А Н Н О Т А Ц И И

Черенков А. В., Кирпа Н. Я., Скотарь С. А. Стандартизация зерна – новое научно-практическое направление деятельности Института сельского хозяйства степной зоны. *Приведены исторические сведения о становлении стандартизации в сельском хозяйстве царской России, бывшего СССР и Украины. Охарактеризованы особенности деятельности международных организаций по разработке стандартов (ISO, ICC, FAO/WHO, CEN, ISTA). Изложена информация о работе Технических комитетов по нормированию качества зерна и зернопродуктов, в частности новообразованного ТК 170 "Зерновые культуры и продукты их переработки", который сформирован на базе Государственного учреждения Институт сельского хозяйства степной зоны НААН Украины (г. Днепропетровск).*

Ключевые слова: *стандартизация в сельском хозяйстве, деятельность Технических комитетов, качество и методы испытания зерна и зернопродуктов. – С. 5–11.*

Цилюрык А. И., Горбатенко А. И., Судак В. Н., Шапка В. П. Влияние минимальной обработки почвы и удобрений на урожайность и масличность семян подсолнечника в условиях северной Степи. *Обоснована целесообразность применения мелкой мульчирующей обработки почвы (чизельная, плоскорезная) на фоне улучшенной органо-минеральной системы удобрения (солома + $N_{60}P_{30}K_{30}$) при выращивании подсолнечника после пшеницы озимой с целью повышения продуктивности масличной культуры.*

Ключевые слова*: подсолнечник, обработка почвы, послеуборочные остатки, минеральные удобрения, урожайность, масличность семян. – С. 11–15.*

Черчель В. Ю., Плотка В. В., Рябченко Э. Н. Оценка холодостойкости и продолжительности периода "всходы – цветение 50 % початков" самоопыленных линий различных генераций инбридинга. *Показаны результаты оценки и добора семей S_3, S_4, S_5 по уровню холодостойкости и скороспелости. Проведен корреляционный анализ с целью выявления достоверных зависимостей между качеством и количеством признаков. Выявлены линии (ДК273 × ДК204) 111211, (ДК273 × ДК204) 123112 с высоким уровнем холодостойкости и меньшей продолжительностью периода "всходы – цветение 50 % початков" – на 1–5 суток в сравнении с линиями-стандартами ДК357А и ДК273.*

Ключевые слова: *кукуруза, селекция, самоопылённая линия, холодостойкость, раннеспелость. – С. 15–18.*

Гангур В. В., Еремко Л. С. Влияние элементов технологии возделывания на продуктивность гороха в условиях левобережной Лесостепи Украины. *Исследованиями, проведенными на опытном поле Полтавской ГСХОС им. Н. И. Вавилова Института свиноводства и агропромышленного производства на протяжении 2011–2013 гг. на черноземе типичном малогумусном тяжелосуглинистом, установлено, что наиболее благоприятные условия для формирования азотфиксирующего симбиотического аппарата были при совмещении инокуляции семян с внесением минеральных удобрений в дозе действующего вещества $P_{70}K_{82}$. Внесение минерального азота отрицательно сказывалось на симбиотических отношениях растений гороха с клубеньковыми бактериями.*

Предпосевная инокуляция семян ризогумином на фоне внесения минеральных удобрений в дозах $N_{20}P_{70}K_{82}$ и $N_{10}P_{20}K_{20}$ способствовали повышению интенсивности нарастания биомассы у растений, что в дальнейшем определяло их индивидуальную продуктивность и общую урожайность агробиоценоза. Указанные уровни минерального питания являются эффективными и при посеве неинокулированными семенами. Путем инокуляции семян и внесения минеральных удобрений в дозе действующего вещества $N_{20}P_{70}K_{82}$ возможно увеличить зерновую продуктивность посевов гороха до 2,78 т/га.

Ключевые слова: *горох, минеральные удобрения, инокуляция семян, элементы структуры урожая, ассимиляционная поверхность, урожайность. – С. 19–23.*

Сатарова Т. Н., Абраимова О. Е., Гончаров Ю. А. Оптимизация условий получения проростков для выделения ДНК кукурузы. *Представлены результаты влияния условий проращивания на семена кукурузы с целью получения проростков и последующего выделения из них ДНК для полимеразной цепной реакции. Установлены оптимальные условия для проращивания семян, а именно: использование стерильной дистиллированной водя, стерильной фильтровальной бумаги и поверх-*

ностно стерильных семян для проращивания их при 25 °С на протяжении 8 дней, что позволяет получить нормально развитые неконтаминированные проростки для выделения ДНК.

***Ключевые слова**: проращивание семян, стерилизация, проростки, кукуруза, ДНК. – С. 23–27.*

***Красненков С. В., Дудка Н. И., Ляшенко Н. А., Носов С. С., Березовский С. В. Эффективность комплексных способов контролирования засоренности посевов кукурузы.** Приведены результаты изучения эффективности применения почвенных и послевсходовых гербицидов, а также их комбинаций при разных сроках посева кукурузы. Установлены преимущества использования послевсходовых и комбинаций почвенных и послевсходовых гербицидов в сравнении с применением только почвенных препаратов путем определения количества сорняков, которые продолжали вегетацию после использования химических веществ. Определено влияние гербицидов на формирование надземной биомассы сорными растениями, а также на урожайность и влажность зерна кукурузы перед уборкой урожая.*

***Ключевые слова:** кукуруза, гербициды, сроки посева, сорняки, эффективность, урожайность, влажность зерна. –* С. *27–35.*

***Беликов Е. И., Куприченкова Т. Г., Мотренко В. И., Савченко А. Н. Определение селекционной ценности сестринских линий кукурузы в различных климатических условиях.** Приведены результаты изучения 8 линий кукурузы родственных ИКС 2173421 С, которая является материнской формой гибрида Диана 180 СВ. Установлен характер формирования урожайности и уборочной влажности зерна под действием различных факторов среды. По засухоустойчивости отличались линии ИЛК 212-14 и ИЛК 212-21, а по показателям селекционной ценности и селекционным индексам ценности – ИЛК 212-7, ИЛК 212-26 и ИЛК 212-25.*

***Ключевые слова:** кукуруза, линия, урожайность зерна, уборочная влажность зерна, индекс засухоустойчивости, селекционная ценность. – С. 36–40.*

***Черенков А. В., Шевченко М. С., Рыбка В. С., Компаниец В. А., Кулик А. А., Ковтун Е. В. Направления инновационного развития производства зерна в Украине в перспективе.** Изложены результаты анализа зерновой отрасли в Украине на современном этапе и определены основные направления увеличения объемов производства зерна в условиях перехода на инновационную модель развития АПК.*

***Ключевые слова**: зерновые культуры, интенсификация, инновация, технологии, структура посевов, сорта и гибриды, себестоимость, прибыль, цена, эффективность. – С. 40–48.*

***Ткалич Ю. И., Матюха В. Л., Хромых Н. А., Богуславская Л. В. Эффективность гербицидов в зависимости от механизма действия и активности их детоксикации в листьях амброзии полыннолистной (Ambrosia artemisifolia l.).** В полевом эксперименте установлено активацию глутатион-S-трансферазы в листьях амброзии полыннолистной к действию хлорацетанилидных гербицидов, что ассоциируется со стойкостью сорняка. Активность фермента снижалась вследствие антагонистического взаимодействия харнеса и ауксиноподобных гербицидов, при этом аддитивно усиливался их фитотоксический эффект. Максимальное снижение конечной численности амброзии обеспечили комбинации харнес + старане и харнес + ланцелот, а также гербицид стеллар, в состав которого входят два разных компонента с ауксиноподобным действием.*

***Ключевые слова:** амброзия, гербициды, глутатион-S-трансфераза, детоксикация. – С. 48–52.*

***Яновский Ю. П., Балабак О. А., Чепернатый Е. В., Бандура Л. П., Масликова К. П. Препарат нуприд 600, ТН в системе защиты промышленных насаждений клубники от почвенных вредителей в Лесостепи Украины.** Изложены результаты исследований в направлении применения препарата нуприд 600,ТН в системе защиты промышленных насаждений клубники от почвенных вредителей в Лесостепи Украины. Продолжительность защитного действия препарата от почвенных вредителей составляет около 6 месяцев после его применения.*

***Ключевые слова:** насаждения клубники, корневая система, почвенные вредители, препараты, техническая эффективность. – С. 53–57.*

***Беликов Е. И., Куприченкова Т. Г. Изучение урожайности раннеспелых гибридов кукурузы различных гетерозисных моделей в условиях степной зоны Украины.** Приведены результаты*

изучения урожайности 196 раннеспелых гибридов кукурузы конкурсного испытания на протяжении 5 лет в 6 экологических точках степной зоны Украины. Установлено, что в состав гибридов входили линии 8 гетерозисных групп и наиболее часто использовались плазмы Lancaster (28,9 %), Reid (23,2 %) и Iodent (22,8 %). В целом в конкурсном испытании было задействовано 26 гетерозисных моделей, однако наибольшее количество гибридов создано благодаря модели (Lancaster x Lancaster) x P 354. Доказано, что лучшей для зоны северной Степи Украины является гетерозисная модель (Reid x Lancaster) x Mix, а для зоны южной – (Reid x Lancaster) x Mix и (Reid x Reid) x Mix.

Ключевые слова: *кукуруза, раннеспелый гибрид, урожайность, гетерозисная модель, гетерозисная группа, зародышевая плазма. – С. 58–62.*

Гирька А. Д. Эффективность применения удобрений в технологии выращивания яровых зерновых культур. *Приведены результаты анализа влияния удобрений на особенности роста и развития растений ячменя и пшеницы яровых и формирование ими продуктивности, а также на наличие болезней, вредителей и сорняков в посевах этих культур. Отмечены виды удобрений, которые обеспечивают эффективное потребление воды посевами и стабильную реализацию генетического потенциала урожайности зерна в широком диапазоне изменения средних температур воздуха и условий водопотребления северной Степи Украины.*

Ключевые слова: *ячмень и пшеница яровые, рост и развитие растений, водопотребление, удобрения, качество зерна, урожайность. – С. 62–67.*

Гасанова И. И., Семенкова А. С., Носенко Ю. М. Рост и развитие растений пшеницы озимой в осенний период вегетации в зависимости от условий минерального питания. *Установлены особенности вегетации растений пшеницы озимой в осенний период в разные по погодным условиям годы. Исследовано влияние минерального питания на рост и развитие растений сортов пшеницы озимой Благодарка одесская и Златоглава.*

Ключевые слова: *пшеница озимая, сорт, фон минерального питания, биометрические показатели, масса растений. – С. 67–70.*

Романенко О. Л., Усова Н. М., Цапик Т. Ф. Особенности выращивания различных сортов пшеницы мягкой озимой в зоне южной Степи. *Приведены данные по урожайности различных сортов пшеницы озимой, проанализированы качественные показатели зерна и определена экономическая эффективность их выращивания в условиях южной зоны Степи Украины. Среди сортов, которые проходили испытание, лучшими для условий южной Степи оказались Жайвир, Эпоха одесская, Зорепад, Турунчук, Благодарка одесская, Косовица, Единість, Куяльник, Миссия одесская.*

Ключевые слова: *сорт, пшеница озимая, урожайность, качество зерна, экономическая эффективность выращивания. – С. 70–76.*

Черенков А. В., Солодушко Н. Н., Ярошенко С. С., Желязков А. И., Педаш А. А., Бондаренко О. В. Влияние предшественников на продуктивность разновозрастных растений пшеницы озимой в условиях степной зоны. *Приведены результаты исследований по изучению влияния предшественников на зерновую продуктивность растений пшеницы озимой в условиях Степи. Установлено, что наиболее высокую урожайность пшеница озимая формировала по черному пару, а самую низкую – после подсолнечника. Высокопродуктивными были посевы в том случае, когда озимые после всех предшественников, которые изучались в опытах, высевали в период с третьей декады сентября (20.09) и до середины первой декады октября (5.10).*

Ключевые слова: *пшеница озимая, продуктивность, предшественник, урожайность, сроки сева. – С. 76–80.*

Бандура Л. П., Масликова К. П., Нименко С. О. Защита промышленного яблоневого сада от зеленой яблоневой тли в условиях Степи Украины. *На основании результатов исследований установлено, что вредоносное действие зеленой яблоневой тли заметно снижается при включении в интегрированную систему защиты промышленного яблоневого сада следующих современных пестицидов: актара 25 WG, в. г., бискайя 240 OD, м. д., каллипсо 480 SC, к. с., конфидор, в. р. к., моспилан, р. п. и биологического препарата вертимек 018 EC, к. э.*

Ключевые слова: *интегрированная система защиты, зеленая яблоневая тля, пестициды, инсектициды, яблоня сорта Айдаред, яблоня сорта Кальвиль снежный. – С. 84–85.*

Ткалич Ю. И., Ткалич И. Д., Бочевар О. В., Рычик С. Г. Реакция растений подсолнечника на гербициды. *Установлены особенности влияния на растения подсолнечника гербицидов в случае обработки ими смежных посевов сельскохозяйственных культур. Определен уровень чувствительности растений масличной культуры к действию ряда гербицидов, что проявлялось как снижение их продуктивности вследствие уменьшения высоты, размеров корзинок и количества семян в них. Значительно уменьшались показатели урожайности при обработке посевов диаленом супер (74,5 %), естероном (63,6 %), банвелом (62,6 %) и линтуром (51,4 %). При опрыскивании подсолнечника сниженными нормами (до 70 %) препаратов: люмакс, пивот, гранстар урожайность уменьшалась на 8,9–16,0 %, а каллипсо, 2,4-Д – на 26,2–28,3 %. При прогнозировании урожайности подсолнечника, посевы которого подвергались случайному влиянию вышеуказанных гербицидов, можно ссылаться на полученные в наших опытах данные.*

Ключевые слова: *подсолнечник, гербициды, урожайность, семена, сорняки, качество, жир, белок. – С. 86–91.*

Солодушко В. П. Селекция овса: основные направления и результаты. *Освещены проблемы и основные направления селекции овса в ГУ Институт сельского хозяйства степной зоны. Рассмотрены задания по созданию новых сортов овса в соответствии с существующими требованиями зернопроизводства. Охарактеризован исходный материал и показаны результаты Государственного сортоиспытания.*

