

**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
БІЛОЦЕРКІВСЬКИЙ НАЦІОНАЛЬНИЙ АГРАРНИЙ УНІВЕРСИТЕТ
ДНУ «ІНСТИТУТ МОДЕРНІЗАЦІЇ ЗМІСТУ ОСВІТИ»
СЛОВАЦЬКИЙ УНІВЕРСИТЕТ СІЛЬСЬКОГО
ГОСПОДАРСТВА (СЛОВАЦЬКА РЕСПУБЛІКА)
ЧЕСЬКИЙ УНІВЕРСИТЕТ ПРИРОДНИЧИХ НАУК (ЧЕХІЯ)
ПОМОРСЬКА АКАДЕМІЯ В СЛУПСЬКУ (ПОЛЬЩА)**



Міжнародна науково-практична конференція

**АГРАРНА ОСВІТА ТА НАУКА:
ДОСЯГНЕННЯ, РОЛЬ, ФАКТОРИ РОСТУ**

Сучасний розвиток ветеринарної медицини

14 вересня 2026 року

**Біла Церква
2026**

УДК 636.09'06

РЕДАКЦІЙНА КОЛЕГІЯ:

Шуст О.А., д-р екон. наук, ректор.

Варченко О.М., д-р екон. наук.

Скиба В.В., д-р с.-г. наук.

Димань Т.М., д-р с.-г. наук.

Краютієне І., д-р філософії.

Мамедова К.Х., д-р філософії.

Царенко Т.М., канд. вет. наук.

Козій Н.В., канд. вет. наук.

Василенко О.І., д-р філософії.

Мостипан О.В., відповідальний секретар.

Відповідальна за випуск – **Мостипан О.В.**, начальник редакційно-видавничого відділу.

Сучасний розвиток ветеринарної медицини: матеріали міжнародної науково-практичної конференції. 14 вересня 2026 р. Білоцерківський НАУ. 108 с.

Збірник підготовлено за авторською редакцією доповідей учасників конференції без літературного редагування. Відповідальність за зміст поданих матеріалів та точність наведених даних несуть автори.

©БНАУ

8. EFSA & ECDC. Antimicrobial resistance surveillance in humans and food-producing animals. 2025.
9. EFSA. Antimicrobial resistance and the food production environment: sources and control options. 2021.
10. EFSA. Prolonged multi-country outbreak of *Listeria monocytogenes* ST173 linked to consumption of fish products. 2024. DOI:10.2903/sp.efsa.2024.EN-8885.
11. European Commission. Comparison table: Fishery products intended for human consumption – Ukraine/EU requirements. 2021.

UDC 619:616.9:579.8:636.2

RUBLENKO I.O., doctor of veterinary sciences

Bila Tserkva National Agrarian University, Bila Tserkva, Ukraine

ZHOVNIR O.M., candidate of veterinary sciences

Institute of Veterinary Medicine of the National Academy of Agrarian Sciences of Ukraine, Kyiv, Ukraine

CHEMEROVSKA I.O., PhD

Bila Tserkva National Agrarian University, Bila Tserkva, Ukraine

Cattle represent an important reservoir and source of dissemination of a wide range of bacterial pathogens capable of causing diseases in animals, contaminating food products, and posing potential risks to human health.

Keywords: cattle, pathogenic bacteria, anaerobes, *Clostridium*, *Fusobacterium necrophorum*, necrobacteriosis, antimicrobial resistance, bacteriological diagnostics, One Health, biosafety.

РУБЛЕНКО І.О., д-р вет. наук

Білоцерківський національний аграрний університет, м. Біла Церква, Україна

ЖОВНІР О. М., канд. вет. наук,

Інститут ветеринарної медицини Національної академії аграрних наук України, м. Київ, Україна

ЧЕМЕРОВСЬКА І.О., д-р філософії

Білоцерківський національний аграрний університет, м. Біла Церква, Україна

ПОШИРЕННЯ ПАТОГЕННИХ БАКТЕРІЙ У ВЕЛИКОЇ РОГАТОЇ ХУДОБИ: ОСОБЛИВА РОЛЬ АНАЕРОБНОЇ МІКРОФЛОРИ

Велика рогата худоба є важливим резервуаром і джерелом поширення широкого спектра бактеріальних патогенів, здатних спричиняти захворювання у тварин, контамінувати харчові продукти та створювати потенційні ризики для здоров'я людини.

Ключові слова: велика рогата худоба, патогенні бактерії, анаероби, *Clostridium*, *Fusobacterium necrophorum*, некробактеріоз, антибіотикорезистентність, бактеріологічна діагностика, One Health, біобезпека.

