1. **MULTIPHAGE** was developed to protect vegetable crops from diseases in open field conditions. It improves quality of vegetables and increases harvests by over 10%. Biological efficiency of biopreparation against angular leaf spot of cucumbers exceeds 55%.

2. **BACTAVEN** controls a complex of pathogens infecting oats to derive ecologically safe food grain. It is effective in suppressing root rots (59.9%) and leaf brown spot (26.3%), raising thereby grain yield by 2.3-3.0 c/ha.

3. **BACTOSOL** - biological preparation to suppress progress of fungal and bacterial pathogens in the course of potato vegetation and storage (late blight, anthracnose, black scab, dry rot, black leg). Bactosol application enables to inhibit spread of potato infection by 60-80% and to preserve 92-93% of harvest.

4. **BETAPROTECTIN** is designed to control several pathologies, like clamp rot, common scab, fusarial and brown rot in root tubers of table and sugar beet, carrot in the course of storage and vegetation; to curb grey rot, Penicillium mould and fusarial wilt in bulbiferous floral cultures; to protect conifers from Diplodia attack. Biological efficiency to withstand clamp rot infection in sugar beet treated during vegetation period ranges from 41 to 60%, for beet sprayed in storage piles the coefficient is 59-69%, whereas for table beet the respective values constitute 36-45% and 76%, for carrot counter-disease efficiency in vegetation season equals 27% and rises considerably to 76% in case of winter clamp rot exposure. Biocontrol effect against diseases of bulbiferous floral cultures ranges from 54 to 55%. Betaprotectin totally suppresses Diplodia infection of pine (99%). Biological treatment restrains progress and distribution of pathologies and allows to produce top-quality non-contaminated planting material.

5. **BACITURIN** is intended for biological control of pests, like Colorado beetle, spider mite, aphid, carrot leaf flea, cabbage and turnip white butterfly and moth, attacking a spectrum of vegetable crops: potatoes, carrot, cucumbers, tomatoes, cabbage, melons. It is also effective against leaf-eating insects damaging oak forests with inclusions of other deciduous species. Biological efficiency of Baciturin in suppressing activity of spider mite is 79-100%, Colorado beetle - 85-94%, carrot leaf flea, cabbage butterfly and moth - 77-86%, melon aphid - 60-80%. The product is eco-safe and not toxic for mammals, fowl and honey bees.

6. **XANTREL** - bioinsecticide for comprehensive protection of potato and vegetable cultivars from microbial infection and pest invasion. The product displays insecticidal and antimicrobial properties. Xantrel application slows down development of infectious diseases in potatoes and vegetables by 85-90% and reduces pest population by 85-95%. It allows to save 60-90 centners of potato tubers and 120-135 centners of cabbage per each hectare.

7. **PHYTOPROTECTIN** is designed to protect vegetable crops in open field and in greenhouse from several fungal and bacterial pathologies (bacterial black and soft rot, Alternaria blight, leaf brown spot, gray rot, fusarial wilt, root rots, seed pathogens), and to protect coniferous trees from Diplodia infection. It decreases infection rate by 30-60%, increases productivity by 20-30%, stimulates seed germination and plant development. Phytoprotectin is eco-friendly and not toxic.

8. **FRUITIN** - effective preparation to protect apple-trees and other fruit cultivars from microbial diseases (apple scab, bacterial canker of apple, pear, cherry, plum trees, European canker, gray rot of berry plantations); bulbiferous floral cultures (lily, gladiolus) from fusarial wilt, gray rot and *Penicillium* mould; arboreous cultures (maple, chestnut) from black and brown leaf spot; coniferous trees from Diplodia infection. It promotes healing canker lesions in apple-trees by 46-52%, inhibits spread of scab on leaves 3-fold, on fruits – 22-fold which ensures output of prime-grade products (83%). Efficiency of Fruitin application to control pathologies of bulbiferous plants ranges from 55 to 58%, reaches 81-91% against fungal and bacterial pathogens in municipal green plantations and 99% against Diplodia infection of conifers.

9. **ECOGREEN** is designed to control pathologies of vegetable and green spice crops in low-volume hydroponic culture. Ecogreen is efficient against gray and root rot of cucumbers and root rots of green spice crops. Ecogreen application allows to reduce gray rot lesions of cucumbers by 49-64%, spread of disease by 27-63%, progress of infection by 18-31%, to increase overall weight of vegetables by 10%.