Ключевые слова: *овес, сорт, гибридизация, добор, урожайность, признаки, засухоустойчивость. – С. 91–96.*

Базилева Ю. С. Особенности повреждения болезнями семян кукурузы в зависимости от его состояния. *Исследовано особенности повреждения болезнями семян кукурузы в процессе их уборки и послеуборочной доработки. Установлено влияние разных видов грибов и бактерий на посевные и урожайные свойства семян. Предложен комплекс технико-технологических мероприятий для улучшения качества семян на стадиях доработки и предпосевной подготовки.*

Ключевые слова: *семена, кукуруза, гибриды, микрофлора, приемы улучшения качества семян. – С. 96–99.*

Яланский А. В., Середа В. И. Перспективные гибриды сорго сахарного. *Освещены результаты отбора лучших исходных отцовских компонентов для скрещивания по результатам предыдущего исследования 17 стерильных аналогов и 4 фертильных линий сорго сахарного. Приведены коэффициенты корреляции и наследования хозяйственно-ценных признаков у растений сорго. Показана оценка перспективных гибридных комбинаций: А326 х Карликовое 45, Низкорослое 81С х Силосное 42 (Крипт), ДН 71с х Карликовое 45 (Феникс), Кафрское кормовое 186с х Силосное 42 (Ананас), которые характеризуются улучшенными морфологическими, урожайными и биохимическими свойствами в сравнении с сортом-стандартом Силосное 42. Лучшие гибридные комбинации сорго сахарного – ДН 71с х Карликовое 45 (Феникс), Кафрское кормовое 186с х Силосное 42 (Ананас) – переданы на Государственное сортоиспытание как новые гибриды.*

Ключевые слова: *сорго сахарное, стерильные аналоги, фертильные линии, коэффициент наследования, урожайность, сахара. – С. 99–104.*

Кравец С. С. Влияние почвенных гербицидов на всхожесть семян родительских компонентов среднеранних гибридов кукурузы. *Установлено влияние почвенных гербицидов в зависимости от дозы их применения на всхожесть семян родительских компонентов гибридов кукурузы. Определены гербициды и их нормы внесения для каждого родительского компонента с целью предупреждения отрицательного влияния химических веществ на всхожесть семян. Разработаны рекомендации по применению почвенных гербицидов на участках гибридизации среднеранних гибридов кукурузы: Оржица 237 МВ, Яровец 242 МВ и Любава 279 МВ.*

Ключевые слова: *родительский компонент, полевая всхожесть, почвенный гербицид, норма внесения. – С. 105–109.*

Барановский Б. А., Иванько И. В., Кармизова Л. А., Чегорка П. Т., Демьянов В. В. Ландшафтное и биологическое разнообразие ботанического заказника «Балка Житловая». *Описано ландшафтное и биологическое разнообразие ботанического заказника «Балка Житловая», расположенного в бассейне р. Саксагань. Флора заказника насчитывает 394 вида, из них 9 – занесены в*

Красную книгу Украины, а 19 – в Красный список Днепропетровской области. Среди наземных позвоночных наиболее разнообразной является фауна птиц.

Ключевые слова: *заказник, бассейн, флора, растительность, земноводные, пресмыкающиеся, птицы, млекопитающие. – С. 109–114.*

В. С. Козырь, Е. В. Хмелева. Особенности шкур бычков скороспелых и долгорослых мясных пород. *Дана сравнительная характеристика качества шкур бычков скороспелой абердин-ангусской и долгорослой шаролезской мясных пород.*

Ключевые слова: *бычки, порода, возраст, шкура, качество. – С. 115–118.*

Халак В. И. Критерии отбора свиней по некоторым интегрированным показателям и их экономическая оценка. *Изложены результаты исследований показателей собственной продуктивности ремонтных свинок и признаков воспроизводительной способности свиноматок (крупной белой породы), которые проверяются и оценены по методу BLUP и оценочному индексу I, определены критерии отбора и экономическая эффективность их использования.*

Установлено, что максимальными показателями многоплодия (12,2 ± 0,29 – 12,5 ± 0,23 головы) и массы гнезда на дату отъема в возрасте 30–35 дней (82,2 ± 1,340 – 82,3 ± 1,90 кг) характеризовались свиноматки с градациями по индексу BLUP – 110,62–165,23, по оценочному индексу I – 0,124–5,539 балла. Использование животных указанных групп обеспечивает получение дополнительной продукции от одной головы в пределах от 129,08 до 131,34 грн.

Ключевые слова: *молодняк свиней, собственная продуктивность, воспроизводительная способность свиноматки, метод BLUP, оценочный индекс, экономическая эффективность. – С. 118–124.*

Зельдин В. Ф., Логвиненко В. И., Зельдина Ю. С. Влияние генотипа свиней на скорость их роста и мясную продуктивность.

Изложены материалы оценки хряков племпредприятий по мясным и откормочных качествам их потомства, полученного путём различных методов разведения. Оценка генетического потенциала хряков племпредприятий по откормочным и мясным качествами их потомства, как одно из звеньев комплексной оценки системы разведения свиней, позволяет установить наиболее эффективные с экономической точки зрения методы разведения свиней в товарных хозяйствах. Изучена эффективность разных вариантов скрещивания свиноматок крупной белой породы с хряками украинской мясной породы харьковской и днепропетровской селекции, где установлен гетерозисный эффект по энергии роста – 4 %, по мясным качествам (толщина шпика и масса окорока) – соответственно 12,0 и 6,35 %. Установлено, что наиболее высокий выход мяса в туше – 57,24 ± 0,130 был получен в опыте № 3 при скрещивании маток $УМ_{ХС}$ с хряками $УМ_{ДС}$. Высокий эффект гетерозиса – 4,00 % по скорости роста был присущ животным также в опыте № 3.

Установлено, что только в опытах № 3, 4, 5, где использовался генотип $УМ_{ХС}$, толщина шпика у потомков не превышала 31 мм, что характеризует данную группу свиней харьковской селекции как ярко выраженный мясной генотип. Во всех остальных опытах вариабельность данного показателя была в пределах 36,6 ± 0,91 (опыт № 2) – 31,7 ± 1,30 (опыт № 6).

Доказано, что метод искусственного осеменения является наиболее экономически целесообразной формой воспроизводства стада. Установлено зависимость величины, достоверности и направления корреляционных связей от метода скрещивания. Доказана необходимость разработки групповых методов подбора для локальных систем разведения свиней, где метод искусственного осеменения является основной формой воспроизводства стада. Установлено, что коэффициенты корреляции между откормочными и мясными качествами были в пределах 0,1 ± 0,010, что в целом свидетельствует об отсутствии целенаправленного селекционного процесса в популяциях, построенного с учетом сложившихся корреляционных отношений между признаками продуктивности животных.

Ключевые слова: *порода, скрещивание, искусственное оплодотворение, оценка генотипов, контрольное откармливание, мясные качества туши. – С. 124–128.*

Чернявский С. Е. Сокрут А. В. Энергообеспечение животноводческих ферм за счет биогаза. *Изложены результаты исследований эффективности использования различных компонентов сырья растительного и животного происхождения в качестве субстрата для биогазовых установок с целью энергообеспечения животноводческих ферм. Установлено, что при использовании в биогазовых установках смеси, состоящей из суданской травы, зеленой массы кукурузы, силоса*

кукурузного, навоза крупного рогатого скота и свиней, выход биогаза с 20 кг субстрата составляет от 1,65 до 5,55 м³, а в пересчете на 1 т – от 82,7 до 277,5 м³. Приведен расчет энерогообеспечения молочной фермы на 200 коров, где в качестве сырья для получения биогаза используется навоз животных и силос кукурузный.

Ключевые слова: *суданская трава, зеленая масса кукурузы, силос кукурузный, навоз, биогазогенератор, анаэробное брожение. – С. 128–133.*

Димчя Г. Г., Майстренко А. Н., Петренко В. И. Концептуальные принципы кормления высокопродуктивных коров в период сухостоя. *Освещены данные фактического потребления сухого вещества, энергии и протеина коровами в сухостойный период и их сравнительный анализ с разными действующими нормами кормления. Представлены концептуальные принципы расчета норм обеспечения сухостойных коров энергией и питательными веществами, которые состоят только с потребностей на поддержание тела коровы, развитие плода и умеренное отложение в теле (при кондиции ниже 3,0 балов) без всякой связи с будущей плановой молочной продуктивностью животного.*

Ключевые слова: *корм, рационы, питательность, нормы, кормление, коровы, сухостойный период. – С. 134–138.*

Майстренко А. Н., Димчя Г. Г. Влияние усовершенствованных балансирующих кормовых добавок на продуктивность свиноматок. *Исследовано влияние стандартной и авторской балансирующих кормовых добавок на продуктивность свиноматок и их потомства. Установлено преимущество применения усовершенствованных балансирующих кормовых добавок по сравнению со стандартными при оценке воспроизводительных качеств свиноматок и жизнеспособности поросят.*

Ключевые слова: *свиноматка, поросята, рацион, продуктивность, живая масса, среднесуточные приросты, кормовые добавки. – С. 138–143.*

Халак В. И., Чегорка П. Т. Свиноводство Приднепровья в конце XIX – начале XX столетия. *На основе анализа литературных и статистических данных конца XIX – начала XX ст. освещено состояние развития свиноводства на территории Екатеринославской губернии.*

Ключевые слова: *свиноводство, Екатеринославская губерния, порода, болезни. – С. 143–147.*

Маршалкина Т. В., Белая Н. В., Ящук Е. В. Разработка комплексного лечения кур при эндопаразитозах смешанной этиологии. *Изложены результаты исследований по определению эффективности комплексного применения антигельминтных веществ при смешанной нематодозно-цестодозной инвазии кур. Исследования проводились в лабораторных условиях на курах-несушках, спонтанно инвазированных нематодами и цестодами (аскаридиями, капилляриями и райетинами). Птице первой опытной группы с водой давали левамизол 10 % из расчета 20 мг действующего вещества на 1 кг массы тела одноразово, на третьи сутки опыта этой группе кур скармливали фенбендазол 10 % из расчета 15 мг действующего вещества на 1 кг массы тела одноразово. Вторая группа кур получала альбендазол 10 % согласно с инструкцией по применению. Птица третьей группы (контроль) препараты не получала. По результатам испытания экстенсэффективность предложенного способа применения препаратов против смешанной инвазии в первой опытной группе составляла 100 % уже на 7 сутки опыта. Сравнительная оценка результатов эффективности позволяет считать, что предложенный способ комплексного применения антигельминтных веществ при смешанной нематодозно-цестодозной инвазии является высокоэффективным и представляет собой альтернативу традиционному подходу к лечению инвазий, в основе которого лежит продолжительное применение антигельминтных веществ.*

Ключевые слова: *гельминтозы, нематоды, цестоды, смешанная инвазия, антигельминтики, экстенсэффективность, куры. – С. 147–150.*

A N N O T A T I O N

UDC 631.53.01

Cherenkov A. V., Kyrpa M. Y., Skotar S. O. Standardization of grain – a new scientific-practical direction of activity in agricultural institute of steppe zone.

Keywords: *standardization in agriculture, activity of Technical Committee, quality and methods of testing of grain and grain products.*

The base of variety in economic activity, including production, attendance, trade, control of production quality and services is holding the definite requirements and rules. Requirements are determined by force of standardization, its aim is – elaboration of normative-technical documents, first of all, standards.

Standard establishes rules, general principals, allowances, which are based on generalization of achievements of science and technics, practical experience. They have to satisfy the demand of interested sides if there aren't any contradictions between them.

Effective regulations and also legal steps of standardization in Ukraine are introduced by Ukrainian law "About Standardization" (№ 1315-VII on June, 5 2014 year).

Works by standardization of agricultural production in Ukraine are coordinated by TC 41 "Grain crops and products of their handling" for a long time. During of its activity it was worked up a series of standards DSTU for grain, pulse plants, groats and oil products. However, because of objective and subjective reasons of activity TC 41 was suspended.

It has negative consequences in a field of grain standardization in Ukraine. So, Ministry of Agro politics and Food proposed to resume activity of TC standardization for grain products on base of SE Agricultural Institute of Steppe Zone as a leading scientific establishment by problems of grain production. (An Order of Ministry of Economic Development and Trade about formation TC on 27.11.2014 by № 1414). According to the Order, Technical Committee (TC) "Grain crops and products of their handling" got a registration number 170. The leading scientific establishments and educational institutions of system NAAS and MES of Ukraine, representatives of departments, associations, enterprises, and partnerships with different forms of property entered into composition of it by their own initiative. They apply with growing, storing, keeping, handling, distribution and control quality of grain, pulse plants, groats and oil crops. TC 170 tightly contributes and coordinates its activity with other TC of agricultural profile.

The work of TC 170 is organized in that way. Secretariat executes the main role; it works on a base of Agricultural Institute of Steppe Zone. Its main task is to organize activity of TC 170, to complete work plans, to concede and coordinate standards, to give reports on time and formation about results of activities, to take part in a work of other TC and in actions by standardization also in international ones.

TC 170 is consists of 3 sub-committees: SC-1 (Food-feeding and technical grains), SC-2 (Products of handling grains), and SC-3 (Seeds of oil crops). The objects of standardization of sub-committees are grain and oil raw material, indexes of quality and methods of testing of production, rules of accepting crops, technological processes of growing, storing, keeping, handling, using and delivery of grain and products of its handling for food and nonfood aims and for the trade.

Standardization belongs to those types of intellectual activity, which have important practical meaning and establish progressive, economical, well-founded and safe regulations in any sectors of production and among the subjects of economic management.

Requirements to production and indexes of its quality are established, the methods of its testing are determined in a field of agro-industrial production with help of standardization.

Standardization is realized by force of elaboration of standards by corresponding Technical Committees. TC 170 "Grain crops and products of its handling" is established for standardization of grain and grain products. It works on a base of Scientific Establishment (SE) Agricultural Institute of Steppe Zone. It's determined a staff, a structure and main tasks of TC 170. About Committee work you can learn in Mass Media – e-mail: tk170@ukr.net: web-site:www.institut-zerna.com. – *P. 5–11.*

UDC 633.854.78:631.51

Tsyliuryk A. I., Gorbatenco A. I., Sydak V. N., Shapka V. P. Minimum tillage and fertilization on yield and oil content of sunflower seeds in a Northern Steppe.

