OTS: 60-11, 745

JPRS: 2806

12 June 1960

SOVIET ABSTRACTS
BIOLOGY

SECTION J - SOIL SCIENCE
SECTION L - MEADOW CULTIVATION
Book No 19, 1958

Abstracts 86684 thru 86931

Distributed by:

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Price: $1.00

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JPRS: 2806
CSO: R-2449-N/J,L

SELECTED TRANSLATIONS OF ABSTRACTS IN REFERATIVNYY ZHURNAL - BIOLOGIYA, No. 19, 1958

This report consists of complete translations of the Russian-language abstracts of articles, which were originally published in the Sino-Soviet bloc and in Yugoslavia.

The subject classification system used in the Russian-language abstracts has been followed in this publication.

USSR/Soil Science. - General Problems. J

Abs Zh. : Ref Zhur Biol., No 19, 1958, 86684

Author : Gulyakin, I.V., Yudintseva, Ye. V.

Inst : Timiryazev Agricultural Academy

Title : Plant Uptake of Radioactive Fission Products and the Soil's Biological Purification from Them

Orig Pub : Izv. Timiryazevsk. s.-kh. akad., 1957, No 3, 81-109

Abstract : The plant uptake, distribution in the separate organs and accumulation in the crop of Sr^{90} Y^{90}, Ru^{106} Rh^{106}, Cs^{137}, Ce^{144}, Pr^{144}, Y^{91}, Zn^{95} Nb^{95}, Co^{60} and a mixture of β and γ-emitters containing the majority of the indicated radioisotopes were studied in vegetation experiments with wheat, peas, oats and kidney beans in aqueous cultures. It was deminstrated that with placement of 0.25 microcutie of each radioisotope per 1 vessel (5.5 liters)

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a negative effect on the plant was not observed and the plant yield was almost undiminished. The fission products were taken up by the plant rather intensively and accumulated in large quantity in the above-ground organs. Cs^{137} and Sr^{90} were taken up from the solution more intensively and accumulated in aerial organs in greater quantity than other radioisotopes. The major part of the radioisotopes concentrated in the plant vegetative organs; Cs^{137} and Sr^{90} absolutely and relatively more than other isotopes accumulated in the reproductive organs. As the planta age, the absolute quantity of isotopes in the above-ground organs is increased, but their content is diminished per unit of dry substance. The uptake of Sr^{90} and Cs^{137} in plants of oats, peas, clover and timothy grass was studied in vegetation experiments in soil cultures. It was determined that Sr^{90} was taken up from the soil into the plant a great deal more intensively than Cs^{137}. Plants can to a

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Abs Jour : Ref Zhur Biol., No 19, 1958, 86684

certain extent purify the soil of the Sr radioisotopes it contains; besides, the lighter the soil is in mechanical composition, the more Sr^{90} is extracted from it by the plants. Sr^{137} /Cs^{137}?/ is strongly sorbed by the soil and feebly taken up by the plant; biological means of purifying the soil of it cannot, therefore, be considered applicable. -- B.P. Pleshkov

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USSR/Soil Science - General Problems. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86686

Author : Akimtsev, V.V.
Inst : -
Title : Soils and Diseases.

Orig Pub : Pochvovedeniye, 1957, No 7, 91-98

Abstract : Avitaminous, scorbutic diseases and the absence of local foci of parasitic diseases are characteristic of the tundra zone typified by the prevalence of low-yield, often abiotic soils. In the truf-podzol zone distinguished by development of intensely washed acid podzolic soils, diseases are often connected with the deficiency in the food of mineral elements (osteoporosis, anemia, goiter), anthrax, fungal diseases (eczema, actinomycosis), specific swelling of feet (trench foot). Conditions in the chernozem zone are most favorable for growing basic wheat crops and the existance of organisms. Manifested here only episodically are

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Abs Jour : Ref Zhur Biol., No 19 1958, 86686

certain southern avitaminoses (pellagra) and diseases transmitted by certain digging animals of the steppe (tularemia). The formation in the organism of an excess alkali reserve, salt deposits, are often observed among people in the brown-chestnut zone. In the irrigated districts of the sierozem soil zone are found parasitic and infectious diseases (helminthiosis, Pendinski ulcer, Draculuncus melitensis, amebic disentery, pappataci fiver). Widely prevalent in the subtropical and tropical zones are both endemic as well as infectious diseases: goiter, avitaminosis, poisoning (by manioc), specific helminthioses, yellow fiver, epidermic diseases (trichosporosis, framboesia). The joint work done by soil scientists and oncologist in the Rostovskaya Oblast' gives grounds to suppose that cancerous gastric diseases are connected with a deficiency of magnesium in the soils. -- V.V. Akimtsev

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USSR/Soil Science - General Problems J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86687

Author : Zonn, S.V.
Inst : -
Title : Brief Review of the Results of Forty Years Work in Forest Soil Science.