10. **ECOSAD** action is aimed at control of various fungal diseases of fruits and orchards: Alternaria and Penicillium fruit rots, grey mould, brown fruit rot. Triple biopesticide treatment raises the yield of top-grade fruits by 11-12.5% and reduces rot-induced harvest losses by 8.7-10.9%.
11. **POLYBACT** – complex biopreparation restoring soil microbial cenoses raising harvests of cultivars and upgrading soil fertility. Extent of stubble mineralization exceeds 3.7 times the control parameters, increasing thereby grain yields by 10 – 20%. Polybact application results in reduced doses of chemical pesticides and mineral fertilizers, increased output of eco-safe agroproducts at minimal costs, economic effect reaches 50-70 US dollars per hectare.

12. **AGROMYC** – intended for pre-sowing treatment of seeds and vegetating triticale plants to increase crop productivity and resistance to adverse environmental conditions. Microbial fertilizer AgroMyc intensifies biological nitrogen fixation, raises harvests and improves quality of crop products, partially replaces mineral nitrogen and phosphorus fertilizers. It increases grain yields by 17%.

13. **BACTOPIN** – for pre-sowing treatment of seeds and vegetating conifers to promote growth, raise yields of standard planting stock and to save expense of mineral fertilizers. Survival rate of conifer seedlings is enhanced 1.7 times as compared to the control, average height of plants is increased by 10%.

14. **BIOLINUM** - complex microbial fertilizer for nitrogen fixation, phosphate mobilization, increasing productivity and quality of flax long fiber variety. Microbial fertilizer Biolinum is designed for pre-sowing treatment of long fiber flax seeds. It promotes productivity of flax straw by 10%, seeds by 9.4%, reduces doses of applied nitrogen and phosphorus fertilizers by 10 and 20 kg per hectare, respectively.

15. **GORDEBAC** - liquid and peat-based microbial preparation intended to raise productivity of brewing barley and other grain crops by pre-sowing treatment of seeds and vegetating plants resulting in higher yields of eco-safe grain (5-10%) with decreased protein content at lower doses of applied mineral fertilizers. Gordebac application is equivalent to extra supply of 15-20% mineral nitrogen and phosphorus per hectare.

16. **MACLOR** – designed to treat root system of microclonal seedlings, vegetating plants of genus *Vaccinium* and soil. It enhances adaptation potential and vitality of microclonal slips leading to 100% yield of germinated plantlets.

17. **POLYFUNCUR** – applied to stimulate growth and increase harvests of tilled cultures, to upgrade quality of agroproducts. It replaces supply of nitrogen mineral fertilizers and reduces doses of introduced organic fertilizers, raises productivity of potato tubers (up to 32%) with elevated starch content (14%); the harvests of maize green mass (41%) with increased crude protein level (17%) sugar, beet yields (up to 41 centners/ hectare) with high sugar percentage (18%).

18. **RHIZOBACTERIN** – biopreparation intended to raise productivity of grain crops (barley, wheat, rye, oats). It promotes harvests by 12-18%, improves nitrogen uptake by plants, enables to reduce doses of applied mineral nitrogen fertilizers by 20-30 kg/ha.

19. **RHIZOPHOS** (*brands Galega, Alfalfa, Clover*) - microbial preparation is aimed at increasing productivity of perennial leguminous grasses (Galega orientalis, alfalfa, clover) by pre-sowing treatment of seeds and introduction into furrows. It is a partial alternative to chemical nitrogen and phosphorus fertilizers. Rhizophos promotes crop uptake of N and P nutrients, raises harvests by 20-25%, substitutes mineral fertilizers by 15-30%.

20. **SOYARHIZ** - is applied in soya cultivation technology to increase its productivity. It intensifies biological nitrogen fixation, reduces dosage of mineral nitrogen fertilizers, increases harvests, improves characteristics of soya grain and green mass. Soyarhiz guarantees rise in soya seed yield up to 35%.

21. **PHYTOSTIMOPHOS** – biopreparation to raise productivity of grain, legume and vegetable crops by pre-sowing treatment of seeds and nutrition of vegetating plants. It stimulates seed germination, improves phosphorus uptake, enables to replace partially (15-20%) mineral phosphorus fertilizers and increases average yields by 20%. Rhizobacterin+Phytostimophos combination efficiently replaces both mineral N and P fertilizers.