***Keywords**: soil tillage, fertilizer, sunflower, yield, oil content of seed, economic efficiency.*

In connection with shifting priorities of modern farming steppe, significant distribution acquires shallow mulch tillage, which excludes the reversal of topsoil and foresees the use by-products of previous crops.

Efficiency plowing to 20–22 cm, and different ways to minimum tillage cultivation to 14–16 cm, when growing winter wheat after sunflower studied in a stationary field experiment government agency Institute of Agriculture NAAS Steppe zone during 2011–2015. Tillage and chopped straw wrap carried out on mineral nutrition of three backgrounds: 1 – without fertilizer, 2 – $N_{30}P_{30}K_{30}$, 3 – $N_{60}P_{30}K_{30}$. Fertilizers made spring spreading means under presowing cultivation. For the purpose of weeding soil herbicide made Harnes (2,5 l/ha), performed hoeing of rows.

Soil research area – ordinary black soil heavy loam containing in the topsoil, humus – 4,2 % nitrate nitrogen – 13,2 mg/kg, mobile phosphorus and potassium (by Chirikov), respectively, 145 and 115 mg/kg.

Established that a significant impact on productivity of sunflower did weather conditions, fertilizers and tillage methods. Comparatively high (2,14–3,00 t/ha) yield seeds obtained in relatively favorable conditions in 2011, 2013, 2014 and 2015 year due to strong spring stocks of productive moisture in the soil, and rain that fell during the summer. But in 2012 year, the air and soil drought significantly retarded the growth of plants, their state during flowering and formation of reproductive organs rated as critical. Due to shortage of available moisture, high temperatures and high relative humidity observed premature drying of leaves, formed to 25 % empty seed which was located mainly in the central part of the inflorescence. In combination with the lack of agronomically beneficial rainfall during May – July this led to low yield sunflower – 1,86–2,35 t/ha

A characteristic feature of which is manifested in the growing season oilseeds was slow plant growth and development on natural background for no plowing and chiseling cultivation phase before the formation of baskets. This is explained primarily a topography difference placing stubble remains predecessor (winter wheat), varying degrees of mixing and separation of soil mass that significantly affect the quality and progress of sowing microbiological processes. Ultimately slightly higher (by 0,07–0,13 t/ha) was plowing yield of sunflower seeds.

On the background of the state of fertilized crops for cultivation no plowing and chiseling equal to plowing because the yield of main products concerning said agronomic techniques was approximately equal (respectively 2,53–2,67, 2,57–2,72 and 2,51–2,64 t/ha). The long period from the beginning of spring field work for sowing of oilseed enables you to execute in the field a number of technological operations, which provide crushing, loosening and partial mixing soil and as a result, created on stable of fertilized agronomy background quite favorable initial conditions for the life of microbial populations, timesheet stubbly remains of immobilized and release nitrogen compounds in the soil solution. It should be noted that preference chiseling monitored in cases involving more than 5 t/ha of straw (2011, 2012, 2014, 2015), no plowing hoeing – if it amounts to 3,5 t/ha (2013).

Regarding the impact of the studied agronomic techniques oil content in seeds monitored tendency to increase it for mulch tillage (chiseling, no plowing) compared to autumn plowing. More clearly defined pattern manifested in favorable years (2011, 2013) against the background of mineral fertilizers with a double share of nitrogen ($N_{60}P_{30}K_{30}$), when differences between variants in the contents of the oil reach 1,0–2,1 %.

Comparison economic and bioenergetics evaluation of various agro techniques showed that as a result more economic spending by no plowing cultivation and chiseling money and energy on 1 hectares compared to the cost and energy plowing tons of seeds are respectively lowered to 82–96 UAH and 365–379 MJ of, profitability increased by 12–15 %, payback of one UAH production costs increased from 2,32 to 2,44–2,74, and an energy factor of 3,01 to 3,19–3,20. Saving fuel while reaching 12,3–13,8 l/ha.

Thus, the use chiseling shallow (14–16 cm) and no plowing (12–14 cm) soil tillage in combination with the introduction of straw and fertilizer with high nitrogen content ($N_{60}P_{30}K_{30}$) allows you to realize the potential of sunflower ensure high performance and yield seeds oil yield per unit area. Moreover minimizing enables also improve the economic performance of oilseed, namely to increase the profitability of production at 12–15 % and save 12,3–13,8 l/ha fuel. *– P. 11–15.*

UDC 633.15:631.52

Cherchel V. Yu., Plotka V. V., Riabchenko E. M. Assessment cold resistance and duration of the period "pullulating-flowering 50 % of corncobs" self-pollinating lines of different generations of inbreeding.

Keywords*: maize, breeding, cold resistant, early mature.*

Steppe zone is characterized by heterogeneity of agro-climatic conditions and hydrothermal which cause different levels of availability of plant nutrients, moisture, heat. This necessitates posting here cold resistance early hybrids of corn, the effective use of resources hydrothermal spring.

Selection for precocious hybrids always closely associated with increased cold resistant corn hybrids whose seeds should germinate, and actively develop stairs at positive low temperatures.

The last 20 years in the GI Institute of Agriculture steppe zone breeding program to create a early maize hybrids paid to much attention. The trend caused by significant energy costs for processing the grain hybrids FAO 300–450 after harvesting, production and introduction of early and medium early hybrids significantly reduces the costs of drying and increases the profitability of grain and seed corn.

Efficiency spring moisture corn plants in the steppe is largely dependent on sowing time, the displacement of which in earlier time 5–10 days is observed in the production of the last 15 years. Increased demand for early hybrids is also associated with the expansion of corn acreage in areas of Steppes and Polesie zones, which in 2014 increased by 5 and 10 times compared with to 2005, which requires the presence cold resistant range of hybrid forms.

The low positive temperatures cause lower productivity corn from 10 to 15 %, product quality and increase the duration of the vegetation period. Thus, the new precocious starting material important to evaluate both resistance to cold (positive low temperature) and the impact of the stress on the duration of the vegetation period.

In this connection developed methods and breeding program based on specially selected silicon original material with a wide genetic basis for a cold resistant, precocious commercial hybrids.

For diagnosis maize lines for cold resistance method was used D. F. Protsenko and P. S. Mishustin (1962). For the initial evaluation of the material on the basis of the duration of the growing season used the results of phenological monitoring the value of the indicator during the "pullulating-flowering 50 % of corncobs".

This method of evaluation is the least time-consuming and clearly recorded. The material was studied during 2011–2013, meteorological conditions were different in years, respectively 2011 and 2013 were favorable for growing corn, and 2012 was characterized as stressful for growth and of development compared with other years experience.

The aim is evaluation and selection of families corn S_3, S_4, S_5 generations derived from siliceous sisterly hybrid program inbreeding. Hybrids were created on the basis of seven early ripening, preselected for high cold resistance, siliceous self-pollinating maize lines of different origin: DK204, DK206, DK516, DK720, DK357A, DK273, DK959, they simultaneously used as control in the selection and conditional grouping got families. According to the research program studied 274 families S_3 generations, 170 – S_4, 207 – S_5 cold resistance the level and earliness in 2011–2013.

The evaluation and selection of families S_3, S_4, S_5 the level cold resistance and earliness is not revealed of authentic dependencies that allows obtaining high cold resistance forms irrespective of maturity. Allocated initial components siliceous hybrid DK204, DK273, DK720, which provided maximum yield cold resistance corn inbred families. In a further allocated best new forms can be

used for periodic and heterosis breeding and DK204 starting line as the control when assessing the level cold resistance. – *P. 15–18.*

UDC 631.5:633.358

Gangur V. V., Yeremko L. S. Effect of elements of the cultivation technology on the productivity of peas under conditions of left-bank Partially-wooded steppe of Ukraine.

Keywords*: peas, fertilizers, inmoculation of seeds, elements of crop structure, assimilating surface, crop capacity.*

The researchers conducted at the experimental field of the Poltava SARS named after M. I. Vavilov of Institute of Pig Breeding and AIP on typical low-humus and hard loam black soil during 2011–2013 found out that seed inoculation had a positive effect on the formation of pea symbiotic apparatus.

The use of this agro-technical method increased the number of nodules and their weight per plant to control by 10 nodules and 56 mg, respectively.

Conditions of the formation of a pea symbiotic apparatus were the most favorable when sowed inoculated seeds on the background of mineral fertilizers $P_{70}K_{82}$. In this variant, the signification of number and weight of nodules were the highest. The application of mineral nitrogen had a negative influence on the size of a symbiotic apparatus.

The results of studies showed that the application of mineral fertilizers, using before a sowing seed inoculation and the combination of these agricultural methods improved conditions of the leaf surface area formation increased the intensity of accumulating the organic mass of pea plants.

On the backgrounds of mineral fertilizing, which were studied, the area of leaf surface of plants, their phytomass and total dry matter weight increased relatively to the control variant on 5,3–8,3 thousand m^2 per ha, 3,0–6,5 and 0,9–1,7 g respectively.

In the variant with the application of microbiological preparation of the complex action Rizogumin the leaf surface area formed by plants was 32,8 thousand m^2 per ha, their phytomass and a mass of absolutely dry matter were 16,6 and 4,2 g, respectively.

The combination of the application of mineral fertilizers and a before sawing seed inoculation promoted to the increase of the intensity of an aboveground plant part growth, accumulating organic matter by pea plants, as it is evidenced by the increase of significations of the area of plants leaf area surface, their phytomass and mass of absolutely dry matter comparatively to the control variant, respectively on 8,7–10,1 thousands m^2 per ha, 5,5–9,0 g and on 1,7–2,7 g.

The most favorable conditions for formatting the assimilation surface, the growth of the aboveground part and accumulating absolutely dry matter by pea plants were created on the background of mineral fertilizing $N_{20}P_{70}K_{82}$.

After flowering and fertilization the processes of the formation occur in plants, during which it is carried out formatting all parts of the grains, and also it is carried out the accumulation of dry matter in grain and its qualitative transformation during the ripening.

Their intensity was highest in variant with the combination of seeds inoculation and the mineral fertilizer application with the dose of active substance $N_{20}P_{70}K_{82}$, where the signification of indexes of grain number from one plant were 17,2 and weight of 1000 grains – 234,6 g, respectively. In average it was formed 4,3 beans on the plants.

In the variants with the application of different doses of mineral fertilizers, the number of beans and grains in them varied within the confines of 3,5–3,9 and 13,3–14,5 grains, respectively, and 1000 grains had weight 236,9–245,9 g.

The before sawing seed inoculation increased the number of seeds on the plants relatively to the control on 2 seeds, weight of 1000 seeds – on 10,2 g. In average it was formed 3,4 beans on the plants. At the combination of agrotechnical methods, which were studied, the number of beans was 3,7–4,3, grains in them 14,6–15,9, and weight of 1000 seeds was 248,8–256,2 g.

The grain yield is an integral indicator of the plant productivity which determines the correlation of all quantitative traits with environmental conditions. In average over 3 years of studies the highest their significations (2,78 t per ha) were noted at the combination of the before

sawing seed inoculation by Resogumine and the application of fertilizer with the dose of active substance $N_{20}P_{70}K_{82}$.

The grain yield increasing at applying mineral fertilizers was 0,31–0,46 t per ha. The seed inoculation increased the grain yield of peas on 0,20 t per ha, and at the combination of agrotechnical methods which have been studied, the significations of this index increased on 0,46–0,69 t per ha relatively the control variant. – *P. 19–23.*

UDC 633.15:631.53.011.

Satarova T. M., Abraimova O. E., Goncharov Yu. A. Optimization of maize seedlings production for DNA extraction.

Keywords: *maize, germination, sterilization, seedlings, DNA.*

The conditions of seeds germination and seedlings production for subsequent maize DNA isolation have been investigated. It has been established that the exploitation of sterile distilled water for seeds wetting, sterile filter paper and superficially sterilized seeds allows obtaining within 8 days at 25 °C normally developed uncontaminated maize seedlings for DNA extraction. – *P. 23–27.*

UDC 633.15:631.5:632.954

Krasnenkov S. V., Dudka M. I., Liashenko N. O., Nosov S. S., Berezovskyi S. V. Efficiency of complex actions of the contamination control of corn sowings.

Keywords: *corn, herbicides, sowing terms, ground pests, efficiency, yield, moisture of corn.*

The results of research of application efficiency of soil and postemergence herbicides, and also their combinations in corn sowings are resulted at different sowing times. Advantages of use postemergence preparations and combination soil and postemergence herbicides in comparison of soil herbicides are presented by definition of quantity of weeds which continued vegetation after their application. Influence of investigated preparations on depression of an above-ground biomass of weed plants in an air-dried state, rising of grain productivity of culture and reduction of its humidity before harvesting are defined. The research was conducted within 2012–2014 years at Erast Experimental Station of the State Establishment, the Institute of Agriculture of Steppe Zone of the National Academy of Agrarian Sciences of Ukraine.

The account of an above-ground biomass of weeds in an air-dried state (the most objective efficiency factor of herbicide action) has shown, that on the average for 2012–2014 this index was the least on the plots where applied a combination of herbicides Kharnes (under harrowing) + maysTer Pauer OD (in the phase of 5–7 leaves at corn) and the preparation Adengo (in the phase of 1–2 leaves at culture) at the second sowing time: accordingly 4,0 and 7,3/m^2. On the plots, where applied herbicide maysTer Pauer OD (in the phase of 5–7 leaves at corn) at corn sowing on April, 30-th – May, 05 the above-ground biomass of weeds in an air-dried state equaled 12,7/m^2. At application of herbicides this index was the highest on plots with application of preparation Kharnes: accordingly 392,5 and 151,4 g/m^2 at the first and second sowing time.