Orig Pub : Pochvovedeniye, 1957, No 10, 16-32

Abstract : The author begins a literary survey of the question with an evaluation of the works of V.V. Dokuchayev, G.N. Vysotskiy, A.A. Izmail'skiy and G.F. Morozov in the development of forest soil science. After the October Revolution, the study of the forest-plant properties of soils was developed on a large scale and acquired a systematic nature. The chief problems were: (1) forest cultivation in the steppe zone for the purpose of crought control; (2) reforestation and raising forest productivity in the forest-steppe and forest zones. Forest soil research during the past

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40 years had the object of clarifying: (1) the effect soil conditions had on the growth and productivity of forests and forest plantations; (2) changes of soils under the influence of forest vegetation. The question of the dependence of forest growth and productivity on soil conditions was investigated by B.D. Zaytsev, N.N. Stepanov, S.A. Kovrigin, A.A. Rode, I.V. Tyurin, N.P. Remesom, S.V. Zonn, A.Ya. Orlov, N.V. Dylis, P.B. Vipper, V.N. Min and others. The accumulated data make it possible by scientifically-grounded forestation and forest reclamation methods to modify the forest-vegetation properties of soils and, besides, the productivity and effectiveness of forest plantings. -- B.D. Zaytsev

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USSR/Soil Science - General Problems. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86688

Author : Volobuyev, V.R.

Inst : Academy of Sciences Azerbaydzhan SSR

Title : Computation of Energy Consumption in Soil Formation.

Orig Pub : Dokl. AN AzerbSSR, 1958, 14, No 3, 231-234

Abstract : Biological phenomena in the soil are closely connected with the processes of evaporation and transpiration. In the tundra and in deserts the heat consumption in evaporation from the soil and transpiration amounts to less than 3000 - 5000 cal. cm^2/ year. The highest values of heat consumption in total evaporation reaches upwards of 65,000 cal. cm^2/ year in humid tropical conditions. From 96 to 99.5% of the total sum of the soil formation energy is consumed in evaporation and transpiration.

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Abs Jour : Ref Zhur Biol., No 19, 1958, 86688

In the majority of cases ~ 1% may be attributed to biological processes, only tenths and hundredths of a percent of the total energy of soil formation to the processes of erosion.

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BULGARIA/Soil Science - General Problems. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86689

Author : Stranskiy, Ivan

Inst : Soil Institute, Bulgarian AS

Title : Bulgarian Folk Names of Soils According to Various Indicators.

Orig Pub : Izv. Pochv. in-t/B"lg. AN, 1957, 4, 307-409

Abstract : No abstract.

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J

USSR/Soil Science - General Problems.

Abs Jour : Ref Zhur Biol., No 19, 1958, 86690

Author : Butozova, O.V., Chekalova, M.I.

Inst : Central Museum of Soil Science, AS USSR

Title : Exhibition of Agricultural Districting and Reclamation of Lands in Various Zones of USSR

Orig Pub : Sb. rabot Tsentr. muzeya pochvoved. AN SSSR, 1957, vyp. 2, 11-26

Abstract : No abstract.

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J

USSR/Soil Science. - Soil Genesis and Geography.

Abs Jour : Ref Zhur Biol., No 19, 1958, 86694

Author : Rode, A.A.
Inst : -
Title : Problem of Organizing Work on the Nomenclature, Systematics and Classification of Soils (Discussion).

Orig Pub : Pochvovedeniye, 1957, No 9, 89-95

Abstract : The state of operational organization in the systematics, nomenclature and classification of soils is examined. Great disagreement in understanding one and the same terms reigns in the field of nomenclature. It is proposed that a glossary of terms be created that must be made a part of an explanatory dictionary in soil science as a whole. In order to improve soil diagnosis and make it more objective, it is essential that analytical data and various quantitative indices be utilized more widely and systematically.

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USSR/Soil Science - Soil Genesis and Geography. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86694

Data on thermal, water and other conditions must also be used for soil diagnosis, as cases are frequent where soils that are very close to one another in their "stable" features differ very intensely in their conditions (for instance, chernozems and meadow-chernozem soils). It is proposed that a single standard set of analyses and standard method of taking samples and analyzing them be worked out for each soil type, so that fully comparable findings be obtained. For the same purpose, the proposal is made that one also work out standard forms of cards for recording analytical data, standard symbols for graphic expression of these data and a standard graphic "rating" [Russ. "passport"] of the soil. The existing system of symbols for designating soil horizons (A,B,C) is obsolete, in the author's opinion, and must be replaced by a new system designed on a rational principle. It is necessary to work out a method for characterizing such soil features as

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USSR/Soil Science - Genesis and Geography of Soil. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86694

have heretofore been characterized only morphologically - for instance, to characterize the degree of the soil's gleying-ness. Views are expressed on the more expedient ways to organize all the proposed work. -- A.A. Rode.

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USSR/Soil Science - Soil Genesis and Geography. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86695

Author : Pershina, M.N.

Inst : Moscow Agricultural Academy im. K.A. Timiryazev

Title : Classification of Chestnut Soils. Report 2.

Orig Pub : Dokl. Mosk. s.-kh. akad. im. K.A. Timiryazeva, 1957, vyp. 31, 247-251

Abstract : The chestnut soils are isolated as a direct and original manifestation of the steppe soil formation process, as the transition of certain soils into the type of chestnuts within the zone and as the transition of subzone soils into the chestnut type owing ot changes in climatic conditions. -- E.A. Kornblyum

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USSR/Soil Science - Soil Genesis and Geography. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86696

Author : Kolesov, N.A.