A hectare portion of microbial fertilizers is 200 ml.
22. BACTOMAST purpose – prevention and treatment of cow mastitis. Treatment of animal mamillae with Bactomast decreases total bacterial insemination (2.4 – 4.8 times), lowers the populations of staphylococci (3.1 – 3.9 times) and enterobacteria (15 - fold), drops 1.5- 2.7 times the amount of somatic cells. Bactomast shows considerable prophylactic and therapeutic effect in curing subclinical manifestations of mastites.

23. BILAVET, BILAVET-C - probiotics manufactured in liquid and dry form are based on lacto- and bifidobacteria and intended for prevention and treatment of gastrointestinal diseases, recovery of normal gut microflora of farm stock and poultry. They make an alternative to fodder antibiotics, reduce incidence of pathologies in young farm animals by 40-45%, enhance survival of reared animals and shorten duration of diseases by 3-4 days. Prophylactic-therapeutic efficiency secured by unique properties of bacteria ranges from 80 to 100%.

24. BACINIL, BACINIL-K - prophylactic-therapeutic agents aimed at correction of gastrointestinal microbial cenoses and stimulation of immune response in sick cattle and poultry. Active principle - bacteria Bacillus subtilis. Preparations show a broad spectrum of antagonistic activity against strict and opportunistic pathogenic microorganisms, reduce rate of enteritis cases by 25-30%, shorten twice duration of pathology, increase live weight increment by 15-20%.

25. VETOSPORIN - microbial veterinary product for prevention and treatment of purulent necrotic skin lesions in farm stock. It displays a broad spectrum of action against pathogenic microorganisms, promotes rapid wound healing, restores limb functions 8 days earlier as compared to the control.

26. CORDYCEHOL – feed supplement to stimulate growth and development of farm stock, to raise antioxidant activity, native resistance and immunobiological reactivity of young organism. Biological properties of Cordycehol are determined by a complex of bioactive constituents: polysaccharides, nucleoside derivatives, antioxidants, essential aminoacids, unsaturated fatty acids, phospholipids, vitamins, micro- and macroelements.

27. CRYPTOLIFE, CRYPTOLIFE-C – bioactive feed additive. The product normalizes composition of gut biocenosis and digestion processes, prevents progress of gastrointestinal diseases, promotes nutrient assimilation and cuts fodder expense by 1.3 – 6.8%, enhances productivity of farm stock and poultry by 3.7 – 14.7%, upgrades microbiological parameters of meat.

28. LIPOCAR – lipocarotenoid feed premix for poultry farms showing immune-stimulating, antioxidant, antistress and detoxifying action and enriching products of aviculture (eggs, meat) with carotenoids. Introduction of Lipocar into the rations of laying hens spurs up egg productivity by 8.3% and unit egg weight by 8%. Carotenoid ratio in the yolks is enlarged by 37-67% vitamin A level rises in the range 18 to 62%.

29. MYCORMPLUS – fodder product added into the rations of cattle youngsters. It stimulates normal function of digestive system resulting in enhanced (0.2 – 1.7 %) assimilation of nutrients and activation of fiber metabolism (by 10.2 %). MycormPlus addition facilitates extra average daily weight gains (6.6 %) while saving fodder input by 10.7 % and minimizing production costs by 4.8 %.

30. PROXYFERON – feed probiotic for prevention and treatment of immune deficiency and infectious diseases of poultry in commercial aviculture. It causes favorable effect on fowl humoral immunity, promotes weight gains of broilers by 12.5 %, egg-laying capacity of hens and carotene content in yolks.

31. SYNVET – symbiotic for prophylaxis and therapy of intestinal infections (enterites, diarrhea of bacterial origin, intoxications, etc.), for recovery of normal gut microflora in farm stock and poultry following antibiotic treatment or digestive disfunction, for correction and prevention of immune failures, for maintenance of normal gastrointestinal microbiota under eco-stressful conditions.

Syvet fed to calves enables to lessen thrice the frequency of pathologies, to decrease 7-fold calf mortality rate and to cut disease duration by 3.7 days. Syvet inclusion into the diet of broiler chicken intensifies build-up of body mass by 6.8 %, curtails unit feed consumption per 1 kg of live weight increment by 2.8 % and guarantees 96.8 % head survival rate.

32. SPOROBACT, SPOROBACT-K - complex bacterial probiotic to enhance biological digestibility of fodder, to recover gastrointestinal microbial cenoses, to correct immune status and activate metabolic processes in cattle and fowl younglings. Sporobact is based on spores, cells and antimicrobial metabolites of Bacillus bacteria.