On the average for 2012–2014 the quantity of the generated ears on 100 plants between variants of herbicides application and their combinations was the greatest on the plots with application of preparation Kharnes (under harrowing) + maysTer Pauer OD (in the phase of 5–7 leaves at culture) at the first sowing time and preparation of Adengo (in the phase of 1–2 leaves at corn) – at the second sowing time: accordingly 95 and 91 ears. Are necessary to pay attention also that at the second sowing time (on April, 30 – May, 05) in comparison with the first sowing time (on April, 20–25) irrespective of use of herbicides the depression of individual productiviy reached 3–5 ears/100 plants. The least quantity of the generated ears is noted on plots with application of soil herbicide Kharnes – accordingly 83 and 78 years on 100 plants of corn accordingly at the first and second sowing times. Also low enough value of this index have been noted on the plots where the preparation Adengo applied under harrowing – 86 ears/100 plants at sowing time on April, 20–25 and 81 ears – on April, 30 – May, 05. Reduction of their quantity in comparison with plots of control II (manually weedkilling) was 12–14 ears/100 plants at sowing time on April, 20–25 and 9–11 ears/100 plants – on April, 30 – May, 05 accordingly.

On the average for 2012–2014 the highest productivity of grain at application of herbicides was on the plots of sowing time on April, 20–25 where applied herbicide Adengo (in the phase of 1–2 leaves at corn): 3,80 t/hectare (on 4,5 % less than this index on the plots of control II). At the second sowing time (on April, 30 – May, 05) the least deflection from indexes on control II (manually weedkilling) was on the plots where applied the preparation Adengo (in the phase of 1–2 leaves at culture) and the combination of soil herbicide Kharnes (under harrowing) + postemergence herbicide maysTer Pauer OD (in the phase of 5–7 leaves at corn): productivity of culture reached 3,25 t/hectare (on 5,2 % of less productivity of grain on the plots of control II). On the plots with application of the preparation maysTer Pauer OD (in the phase of 5–7 leaves at corn) productivity of culture decreased concerning control II accordingly for 7,8 % at the first sowing time and 8,8 % at the second sowing time. The least value of the yielded index are noted on the plots with use of herbicide Kharnes – accordingly 3,06 and 2,59 t/hectare depending on sowing time, the increase of grain productivity of corn to the plots of control I equaled accordingly only 28,6 % at sowing time on April, 20–25 and 36,3 % – on April, 30 – May, 05. Grain productivity of culture on the plots of the first sowing time (on April, 20–25) was above, than at the second sowing time (on April, 30, May, 05), irrespective of application of herbicides. By variants of experience reduction of grain productivity of culture made up 7,5–20,2 % at the second time sowing in comparison with the first sowing time, that was predetermined by more later occurrence of the critical period of moisture consumption at plants of the second sowing time and droughts in second half of summer 2012 and 2014.

On the average for 2012–2014 grain with the greatest moisture content at application of herbicides and their combinations (16,5 %) was formed at the second sowing time on plots with application of preparation Adengo (under harrowing). On the plots where applied the preparation Adengo (in the phase of 1–2 leaves of culture), the combination of herbicides Kharnes + maysTer Pauer OD and the preparation maysTer Pauer OD, humidity of grain before harvesting on the average for years of carrying out researches equaled accordingly 15,3, 15,4 and 15,9 % at corn sowing time on April, 20–25 and 15,2, 15,5 and 15,9 % – on April, 30 – May, 05. Except the variant with application of preparation Adengo as postemergence herbicide, and also application of the preparation maysTer Pauer OD (in the phase of 5–7 leaves at culture) the humidity of grain on the plots with application of other herbicides and their combinations, and also on control variants raised on 0,1–1,8 % at the second sowing time in comparison with the first sowing time. *– P. 27–35.*

UDC 633.15: 631.52

Belikov E. I., Kuprichenkova T. G., Savchenko A. M., Motrenko V. I. Determination of values selection sister maize lines in various climatic conditions.

Keywords: *corn, line, grain yield, harvest grain moisture, drought index, breeding value.*

An important reserve of increase of gross collection of grain corn is to increase the stability of yields. Among measures to help stabilize grain production, an important role of hybrid genotype. To address the complex unfavorable environment it must have sufficient adaptive properties expressed: refrigerants, heat- and drought resistance, tolerance to diseases and pests and endurance to other stress factors.

The aim of our study was to conduct a comparative assessment of the totality of basic economic features 8 sister lines related IKS 2173421 S, line which is the parent shape simple early hybrid Diana 180 SV.

Experiments were conducted on Sinelnykivska Breeding and Rozovsky research stations (RRS) DU Institute of Agriculture NAAS steppe zone of Ukraine in 2011–2013. Farming is common for this area. Land area was 9.8 m^2 with three times repetition.

Weather conditions prevailing during the studies were varied. Optimal weather conditions for growing corn observed in Sinelnykivska breeding in 2011 and 2013, slightly dry – on Rozovsky RS in 2013, and drought – on Sinelnikovskove breeding in 2012.

Hydrothermal factors years of research have provided significant variation in plant yield V = 15,8–32,0% of evaluated samples indicates the presence of this material genotypes with increased resistance to drought.

Overall, the study for the period 2011–2013 allocated lines ILK 366-14, ILK 212-25, ILK 212-26 and ILK 212-7 that provided by 2,6–3,1 t/ha seed, which exceeded at 0,2–0,7 t/ha on average value of experience and 0,1–0,6 t/ha level signs in IKS 2173421 S.

The calculated drought indices (DI) made it possible to differentiate the level of material resistance to drought. Among the estimated sampling line ILK 212-14 and ILK 212-21 characterized the average drought – DI = 0,61–0,79, while others are not attributed to the drought-resistant.

In contrasting conditions of plant growth and development all the lines have been able to reach their genetic potential for yield formation, but at the time of collection they had different grain moisture. High she was on Sinelnikovskove breeding 2011 in line ILK 212-14 and ILK 212-25 – 17,2–19,7 % and in 2013 line ILK 171-12, ILK 212-26, ILK 212-7 and ILK 212-21 – 16,8–19,4 %. Other lines in these conditions characterized by low (12,1–16,0 %) harvest grain moisture. In unfavorable conditions in 2011 reduced the value of all the lines of this feature to the level of 10,1–12,9 %. In Rozivskiy RS high water-retaining capacity (16,4–17,4 %) had lines ILK 171-12, ILK 212-7, ILK 171-11, ILK 366-14. The remaining lines did not exceed 15,9 %.

Highly plastic and intense drought line ILK 212-7, ILK 212-25, ILK 212-26 have the advantage of yield formation in changing growing conditions and limited and homeostatic before, but with low ILK 212-21. It has properties at low competitive yield formation in these conditions.

Calculation of the selection criteria value (SC) and the selection index values (SIV) evaluated lines allowed to hold their ranking on the studied traits. As in the first and in the second case, the line ILK 212-7 occupied a leading place in the rank number, the parameters of her values were the highest – SC = 605,2 points, and the SIV = 12,59 points. So, this line is characterized by high yields formation at considerable stability of its implementation in various environmental conditions. High breeding value as established for lines ILK 212-26, ILK 212-25, with a score of ILK 366-14 SC = 415,4–330,0 SIV = 7,81–6,13 and scores. In the ordered number they held 2–4 seats.

Thus, as a result of studies found that in high yield and low grain harvest moisture of the best lines related IKS 2173421 C were lines ILK 212-7, ILK 212-26 and ILK 212-25. These lines will be involved in a program of simple hybrids nursing to improve profitability simple early hybrid Diana 180 SV. – *P. 36–40.*

UDC 338.1:631.1:631.57

Cherenkov A. V., Shevchenko M. S., Rybka V. S., Kompaniets V. O., Kulik A. O., Kovtun O. V. Directions of innovative development of grain production in Ukraine in procpect.

Keywords*: crops, intensification, innovation, technology, structure of crops, varieties and hybrids, cost, profit, price, efficiency.*

Agriculture needs strengthening of material and technical base, improvement of land and other property relations development of market infrastructure and so on. The modern conditions of management require to focus on main aspects of development of grain production in condition of economy market.

Grain industry of the agricultural sector from position of its priority is the base segment of all agriculture of our country, on which depends food security, its power and welfare. It is largely constrained with the natural environment and land resources and basic logistical means of agricultural sector, the level of which depends the organization of production, technology and other factors, including climate conditions mediated in agricultural enterprises annual indicators of the results.

From a biological and natural resource viewpoints achievment of volumes production of grain as assessed obtained zoned experimental data and technologically exemplary farms is undoubtedly achievable result. This gain of crop yield relative to the baseline result of 50 million tons can be achieved by improve of scientific justification of agrotechnological, organizational and eco-

nomic measures directed on improving the of grain production efficiency due to resource and energy saving factors, working off scientifically grounded elaboration on the formation of profitable grain production zones, taking into account the economic valuation of land, rational spending of material and technical resources, regulation of soil fertility and fertilizer use, the introduction of machines with high accuracy operations, provide maximum improvement of the phytosanitary background and bringing of a balanced balance of sown areas structure and complete use of crops varieties potential.

High potential productivity and efficiency of grain production in Ukraine today it is impossible to implement without growing of crops on an intensive basis. This factor must be out not only by the quantify increasing of resources, but also on the basis of rational use, namely optimization of modes of fertilizers and application of integrated system of plant protection from weeds, pests and diseases, application of modern high-performance machines and tools, timely and quality implementation of all technological operations.

Assessing the economic efficiency of grain production in the future based on innovation development, it should be noted that the industry will be profitable. Generally, the level of its effectiveness will depend from several of interconnected factors: productivity, production costs and selling prices. Thus, according to estimated data when production volumes will make 71 and 80 million tons the profitability will be 43,3 and 51,2 % respectively.

To ensure the grain production of 80 million tonnes requirements of resource to approximately 157,91 billion UAH. In the total expenses the largest share (41–42 %) will take the costs of mechanized work (salary, fuel and lubricants, repair costs, depreciation of fixed assets, etc.) that will make 64,7–66,3 billion. A substantial proportion of take costs which can be considered as an intensification elements: mineral fertilizers – 31,6–34,7 billion UAH (20–22 %), plant protection substances – 15,8–23,7 billion UAH (10–15 %). *– P. 40–48.*

UDC 581.1

Tkalich Yu. I., Matyukha V. L., Khromykh N. O., Boguslavskaya L. V. Herbicides efficiency in dependens on mode of action and detoxification activity in ambrosia leaves (Ambrosia artemisifolia l.).

Keywords*: ambrosia, herbicides, glutathione-S-transferase, detoxification.*

There are more than 300 species of widespread weeds in agrocenoces in Ukraine now, and they can cause above 25–30 % of yield loss. Herbicides take an important part in a list of methods controlling weeds' number in crops, and more than 15 different chemical classes of organic compaunds having herbicide activity are used now in whole world. However, wide herbicides application evoked series of problems such as appearance and spreading herbicide-resistance weed biotypes. Ambrosia artemisifolia is an annual adventive species, and it showes adaptative capacity both to differenr ecological conditions and chemical factors influence. It well known that detoxificating function of glutathione-S-transferase (GST) provides crops tolerance to herbicides; however, this mechanism was only studied partialy in dicotyledonous weeds. The present work is conducted to determine whether herbicide tolerance of ambrosia plants correlated with GST activity level, and to examine whether phytotoxic effect depended on herbicides mode of action and treatment method. Our results show that GST activity increased in ambrosia leaves under action of chloroacetanilide herbicides Osnova (51 % above control level), Harness (46 %), and Guardian Tetra as a siol herbicide (34 % above control). Increasing GST activity indicated intensive detoxification processes in weed leaves and was associated with enchancing tolerance capacity of ambrosia plants to chloroacetanilide herbicides. It was established that joint action of Harness together with after-shoots auxin-similar herbicides (Starane, Lancelot, Lontrel) had the antagonistic character and caused both decreasing GST activity and additive increasing phytotoxic effect of herbicides. Most declining number of mature ambrosia (100 % plants desrtoing) was provided both by action of Harness with auxin-similar herbicides (Starane, Lancelot) and after-shoots herbicide Stellar which contained two different auxin-similar components. *– P. 48–52.*

UDC 634.7:632.9:663.1:653

Yanovsky Y. P., Balaban A. A., Chepernatiy Y. V., Bandura L. P., Maslikova K. P. Chemical nuprid 600 TN in the system of the industrial plantation protection of strawberries from soil pests in the forest-steppe of Ukraine.

Keywords: *planting strawberry, root system, soil pests, chemical s, technical efficiency.*

During 2009–2014 it was conducted an in-depth study at the insectary of the Department of the plant protection and quarantine and the experimental farm of of educational-scientific production complex (NNVK) Uman national University of horticulture and the TOV "AGRANA FRUT LUKA" (Vinnitsa region). They concerned the study of biology and harmfulness of the main soil pests (cockchafer, turnip moths, different species of click beetles), as the most numerous species in agrobiocenoses of industrials plantations of strawberries, as the berry culture requires effective and environmentally reasonable protection.

During the period of 2012–2014 supported by the TOV "AGRANA FRUT LUKA" we conducted a research to examine the technical efficiency of the chemical nuprid 600 TN (Imidacloprid, 600 g/l) of the company Nufarm GmbH & Co KG" (Austria), who also belongs to derived chlorine, but has a more modern preparative form and can be recommended as an integral component that is attached to clay (earth) "mash" and used when planting strawberry plants.

It was found out that addition of the nuprid 600 TN (80 ml per 10 l of water) to the "mash", whereinto the root system of strawberry plants is immersed just before planting them into the soil, is an effective event with a long lifespan to reduce the number of soil pests (larvae of may beetles and click beetles, caterpillars, turnip moths) and damage of plants during their vegetation in young plantations of berry crops.

We discovered a significant reduction in the number of larvae of the cockchafer, click beetles (wireworms) and caterpillars of turnip moths.

Technical efficacy of the chemical increased depending on the norms of its consumption and performed the result about 79,3–98,6 %. The efficiency was the highest when the flow rate of the chemical was 80 ml per 10 l of water.

Following the consumption rate of the chemical at 80 ml per 10 l of water technical efficiency of pesticide against larvae of the cockchafer, click beetles (wireworms) and the turnip moth within 30–40 days after treatment has reached 97,4; 93,5and 98,6 % correspondingly. There have been almost 100 % of strawberry plants survival.

The duration of protective action of the chemical nuprid 600 TN using it in this way against soil types was lasting 6 months after application.