Inst : Tomsk University

Title : Genesis and Classification of Soloths and Solodized Soils

Orig Pub : Tr. Tomskogo un-ta, 1957, 140, 17-25

Abstract : Solodized soils that develop on crests, plains and small depressions, are distinguished from the Solodized soils of traps by the absence of the whitish horizon A_2. A diagram is given of the development of the solonchak-solonet-soloth soil cpmplex and a classification of soloths. It is proposed that soils be divided according to the thickness of the eluvial-accumulative horizon, the correlation of the turf and solodized horizons, the content of humus in the turf horizon and by the degree of bog formation in the

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Abs Jour : Ref Zhur Biol., No 19, 1958, 86696

soil profile gleying.
Bibliography contains 16 titles. -- V.S. Muratova

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BULGARIA/Soil Science - Soil Genesis and Geography. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86703

Author : Daneva, M., Savov, I.
Inst : -
Title : Achievements of Soil Science in Bulgaria.

Orig Pub : Geografiya (B"lg.), 1957, No 10, 22-23

Abstract : A brief review of the work in compiling the soil map of Bulgaria on a 1:200,000 scale.

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POLAND/Soil Science - Soil Genesis and Geography. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86704

Author : Adamchuk, Jerzy
Inst :
Title : On Soil Classification

Orig Pub : Przegl. geod., 1958, 14, No 1, 15-16

Abstract : No abstract.

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USSR/Soil Science - Soil Genesis and Geography. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86706

Author : Solovey, I.N.

Inst : Belorussian Science Research Institute of Melioration and Water Management

Title : Botanical Soil Characteristics of the Orekhovskiy Moss Marshland

Orig Pub : Tr. Belorussk. n.-i. in-ta melior. i vodn. kh-va, 1956, 7, 265-274

Abstract : Peat-marsh soils of the lowland and upland types occupy the territory of the Orekhovskiy Moss swamp (Minskaya Oblast'). The low land soils occupy 3,500 hectares. Birch groves and hypnum moss predominate here. The peat-marsh soils develop on sedge-wood and sedge-reed peats underlain by much loams. The total ash content of the peat

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Abs Jour : Ref Zhur Biol., No 19, 1958, 86706

is 10 to 13%. The soil contains 2.77% N, 1.92% Ca and also K and P. In layers at the bottom, deposits of carbonate sapropel characterize the peat-marsh soils under pine-mixed-grass associations. The degree of peat decomposition is 30 to 35%. The ash content of soils in sedges is 8.5 to 11%, the degree of peat decomposition is 30 to 50%. The peat-march soils of the upland type are distinguished by peat thickness of up to 10 meters. At the top occurs sphagnums and sedge-sphagnum peat with 16 to 15% degree of decomposition and 2 to 3% ash content. The cottonsedae-sphagnum peat occurring lower has a degree of decomposition reaching 35% and an ash content to 3.4%. The sedge-hypnum peat which occurs in sandy grounds, has a thickness reaching 2.5 meters, degree of decomposition 20 to 30% and ash content reaching 6.48%. In the top layers of upland type soil, the P content is 0.03% in an absolute dry weighed batch. -- S.A. Nikitin

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USSR/Soil Science - Soil Genesis and Geography. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86707

Author : Netrebin, I.M.

Inst : Moscow Agriculture Academy im. K.A. Timiryazev

Title : Provincial Characteristics of Southern Chernozems in the Central Part of Steppe Crimea

Orig Pub : Dokl. Mosk. s.-kh. akad. im. K.A. Timiryazeva, 1957, vyp. 29, 281-286

Abstract : In the Crimea the southern chernozems have specific characteristics associated with the presence here of vertical zonation and the predominance of xerophytic forms in the plant cover. As compared with the southern chernozems of other districts, the chernozems are distinguished by a lowered humus content and unfavorable physical water properties. -- M.D. Rudakov

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USSR/Soil Science - Soil Genesis and Geography. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86708

Author : Bykova, N.V.

Inst : Moscow Agriculture Academy im. K.A. Timiryazev

Title : Soils of the Amu-Dar'ya River Lowland.

Orig Pub : Dokl. Mosk. s.-kh. akad. im. K.A. Timiryazeva, 1957, vyp. 29, 276-280

Abstract : The dindings are given of an investigation of the Amu-Dar'ya lowland by the "Agrolesoproyekta" (Agricultural Forestation Project) of the Ministry of Agriculture in 1951-1953. The soil cover of the territory described is represented by alluvial-meadow flood-plain (tugay) soils, meadow light, meadow desert, desert grey-brown, takyr-like irrigated saline and non-saline soils and solonchaks. The data are examined of determinations of the humus

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Abs Jour : Ref Zhur Biol, No 19, 1958, 86708

content in the soils, of water-soluble salts and the mechanical composition of the soils. -- M.D. Rudakov

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USSR/Soil Science - Soil Genesis and Geography. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86709

Author : Zenin, A.A.

Inst : Moscow Agriculture Academy im. K.A. Timiryazev

Title : Soils of the Northern Part of the Ural River Left Bank in Western Kazakhstanskaya Oblast.

Orig Pub : Dokl. Mosk. s.-kh. akad. im. K.A. Timiryazeva, 1957, vyp. 29, 257-261

Abstract : Arable virgin and long-lain lands were located in 1954-1955 in the Western Kazakhstanskaya Oblast'. Field investigations embraced an area of more than 1,000,000 hectares. The soil cover of the Ural Riber's left bank is represented by dark-chestnut and chestnut soils with varied degree of solonetz quality. Certain agrochemical soil properties are cited. When putting the dark-chestnut average-solonetz

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Abs Jour : Ref Zhur Biol., No 19, 1958, 86709

soils under grain crop cultuvation, treatment with gypsum, loosening of their alluvial horizon to 30 - 35 cm. depth are recommended. It is expedient in meadow-pasture crop ratations to utilize the intensely-solonetz varieties of soil. If measures are taken for the accumulation and retention of moisture in the soils, comparatively stable crops of grain can be grown on the chestnut soils of the territory described. -- M.D. Rudakov

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USSR/Soil Science - Soil Genesis and Geography. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86710

Author : Taruntayeva, A.A.

