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Экотоксикологическая оценка зерна пшеницы озимой при длительном применении (с 1965 г.) удобрений в полевом севообороте / **Господаренко Г.Н., Мартынюк А.Т., Черно Е.Д., Любич В.В.** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2017. – № 4(46). – С. 5–11.

Установлено, что содержание радиоактивных нуклидов и химических элементов существенно менялось в зависимости от длительности применения удобрений в полевом севообороте. Самой высокой была удельная активность ^{40}K , которая существенно зависела от системы удобрения. Удельная активность ^{137}Cs и ^{90}Sr была самой низкой в сравнении с другими радионуклидами и зависела от агротехнологии выращивания. Определено, что при длительном применении удобрений после клевера в зерне пшеницы озимой снижалось содержание марганца, железа, меди, кобальта, никеля, кадмия, а содержание Zn повышалось. Применение высоких доз удобрения по органической и органо-минеральной системам снижает содержание токсичных элементов (кобальта, хрома и кадмия) в зерне.

Ключевые слова: пшеница озимая, система удобрения, тяжелые металлы, радионуклиды.

Жуков А.В. Агроэкологическая детерминация тренда урожайности зерновых и зернобобовых культур / **А.В. Жуков, С.В. Пономаренко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2017. – № 4(46). – С. 12–19.

Предложен методический подход к установлению значения агроэкологических факторов в тренде урожайности зерновых и зернобобовых культур. Тренд связан с действием систематических факторов агроэкономической и агротехнологической природы. Циклическая компонента идентифицирована как такая, что имеет преимущественно агроэкологическое происхождение. Установлен четкий тренд повышения урожайности зерновых и зернобобовых в Полтавской области в 1995–2016 гг., который можно описать линейной зависимостью. Коэффициенты линейной модели содержательно интерпретированы как скорость роста урожайности со временем и потенциал урожайности в начальный период исследования. Параметры линейной модели тренда урожайности исследуемых культур можно объяснить с помощью показателей разнообразия ландшафтного покрова, топографического индекса влажности, индекса эрозии и их взаимодействия. Согласно прогнозируемому значению коэффициента роста урожайности культур, районы разделены на три агроэкологические группы: с низким, умеренным и высоким потенциалом роста.

Ключевые слова: линейная модель тренда урожайности, временная динамика, агроэкологические факторы, разнообразие, зерновые и зернобобовые культуры.

Ткалич Ю.И. Оптимизация применения микроудобрений и регуляторов роста растений в посевах кукурузы Северного Степи Украины / **Ю.И. Ткалич, А.И. Цилюрик, В.И. Козечко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2017. – № 4(46). – С. 20–25.

Отмечается, что с нарушением севооборотов, развитием эрозионных процессов, чрезмерной техногенной нагрузкой, ухудшением водного, питательного режимов и гумусного состояния черноземов рост производства зерна оказывается под постоянной угрозой. Обращается внимание на необходимость совершенствования элементов технологии выращивания кукурузы, в том числе системы питания растений с использованием микроудобрений, препаратов, которые способны регулировать ростовые процессы, способствуют повышению уровня урожайности зерна и его качественных показателей, а также являются экологически безопасными для окружающей среды и здоровья человека. Показано, что в условиях Северной Степи Украины использование полного комплекса регуляторов роста растений и микроудобрений (инкрустация семян, обработка растений кукурузы в фазе 3–5 и 7–8 листьев) обеспечивает устойчивую тенденцию к росту полевой всхожести семян, повышает засухоустойчивость и жаростойкость растений кукурузы в 1,5 раза, а урожайность зерна на 12,1–14,5 % относительно контроля. **Ключевые слова:** кукуруза, микроудобрения, регуляторы роста растений, инкрустация семян, засухоустойчивость, жаростойкость, элементы структуры урожая.

Марковская Е.Е. Оптимизация борьбы с сорняками в короткоротационном севообороте в условиях орошения на Юге Украины / **Е.Е. Марковская** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2017. – № 4(46). – С. 26–29.

Отражены результаты изучения влияния основной обработки почвы на степень засоренности посевов сельскохозяйственных культур орошаемого короткоротационного севооборота в условиях Юга Украины. Установлено, что засоренность посевов в вариантах обработки орудиями с рабочими органами чизельного и дискового типа была выше в 1,6–2,5 раза, чем в контрольном варианте. Результатами корреляционно-регрессионного анализа подтверждено, что самый высокий уровень потенциальной засоренности исследуемых культур севооборота (65–95 шт./м²)

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зафиксирован на полях с кукурузой и соей при снижении глубины основной обработки почвы, а наименьшее значение этого показателя – у рапса ярового.

Ключевые слова: культуры севооборота, орошение, основная обработка почвы, период вегетации, засоренность, моделирование.

Писаренко П.В. Агроэкологическое районирование сырьевых зон для выращивания органической сельскохозяйственной продукции / **П.В. Писаренко, О.А. Ласло, О.В. Панкова** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2017. – № 4(46). – С. 30–33.

Обсуждаются результаты исследования агроэкологического состояния сельскохозяйственных угодий Полтавской области в контексте выделения сырьевых зон выращивания органической продукции. С использованием анализа, синтеза и данных обобщения статистических и картографических материалов определены благоприятные почвенно-климатические зоны, где сегодня возможно широкое внедрение органического земледелия. Осуществлено зонирование региона и по критерию соотношения пашни и экологостабилизирующих территорий. Отмечается, что 65 % его площади занимают черноземы, самые плодородные разновидности почв. Высокие показатели гумуса (4,01–4,5 %) наблюдаются в почвах Машевского, Чутовского и Карловского районов; 3,51–4,0 % – в Великобагачанском, Миргородском, Шишацком и Диканском. Однако подчеркивается, что катастрофическое состояние имеют почти 40 % земель Полтавщины. Представлены также рекомендации, направленные на улучшение агроэкологической ситуации в исследуемом регионе и устранение недостатков на пути к стабилизации агроэкосистемы в целом. **Ключевые слова:** агроландшафт, агроэкосистемы, органическая продукция, районирование, органическое земледелие, сырьевые зоны, распаханность территории, эрозия почв.

Особенности процессов перекисного окисления в сперме хряков-производителей в зависимости от времени года и интенсивности их использования / **А.М. Шостя, В.А. Рокотянская, В.Г. Цыбенко, М.П. Сокирко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2017. – № 4(46). – С. 34–38.

Освещены экспериментальные данные об особенностях процессов перекисного окисления в сперме хряков-производителей в зависимости их от времени года и интенсивности использования. Установлено, что наилучшими показателями спермопродук-

ции характеризуются животные в весенний период. В летний период качество спермы у хряков-производителей достоверно снижается. Такие изменения сопровождаются существенным снижением активности каталазы на 30,6 % ($p < 0,01$) и существенным накоплением содержимого ТБК-активных комплексов на 46,9 % ($p < 0,01$). Качество спермопродукции хряков-производителей находится в тесной зависимости от режима их использования. Выявлено, что повышение интенсивности использования хряков до двух раз в неделю не способствует существенному ускорению процессов перекисидации.

Ключевые слова: сперма, хряки, спермопродукция, перекисное окисление, ТБК-активные комплексы.

Убойные и мясные качества высокопродуктивных гибридов свиней в условиях промышленного свиного комплекса / **А.Г. Мороз, А.М. Шостя, С.А. Усенко, А.С. Невидничий, В.Г. Цыбенко Р.М. Кирьян** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2017. – № 4(46). – С. 39–45.

Представлены результаты исследований по установлению наиболее эффективных вариантов сочетаний генотипов свиней украинской и английской селекции для получения товарных гибридов на внутрипородной и межпородной основе в условиях промышленного свиного комплекса. Высокими забойными и мясными качествами характеризовались сочетания крупной белой УКБ-1 с производителями дюрок, ландрас и крупной белой породы английской селекции. Животные этих сочетаний имели длинные полутуши и большую массу окорока. Лучшими показателями качества мяса отличался молодняк, полученный от сочетаний (УКБ-1 × УКБ-1) и [УКБ-1 × (УКБ-1 × КБ А)].

Ключевые слова: порода, сочетание генотипов, гибриды, внутривидовый и межпородное гибридизация, убойные и мясные качества.

Лихач А.В. Продуктивная значимость подсосных поросят по этологическим параметрам в условиях интенсивной технологии производства свинины / **А.В. Лихач, В.Я. Лихач, А.Е. Новиков** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2017. – № 4(46). – С. 46–50.

Важным вопросом в технологии выращивания молодняка свиней остается изучение продуктивной значимости подсосных поросят по этологическим параметрам, что обеспечивает будущую их продуктивность и сохранность. Исходя из этого, изучены этологические показатели новорожденных поросят в

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разрезе генотипов, которые определяют продуктивную значимость подсосных поросят; исследовано поведение подсосных поросят путем визуальных наблюдений с последующим расчетом полученного материала. Основными критериями этологических исследований служили показатели времени реализации позы "стояние" после рождения, первый контакт с выменем матери и первый акт "сосание" молозива свиноматки. Продуктивные качества подсосных поросят оценивались по общепринятым показателям в свиноводстве. Установлено, что помесные поросята, полученные от материнской формы – крупной белой породы и отцовской – породы ландрас на реализацию позы "стояние" после рождения, первого контакта с выменем матери и акта сосания молозива свиноматки тратили меньше времени относительно ровесников исследуемых генотипов.

Ключевые слова: продуктивная значимость, подсосные поросята, акт "стояния", первый контакт с выменем матери, первый акт "сосания" молозива свиноматок.

Тетерук О.О. Агрэкологічне особености накоплення ^{137}Cs масличними культурами в зоні радіоактивного забруднення / **О.О. Тетерук, В.П. Фещенко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2017. – № 4(46). – С. 51–54. Рассмотрено значение удельной активности ^{137}Cs при внесении удобрений и без их применения в зеленой массе и семенах масличных культур, выращенных на дерново-подзолистых супесчаных почвах Полесья. Показатели удельной активности ^{137}Cs в зеленой массе культур свидетельствуют о повышенном накоплении радионуклидов в ней, непригодности продукции для кормления животных, но возможности использования ее на сидерат. Уровень удельной активности семян во всех вариантах существенно превышает нормативы, что подтверждает необходимость переработки семян на масло, поскольку основная операция получения масла осуществляется с помощью органических растворителей, которые не растворяют ^{90}Sr , ^{137}Cs и другие радиоактивные изотопы.

Ключевые слова: цезий-137, удельная активность, масличные культуры, видовые особенности.

Юсюк Т.А. Индекс молочной продуктивности кобыл новоалександровской тяжеловозной породы при сезонном доении / **Т.А. Юсюк** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2017. – № 4(46). – С. 55–59. Для оценки молочной продуктивности животных пользуются индексом молочности, кото-

рый показывает количество произведенного молока на 100 кг живой массы. Чем больше молока производят животные на единицу массы, тем лучше они оплачивают корм. Определен и исследован индекс молочной продуктивности кобыл новоалександровской тяжеловозной породы. Доказана нелинейная корреляция ($r = -0,63$; $p = 0,001$) индекса молочности с массой тела и значительная корреляция между индексом молочности и номером лактации: $r = 0,59$; $F_{(1, 22)} = 11,45$; $p < 0,01$. Рассмотрена взаимосвязь массы кобыл с их молочной продуктивностью, которая является недостоверной при $r = 0,25$; $F_{(1, 22)} = 1,45$; $p > 0,05$. Определена достоверная связь надоев кобыл за линейной принадлежностью: $F_{(4, 43)} = 4,16$; $p < 0,01$.

Ключевые слова: молочная продуктивность, индекс молочности, лактация, живая масса, кобылы, линия.

Юсюк Т.А. Динамика роста жеребят новоалександровской тяжеловозной породы / **Т.А. Юсюк** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2017. – № 4(46). – С. 60–63.

Проанализирована динамика основных промеров жеребят в возрасте от трех суток после рождения до 6 месяцев. Для оценки роста жеребят новоалександровской тяжеловозной породы предложено уравнение промеров. За этот период жизни промеры жеребят увеличились: высота в холке в 1,3 раза; косая длина туловища в 1,4 раза; обхват груди – 1,6 раза; обхват пясти – 0,15. Живая масса жеребят за полгода увеличилась в 3,9 раза, индекс массивности в 1,2 раза, индекс формата – в 1,1. Доказано, что между ростом жеребят, надоями и жирностью молока кобыл существует взаимосвязь. Между надоями и промерами жеребят устанавливается высокая множественная корреляция: $r = 0,79$ с вероятностью $F_{(1, 22)} = 37,347$; $p < 0,05$. Жирность молока имеет достоверную множественную корреляционную связь с промерами жеребят: $r = 0,62$; $F_{(1, 22)} = 13,750$; $p < 0,01$.

Ключевые слова: жеребята, промеры, индексы телосложения, рост, надой, жирность молока.

Евграшкина Г.П. Математические модели вертикального солепереноса на шахтных отвалах для обоснования варианта их рекультивации / **Г.П. Евграшкина, Н.Н. Харитонов** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2017. – № 4(46). – С. 64–70.