This event can be recommended ukrainian gardeners in order to protect strawberry plants from soil pests in techical plantations of this crop. – *C. 53–57.*

UDC 633.15:631.52

Bielikov E. I., Kuprichenkova T. G. Study of early corn hybrids yield heterosis models in different conditions steppe zone of Ukraine.

Keywords: *maize, early maturing hybrid, yield, heterosis model, heterosis group, germplast.*

One way to improve the selection process when creating maize hybrids heterosis is the use of models that optimize and accelerate the search for the best pair of crossing the lines. The term "heterosis hybrid model" was due identify combinations that had a high level of heterosis, distribution lines and heterosis for certain groups.

According to S. I. Mustyatsy (2014), in modern breeding practices used about 14 germplasm of maize, the most common of which are Lacaune, Lancaster, Iodent, Reid, Minnesota 13, Dent Canadian and 21 heterotic group. If the new line cannot be identified by existing heterotic groups, or it has a complex pedigree and obtained from hybrid closed pedigree, it belongs to a mixed plasma (bottle). Using this plasma in the selection process extends the genetic base of maize and promote the creation of new high-yielding and adapted hybrids.

The first models for heterosis hybrids of early ripening were: (Lacaune x Lacaune) x Co 125, (Lacaune x Lacaune) x 7 CM, (Lacaune x Lacaune) Minnesota's 13 and (Lacaune x Lacaune) x Reid. According to this scheme was established, most domestic and foreign hybrids. The next step in the selection of corn was widespread in Western Europe and North America early hybrid Dea, created on the model Iodent x Lacaune. This hybrid characterized by high productivity, resistance to lodging and solids content in the grain. At the same time dry and hot conditions of the steppe zone of Ukraine it demands to early ripening hybrids of corn.

The goal of our research was to study the yield of early maize hybrids created at different heterosis models and determine the optimal model for Ukraine steppe zone.

The starting material for early works were hybrids competitive test laboratory breeding corn for food and northern regions direction of the State Institute of Agriculture NAAS steppe zone of Ukraine. Experiments conducted during 2010–2014 in 4 ecological points of the northern steppe: Sinelnikovska breeding and research station, research farms "Dnepr", Research Institute of Agribusiness, the Company "Mais" and two points in southern steppe of Ukraine: Selection and Genetics Institute – National Center of Seed and Cultivar, Rozovsky research station.

Analysis of linear material that was part of the hybrid competitive test showed that he belonged to 8 heterotic groups, and its number ranged from 36 to 60 pieces. On average for 5 years, to the selection of early ripening hybrids often attracted lines of plasma Lancaster (28,9 %), Reid (23,2 %) and Iodent (22,8 %), which indicates the high potential of heterosis plasmas and new middle version based on later lines.

All competitive test hybrids were three linear, simple and modified, and created sterile on the basis of full recovery of fertility of pollen. All in a competitive trial studied 196 hybrids created 26 heterosis model. Every year in the competitive test were only 3 heterosis models: (Lancaster x Lancaster) x P 354, (Reid x Reid) x P 354 and (Iodent x Reid) x Co 125.

Overall in 3 years of research in the area of the northern steppe of Ukraine the best was heterosis model (Reid x Lancaster) x Mix, hybrids which had an average yield of 6,18 t/ha or 120 % from the standard of early maturing hybrid Dneprovsky 181 SV. With the exception of the genotypes created model (Reid x Reid) x Co 125 other hybrids on the average in the group were more yield than a standard for 0,10–0,83 t/ha, indicating their high potential heterosis and good adaptive capacity.

In 3 years of research in the area of southern steppe of Ukraine the best were two hybrid heterosis model (Reid x Lancaster) x Mix and (Reid x Reid) x Mix that the average yield of grain exceeded the standard Dneprovsky 181 SV 0,32 t/ha.

Based on the latest models created hybrid heterosis DN Pozitiv, which in 2014 transferred to the state sort testing. *– P. – 58–62.*

UDC 633«321»:631.84

Gyrka A. D. The efficiency of fertilizer application in growing technology of spring small grains.

Keywords: *spring barley and wheat, plants growth and development, water consumption, fertilizers, grain quality, crop yield.*

The results of analysis the influence of fertilizers on the characteristics of plants growth, development and productivity formation of spring barley and wheat, the presence of diseases, pests and weeds in their crops are presented. Selected types of fertilizers, which ensure the efficient water consumption of crops and stable implementation of genetic grain yield potential in a wide range of average air temperatures and water conditions of northern Steppe of Ukraine. *– P. 62–67.*

UDC 633.11 «324»: 631.8] (251.1-17)

Hasanova I. I., Semenkova A. S., Nosenko Yu. M. Growth and development of winter wheat plants in the autumn growing season depending on the conditions of mineral nutrition.

Keywords: *winter wheat, variety, mineral nutrition background, biometric indicators, mass of plants.*

The studies was conducted in 2012–2014 in the experimental farm "Dnipro" of Institute of Agriculture of Steppe zone (Dnipropetrovsk region.). We sowed two varieties of winter wheat from different originators: Blagodarka odeska and Zlatoglava.

The technology of growing of winter wheat was common for northern Steppe of Ukraine. As predecessor of winter wheat was barley. By establishment of field studies we made use of the fieldplot technique by B. O. Dospyekhov. In accordance with experimental design we introduce background fertilizer in doses $P_{60}K_{30}$, $N_{30}P_{60}K_{30}$, $N_{60}P_{60}K_{30}$ and $N_{90}P_{60}K_{30}$ under presowing cultivation. The sowing of the winter wheat was made with seeder (SN-16). The area of elementary accounting plot was 35 m^2, replication of test was three-time. At the time of autumn growing season termination we measured the height of plants, counted the number of shoots, nodal roots, leaves on one plant, aboveground plant part dried completely to absolutely dry state.

The aim of studies was to determine the dependence of biometric parameters and mass of plants of varieties Blagodarka odeska and Zlatoglava in connection with background of mineral nutrition in different weather conditions for years.

It is established, that the state of winter wheat plants at the time of termination of the autumn growing season significantly influenced the hydrothermal regime in presowing and postgerminated periods. Among years of studies the most favorable weather conditions was formed in 2012. In 2013 we noted the unstable cool weather in September and early October, but with sufficient reserves of productive moisture in soil both during sowing of winter crops, and in the early stages of growth and development of plants. Arid conditions in 2014 negatively affected the germination of winter wheat in the study after spring barley, were we noted the low storage of the productive moisture in soil. Full-fledged seedlings were received only in early October after intensive rainfall in the middle of the third decade of September, which affected the growth and development of plants.

The greatest plant height of varieties Blagodarka odeska and Zlatoglava at the time of termination of the autumn growing season was in favorable 2012 (respectively 34,3 and 34,9 cm). Because of the cool autumn period of 2013 the plants of winter wheat formed the lower height – respectively 18,7 and 18,9 cm, and in connection with the late seedling emergence this indicator at the end of the growing season in autumn 2014 was at variety Blagodarka odeska 16,6 and in variety Zlatoglava – 16,8 cm properly.

The average number of shoots per plant in 2012 was at variety Blagodarka odeska 3,5 pc., the nodal roots – 5,5 and leaves – 8,1 pc. These figures in 2013 and 2014 were lower – 3,1; 3,6 and 7,3 and 2,7; 5,3 and 5,7 pc. respectively. In the variety Zlatoglava the largest biometric indicators of plants also observed in 2012. Absolutely dry mass of 100 plants at varieties Blagodarka odeska this year amounted to 58,4 g, and at variety Zlatoglava – 60,1 g In 2013 the corresponding indicators were respectively 19,7 and 20,8 g, and in 2014 – 17,5 and 18,0 g.

It was established, that during the study the growth and development of winter wheat plants was largely dependent on presowing fertilization. On average for the 2012–2014 the minimum height, number of shoots, nodal roots, leaves and mass was formed at plants of both varieties in the background, where under presowing cultivation introduced only phosphorus-potassium fertilizers and nitrogen was absent. The highest biometric indicators have been formed on the background of application $N_{60}P_{60}K_{30}$ and $N_{90}P_{60}K_{30}$. In these variants of the study was formed and the largest mass of plants. Thus, at application of $P_{60}K_{30}$ at variety Blagodarka odeska it was 25,2 g, at variety Zlatoglava – 25,7 g. At application of $N_{30}P_{60}K_{30}$ this indicator was respectively 28,6 and 32,1 g, and at application $N_{60}P_{60}K_{30}$ and $N_{90}P_{60}K_{30}$ – 38,3 and 40,5 g, and 42,2 g and 43,9 g respectively. *– P. 67–70.*

UDC 633. 111.«324»: 251.1

Romanenko O. L., Usova N. M., Tsapik T. F. Features of cultivation of different varieties of soft winter wheat in the south Ukraine zone.

Keywords: *cultivar, winter wheat, yield, grain quality, economic efficiency of cultivation.*

During last three years (2011–2013) in the Institute of oilseed crops NAAS was made the environmental testing of 42 varieties of soft winter wheat. They have been evaluated on productivity, winter hardiness and grain quality.

The research results. Due to the research results it should be noted that all varieties of winter wheat had a high frost and winter hardiness. The determination of the viability of winter weat on a 10th day after resumption of vegetation phase showed that 98–100 % of plants and 98–100 % of shoots from the varieties of soft winter wheat were preserved.

The conducted researches allow to recommend the production of new varieties of winter wheat, which is capable of forming a high level of productivity and the best indicators of economic efficiency of cultivation in extreme conditions of grought, which is present almost every year in the south Ukraine.

On average over 3 years the highest productivity and profitability ensured varieties: the Jayvir (yield of 5,29 t/ha and profitability of 118,2 %), the Epoha oddesskaya (5,23 t/ha, 115,5 %), Yermak (5,19 t/ha, 114,2 %), Zorepad (5,12 t/ha, 111,7 %), Blagodarka odesskaya (5,10 t/ha, 110,0 %), Kosovisia (5,10 t/ha, 110,6 %) and others.

When determining the economic efficiency of cultivation of modern varieties of soft winter wheat – the main criterias are: the yield sofgrain, monetary and energy costs per hectare, the cost per unit of production and profit.

Due to the three-year data the greatest profit ability provided varieties of soft winter wheat Jayvir (118,2 %), Epoha odesskaya (115,5 %), Yermak (114,2 %), Zorepad (111,7 %), Turunchuk (110,9 %), Kosovisia (110,6 %), Blagodarka odesskaya (110,0 %), Lastivka odesskaya (108,6 %), Kuyalnik (105,4 %) at a cost 687,6 – 986,3 UAH/t.

Conclusions. Thus, decades of research has shown that the varieties of soft winter wheat reacted differently on the favorable and unfavorable weather conditions. Among the varieties that were tested, the best for the southern Steppe were: the Gayvir, Epoha odesskaya, Zorepad, Turunchuk, Blagodarka odesskaya, Kosovisia, Edinitsy, Kuyalnik, Missiya odesskaya. In the extremely dry 2011/12 year the highest grain yield had formed the following sorts: Edinitsy (of 2,08 t/ha), Yermak (of 2,06 t/ha), Blagodarka odesskaya (2,04 t/ha) and Antonovka (of 2,06 t/ha), which provided good results in favorable years as well. The right choice of varietal composition for the growning of soft winter wheat gives the opportunity to achieve a level of productivity on the fallow 5,50–7,00 t/ha, and increase economic and energy effectivity of the production. This factor has the organizational and economic nature. *– P. 70–76.*

UDC 633.11 «324» (251.1:477)

Cherenkov A. V., Solodushko M. M, Yaroshenko S. S., Zhelyazkov A. I., Pedash A. A., Bondarenko O. V. Influence of predecessors on productivity of different age plant of winter wheat of Steppe zone.

Keywords*: winter wheat, productivity, predecessor, crop yield, sowing time.*

The correct choice of winter wheat predecessor and placing it in the rotation one of the most important factors in increased production of this crop, which should take into account soil and climate, organizational, economic and agronomic conditions. Only scientifically grounded crop rotations may provide good winter wheat predecessors and avoid the mass spread of pests, diseases and contamination of crops with weeds.

The study was conducted at the Plant Breeding Research Station Sinelnikovskoye, Experimental Station "Dnipro" and Research Station Genichesk of the Institute of Agriculture of Steppe zone of NAAS during 2006–2015. Soil of experimental field – ordinary chernozem, lowhumic, heavy loamy.

Conduct comprehensive research to determine the impact predecessors yield of winter wheat in the conditions of Steppe zone showed that the highest level of performance culture in all the years of research provided black fallow.

Thus, the largest grain harvest on a black fallow on average for 2007–2009 years. Was

obtained by sowing winter wheat 30 september 6,42 per/ha. The maximum grain productivity of winter wheat to barley predecessor was obtained in embodiments where sowing was carried out on 20 september – 4,02 per/ha. Shifting cultivation by sowing winter crops after spring barley towards early (September 5th) resulted in lower yields of 10,7 % (3,59 per/ha). By 5 october sowing grain yield decreased even more – by 19,6 % and amounted to 3,23 per/ha.

The analysis of winter wheat yield by years of research showed that the highest yield crops formed in conditions of 2008 year winter wheat yield on black fallow pair ranged from 5,62 per/ha for sowing 5 september to 7,27 per/ha at sowing 30 september. In areas after sunflower range in which the yield varied culture ranged from 3,31 per/ha for sowing 5 september to 4,69 per/ha at sowing on 25 september and after spring barley – from 3,85 to 5,01 per/ha in like sowing. Significantly lower yield because of drought conditions during the formation and ripening of grain, was obtained in 2007, which amounted to a black fallow depending on sowing time of 4,67 per/ha for sowing 5 september to 5,71 per/ha for sowing 30 september. For sowing winter wheat after spring barley and sunflower higher grain yield was obtained at sowing on 25 september, which was respectively 4,11 and 3,44 per/ha.

Experimentally proved that the technology of growing winter wheat predecessor belongs to a leadership position because it affected not only the characteristics of plant growth and development, but also in its subsequent level of grain yield.

The figures show not only yield high performance potential of a black fallow, but also significant opportunities winter wheat predecessors such as peas and spring barley, which significantly increases efficiency and close to the couple for winter crops in favorable years.