Inst : Moscow Agric. Acad. im. K.A. Timiryazev

Title : Development of the Soil-Formation Process in Genetic Horizons of Turf-Podzolic Soil, Transferred to the Surface

Orig Pub : Dokl. Mosk. s.-kh. akad. im. K.A. Timiryazeva, 1957, vyp. 31, 191-195

Abstract : Certain indicators of the development of the soil-formation process (volumetric and specific weight, porosity, moisture capacity, firmness of structure) are cited. Observations were made in the course of 17 years on land plots both with fertilizer and without in the "Dibrovitsa" Sovkhoz of Moskowshaya Oblast.

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USSR/Soil Science - Soil Genesis and Geography. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86711

Author : Kolesov, N.A.

Inst : Omsk Agric. Inst.

Title : Properties of Soloths.

Orig Pub : Tr. Omskogo s.-kh. in-ta, 1957, No 1, 191-208

Abstract : In western Siberia soloths are encountered in a complex with Solodized soils on crests, with chernozems on elevated plains and with solonetz soils in various depressions. Development of the turf process brings about a considerable rise in the fertility of these soils. When plowing the soloths under grain crops, it is essential to take into account which soloth horizons are involved in the tilled layer. In the turf horizon, nitrogen fertilizer is effective in the first year, and phosphorous fertilizers in the

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Abs Jour : Ref Zhur Biol., No 19, 1958, 86711

next year. With the involvement of horizons A_2 and B in the tillage layer, double (NP) and triple(NPK) fertilizer are effective. Application of manure is essential when briging soloths into cultivation. The physical-water and chemical properties of soloths are examined and their approximate classification given. -- V.A. Molodtsov

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USSR/Soil Science - Soil Genesis and Geography. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86712

Author : Popazov, D.I.

Inst : Moscow Agric. Acad. im. K.A. Timiryazev

Title : Certain Data on the Chemical Composition of Manganese Iron Concretions of Turf-Podzolic and Solodized Soils

Orig Pub : Dokl. Mosk. s.-kh. akad. im. K.A. Timiryazeva, 1957, vyp. 29, 208-213

Abstract : Data are given on the chemical composition of samples of ortstein grains of turf-podzolic soils of Moskovskaya Oblast' and bean plants of soloths of the Western Kazakhstanskaya and Stalingradskaya Oblasts. These new formations consist chiefly of SiO_2, Fe_2O_3, Al_2O_3, Mn_2O_3. The sum of these substances forms 95 to 98% of the gross composition. Medium reactions in new formations are weakly acid.

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USSR/Soil Sciences - Spil Genesis and Geography. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86712

The homogeneity of the composition of the new formations is also confirmed by the findings of determinations of their organic substance and N contents. -- V.A. Molodtsov

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USSR/Soil Science - Soil Genesis and Geography. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86713

Author : Aderikhin, M.G.

Inst : Natural Science Society at Voronezh University

Title : Solodized Soils of Voronezhskaya Oblast' and Their Utilization in Agriculture.

Orig Pub : Byul. O-va yestestvoispyt. pri Voronezhskom un-te, 1956, 10, 107-116

Abstract : The solodized soils in Voronezhskaya Oblast' are sporadically encountered in a complex with chernozems. In outcrops of tertiary clays, the solodized soils were formed as a result of colloidochemical processes in the system: solonchak - solonetz - soloth. The genesis of solodized soils on th e slopes of ravines and valley uplands is connected with mineralized ground water issuing out on an ancient surface as

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Abs Jour : Ref Zhur Biol., No 19, 1958, 86713

a consequence of the territory's general partition. The solodized soils of closed depressions and river valleys occurred as a result of the activity of surface and ground waters. The formation of solonetz soils as a result of a change in the plant formations on the oblast territory is rarely met. The physical-chemical properties of the soils and the characteristics of their agricultural use are examined. -- P.V. Shramko

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USSR/Soil Science - Soil Genesis and Geography. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86714

Author : Poddubnyy, N.N.

Inst : Moscow Agric. Acad. im. K.A. Timiryazev

Title : Salinity of Soils of Kellerovskiy Rayon of Kokchetavskaya Oblast

Orig Pub : Dokl. Mosk. s.-kh. akad. im. K.A. Timiryazeva, 1957, vyp. 31, 241-246

Abstract : Ordinary average and thin chernozems are most prevalent in the territory of Kellerovskiy Rayon. The bottom part of the soil profile is saline. At a 15-meter depth in these soils, the content of water-soluble salts even reaches 0.8%. The chlorides, sulfates and bicarbonates of Na, K, Ca predominate. The content of exchangeable Na is from 5 - 10 to 15 - 17%, of Mg from 11 - 13 to 30 - 40% of the

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Abs Jour : Ref Zhur Biol., No 19, 1958, 86714

sum of absorbed bases. Solonetz and soloth soils are met in spots occupying 7 to 10%. The physical-water properties of the soils are examined. -- E.A. Kornblyum.