Предложены математические модели солепереноса на шахтных отвалах, созданные на основе теории физико-химической гидродинамики пористых сред. Модели разработаны

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для количественной оценки миграции макро- и микрокомпонентов во времени и пространстве. Рассмотрены четыре варианта модели: а) отсыпка без рекультивации, то есть модель характеризует отвал, отсыпанный без рекультивации. Процесс влагопереноса является инфильтрационным; б) рекультивация в условиях богарного выращивания культурных растений; вторая модель отображает миграцию солей на рекультивированном отвале богарного земледелия; в) с системным орошением; третья модель отличается от предыдущего варианта заменой богарного земледелия на систематическое орошение шахтными водами низкой минерализации; г) при зарастании дикорастущей растительностью; четвертая модель предполагает свободное зарастание поверхности отвала природной растительностью с низкой транспирацией и характеризуется накоплением солей на контакте с насыпным глинистым слоем. Адекватность моделей подтверждена сопоставлением результатов эпигноза с режимными наблюдениями.

Ключевые слова: фильтрация, массоперенос, миграция, гидродисперсия, рекультивация, математическая модель.

Сендецкий В.Н. Особенности фотосинтетической деятельности гибридов кукурузы в зависимости от применения соломы и сидератов в условиях Лесостепи Западной / **В.Н. Сендецкий** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2017. – № 4(46). – С. 71–76.

Установлено, что улучшение условий питания растений исследуемых гибридов кукурузы НК Термо и НК Лемеро путем использования соломы совместно с посевом сидератов повышало уровень основных показателей фотосинтетической деятельности, что способствовало увеличению количества ФАР, которая аккумулирована в биологическом урожае. Результатами исследований показано, что деструкция соломы препаратом Вермистим-Д (6 л/га) и сев смеси сидератов (белая горчица, 6 кг/га + масличная редька, 10 кг/га) повышают фотосинтетический потенциал посевов гибрида Термо в межфазные периоды: сходы – 6–8 листьев – на 0,031 м²/дней/га; 6–8 листьев – выбрасывания метелок на 0,075 м²/дней/га; выбрасывание метелок – восковая спелость на 0,505 м²/дней/га в сравнении с контролем. От всходов до восковой спелости фотосинтетический потенциал посевов был выше, чем в контроле на 0,614 м²/дней/га. Наиболее высокими показатели фотосинтетического потенциала посевов кукурузы отмечались в период выбрасывания метелки–восковая спелость.

Ключевые слова: кукуруза, гибриды, солома, сидераты, фотосинтез, урожайность.

Масликова К.П. Экологическая структура растительного покрова техноземов Никопольского марганцеворудного бассейна / **К.П. Масликова** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2017. – № 4(46). – С. 77–88.

Установлены экологические особенности растительного покрова, который сформирован на различных типах рекультивированных почв. Показано, что растительный покров техноземов представлен 91 видом сосудистых растений. По количеству видов в растительных сообществах преобладают семейства Asteraceae, Poaceae, Fabaceae, Brassicaceae и Rosaceae. В таксономическом аспекте флора техноземов является типичным оттиском региональной флоры. В структуре растительного покрова по климатотипам преобладают гемикриптофиты и несколько им уступают терофиты. Такая структура растительного покрова техноземов характерна для сукцессионной стадии дерновинных злаков. Среди ценоморф преобладают степанты и рудеранты. Растительные сообщества, которые сформировались на техноземах, идентифицированы как степные псевдомоноценозы с луговой и рудеральной компонентами. Режим влажности эдафотопов техноземов является переходным между суховатым и свежесуховатым. Эдафотопы искусственно созданных рекультивированных экосистем по режиму трофности характеризуются как переходные от среднебогатых к плодородным. Режимы трофности и влажности благоприятны для выращивания сельскохозяйственных культур. Растительный покров техноземов в значительной степени интегрирован в консортивные связи с другими компонентами антропогенных экосистем. Особенности растительности техноземов являются значительное развитие в них эндозоохоров, эпизоохоров и первольентов.

Ключевые слова: растительность, рекультивация, экоморфы, флора, фитоиндикация.

Бунчак А.Н. Влияние органических удобрений со сбалансированным содержанием трехвалентного хрома на рост и развитие растений кукурузы / **А.Н. Бунчак** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2017. – № 4(46). – С. 89–92.

Приведены результаты изучения влияния органических удобрений, изготовленных по новейшим технологиям, на биометрические показатели и урожайность растений кукурузы гибрида Любава. Установлено, что внесение органических удобрений "Биоферм" в

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дозе 10 т/га под основную обработку почвы и жидкого органического удобрения "Биохром" в дозе 5 л/га в период вегетации растений кукурузы способствует увеличению количества растений во время полных всходов на 5716 шт./га при полевой всхожести 86,6 %; высоты растений в фазе цветения на 27 см; листовой поверхности растений кукурузы на 7,68 тыс.м²/га и повышает урожайность кукурузы на 2,72 т/га по сравнению с контролем.

Ключевые слова: органические удобрения, трехвалентный хром, кукуруза, рост и развитие, биометрические показатели.

Суска А.А. Обоснование условий и стратегий достижения институционального равновесия рынка социально-экологических услуг леса / **А.А. Суска** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2017. – № 4(46). – С. 93–97.

Исследуется состояние институционального равновесия рынка социально-экологических услуг леса, которое повышает эффективность функционирования эколого-экономической системы. Проводятся прогнозирование и анализ типичных состояний ее институционального неравновесия, которое возникает тогда, когда введение новых формальных институтов встречает значительное сопротивление со стороны неформальных. Определяются и обосновываются экономические условия, позволяющие трансформировать институты эколого-экономической системы в состояние институционального равновесия – важного фактора эффективности функционирования экономической системы.

Ключевые слова: формальные институты; неформальные институты; институциональная среда; институциональное равновесие; институциональные трансакции; рынок социально-экологических услуг, стратегий развития.

Кручиненко О.В. Теоретические аспекты формирования рынка ветеринарных услуг в животноводстве / **О.В. Кручиненко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2017. – № 4(46). – С. 98–102.

Рассмотрены условия формирования и развития рынка услуг в современных условиях

рыночной экономики Украины. Проанализировано современное состояние рынка ветеринарного обслуживания. Выделены главные субъекты рынка в отрасли животноводства: производитель ветуслуг, ветеринарный врач, человек, животное. Определены основные функции рыночного механизма формирования рынка ветеринарных услуг. Центральной задачей качественного ветеринарного обслуживания является снижение уровня экономических последствий заболеваний животных. Установлено, что к определяющим принципам формирования рынка ветеринарных услуг в животноводстве в условиях транзитивной экономики относятся самоорганизация и саморегуляция в сфере ветеринарной медицины.

Ключевые слова: маркетинг, транзитивная экономика, самоорганизация, саморегуляция, формирование рынка, ветеринарные услуги, животноводство.

Кравченко А.С. Состояние и перспективы развития биржевого рынка / **А.С. Кравченко** // Вісник Дніпропетровського державного аграрно-економічного університету. – 2017. – № 4(46). – С. 103–109.

Проанализированы биржевой фондовый рынок Украины, международный валютный рынок Форекс и рынок производных финансовых инструментов. Выявлены проблемы функционирования и освещены перспективы развития биржевого рынка Украины, представлены тенденции развития рынка Форекс. В частности, проанализированы удельный вес ценных бумаг на биржевом фондовом рынке, объемы ценных бумаг на фондовых биржах, капитализация листинговых компаний на фондовом рынке, динамика курса валютных пар на международном валютном рынке Форекс. Предложены основные пути преодоления кризисных явлений на биржевом финансовом рынке как важном индикаторе экономического развития, который наглядно демонстрирует состояние, в котором находится государство в соответствующий момент.

Ключевые слова: биржевой финансовый рынок, фондовый рынок Украины, международный валютный рынок, листинг, ценные бумаги, валюта.

ABSTRACTS. REFERENCES. KEYWORDS

Ecotoxicological evaluation of winter wheat grain during a long use of fertilizers (since 1965) in the field crop rotation (p. 5–11)

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The content of radioactive nuclides and chemical elements significantly changes depending on the prolonged use of fertilizers in the field crop rotation. Studies show that ^{40}K specific activity was the highest which significantly changed depending on the fertilization system. Thus, in the mineral system of fertilization after clover the specific activity increased to 69,3–87,2 Bk/kg of grain or by 2–28 % compared with the check variant (68,1 Bk/kg). In the organic and mineral fertilizer system this figure varied from 68,3 to 73,2 Bk/kg or by 1–7 %. The specific activity was the lowest in the organic fertilizer system – from 68,5 to 69,1 Bk/kg of grain. When growing winter wheat after peas the specific activity varied in a similar way but after corn for silage it was lower. Thus, in the mineral system of fertilization the specific activity varied from 69,8 to 77,6 Bk/kg of grain, in the organic and mineral system it was from 68,2 to 71,7 Bk/kg and in the organic fertilizer system it was from 68,1 to 68,4 Bk/kg of grain.

^{137}Cs and ^{90}Sr specific activity was the lowest compared to other radionuclides and changed from 1,7 to 2,0 and from 0,8 to 1,1 Bk/kg, respectively, depending on the growing agricultural technology. This suggests that the prolonged use of studied fertilizer systems is safe for the environment. In addition, ^{137}Cs specific activity and ^{90}Sr specific activity were lower in 40–47 times and in 40–47 times, respectively, compared to MAC. It is found that after the prolonged use of fertilizers and after clover the manganese content decreased by 4–17 % in the mineral system of fertilization, by 4–19 % in the organic system and by 8–20 % in the organic and mineral fertilizer system. Iron content increased by 3–8 %, 5–6 and 3–9 %; copper content by 6–35 %, 2–5 and 1–6 %; cobalt content by 10–24 %, 13–20 and 11–21 %; nickel content by 21–64 %, 58–62 % and 58–59 % and cadmium content by 38–69 %, 54–77 % and 50–81 %, respectively. The content of studied elements when growing winter wheat after peas and corn for silage varied in a similar way. Cr content decreased in the organic and organic and mineral fertilizer systems. Zn content increased after the prolonged application of organic fertilizers. Applying high rates of organic and organic and mineral fertilizers reduces the content of toxic elements – cobalt, chromium and cadmium.

Keywords: winter wheat, fertilizer system, heavy metals, radionuclides.

References

1. Hospodarenko, H.M., Prokopchuk, I.V., Nikitina, O.V. (2015). Influence of long application of fertilizers on the content of soluble potassium compounds in the podzolized chernozem. Proceedings of the Vinnitsa National Agrarian University. 1, 5–13.
2. Hospodarenko, H.M., Prokopchuk, I.V., Nikitina, O.V. (2015). Physical and chemical properties of podzolized chernozem in a long-term field experiment. Proceedings of Uman National University of Horticulture. 87, 7–13.
3. Sokolova, O.Ya., Striapkov, A.V., Antymonov, S.V., Solovykh, S.Yu. (2006). Heavy metals in the element–soil–cereal crop system. Bulletin of the OSU. № 4, 106–110.
4. Vasbieva, M.T., Zinov'ev, D.S. (2013). Effect of the long-term use of sewage sludge on the content of heavy metals in the soil and plants. Fertility. 5, 35–37.
5. Tyler, G. (1999). Heavy metal pollution and soil enzymation activity Plant and Soil Biology of North–West Caucasus. Summaries of Latinamerican Congress of Soil Science Chile. 206.
6. Alitov, Sh.I., Smolin, N.V., Putaev, S.V. (2000). Effect of chemicalization agents on the combination of heavy metals in the soil, plants and rinse waters. Bulletin of the Krasnodar State University. 2, 57–60.
7. Belous, N.M., Shapovalov, V.F., Moiseenko, F.V., Draganskaja, M.G. (2006). Influence of various fertilizer systems on the accumulation of heavy metals in agricultural products. Bulletin of the Bryansk State Agricultural Academy. 36, 22–29.
8. Jemslj, Dzh. (1993). Elements. Moscow: Mir, 256.
9. Hobotova, E.B., Uhan'ova, M.I., Grechishkina, O.V. (2009). Radiation and environmental aspects of the fertilizer application. Bulletin SevDTU. 97, 137–176.
10. Kovalenko, G.D., Rudja, K.G. (2001). Radioecology of Ukraine. Kyiv: Kyiv's'kij universitet, 167.
11. [Eshchenko, V.O., Kopytko, P.H., Opryshko, V.P., Kostogryz, P.V.] (2005). Basic scientific research in agronomy. Kyiv: Diya, 286.
12. Hudkov, I.M., Haichenko, V.A., Kashparov, V.O. (2011). Radioecology. Kyiv: NUBIP Ukrainy, 368.
13. Prokoshev, V.V., Derjugin, I.P. (2000). Potassium and potassium fertilizers. Moscow: Ledum, 185.
14. Aleksahin, R.M., Moiseev, I.T., Tihomirov, F.A. (1992). ^{137}Cs behavior in the soil–plant system and influence of fertilization on the accumulation of radionuclides in the yield. Agrochemicals. 8, 127–138.
15. Drichko, V.F., Ponikarova, T.M. (1992). Systems of methods for studying soil cover degraded after the chemical contamination. Pro-

ABSTRACTS. REFERENCES. KEYWORDS

ceedings of Soil Institute named after V.V. Docuchaev. 51–54.

