктивных животных при интенсивной технологии выращивания в критические периоды развития. В частности, исследовано влияние биологически активной кормовой добавки “Гумилид” на показатели лейкоцитарной формулы в первые три недели жизни. Соотношение отдельных форм лейкоцитов в крови поросят значительно изменяется по возрастным периодам животных. Наиболее ярко это выражено в наличии палочко- и сегментоядерных нейтрофилов.

Ключевые слова: поросята, “Гумилид”, адаптация, лейкоцитарная формула, онтогенез, стресс, рацион, лейкоциты, нейтрофилы.

ABSTRACTS

Theoretical and experimental study of hydraulic springs (p. 9–10)

V. Kalinichenko, V. Kovalenko

In hydraulic springs that are used as shock absorbers, provided as a damping suppression of compressed energy fluid, it equipped with spring damper in the form of throttle unilateral or bilateral action. Damping energy (throttling fluid) occurs either by direct course (compression springs), or reverse course (when straightening spring). Or both at the same time forward and reverse course. Common are the second type of hydraulic springs, which occur in the course of direct potentiation of almost pure energy fluid which is compressed, it is damping occurs when straightening the spring.

All known types of hydraulic shock absorbers with constant characteristic impedance strain depend on the external force. A new scheme damper E3000, which can vary the resistance provided by the movement of the piston – dosing, which is in the middle of the main piston. When you move the piston dosing increases the length of the ring gap and, therefore, increases the hydraulic resistance of the shock absorber.

Calculations were performed to determine the optimal ratio between the sizes of the hydraulic damper elements: their diameter inlet and main channel width annular gap and the top diameter of the piston dosing. Obtained by calculating the resistance depends on the parameters of the hydraulic damper elements, and the value of the external load.

Calculations and test prototypes showed that the shock variable resistance can develop resistance to tensile strength and 70 % of the value of the external force acting on the suspension of the car. Thus, when working on the topic developed a mathematical model of hydraulic shock absorber set up a program of key parameters similar hydraulic springs.

Keywords: hydraulic springs, shock absorbers, shock overload, resistance force, buffering device, Hooke's law, throttle, damping energy, potentiation energy, deaerated liquid.

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Neural network prediction of time cold storage plant material in module with modified environment (p. 11–15)

V. Radionenko

Understanding the mechanisms of damage to plant products during cold storage is a key element in maintaining the trademark qualities of fruits and vegetables by minimizing the factors leading to the degradation of food. A distinctive feature of the storage of plant products at low temperatures are the processes of respiration, metabolism determine the intensity of which is due to high water content (average 80–90 %) and thermal-gradient fields in the "Environment – to cooling". Manage the processes of heat and mass transfer can reduce the degree of deterioration of the product during storage, from maturation and finishing processes of aging and deterioration. Trying to maintain the original performance (appearance, taste, flavor, firmness, the presence of physiological damage, microbial contamination) in the chambers of refrigerators largely achieved by controlling the content of oxygen, nitrogen and carbon dioxide with matching external parameters – temperature and humidity. One of the main objectives of the study was – to develop a mathematical model of plant damage products during refrigerated storage. Preliminary studied model verbal degradation of plant products, which describe the basic parameters of quality as a result of the influence of many factors: the temperature fields, wound reactions, microbiological processes. Analyzed various technologies refrigeration food storage in a controlled atmosphere and proved promising technology of modified atmosphere for prolonging the shelf life of the cells of household refrigerators. In contrast to the controlled environment in which gas concentrations are kept constant throughout the life of the storage technology are not as rigid and allow varying concentrations of oxygen and carbon dioxide in a self-sustaining mode.

From a mathematical point of view, fresh fruits and vegetables are considered as a dynamic system, which is described by the equations of population dynamics for key indicators of quality products. Degradation processes – deterioration in the quality of the Gompertz model equation for the survival probability of an object depending on the storage time and environmental conditions. To determine the parameters of the model experimental studies of quality, depending on the storage time for the two types of plant products (apple cultivar "Reinette Semirenko" and lettuce). Kinetic parameters of the non-linear model Gompertz determined by direct methods in optimization package Mathcad by minimizing the sum of squared deviations between the calculated and experimental values of the quality indicators. A computer simulation of the degradation of various types of plant products according to different control variables. Analyzed the increase in terms of cold storage of fruits and vegetables in compact modules with modified atmosphere created by selective permeability of polymer membranes. Experimental data on kinetics of deterioration for apples were used to correlate the shelf life and different technological factors via artificial neural networks.

Keywords: refrigeration storage, artificial neural networks, shelf life forecast.

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Improvement peeling the grain of triticale in the manufacture of groats (p. 16–18)

E. Dmytruk, V. Novikov

Found that triticale can fully satisfy the need of production of cereal products of high biological value, but high-performance technology for processing this culture are absent. Therefore, the main task is the optimization of heat treatment as the main process affecting the production efficiency.

We have investigated the change in the yield kernel peeling triticale grain for 20–160 °C, humidity 12–15 %

and 30–120 min duration otvolazhivanie. The studies found that the core output varied with grain moisture and duration of peeling. The yield of core greatly depends on the length of peeling, and insignificant otvolazhivanie humidity and duration. So, with humidity of 12 % increase in the duration of peeling from 20 to 160 resulted in a decrease in kernel release from 96,7 to 86,4 %. Increase in humidity to 13 % caused an increase in output for the duration of the kernel peeling 20 and 160 compared to the same regime with humidity of 12 % to 1,3–1,9 %, respectively. When the humidity is 14 % more than the core output was compared with the yield of the nucleus at 12 % moisture content on 0,1–2,3 %.

A similar tendency is set at a humidity of 15 % corn and triticale 16 %. Thus, the core output humidity duration of 30 min. fluctuated between 88,2–99,0 %, depending on the duration of peeling. Humidity extension to 120 minutes almost did not change the rate, which fluctuated between 88,1–99,0 %, depending on the duration of peeling.

It is proved that the grain hull triticale necessary, with humidity of 12–14 % without the use heat treatment that reduces power consumption, cost of capital and increases production efficiency compared with standard techniques.

Keywords: triticale, treatment of water-heat treatment, peeling out of the nucleus.

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The influence of the running speed and pickup baler adjustments on the damage of flax straw in bales (p. 19–22)

A. Limont, V. Klimchuk

The final operations in the technological process of preparing dew-rotted flax straw are the picking up of a lodged straw strip and forming of corresponding packs. The straw packs in the form of bales, which are formed by pickup balers with pressing chambers of variable and invariable capacity, are now considered the most reasonable ones. The picking up of flax straw and its packing in bales is accompanied by relevant stalk damage which causes losses of long fibers when processing straw.

The aim of the investigation was to raise the efficiency of mechanized dew-rotted flax straw harvesting

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by pickup balers ПР-1,2п with the pressing chamber of variable capacity and pickup balers ППР-110 with the pressing chamber of invariable capacity. The radiuswise distance of a bale from its centre to the periphery, running speed of pickup balers and position of the bale tightness regulator are taken as independent variables. The stalk damage was determined at four radiuswise bale distances: 0,175; 0,300; 0,425 and 0,550 m. The running speed of pickup balers in combination with МТС-80 tractor was 4,26, 7,25 and 8,90 km/h. The bale tightness regulator was set at minimum, middle and maximum positions. We considered as damaged the plants with wood rupture, flattening without cracks and separately with them, open rupture, wood break with fiber flattening and twisted ones. The data were processed with the use of standard computer programs.

The paper throws light on the stalk damage change in a layer of baled straw depending on the layer distance by the radius of a package from the centre to its periphery. Depending on the radius, the damage of stalks in the bales formed by the pickup baler with the pressing chamber of variable capacity changes by concave parabola of the second order, and in the bales formed by the baler with the pressing chamber of invariable capacity it increases by curvilinear dependence. As the running speed of bales increases, the damage of stalks in a bale decreases with its radius taken into account, and with the change in the setting of the bale tightness regulator from the minimum position to the maximum one the stalk damage increases. In connection with the different character of stalk damage change in bales, their formation by pickup balers with pressing chambers of variable and invariable capacity depends on the radiuswise distance of a pack from its centre to the periphery. To determine the damage in pickup balers with the pressing chamber of variable capacity, flax straw should be sampled closer to the bale core and in those with the pressing chamber of invariable capacity samples should be taken on the bale periphery.

Keywords: fiber flax, flax straw, harvesting, damage, pickup baler, running speed, regulation, bale.

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Results production test manure with mounted modules by paying bird droppings (p. 23–25)

V. Kudrya

Over the last decade there has been reduction in the volume of manure into the soil, which reduces its fruitfulness. However, there is a dynamic increase in production of poultry under increasing every year and out of bird droppings. Bird droppings as fertilizer necessary to make highly concentrated in small doses evenly over the soil surface. To solve this problem, the proposed design of the spreader manure spreader modular and adaptive technical means fertilization in small doses of 2–10 t/ha, which include bird droppings. This paper presents the scheme and the overall look of the manure spreader module and adaptive technical means, as well as on the principle of the manure spreader. The results of his production testing. The study was conducted in the fields of peasant farming "Lytvynivka" Zhashkivskiy district and limited liability companies "Ahrokolos-05" Zolotonosha district, Cherkasy region. Established that experimental model provides manure spreader for fertilizing in small doses, according to the agro-technical requirements. According to test results revealed that the working width was 10 m from the uneven distribution of litter in width making 21–22 % overlap with adjacent passes within 0.5–1 m, making uneven length rut 6,7–7,1 %, volatility dose of 8–8.5 %, which meets the requirements of GD 10.7.2-89, EN 13080. Performance was making 1,8–2 ha/hour. Download loader "Karpats" – 8 hv 23 sec, Average idle time travel – 5 min 30 sec, duration making 6 min 10 sec, The total time of one cycle – 20 min 3 sec. Presented technical and operational performance of the experimental sample manure spreader. Presented graphically as a result of bird droppings on the distribution width obtained in different farms. Based on the results of experimental tests of the manure spreader module and adaptive technical means established that he is satisfactorily performing the manufacturing process of organic fertilizers (chicken manure) in small (2–10 t/ha) doses and can be recommended for use on farms.

Keywords: manure spreader, distributing body, milling drums, transporters, organic fertilizers, mounted module, quality distribution, performance indicators, bird droppings.

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Improving the design of biogas plants for the processing of organic waste (p. 26–29)

Yu. Kutsenko

Improving the quality of the biogas is achieved by adhering to sustainable fermentation temperature control, supply of coolant to the outside diameter of the reactor, the introduction of energy-saving and environmentally robust structural elements of installation. Improving the design is achieved by installing a heat pump and solar collector, mixer in horizontal position, equipment of tank reactor with technological sleeve, which allows to increase the quality of biomass mixing, provide the largest area of the reactor heating and improve the quality of thermal energy use to heat the reactor. Biogas plant has high temperature stability and protection from the environment that improves the quality of the process of formation of biogas.

Using two independent power sources significantly increases reliability and overall efficiency of the plant. With this device can receive high-quality biogas and organic fertilizer, and conduct research in various biogas naturally derived organic waste as well.

The construction of a biogas plant provides manual preparation and pneumatic loading of substrate into the reactor; part of the biogas produced is used to heat the substrate in the reactor. Stirring is carried out using biogas. Collection of biogas is automatic.