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USSR/Soil Science - Soil Genesis and Geography. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86715

Author : Pershina, M.N.

Inst : Moscow Agric. Acad. im. K.A. Timiryazev

Title : Basic Features of Soil-Formation Conditions in the Zone of the Dry Steppes of the European Part of USSR

Orig Pub : Dokl. Mosk. s.-kh. akad. im. K.A. Timiryzeva, 1957, vyp. 31, 181-185

Abstract : No abstract.

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USSR/Soil Science - Soil Genesis and Geography. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86717

Author : Lavrov, A.P.

Inst : AS Turkmen SSR

Title : Proluvial Deposits of the Mountain-Foothill Plain of Western Kopet-Dag and Their Connection with Soil Formation

Orig Pub : Izv. AN Turkm. SSR, 1957, No 1, 46-60

Abstract : The plain's soil cover is marked by considerable heterogeneity. Prevalant here are alluvial, typical and lichenic takyrs. Sierozem soils are encountered in elevated sections of sandy loam-loam deposits. The most ancient formations are grey-brown solonetz and solonchak soils on skeletal-fine grained deposits. Small spots of meadow soils, takyr and crust solonchaks are also found. The

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characteristics of the soil distribution are described.
-- F.I. Sherbak

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USSR/Soil Science - Soil Genesis and Geography. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86720

Author : Bakhareva, A.
Inst : -
Title : Simple and Improved Drafting of Soil Maps.

Orig Pub : s. kh. Sibiri, 1958, No 3, 28-29

Abstract : No abstract.

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RUMANIA/Soil Science - Soil Genesis and Geography. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86721

Author : Spirescu, M.
Inst : -
Title : Soil Investigations in Baragan District, West of Valea Jegalia (Rumanian Peoples Republic)

Orig Pub : Dari seama sedint. Com. geol. RPR, 1954, Vol. 41, Bucuresti, 1957, 175-180

Abstract : No abstract.

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RUMANIA/Soil Science - Soil Genesis and Geography. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86722

Author : Oancea, C., Deleanu, A. & Birsan, A.
Inst : -
Title : Soil Investigations in the Valan-Novaci-Cimpul Mare and Targul-Jiu Regions (Subcarpathian Olten Depression Rumanian Peoples Republic)

Orig Pub : Dari seama sedint. Com. geol. RPR, 1954, Vol 41, Buciresti, 1957, 115-121

Abstract : No abstract.

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USSR/Soil Science - Physical and Chemical Properties of Soil. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86726

Author : Bursova, A.I.

Inst : All-Union Forest Engineering Correspondence Institute

Title : Physical Properties of Soils of Spruce Groves and Their Modification under the Influence of Certain Management Measures.

Orig Pub : Tr. Vses. zaochn. lesotekhn. in-ta, 1956, No 2, 247-260

Abstract : The dindings are given of determinations of the aggregate composition, general, capillary and non-capillary porosity, volumetric and specific weight of the solid phase of podzol soils under various types of spruce forest in Leningradskaya Oblast. Complex spruce and spruce-oxalic woods have more favorable soil conditions than spruce-bilberry and longmoss woods. Structural fragments form 5 - 3 and 3 - 1

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mm, which form 62.56% in horizon A_1, predominate in the upper horizons of the turf-weakly podzolic soil of the maple-spruce wood. Sets of 1 - 0.25 mm predominate in horizon A_1 of the peat-strongly podzolic gleyey soil of the spruce-long moss woods. Described are experiments to determine the effect of selective group cutting of spruce groves on the physical properties of soils, on introducing deciduous species in a timber stand of spruce-bilberry groves, and on cultivating the soils of spruce-bilberry groves and soil reclamation with subsequent clear cutting. -- E.S. Graf.

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USSR/Soil Science - Physical and Chemical Properties of Soil J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86728

Author : Markovskiy, A.G., Ponomareva, V.A.
Inst : -
Title : Group Composition of Soil Particles less than 0.01 mm and Its Value in Soil Absorption of Phosphoric Acid.

Orig Pub : Pochvoveniya, 1955, No 8, 49-60

Abstract : No abstract.

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USSR/Soil Science - Physical and Chemical Properties of Soil J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86730

Author : Pol'skiy, M.N.
Inst : -
Title : Device for Determining Volumetric Weight of Soils

Orig Pub : Nauka i perdov. opyt v s. kh., 1957, No 12, 35-36

Abstract : The device is a borer for drilling a sample of soil of definite volume. The borer design is briefly described.

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USSR/Soil Science - Physical and Chemical Properties of Soil. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86734

Author : Rode, A.A.
Inst : -
Title : Development of the Study of Soil Moisture in USSR

Orig Pub : Pochvovedeniye, 1957, No 10, 1-15

Abstract : A brief exposition is given of the development of the study of soil moisture in the prerevolutionary period, starting with the works of Vysotskiy, Bliznin and Izmail'skiy. Noted in the prerevolutionary period is the substantial development of work on water conditions of soils, chiefly in connection with problems of drought control. Although there is a series of original studies on the water properties of soils, work in this field was less developed. The postrevolutionary period can be divided into two stages, the boundary between them being the beginning of the great five-year plans. Typical for the first stage is the

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Abs Jour : Ref Zhur Biol., No 19, 1958, 86734

development of predominantly theoretical and methodical studies. The second stage is characterized by the broad involvement of soil science, including hydrology of soils as well, in the solution of large-scale national economic tasks, for example, drought control field shelter-belt of forestation, creation of large new areas of irrigated lands, soil erosion control. Set forth in brief is the history of the development of the most important views in the field of the theory of soil moisture behavior, the water conditions of soils and their separate elements. The bibliography contains 130 titles. -- A.A. Rode

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USSR/Soil Science - Physical And Chemical Properties of Soil. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86736

Author : Mel'nikova, M.K.