16. *Aleksahin, P.M., Ratnikov, A.N., Sanzharova, N.I.* (1996). Behavior of radionuclides in the soil-plant system and management of crop production in radioactively contaminated areas. *Vestnik RASHN*. 4, 18–20.

17. *Prishhep, N.I., Prosjannikov, E.V., Korovjakovskaja, S.O.* (1997). Improvement of methods of agrochemical studies. Moscow, Izd-vo MGU, 152–165.

18. *Ma, J.F., Takahashi, E.* (2002). Fertilizer and Plant Silicon Research in Japan. Amsterdam, 215.

19. *Hospodarenko, G.M.* (2015). Agrochemicals. Kyiv: TOV "SIK GROUP UKRAINE", 376.

20. *Hospodarenko, G.M., Kostogryz, V.P., Liubych, V.V.* (2016). Wheat spelt. Kyiv: TOV "SIK GROUP UKRAINE", 312.

The agroecological determination of the trend yield of grain and leguminous crops (p. 12–19)

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Formulation of the problem. The paper presents a methodological approach in order to set the value of agro-ecological factors in the trend yield of grain and leguminous crops.

Materials and research methods. The research based on open information about the level of productivity of grain and leguminous crops in the middle of the administrative districts of the Poltava region in the period 1995–2016 yy. There was a general trend of increase in the yield of grain and leguminous crops in the period 1995–2016 yy allows for an analytical description of the dynamics in the time to apply a linear model of the form (pre-log transformed data): $Y = bx + a$, where Y is yield at time x , a and b are the coefficients. It should be noted that these factors can be meaningfully interpreted. Coefficient b can be interpreted as over time the rate of growth of productivity as well as a as the yield potential in the initial period of the study. The coefficients are calculated by the method of least squares and in calculating the participation of all the experimental data. Thus, as the growth rate, and the potential at the beginning of the observation period were calculated retrospectively to a certain extent. The accuracy of the model characterizes the coefficient of determination R^2 . It can vary from 0 to 1. The value $1-R^2$ indicates the proportion crop yield variability outside linear trend. This fraction is also complicated. It includes the "noise" and regular changes in yields, which have a global

character, that is, have such frequency characteristics that are significantly smaller in its period than the period of investigation. The trend we interpret as part of the dynamics of crop yields affected by agro-ecological and agro-technical factors. Extratrend regular volatility has agroecological nature. Note also two sets of key information surface characteristics used in the agroecology study of the Poltava region. To assess the terrain used GTOPO30 dataset (Global 30 arc-seconds elevation dataset), which allows to describe the height of the Earth's surface above sea level. As geomorphological variables in the paper the following derived digital elevation model: the topographic wetness index and erosion factor. Based on digital elevation model with a procedure based on an index of a topographical position, highlighted the major landforms. To evaluate the types of land use can be applied to the results of a global program for monitoring land cover – Global Land Cover 2000 Project (GLC 2000). On the basis of the classification of types of cover the Earth's surface maps, and the main landforms types were calculated maps of the spatial variation of the diversity indices and types of land cover diversity relief Shannon.

Results of the study. Trend as a component of the temporal dynamics of the yield given considerable attention, because it was associated with the effect of systematic factors agro-economic and agro-technical nature. Cyclic component is identified as such, which is preferably agro-environmental origin. Such a distribution is a generalization to some extent, as agro-economic process can have a cyclical behavior, and the trend may be associated with the effect of factors such as global warming.

Conclusions. A clear trend of increasing the yield of cereals and legumes in Poltava region during the years 1995–2016., which can be described by a linear dependence. The coefficients of the linear model are interpreted as meaningful over time, the rate of growth of productivity and yield potential in the initial period of the study. The parameters of the linear model of the trend and the yield of grain legumes can be explained by a variety of indicators land cover, topographic humidity index erosion index and their interaction. According to the predicted value of cereals and legumes yield growth factor divided into three areas agrigroups: low, moderate and high growth potential.

Keywords: linear model of the trend productivity, temporal dynamics, agro-ecological factors, diversity, grain and legumes.

References

1. *Grytsan, Y.I.* (2000). Ecological bases transformative influence of forest vegetation on steppe environment. Dnipropetrovsk: Izd-vo DNU, 300.

ABSTRACTS. REFERENCES. KEYWORDS

2. Zhukov, A.V., Kunah, O.N., Novikov, V.A., Ganzha, D.S. (2016). Phytoindication estimation of soil mesopedobionts communities catena and their ecomorphic organization. Biological Bulletin of Bogdan Chmelniyskiy Melitopol State Pedagogical University. № 6(3), 39–45.
3. Zhukov, O.V., Hoffman, O.P. (2016). Time series analysis of NDVI of the Big Chapelsky valley vegetation for 2010–2015. NaUKMA scientific notes. 184, 40–46. (Series: Biology and ecology).
4. Zhukov, O.V., Pisarenko, P.V., Kunah, O.M., Dichenko, O.J. (2015). Role of landscape diversity in dynamics of abundance of sugar beet pests population in Poltava region. Visnyk of Dnipropetrovsk University. 23(1), 21–27. (Series: Biology, ecology).
5. Zhukov, O.V., Pisarenko, P.V., Kunakh, E.M., Dichenko, O.Y. (2015). Assessment of variation in space and time of vegetation by means of remote sensing. News of Dnipropetrovsk State Agrarian and Economic University. № 2(36), 105–112.
6. Zhukov, O.V. (2015). Analysis of spatial data in ecology and agriculture. Dnipropetrovsk: Izd-vo DNU, 124. doi: 10.13140/RG.2.1.3480.2406.
7. Zhukov, O.V., Zadorozhna, G.O., Maslikova, K.P., Andrusyevych, K.V., Lyadska, I.V. (2017). Ecology of the tehnozems: monograph. Dnipro: Zhurfond, 442.
8. Zhukov, O.V., Kunah, O.M., Taran, V.O., Lebedynska, M.M. (2016). Spatial variability of the soil conductivity within arena of the Dnipro valley (territory of the natural reserve “Dnieper-Orilsky”). Biological Bulletin of Bogdan Chmelniyskiy Melitopol State Pedagogical University. 6(2), 129–157.
9. Kunah, O.M., Papka, O.S. (2016). Geomorphological ecogeographical variables defining features of ecological niche of common milkweed (*Asclepias syriaca* L.). Biological Bulletin of Bogdan Chmelniyskiy Melitopol State Pedagogical University. № 1, 243–275.
10. Kunah, O.M., Papka, O.S. (2016). Ecogeographical determinants of the ecological niche of the common milkweed (*Asclepias syriaca*) on the basis of indices of remote sensing of land images. Visnyk of Dnipropetrovsk University. 24(1), 78–86. (Series: Biology, ecology)
11. Mitchel, J.K., Bubbenzer, G.D. (1984). Soil loss calculations. Soil erosion. Moscow: Kolos, 34–95.
12. Pryslenko, G.V., Ravikovych, E.I. (2005). Predicting the socio-economic processes: manual: guidances. Kyiv: KNEU, 378.
13. Simonenko, E.I. (2013). Methodology for analysis and modeling of one-dimensional time series grain yields. Actual problems of the humanities and natural sciences. № 8, 130–133.
14. Simonenko, O.I. (2013). Methodological bases of modeling grain production in Ukraine. Scientific Bulletin of National Agriculture University of Ukraine. 181(3), 232–238. (Series: economics, agricultural management business).
15. Slutskiy, E.E. (1927). Addition accidental causes as the source of cyclic processes. The questions of the conjuncture. 1, 3, 34–64.
16. Beven, K., Kirkby, N. (1979). A physically based variable contributing area model of basin hydrology. Hydro. Sci. Bull. 43–69.
17. European Commission. Joint Research Centre (2003). Global Land Cover 2000 database. Available at: <http://bioval.jrc.ec.europa.eu/products/glc2000/glc2000.php>.
18. Guisan, A., Weiss, S.B., Weiss, A.D. (1999). GLM versus CCA spatial modeling of plant species distribution. Plant Ecology. 143, 107–122.
19. Jenness, J., Brost, B., Beier, P. (2013). Land Facet Corridor Designer: Extension for ArcGIS. Jenness Enterprises. Available at: http://www.jennessent.com/arcgis/land_facets.htm
20. Moore, I., Gessler, P., Nielsen, G., Peterson, G. (1993). Soil attribute prediction using terrain analysis. Soil Sci. Soc. Am. J. 57, 443–452.
21. Olaya, V., Conrad, O.; ed. by Hengl, T., Reuter, H.I. (2008). Geomorphometry in SAGA. Geomorphometry: concepts, software, applications. Elsevier. 765.

Optimization of the use of microfertilizers and plant growth regulators in maize crops of the northern steppe of Ukraine (p. 20–25)

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Agrarian and Economic University, Ukraine **Formulation of the problem.**

In modern conditions of managing one of the primary directions of the development of the crop sector is the use of the newest technologies for growing corn, which ensure a stable increase in the volume of grain production. But, in recent times, due to the violation of crop rotation, the development of erosion processes, excessive man-caused stress, deterioration of water, nutrient regimes and humus condition of chernozems, the growth of grain production is under constant threat, which makes it necessary to improve the elements of the technology of growing corn, including food systems plants with the use of microfertilizers, plant growth regulators that are able to regulate growth processes, contribute to the increase in the level of yields grain and its quality indicators, and are environmentally friendly for the environment and human health.

Among plant growth regulators, Vympel, Vympel-K, and microfertilizers Oracle, Oracle Bio-zinc, Oracle multicomplex, and others that are very effective in the Steppe zone in different cultures are relevant and require further study

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of efficacy in order to identify the best option for their use.

Purpose of work. The purpose of the research is to establish the technical effectiveness of microfertilizers Oracle, Oracle multicomplex, Oracle Biotzink and growth regulators Vympel, Vympel-K for field germination, the duration of interphase development periods and plant density, drought resistance, elements of crop structure and yield of corn grain.

Results of the study. According to the results of the research, the maximal drought resistance and heat resistance of the maize plant were in the variant where the seeds were treated with Vympel – 0,5 l/t and foliar top dressing was carried out in the phase 2–3 leaves of the Oracle – 1,0 l/ha in a tank mixture with herbicide Task – 350 g/ha + surfactant Trend 90 – 300,0 ml/ha. It was established that all the studied biological preparations positively influenced the formation of the elements of the corn crop structure, in particular, with an increase in the number of treatments with biological preparations, there was a clear tendency to increase the length of the ears by 0,6–2,7 cm in comparison with the control. There is also a slight tendency to growth of the head diameter up to 5,4–5,6 cm in variants with the use of a full range of biologics. The maximum weight indicators of 1000 grains were also characteristic for plots with the use of a full range of biopreparations where the weight gain of 1000 grains exceeded the control by 3,7–10,6 %.

Conclusions. It is proved that under the conditions of the Northern Steppe of Ukraine, the use of a full range of plant growth regulators and microfertilizers, namely the inlay of Vympel-K seeds, is 500 g/t, maize plants are in phase 3–5 leaves (Vympel – 500 g/ha + Oracle multicomplex – 1,0 l/ha, Oracle Biozinc – 1,0 l/ha) and 7–8 leaves (Vympel – 500 g/ha + Oracle multicomplex – 1,0 l/ha) provides a steady tendency to increase the field germination of seeds by 3,4–5,0 %, increase of drought resistance and heat resistance of maize plants by 1,5 times and the maximum grain yield of 6,74–6,88 t/ha, which is 0,73–0,87 t/ha (12,1–14,5 %) compared with the control.

Keywords: corn, microfertilizers, plant growth regulators, seed incrustation, drought resistance, heat resistance, elements of crop structure, grain yield.