Using a series of high quality steel V2A 1.4301, compound materials with protection class IP68, class thermal insulation of windings $F = 155$ °C makes it possible to ensure the reliability, sustainability and quality of biogas plants. The dependence of the output of biogas from the effects of the main factors that makes it possible to predict the yield of biogas under production is obtained.

Keywords: biogas plant, introduction of energy-saving, installation, organic waste, sustainability and quality.

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Influence of design parameters transporters grain items at specific power consumption (p. 30–32)

Yu. Kushenko, M. Postnikova

The results of theoretical studies of the impact of design parameters cereal items transporters in specific power consumption. Specific electricity consumption are the indicator that characterizes the energy consumption of the process. This parameter allows you to compare the results of use of electricity during different variables working conditions and organically linked with the modes of the equipment, its rhythm, structural and mechanical properties of grain and other technological factors frame. At work the mathematical model of the power consumed electric of machines bucket elevators and conveyors. The resulting regression equation for calculating the electric – capacities based on design factors.

Analysis of multi-model power consumed electric of machines – Huns indicates that the strength of the effect that: the scraper conveyors – productivity, length, the efficiency of transmission; in a hole boot – productivity, height elevator, elevator efficiency.

The results are the minimum unit cost of electricity for the refinery but-ry – 20 at $H = 11,75$ m, $\eta_{\text{nor}} = 0,6$ for scraper – with $L = 25$ m.

Keywords: mathematical model, power electric of machines, design parameters transporters, productivity.

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Restoration and reclamation of floodplains of small rivers in Ukraine (p. 33–37)

M. Reva, V. Chastun,

U. Oreshnikov, O. Lutsenko

The problem of agricultural activities in Ukraine in terms of systemic climate change upward peak values of temperature in the summer, is connected with water, its quality and quantity. Existing irrigation facilities that remain as a legacy of the Soviet Union, did not address the needs of land reclamation and new-hardly built. The most efficient and expedient solution is the ability to create fresh water directly to the area of use. This contributes to the landscape almost the entire territory of Ukraine with many river valleys, where river

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flow is almost zero, and the size of the valleys is suitable for conducting agricultural activities.

The idea of creating interconnected cascades relating to accumulate in the ponds of meltwater them, diluting their soil, followed by the use of irrigation, deserves attention. Integrated use of ponds for land reclamation, fish farming, beekeeping and creating rekryatsiynih areas of forest plantations for the rest of citizens, reinforcing the idea of chance in its implementation.

Placing adjacent ponds at different levels (with a height difference of 2–4) allows the use of another factor in favor of the estuary flood irrigation areas of small rivers in Ukraine. The fact that the ground water level in the flooded areas is very high, and raising the level of capillary moisture is korenevovmisnoho layer. At moderate temperatures year period that is enough for irrigation.

In a hot summer, a significant reduction of capillary moisture offset by raising the most rational way of irrigation-watering korenevovmisnoho closed layer by the use of irrigation pipes, the distance between them increases almost an order of magnitude. The same system of closed pipes used for drainage of the fields in the spring. Irrigation and drainage fields samotichno performed without the use of pumps by placing adjacent ponds at different levels.

Keywords: cascade of ponds, reclamation, capillary water, drenoukladchik.

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Cultivator for work in organic farming by technology Strip-Till (p. 38–41)

E. Lepet

The paper discusses issues related to the introduction of technology Strip-Till in conditions Dnipropetrovsk region. Are two major problems that do not allow full use of the known production machines: the presence of extensive root systems of weeds, which covers both the treated and non-treated strips; high angle of internal humus friction and, as a consequence, distribution cleavage from working bodies outside of the processed strip. A design of a combined lancet paw, which combines the two principles of weed control: combing and trimming. On the basis of these clutches of design unit which sequentially performs the following operations: shares the root systems of treated and untreated strips; combs treated strip weeds and directs combed mass on undercut paw; undercuts combed root system.

Keywords: Strip-Till, combined lancet paw, weeds.

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Analytical study of root and bulbous crops digger kinematic parameters (p. 42–46)

G. Teslyuk, B. Volyk, I. Kogut

It is proposed a new design of root vegetables and bulbous crops vibratory digger, built on the principles of closed vibrating poles volumetric action. A distinctive feature is that digging occurs by contactless method, it means that digger working parts do not contact with the digging object during the working process. This helps to minimize crops damage, which is one of the basic conditions for their storage.

Field studies showed the dependence between the quality of digging and the degree and uniformly of soil crumbling. It was confirmed the hypothesis, that the roots digging out is most intense, if more than 50 % aggregates formed by the crumbling soil are smaller than roots.

The article analyzes the kinematics of working organ and defines the rational parameters of kinematic regime in various digging versions: with soil throwing away along the cutting line, with throwing away vertically up and in the direction of getting away from the working surface of the ploughshare.

Keywords: roots, bulbous crops, contactless vibrating digger.

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The advance modeling of fiber flax stalks along the spreading board of flax harvester (p. 47–51)

A. Limont, T. Koval

The preparation of broken flax through straw dew retting in connected with its spreading in a belt with corresponding density of stalks per 1 m of belt length. Under fiber flax combine harvesting the spreading of combed stalks is done with the help of the harvester spreading board. The density of the spreading belts depends on the pre-harvesting density of stalk stand of fiber flax, harvester grip width and is determined by the velocity of its movement and the velocity of stalk advance along the harvester working parts and their own velocity.

The research is aimed at increasing the efficiency of flax harvesters through determining the advance velocity of harvested and combed fiber flax plants along the spreading board of the harvester for ensuring the corresponding quality of spreading stalks in a belt. The technique of research is based on the theory of advance of material particles along the worsted surfaces of the working parts of farm machines. The author formulated the differential equation of the stalk advance along the spreading board which is considered as an inclined plane which can be placed at an acute angle to the horizon. Besides, X-axis was directed along the inclined plane towards the advance of stalks, and Y-axis – perpendicular to X-axis upwards. The stalks is considered as a material point with specified weight with the initial velocity which is equal to the velocity of the clamp conveyer belts. The material point is affected by: the forces of gravity which is directed vertically downwards; normal reaction directed perpendicular to the inclined plane; friction and air resistance which are directed against the advance. The analytical dependence for calculating the velocity of the stalks advance along the spreading board is obtained. The mass of one stem with respect to the investigations conducted before is accepted as the one which amounts to 0,00045 kg. The number of stalks per 1 running meter of the belt with respect to the character of changes in the fiber percent and count depending on the density of the spreading straw belts amounts to 3000 p/m. The initial velocity of the stalks advance along the spreading board is accepted as the one which is equal to the velocity of the clamp conveyer belts,

thus amounting to 1,54 m/s. The coefficient of friction of stalks against the spreading board surface is accepted as the one averaging 0,55.

Keywords: flax harvester, spreading board, stalk, advance, velocity.

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The method mobile measurements of vibration (p. 52–53)

A. Tolstenko, I. Tsanidy

This paper considers the possibility of to use mobile computers for measurements vibrations. Instrumentation can be any portable device (smartphone, tablet computer, laptop) having a design accelerometer.

Actual vibration is measured with sensor – accelerometer mounted on the workplace of machine or operator of agricultural equipment. Accelerometer is a measuring element which shows the gravitational acceleration. His unit $1g = 9,81 \text{ m/s}^2$. The accelerometer can capture vibration, position change, subject movement, etc. Typically, an accelerometer – a sensitive mass attached to the elastic suspension. Deviations mass from its original position in the presence of acceleration carries information about its value. There are accelerometers that differ in sensing element and principle of operation. There are capacitive, piezoelectric, piezoresistive, magnetoresistive.

Compliance with occupational health and safety at work - condition for high-performance. Life safety of workers working on agricultural equipment includes a range of activities to prevent injury, the harmful effects of intense industrial activity. Benefits of the proposed

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method for measuring the vibration of agricultural machinery and equipment – portability, mobility, exchange of information over the wireless network, holding several measurements simultaneously positioning position using navigation systems, working with large amounts of information, online monitoring.

Keywords: vibrations, mobile computer, accelerometer, safety, comfort, labor productivity, the level of vibration.

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Crystallization rate of the surface layer eyelet Truckee in the context of surface alloying of castings (p. 54–59)

V. Tsotsko, B. Peleshenko

One of the methods of intensive treatment of metal products is their surface alloying. In the process of surface alloying occurs combining saturation of the surface layer of metal required, such as strengthening, components and thermal effect on metal. When the surface alloying of castings, first formed high-temperature heat flows, which significantly increases the effectiveness of doping, and secondly, achieved significant savings of energy costs required to heat treatment, due to the energy of the melt. Temperature distribution dynamics in the system "molding core – melt in the mould" in the process of crystallization of the eyes of track link castings was examined. A phased transition for the outer zone of the eyes was achieved with the finite differences method using an implicit scheme for developing difference equations. A temporary dependence of the shifting of the crystallization front was achieved in graphic and analytical forms. The crystallization rate of the outer zone of the eyes was calculated. The cooling rates for the outer zones of the eyes of the track link castings were determined in the process of their crystallization, which allows estimating the magnitude of mechanical strain and the rate of component diffusion coefficient changes during the surface alloying of the eyes. We investigated the dynamics of the temperature distribution in the system casting rod - shaped melt during solidification of castings Truckee ears. The problem of phase transition for the surface layer of eyelet solved by finite differences using an implicit scheme for the compilation system of difference equations. The resulting time dependence of the crystallization front moving in both graphical and analytical forms. The calculated rate of crystallization of the surface layer ear. Determined the rate of cooling of the surface layers ears castings Truckee during their crystallization, which allow to estimate the mechanical stress and the rate of

change of diffusion coefficients of components in the surface doping ears.

The calculated rate of crystallization of the metal eyelet holes in Truckee to determine the active dissolution of alloying components in the surface layer of the metal and to predict the required dispersion fractions saturating components in doping coating foundry core

Keywords: eyelet shoe castings, heat equation, crystallization speed, non-stationary temperature field, melt, surface alloying.

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Examining the tribological properties of the silicate-fullerene geomodifier for the friction faces (p. 60–62)

O. Derkach, B. Kharchenko, O. Kabat, D. Makarenko, G. Mishchenko

The reliability of the machines is largely determined by the friction and wearing processes. The reconditioning operation of the friction components without unmaking is a critical task that will significantly reduce both the repair costs and the agricultural machinery servicing costs. One of the ways of the reconditioning operation of the components without unmaking is using silicate-fullerene composition the production of which is now possible thanks to the advances of nanotechnologies. As a result of the laboratory researches the dependence of the friction coefficient on the duration of the experiment and the dependence of the temperature in the contact area on the load when using the silicate-fullerene modifier were determined.

In the course of testing the friction coefficient greatly reduced and stabilized at 0.045 level that confirmed the formation of the covering layer on the working surfaces of the details. Using the silicate-fullerene geomodifier leads to reducing the friction coefficient 2 times.

Keywords: durability, friction, wear, testing, silicate-fullerene geomodifier, friction coefficient, undulation.

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Study of kinematic parameters the motion of the soil particle for rectilinear blade working body (p. 63–66)

S. Tishchenko, V. Shvayko, V. Guridova

Question of the motion of a particle in the environment is very important for agricultural production. This question arises in the design of seeders, at application of fertilizers and other. In agricultural mechanics consider the question about movement of the soil of the blade the cultivator paws, for the descent weeds from the working organs.