Inst : AS USSR

Title : Movement Through the Soil of Moisture Accessible to Plants during Vegetation and Moisture-Charging Waterings.

Orig Pub : V sb.: Byul. osnovy oroshayem. zemled. M., AN SSSR, 1957, 670-679

Abstract : In the stratified grounds typical of the soils at the engels Experimental-Meliorative Station, a portion of the irrigation waters "is suspended" in the boundary of the sandy layer, strewn under the loesslike loams at varied (from 5 to 10 meters) depths, which in certain cases brings about the occurrence of a horizon with high moisture occurs at a moisture content considerably Moisture runoff occurs

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Abs Jour : Ref Zhur Biol., No 19, 1958, 86736

at a moisture content considerably less than the field moisture capacity, whereupon the moisture tends to uniform distribution in the profile of the soil-ground mass. The vegetation of plants reduces the losses in deep seepage, since the root drying zone created by the plants prevents the loss of moisture from the root-inhabited horizons. Observations of the dynamics of moisture in deep horizons show that moisture runoff lasts a long while. When determining the field moisture capacity of irrigated soils especially, observations of the moisture content of the soils should, therefore, be made not less than 20 to 25 days. The depth of drilling must at the same time be set in accordance with local conditions and the characteristics of the soil-ground mass. -- M.K. Mel'nikova

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USSR/Soil Science - Physical and Chemical Properties of Soil. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86740

Author : Pershina, M.N.

Inst : Moscow Agric. Acad. im. K.A. Timiryazev

Title : Certain Data on an Investigation of Oxidation-Reduction Potential in Turf-Podzolic Soils.

Orig Pub : Dokl. Mosk. s.-kh. akad. im. K.A. Timiryazeva, 1956, 1, No 26, 56-59

Abstract : The findings are briefly cited on determinations of the oxidation-reduction potential in turf-podzolic and peat-gleyey soils on the territory of the Forest Farm of the Timiryazev Agricultural Academy. Determinations of Eh were made in relation to the rH (ratio of H_2 and O_2) and pH of the soil solution in the genetic horizon during the vegetation. -- M.D.

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USSR/Soil Science - Physical amd Chemical Properties of Soil. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86742

Author : Vigorov, L.I.
Inst : -
Title : A Microchemical Study of Podzolic Soils.

Orig Pub : Agrobiologiya, 1955, No 5, 93-107

Abstract : No abstract.

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CHINA/Soil Science - Physical and Chemical Properties of Soil. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86744

Author : Hsu Chi-Ch'uan
Inst : -
Title : Complex Method of Determining Content of Exchangeable Cations in Soil.

Orig Pub : Hsiung T'u-jang hsueh-pao, Acta pedol. Sinica, 1955, 3, No 1, 31-37

Abstract : No abstract.

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USSR/Soil Science - Physical amd Chemical Properties of Soil. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86746

Author : Rustamov, M.Sh.

Inst : AS Azerbaydzhan SSR

Title : Bicarbonate Method of Separate Determination of Aluminum and Hydrogen Ions Absorbed by the Soil When they Occur Together, and Certain Results of Its Application

Orig Pub : Dokl. AN AzerbSSR, 1957, 13, No 10, 1099-1104

Abstract : No abstract.

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GDR/Soil Science - Physical amd Chemical Properties of Soil. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86759

Author : Schachtschabel, P.
Inst : -
Title : Magnesium in Soil and Plants.

Orig Pub : Z. landwirtsch. Versuchs- und Untersuchungswesen, 1956, 2, No 6, 507-523

Abstract : The symptoms are described of magnesium deficiency in potatoes, sugar-beets, grain crops, tobacco, various sorts of cabbage, beans, fruit crops, grapes and coniferous trees, caused by reductinn in application of cyanite and intensive cultivation of tilled crops. A method is described for determining the soil's magnesium store by means of preparing extracts with solution 0.025 n. $CaCl_2$ and determination of Mg using titanium yellow. The greater part of the content of other ions in the soil lies below the limits at which they can interfere with the Mg determination by the

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Abs Jour : Ref Zhur Biol., No 19, 1958, 86759

method described. But in case these limits are exceeded, the interfering ions can be eliminated by the addition of $CaCO_3$ and with sodium diethyldithiocarbonate. The Mg available to plants is determined in the soil extract with 0.05 n. HCl. The difference between the Mg dissolved in 0.05 n. HCl and 0.025 n. $CaCl_2$ amounts, for acid soils, on the average to $\sim$1 mg. Mg per 100 g. of soil; for soils with pH higher than 7.0 this difference is considerably more. The existence of a close correlation between the Mg content in the soil extract with $CaCl_2$ solution by the author's method and the occurrence of Mg deficiency symptoms in the plants was established by the analysis of 236 sandy soils under potatoes. Besides, the antagonism between K and Mg was clearly manifested. This was made by the Soil Science Faculty of the Advanced School of Technology in Hanover, Federal Republic of Germany. -- G.V. Udovenko

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USSR/Soil Science - Physical amd Chemical Properties of Soil. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86763

Author : Vinnichenko, E.N., Zaydel', A.N., Yakimova, P.P.