References

1. *Matyukha, L.P., Tklich, YU.I., Kheylyk, S.Y., Matyukha, V.L.* (2005). Improvement of protection against weeds of grain agrocenoses on chernozem of the usual Steppe. Bulletin of the Institute of Grain Farming. № 26–27, 28–32.
2. *Tklich, YU.I.* (1999). Influence of moisture content and sowing density on the productivity of maize hybrids. Bulletin of the Institute of Grain Farming. № 10, 73–75.
3. *Tslyiuryk, A.I., Sudak, V.N., Sapka, V.P.* (2015). Performance shot crop rotation system based on soil cultivation on solid background stubble mulching. Bulletin of the Institute of Agriculture steppe zone. № 8, 66–72.
4. *Lebed, E.M., Tslyiuryk, A.I.* (2014). Playing chernozem soil fertility and productivity shot crop rotation depending on the steppe mulch soil cultivation system. Bulletin of the Institute of Agriculture steppe zone. № 6, 8–14.
5. *Shcherbak, I.E.* (1979). Soil conservation technologies of cultivation of crops in the southern regions of Ukraine. Moscow: Kolos, 239.
6. *Krut, V.M., Benedichuk, N.F., Shvets, Y.A.* (1979). Moldboardless tillage for corn. Corn. № 10, 18–19.
7. *Kiver, V.F., Melua, R.A., Pilipenko, A.D.* (1979). Confinement of crops with minimal soil tillage on irrigated lands of Moldova. Agriculture. № 3, 38–41.
8. *Tslyiuryk, A.I.* (2016). Efficiency of minimum tillage of corn under conditions of the Northern Steppe of Ukraine. News of Dnipropetrovsk State Agrarian and Economic University. № 2(40), 5–9.
9. [*Tslyiuryk, A.I., Gorobets, A.G., Gorbatenko, A.I., Chaban, V.I., Tklich, Yu.I., Rybka, V.S., Skrynnik, Ya.T., Pinchuk, V.I.*]. No-till of soil under corn of Steppe. Agronomist. № 4(34), 62–65.
10. *Tslyiuryk, A.I., Desyatnik, L.M.* (2016). Minimal tillage of maize under conditions of the Northern Steppe of Ukraine. Far Eastern agrarian bulletin. № 3(39), 38–44.
11. *Tslyiuryk, A.I.* (2014). Scientific substantiation of the effectiveness of ground tillage systems in short rotation crop rotations of the Northern Steppe of Ukraine: diss. ... doctor of agricultural sciences: 06.01.01 – general agriculture. Dnipropetrovsk, 447.
12. *Tslyiuryk, A.I., Kozechko, V.I.* (2017). Effect of mulching tillage and fertilization on maize growth and development in Ukrainian Steppe. Ukrainian Journal of Ecology. № 7(3), 50–55.
13. *Tslyiuryk, O.I., Shevchenko, S.M., Shevchenko, O.M., Shvec, N.V., Nikulin, V.O., Ostapchuk, Ya.V.* (2017). Effect of the soil cultivation and fertilization on the abundance and species diversity of weeds in corn farmed ecosystems. Ukrainian Journal of Ecology. № 7(3), 154–159.
14. *Rudakov, Yu.M., Kozechko, V.I., Naklooka, Yu.I.* (2012). Corn yield on grain depending on predecessors, system of soil and fertilizer treatment in the northern steppe of Ukraine. Collection of scientific works of the Uman National University of Horticulture. № 78, 119–124.
15. *Tsikov, V.S.* (2003). Corn: technology, hybrids, seed. Dnepropetrovsk: VAT Vid-vo "Zarya", 80–90.

ABSTRACTS. REFERENCES. KEYWORDS

Optimization of measures in the fight against weeds on the short rotation of crop with irrigation on Southern Ukraine (p. 26–29)

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Formulation of the problem. The article reflects the results of the study on the influence of the main soil treatment on the degree of pollution of irrigated crop rotations in southern Ukraine.

The purpose of the research was to determine the effect of the main soil cultivation on the degree of pollinated crops, which were studying. Field experiments were carried out according to the methods of experimental research. Agro-technics of cultivation of investigated agricultural crops in irrigated crop rotation was generally recognized for the conditions of the south of Ukraine.

The purpose of the research was to determine the influence of the systems of basic cultivation of soil on the degree of percolation of the agricultural crops of irrigated short-rotation crop in the conditions of Southern Ukraine.

Results of the study. Number of weeds on the field of agricultural crops in variants of soil tillage with tools of the working bodies of the chisel and disk type was higher than in the control version, both at the beginning and during harvesting in 1,6–2,5 times. Application of herbicides for the chemical weeding of investigated crops of short-rotation irrigated crop rotation completely eliminated the negative influence of weeds.

Conclusions. Correlation and regression analysis revealed that the highest potential weed-infested crop rotation investigated to 65–95 pcs/m² marked on the fields of corn and soybeans at lower depths primary tillage and minimum value of this index – recorded in spring rape. The tightness of the correlation communication was medium in winter wheat and high in other crops. At the end of the growing season, the lowest level of potential outgrowth was found in winter wheat (6–11 pcs/m²). The greatest obliqueness is found in soybeans, especially for reducing the depth of the main tillage till 15 cm and below, when this figure increased to 24–36 pcs/m².

Keywords: crops of rotation, irrigation, basic tillage, vegetation period, weediness, modeling.

References

1. *Bublik, L.I.* and others; ed. by *Lisoviy, M.P.* (1999). Plant protection reference book. Kyiv: Uroжай, 744.
2. *Ivashchenko, O.O.* (2004). New approaches in the application of herbicides. Protection and plant calendars. 50, 128–133.
3. *Malyarchuk, M.P., Sheludko, O.D., Markovska, O.E.* (2007). Protection of crops from harmful organisms in the conditions of the Southern

Steppe of Ukraine. Irrigated agriculture. *Kher-son*, 47, 115–119.

4. *Subin, V.S., Olefirenko, V.I.* (2004). Integrated plant protection: a textbook. Kyiv: Visha shkola, 336.

5. *Voss, G., Ramos, G.* (2004). Chemistry of Crop Protection. Progress and Prospects in Science and Regulation Ramos. Available at: <http://onlinelibrary.wiley.com/book/10.1002/3527602038>.

6. *Fedorenko, V.P., Retman, S.V.* (2006). Integrated system of winter crops protection. Quarantine and plant protection. № 1, 19–24.

7. Ed. by prof. *Tribe, S.O.* (2001). Methods of testing and application of pesticides. Kyiv: Svit, 448.

8. *Ivashchenko, O.O.* (2004). New approaches in the application of herbicides / O.O. Ivashchenko. Protection and plant calendars. 50, 128–133.

9. *Markovska, O.E., Bilyaeva, I.M.* (2014). Efficiency of protection of irrigated winter wheat crops from hidden insect pests. Tavriyskiy Scientific Bulletin. Kherson, 89, 55–59.

10. *Sheludko, O., Markovska, O., Repilevskiy, E.* (2013). Efficiency of tank mixes of herbicides and growth regulators in winter wheat. Proposal. № 6, 116–117.

11. *Zhuchenko, A.A.* (1997). Ecological and genetic basis of integrated plant protection. Problems of optimization of phytosanitary state of plant growing. Collection of works of the All-Russian Congress on Plant Protection. St. Petersburg, 9–24.

12. *Sheludko, O.D., Naidenov, V.G., Nizhego-lenko, V.M.* (2004). Efficiency of application of pesticides on winter crops under irrigation. Protection and plant quarantine. 49, 77–84.

Agro-ecological territories zoning for the cultivation of organic agricultural products (p. 30–33)

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The formation of environmentally stable organic crop production zones for organic production seems to be urgent and causes the search of strategies for the rational optimization of the agricultural landscape. The plain relief in Poltava region and a high degree of eroded soils causes the search of optimal and adapted regions for growing of wholesome, high quality and environmentally friendly agricultural products.

The ploughing-up soils decreasing level and the restoration of degraded and disturbed fields for agricultural purposes is the basis of structure stabilizing of the agricultural landscape. Excessive lands plowing, including slopes, resulted in

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a violation of ecologically balanced ratio of the ploughed field and ecologically stabilizing areas (ECT), which had a negative effect on the sustainability of landscapes. The most threatening phenomena are observed in the soil cover, which is significantly degraded and thus a considerable areas of productive land are taken out from cultivation.

The target of our research is to conduct of the geographical demarcation of Poltava region and to determine organic crop production zones for the organic products cultivation on the basis of statistical and cartographic data. In the process of research methods of analysis, comparison, synthesis and generalization were used.

Geographical demarcation of Poltava region was carried out according to the criterion of the ratio of ploughed field to ecologically stabilizing areas. It should be noted that a large part of the area (65 %), is a chernozem soil – the most fertile types of soils. The highest rates of humus (of 4,01 to 4,5 %) observed in soils Mavensk, Chutovsk and Karlivsk districts. Indices are in the range of 3,51–4,0 % in Velikobagachansky, Mirgorodsky, Chiacomo and Decanska areas. It is noted that almost 40 % of the territory of Poltava region has the disastrous state. Also presented are recommendations aimed at improving the agro-ecological situation in the studied region and elimination of deficiencies on the way to stabilization of the agro ecosystem in general. Consequently, recommendations for improving agro-ecological situation in the above-mentioned areas and stabilizing agro-ecosystem are suggested.

Keywords: agricultural landscape, agro-ecosystems, organic production, geographical demarcation, organic crop production zones, ploughing-up areas, soil erosion.

References

- [Holik, Yu.S., Illiash, O.E., Pysarenko, P.V. et al.]. (2009). Agro-ecological atlas of Poltava region. Ecological Library of Poltava Region. Poltava, 7, 70.
- The World of Organic Agriculture: Statistics and New Trends 2016 Research Institute of Organic Agriculture FiBL. (2016). Available at: <https://ru.scribd.com/document/345051746/1698-organic-world-2016-pdf>.
- Under the editor ship of *Shapar, A.N.* (2002). Methodical approaches to the selection and substantiation of criteria and indicators of sustainable development of various lands cape regions of Ukraine. Dnepropetrovsk: Polygraphist, 98.
- Rakoid, O.O.* (2007). Agro-ecological evaluation of agricultural lands: abstract of a this is for obtaining sciences degree in Agricultural Sciences: 03.00.16 "Ecology". Kyiv, 21.
- Regional report on the state off he environment in the Poltava region in 2013. Available at: <http://www.menr.gov.ua/dopovidi/regionalni>.
- Artysh, V.I.* (2012). Features of organic agricultural production in the concept of sustainable development of agriculture of Ukraine. Economics AIC. 7(213), 19–23.
- Buha, N., Kulyk, N., Zuiakova, L.* (2014). Development of biological agriculture and provision of organic production of agricultural products. Economist. № 2, 27–30.
- Kuzmenko, O.V.* (2013). Organic farming as a factor of European integration of Ukraine. Bulletin of Poltava State Agrarian Academy. № 3, 151–155.
- Kropyvko, M.F., Kovaliova, O.V.* (2010). Ecological diversification of agricultural land in Ukraine. Economy of Ukraine. 7, 78–85.

Peculiarities of peroxide oxidation processes in boars' sperm depending on the season of a year and the intensity of their use (p. 34–38)

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The efficiency of systems of the reproduction of pigs' live-stock is influenced by many factors – feeding, housing conditions of and the intensity of use. Each of these factors has a significant effect on the reproductive capacity of pigs, especially on the quality of sperm production of boars. In this regard, the purpose of the researches was to determine the dynamics of the quality of sperm production in boars, depending on the season of a year and the intensity of their use.

The researches were conducted in the physiology of reproduction laboratory of Institute of Pig Breeding and agroindustrial production of NAAS, under conditions of the pedigree factory for breeding pigs of the Large White breed SE EE "Stepne" of IPB and AIP NAAS.

It has been determined the fact that depending on the season of a year, qualitative and quantitative indexes of sperm production of boars are changing. The best indexes of sperm production were in the animals in the spring period. In the summer period, the quality of sperm in boars is likely to decreased: the mass of ejaculate on 11,5 % ($p < 0,05$), the concentration of sperm on 27,1 % ($p < 0,01$), the total number of sperms on 26,7 % ($p < 0,001$), sperm motility on 8,3% ($p < 0,001$) and their survival rate was on 13,4 % ($p < 0,001$). Such changes are accompanied by a significant decrease in the activity of catalase by 30,6 % ($p < 0,01$), and a significant accumulation of TBK-active compounds content on 46,9 %

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($p < 0,01$). However, with the advent of the winter period, the biological value of the received ejaculates from boars increases.

The quality of sperm production of boars is significantly dependent from the regime of their use. It was found out that an increase in the intensity of the use of boars – 2 and 3 times a week leads to a reduction of ejaculate on 9,8 and 16,5 %, the concentration of sperm – on 10,2 and 20,9 %, as well as their motility. However, the survival rate of sperm in the two-fold regime of the use of boars is significantly higher than once on 15,9 % ($p < 0,05$), and the threefold receiving sperm is 22,5 % ($p < 0,001$).

The statistical analysis of the correlation between the physiological indexes of the quality of sperm production in boars of the Large White breed shows that there are significant positive correlations in the spring season between: the weight of the ejaculate and the number of spermatozoas ($r = 0,56$, $p < 0,001$), mobility and survival ($r = 0,88$, $p < 0,001$). A significant correlation was found out between the content of TBK-active complexes and the weight of the ejaculate, which had $r = 0,46$ under the condition of one-time regime for taking sperm. At an increase in the sexual load on boars until receiving sperm, the concentration of TBK-active complexes correlated with the sperm motility $r = 0,87$.

Keywords: sperm, boars, sperm production, peroxide oxidation, TBK-active complexes.