The soil particle formed after loosening, comes into contact with the edge of the working body, and she starts to move under the influence of the environment. The environment in this case will also be the soil particles. Interaction between the soil particle and the environment leads to the fact that the mass of the particle is changed. The equation of motion of a point with variable mass is equation I.V. Meshcherskiy.

Found that the most significant factor is clutch to the particle with the environment, which leads to the increase in mass of the particle. Shown dependences the velocity of the particle $V(t)$, the path $S(t)$, the normal reaction of the blade $N(t)$ and the ratio of the masses $m(t) / m_0$ from the time t and values of the empirical coefficients k_1, k_2 , that characterize including clutch the particle of the soil.

Given the model of the motion of a soil particle with variable mass in the environment. Studies show that, in this case, the movement starting particle after contact with the blade, normal reaction of the blade decreases and then remains constant. At the same time, mass of the particle in the interaction with the environment increases and its velocity after contact with the blade, tends to the constant value. The presented model, unlike the classical, allows to stabilize velocity of the particle, although in practice it often tends to zero, and ideally particle is stopped (sticking of the particle).

Keywords: soil particle, variable mass, edge of soil tillage working organ, soil movement, velocity, coupling, downy soil.

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The function distribution contact temperature heating in a length and depth of edge (p. 67–70)

Yu. Kravchenko,

B.G. Peleshenko, O. Kuznetsova

Article is devoted to analytical determination of the temperature field in the main blade section plane needed when calculating the cutting temperature. The problem lies in crossflows of heat fluxes through the body of the blade from the action of continuous sources and sinks on the front surface with cuttings and the rear surface with workpiece that requires analysis of all the heat exchange system.

Thus, the aim of this study was to derive a formula of the temperature field in the main blade section plane and to determine analytically the mutual influence of contact temperatures on the front and the rear surfaces. For this purpose first developed a mathematical model of temperature fields on the contact surfaces of the blade (straight wedge) and by two integral transitions from linear instantaneous source to bandpass continuous one, derived a formula of function of temperature distribution along the depth from the surface of heat.

Another important decision is the calculation of an average temperature value across the width and depth of the section of the wedge by method of double integration. This allowed taking into account the mutual influence of contact temperatures on the front and the rear surfaces.

The novelty of work is concluded in development of model of temperature fields and in obtaining calculation formulas. For this distribution function was determined by modeling method and presented in the form of graphical and tabular data.

Keywords: temperature field, heating, power, spring, edge.

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Rationale for the construction of centrifugal spreader of mineral fertilizers (p. 71–76)

A.S. Kobets, N.N. Naumenko, N.A. Ponomarenko
Investigational construction features of rotor working organ and their influence on the high-quality indexes of work of throwing about of mineral fertilizers.

The obtained formulae allow to determine the absolute velocity fat disk and angle of departure required for determining the width of the lens cover. On the basis of analysis of motion of financial particle for the blades of centrifugal working organ along a sending rib structural descriptions of the fourblade throwing about are grounded. Withdrawn simple enough for engineering application of the formula, giving an opportunity to substantiate the design of the disk diffuser fertilizers, which is guaranteed to improve scattering.

Scientific bases of ground of technological parameters of machines are developed.

By a mathematical design in relation to general cases dependences. Which describe conformities to law of processes which carry out machines for top-dressing, are got. Conformities to law of ascent of fertilizers from spreader and character of their distributing are set for the surfaces of soil. Found out basic factors which have a determining influence on the indexes of work of machines. Hardwares which are applied in serial industry are created.

Keywords: mineral fertilizer spreader centrifugal type blades, centrifugal working body, disc, even distribution of granules.

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Differentiating ability of the medias by the total tillering spring barley varieties trait (p. 77–80)

V. Vaschenko, A. Shevchenko

Analysis of factors, which determine the specificity of genotypes behavior in ecology (response to environment, interaction with it), is a necessary prerequisite for breeding varieties that combined high productivity and productivity stability under different conditions of environments.

The study of this phenomenon has required establishing appropriate genetic and statistical methods for estimation the constituent parameters of one.

Accordance to increasing number of papers published as increasing differences in the analytical approach and the biological interpretation of the individual components of gene-environment interaction has been caused complexity of the phenomenon.

This paper has been contained a theoretical generalization and solved important scientific problem, which is to establish breeding and genetic features of adaptive selection of spring barley in low moisture.

Breeding and genetic features of variability, level displays, depending on the genotype and the hydrothermal conditions, combining ability, genetic control of inheritance productivity traits have been established eleven-handed varieties *Prairie*, 12 *Donetsk*, *Donetsk 14*, 15 *Donetsk*, *Partner*, *Galaxies*, *Vakula*, *Getman*, *Stalker*, *Fenix*, *Adapt* as a result of effects of differentiating the medium, the variance of interaction of genotype and environment, differentiating the medium, the nonlinearity coefficient, relative stability environments and compensation coefficients determining.

The specials of different kinds of media parameters as background for selection by the traits have been established.

Keywords: spring barley, variety, differentiating ability of environment, total tillering, environment effects, the coefficient of linearity, coefficient of compensation.

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Modeling the minimization the resistance phytophagous to chemicals insecticides (p. 81–85)

A. Fokin

It was shown modeling minimization of phytophagous resistance to chemicals insecticide in exemplifying for the brassicace agroecosystems. The constructed model allows estimating the rate of elimination of resistance genes from the complex of phytophagous insects' populations certain agroecosystems. Resistance arises in the agroecosystems of monoculture if chemical insecticides with the same active ingredient are used the long time. In this case, the genotypes of pests having resistance genes, within a few years will. This will make it impossible to continue affective plant protection, without fundamental changes in the range of active ingredients. According to the classical conception of genes' drift, the gene of resistance will leave population through a few generations, or will be fixed in it. The stabilization of a gene of resistance will not take place if to apply biological agents – entomophagous, microbial preparations. Thus, it is necessary to accelerate elimination of a gene of resistance. This process can be expressed as the period of biological using opposite to the previous period of chemical method using, considering quantity of pest's populations. Construction of the model is based on the elimination rate of resistance gene of phytophage one species or their complex. For example, for cruciferous crops' entomocomplex, it is shown that elimination rate will be 0,0023 (in the forest-steppe zone) and 0,002 (in the steppe zone) after 5-year using of chemical insecticides without their rotation and 3-years biological period. Construction of the model is based on the elimination rate of resistance gene of phytophage one species or their complex. For example, for cruciferous plants' entomocomplex, it is shown that elimination rate will be 0,0023 (in the forest-steppe zone) and 0,002 (in the steppe zone) after 5-year using of chemical insecticides without their rotation and 3-years biological period. In case of a significant likelihood of resistance, elimination speed can be increased to overcome it, if the biological method has been introduced into the protection system. Elimination rate with increase to 0,003 for both agro-climatic zones.

Keywords: resistance, phytophagous, plant protection, insecticides, entomocomplex.

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Biometric indexes and grain productivity of corn hybrids of different maturity groups depending on sowing terms and plant population under the conditions of northern steppe subzone of Ukraine (p. 86–90)

S. Nosov

Sowing terms are of great importance for corn growing. They depend on the timeliness, evenness and population of sprouts, rate of plant growth and development, as well as on harvest rate. Both early and late sowing terms significantly reduce plant productivity.

Plant population is also very important when growing corn. It significantly affects growth processes, basic phase dates and, consequently, duration of hybrids vegetation period. Plant population depends on soil and climatic conditions, morphobiological hybrid characteristics, moisture and plant nutrition. Sowing terms and plant population become extremely important in dry years when there is a risk of corn productivity reduction more than twofold.

The best conditions under which corn hybrids of different maturity groups form optimal biometric parameters and gain high grain productivity have been established over the years of research when sowing them on April, 19–20. This fact is confirmed by plant height records at phases 10–12 of leaves, flowering, height of stalks attachment and yield crops amounted to 5,06 t/ha (a middle-matured hybrid Krasyliv 243 MB) and 4,43 t/ha (an early-matured hybrid Pochaivskiyi 190 MB).

On the average, over the years of research biometric indexes had the highest values under the conditions of minimal plant population according to the experiment: 40 th./ha for early-matured and middle-early, 30 th./ha for middle-matured and middle-late biotypes. The highest yield has been obtained under the condition of footstalk density of 60 th. plants/ha of middle-matured hybrid Krasyliv 243 MB – 4,77 t/ha and early-matured hybrid Pochaivskiyi 190 MB – 4,19 t/ha.

Among all the investigated hybrids it is reasonable to recommend the production to perform sowing of early-matures hybrid Pochaivskiyi 190 MB and middle-matured hybrid Krasyliv 243 MB as the most adapted to

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weather parameters of corn vegetation period under the conditions of northern steppe subzone of Ukraine.

Keywords: corn, hybrids, sowing terms, plant population, biometric indexes, grain productivity.

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The content of the nitrogen in the humus horizon of the chernozem of the typical and usual Bug-Dnieper interfluves (p. 91–94)

M. Kovalev

The analysis and the evaluation of the transformational changes were made which had happened in the soils under the influence of the agricultural use. On the basis of the generalization of the materials of the large scale soil researches the choice of the key areas was justified within Bug-Dnieper region of the Right Bank South Forest Steppe and the northern Steppe of Ukraine with the aim to study the changes of the properties of the black soil of the typical and usual heavy-loamy and light-clay coal and peat metric structure in the dependence of their use with the application of the comparative-geographical, comparative-profile-genetic, comparative-analytical and other methods of researches.

In the conditions of Bug-Dnieper region of the Right Bank South Forest Steppe and the northern Steppe of Ukraine the integrated studying of the dependence of general nitrogen content on general humus of the typical and usual black soil was held. The changes of the physical and physical-chemical properties of the black soil of the typical and usual heavy-loamy and light-clay coal and peat metric structure were installed in the dependence on their agricultural use. On an example of many variants and wide programmed of the observations, the conservatism of the soils of the heavy-loamy and light-clay coal and peat metric structure wasn't justified, in particular the significant changes of the physical and physical-chemical properties were found. Using a range of indicators the degradation of the properties of the typical and usual black soils under the anthropogenic pressure was installed, especially in the surface horizons-the reduction of the humus and general nitrogen's content and also the deterioration of their physical properties. The mathematical models for the theoretical calculation of the general nitrogen's content on the dependence of the content of the humus were developed. The theoretical dependence of the general nitrogen's content is calculated according to the formulas: for the zone of the Forest Steppe – $y = 0,0682 (r = 88)$; for the transition zone – $y = 0,0503 (r = 85)$; for the zone of the Steppe – $y = 0,0635 (r = 91)$.

The trend of the anthropogenic transformation of the soils was installed, which is in strengthening of the differentiation of the profile by density of the addition, the total porosity and some physical-chemical properties, under the influence of the agricultural use. And it, in its turn, given more clear view about the physical and physical-chemical processes, which are flown in the soils.

Keywords: chernozems, soil density, total porosity, humus, aeration.

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Study of process and parameters of aerodynamic separation for single-component seed mixture (p. 95–98)

M. Kirpa, S. Skotar, O. Roslik

The experiments were conducted at the State Institute of Agriculture steppe zone NAAS of Ukraine in 2012–2013 on the basis of the experimental farm "GP Dnepr".

The aim was to study the process of aerodynamic calibrating-sorting for single-component seed mixture, set its effect on the yield and quality of corn seed.

Methods. Single-component mixture of corn hybrid seeds, obtained after purification on corn-processing plant was separated in a laboratory pneumatic classifier SPC -1. As a single-component mixtures were used seeds of corn hybrids Ushitsky 167 SV, Pyatihatsky 270 SV, Borozensky 277 MB, Solonyansky 298 SV, Zbruch.