Inst : Leningrad University

Title : Determination of Cobalt in Soils.

Orig Pub : V. sb.: Primeneniye metodov spektroskopii v prom-sti prodovol'stva tovarov i s. kh., L. LGU, 1957, 23-27, Diskus. 27-28

Abstract : A method for spectral determination of Co in soils is described. Co was extracted from soil heated at 500° by boiling for 6 hours with 6% HCl. Before boiling Co^{60} was introduced into the sample for control of losses during the chemical operations. Co was precipitated in hydrochloric acid extract together with a series of other elements by ortho-hydroxyquinoline. For the separation

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Abs Jour : Ref Zhur Biol., No 19, 1958, 86763

of Co from large quantities of Al, Cr, Ti and Zn, the precipitate of hydroxyquinolates was heated at 450-500° and dissolved in HCl, after which Co was precipitated in a tartaric acid medium by ammonium sulfide in the presence of Fe. After precipitation by ammonium sulfide, the precipitate was centrifuged, dissolved in 6.5 n. HCl, Fe was extracted by ether. After the separation of Fe the water was evaporated, the precipitate dissolved in 2 to 3 drops of 5% HCl. In the solution derived, Co was determined spectrally. Checking Co losses by measurement of γ-activity showed that in the process of chemical concentration 80% of the Co originally present in the soil is extracted. The spectral analysis was made by the three-standard method. Introduced in each test sample was $2.5 \cdot 10^{-6}$ grains of Ag which served as the interval standard. The authors think that a batch of 1 gram does not yield reliable results and propose that 8 grams of soil be taken for extraction of Co,

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Abs Jour : Ref Zhur Biol., No 19, 1958, 86763

analyzing further one-eighth of the derived extract. With this method, the mean arithmetical error is 15%. The research was performed at Leningrad University. The bibliography lists 8 titles. -- K.V. Verigina

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USSR/Soil Science - Physical amd Chemical Properties of Soil. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86767

Author : Zaydel', A.N., Kaliteyevskiy, N.I., Razumovskiy, A.N.

Inst : Leningrad University.

Title : Determination of the Content of Certain Rare-Earth Elements in Soils.

Orig Pub : V.sb.: Primeneniye metodov spektroskopii v prom-sti prodovol'stvennykh tovarov i s.kh., L., LGU, 1957, 29-35. Diskus. 35-38

Abstract : A method of determining the content of La, Nd, Gd, Eu, Sm in soils, based on chemical concentration and subsequent spectral analysis of soil specimens. The procedure is described in chemical concentration of soil specimens with the indicated elements. As carrier and internal standard 100 to 200 mg. La are introduced in the test sample.

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Abs Jour : Ref Zhur Biol., No 19, 1958, 86767

For calculation of the La content in the soil, a parallel analysis is made using Nd as carrier and internal standard. Synthetic mixtures that contain a known quantity of La and all elements being determined serve as calibrating devices. Examples are cited of the computation of the determined elements in the soils. -- K.V. Verigina

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USSR/Soil Science - Physical and Chemical Properties of Soil. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86768

Author : Dobrovol'skiy, V.V.
Inst : -
Title : Dispersed Elements in Soil-Forming Rocks of the Central Russian Forest-Steppe

Orig Pub : Pochvovedeniye, 1957, No 6, 56-62

Abstract : A study was made of the content of microelements in a colloidal dispered fractinn of the soil-forming rocks of the Central Russian forest-steppe and of neogenes (hardpans, lime nodules) separated from these rocks. The determination of microelements was made spectrally by a ten-point scale of spectrogram line intensity. Microelements are present in largest quantity in the ferrous, manganese and carbonate neogemes; in sulfate and phosphate neogenes the quantity of microelements is drastically diminished. The complex of minor elements typical of the

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Abs Jour : Ref Zhur Biol., No 19, 1958, 86768

neogenes determined was established.
Bibliography lists 13 titles. -- N.V. Verigina

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USSR/Soil Science - Soil Biology. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86775

Author : Tepper, Ye.Z.

Inst : Moscow Agricultural Academy im. K.A. Timiryazev

Title : Dynamics of Uronic Acids during Aerobic Decomposition of Roots of Clover and Timothy

Orig Pub : Pochvovedeniye, 1957, No 6, 95-99

Abstract : During the decomposition of plant residue in the soil the total quantity of uronic acids is subject to fluctuations. At the beginning of decomposition (after 20 days) the acids decline in quantity. This takes place through the destruction of soil microflora by uronic acid of pectins. In the period of cellular tissue decomposition (after 60 days), a considerable quantity of uronic acids accumulates in the medium, that are more stable than the uronic acids

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Abs Jour : Ref Zhur Biol., No 19, 1958, 86775

of pectins. The further increase in the quantity of uronic acids (after 6 months) is explainable by the intensive decomposition of lignin. The uronic-acid complex which is formed at the same time and is resistant to microbe decomposition, can serve as a source of stabilization of the uronic acids in the organic substance of the soil. The work was performed at the Timiryazev Agricultural Academy. -- G.N. Nesterova

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HUNGARY/Soil Science - Soil Biology. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86778

Author : Varga, Lajos

Inst : Hungarian Scientific Academy of Agriculture

Title : Findings of an Investigation of Microfauna in the Alfoldi Solonetz Soils under Young Forest Plantings.