In the course of the research were the most productive crops when winter wheat after a black fallow and main precursors of winter wheat: peas, barley and sunflower are sown ravine between the beginning of the third decade of september (20.09) to the middle of the first decade of october (5.10). *– P. 76–80.*

UDC 634.11:663.293:663.1:653

Bandura L. P., Maslikova K. P., Nimenko S. O. Protection of the industrial apple orchard from the green apple aphid in the conditions of steppe Ukraine.

Keywords: *integrated system protection, green apple aphid, pesticides, insecticides, apple variety Idared, apple variety Snow kalvil.*

Considerable damage to the apple plantations in the conditions of ukrainian steppe are applied by the sucking pests. The green apple aphid (Aphis pomi Deg.) is especially dangerous, its harmfulness to the garden becomes quite noticeable in recent time.

There is urgent need at present there to update and supplement materials concerning the biology of this dangerous phytophage in apple orchards and the development of effective methods for reducing its severity. It determined the relevance of the research topic and the feasibility of solving a number of issues in favour of intensive commercial cultivation of apple fruit in Ukraine.

The research was conducted during 2013–2014 in the industrial garden of the farming "Vidrodzhennya" (Dnipropetrovsk region) in conditions of steppe Ukraine.

Analysis of the dynamics of apple tree colonization by green apple aphids showed that aphid population in agrobiocenosis is not constant and varies during the vegetation period, reaching its maximum in August.

The highest aphid population of shoots was registered in August 2013 – 55 colonies and September – 42 colonies per 100 shoots. In 2014 these figures were lower: 41 and 34 colonies accordingly.

Fruit trees are involved in a rapid development during their lifetime. One of the most significant parameters of the fruit tree vegetative growth and their physiological state is an annual increase of shoots. With increasing length of annual shoots consiquently grows a number of leaves that affect photosynthetic productivity, and this, in turn, increases the productivity of apple tree. Therefore, annual shoot growth should be about 25–40 cm in order to obtain high fruit yield.

Leaf area of fruit trees is one of the criteria to ensure high yield in the current year and the fruit buds for the next one. In a highly productive apple plantations the area of leaf cover characterizes the photosynthetic capacity of trees. It should reach sizes of 40–50 thousand m^2/ha or more and maintain at this level during the whole productive period.

It is established that in the presence of aphid colonies area of the leaf blade and therefore the size of the assimilation surface of the tree is reduced.

Yield as the main indicator of the productivity of fruit plantations, largely depends on the population of pests and weather conditions. So, the control productivity level of apple in 2015 was 8,25 t/ha, which is 2.1 times less compared to 2014, In cases where apple trees were infested with green apple aphids, the yield was 2.1–28,7 % lower.

Our research on evaluating the effectiveness of insecticides in regulating populations of green apple aphid demonstrate the feasibility of chemical protection of industrial trees in the garden.

When using chemicals Akhtar 25 WG, Biskaya 240 OD, Calypso 480 SC, konfidor, v. r. k., mospilan, r. p., bi-58 new, k.e. and biological drug vertimek 018 EC, k.e. against green apple aphid in apple industrial garden zenos compared with the control (without insecticide treatments), the yield increase is 21,1 to 24,5 %**.** – *С. 81–85.*

UDC 633.854.78:632.954

Tkalich Yu. I., Tkalich I. D., Bochevar O. V., Rychik S. G. Reaction of sunflower plants to herbicides.

Keywords: sunflower, herbicides, crop yield, seeds, weeds, quality, fat content.

The features of herbicides impact on sunflower plants when processing their adjacent agricultural crops are determined. The level of sensitivity of sunflower plants to a number of herbicides was established, which manifested itself in reducing their productivity by falling the height, flower head size, their productivity. The highest yields decreased at the application dialen super (74,5 %), esteron (63,6 %), banvel (62,6 %) and lintur (51,4 %). When spraying sunflower by lowered dozes (70 %) preparations liumaks, pivot, granstar the crop yield decreased by 8,9–16,0 %, and callisto, 2,4-D – in 26,2–28,3 %. At the forecast of crop yield of sunflower crops which exposed to these herbicides can be based on the data obtained in our experiments.

Experiments were carried out during 2010–2012 in the Institute of Agriculture of the Steppe zone of NAAS of Ukraine. Predecessor – winter wheat. Soil of test sites – ordinary chernozem heavy loamy. The humus content – 4,2 %, gross nitrogen – 0,22, phosphorus – 0,12 %, potassium – 2,6 %. Reaction-soil solution – neutral. Tillage consisted of a double stubbling and plowing on 25–27 cm. Area plots in the experiment – 28 m^2, with three replications.

In a multi-normal 201 mm during the sunflower growing season (may – august) in 2010 fell to 158 mm of rain in 2011 – 161, in 2012 – 211 mm.

Established that treatment with herbicides which recommended for use in crops of cereals, the sunflower in phase of 4-5 pairs of leaves resulted in lower individual plant productivity and crop yield of oilseed even at fall of rain after spraying the crops.

The greatest harm to sunflower in 2010 caused by esteron, lintur, granstar and titus at application after rain. In these variants, the plants died. The rain, which fell immediately after the application of herbicides, probably washed them with leaves and harmfulness of preparations was less. So, after treating by callisto the seed yield compared with the control decreased by 53,1 %, 2,4-D – 60 %, harnes new – 42,9 %, grodil ultra – 47 %, pivot – 22,1 %, granstar – 22,7 %, titus – 4 %.

In 2011 the complete mortality of sunflower plants in variants where herbicides lintur, grodil, granstar, titus, banvel applied at half of doze. When applying another herbicides the plants were damaged to a lesser extent and not all were died. Most have decreased the height, flower head size, seed mass from flower head, its size, and therefore decreased productivity. Thus, when spraying by herbicide callisto the crop yield of seeds per 1 ha decreased by 87,6 %, 2,4-D – for 64,5, esteron – 90,7, harnes new – 4,1, pivot – 78,3, milagro – 23,4, liumaks – for 56,6 %. If the survival of sunflower herbicide has been the reduction in fat content in seeds – obtained for 3,7–8,4 %.

In terms of 2012 the complete mortality of sunflower plants due to spraying herbicides at doze 30 % of the recommended for corn and wheat were not observed. It reduces the height of plants, flower head size, their productivity, resulting in lower crop yields. Its performance decreased to 74,5 % in the processing of crops by dialen super, esteron (for 63,6 %), banvel (62,6 %) and lintur (for 51,4 %). Application the liumaks, pivot, granstar in these dozes resulted in lower crop yields for 8,9–16,0 %, callisto, 2,4-D and roundup – for 26,2–28,3 %. This indicates that accidental contact these herbicides with sunflower in above-mentioned and lower dozes, such crops can not be resown as harvest costs will be repaid with profit, but to solve this question should considering each case.

Due to the decrease in the crop yield of sunflower the usage of above-mentioned herbicides for control the dicotyledonous weeds during the later period of culture vegetation is also inexpedient.

Thus, the obtained data make it possible in some extent to predict the level of influence the herbicides to sunflower and have a basis for resolving the fate of subsequent crops. – *P. 86–91.*

UDC 633.13:631.527

Solodushko V. P. Selection oats: main trends and results.

Keywords*: oat, sort, hibridization, selection, yild capacity, characteristies, drought rezistans.*

The success in the creation of highly productive varieties of oats is largely dependent on the availability of source material selection and effectiveness of the parental forms.

An important issue in the selection of oats in the area of inadequate moisture is to create varieties that would provide sufficient high and stable yield over the years, resistance to lodging, drought and defeat disease. The greatest value sortoobraztsov are those that combine high performance and resistance to adverse growing conditions with wide ecological plasticity.

In the selection process included varieties of oats both foreign and local selection of well-defined performance elements are resistant to lodging, diseases and drought. It samples of various origins, varieties and types of development. When selecting couples for crosses into account the elements of performance, length of growing season of plants, their resistance to drought, disease and crumbling. One of the important areas of plant breeding is to increase the yield of oat grain. The present structure of crops are: grain weight per plant and panicle, the number of ears in panicle, number of seeds in the panicle, weight of 1000 grains. In assessing the oat varieties for resistance to flying planting preferred infectious artificially created backgrounds that enables to detect response genotype. As a result of studying grades sortoispytanija competitive background in infectious diseases sazhkovyh in 2014 found 10,3 % of highly resistant varieties, 82,7,0 % – almost 7,0 % and stable varieties that were poorly responsive to planting. In 2015 11,1 % sortoispytanija competitive varieties were highly resistant, 55,6 % – almost stable and 33,3 % – slightly susceptible to this disease. Moderate susceptible varieties during the study were discovered only in 2013 (15,5 %), highly sensitive – were absent. Sortoobraztsov smut infestation on infectious background in 2013 was 0–23,84 % in 2014 – 0–22,61 % in 2015 – 0–16,3 %.

Study of grades in competitive strain testing showed that the average for the 2013–2015 biennium. 12 separated varieties that yield for corn had significant excess (0,27–0,56 t/ha) over the standard. These varieties differ more productive panicles, more grains in the panicle, grain size, resistance to diseases and are highly drought tolerance and resistance to lodging.

State register of plant varieties in 2015 recommended to the spread in Ukraine 25 varieties of oats, 5 of them created in the DU Institute of Agriculture NAAS steppe zone. This variety Synel´nykivs´kyi 1321 (in the Register of 1994), Spurt (2009), Busol (2010), Sterno (2014) and Iren (2014). Yields recognized varieties that are suitable for distribution in the steppe, steppe and forest zones of Ukraine, to the best predecessor at some sortodilnytsyah reaches 7,5–8,0 t/ha (Spurt, Sterno, Iren). Resistance to lodging, drought, powdery mildew, rust and koronchastoyi smut varieties estimated at 8,9 points. The protein content in varieties is 13–14 %, fat 6,7 %.

Moreover, in 2016 in the Register of plant varieties suitable for dissemination in Ukraine recommended two new varieties of oat seed Musson and Regbi.

Quality oats Muson exceeds the standard for the grain harvest at 0,45 t/ha, drought-resistant, slightly damaged sazhkovymy diseases, powdery mildew and helmintosporozom not damaged. Variety recommended for cultivation in the steppe, and steppe zones of Ukraine Polissya.

Quality oats Regbi exceeds the standard for the grain harvest at 0,47 t/ha, drought-resistant, resistant to drought and cold, with the protein content exceeding the standard of 2,4 %. Variety recommended for cultivation in the steppe and Polissya zones of Ukraine. In 2015 transferred to the State sortoispytanija two varieties of oat Pasat and Malachite that exceed standard on 0,38–0,56 t/ha, resistant to biotic and abiotic factors and indices have improved grain quality.

So, today proposed the Institute of Agriculture steppe zone range of varieties of oats fully meets the requirements of production steppe and forest steppe zones. Under the new seed varieties deployed, which can meet the needs of seeds not only Dnipropetrovsk region, but other regions.

Created new varieties of oats Spurt, Busol, Iren, Sterno, Musson, Regbi indicate significant potential of this crop. And if, according to the conditions of pick up and sort comply growing technology you can receive up to 4,0–6,0 t/ha grain oats. – *P. 91–96.*

UDC 633.15: 632. 3/4

Bazilyeva Yu. S. Features of corn seeds pathogen depending on his condition.

Keywords: *seeds, corn, hybrids, microflora, methods of improving the quality of seeds.*

The development of seed morfobiologichesky accompanied by complex physical and chemical-governmental processes that take place in it since the formation and the onset of full maturity. They describe the features of the transition seeds from one state to another. Under the influence of changing flora and important biochemical and physiological indicators seeds – respiration rate, acidity, similarity, longevity. In turn microflora development largely depends on the seed, especially on the level of damage. It is known that damaged seed vigor breathes rapidly loses nutrients and is not qualitative; there is destabilization of its total mass.

The features of microorganisms on seed corn in the process of harvesting and postharvest handling found the impact of different types of fungi and bacteria on its sowing and yield qualities. The technical and technological measures to improve the quality of seeds on being finalized and preprocessing.

Seed treatment in terms corn plant in selected samples dominated by species of Fusarium, here you can see and isolated colonies of fungi of the genus Penecilium. Among bacteria the predominant bacteria Pseudomonas. Purification and separation of the seed surface microflora characterized by minimal performance. So, embankment seeds fundamental group unit of pathogenic organisms are primarily damaged seeds, which are available on the surface of fungi of the families Penecilium, Aspergilius, Fusarium.

For disinfection of bacterial and fungal diseases, it is advisable to handle damaged seed protectants as one of the most effective measures-tion a reduction of pathogenic organisms. Especially, effective in lesions seed treatment fungal infection that is confirmed by the determination of its similarity laboratory method. According to table in experiments by seed treatment whole seed germination was increased to 1,5–2,0 %, and damaged – by 15,0–16,1 %. However, even such a radical measure does not ensure receipt of certified seeds in the case of its damage during harvesting and moving – laboratory germination was 90 %, with cold test its indicators were lower by 14,0 % and field – 11,1 % compared to the whole. – *P. 96–99.*

UDC 633.174.1:631.527

Sereda V. I. Promising hybrid line of sweet sorghum.