Results. As the results of experiments displayed, aerodynamic separation of single-component mixtures is an unstable process both in vertical and horizontal airflow. Destabilization is caused by a significant spontaneity of mixture distribution in the air flow, the change in seed windage, which depends on its location and position, air speed and density. Aerodynamic separation of seed becomes especially complicated with complex-shaped crops with significant heterogeneity, such as corn. 1000 hybrid corn seeds in the air stream separated according to the shape, size, volume and weight. The process was less dependent from the specific area and the mass (density). No significant rectilinear connection between fractions and germination of most studied hybrid seeds.

Conclusions. Given the marked, aerodynamic separation of single-component seed mixtures, such as corn for the purpose of sorting-calibrating is impractical. This method is recommended for the seeds cleaning followed, deeper sieve and gravitational separation on the respective machines.

Keywords: maize, seeds mixture, fractions, aerodynamic separation, technique-technological indexes.

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Contrnnts of heavy metals in chains "soil–plant" in the southern region Tyumen (p. 99–102)

E. Gaevaya, E. Zakharova, L. Skipin.

The paper discusses the problem of soil and plant contamination level by heavy metals in the southern part of Tyumen region. A complex estimation of heavy metals concentration in the chain "soil–plant" was never done. The existing data are separate and fragmentary. Such research has a great importance for the scientific comprehension in the ecosystems and for the solution of many practical tasks related to man, and animals health, environment care and use the of natural resources.

The aim of research is to estimate the soil condition and heavy metals content in the plant-grower products in the southern part of Tyumen region.

The experimental part concerning the problem of heavy metals heavy metals emission into soil and forage was held in the licensed laboratory.

It is necessary to note that there is a favorable geochemical state in each microelement separately. The contents of movable forms of heavy metals in the soils is within the possible and is estimated as "low". It observes the zinc, copper scarcity in soils of southern part of Tyumen region. Lead and cadmium contamination is absent.

The research showed that the heavy metals content in farm production lies within the the maximum possible concentrations limits and temporary maximum possible level.

Grain-crops grown in the Tyumen area, on the ecological and sanitary-hygienic norms of maintenance of heavy metals answer the accepted requirements. Crops, grown in Tyumen region meet sanitary-hygienic requirements.

Keywords: heavy metals concentration, soil, plant food.

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ABSTRACTS

Change in water consumption and in yield soybean at different regime irrigation use in the southern zone of the Priamure (p. 103–106)

N. Yust, N. Shelkovkina

Nowadays production of high quality seeds and food grains soybean re-mains an open problem for which you must install the optimum soil water regimes depending on needs moisture in different periods of growing plants with soil and climate conditions Research focuses on the changes of soil moisture consumption patterns plants soybean, and then use a set of indicators to control the water regime of the soil and justify the use of water by plants with steam predecessors. chemical fertilizers

In accordance with the intended purpose of study was to determine, but the following objectives: to establish the characteristics and dynamics of a watering-consumption of soy, the formation of the water regime of soils under different regimes of irrigation to establish the laws of formation of the crop depending on the soil water regime and steam predecessors, to identify key rates of photosynthetic activity of plants and of the influence of it on the soybean harvest; set features a change in the moisture and mobile forms of nutrients in the soil, depending on the steam predecessors, to study the effect of clean, green manure and engaged couple on the contamination of crops, yield and grain quality soy to bio-energetic and economic assessment of the vapor at various modes of irrigation and to suggest the most appropriate ones for the conditions of the Amur region.

Investigations were carried out in the meadow-chernozemplike soil in the two-factor experiment in the experimental field of the Annunciation district of the Amur region and was accompanied by observations, accounting, and Exploration, made subject to the requirements of methods of experimental work, B.A.Dospehova. Repeated experiences fourfold. The method of irrigation – sprinkler. Depth of active layer of the controlled irrigation of soil moisture of 0,3 m.

Results. In studies, the most productive should be considered the first mode of irrigation in setting of sprinkling with pre-sprinkled soil moisture of 80 % HB, as there were received the highest values of productivity 1,9 t/ha, respectively.

Practical implications. Place of application - meliorated lands of the Amur region.

Keywords: soybean, water consumption, total water consumption, average daily water use, Irrigation, south zone of the Amur region.

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Yield Galegae orientalis depending on the varietal features and inoculation seeds (p. 107–109)

L. Kirilenko, V. Patyka

The article summarizes the research findings on the interaction of active strains of nodule bacteria Rhizobium galegae different varieties Galegae orientalis. The aim of the study was to evaluate the effectiveness of modern varieties nitrogenation Galegae orientalis east in agricultural technologies of cultivation in terms of right-bank forest-steppe of Ukraine.

As concisely described very culture – Galega oritntalis L., which plays an important role in protecting the environment. Nitrogen fixation nodule bacteria from the air makes it possible to reduce the rate of mineral nitrogen environmentally advantageous because a ton of fiber, fixed bacteria, half the price of the same amount of protein, digestible plants with nitrogen fertilizers. In addition, the nitrogen accumulates biological means, is harmless, unlike chemical. Therefore Galega oritntalis east is one of the most interesting and promising forage plants. It can be called energy efficient because the cost of Pre-primary tillage, purchase of seeds and sowing held once in all the years of use. This is promising, because the environmentally oriented farming – a modern paradigm, which should replace the chemical-technological.

The accent is made on the outstanding aspects of the problems is the lack of specialized symbiotic microorganisms for culture among the natural soil microflora in terms of right-bank forest-steppe of Ukraine. The article also made an analysis of recent research and publications under this topic.

On the basis of vegetation and field experiments with ten strains studied Rhizobium galegae – 0702, 0703, 0706, 0719, 0720, 0721, 0722, 159, J11, A2, selected four – 0703, 0721, 159 and A2, which are the most effective form of symbiosis all studied varieties Galegae orientalis. Established that pre-sowing seed treatment data assimilation strains activates molecular nitrogen and enhances the yield of green mass of plants Galegae orientalis number of varieties, which indicates the presence of selected rhizobia complementary to a wide range of varieties.

Keywords: Rhizobium galegae, Galegae orientalis, symbiotic system, nitrogen fixation, strain.

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Trends of development in the rice market: international and domestic experience (p. 110–114)

R. Morozov, V. Dudchenko

In the article, tendencies of the rice market development were examined (the main attention is paid to features of its development in time, during years). The aim of work is the research of current conditions and tendencies of the global and domestic markets of rice development. The achievement of the set aim was based on the usage of the dialectic method of a research and on the systematic approach to a research of examined events. For the achievement of the predicted scientific results in work, general scientific and special methods were used.

In the process of work features of world's rice growing were examined from the position of the achievement of rice demand as on one of the highest yielding crops in the world's agriculture. Higher facilitates its production (the production of rice during the last decade has greatly increased). The general amount of rice production in the world from 2001 to 2012 grew to the level of 718 345,4 thousand tons (than in 2001 – 599828,3 thousand tons). Nowadays the area sown to rice on the planet is more than 163 thousand hectares (from 2001 to 2012 rice growing areas increased from 152043,1 thousand hectares to 163463,0 thousand hectares). The average rice yield during the period from 2001 to 2012 was 4,17 ton/hectare. The attention was paid to structural aspects of the world's rice commerce. Commercial circulation in the world market from 1995 to 2011 increased to the level of 45,98 billion dollars (than in 1995 – 15,37 billion dollars). The factors of the rice market conjuncture in Ukraine were examined. It was established that during the last decade the significant growing of rice export streams is seen in Ukraine, which is a member of the Mediterranean association of countries that produce rice. Among factors which influence on the growing of export potential of the country such should be pointed out as: the increasing amount of rice production; the competitiveness of the domestic production; the ability of domestic converting industry to use grain and transform into new products; the ability of commercial infrastructure to transport grain from Ukrainian farms to foreign countries. Ukrainian domestic market requires growing amounts of quality grain of rice for food purposes. In finding a solution to the problem of a rice market formation, the major role will have a factor that except the internal need in domestic products Ukraine must oriented on the import of high quality grain from countries of CIS, Near East, Central-Eastern part of Asia and other regions.

From researches done one can make a solution, those countries which have rich natural resources potential and which are capable to product big amounts of rice can receive not only stable profits, but also serious geopolitical advantages.

Keywords: rice, rice growing, market situation, world market, domestic market.

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Character formation and maturation of hybrid maize seed germination in a northern steppe of Ukraine (p. 115–119)

N. Kirpa, M. Styurko

Formation of seed germination is largely dependent on the conditions and factors that add up to a process of maturation. The main factors include the dynamics of moisture exchange and accumulation of dry matter and moisture content at which seed is collected.

Last time, due to the onset of the dry climate, the changing nature of the manifestation of the main factors that directly affect the process seed making and the formation of seeds. However, the relationship between moisture exchange, accumulation of dry matter, harvest moisture and germination of seed corn hybrids studied enough. With climate change is not known relationship between similarity, humidity, moisture exchange and accumulation of dry matter, making it difficult to obtain in the current conditions of the domestic high-quality hybrid maize seeds.

The aim of the study was to determine the features of ripening corn hybrids under different, especially dry conditions, and determine which is formed when moisture germination of corn.

Methods. The study was conducted in 2011–2013, based on the experimental farm “Dnipro” Institute of Agriculture steppe zone of Ukraine NAAS. The process of maturation were studied on maize hybrids of different maturity groups: Dniprovskiy181CV, Kremen' 200CV, Liubava 279MV, Rozovskiy 311CV.

Ear corn for the experiments were selected upon the occurrence of milky ripeness starting from humidity 50–63% depending on the hybrid and conditions of the year. Collected ear immediately dismissed from the wrapper and determine seed moisture. Further ear dried, threshed on a laboratory threshing-machine and preparing seeds samples for analysis.

Results. The high rate of moisture exchange during maturation of seeds under conditions 2011–2013, harvesting humidity advancing to the second-third decade of August, and ten days of September.

We found that the bulk of the dry matter accumulated in the studied hybrids achieve grain moisture content of 25–30%. Later even possible loss of dry matter due to heavy breathing wet grain in high ambient temperature, and cause and effect of rain.

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Also found humidity at which seed corn hybrids may grow differently 57,8–67,0 %. Established that with humidity 47,2–53,5 % of the studied hybrids seed germination reached conditioned – not less than 92 %.

It should be noted that at the time of the achievement is not yet certified similarity ends accumulation of dry matter at harvest moisture from 47,2–51,3 % reduction in dry matter content on 20,1–34,8 % compared to the maximum possible. That is, reaching certified similarities seed is deformed by weight, frail, and therefore has a lower strength of growth, germination and field performance.

Conclusions. Given the findings, it is recommended to apply the optimal timing of early harvesting and post-harvest handling of maize hybrids, which makes it possible to obtain better seeds to reduce its costs and increase output.

Keywords: seeds, humidity, moisture absorption, mass thousands of grains, germination, productivity hybrids corn (*Zea mays* L.).