References

1. Kaidashev, I.P. (1996). Manual on Exceptional-Clinical Studies on Biology and Medicine. Poltava, 123–128.
2. Korolyuk, M.A., Ivanova, L.I., Mayorova, I.G., Tokarev, E.V. (1988). The Method of Acclimatization of Catalase Activity. Laboratory business. № 1, 16–19.
3. Kravchenko, O.O. (2005). Genetic features of spermatogenesis and sperm production of buds-buddies. Agrarian Bulletin of the Black Sea Region. Agricultural and biological sciences. Odessa. 31, 20–29.
4. Melnik, Yu.F. (2003). Instruction on artificial insemination of pigs Responsible for the issue. Kyiv: Agrarian science, 56.
5. Oksinyuk, A.N. (1998). Comparative study of qualitative features of horseradish of different genotypes in growing in the conditions of an element: diss. Cand. agrar. Sciences: 06.02.01. Poltava, 185.
6. Ostapov, D.D. (2008). The oxidation-reduction processes in the sex cells of bulls and cows, methods of evaluation of quality and fertility enhancement: author's report on the scientific degree of doctors of rural areas. Sciences: special 03.00.13 "Physiology of man and animals". Lviv, 39.
7. Gogol, P., Pieszka, M. (2008). Ferrous Ion Induced Photon Emission as a Method to Quantify Oxidative Stress in Stored Barley Sperm. Folia biologica. Kraków, 56, № 3–4, 173–177.
8. Hsieh, Y.Y., Chang, C.C., Lin, C.S. (2006). Seminal malondialdehyde concentration but not glutathione peroxidase activity is negatively correlated with seminal concentration and motility Int J Biol Sci. 2(1), 23–29.
9. Lewisa, S.E.M., Sterling, E.S.L., Younga, I.S. (1997). Comparison of individual antioxidant sperm and seminal plasma in fertile and infertile men. Fertility and Sterility. 67, 1, 142–147.
10. Maarten, T.M., Rajmakers, T.M., Henne, M.J. (2003). Glutathione and glutathione S-transferases A1-1 and P1-1 in seminal plasma may play a role in protecting against oxidative damage to spermatozoa. Fertility and Sterility. 79, 1, 169–172.
11. Rao, B., Soufir, J.C., Martin, M. (1989). Lipid peroxidation in human spermatozoa as related to midpeat abnormalities and motility. Gamete Res. 24(2), 127–134.

Meaty and slaughter qualities of highly-productive pig hybrids in the conditions of an industrial pig-breeding complex (p. 39–45)

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The article covers studying results of detecting the most effective options of genotypes combination pigs of ukrainian and english selection for the receiving of commercial hybrids on an inter-breed and cross-breed basis in the conditions of an industrial pig-breeding complex. In experiments were used pigs of ukrainian and english selection: intra-breed type in large white breed (УББ-1), ukrainian and poltava meat breed (UM and PM), duroc (D), landrace (L) and large white breed of english selection (ВБА) and boars obtained from the genotypes combinations of ukrainian and english selection (УББ-1 × ВБА).

Fattening of purebred and pig hybrids of all studied combinations with live weight up to one hundred kg led to obtaining of high level daily average increase of weight. The highest daily average gain of weight were received in two combinations of young pigs which obtained from the combination of sows (УББ-1) with adult boars of duroc (D), landrace (L) and large white breeds of english selection (WBA). The minimum feed costs per 1 kg of live weight gain are characterised inter-breed combinations of (УББ-1 × D) and (УББ-1 × L).

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Meatiness of carcasses at slaughter of 100 kg was different and depends on the genotype of the animals. Using adult boars of meaty breeds of foreign selection (D, L, WBA) contributes to increasing in meat content in carcasses. Meat quality in purebred and inter-breed young pigs at slaughter of 100 kg meet the requirements of satisfactory quality meat. The best indicators of the quality of meat are characterized by young stock from the combinations of (UWL-1 × UWL-1) та [UWL-1 × (UWL-1 × WL E)]. The most expedient variants of reception of hybrid young stock for fattening on the basis of the conducted researches are combinations of sows with adult boars of duroc, landrace and large white breeds of english selection, that allows to increase significantly the production of high quality pork in farms with industrial technology.

Keywords: breed, genotypes combination, hybrids, interbreed and cross-breed hybridization, slaughter and meaty qualities.

References

1. *Bankovs'ka, I.B.* (2017). Substantiation and development of the evaluation system of estimation, forecasting and optimization of the production of high quality pig products: author's abstract for obtaining the scientific degree of the Doctor of Agricultural Sciences: Speciality 06.02.04 Technology of production of livestock products. Mykolayiv, 43.
2. *Voloshuk, V.M., Vasylyv, A.P.* (2013). Fattening, slaughter and meaty qualities of young pigs of meaty breeds. Pig breeding. Interdepartmental thematic scientific collection of the Institute of Pig Breeding and NAAS of Ukraine. 62, 8–13.
3. *Kuz'menko, L.M.* (2016). The biological value of pork depends on the level of sunflower meal in rations. Pig breeding. Interdepartmental thematic scientific collection of the Institute of Pig Breeding and NAAS of Ukraine. 68, 123–130.
4. *Narizhna, O.L.* (2014). Slaughter qualities of purebred and hybrid young pigs, obtained by combining sows of large white breed with terminal and purebred adult boars of different genotypes. Pig breeding. Interdepartmental thematic scientific collection of the Institute of Pig Breeding and NAAS of Ukraine. 65, 303–307.
5. *Skarednov, D.Y.* (2013). Slaughter and meaty qualities of pigs on fattening with the use of a concentrate of dry protein soy feed in rations. Journal of Poltava State Agrarian Academy. 2, 150–153.
6. *Khalak, V.I.* (2016). Fattening and meaty qualities of pigs of different combinations. Agricultural business today. 14, 14–15.
7. *Shebanin, P.O.* (2016). Technological, selective and genetic factors for increasing of the productivity of pigs: Dissertation for obtaining

the scientific degree of the Doctor of Agricultural Sciences: Speciality 06.02.04 Technology of production of livestock products. Mykolayiv, 146.

Productive significance of suckling piglets for ethological parameters in conditions of intensive pork production technology (p. 46–50)

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Formulation of the problem. The cultivation of young pigs is the most important stage in pig farming, the results of which depend on the final zootechnical and economic indicators of the industry. Therefore, attention should be paid to raising the young, especially early prediction of its viability and productivity. In this connection, in order to ensure cost-effective production of pork, one of the main components in the technology of raising young pigs is the study of postnatal ethological reactions of piglets to ensure their future performance and safety.

In connection with the above, we consider that the relevance of this problem is to study postnatal ethological parameters of pigs, which in the future affects their viability, preservation and growth and, as a consequence, increases the profitability of pork production.

Purpose of work. The purpose of the research was to study the ethological characteristics of newborn piglets in the genotype. Studies on ethological indicators of piglets were held in a pig farms Mykolayiv and Kherson regions. To realize this goal, we investigated the behavior by visual observations with the subsequent calculation of the material obtained. The main criteria for ethological research were indicators of the time of implementation of the act "standing" after birth, the first contact with the mother's maternity and the first act of "colostrum" sucking. Productive qualities of suckling pigs were evaluated according to the generally accepted indicators in pig production.

Conclusions. Based on our observations and calculations, we found that crossbred piglets, derived from the maternal form of the large white breed and the father's breed of landraces for the implementation of the posture "standing" after birth, the first contact with the mother's uterus and the act of sucking colostrum, consumed less time – 2,53 min., 4,7 min. and 8,1 min. respectively, in comparison with their peers of the studied genotypes. This fact, in turn, contributed to an increase in the productivity of suckling piglets. So, we note that the analysis of the ethological parameters of piglets after birth indicates that the implementation of the act of "standing" of a pig after birth can serve as an indicator of its viability.

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lity, since piglets that quickly rise to limbs spend less time on the act of “standing” after birth, respectively, earlier find and capture the nipples of the sows, which results in the timely receipt of colostrum, further reflected in their growth and preservation.

In addition, attention is also drawn to the tendency for farmers to take into account that the increase in the live weight of newborn piglets leads not only to the many born piglets (as is well known) but also to an increase in the time of search-indicative reflexes in newborn piglets, which in turn, reduces the viability, safety and productive significance of young pigs in the future.

Next, we should note that our research is intended to pay special attention to the worker-operators for the maintenance of the farrowing district. It was investigated the fact that during the reception of a farrow, the piglets immediately born (after the primary processing) to allow the sows to swaddle for the rapid implementation of the ethological parameters of the newborn piglets will further ensure the better viability and productivity of the obtained young pigs.

Keywords: productive significance, suckling piglets, act of “standing”, the first contact with mother’s maternity, the first act of “sucking” colostrum of sows.

References

1. *Ivanov V.O., Voloshchuk, V.M.* (2009). Biology of pigs. Kyiv: ZAT “NICH LAV”, 304.
2. *Kosukhin, I.M.* (2004). Natural resistance, stress-sensitivity, ethology and productivity of pigs: author’s abstract. dis ... cand. s.c. sciences. Persianovka, 28.
3. *Lykhach, A.V.* (2017). Ethological features of single sows of different genotypes. Bulletin of Vinnytsia NAU. Agrarian science and food technologies. Vinnytsya: VNAU, 3(97), 166–172.
4. *Lykhach, V.Ya.* (2015). Technological peculiarities of growing piglets. Livestock of Ukraine. № 6, 11–13.
5. [*Ibatullin, I.I., Zhukovsky, O.M., Baschenko, M.I.* and others]. (2017). Methodology and organization of scientific research in livestock: manual. Kyiv: Agrarna nauka, 328.
6. *Nozdrin, N.T., Saglo, A.F.* (1990). Cultivation of young pigs. Moscow: Agropromizdat, 146.
7. *Damgaard, L.H., Rydhmer, L., Lovendahl, P.* (2003). Genetic parameters for within-litter variation in piglet birth weight and change in within-litter variation during suckling. J. Anim. Sci. 81, 604–610.
8. *Knol E.F., Leenhouwers, J.I.* (2002). Is piglet survival heritable? International Pig Topics. 17, 2.
9. *Leenhouwers, J.J., Lende, T., Knol, E.F.* (1999). Analysis of stillbirth in different lines of pig. Livestock Production Science. 57, 243–253.
10. *Leenhouwers, J.* (2001). Biological aspects of genetic differences in piglet survival. Wageningen Universiteit. Dissertation, internally prepared. 151.
11. *Reiner, G., Grun, D., Gaulty, M.* (1995). Why we milk sows? Pig international. 2, № 1, 13–14.

Agrarian Peculiarities of Accumulation of ^{137}Cs by Oil Plants in Areas of Radioactive Pollution (p. 51–54)

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Formulation of the problem. The main radionuclides that determine the radiation state of the contaminated area are ^{137}Cs and ^{90}Sr in the late phase of the Chernobyl accident. In the human body, they get along with food: as a result of their transition from soil to plants.

The research was conducted in stationary field experiments, located near the village of Khrystynivka on turf-podzolic sandy soils with a pollution density of 925–1036 kBq/m². Agrometeorological conditions of the reporting period were contrasting both by the amount of precipitation and by the temperature regime.

Results of the study. The results of the conducted research indicate that due to the introduction of mineral fertilizers will contribute to the increase of crop yields, and hence the decrease of the specific activity of ^{137}Cs in the crop. Determination of specific activity of ^{137}Cs in green mass and seed oilseeds indicates that these plants typically have an increased accumulation of radionuclides.

Conclusions. The study of indicators of specific activity of ^{137}Cs in the green mass of crops indicates that the products for feeding animals are not suitable, but the possibility of using it on the soderate.

The level of specific activity of the seeds in all variants substantially exceeded the permissible sanitary norms, which indicates the need for its processing on the oil, as the main operation of obtaining oil (extraction of fats) is carried out using organic solvents that do not dissolve ^{90}Sr , ^{137}Cs and other radioactive isotopes.

Keywords: cesium-137, specific activity, oilseeds, species characteristics.

References

1. Twenty Years after the Chernobyl Disaster: A View into the Future (National Report of Ukraine). (2006). Kyiv: Arira, 224.
2. Reference book for radiological services of the Ministry of Agriculture and Food of Ukraine. (1997). Kyiv: UkrNDISGR, 176.