Among bacterial agents, anaerobic microorganisms occupy a particularly important position, although they have long been underrepresented in routine bacteriological monitoring systems. Unlike many aerobic and facultatively anaerobic bacteria, their isolation requires proper collection of pathological material, rapid transportation under oxygen-free conditions, and the use of specific cultivation conditions.

For cattle, representatives of the genera *Clostridium*, *Fusobacterium*, *Prevotella*, *Porphyromonas*, *Bacteroides*, and *Dichelobacter* are of particular epizootiological and veterinary importance. In particular, *Fusobacterium necrophorum* is associated with necrobacteriosis, necrotic lesions of the limbs, liver abscesses, metritis, and other pathological processes, whereas clostridia are etiological agents of enterotoxemia, myonecrosis, and other severe diseases. WOAH includes a number of these microorganisms among important cattle pathogens relevant to veterinary medicine and antimicrobial use [1–6].

Particular attention was paid to pathogenic anaerobes isolated from clinically diseased and asymptomatic animals, as well as from pathological material, milk, feces, gastrointestinal contents, tissues, and lesions of the limbs. The possibilities of cultural, biochemical, and molecular identification were analyzed.

The microbiota of cattle represents a complex ecosystem in which anaerobic bacteria play a

fundamental role. However, there is a fundamental distinction between the physiological presence of microorganisms and their pathogenic activity. Some anaerobic bacteria are components of the normal microbiota; however, disruption of tissue barrier function, changes in the diet, trauma, immunodeficiency, or unfavorable husbandry conditions may promote their transition to an opportunistic or pathogenic state.

Clostridia are of particular importance. Spores of *Clostridium spp.* are highly resistant to adverse environmental conditions and may persist for prolonged periods in soil, feed, and the farm environment. Under anaerobic conditions, spores germinate into vegetative cells capable of producing potent toxins. Consequently, clostridial infections in cattle may have an acute course, high case fatality rates, and substantial economic consequences.

Among the most important clostridia affecting cattle are *Clostridium perfringens*, *C. chauvoei*, *C. novyi*, and other species. *C. perfringens* is associated with enterotoxemia and wound infections, whereas *C. chauvoei* is the causative agent of blackleg, characterized by necrosis of muscle tissue, severe toxemia, and high mortality. *C. novyi* type B is associated with necrotic liver lesions, whereas type D is associated with bacillary hemoglobinuria.

Fusobacterium necrophorum is also of major importance. This Gram-negative, obligately anaerobic bacterium is one of the key pathogens associated with bovine necrobacteriosis. The disease may manifest as interdigital lesions, lameness, tissue necrosis, liver abscesses, metritis, and other purulent-necrotic processes. The pathogenesis of infection is determined by the combined effects of the microorganism, tissue condition, and environmental factors.

When lesions of the limbs in cattle are examined, the anaerobic microbiota may consist not of a single species but of microbial associations. In addition to *F. necrophorum*, *Porphyromonas levii* and *Prevotella intermedia* have been implicated. This is of fundamental importance for diagnosis, as isolation of a single microorganism does not always reflect the complete structure of the pathological microbial community.

The problem is further complicated by the fact that conventional bacteriological examination of anaerobes is methodologically more challenging than the examination of aerobic bacteria. Oxygen may inhibit or completely prevent the growth of obligate anaerobes; therefore, improper sampling or transportation under conventional conditions may result in false-negative findings. Modern approaches include the use of anaerobic transport systems, specialized culture media, anaerobic jars or chambers, and gas-generating systems. The additional application of MALDI-TOF MS and molecular methods substantially expands the possibilities for species-level identification.

The issue of anaerobic bacteria is particularly relevant in the context of antimicrobial resistance (AMR). Prolonged or inappropriate use of antimicrobial agents in livestock production creates selective pressure that favors resistant bacterial variants, which may subsequently circulate among animals, the environment, and humans. Resistance to commonly used antimicrobial agents remains a significant concern among bacteria circulating in animals and humans, and effective AMR control requires a One Health approach.

In this context, anaerobic bacteria should be considered not only as direct causative agents of cattle diseases but also as components of the microbial ecosystem of livestock farms. Potential sources and routes of circulation include soil, water, feed, manure, bedding, equipment, animals, and farm personnel.

An important component of the One Health approach is the relationship between cattle health and food safety. Animal diseases may contribute to the contamination of milk, meat, and other food products. At the same time, not every cattle pathogen poses a direct zoonotic risk. Therefore, animal pathogens, zoonotic bacteria, and indicator microorganisms should be clearly distinguished, avoiding the assumption that detection of a microorganism in an animal necessarily demonstrates transmission to humans.