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Productivity of soybean depending on the use of water-soluble phosphorus compounds for pre-seed and foliar inlays their feeding (p. 120–123)

S. Artemenko, S. Kramaryov

Given the possibility of the nitrogen-fixing soybean and analytical data obtained by the definition in ordinary chernozem exchange forms of nutrients to meet the needs in these plants during the growing season, we concluded that the available quantity of this crop in the soil solution phosphorus macronutrient enough. Provision of mobile forms of phosphorus in our soils is very low, due to the presence of large amounts of calcium, which quickly connects them to form poorly soluble compounds of calcium phosphate $Ca_3(PO_4)_2$. Of domestic literary sources we know that to increase the productivity of soybean is necessary to improve the system power plant phosphorus. From research, the influence of pre-seed inlays and foliar application of plant water-soluble phosphorus compounds on the productivity of soybeans. Use a water-soluble phosphorus-containing drug Antistress at 200 g/t together with pest seeds provided with inlays forming the greatest productivity of soybean 2,44 t/ha. Antistress foliar use of the drug in a dose of 1,5l/ha provided an increase of the amount of nitrogen- roots, as well as their weight and leaf area. However, due to lack of moisture and drought, which are usually observed in the second half of the growing season, coinciding with the formation of beans and grain ripening, these measures are not implemented in the crop, and even somewhat reduced productivity of the crop.

Keywords: encrustation, stains, connections of phosphorus, additional fertilizing, soybean.

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Features of photosynthetic activity of sunflower hybrids grown with different bio substances (p. 124–130)

Y. Tkalic, M. Nitsenko

For the purpose of studying of photosynthetic activity features of sunflower the field experiment on the basis of utilization of adjuvant soil microbiological preparations of nitrogen-fixing and phosphate – mobilizing actions by presowing treatment of seeds, and also additional spraying of vegetative plants by means of growth regulator Vympel was carried out. Inoculation of seeds has been conducted with microbiological preparations of nitrogen-fixing actions Diazophyte, KL-9; complex action Diazophyte + Phosphoenterine

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in comparison with local application $N_{15}P_{15}$ at sowing. The experiments were carried out in the limited liability company "Ptakhivnyche" at Novomoskovsk district of the Dnipropetrovsk oblast' in 2011–2013 years on common chernozems with content of humus 4,8 %. Replication of test was fourfold. The calculation area of plot made 28 m².

The data obtained by us have given the chance to determinate, that the area of leaf surface of sunflower plants considerably varied depending on microbiological top dressing. In the greatest development in a flowering stage at utilization of nitrogen-fixing preparations this indicator exceeded the control on 16–30 %. The application of complex of preparations (Diazophyte + Phosphoenterine) in most cases caused the maximum values of the area of leaves at all hybrids of sunflower. Inoculation of seeds with microbiological preparations of nitrogen-fixing actions Diazophyte and KL-9 led to appreciable increase of factor of absorption coefficient of photosynthetic active radiation, which reached a maximum at complex treatment of seeds.

The treatment of seeds with bacterial preparations has provided reliable increase of grain productivity of all hybrids. So on the background without utilization of the preparation Vympel the gain of seed yield from application of Diazophyte on hybrid Kyy was equaled 0,17–0,25 t/hectare, and on a complex preparation it was 0,22–0,23 t/hectare, on hybrid Yason it was 0,13–0,17 t/hectare and on Zorepad it was 0,15–0,32 t/hectare accordingly. The same increase of yield guaranteed by means of nitrogen-fixing preparation KL-9 on hybrid Kyy. On two other hybrids the effect from application of this preparation was considerably above: on hybrid Yason it was 0,27–0,31 t/hectare, and on the Zorepad it was 0,34–0,4 t/hectare that was explained more long period of their vegetation. At spraying of sunflower plants with the growth regulator Vympel (0,5 l/hectare) the yield gain on hybrid Kyy on all preparations was equaled 0,09 t/hectare, hybrid Yason – 0,07 t/hectare, hybrid Zorepad – 0,18 t/hectare.

Keywords: biological products, hybrids sunflower, yield.

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The dynamics of physical and hydro-physical properties of the pedozem at the the profile (p. 131–133)

I. Ljadska

Researches have conducted on experimental participation by land reclamation, which is situated at the science researching base of the Dnipropetrovsk State Agrarian-Economic University in Ordzhonikidze. Soil profile have been laid at the site of pedozem. The formation of morphological structures are only oc-

curing in the technogenic soils, which are then have converted into genetic horizons homologous in the natural soil horizons. Therefore, sampling has been carried out in layers, which have a fixed height – 10 cm to determine the properties of these layers, which can be regarded as nuclei for future genetic horizons, has been used the concept of homogeneity (uniformity) layers. Based on these results, we can conclude that the performance maximum hygroscopic moisture, plants wilting point and porosity has evenly distributed along the profile. Field moisture content has not distributed evenly across the layers, the maximum (18,65 %) of moisture value field has been at a depth of 30–40 cm This indicates that moisture has freely passes through the pores of the layer of 40–50 cm there has a further densified layer which prevents further movement of moisture. The result of these processes may be the formation of anaerobic conditions in the root layer.

The porosity in the upper (0–10 cm) layer was high (50,12 %), farther has observed the tendency to decrease, at a depth of 50–60 cm minimum figure (38,56 %), indicators of soil density have distributed on the contrary, in the upper horizons they were low but have increased with depth reaching a maximum (1,56 g/cm³) values in a bowl 50–60 cm This indicated that at this depth was more compacted layer of pedozem.

In general, the results have obtained from the research has showed that physical and hydro-physical properties of pedozem have had high spatial variability.

Keywords: soil structure, restoration, pedozem, physical and hydro-physical properties.

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Comparative assessment of the content of mobile phosphorus in various genetic horizons for ordinary chernozem on tilled field compared with virgin soil in conditions of the Northern Steppe of Ukraine (p. 134–138)

S. Kramaryov, S. Artemenko, O. Kramaryov, A. Khrystenko, S. Zhuchenko, V. Syrovatko, K. Syrovatko

Al on with nitrogen, phosphorus is the second most important mineral nutrient element which is in the majority of cases limiting the further growth of grain yield actually in all agricultural crops without exception. It is connected with the fact that in most types of soils phosphorus is present in slightly soluble mineral form and organic form not available to plants. This is due to low content of phosphorus available to plants in soils the payback of phosphoric fertilizers is rather high; on average, 1 kg of P_2O_5 guarantees the gain of 4–5 kg of grain. Because of decrease in content of phosphorus in soil, the crop rotations' productivity reduction in years to come would reach 2,2 grain units (Medvedev, 2000). The task of monitoring the changes which occur in mobile forms of phosphorus and comparing the degree of their mobility in ordinary chernozems on the tilled field compared with virgin soils necessitated the relevant studies.

Methods. The arable layer of soil contains 3,8–4,1 % of humus (Tyurin method), 0,22–0,23 of gross nitrogen, 0,12–0,13 of phosphorus, 2,0–2,1 % of potassium. Level of nitrate nitrogen after 7-day composting varied from 31 to 52 mg/kg of soil, mobile phosphorus (following the Chirikov method) – 110–112 mg/kg, mobile potassium – 105–130 mg/kg. Neutral reaction of soil solution ($pH_{water} = 7,0$) was observed.

In order to identify the changes having occurred with mobile forms of phosphorus in ordinary chernozems under the influence of their long-term use in agricultural production, two soil sections were made, each of 2 m deep, 3 m wide and 6 m long: the first one on the virgin soil area in the locality, and the second one at the distance of 300 m from the first section. Starting from the upper part of sections, in each 5 cm throughout the depth, soil samples were taken for mobile form of phosphorus which content was determined following the Chirikov acid method and Karpinsky-Zamyatina salt method.

Results and discussion. Changes in the content of total phosphorus in soil on virgin soils and arable lands are found only in the upper (0–10 cm) layer – 0,164 and 0,148 %. As from the soil layer of 10–20 cm and deeper on the profile, its reserves were on the same level. Therefore, investigations were focused mainly on mobile forms of phosphorus which in most cases is a limiting factor for growth, development of plants and formation of yielding capacity of agricultural crops. Content of mobile phosphorus in cenoses of the ordinary chernozem under study is somewhat higher than the level of dynamic balance of phosphate systems of soils – 0,17–0,19 mg of P_2O_5/l on tilled field and 0,13–0,14 mg of P_2O_5/l 10 cm layer of virgin soil. For the tilled field this increase is explained by avail-

ability of residual phosphates of fertilizers; it means low-fertilized soil. Phosphate state of the lower horizons of both cenoses is actually the same and corresponds to the level of dynamic balance. Higher content of mobile phosphorus in the individual layers of soil (0,10–0,12 mg of P_2O_5/l) is created owing to availability of calcium carbonates. Since these compounds appear, neutral value of salt extract (pH 5,8) is shifting to alkali side, which enhances its extracting ability. Therefore, investigations carried out with the use of modern method of soil diagnostics have shown how fundamentally low natural availability of phosphorus in ordinary chernozems of the Northern steppe of Ukraine which restricts obtaining highly yields of agricultural crops. As a result, the sessile soils require application of phosphoric fertilizers, as the other soils of Ukraine.

Conclusion. Ordinary chernozems on the loess of heavy soil grading of the Northern steppe of Ukraine contain increased amount of apatite-like compounds. Because of this, usage of any acid methods including that according to GOST 26204-91 (the Chirikov method) results in considerable artificial lowering of phosphate state of soils (by 40–80 mg of P_2O_5/kg of soil).

Actual natural provision of chernozem top soil with ordinary phosphorus corresponds to the limit of low and medium availability of this nutrient element to plants which is confirmed by the known empirical data concerning high efficiency of phosphoric fertilizers on the soils.

Keywords: chernozem, fertilizers, provision with mobile phosphorus, methods of assessment, soil solution, yield.

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From the calculation of soil moisture to the creation of geoinformation system for the regime of soil moisture (p. 139–141)

V. Kovalenko, L. Rudakov, V. Dotcenko, I. Bugayova

The article presents the development of a well-known hydro-meteorological method of calculating soil

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moisture under agricultural crops with using of information portal "Reliable Prognosis" rp5.ua for creating a geoinformation system of soil moisture regime. Knowledge of information about the regime of soil moisture is prerequisite for optimization technologies of growing crops and creation GIS of soil moisture regime based on computational methods and available information on the Internet is one way to solve this problem.

A.F. Litovchenko in paper revealed the essence of the ahrohidrometeorological method of calculating reserves moisture from previous weather conditions using the equation

$$W = c - a \cdot \exp(-b \cdot P)$$

The calculated model takes into account the main factors. They are significantly affects the regime of formation of soil moisture reserves: precipitation (h); temperature and deficit of humidity (T , d); phenological stage of plant development, soil constants (parameters a and c); the regime of spending of soil moisture by crop (option b), and others.

Modern websites of meteorological service (for example, www.rp5.ua) opens for explorer to use qualitative more complete information about meteorological factors with increments of $\Delta t = 3:00$ for virtually for any points (locality). The taking account of new factors (atmospheric pressure, speed of wind, relative cloudiness) in the calculation of comprehensive measure of past weather conditions P and based on the interpretation of function arguments allowed us to use well-known methods for determining crop water use in calculating soil moisture. We took into account the effect of wind through wind function in particular of H . Penman and L . Turk and the quantity of solar radiation as a function of the relative cloud.