ABSTRACTS. REFERENCES. KEYWORDS

3. *Kholosha, V.I., Proskura, M.I., Ivanov, Yu.O.* [et all.]. (1999). Radiation and ecological importance of natural and man-made objects of the Exclusion Zone. *Bul. the ecological state of the Exclusion Zone and the zone of unconditional (mandatory) resettlement.* № 13, 3–8.
4. Ed. by *Nester, B.S.* (2000). Concept of agricultural production in contaminated territories and their complex rehabilitation for the period of 2000–2010. Kyiv: Svit, 46.
5. *Likhtarev, I.A.* (1999). General structure of the Chernobyl source and radiation dose of the population of Ukraine / I.A. Likhtarev, L.N. Kovgan // *International Journal of Radiation Medicine.* 1, № 1, 29–38.
6. *Landin, V.P.* (2016). Radiation and ecological problems of the restoration of agricultural production in the Ukrainian Polissya. *Agroecological journal.* № 1, 88–94.
7. *Dmitrov, O.P.* (2013). Recommendations on the use of land based on the results of the forecast assessment of the development of the territory of the monitoring area of the Rivne NPP. *Bulletin of the National University of Water Management and Nature Management. Technical sciences.* 3, 316–323.
8. *Gudkov, I.M., Lazarev, M.M.* (2003). Peculiarities of agricultural management on contaminated radionuclides in the territories of the forest-steppe. Scientific support of sustainable development of agriculture in the forest-steppe of Ukraine. Kyiv: TOV "Alefa", 1, 747–775.
9. *Birta, G.O., Burgas, Yu.G.* (2014). Fundamentals of plant growing and livestock: teach. manual. Kyiv: "Center for Educational Literature", 304.
10. *Priester, B.S.*; ed. by *Ilyazova, R.G.* (2006). Problems of predicting the behavior of radionuclides in the soil system – a plant. Adaptation of the agro-ecosystem to the conditions of technogenesis. Kazan': Academy of Sciences of Tajikistan. 78–125.

Index of dairy productivity of mares of novooleksandrivsky heavy breed by season production of milk (p. 55–59)

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Statement of a problem. Influence on efficiency of live weight as one of indicators development of animals, it was studied by many authors. Most of them express opinion on need of establishment optimum level of live weight of animals at which payment of forages by production will be high, and production of milk by the most profitable. The question of interrelation live weight with dairy efficiency is very relevant, especially when forming milking herd from mares of heavy breeds, characterized by a high milk yield. In

dairy horse breeding the amount of milk per 100 kg of live weight of a mare (the index of a milking) matters: the more milk makes an animal per unit weight, the better she pays a forage. Thus, on koumiss farms it is necessary to select mares with a wide trunk, the long body, well developed breast, a wide and long croup.

Research objective. To investigate the index of a milking of novooleksandrivsky mares heavy breed, his interrelation with live weight and number lactation at seasonal milking.

Materials and methods. The research is conducted on a breeder producer of novooleksandrivsky heavy breed of Dibrovsky horse-breeding center № 62. Were used given to dairy efficiency from 24 mares for 2015–2017.

Results. Linear accessory has reliability with milk yield of $F_{(4,43)} = 4,16$; $p < 0,01$. The interrelation of weight of mares with their dairy efficiency is doubtful at $r = 0,25$; $F_{(1,22)} = 1,45$; $p > 0,05$. The dependence of the index of a milking on a lactation is reliable $F_{(1,22)} = 11,45$; $p < 0,01$.

Conclusions. The received index of milking of novooleksandrivsky mares heavy breed is small. For heavy breed the desirable index of a milking from 410 and more. The tendency to increase in the index of a milking at reduction live weight is observed (the coefficient of correlation makes $-0,63$; $p = 0,001$). On the available data, we consider that experiences in this direction will be perspective for breeding work.

Keywords: milking productivity, index of milking, lactation, live weight, mares, line.

References

1. *Barmintsev, Yu.N.* (1963). Meat and dairy horse breeding. Moscow, 234.
2. *Gerasimov, K.P., Konyukhov, G.I.* (1957). Soviet heavy breed. Yaroslavl, 46.
3. *Gladkova, E.E.* (1984). Growing foals on the koumiss farm. Way of increase in efficiency of horse breeding and a horse breeding: col. scientific works of VNIIC. 58–60.
4. *Lyutykh, S.V., Volkova, D.A.* (2003). State book of breeding horses of Novooleksandrivsky heavy breed. Kiev, 1, 316.
5. *Tkachenko, A.A., Tkachyova, I.V., Yatsutsenko, V.V., Gdansky, K.V.* (2015). State book of breeding horses of Novooleksandrivsky heavy breed. Ministry of Agricultural Policy and Food of Ukraine, NAAN, Institute of livestock production. Kharkiv, II, 170.
6. *Dobrynin, V.P.* (1953). About dairy horse breeding. Horse breeding. № 3, 33–34.
7. *Milko, O.S.* (1986). Age and milk productivity of mares of the Soviet heavy-draft breed. The prospects of improvement of horse breeds on a basis achievement of scientific and technical progress. Russian Research Institute of horse breeding. 15–17.

ABSTRACTS. REFERENCES. KEYWORDS

8. Puydokas, B. (1956). Lithuanian heavy-horse breed of horses. Vilnius, 8.
9. Sorokina, I.I., Isaeva, O. (1983). Breeding resources of heavy breeds. Horse breeding. № 3, 4–8.
10. Chirgin, E.D. (1998). Features of a lactation of mares of heavy breeds and selection and genetic indicators of their selection on dairy efficiency. Kazan, 18.
11. Yavorsky, V.S. (1997). Level of milk productivity of mares of Lithuanian heavy breed. Improvement of the production technology and processing of production of agriculture. Yoshkar-Ola, 49–50.
12. Yavorsky, V.S., Chirgin, E.D., Novoselova, K.S. (2014). Dairy horse breeding – a reserve of increase in efficiency of branch. Horse breeding. № 2, 9.

The dynamics of growth are foals the novooleksandrivsky heavy breed (p. 60–63)

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Statement of a problem. In the world of horse breeding it is accepted to take measurements of foals in 3 days after the birth and from 6th month each half a year. Measuring growth and weight of foals in dairy horse breeding it is possible to define dairy efficiency of mares. Therefore it is important to know a scale of increase and the weight of foals of dairy breeds up to 6 months (in 6 months weaning of foals).

Research objective. Studying of dynamics of the main measurements of novooleksandrivsky foals heavy breed of 3 days after the birth up to 6 months was a research objective. Scale of measurements to calculate for foals of this breed. To investigate interrelation between growth of foals and to milk yield and the fat content of milk of mares.

Materials and methods. The research is conducted on a breeder producer of novooleksandrivsky heavy breed of Dibrovsky horse-breeding center № 62. Measurements have been taken for 2015–2017 from 42 foals aged from 3 days up to 6 months.

Results. From 3 days to 6 months measurements of foals have increased: the height at the shoulder at 1,3 times; oblique length of the body is 1,4 times; a chest girth – 1,6 times; girth of the metacarpal – 0,15. The live weight of foals in 6 months has increased by 3,9 times, the index of massiveness by 1,2 times, the index of a format in 1,1. The relationship between the growth of foals and milk yields and the fat content of mares' milk is proved. Between high milk yields and measurements, to have a high multiple correlation $r = 0,79$, with a reliability of

$F_{(1, 22)} = 37,347$; $p < 0,05$. The fat content of the milk has a reliability multiple correlation with the foal measurements $r = 0,62$; $F_{(1, 22)} = 13,750$; $p < 0,01$.

Conclusions. The scale of increase of novooleksandrivsky foals heavy breed from 3 days to 6 months is calculated.

The offered equations describing dynamics of the main measurements of an exterior of foals from the birth up to 6 months can be used for the forecast of indicators of the main measurements.

The interrelation of growth of foals with milk yield and fat content of milk of their mares is proved.

Keywords: foals, measurements, body build indexes, growth, milk yield, fat content of milk.

References

1. Dyurst, U. (1936). Exterior of the horse. Moscow: Sel'hozgiz, 345.
2. Krasnikov, A.S. (1957). Exterior of the horse. Moscow: Sel'hozgiz, 352.
3. Politova, M. (2004). Specificity of assessing the exterior of horses of sports breeds. The Gold mustang. Moscow, № 5(43).
4. [Gopka, B.M., Skotsik, V.E., Pavlenko, P.N. et al.]. (2011). Workshop on horse breeding: the manual. Kyiv, 380.
5. Svirengo, T. (1926). On the issue of determining the live weight of horses. Works of agricultural skilled institutions of the North Caucasus. 24.
6. [Anashina, I.V., Gusev, Y.P., Koveshnikov, V.S., et al.]. (1983). Handbook on horse breeding. Moscow: Kolos, 158.
7. Fedotov, P.A. (1989). Horse breeding: textbooks and teaching aids for students of technical schools. Moscow: Agropromizdat, 26.
8. Levy, J.J. (1992). For the materials of the Internet: Jlevy@cbnewsd.cb.att.; & The chronicle of the Horse. August 21.

Numeric models of the vertical salt transfer at mine tailings to justify their option of reclamation (p. 64–70)

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A numeric model of the salt transfer at mine dumps were created on the basis of the theory of physicochemical hydrodynamics of porous media. Models designed to quantify the migration of macro- and microcomponents in time and space. We considered the following four types: a) without reclamation; b) reclamation in rainfed conditions to grow crops; c) with irrigation system; g) with wild vegetation.

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The first model represents the blade which is poured out without reclamation. The process of moisture transfer is infiltration. It provides a slow desalinization of the upper layers, stacked rocks with a speed of 1–3 cm/year, depending on the magnitude of the salinity. The second model shows the migration of salts on reclaimed spoil rainfed agriculture. The presence of evaporative transpiration creates a mode of moisture transport. The negative consequence is the salinity of the bulk soil. The third model differs from the previous embodiment by the replacement of rainfed agriculture on a systematic irrigation of the mine waters of low salinity. The irrigation regime should be flushing. The model allows choosing the optimal salinity water for irrigation. The fourth model involves the free growth surface of the blade natural vegetation with low transpiration and is characterized by the accumulation of salts on contact with bulk clay layer.

All variants are solved with the boundary condition of Danvers–Brenner on the earth's surface and 1 kind of on the border of the unsaturated zone and full water saturation. Migration parameters were determined from the analytical dependencies. The solution of the forecasting tasks on the quantitative assessment of the effectiveness of remediation for different periods was performed by the Thomas method. The adequacy of the models is confirmed by comparing the results of forecast with modal observations.

Keywords: filtration, mass transfer, migration, hydrodispersion, remediation, numeric model, forecast.

References

1. *Verygyn, N.N., Vasylyev, S.V., Sargsyan, V.S., Serdjukov, B.S.* (1979). Methods of soils and groundwater forecasting salt regime. Moscow: Kolos, 336.
2. *Yevgrashkina, G.P.* (2003). Influence of mining industry on hydrogeological and soil-reclamation conditions of the territories, monograph. Dn-sk: Monolith, 200.
3. *Yevgrashkina, G.P., Sabadash, O.Ye.* (2012). Regularities of changes in hydrogeological conditions in the area adjacent to the tailings "Stukanova ravine" in the Western Donbass. Bulletin of Dnipropetrovsk University. 14, 42–46. (Series: Geology/ Geography).
4. *Yevgrashkina, G.P.* (2010). A mathematical model of the salt transfer in the aeration zone of technogenic disturbed areas. Bulletin of Dnipropetrovsk University. 18, 12, 80–84. (Series: Geology/ Geography).
5. *Karplus, W.* (1962). The simulator for the decision of problems of field theory. Moscow: IL, 467.
6. *Samarskiy, A.A.* (1977). Theory of difference schemes. Moscow: Nauka, 653.
7. *Travlyeev, A.P., Belova, N.A., Zwierkovsky, V.N.* (2005). Theoretical basis of forest reclamation of disturbed lands in Western Donbass in the Dnipropetrovsk region. Gruntoznavstvo. 16, № 1–2, 19–31
8. *Kharytonov, N.N., Bondar, G.A.* (2007). Assessment of groundwater and floodplain land in area of coal mining in the Western Donbass. Biological reclamation and monitoring of disturbed lands. Ekaterinburg: Publishing house Ural. Univ., 680–685.
9. *Kharytonov, M.M., Zhilenko, M.I.* (2008). Monitoring of the salinity of the bulk layer of topsoil on reclaimed lands of the Western Donbass. Bulletin of Kharkov National Agrarian University. Kharkiv, № 1, 204–207.

Features of photosynthetic activity of maize hybrids depending on the use of straw and siderates in the conditions of the Forest-steppe of the Western (p. 71–76)

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It was established that improvement of the conditions of nutrition of plants of investigated hybrids of corn NK Thermo and NK Lemerо through the use of straw in combination with sowing of siderates increased the level of basic indicators of photosynthetic activity, which contributed to the increase in the amount of PHC, which is accumulated in the biological harvest.

The results of the research showed that in the version where the straw was destroyed by the drug Vermistym-D (6 l/ha) and the sowing of a mixture of siderates (white mustard, 6 kg/ha + oil radish, 10 kg/ha) was observed, an increase in the photosynthetic potential of the hybrid Thermo interphase periods: stairs – 6–8 leaves – 0,031 million m²/days/ha; 6–8 leaves – discharging of ferrets at 0,075 million m²/days/ha, discharged vodka – wax mitigation by 0,505 million m²/days/ha compared to control. From the stairs to the waxy maturity, the photosynthetic potential of the crops was greater than on the control of 0,614 million m²/days/ha. The most elevated indexes of photosynthetic potential of corn crops were noted during the period of venting – wax maturation.

Keywords: corn, hybrids, straw, siderates, photosynthesis, yield.