Keywords*: sweet sorghum, sterile analogues, fertile line, coefficient of heritability, productivity, sugar.*

In terms of energy and environmental crisis, one of the most promising crops is sugar sorghum, which is drought-tolerant and salt-tolerant crop. Sweet sorghum – a valuable food, feed and

industrial crops. In drought conditions, grain sorghum significantly superior in yield and yield fodder units 1 hectare traditional crops: barley, corn and peas. In recent years, the area under sorghum in the world increased by 60 % and grain production – by 244 %. However, selection of sorghum as most crops needs to be improved by the selection of parent components and express their previous methods of assessment and evaluation of reliable hybrid lines derived from them. Selection of parent components for crossings and further evaluation of the hybrid descendants important task which stands in front of the breeder. Preliminary test 17 sterile analogues and 4 fertile lines of sweet sorghum allowed to select the best components for the initial parental crosses. A correlation coefficients are shown and the heritability of economically important indicators of plant sweet sorghum. Practically proven that the cultivation of sugar sorghum is profitable economically viable. Grain of sorghum has a high profitability. Under the recommended production technologies and conduct farming activities achieved yield of 4 tons per hectare and above. In modern conditions agricultural production must be based not only on principles of economic efficiency but also on the principles of reducing energy consumption per unit of the resulting product. In our studies, assessment of energy of sugar sorghum cultivation we conducted taking into account indicators such as total energy costs for growing crop exchange energy content in the crop grain and green mass and power factor of growing sorghum. Rated promising hybrid combinations of sweet sorghum A 326 × Karlykove 45, Nizkorosle 81c × Silosne 42 (Kript), DN 71 × Silosne 42 (Phoenix), Kafrske kormove 186 × Silosne 42 (Ananas), which are characterized by improvement morphological, productive and biochemical properties compared to standard Silosne 42. Better hybrid combination of sweet sorghum DN 71 × Karlykove 45 (Phoenix), Kafrske kormove 186 × Silosne 42 (Ananas) transferred to State crop variety testing as new hybrids. – *P. 99–104.*

UDC 633.15:632.954

Kravets S. S. Influence of ground hybrid on germination of seeds of paternal components of middle-early hybrids of corn.

Keywords: *paternal components, field germination, ground herbicide, norm of bringing.*

Sowing areas under corn for last 15 years grew substantially (from 1,0–1,1 millions and to 4,7–4,9 millions hectares.). For paternal components as a rule inbreeding lines and sisterly hybrids has takenwhich themself are underproductive forms, but at crossing between themself they provide the high level of productivity of hybrid. They substantially differ from hybrids by lowering viability, weak height and weak rootage that causes theirlow competitiveness with weeds. Moreover, for receiving of maximal amount of seed on the areas of hybridization it is necessary to use next to mechanical methodsthe chemical methods of controlling of the phitosanitary state of the seminal sowing. However, any herbicide influences both on weeds and on cultural plants.

On this time the facts of different sort reaction of cultural plants on fertilizers, illnesses, factors of environmentcause no doubt. Already the first researches directed on the revealing of selective action of herbicides have proved that there is no single systematic group of plants within its limits allrepresentatives would be identically sensible to herbicides. Moreover, into separate classes, families and kinds their representatives differ on firmness topreparations.

The task of researches was to reveal the reaction of paternal components of meadle-early hybrids of corn Orzhitsa 237MV, Yarovet's 243 MV and Lubava 279 MV on the ground herbicides and norms of their application and also to givethe recommendations on application of the ground herbicides on the areas of hybridization of these hybrids.

Experiments were conducted in 2014–2015 on the fields of State enterprise "Research station "Dnipro" of the Institute of Agriculture of the Steppe zone.

It was investigated such paternal components: ♀ Kros 239M sterile; ♂DK 247MV; ♀ Kros 244M sterile; ♂ DK273MV; ♀ Kros 287M sterile; ♂ DK 276-1MV, SV.

In experience applied such herbicides: harnes (active substance is acetochlor, norm of application: minimum – 2,0 l/ha, maximum – 3,0 l/ha); proponit (active substance is propizochlor, norm of application: min – 2,5 l/ha, max – 3,0 l/ha); dual gold (active substance is c-metachlor, norm of

application: min – 1,0 l/ha; max – 1,6 l/ha); primextra TZ GOLD 500 SC (further – primextra) (active substance is c-metachlor + terbutilazin, norm of application: min – 3,0 l/ha; max – 4,0 l/ha).

Each of the investigated hybridspaternal components revealed the personal specific reaction on preparations at the terms of the investigated years.

If to analysephitotoxicness of herbicides for the years of researches then it is necessary to mark in general in 2014 negative influence of herbicides on the paternal components seeds germination was stronger than in 2015 that caused by weather terms that turned out during sowing and germination of seed. – *P. 105–109.*

UDC 502.4, 502.75, 502.74, 556

Baranovsky B. A., Ivanko I. V., Karmyzov L. A., Chegorka P. T., Demyanov V. V. Landscape and biological diversity of the Botanical reserve «Ravine Zhitlova».

Keywords: *reserve, basin, flora, vegetation, amphibia, reptiles, birds, mammals.*

The Botanical reserve of the local value «Ravine Zhitlova» is located in the Western part Krynichansky district of Dnipropetrovsk region in the basin of river Saksagan and includes parts of the valley landscape «Ravine Zhitlova».

Geomorphological, hydrological landscape, geobotanical and ecological research in the reserve was carried out by standard methods. The reserve according to the physical-geographic zoning included in Pyatihatky gullies-steppe district steppe region of southern spurs of the Dnieper upland, which refers to the right-Bank-Dnieper North-Prairie provinces of the Steppe zone of Ukraine.

The hydrographic network of the reserve consists of a main channel «Ravine Zhitlova» and 20 of the tributaries of I and II orders with a total length of 23,8 km. Flora of the reserve has 394 view. They belong to 3 classes, 76 families. About significant anthropogenic transformant flora indicates the presence of a large number (173) ruderal species, among which 25 adventive. In the flora of the reserve includes 9 species from the Red book of Ukraine and 19 species that are listed in the Red list of Dnepropetrovsk region.

In the reserve the natural steppe vegetation is preserved mainly in the form of separate virgin areas on the slopes of hills and mostly represented by a herb-lipchanami and forb-fescue-lipchanami asiat.

Meadow and meadow-marsh vegetation is represented by complexes associations typical meadow species. The arboreal-shrub vegetation is represented by artificial planting different species composition status and function, as well as fragments of the arboreal-shrub groups of natural origin valley and gullies type, which are formed on slopes and talvega, around the ponds. Artificial plantations are located mainly in the upper third of slopes along the path of the beam and its spurs. The vegetation of the lakes and wooded areas watercourses presents a small number of associations with minor species diversity.

The reserve is allocated enough rich diversity of vertebrate animals. Modern batrachofauna reserve «Ravine Zhitlova» comprises 4 species of amphibians. Modern herpetofauna reserve includes 5 species of reptiles, which belong to two subclasses, 2 series, 2 contracts and 4 families, as well as belonging to 4 ecological groups. Modern ornithofauna of the reserve consists of 141 species. Modern mammalian fauna of the preserve «Ravine Zhitlova» consists of 26 species that relate to 5 rows, ten families and 22 genera.

Establishment of a reserve – a weighty contribution to the formation of the ecological network of Steppe Dnieper. – *P. 109–114.*

UDC 636.036:636.033

Kozir V. S., Khmeleva E. V. Special features of the skins of the bull calves of precocious and long growing meat species.

Keywords: *bull calves, species, age, skin, quality.*

Is carried out the comparative quality coefficient of the skins of the bull calves of precocious Aberdeen-Angus and the longgrowing Charolais meat species. – *P. 115–118.*

UDC 636.4.082.43

Khalak V. I. Criteria of selection of pigs on some integrated indicators and their economic evaluation.

Keywords*: young pigs, own productivity, reproductive ability of sows, BLUP method, estimated index, economic efficiency.*

The objective was to investigate the indicators of self-productivity of gilts and characteristics of reproductive ability of sows, estimated by BLUP and estimated index I, define selection criteria and economic efficiency of their use.

The research was conducted in the conditions of LLC "AF "Dzerzhinets" and "Borisfen" Dnipropetrovsk region (2014–2015). The study involved the repair of gilts and sows that are being checked large white breed.

Assessment of young pigs on their own performance and productivity of sows that are being checked for signs of reproductive ability were performed with the following absolute figures: the age of reaching live weight 100 kg, days backfat thickness at the level of 6–7 thoracic vertebra, mm; thickness of fat on the rump, mm; backfat thickness at the middle point of the back between the withers and the rump, mm; length of body, cm; multiple pregnancy sows, goal; uniformity of the nests of sows with a live weight of piglets on their date of birth, points, weight of the nest on the date of weaning, kg safety, %. Integrated assessment of rearing on the grounds of their own productivity indices was carried out according to Y. V. Lebedev (1985), check the sow – index L. Lasha modification N. D. Berezovsky (1990) and V. I. Khalak (2012). The cost of additional production was determined taking into account the purchase price of a unit of production, under existing prices, which operate in Ukraine, the average productivity of animals, the average overhead of the main products expressed in percent per 1 head in the application of new and improved selection achievement in comparison with animal performance basic use. A constant coefficient of reduction of the outcome associated with additional costs for lucrative products is 0,75. The research results processed by the method of variation statistics according to method N. and Planinskog (1969).

It is established that the specified animal genotype reach live weight of 100 kg for 192,7 ± 0,85 days, backfat thickness at the level of 6–7 thoracic vertebra equal to 22,5 ± 0,28, backfat thickness at the sacrum and 17,7 ± 0,23, backfat thickness at the middle point of the back between the withers and the sacrum to 18,6 ± 0,26 mm, the length of the body - an area of 116,3 ± 0,26 cm, index BLUP (maternal line) – 97,03 ± 1,574. Sows prolificacy that is checked is 10,6 ± 0,16 goal, uniformity of nests of sows with a live weight of piglets on their date of birth – 5,30 ± 0,096 points, the weight of the nests at the date of weaning at the age of 30-35 days to 76,5 ± 0,74 kg, index L. Lasha modification M. D. Berezovsky – 36,93 ± 0,321 points, safety – 90,8 %. The young pigs of class M^+ index BLUP, in comparison with peers of the opposite class M^- was characterized by smaller values of the "age of reaching live weight 100 kg (3,6 days; td = 1,39, P<0,95), "backfat thickness at the level of 6–7 thoracic vertebra" (4,2 mm; td = 4,67, P>0,999), "thickness of fat on the rump" (2,2 mm; td = 3,23, P>0,99), "backfat thickness at the middle point of the back between the withers and the sacrum" (3,0 mm; td = 3,79, P>0,999), "body length" (0,3 cm; td = 0,40, P<0,95). The difference in the multiple pregnancy of sows was 4,3 goal (td = 9,55, P>0,999), mass nests at the date of weaning at the age of 30–35 days is 13,8 kg (td = 5,89, P>0,999), index L. Lasha modification M. D. Berezovsky – 8,37 points (td = 9,34, P>0,999). Maximum rate of survival of piglets to weaning (96,6 %) and the minimum value of the uniformity index of the nest the sow (3,58 ± 0,307 points) were detected in animals of the class vehicles. The sow specified class index BLUP (maternal line) is 69,50 ± 1,617 points, the estimated index I – +1,14 ± 0,290.

It is established that the maximum increase of the products, calculated with respect to sredneoblastnogo the weight of the nests at the date of weaning at the age of 30–35 days (+ obtained from groups of animals whose index BLUP (maternal line) ranged from 110,62 to 165,23, estimated index I – +0,124 +5,539 points.

Conclusions: 1. In terms of breeding farms and specialized farms for the production of commercial pork systematically evaluation of rearing on indicators of their own productivity, sows for signs of reproductive capacity according to the requirements of the guidelines on the evaluation

of the pigs and with the use of integrated indexes – index BLUP evaluation and indices. 2. The criteria for selection of pigs must be considered as absolute indicators of development and productivity and integrated indicators. To leading group of sows should be translated animals whose average bantuannya score ranges from 3,6 to 4,0, which corresponds to the class "elite", and whose index of BLUP (maternal line) ranged from 110,62 to 165,23 (class of distributions M^+), the estimated index I – +0,124 +5,539 score (class of distributions M^+). The use of animals specified classes of distribution index and the BLUP, estimated index I iprovides more products from one head within 129,08 to 131,34 GRN. – *P. 118–124.*

UDC 636.4.082.033

Zeldin V. F., Logvinenko V. I., Zeldin Y. S. The influence of pigs genotype on the growth rate and meat production.

Keywords: *breed, crossbreeding, artificial insemination, evaluation of genotypes, control fattening, meat quality of the carcass.*

The article describes the evaluation of materials boars plempredprijatija of meat and feeding qualities of their offspring obtained from different breeding methods. Evaluation of the genetic potential plempredprijatija boars on fattening and meat quality of their offspring, as one of the parts of a complex estimation of breeding pigs, makes it possible to determine the most effective from the economic point of view, methods of breeding pigs in commercial farms. Efektivnost studied different variants of crossbreeding Large White breed sows with boars Ukrainian Myasna breed Kharkov and Dnepropetrovsk selection, which is installed on the heterosis-effect energii growth – 4 %, according to Myasna quality (tovschina bacon and ham weight), respectively, 12,0 and 6,35 %. The highest meat yield in carcass obtained in the experiment № 3 ($УМ_{ХС}$ x $УМ_{ДС}$). It was found that the highest meat yield in carcass – 57,24 ± 0,130 was obtained experience № 3, when crossed with mares ($УМ_{ХС}$ x $УМ_{ДС}$). The greatest effect of heterosis – 4,00 % in the growth rate of the animals was inherent in the experience № 3.

It was found that only in experiments № 3, 4, 5, which was used genotype UMHS tovschina bacon in the offspring did not exceed 31 mm, which characterizes dannyu grupu Kharkov pigs bred as pronounced Myasna genotype. In all other experiments danogo variability index was within 36,6 ± 0,91 (experiment № 2) – 31,7 ± 1,30 (experiment № 6). The highest rate of mass-thirds of the floor was a carcass in the experience № 4 – 11,8 ± 0,03, and the smallest in the experience № 6 – 10,2 ± 0,30. It is proved that the method of artificial insemination is the most economical form of reproduction of the herd. The dependence of the magnitude and direction of the reliability of the correlations of the method of crossing. The necessity of development of methods of selection grupovogo for local systems of breeding pigs, where the method of artificial insemination is the main form of reproduction of the herd. It is established, scho koefitsienty A correlation between fattening and meat qualities were within 0,1 ± 0,010 (experiment № 4, tovschina bacon – the length of the half-carcasses) – -0,969 ± 0,0130 (experience № 9, age at live weight of 100 kg – average daily gain), which generally indicates the absence of a focused selection process populyatsiyah constructed taking into account existing correlations between traits of animal productivity. – *P. 124–128.*

UDC 636.2:727.2

Cherniavsky S. E., Sokrut A. V. Power supply cattle farms by biogas.