The proposed model had implemented in ahrohidrometeorological method for calculating the reserves of moisture under winter wheat according to the data of the weather stations Dnipropetrovs'k region. The dependences of moisture reserves were built for estimate of the accuracy of the calculation in the soil layer 0–100 cm from the complex index of weather P . The accuracy of the estimated model definition of a moisture was estimated relatively values of soil moisture that had been measured by instrumentally (by the method of thermostat-weight. It had been compared, herewith, relatively to the basic model. When soil moisture calculated by ahrohidrometeorological method, the correlation coefficient was 0,85–0,90 compared with baseline model. When new model has been refined the narrowness of bond increased to 0,93–0,94. Analysis of measurement accuracy the soil moisture W showed that compared with the baseline model, the accuracy of calculation has increased on average by 16 %. This proves the effectiveness and feasibility of using weather information database of information portal "Reliable Prognosis" rp5.ua. Knowledge of ahrohidrometeorological soil properties (constants) and extrapolation continuous data of weather on a arbitrary area (field, farm, administrative region, geographical area, region or province) will create a GIS regime of soil moisture under major crops as the foundation of optimization technology growing crops in justifying of empirical parameters of ahrohidrometeorological method.

Keywords: the method of calculation soil moisture reserves, GIS of soil moisture regime.

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Salt mode edaphotopes of steppe Pridnieprov'ya (p. 142–144)

I. Uzbek

The edaphotopes of anthropogenic landscapes of the Steppe Zone of Ukraine are characterized by different degree of salinity of soil which influences on their level of biological activity. The loess-like loams and bulked on them a layer of chernozem mass in the thickness of 40 cm are weakly salted. Accumulation of salts is observed from depth of 40–50 cm, that is from depth of the beginning loess-like loam, on which was bulked mass of southern chernozem.

The loess-like loam in the course of time is considerable desalinated. Beginning with depth of 50 cm the content of sulphates and chlorides increases. Among cations most of all are observed cations of Na^+ , and content of cations of Ca_2^+ and Mg_2^+ are practically almost identical. The red-brown clay is characterized by high alkaline reaction of a soil solution (pH 8,1–8,5). In cationic part of soil prevailed cations of Na^+ and K^+ whereas the content of cations of Ca_2^+ and cations of Mg_2^+ was small. Such features of red-brown claims negatively influence on the level of biological activity of edaphotopes.

The gray-green clay differed by alkaline reaction of the soil solution in the layer of 40-cm. The maximum indicator of the dry rest of grey-green clay was observed on depth of 30–40 cm.

So, quaternary deposits are weak-salted and can be used under all agricultural crops. It is expedient to take up tertiary deposits with multicomponent grass mixtures in which long-term bean grasses prevail.

Keywords: anthropogenic landscape, edaphotope, salt regime.

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Ecological assessment of the projection cover of tailing heaps in the central Donbass (p. 145–148)

N. Chayka, N. Kharytonov, A. Kozlova

Coal industry in Donbass region creates powerful technogenic environment impact. New methods for complex (remote and ground based) observations of disturbed landscapes are required. They will considerably contribute to forecasting consequences for environment and economy as well as working out technological approaches to reclaim minelands. It is known that under optimal casting land and vegetation covers develop not frontally but parcellary. It was established that in parcels soil formation processes and phytocoenoses go singenetically. They can be diagnosed on stages of phytocoenose succession. That is why investigation of land cover forming is an easily accessible mean for diagnostics and prediction of dynamics of technogenic landscape ecological state on the whole. 55 species of the higher plants were disclosed in the vegetation cover composition in the tailing heap territory of "Trudovskaya" mine. The vegetation cover composition is characterized with high spatial heterogeneity. Analysis of NDVI index image is helpful for vegetation cover estimation of tailing heaps vegetation. The vegetation cover takes 15 % of heaps area in the context of terrace floor forming and rock oxidation. The detection of tailing heaps' flora biomorphological spectrum is a main criterion determining ecological niche diversity in phytocoenose, dominate life form, phytocoenose ecological conditions and its changing. The fraction of grass vegetation takes 76,4 % of land cover including 32,8 % for perennial and 43,6 % for annual and biennial plants. The level of species practicability is decreased with increasing possibility of occupying a fundamental niche. Dominant species in their overgrowth groups relate to primary and secondary transition strategies types – S, R, SR, CS, CRS. Our investigation does not include species C and CR strategy types.

Keywords: vegetation cover, species composition, life forms, mine rocks.

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Crop grain productivity formation of spring barley different shoots systems under the influence of seeding rates and foliar fertilizing (p. 149–153)

S. Chernobay, A. Rozhkov

Crop grain productivity increase and stabilization of gross harvest of grain crops at a high level is a key problem of agricultural production of our country. The problem of growing technology optimization on the principles of adaptive plant growing in order to realize the genetic potential of plants productivity including spring barley still remains actual.

Agricultural production of Ukraine does not provide the necessary amount of spring barley industrial production despite the fact that our country is its major supplier to the world market. Our country is almost three times inferior to the leading countries of Western Europe in terms of crop productivity (2,5 t/ha).

The purpose of the conducted research was to determine the complex influence of seeding rates and foliar fertilizers on the formation of biological crop grain productivity of spring barley variety Dokuchayevskiy 15 and to identify the share of each shoots system in its formation under the influence of the studied elements.

The studied technology elements caused substantial changes of biological crop grain productivity of plants main shoots system. Formation of the highest biological crop grain productivity of plants main shoots system – 238,9 g/m² was at the seeding rate 5.0 million/ha. Both increase and decrease of seeding rates at a gradation step – 0.5 million/ha resulted in a significant decrease of this index – by 9,0 and 10,9 g/m². Significant increase of the studied index under the influence of additional fertilizers on the variants of complex fertilizers was on the variants of crops complex fertilizers with Crystalon and Reakom in a mixture with biopreparation agro EM. On these variants the biological crop productivity of the plants main shoots system was appropriately 11,8 and 9,6 % higher than on the control variant.

The established tendency – the reduction of biological crop grain productivity of lateral shoots system

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by increasing seeding rate as compared to the optimum rate – should be explained on the one hand as a sharp decrease of the productive tillering coefficient, as a result the number of lateral shoots per unit area, due to the growth of coenotic tension, may even decrease, and on the other hand the reduction of grain weight from the ear of lateral shoot at the same reason.

Among the studied factors seeding rate largely influenced the change of each shoots system role in the total biological crop grain productivity. The established regularity was shown during all the years of the researches.

The increase of plants main shoots role in the formation of the total biological crop grain productivity with the increase of seeding rate should be explained by the growing competition between plants which resulted in the reduction of productive tillering and in the increase of plants main shoots role in the total crop grain productivity of spring barley.

Keywords: spring barley, complex fertilizers, microelements, crop productivity, shoots system, seeding rate, foliar fertilizers.

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Use of biopreparations to improve growing of grafted cherry-plum seedlings (p. 154–157)

O. Klymenko

Problem of modern nursery is reducing of soil fertility in nurseries. One way to overcome this adverse event and improve the efficiency of seedlings is the use of microbial preparations (MP). Bioagents of MP improve the of plant nutrition, increase growth and fight pathogens. Currently, these preparations are successfully used in the cultivation of various crops. Unfortunately such works are few in a fruit nursery. In this regard, the purpose of the research was studying the effect of MP on the growth and development of seedlings, the state and the output of standard cherry plum seedlings in a fruit nursery. The objects of study were the seeds and seedlings of cherry plum (*Prunus cerasifera* Ehrh.) and cherry plum variety "Obil'na", as well as MB: Azotobacterin – providing associative nitrogen fixation; Phosphoenterin, which an active strain is phosphatmobilizer and produced physiological activity substance and a complex of microbial preparations (CMP), which consists of Diazophit (nitrogen fixer), Phosphoenterin and Biopolidic – bioprotector. Cherry plum seeds were treated by suspension of biopreparations and their complex before sowing at a ratio of water 1:100. Control seeds were treated with tap water. The impact of MP on plants was studied in field experiments embedded in the fruit nursery of Nikita Botanical Gardens – National Research Center. Experiments were carried out for 2010–2013. The scheme of planting in the nursery – 0,7×0,1 m. fertilizer to the soil did not make before sowing of cherry plum seeds. In the second field of nursery during the seedlings active growing were added mineral nitrogen fertilization (50 kg N per ha). Biopreparations have had a positive impact on cherry plum seeds germination. Azotobacterin and Phosphoenterin increased the seed germination by 3,3 % of the seeded number or 5,6 % of the control. CMP has increased this indicator the most essentially and significantly compared with control on 8.6% of the number of sown seeds or 14,7 % relative to the control. Application of MP stimulated the growth of cherry plum seedlings in the nursery. The application of Azotobacterin was the most important and significant increase in seedling height by 19,2 % relative to the control. This increases the number of lateral shoots of 1–2 pieces and their total length on 6,2–13,7 cm. MP enhances the growth of a root system and stimulate of a root formation in cherry plum seedlings. Azotobacterin and CMP increased the number of grafted plants on 8–15 % relative to the control. The highest output of standard seedlings was obtained by using Azotobacterin and CMP, which exceeded the control by 6–10 % or 6,8 and 7,9 thousand units of standard seedlings per hectare, respectively.

Keywords: microbial preparations, seedlings, saplings, cherry plum, fruit nursery.

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Productivity of ears of saccharine and grain of pop-corn after different predecessors (p. 158–162)

S. Masliev, N. Konoplya

Information is resulted about influence on the productivity of bursting grain and ears of suckling ripeness of grain of saccharine corn of different predecessors at the field and vegetable crop rotations of Left-bank Steppe of Ukraine.

During sugar corn sowing in crop rotation chains pea – winter wheat condition cobs yield decreased in comparative with control on 0,57 t/ha, corn–early spring barley – corn – on 1,53, sunflower–barley–corn – on 2,22 t/ha.

Yield decreasing was much more visible in these chains in sowings of pop – corn.

Thus, best predecessors of food subspecies of corn in field crop rotations are winter wheat, especially in fallow – winter wheat – corn chain, and annual grass for green forage, and in vegetables – melon crops – common onion, early potato. Sugar corn provide high yield in intermediate sowings after early green crops. The growing of the food subspecies in repeated sowings possible only under fertilizers introduction and deep soil tillage.

Keywords: field and vegetable crop rotations, predecessors, productivity, saccharine corn, pop-corn.

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The quantitative estimation of function signal between sings of water contain in leaf tissues and hydrothermal factors during the vegetative period (p. 163–168)

I. Zaitseva, M. Povorotna

The model is suggested, which outlines interrelation of ecologic factors and plants' water cycle processes. Possibilities of using mathematical methods to estimate function between water contents of leaves according to temperature and quantity precipitations was consider for example genus *Philadelphus* L., *Deutzia* Thunb., *Syringa* L., *Acer* L., which was introduced in Steppe Right Bank of Dnipro. According to results of complex analysis exponent W_{extr} – water quantity which was needed to normal growth of different species trees and shrubs plants was obtained. Number of coefficient to compare main type according to there stability. In the most adapted species value of this index is low, in less stable species that is higher, consequently for that species increase necessity of water. The quantity of water deficiency may be determined according to the worked out equation, which based on current data of air temperature. The scale of drought-resistance visual estimation of investigation plants has been developed. The result of study of drought-resistance physiological aspects and water relations of the decorative shrubs and trees are submitted. The general nature of resistance, which depend of hydrothermal and plants bioecological peculiarities have been determined. The result of the calculation is conform with botanical and geographic origin of the introduced species and degree of plants drought-resistance at the steppe condition. About results of the investigation where was estimate of adaptive opportunities of introduced species in the Cteppe zone. The results of this research may be used in creation mathematical models, which can describe dynamics of adaptive processes trees and shrubs plants under the stress condition in steppe area.