33. ENATIN - microbial disinfectant intended for sanitation of stock barns and prevention of infectious diseases in farm animals. Enatin active principle – spores and antimicrobial metabolites of

BIOPREPARATIONS FOR ANIMAL HUSBANDRY
bacteria *Bacillus pumilus*. It guarantees control of titer of sanitary –indicative microbiota (coliform and staphylococcal-streptococcal groups): - in air of test sections – by 87-100% and 68-84%, respectively; - on the floor and wall surface – by 81-95% and 63-97%, respectively. Enatin blocks contamination of farm stock with gut infections and respiratory pathologies. It increases survival rate of young animals by 20-30%. Stock evacuation is not obligatory during disinfection procedure.

**BIOCONSERVATING AGENTS**

34. **LACSIL-M, LACSIL-MC** - biopreparations for ensiling plant materials, including hardly fermentable feedstock (legume-cereal grass mixtures, cereal grasses, maize). Lacsil and Lacsil-M basis is consortium of lactic acid bacteria. They allow to enrich silage with biologically active substances, limit losses of nutrients in ensiled mass, reduce by 20% unit fodder expenses, increase daily weight gains by 9-12% and productivity of lactating animals by 5-10%.

**BIOPREPARATIONS FOR COMMERCIAL FISH FARMS**

35. **BIOVIR** – complex composition for decontamination and remediation of fish ponds and water bodies. It brings down the load of biogenic elements (mineral phosphorus, nitrate and ammonium nitrogen) twice, reduces populations of blue-green algae 5-7 fold, phytoplankton – 3 fold. It provides for accelerated (1.5 times) decomposition of organic matter (reflected in BOD values) in organic and mineral pollutants as compared to the control ponds.

36. **EMILIN** – probiotic for prevention and treatment of bacterial diseases in carp fish species. Emilin application as ingredient of complex fodder or bath therapy formulas secures: drastic fall of fish internal contamination with pathogenic microbiota from 80-100% to trace levels; stimulation of native (non-specific) resistance of carp organisms, increased fish vitality and ability to endure stress in winter season – spring survival rate reaches 97%, fish mass increment averages 10%.

**BIOPREPARATIONS FOR ENVIRONMENTAL PROTECTION**

37. **ANTOIL** – microbial product promoting remediation of wastewaters polluted with lipid compounds. Antoil action is based on microbial ability to utilize fats, oils and petroleum products as sources of nutrition, 100% decontamination is completed by 48 hat concentration of the pollutants 0.5 g/l, by 80 h at 8 g/l concentration.

38. **CLEANBAC** - microbial preparation to intensify decontamination of farming and municipal effluents at biological purification units. Cleanbac is distinguished by a broad application spectrum: industrial, utility service sector, agriculture, household. Efficiency of wastewater detoxication reaches 90% in BOD.

39. **DEAMMON** – serves to accelerate recovery of municipal sewage and agricultural effluents contaminated with ammonium nitrogen. Efficiency of wastewater treatment reaches 85-92%.

40. **TEAMINE** – promotes degradation of triethylamine and dimethylethylamine in effluents and absorption solutions of biochemical decontamination units. Complete disposal of triethylamine and dimethylethylamine in 120 mg/l concentration is achieved by 24 h in case of intense aeration. Teamine microbial components ensure full recovery of wastewaters and absorption solutions ruling out appearance of residual or derived pollutants.

41. **RHODOBEL-T** - microbial preparation designed for decontamination and reclamation of soil polluted with crude oil and its processing products. Rhodobel-T combines degrading, absorbing and remediating action. Rhodobel-T application guarantees recovery of oil-polluted soil sites within 5 months during spring-summer season, detoxification of soil with contamination load under 10 kg/m².

42. **RHODOBEL-TH** – biosorption agent for recovery of soil and water exposed to pollution with crude oil and refining products. It concentrates degrading, absorbing and recultivating capacity. In 2 months Rhodobel-TH secures 96.6% remediation of soil containing spilled petroleum products in concentrations exceeding 100-fold maximum permissible levels.

43. **ECOBEL** - microbial preparation designed to eliminate emergency oil spills in soil and water. Ecobel application guarantees decontamination of oil-polluted (up to 10 kg/m²) soil and water sites within 3 months during spring-summer season.