References

1. *Alekseev, E.K., Rubanov, B.C., Dovban, K.Y.* (1970). Green Fertilizers. Mynsk: Uradzhaj, 197.
2. *Balayev, A.D., Pikovs'ka, O.V.* (2016). Use of straw in the restoration of soil fertility. Kyiv: "CP Kompry'nt", 244.

ABSTRACTS. REFERENCES. KEYWORDS

3. Vitvicz'kyj, S.V. (2016). Humification of plant remains and manure in the black earths of the Forest-Steppe and Steppe of Ukraine: monograf, Kyiv: Vydavnyctvo, 281.
4. Dovban, K.Y. (2009). Green Fertilizer in Modern Agriculture. Mynsk: Belorusskaya nauka, 404.
5. Moskalenko, A.M. (2013). Economic efficiency of using straw and siderates for soil fertility enhancement. The Bulletin of Kharkiv National Agrarian University. № 11, 172–184.
6. Yeremenko, L.S. (2002). The specifics of photosynthesis differing in the speed of corn hybrids. Bulletin of the Institute of grain farming of UAAS. Dnipropetrovs'k, № 18–19, 91–93.
7. Kuperman, F.M., Andryenko, S.S. (1959). Physiology of corn. Moscow: MGU, 186.
8. Lyxochvor, V.V. (2004). Plant Growing. Kyiv: Centr navchal'noyi literatury, 210.
9. Nykyfyrovych, A.A. (1965). Photosynthesis and Issues of Intensification of Rural Mutations. Moscow, 47.
10. Sendetsky, V.M., Tymofijchuk, O.V., Gnydyuk, V.S., Bunchak, O.M. (2014). Straw and other cultivars – organic fertilizers for increasing fertility of soils: scientific and production publication: monograph. Ivano-Frankivs'k: Symfoniya forte, 92.
11. Shuvar, I.A., Berdnikov, O.M., Sendeczkyj, V.M., Centylo, L.V., Bunchak, O.M. (2015). Siderates in modern agriculture. Ivano-Frankivs'k: Symfoniya forte, 156.
12. Fyleeva, D.S., Cykova, V.S., Zolotova, V.Y. (1980). Methodological recommendations for carrying out field experiments with corn. Dnepropetrovsk, 54.

Vegetation ecological structure of Nikopol manganese ore basin replantosems (p. 77–88)

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The environmental characteristics of vegetation, which is formed on various types of remediated soil were revealed. It is shown that the tehnozems vegetation represented by 91 species of vascular plants. The number of species in plant communities dominated by the family Asteraceae, Poaceae, Fabaceae, Brassicaceae and Rosaceae. The taxonomic aspect tehnozems flora is a typical impression of the regional flora. In the succession of vegetation occurs three stages of vegetation fallow consistently and regularly replace each other, field weeds, grasses and rhizomatous grasses. But for therophyte projective cover share increases significantly, as if returning to a wound stages of succession dynamics. The nature of this

phenomenon we see in the active flow pedoturbation elementary soil processes. Because of swelling and shrinkage phenomena that are characteristic of the young man made soils, forming a large network of cracks considerable depth in the soil are poured from the upper layers. Obviously, this tehnozems dynamic expanding capacity for environmental plants. Optimal agricultural crops for cultivation in terms of agricultural land reclamation may be based on the concept of eco-trophic groups of crops. Ecological and trophic groups of cultivated plants is the equivalent trofomorf species in the wild. This makes it possible to apply ecomorphic analysis of vegetation to find optimal solutions in the agricultural land reclamation. Structure polenohor indicates significant activity consortial relationships that are formed between plants and animal populations. In general, the regional flora entomofilous share is 73 %. From this indicator is not very different figure in entomofilous tehnozem on gray-green clay, and in others it significantly higher. Prevalence entomofilous also indicates significant potential plant communities as the basis for beekeeping. Tight integration vegetation reclaimed land in ecological processes emphasizes diasporohor structure. Share dominating ballists little from this index in local flora. But the proportion of plants that animals use to transfer the diaspora is much higher than the regional flora. Thus, the share endozoochor in vegetation reclaimed land is 1,49–3,23 %, and the regional flora – 0,99 %, that is 1,5–3,3 times higher. Share epizoochor exceed this figure compared with the regional flora in 1,8–6,8 times higher. Also open terrain promotes pervolvents, whose share in plant communities reclaimed land in 2,7–4,1 times higher compared with the regional flora. In the Raunkier's life forms structure of the vegetation cover is dominated by hemicryptophytes somewhat inferior to them teriophytes. This structure tehnozems vegetation is characteristic for successional step bunchgrasses. Among coenomorphes are dominated by stepants and ruderants. Plant communities that have formed on tehnozems, identified as steppe pseudomonocoenosis with meadow and ruderal components. The tehnozems edafotop humidity mode is transitional between dryish and intermodal. Edafotop artificial remediated ecosystems mode trophic are transition from fertile to moderate fertile. Trophic and humidity modes are favorable for growing crops. The vegetation cover largely integrated into konsortive connection with the other components of the man-made ecosystems. Tehnozems vegetation features are a significant development in them endozoochors, epizoochors and pervolvents.

Keywords: vegetation, reclamation, ecomorphs, flora, phytoidication.

ABSTRACTS. REFERENCES. KEYWORDS

References

1. *Bekarevich, N.E.* (1971). Breed supraore thickness and agrobiological evaluation. About of land reclamation in the steppes of Ukraine. Dnepropetrovsk: Promin', 20–37.
2. *Bellegarde, A.L.* (1950). Forest vegetation southeast of USSR. Kyiv: Publishing House of KGU, 263.
3. *Bellegarde, A.L.* (1971). Steppe Forestry. Moscow: Lesnaya promyshlennost', 336.
4. *Bilyk, R.G.* (2008). Floristic analysis demutatsiynih stages of vegetation piles Tovtry strands. Ukr. Botan. Zh. 57, № 5, 515–522.
5. *Cooper, G.S.* (2001). Environmental analysis of herbaceous vegetation slope ecotypes southeastern desert Ukraine (restoration, conservation, rational use): abstract. dis. for obtaining Sciences. degree candidate. Biol. Sciences specials. 03.00.16 "Ecology". Dnepropetrovsk, 22.
6. *Glukhov, O.Z., Prokhorov, S.* (2008). Status indication for the industrial environment morphological variability of plant. Industrial Botany. 8, 3–9.
7. [*Demidov, A.A., Kobets, A.S., Gritsan, Y.I., Zhukov, A.V.*] (2013). Spatial agroecology and land reclamation: monograph. Dnepropetrovsk: Publishing house "Svidler A.L.", 560. doi: 10.13140/RG.2.1.5175.5040
8. *Zhukov, A.V., Kunakh, O., Zadorozhna, G.A., Andrushevych, E.V.* (2013). Hierarchy of ecological diversity of industrial soil plants. Biological Bulletin of Bogdan Chmelnytskyi Melitopol State Pedagogical University. № 3, 48–69.
9. *Zhukov, A.V.* (2009). Ecomorphic analysis of soil animals consortias. Dnipropetrovsk: Publishing house "Svidler A.L.", 239.
10. *Zhukov, O., Zadorozhna, G.O., Betz, T.Y., Lyadsky, I.V.* (2013). Dynamics shrinkage sod lithogenic soils on red–brown clay with layers. Scientific Bulletin of Chernivtsi University. 5, 3, 425–430. (Series: Biology (Biological Systems)).
11. [*Zhukov, O.V., Zadorozhna, G.A., Maslikova, K.P., Andrushevych, K.V., Lyadsky, I.V.*] (2017). Ecology of tehnozems: monograph. Dnipro: Zhurfond, 442.
12. *Zhukov, O.V., Potapenko, O.V.* (2017). Phytoindication environmental conditions within the areas of electrical substations. Ukrainian Journal of Ecology. 7(1), 5–21.
13. *Zabaluev, V.A.* (2010). Formation of agroecosystems reclaimed land in the steppe of Ukraine: edaphically Study. Kyiv, 261.
14. *Lysogor, L.P.* (2014). Structural and comparative analysis of flora fallow Apostol geobotanical region. Scientific notes of Ternopil National Pedagogical University named Hnatyuk. Avg. Biology. 1(58), 5–11.
15. *Lysogor, L.P.* (2014). Phytoindication of the characteristic environmental parameters uneven fallow steppe Dnieper Right–Bank. The Journal of V.N. Karazin Kharkiv National University. 20, № 1100, 339–344. (Series: Biology).
16. *Masuk, N.T.* (1989). Introduction to agricultural ecology: textbook manual. Dnepropetrovsk, 192.
17. *Masuk, N.T.* (1974). Features of formation of natural and cultural phytocenoses overburden rocks in areas of industrial mining. Land reclamation: Sat. scientific. tr. DSKHI. Dnepropetrovsk, 62–105.
18. *Masuk, N.T.* (1971). Natural open vegetation manganese development and its ecological and biological characteristics. About land reclamation in the steppes of Ukraine. Dnepropetrovsk: Promin', 37–95.
19. *Potapenko, E.V., Ganzha, D.S., Zhukov, A.* (2016). Ecomorphic analysis of vegetation electrical substations. Questions steppe forest and forest land reclamation. Dnipropetrovsk: DNU, 45, 138–147.
20. *Rozanov, B.G.* (2004). The morphology of the soil. Moscow: Akademicheskij Proekt, 432.
21. *Tarasov, V.V.* (2012). Flora Dnipropetrovsk and Zaporizhia regions. Dnipropetrovsk: Lira, 296.
22. *Yakubenko, B.E., Yarmolenko, A.K., Tertyshna, A.P., Churilov, A.M.* (2014). Biomorphological analysis of renewable flora meadow steppe vegetation Ukraine. Introduction plants. № 4, 31–38.

Influence of organic fertilizers with balanced content of trivalent chromium on the growth and development of corn plants (p. 89–92)

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The results of the study of the influence of organic fertilizers produced on the basis of the latest technologies on the biometric indices and productivity of maize plants of the hybrid Liubava are given. It was established that the introduction of organic fertilizers "Bioproperments" at a dose of 10 t/ha under the basic cultivation of soil and liquid organic fertilizer "Biohrom" at a dose of 5 l/ha during vegetation of corn plants contributes to an increase in the number of plants during full ladders at 5716 pcs. ha for field similarity 86,6 %; height of plants in the flowering phase of 27 cm; the leaf area of corn plants at 7,68 thousand m² / ha and the increase in corn yield at 2.72 tons/ha compared to control.

The results of the research showed that the plant density after full stairs in the version of the introduction of "Bioproperty", 10 t/ha + Biohrom, 5 l/ha was 5716 pc./ha more compared to control and 716 pc./ha more compared with the option of introducing Bioactive, 10 t/ha + Biohrom, 5 l/ha. In the variant of introduction of N₁₂₀P₈₀K₈₀ +

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"Biohrom", 5 l/ha of plant density was 109 pc/ha more compared to the option without "Biohrom". The area of the leafy surface in the flowering phase in the variant of introduction of "Bioproperments", 10 t/ha + "Biohrom", 5 l/ha was 7,68 thousand m²/ha more in comparison with the control and 1,11 thousand m²/ha higher compared to the bioavailing option, 10 t/ha + "Biohrom", 5 l/ha. In the variant of introduction of N₁₂₀P₈₀K₈₀ + "Biohrom", 5 liters per hectare of leaf area of plants was 0,55 thousand m²/ha more compared to the option without "Biohrom".

The yields in the variant of introduction of "Biopropermy", 10 t/ha + "Biohrom", 5 l/ha was 2,72 t/ha more in comparison with the control and 0,83 t/ha more compared to the option "Bioactive" 10 t/ha + "Biohrom", 5 l/ha. In the variant of introduction of N120P80K80 + "Biohrom", 5 l/ha yield was 0,73 t/ha more, compared with the option without Biohrom.

Consequently, trivalent chromium present in Organic Fertilizers Bioproferm and Biohrom positively affects the growth and development of maize plants and increases the yield of crops.

Keywords: organic fertilizers, trivalent chromium, corn, growth and development, biometric indices.

References

1. *Anderson, R.A.* (1997). Nutritional factors influencing the glucose/insulin system: chromium. *Journal of American College Nutrition*. 16, 404–410.
2. *Bunchak, O.M.* (2010). Technology of processing of organic waste of leather production and sludge treatment plants by biological fermentation. Modern problems of balanced use of natural resources: a collection of scientific works of the State Pedagogical Institute (special edition). 112–115.
3. *Bunchak, O.M.* (2012). Technology of production of organic fertilizers of universal action with sufficient content of trivalent chromium. Materials of All-Ukrainian scientific-practice. conf. Young Scientists "Actual Problems of Agro-Industrial Production in Ukraine", dedicated to F.Yu. Palma (November 14, 2012 with Outrageously). 6.
4. *Bunchak, O.M., Mel'nyk, I.P., Kolisnyk, N.M., Hnydyuk, V.S.* (2013). A method for obtaining organic fertilizers of a new generation with a balanced content of trivalent chromium. Patent for utility model № 85187. Bull № 21.
5. *Solohub, L.I., Antonyak, H.L., Babych, N.O.* (2007). Chromium in the human body and animals. L'viv: Yevrosvit, 128.
6. *Iskra, R.Ya., Vlizlo, V.V., Fedoruk, R.S., Antonyak, H.L.* (2014). Chromium in animal nutrition: monograph. Kyiv: Agrarna nauka, 312.
7. *Shuvar, I.A., Sendets'kiy, V.M., Bunchak, O.M., Hnydyuk, V.S., Tymofiychuk, A.B.* (2015).