Keywords: water relation, drought-resistance, ecological factors, nonlinear regression, introduced plants, steppe zone.

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Zinc and copper in black earth and winter wheat (p. 169–171)

V. Svitovyy, O. Gerkiyal, I. Zhilyak

Some elements, despite their high toxicity, in microdoses are necessary for the normal vital activity of many plants and animals. The examples are copper and zinc that belong to biologically active elements and always can be found in the organism of animals and plants. The aim of this research was to determine the safety of soil and grain of winter wheat by content of zinc and copper. The aim of the research was also to estimate provisionally the prospects of usage of microfertilizers of zinc and copper on the crops of winter wheat grown on the podzolized heavy loam chernozem.

Methods of the research. We investigated soil and plants of winter wheat, grown in field crop rotation of the research field of Uman national university of horticulture, where fertilizers were not applied for more than 45 years. It gives the opportunity to investigate the background. The soil of the research field is podzolized heavy loam chernozem on loess. Physical-chemical properties of the soil are the following: exchange acidity – 5,3 pH, hydrolitic acidity – 3,32 cmol/kg, total exchangeable bases – 31,4 cmol/kg, base exchange capacity – 34,7 cmol/kg, degree of saturation of soil by bases – 90,5 %. The removal of mobile forms of heavy metals was made by the solution 0,2 N of hydrochloric acid. The content of copper and zinc in the soil and grain of winter wheat was investigated by method on the basis of inductively-coupled.

Results of the research and their discussion. The content of gross zinc in the soils of Ukraine is 20–320 mg/kg, within the impact of the emissions of industrial enterprises of iron industry and nonferrous-metals industry the content of zinc can reach 1200 mg/kg. The content of gross zinc in the investigated soil is 210 mg/kg that equals the background indices for chernozem soils. In the soils of Ukraine there can be approximately 4–20 mg/kg of mobile zinc extracted with acid extracts. Mobile zinc in the investigated soil was found on the level of 1,34–1,25 mg/kg of soil, that according to the gradation of provision corresponds the low provision. Proceeding from the level of allowable concentration for zinc the content of its mobile forms in soil is eighteen times lower than its allowable concentration

(23 mg/kg). In the herbage of wheat zinc was found on the level of 8,7 mg/kg of dry basis. According to the gradations of provision of winter wheat plants with zinc its content in the plant is low. In the grain of winter wheat it was found 17,6 mg/kg of zinc, that doesn't exceed the allowable concentration (50 mg/kg).

In the investigated soil the gross content of copper is 60 mg/kg that is typical for this type of soil. The mobile forms extracted with acid extracts in the soils not polluted by industrial emissions, make 0,24–15,5 mg/kg. In the investigated example of soil we found mobile copper on the level of 2,3 mg/kg. According to the gradations of provision with the mobile forms of copper such soil has middle provision with this element. At the same time the allowable concentration of copper mobile form for soil is 3,0 mg/kg, that's why it is necessary to state that the content of mobile copper does not exceed the allowable concentration. In the herbage of winter wheat at the moment of earing we found 3,0 mg of copper by the kilogram of dry basis. Such content of copper, according to the gradations of provision of winter wheat plants with food elements, is low. In the grain of winter wheat we found 4,3 mg/kg of copper, that doesn't exceed the allowable concentration (10 mg/kg).

Conclusions: 1. Grain of winter wheat, grown on podzolized heavy loam chernozem of the Right-Bank Forest Steppe of Ukraine is safe for the consumption by the content of zinc and copper.

2. Taking into consideration the low provision of wheat plants with zinc and copper during the earing stage it is possible to forecast that the apply of microfertilizers with these elements will have certain effectiveness on podzolized chernozem by winter wheat growing.

Keywords: heavy metals, black earth, winter wheat.

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Erythropoiesis red steppe breed cows under the influence of trace elements in conditions of technogenic pollution (p. 172–174)

N. Shkvarya

It was established that under the conditions of technogenic pollution of the Western Donbass system erythropoiesis in cows positive effect of salt trace elements copper, zinc and cobalt as by their individual actions, and in combination. The most effective action shows cobalt.

Environment Dnipropetrovsk region constantly exposed to increased anthropogenic impact on industry, transport, agriculture, industry and other sectors of the national economy. In this region formed a lasting and permanent source of contamination by heavy metals of water, air, soil, feed, animal products and so on.

For example, with heaps and tailings coal Western Donbas mines rains wash away every year, at the rate of 1 ton of rock, r: Cd – 0,03, Fe – 2,7, Zn – 0,23, Cu – 0,07, Mn – 0,23, Co – 0,17, Ni – 0,11, Ag – 0,02, Cr – 0,12, Pb – 0,45. In some places Donbass mineralization underground water is more than 1,000 mg/l, and sometimes extends to 30–150 g/l. The content of sulfates, magnesium, arsenic, cobalt, copper, zinc significantly higher than the maximum permissible concentration. In surface water Dnipropetrovsk region annually receives about 2 billion m³ of domestic sewage and industrial wastewater, which is 25 % of them in Ukraine. According to the literature and the results of our research, water from the river Samara, Vovcha, Mokra Sura, some ponds, the Dnieper in its various areas of water does not meet the standard rates.

Keywords: technogenic pollution, Western Donbass, erythropoiesis, copper, zinc, cobalt, blood, cow.

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Effectiveness of herd reproduction and functional asymmetry of the ovaries of cows (p. 175–181)

S. Sidashova

The results of the structural-functional comparative analysis of population profiles of lateral differentiation paired gonads two lactating cows herds Ukrainian Red Pied dairy breed, differing levels of productivity and fertility. Analysis of the literature showed that the data on the functional asymmetry of the ovaries of female farm animals, including cattle, differ materially from contradictions. Based on the fact that knowledge of the functioning of the reproductive organs of cows during spontaneous sexual cycle largely determine the effectiveness of modern reproductive biotechnology techniques, including artificial insemination, increases the relevance of the study of morphological and functional patterns of their lateral localization.

Existing research areas today, considering the origin of the functional asymmetry of paired organs in animals and humans, do not explain the biological significance of this mysterious phenomenon in general. It should be noted the value developed by Russian scientists (V.Geodakyan et al., 1987–2003) evolutionary concept rise asymmetrization adaptogenesis organisms in the process. Named concept treats symptoms of functional asymmetry in most vertebrates as a natural evolutionary phenomenon, providing the adaptation of organisms and species as a whole to changing environmental conditions. Given the intensification of modern technologies in livestock production, the increase in all developed countries, the concentration of dairy cattle on industrial-type complexes, we can assume, modern breeds of animals will be observed a marked enhancement of the asymmetry of paired organs of various body systems. At present, have not been studied species or breed standards asymmetry levels of key reproductive organs – the ovaries of cows, therefore, it is impossible to predict the effective choice of breeding or reproductive program for a specific breed or herd. Therefore, our research objectives were developed and tested methodology for the study performance of functional asymmetry cycled (in vivo) of the ovaries of cows.

Proposed methodological approach confirmed the theoretical position of the evolutionary concept of the phenomenon of lateral dimorphism paired organs in animals. Using innovative methods of diagnosis and palpation cyclic lateral fixation results rectal examination of the ovaries of cows revealed that the population profiles of two herds of cows of the same breed have significant structural differences over the sexual cycle. In a herd with lower productivity and the median fertility, structure left-right asymmetry of ovarian function is dynamic. In a herd with high milk yield and

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low fertility signs of simplifying left gonadal morphology, suggesting an evolutionary regression. Although in both herds marked dominance of the right ovary, which corresponds to the findings of evolutionary concept of activation of the left hemisphere of the brain of animals under the influence of stressful environmental factors (industrial maintenance and operation conditions), but in a herd with high productivity specialization acquired right body too deep, which negatively affected on the loss of bilateral equilibrium reproductive system as a whole. Therefore, this cow herds had the lowest reproduction that significantly worsened service - period.

Comparison of morphological and functional parameters of the two herds of cows ovaries showed that functional asymmetry is a structural mechanism for maintaining the physiological balance of bilateral paired gonads. Proportional asymmetry harmonic structure allows to adapt the general population reproduction function by a specialization of the ovaries to higher requirements of the environment, while maintaining the bilaterally integration reproductive system.

Keywords: cow, rectal palpation, ovarian, follicle, luteal body, follicular phase, luteal phase, functional asymmetry, lateral differentiation, proportional structure.

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Defining methods of functional well-being of immune systems in dogs (p. 182–185)

O. Bobritskaya, K. Yugai

Definition of functional well-being of immune system in dogs due to electrical and dynamic method with the help of PARKES-D complex, clinical and laboratory blood search have been the aim of investigation. All dogs have been examined clinically. Body temperature, normal respiration and heart contractions, mucous eyes and mouth membranes, hair covering and behavior reactions have been examined. Two groups of dogs per 10 animals have been formed by the results of investigation. Clinically healthy dogs belonged to controlled group and dogs with features of low functional immune system activity belonged to the experimental one. Quantity of blood cells, leucocytes dominance and hemoglobin content, phagocyte activity of neutrophils, phagocyte number, phagocyte index, digestibility index, antibacterial and lysocim blood serum activity, immunoglobulin concentration have been defined in blood of experimental animals. Exact differences between erythrocyte quantity and hemoglobin concentration, lymphocyte number increase have been settled. Phagocyte activity of leucocytes, phagocyte index and immunoglobulin concentration have been lower on 30 mg% in dogs of experimental group than in dogs of controlled one. Antibacterial and lysocim blood serum activity of dogs controlled group has been lower than in experimental one. Immunoglobulin concentration, phagocyte activity of neutrophils, phagocyte number, phagocyte index, digestibility index of microbe cells on the base of increasing of antibacterial and lysocim blood serum activity have been decreased in dogs with low natural resistance. Diagnostic PARKES-D complex allows defining functional well-being of immune system in dogs and 80 % of cases are proved by blood search.

Keywords: immune system, electric and magnetic rays, functional well-being, diagnostic complex PARKES-D, laboratory blood search.

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Effectiveness of deworming in mixed nematode infestation of pigs (p. 186–190)

S. Ponomar, Ch. Shendrik, O. Kruchinenko, Y. Kichilyuk

In article experimentally – theoretical underpinnings of effective schemes anthelmintic therapy studies were performed on 3-month pigs spontaneously infected *Strongyloides*, *Ascaris*, *Trichuris* and *Esophagostomy*. Three experiments to evaluate the properties of preparations parasitocidally fenbendazole and ivermectin conducted on 130 piglets (13 groups of 10 goal.)

Efficiency in mixed nematode infestation drugs albendazole was studied in four experiments on 208 pigs (26 experimental groups of 8 goal., the control group – 12 goal.). Anthelmintic drug ivermectin quality and levamisole was evaluated in an experiment on 130 infested pigs (13 groups of 10 votes cast.)

Experience on the comparative evaluation of efficacy of moxidectin and ivermectin spent 90 piglets (9 groups of 10 votes cast.)

In an experiment to determine the antiparasitic activity in mixed nematode infestation drugs NPF "Brova-farma" was 266 piglets (19 groups of 14 votes cast.)