Keywords: *sudan grass green mass of corn, corn silage, manure, biohazohenerator, anaerobic fermentation.*

Recently, more and more attention of scientists and specialists of agricultural sector attracted question of energy production processes through biogas. Biogas – the product of methane fermentation of biomass can be used as natural gas, store, pump, producing electricity from it to use as fuel for internal combustion engines and simultaneously receive fertilizer.

On livestock farms, where energy producing biogas as a raw material mainly used manure of pigs, cattle or poultry manure. However, it is known that productive for biogas production is plant

material. So important is the study of efficient use of substrate for biogas plants from a mixture of raw materials of plant and animal origin in different Spividnoshennya components.

In 2015, based on laboratory animal husbandry Institute of Agriculture steppe zone NAAS we conducted a study on the efficiency of biogas production from substrate raw material is made up of three particles of cattle or pigs, and one share – raw materials of plant origin (Sudan grass green mass of corn or corn silage). Experiment conducted on laboratory biogas plant

Study of pH (pH) during the fermentation substrate showed fluctuations within 6,41–7,63, indicating that a sufficient level of acidity for bacterial methanogens. Obtained the experiment data indicate that more productive in terms of biogas substrate is made up of Sudan grass and manure of animals: 2,54 (first digesters with manure of cattle) and 2,78 m³ (second manure digesters pigs). Was slightly below the figure for raw vegetable component of which was maize green mass, respectively, 2,34 and 2,57 m³. Productivity digesters where the substrate was laid with corn silage manure from cattle and swine livestock was respectively 1,65 and 1,89 m³.

The results of our studies 2011–2015 years defined efficiency substrate for biogas from organic raw materials of plant and animal origin components in different proportions. When calculating the maximum energy system model independent of external energy sources Adopted dairy farm with 200 cows and calves of all ages, with no farmland that uses electrical energy, thermal energy and motor fuel and alternative energy obtained is used in a closed system of production. Not taken into account the costs of energy production and delivery of feed on the farm and their storage, and transportation of finished products (milk, beef cattle and bio).

The estimated demand for energy process dairy farm is 441,5 kg of fuel per day. Due to fluctuations in energy needs, depending on weather and seasonal factors this number should be increased by 30 %, or 132,5 kg (as an insurance fund). The total energy requirement farms is 574 kg of fuel. Scheduled livestock farms (200 cattle and 300 head of young ages) provides a daily output of 18 tons of manure processing which along with corn silage ratio of $^{3}/_{1}$ in the substrate makes it possible to produce 1984,8 m^3 of biogas or 1730,7 kg of fuel on day.

On the basis of the calculations the energy balance of the farm, which takes into account the energy that was used to maintain the anaerobic process in a bioreactor, commodity energy that can be used on the farm and the total energy demand (to replace petroleum products, obtain process heat, receiving electricity).

For the operation biohazoenerhetychnoyi installation (mesophilic regime and maintenance of electrical equipment) cogeneration unit consumes 25 % of the produced biogas (432,7 kg of fuel). It also uses the product biogas to produce process heat and electricity consumed Farm equipment (122 and 30,1 kg of fuel). Diesel fuel in an amount of 324,5 kg of fuel per day, which is necessary for tractors replaced purified biogas.

The calculations showed that the substrate processing manure from cattle and corn silage in the ratio $^{3}/_{1}$ the number of 20 to 100 tons/day provides a total annual income of biogas from 666,5 to 5439,8 thousand. UAH, and the period payback is from 10,1 to 2,2 years.

Defined indicators on research output from biogas substrate ratios in these components of raw materials of vegetable and animal origin may be used in calculating the projected performance of biogas plants for power supply livestock farms. – *P. 128–133.*

UDC 636.2.085:636.2.034

Dymchya G. G., Maystrenko A. N., Petrenko V. I. Conception principles of feeding of highly productive cows in the period of dead trees.

Keywords*: sow, pigs, diet, efficiency, live weight, average daily gains, feed additives.*

In the researches conducted in the agricultural private enterprise "Chumaky", studied the use by the highly productive cows of Holstein cows black-motley breed of energy and protein and communication of them with subsequent milk productivity, reproductive ability and health. Productivity of cows for a previous lactation made a 7–8 thousand kg of milk.

In our experience cows dead trees were contained in technological groups, and for 10–12 days they were translated in the maternity separation. During researches the actual eating up of forages,

their food value, living mass of cows and their condition was determined on a 5-ball scale, it was registered complications at calving, diseases of cows. The actual level of feeding was compared with operating in Ukraine and after its scopes norm.

On the average on 50 cows of consumption of dry matter during a period dead trees made 14,13 ± 0,83 kg for days or 2,11 ± 0,01 kg on 100 kg of living mass, metabolisable energy – 123,84 ± 9,04 MJ raw protein – 1302 ± 148 г. Concentration of energy in 1 kg of dry matter made 8,76 ± 0,17 MJ a 104 ± 8,4 г raw protein.

At middle living mass 671 ± 10,4 kg (696 ± 11,6 in summer and 645 ± 9,0 kg in winter) the standard of cows on a 5-ball scale made 4,09 ± 0,06 ball, in that number in a summer period 4,44 ± 0,08 and in a winter-stall – 3,84 ± 0,05 ball. During a period dead trees living mass of cows rose on 0,5–0,7 kg for days, mainly due to growth of fruit and concomitant structures. The standard of cows here did not change substantially. That, the level of power and protein feed of cows in a period dead trees on the whole was moderate and answered the physiology state of animals (provided the necessities of animals in support a body and development of fruit without the substantial laying of fatty supplies in the body of cows).

When stating the level feeding cows were calving without complications. It is set 8 % of cases of disease at the measles of organs of recreation and 4 % of cases of disease by mastitis. Calves were ill the easy form of dyspepsia in 6 % of cases. After calving living mass of cows on the average for the 1-month of lactation diminished to 595 ± 13,5 kg at a standard 3,47 ± 0,11 ball. Hopes for 100 days of lactation made 3261 ± 128 kg with maintenance of fat of 3,88 ± 0,27 % and the squirrel 3,32 ± 0,28 %. Service-period at a measles made 92 ± 17,7 days. The average daily increases of calves for 3 months made 992 ± 24 г.

Actual consumption by the cows of forages (in the dry matter) was near to all noted norms. The amount of actually used to energy and protein felt strongly considerably less about the Nozdryn (on 34,09 % after energy and on 94,32 % – after protein) norms, but more large as compared to the norms of Institute of stock-raising, 1995 (on 19,63 % after energy and on 31,65 % – after protein) that NRC, 2001 (after energy on 24,47 %). Obviously, that contradiction of different norms testifies to imperfection them in relation to feeding of highly productive cows in a period dead trees or specificity of feeding under various conditions.

Consequently, the level of power and protein feed of highly productive cows reduced against the operating norms of feeding in a period dead trees did not influence negatively on a health and productivity of cows and issue.

In communication with foregoing one, we recommend the specified parameters of feeding of highly productive cows in period dead trees. In the period of dead trees consumption of dry matter of rations and concentration at her are the key elements of the improved norms of feeding of cows, above all things, energy and protein, and also other nutritive. The indexes of fissionable and unfissionable in a deck-house protein, neutral detergent fiber and acid detergent fiber cellulose, selenium are entered, the A vitamin. On the whole, feeding of cows during a period dead trees must be moderate without some communication with future milk productivity and expected only in support the body of cow, development of fruit and moderate laying in a body (at a standard below 3 ball). – *P. 134–138.*

UDC 636.4.085.5

Maystrenko A. N., Dymchya G. G. Influence of improved balancing of feed additives on the productivity of sows.

Keywords*: sow, pigs, diet, efficiency, live weight, average daily gains, feed additives.*

Many farms in Ukraine there is a steady trend of production and use as a feed grain low-protein crops. Therefore, the compound feeds is steadily decreasing share of high-protein ingredients. As a result of this approach, the cost of feed per unit of production in the domestic pig twice from the generally accepted norms or 3–4 times higher than in developed European countries. Reduce feed consumption that increase their efficiency can be achieved, firstly, the use of high-quality fodder and properly prepare them for feeding; secondly, by making use of the best recipes of feed

for the respective age groups of pigs, thirdly, the selection of the optimal mode of feeding and technology.

As the practice, due to soil and climatic conditions of the steppe zone of Ukraine, range forage in kind can not fully meet the needs of animals in the whole complex of nutrients.

Therefore one of the conditions for efficient use of feed is the application of protein-vitamin-mineral supplements that contain the necessary energy and biologically active substances that eliminate their deficiency in diets and act as a catalyst (accelerator) of metabolic processes in the body. Rational use of feeding sows can significantly increase the rate of digestion of that food nutrient absorption, increasing productivity and safety of the animals.

Protein-vitamin and mineral feed additives – a supplement to the diet that regulate the amount and ratio of nutrients in it that provide high productivity of farm animals. Their formulation is rich in protein feed of plant and animal origin – legumes, meal, fish, meat and bone and herbal flour and yeast, synthetic amino acids, vitamins, minerals, therapeutic and preventive agents, enzyme preparations, antioxidants that other biologically active substances. They contribute to the stabilization of the bacterial microflora of the digestive tract of pigs, providing a high level of digestion and metabolism in general, depending on the species, age and physiological state of animals that increase resistance to infectious factors as improper.

Use of available feed grain group as a full-fledged animal feed with the introduction to their composition premixes and protein-vitamin-mineral supplement is the most effective way to improve animal productivity that reduce the cost of grain forage at 12–15 %. However, the current standard recipes for premixes and feed additives to optimize the diets did not fully compensate for the shortage of power supply components of proteins, amino acids, vitamins, macro – and micronutrients. Under these conditions, there is a particularly acute problem of balancing the development of feed additives based on the actual chemical composition of the feed, the age, body weight of animals, productivity, physiological state is the destination. When using the balancing of feed additives on the original recipes in the experimental group were born piglets 13,67 % more than the average live weight of more than their counterparts in the control group by 11,9 %. The difference in live weight at birth, the nest was 37,13 kg, or 33,51 % in favor of the experimental group. Body weight and daily gain of piglets of the experimental group in the first month of life increased by 23,7 %. *– P. 138–143.*

UDC 636.082.43/09

Khalak V. I., Chegorka P. T. Pig-breeding of Pridnieperovie in the late XIX – the early XX century.

Keywords: *pigs, Ekaterinoslav province, breed, infectious.*

Material for writing the article was the archive materials: collections of decrees Ekaterinoslav province Zemstvo, reports on veterinary-sanitary condition of the province, reports, surveys on the status of livestock, catalogue of the South-Russian regional agricultural and artisanal industrial exhibition. At the time the pig wore almost exclusively for home consumption. The number of pigs in Ekaterinoslav province was in 1883–1916 g 252,9–595,3 thousand chapters. During this period the population increased by 2,32 times. The maximum number of livestock in Alexander district.

On the number live-stock significantly influenced epizootics and yield of crops. Species composition of local pigs was not varied. In Verhnedneprovsk district in 1911 there were two factory Yorkshire breed with 15 boars 112 females and one plant Berkshires breed with 4 grunts and 90 females. The ratio of breed boars to mongrel was in 1911 – 1:40. Breeds of pigs were sub-mitted to the Berkshires, Yorkshire, Tamborlane, Craaazyy.

With the growth of industrial development of the region, the construction of the railway, the formation of large settlements, growth of urban population categories of workers pigs start to take industrial character. With great zeal and success bred pigs of the German colonists for their own needs and for sale.

This marked increase in the number of pigs in the towns of the province. Most progress livestock, including pigs, little in privately owned farms. It is in these households passed appro-

bation of new breeds, advanced technologies of keeping and feeding. About pig diseases: according to the "Report on the state veterinary parts" prevailed among the diseases of bacillary erysipelas, swine fever, centimeter, tuberculosis, hookworm infestation. The most common was bacillary face, which caused large-scale epizootics and brought significant damage.

Great attention to the development of animal husbandry paid provincial Board. In the period 1896–1911 he was made specially 4 of the Ordinance that dealt with veterinary care, the organization of vaccination, providing manufacturers and the like.

Significant impetus to the development of all branches of agriculture, including livestock, gave South-Russian regional agricultural industrial and handicraft exhibition, which was held in Ekaterinoslav in 1910. – *P. 143–147.*

UDC 636.52/.58:619:616.995.1

Marshalkina T. V., Bila N. V., Yashcuk O. V. The development of complex treatment of chickens against ectopa-rasites of mixed etiology.

Keywords: *helminthisms, nematodosiss, cestodosis, mixed invasion, antihelmintics, extenseffectiveness, chickens.*

Before veterinary science a task stands on development of the modern effective systems of the integrated defence of poultry from endoparasites with the purpose of making healthy of poultry farming economies from mixed helminthic invasions. Our work is devoted to researches of determination of efficiency of complex application of antihelmintic substances at mixed nematode-cestodes invasion of chickens.

Determination of antihelmintic efficiency of medicinal substances at the mixed helminthisms was conducted in laboratory conditions on the laying chickens-hens spontaneously infested by nematodes and cestodes, namely, ascarids, capillaries and raillietins. To compare the effectiveness of medicinal substances and the best dehelmintization effect was selected anthelmintic preparation known broad spectrum of action benzimidazoles group – albendazole 10 %. Poultry of the first experimental group was given levamisole 10 % with water at 20 mg of O. S. (operating substance) for 1 kg body weight singly, on the third day of the experiment poultry was given fenbendazole at 15 mg O. S. for 1 kg of body weight singly. Livestock of the second experimental group was given albendazole 10 % according to the instructions for use. Poultry of the third group (control) did not receive preparations. After giving medications investigated droppings from all birds for the presence of worms, as well as its contamination eggs of parasitic worms. Evaluating the effectiveness of dehelminthization was determined disposable copraovomicroscopic examinations inspection of poultry experimental and control groups at 7, 10 and 15 days. Three weeks after the use medicinal preparations was conducted full helminthological autopsies birds.

According to the results the experiments of the extenseffectiveness of proposed method of application of preparations against mixed infectation in the first group was 100 % in the 7th day of experiment already. The comparative estimation of efficiency of received results gives reason to consider that the proposed method of complex application of antihelmintic substances at the mixed nematode-cestodes invasion is high-effective and presents an alternative to the traditional method of treatment of invasion that expressed in the protracted application for poultry of antihelmintic. – *P. 147–150.*