Production and use of organic fertilizers. Ivano-Frankivs'k: Symfoniya forte, 596.

8. *Dospehov, B.A.* (1985). Methodology of field experience. Moscow: Agropromizdat, 315.

9. *Fyleeva, D.S., Cykova, V.S., Zolotova, V.Y.* (1980). Methodological recommendations for carrying out field experiments with corn. Dnepropetrovsk, 54.

The substantiation of requirements and strategies for achieving the institutional balance of the forest socio-ecological services market (p. 93–97)

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Formulation of the problem. The institutional balance of the forest socio-environmental services market should be understood as the absence of significant contradictions between informal and formal institutions. The level of accord between formal and informal institutions determines the expense scale to eliminate conceivable contradictions, that is, the potential dynamics of transaction costs, and, consequently, defines both the effectiveness of institutional provision and the efficiency of the economic system on a global basis. This requires the necessity to inquire into conditions and strategies for achieving the institutional balance of the forest social and ecological services market, as a cost-effective condition, under the certain initial status of the institutional support subsystem.

Purpose of work. The institutional unbalance in the market of forest social and ecological services occurs when the introduction of new formal institutions meets a strong opposition from the side of informal ones, due to the deep rooted informal norms of behavior concerning the forest in the society. The economic factor for evolving this situation to the substance of the institutional balance is when the economical benefits from the introduction of new formal norms exceed the institutional transactions. The strategy of achieving the institutional balance is the gradual evolutionary adaptation of formal institutions to existing informal constraints. Results of the study. The institutional imbalance could be generated by the factor of non changing formal institutions when informal institutions are transforming. For the socio-ecological component of forest resources, this is the most typical situation nowadays. The significant deformation of society needs of ecological nature benefits of forest requires changing a great number of laws in terms of political and legal supporting the concept of sustainable environmental management. At the same time, the lack of understanding by business the prospects from the capitalization

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of social and environmental benefits, and, in the most cases, the fear of risks from such a new innovation breakthrough in the forestry economy, cause political lobbying the introduction of new norms in the forest economy sector at the national level. The economic condition for developing such a situation to the institutional balance status is when the cost of the risk from fines for certain informal shadow rules of exploiting the socio-ecological resources of the forest exceeds the potential benefits. The strategy of achieving the institutional balance is the introduction of effective coordinating institutes into the institutional environment.

There is the institutional imbalance, when the institutional balance is achieved by the adequate development of formal and informal institutions - the situation of adequate evolution of formal and informal institutions. Economic agents are interested in informal rules, which have proven their effectiveness of regulating relations affiliated to the usage of forest resources for a long time, to become formal. The economic condition for the implementation of such a process is the accordance of the economic benefits provided by this transformation and of the expenses on providing the formal status for informal rules.

Conclusions. In case of implementing the conceptual foundations for establishing and functioning the forest socio-ecological services market, could happen the situation between formal and informal institutions, when the certain institutional balance occurs, that is, formal and informal institutions are not changing in a while. The economic provision of such a condition is when institutional transactions require more expenses, than the benefits that economic agents can get from the institutional development. Such situations require the stabilization strategy, that is obtained by mutual compromises for solving the issues affiliated to concluding and implementing contracts.

The conducted observations let us to determine the scientifically grounded economic conditions and action strategies, that lead the institutions of the forest social and ecological services market to the institutional balance situations, as an important factor for the economic system functioning efficiency.

Keywords: institute, formal institutes, informal institutions, institutional environment, institutional balance, transactions, institutional transactions, market of social and ecological services, economic conditions, development strategies.

References

1. *Nort, D.* (1997). Institutions, institutional changes and the functioning of the economy. Moscow: Nachala, 412.

2. *Nort, D.* (1997). Institutional changes, scope of analysis. Issues of economics. Moscow, № 3, 6–17

3. *Axelrod, R.* (1986). An Evolutionary Approach to Norms. American Political Science Review. 80.4, 1095–1111.

4. *Bromley, D.W.* (1989). Economic Interests and Institutions. The Conceptual Foundations of Public Policy. New York: Basil Blackwell, 274.

5. *Williamson, O.E.* (2000). Institutional Economics, Taking Stock Looking Ahead. Journal of Economic Literature. 38(3), 595–613.

6. Encyclopedia of market economy (1992). Moscow: Economics, 1132.

7. *Heiner, R.* (1983). The Origin of Predictable Behavior. American Economic Review. 73.4, 560–595.

8. *Arthur, B.* (1989). Competing Technologies Increasing Returns and Lock – In by Historical Events. Economic Journal. 99(394), 116–131.

9. *Tambovtsev V.* (2000). Institutional balance as a mechanism of institutional changes Moscow: Obshchestvennye nauki i sovremennost', № 5, 25–38.

10. *Valevich, Y.* (2014). Market institutions and the conditions of its equilibrium. Minsk: BGU, 312.

11. *Macouley, S.* (1963). Non-contractual Relations in Business A Preliminary Study. American Sociological Review. 55–76.

12. *Suska, A.* (2017). Investigation of the institutional equilibrium of the market of social and environmental services of forest: conditions and development strategies. Technological audit and production reserves. № 3/5(35), 26–31.

Theoretical aspects of the formation of the market of veterinary services in livestock (p. 98–102)

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Formulation of the problem. Today, the field of veterinary medicine in Ukraine is still in the stage of formation and crystallization of its structure. So, all veterinary services in the Ukrainian market can be conditionally divided into three types: call services (a kind of “ambulance” for animals), small veterinary offices and full-fledged clinics.

The formation of the market is a long evolutionary process, the cause of which is the social division of labor, as a result of which commodity exchange transactions arise. In particular, the existence of commodity-money relations is a necessary condition for the organization of the market for veterinary services in the market.

Discussion. The author identifies the main subjects of the market of veterinary services, in particular in animal husbandry are: a producer

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of veterinary services, a veterinarian, a man and an animal.

In the conditions of transitive economy the market of veterinary services is formed on the principle of self-organization and self-regulation. Considering this, the necessary aspects of the formation of the veterinary services market are: an unlimited number of participants; free entry and exit to the market; absolute mobility of material, labor and other resources; informatization of market participants on market conditions and other economic indicators; absolute homogeneity of the goods of the same name; full anti-monopoly.

Conclusions. The market of veterinary services in animal husbandry should be regulated by special provisions and formulates the body that exercises managerial influence on the social and economic system of society as a whole.

Thus, the formation of the veterinary services in the livestock market is the realization of not just services, and specific product that meets the needs above all to ensure the expanded reproduction of livestock.

Keywords: marketing, transitive economy, self-organization, self-regulation, market formation, veterinary services, livestock.

References

1. *Aranchiy, Y.S.* Organizational and economic principles of veterinary services in livestock. Available at: <http://www.pdaa.edu.ua/sites/default/files/nppdaa/4.2/027.pdf>.
2. *Batalov, A.S.* Marketing of Educational Services. Information and Methodological Journal "Administrator". Available at: <http://www.supermarketing.narod.ru>.
3. The State Veterinary and Phytosanitary Service. Available at: <http://www.vet.gov.ua/node/95>.
4. *Krukovskiy, O.V.* (2011). The system-structural analysis of the nature of veterinary services and features of supply. Scientific works of Poltava State Agrarian Academy. Poltava: PDAA., 2, 1, 32–38. (Series: Economics).
5. *Nychyk A.V.* (2009). Theoretical and methodological principles of forming market veterinary service. *Ahroinkom.* 1–4, 20–24.
6. *Solovyov, A.I.* (2003). The institutional conditions of formation and development of marketing. *Economy AIC.* № 10, 103–107.
7. "TOP-100. The major medical companies Ukraine". Available at: <http://shop.ekonomika.ua/lang/ru/id/004/>.
8. *Topiha, V.S.* (2004). The formation animal products market in Ukraine: Problems and Prospects. Nikolaev: MSAU, 221.
9. *Fedorenko, V.G., Didenko, A.N., Bondarenko, E.V.* (2007). The fundamentals of Management. Kyiv: Alerta, 11.
10. *Khmil, F.I.* (2005). The fundamentals of Management: textbook. Kyiv: Akademvydav, 608.
11. *Yakovenko, V.B.* (2007). Management and Marketing. Kyiv: Printed European Univ, 143.

The state and perspectives of exchange development financial market (p. 103–109)

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Formulation of the problem. This article is devoted to highlighting the state and prospects of the stock market development, in particular, the stock market of Ukraine, the international currency market Forex and the market of derivative financial instruments are analyzed. The problems of functioning were revealed and prospects development of the stock exchange financial market of Ukraine were outlined and tendencies development of the international currency market of Forex were presented. In particular, analyzed: the specific weight of securities trading in the stock market, the volume of securities on stock exchanges, the capitalization of listed companies in the stock market, the dynamics of the currency pair rate on the international currency market Forex. The main ways of overcoming the crisis phenomena in the stock market are proposed as an important indicator of economic development, which clearly demonstrates the state in which the state is at the appropriate moment. The stock market is a redistribution mechanism of investment resources and determination of the success level of the country in global capital markets. Therefore, it is extremely important to suggest the specific strategic and tactical measures for further development of Ukrainian stock market in the current crisis situation. In the article the current situation and development perspectives of the domestic stock market and its role in the national economy are investigated.

Purpose of work. The relationship between financial markets and investment process is estimated. The dynamics and structure of the main financial instruments of Ukrainian stock market are analyzed; the impact of trading volumes on indicators of economic development on the country is evaluated. The problems that accompany the process of the stock market functioning are revealed, directions of its development in order to increase the financial capacity and well-being of the country are outlined.

The current situation and dynamics of ukrainian stock market are analyzed. Conclusions on further development of the stock market in Ukraine are made. The recommendations designed to improve the state of the stock market in future are provided.

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Except that the aim of this paper is to examine the characteristics and principles by one of the methods used in the analysis of price movements on the foreign exchange market. The economic indicators that affect the movement of currencies in the Forex. The essence of fundamental analysis and a list of the data that affect the price of the currency when using it.

Through the analysis of deficiencies in fundamental analysis marked out by the supporters of technical method of investing, advantages of fundamental analysis are marked out compared with the technical one. In the conclusion the main points of fundamental analysis (in particular the time-critical news and market reaction to it) are highlighted, which should draw the attention of any investor who works in the international currency market. The current situation of stock market of Ukraine and currency market Forex analysis is conducted in the article. The problems of stock market of Ukraine development are educed. The ways of exchange market of Ukraine development are offered. Also, modern state of Ukraine commodity exchange market is analyzed. The structure of Ukraine commodity exchange trading by types of instruments and types of assets are determined. The features of Ukraine different exchanges functioning. The main ways of Ukraine commodity exchange market under current conditions shown.

The sense of the effective financial market in the modern conditions of the financial development in Ukraine and in the world have been injected in the article.

Keywords: exchange financial market, stock market of Ukraine, foreign exchange market, international currency market, listing, securities, currency.

References

1. The National Commission on Securities and Stock Market (2016). Available at: <http://nssmc.gov.ua>.
2. The official website "Stock Exchange" (2016). Available at: <http://ux.ua>.
3. The official site of the State Statistics Service of Ukraine (2016). Available at: <http://www.ukrstat.gov.ua>.
4. The official website "Forex" (2016). Available at: <http://www.ubkmarkets.com>
5. The official website "NBU" (2016). Available at: <http://www.bank.gov.ua>
6. President of Ukraine (2011). Decree "On the National Securities and Stock Market commission". Available at: <http://zakon4.rada.gov.ua/laws/show/1063/2011>.
7. Fedirko, V. (2012). Stock Market of Ukraine: Current Trends and Problems of Development. Problems and prospects of the banking system of Ukraine: collected works. Sumi: DVNZ "UABS NBU", 35, 388.
8. Sheludko, V., Virchenko, V. (2014). Contemporary trends in the development of the global derivatives market. Bulletin of the Taras Shevchenko National University: Economy. № 10(163), 81–87. Available at: http://bulletin-econom.univ.kiev.ua/wp-content/uploads/2015/11/163_81-87.
9. Acworth, W. (2015). Global Futures and Options Volume: Gains in North America and Europe Offset Declines in Asia-Pacific. Futures Industry Magazine. 9 March.
10. Eurex Monthly Statistics June 2016 Monthly. Press Release. EUREX. Available at: http://www.eurexchange.com/blob/2639898/0b22f1ceb1fac2b8d66ecbde46f186ae/data/monthly-stat_201606.