When mixed nematode infestation 100 % anthelmintic action regarding *Strongyloides*, *Ascaris* and showed *Esophagostoms*: a group with a single feeding – drugs albendazole in the form of suspensions and gels (10 % suspension albendazole, albendazole-20–100 gels and albendazole-200 gel) in dose 0,0076 grams A.S./kg b.w. in the form of powder or tablets (albendazole 10 %, 10 % Albenvet powder, tablets albendazole 0,25 and 0,5 g, brovalzen powder, tablets and the album brovalzen tablets) – 0,01 g A.S./kg b.w., the album forte (0,8 sm³ per 5 kg b.w.), levamisole (0,015 g A.S./kg b.w.) brovalevamisol powder 8 % (1 g/10 kg b.w.), with twice the feeding intervals 12:00 – fenbendazole 10 and 20 % (0,017 g A.S./kg b.w.) brovadazol, brovadazol 20 % microgranules and Panacur granules (0,015 g A.S./kg b.w.), with an interval of 24 hours - nilverm (0,020 g A.S./kg b.w.). Feeding with food for 7 days – brovermektin granules (dose rate of 2 g/10 kg b.w.); subcutaneous single injection - ivermectin 1 % (0,6 sm³/10 kg b.w.) ivomek, tsidektin, ivermekvet 1 % ivermectin and 10 (1 sm³/33 kg b.w.) brovermektin for injection (0,3 sm³/10 kg b.w.), with intramuscular administration of a single – 10 % levamisole and levamisole plus 10 % (0,85 sm³/10 b.w.), an injection of levamisole 10 % and brovalevamisol injection (0,008 g A.S./kg b.w.). Deworming did not provide complete isolation body from trichuris infestation.

Keywords: mixed nematode infestation of pigs, efficiency of a scheme deworming, drugs fenbendazole, albendazole, levamisole, ivermectin and moxidectin.

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The determining level of postinfectious neutralizing antibodies in the blood sera of wild boar against viruses reproductive and respiratory syndrome swine (p. 191–194)

M. Sytiuk

In article presents data on the detection of specific neutralizing antibodies against the virus reproductive and respiratory syndrome of swine in the blood sera of wild boars bagged in Ukraine during 2001–2013 years. The study of blood sera of wild boars was performed immunoperoxidase test in the neutralization reaction. For study used: cell culture MARC 145, reference strain of PRRS virus "Lelystad" with infectious activity 105,5 lg TCID₅₀/sm³, positive serum against PRRS virus strain "Lelystad" with specific level antibodies 1:1920 - derived from National veterinary Institute in Pulawy, Poland. In studies of diagnostic antibody titer was considered the level of 1:4 and above. The results of the serological monitoring was investigated 6817 samples blood sera of 76,3 % district of all regions of Ukraine. In the hunting season 2001–2002 were investigated 48 % regions, 2002–2003 – 56 %; 2003–2004 – 76 %; 2004–2005 – 80 %; 2005–2006 – 48 %; 2006–2007 – 88 %; 2007–2008 – 72 %; 2008–2009 – 84 %; 2009–2010 – 100 %; 2010–2011 – 56 % and 2011–2012 – 100 %; 2012–2013 – 96 %. The results of serological tests indicate that the overall rate seroprevalence of wild boars population to PRRS virus is 2,38 % of the number of animals studied, and in regions of Ukraine this index was 2,08 % in the Western, 2,24 % Southern, 2,46 % Northern, 3,07 % Eastern and 2,13 % central regions. Positive to PRRS virus was 669 and negative – 2797 blood sera. The overall rate of positive samples studied was 2,38 %. It is shown that the ratio of antibody titers among 162 samples blood sera were follows: 35,2 % (57 samples) – 1:4 (2 Log₂); 23,5 % (38 samples) – 1:8 (3 Log₂); 15,4 % (25 samples) – 1:16 (4 Log₂); 8,6 % (14 samples) – 1:32 (5 Log₂); 9,3 % (15 samples) – 1:64 (6 Log₂); 3,7 % (6 samples) – 1:128 (7 Log₂); 4,3 % (7 samples) – 1:256 (8 Log₂). The average level of antibodies in the blood sera of wild boars was 1:30,25 ± 4,35, and dominant – 1:4. The obtained results of monitoring studies indicate low seroprevalence wild boars in Ukraine to the virus reproductive and respiratory syndrome swine.

Keywords: reproductive and respiratory syndrome swine, wild boars, immunoperoxidase test in the reaction of neutralization, antibodies titers

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Quotient of protein metabolism and fermentation activity in cattle youngsters of various ages under the influence of copper (p. 195–198)

D. Milostivaya

The article shows the results of the biochemical studies of quotient of protein metabolism and enzyme activity of transamination in cattle youngsters during various periods of postnatal development while adding inorganic copper sulfate to their diet.

Studies were carried out on the cattle youngsters of the Ukrainian breed during various periods of their postnatal development. According to the results of the analysis of their dietary intake, there is great deficiency in such essential microelements as manganese, cobalt, selenium, iodine. The most deficient element in youngsters' diet is considered to be copper.

The results of the studies also show that the feeding of cattle youngsters with copper sulfate increases the level of crude protein due to albumin and globulin fractions, which can be caused by much more intensive use of copper in protein synthesis and its further use in plastic processes.

The level of albumin in the blood serum shows the intensity and direction of protein metabolism in animal's organism, its growth and productivity. Also its concentration can be used as the criterion of animal's protein supply and occurrence of protein reserve.

Our studies make us arrive at the notion that the rise of albumin in blood serum is probably caused by the intensive use of this element in somatic tissues of growing organism. Albumin accumulates in the place of synthesis and then used for the synthesis of tissue proteins and biologically active albumen.

Addition of copper sulfate to the basic diet results in the increase of γ -globulin fractions. The process is obviously connected with the intensive synthesis of globulin in peripheral blood-forming organs. What is more, experimental animals had the increase in the level of albumins, α - and β -globulin protein fractions, which intensify their transfer function.

Blood proteins are closely connected with all tissue proteins in the organism and reflect the metabolic changes in animal's organism. In connection with this, the dynamics of level of blood proteins is directly connected with the functional state of a liver, as the liver is the organ where the synthesis of albumin and a part of globulin (constituents of

blood serum proteins) takes place. Apparently, it is connected with the intensification of the transamination in connection with the biosynthesis of tissue proteins, animal's liveweight gain and accumulation during the process of growth and the period of fattening.

Keywords: crude protein, protein fractions, copper sulfate, cattle youngsters of Ukrainian breed, transamination, AST, ALT.

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Epizootic specifics eimeriosis of chickens in the farms of Dnipropetrovsk region (p. 199–201)

T. Marshalkina

In the list of invasive diseases that cause considerable economic losses in poultry farming one of the urgent problem is eimeriosis. Analysis of the literature and our own researches indicates widespread of eimeriosis of chicken in farms of different forms of ownership and different keeping technologies.

Identification eimeriosis invasion of poultry in the zonal aspect has not only scientific but also of practical importance as it allows to raise efficiency treatment and prevention measures.

In this work we studied the epizootic situation with eimeriosis invasion of chickens in the Dnipropetrovsk region. The received data on the extensiveness and intensity of eimeriosis of chickens morbidity depending on age and seasonal factors, the species composition of pathogens.

In the winter-spring period extensity of eimeriosis infestation among chickens live-stock was in the range of 6,6 to 20 % for most of low intensity (1–10 oocystis/g of litter). In the warm season the infecting of poultry by eimerias have increased and ranged from 2,5 to 28 % for adult birds and 50 to 100 % for young birds. By this the tendency to increase of intensity of eimeriosis infestation (100 oocystis/g of litter) was observed, which often caused (the) outbreaks of disease in farms and private households. The increase of sick rate in

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the warm season due, primarily, to increased humidity and creation this way the enabling environments for eimerias.

A study of species belonging of eimerias picked out from chicken dung and intestinal contents of dead birds have founded out that in the main was founded eimeriosis invasion of mixed type, which was caused most often by these types of pathogens like *E. tenella* (Railliet et Lucet, 1891), *E. acervulina* (Tyzzer, 1929), *E. maxima* (Tyzzer, 1929), rarely *E. necatrix* (Johnson, 1930), *E. brunetti* (Levine, 1942).

Thus, we obtained results of researches indicating that eimeriosis is much common disease in poultry farms in Dnipropetrovsk region irrespective of poultry keeping and rearing technologies.

Keywords: chickens, eimeriosis, oocysts, extensiveness of invasion, intensity of invasion.

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Pathomorphological and etiological aspects of syndrome of necrosis of pig ears in terms Ukrainian farms (p. 202–204)

E. Yesina, V. Sentyurin, T. Pazushchan

On the basis of disease history, clinical presentation, results of postmortem autopsy revealed that the swine farms in Dnipropetrovsk region observed necrotic lesions ears. This situation has a periodic course and linked to process upset density fluctuations and raising animals as a feed.

Pathologicoanatomic signs of ears necrosis characterized by productive inflammation of small blood vessels and capillaries, which was causing coagulation necrosis of the skin and surrounding tissues. The composition of the inflammatory infiltrate (endothelial cells, lymphocytes and macrophages) points to autoimmune nature of the disease.

In the treatment of major pathological process is the main to normalize the relevant process parameters: improving ventilation and heating in buildings, and to control the level of humidity; compliance with technological standards regarding density setting animals in buildings; continuous monitoring of feed quality, including the presence of mycotoxins, using the effective sorbents of mycotoxins.

Keywords: necrosis of ear tips, pigs, diagnosis of diseases, streptococcus infection.

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Influence of "humilid" on leukocytal blood profile of piglets of early age (p. 205–207)

S. Pinchuk

The article deals with the topical issues of improvement of youngsters' ability to adapt to the conditions of intensive growth process in the most critical periods of development. The use of metabolic stimulants allows to intensify pig's ability to withstand unfavourable conditions, under which the anabolic processes in the tissues inhibit and their productivity decreases.

There are a lot of studies concerning the influence of humic preparation on fattening qualities of animals and birds. Scientists claim that adding these preparations to

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the diet favour better growth, increase productivity and provide with a high-quality animal and poultry produce. Humic substances of peat origin, due to stabilizing effect on the biomembrane, DNA, RNA, ATP and protein synthesis, cytokinesis and immune status, have positive modifying influence on the organism when damaged by unfavourable ecological factors. For this reason, studies were carried out to understand the influence of fodder additive "Humilid" on the rate of the leukocytal formula over the first 21 days of animal's life.

The analysis of leukogram of piglets' blood showed that the ratio of some specific forms of white blood cells is changing greatly in investigations of various age periods. Over time the amount of certain classes of white blood cells is changing too. So, the amount of lymphocytes rapidly decreases, and the amount of basophils, eosinophils, monocytes and neutrophils (banded and polymorphic forms) increases. Such dynamics of changes is also caused by the general decrease in the amount of lymphocytes in piglets' blood in the future period of feeding.

As the part of their diet piglets were given a probiotic of humin origin "Humilid" in the form of water solution. Studies showed that the use of sodium humate as a fodder additive in pigs' diet for the first 21 days of their lives had a positive effect on their physiological state.

In order to improve the resistance to illnesses, which piglets normally have, we tested "Humilid" as a possible preventive measure. The results showed that due to the use of "Humilid" the amount of lymphocytes has greatly increased among experimental animals. The most dramatic changes in the blood cells were noted relatively to banded neutrophils and polymorphs, which are connected to the critical period of ontogenesis. This proves the stimulating effect of the preparation of humin origin on the immunologic responsiveness of pig youngsters' organism.

Keywords: piglets, "Humilid", adaptation, leukocytal formula, ontogenesis, stress, diet, lymphocytes, monocytes, neutrophils.

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