Modern molecular methods provide opportunities to substantially improve the efficiency of such monitoring. PCR and real-time PCR can be used for rapid detection of specific virulence-associated genes, whereas metagenomic approaches enable characterization of microbial community structure and simultaneous detection of potentially pathogenic microorganisms. Nevertheless, culture-based examination remains essential for obtaining viable isolates, their phenotypic characterization, and antimicrobial susceptibility testing.

Conclusions. Pathogenic bacteria of cattle comprise a broad spectrum of aerobic, facultatively

anaerobic, and obligately anaerobic microorganisms. Among the latter, *Clostridium spp.*, *Fusobacterium necrophorum*, *Prevotella spp.*, *Porphyromonas spp.*, and other anaerobes capable of causing severe purulent-necrotic, enterotoxigenic, and systemic diseases are of particular veterinary importance.

The limited attention given to anaerobic pathogens may be associated not only with their actual lower detection frequency but also with methodological difficulties related to the collection, transportation, and cultivation of pathological material. Therefore, an integrated diagnostic approach combining classical bacteriological methods with MALDI-TOF MS and molecular technologies is warranted.

REFERENCES

1. World Organisation for Animal Health (WOAH). Report of the Meeting of the WOAH Working Group on Antimicrobial Resistance. October 2024. List of major pathogens and diseases affecting bovine animals commonly treated with antimicrobials. 2025. <https://www.woah.org/app/uploads/2025/10/20250909-amrwg-report-sept-en.pdf>
2. Van Metre D.C. Pathogenesis and Treatment of Bovine Foot Rot. Veterinary Clinics of North America: Food Animal Practice. 2017, 33(2), P. 183–194. DOI: 10.1016/j.cvfa.2017.02.003.
3. EFSA, ECDC. Antimicrobial resistance surveillance in humans and animals: bacteria resistant to key antimicrobials still routinely found in humans and animals. 2025. <https://www.ecdc.europa.eu/en/news-events/joint-efsa-ecdc-eu-report-bacteria-resistant-key-antimicrobials-still-routinely-found>
4. World Organisation for Animal Health. Animal Diseases. WOAH. 2026. <https://www.woah.org/en/document/the-state-of-the-worlds-animal-health-2026/>
5. World Organisation for Animal Health. Paratuberculosis. WOAH Terrestrial Code and Manual. 2026. <https://www.woah.org/en/what-we-do/standards/codes-and-manuals/>

Секція 3. СУЧАСНІ АСПЕКТИ РЕПРОДУКТОЛОГІЇ ТВАРИН

УДК 636.2.082.454:618.

ОРДІН Ю.М., канд. вет. наук, ЄРОШЕНКО О.В., канд. вет. наук, ІВАСЕНКО Б.П., канд. вет. наук

Білоцерківський національний аграрний університет

ЗАПЛІДНЕНІСТЬ КОРІВ ЗА РІЗНОГО ВМІСТУ В КРОВІ ЕСТРАДІОЛУ ТА ПРОГЕСТЕРОНУ ПРИ СИНХРОНІЗАЦІЇ ЕСТРУСУ

З'ясовано, що найбільш сприятливими для запліднення корів з синхронізованим еструсом слід вважати наявність в крові під час осіменіння естрадіолу 0,152–0,241 нмоль/л, прогестерону від 1,7 до 4,6 нмоль/л і П:Е співвідношення 19:1 та менше.

Ключові слова: корови, естрадіол, прогестерон, синхронізація еструсу, штучне осіменіння, заплідненість.

ORDIN Yu.M., candidate of veterinary sciences, EROSHENKO O.V., candidate of veterinary sciences, IVASENKO B.P., candidate of veterinary sciences
Bila Tserkva National Agrarian University

FERTILIZATION OF COWS WITH DIFFERENT BLOOD CONTENT OF ESTRADIOL AND PROGESTERONE DURING ESTRUS SYNCHRONIZATION

It was found that the most favorable for fertilization of cows with synchronized estrus should be the presence of estradiol 0.152–0.241 nmol/l, progesterone from 1.7 to 4.6 nmol/l and progesterone-estradiol ratio of 21:1 and less in the blood during insemination.

Keywords: cows, estradiol, progesterone, estrus synchronization, artificial insemination, fertilization.

На основі поглибленого вивчення змін, що відбуваються під час прояву ознак стадії еструсу та їх зв'язку з ознаками його феномену овуляції, науковими експериментаторами запропоновано для використання цілий ряд прийомів вибору оптимального часу осіменіння корів. Проте, в умовах сучасного виробництва поза оптимальним часом осіменяється від 22 до 56 % тварин [1]; крім того, варто зазначити, повторно – від 7 до 9 % тільних [2].