Orig Pub : Magyar tud. akad. agrartud. oszt. kozl., 1956, 9, No 1-3, 57-69

Abstract : The dynamics of microflora and microfauna were investigated in 1951 to 1953 in the long unused soils of the Great Hungarian Plain under various forest and brushwood plantings cultivated from 1937-1938. Soil specimens were taken from five sections: from the section where the wild pear grows (I); under mixed forest of oak, elm, ash (II); under tamarisk (III); under acacia (IV) and on the section

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HUNGARY/Soil Science - Soil Biology. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86778

under grasses (V). The soil's physical-chemical properties were examined; moisture content, pH, content of soda, humus, Further determined were: total count of bacteria (aerobic and anaerobic), quantity of microscopic fungi, after that Protista. The total quantity of bacteria, fungi and protists in saline soils under forest plantings was found to be roughly the same as in ordinary soils under agricultural crops. The aerobes exceeded the anaerobes several times in number; thus, notwithstanding considerable density, the soils displayed satisfactory aeration. The bacteria were most of all in variant IV, after which followed variants II, I, III and finally V. In the same sequence, the soil's moisture content is reduced. Seasonal changes in the humus content of the soils were examined. A rise in humus content by December is observed in soils of variants I, III, IV. After that a reduction of humus occurs and by the end of autumn of the next year,

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Abs Jour : Ref Zhur Biol., No 19, 1958, 86778

the humus content reached a minimum. The soil of variant I proved most abundant in number of microorganisms. The quantity of fungi was correspondingly large: (220 200) in soil of variant IV, further (181 400) soil of variant III, (172 800) soil of variant V, (167 700) II and (130 000 in 1 gr. of moist soil) I. Fungi developed well in a soil layer at 10 cm. The fauna of protists was represented by a large number of species, and quantitatively abundant, particularly many protists in an active state. The protists were found most of all in the soil of variant I (50,000 in two test samples; 100,000 in four). In this same soil the number of cysts reached 50,000 in a September test sample, in the others it varied from 1000 to 10,000. In the various soils the flagellates (4-30 μ) were represented by 47 species. In addition to bacteriophagic species, cannibals were also found, the Amoebina (24 species) being especially numerous; the Testacea

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Abs Jour : Ref Zhur Biol., No 19, 1958, 86778

(14 species); less Foraminifera (1) and Heliozoa (3). The ciliates were few in number; they are represented by large and extremely mobile forms (19 species in all). -- V.G. Kanzyuba

USSR/Soil Science - Soil Biology. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86783

Author : Razumovskaya, Z.G., Vasil'yeva, O.A.

Inst : Leningrad State University

Title : Certain Data on the Structure of Lupine Root Nodules Infected with Active and Inactive Strains of Nodule-forming Bacteria.

Orig Pub : Uch. zap. LGU, 1956, No 216, 202-210

Abstract : Microtomic slices (8 to 10 μ) of the roots of lupine with nodules which were formed under the influence of active and inactive strains of nodule-forming bacteria, were studied. The trend of nodule growth was identical in both cases: a bacteroidal tissue, vessels and vascular bundles are formed. The active nodule, however, grows intensively, its bacteroidal tissue occupies considerable space and is filled with

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Abs Jour : Ref Zhur Biol., No 19, 1958, 86783

a large quantity of bacteria which remain undestroyed for a long time. Intense growth of vessels occurs in such a root nodule, and in proportion to the root growth, its connection with the nodule is intensively enlarged. In the inactive nodule, on the contrary, weak growth of bacteroidal tissue is observed and the process of destruction of bacteria cells takes place swiftly. The vessels are much inferior in development, the vascular connection with the root is weaker. The authors think that the differing development of conducting bundles is an indicator of a difference in the transfer of substances between the nodule tissues and the plant. -- N.M. Lazareva

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CZECHOSLOVAKIA/Soil Science - Soil Biology. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86785

Author : Vintika, Jaroslav

Inst : Czech Academy of Agric. Sciences

Title : Appearance of Foamy Root Nodules.

Orig Pub : Sbor. Ceskosl. akad. zemed. ved. Rosti. vyroba, 1956, 29, No 9-10, 949-951

Abstract : During the cultivation of bacteria-infected clover and alfalfa plants in agar, formations arose which at first resembled normal root nodules, but soon acquired a "foamy" or cotton-like structure. Fixation of atmospheric nitrogen does not occur in these root nodules, and the plants with such nodules in agar cultures soon perish. The anatomic structure of foamy root nodules differs from the structure of normal nodules. In several cases, it proved possible

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CZECHOSLOVAKIA/Soil Science - Soil Biology. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86785

to grow from these nodules, in proteose agar with glucose, small yellowish colonies from which Gram-negative bacilli similar to Pseudomonas were isolated. The genesis of these root nodules has not been explained. -- V.A. Kanzyuba

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USSR/Soil Science - Soil Biology. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86787

Author : Razumovskaya, Z.G., Vasil'yeva, O.A.

Inst : Leningrad State University.

Title : Effect of Nodule-forming Bacteria on the Chemical Composition of Leguminous Plant Protein.

Orig Pub : Uch. zap. LGU, 1956, No 216, 196-201

Abstract : Lupine plants (2 sorts) were cultivated in a vegetation experiment (sandy cultures) under varied nutrition conditions - in mineral N (Pryanishnikov solution with full rate of N and $\frac{1}{2}$ rate of N) and with the inoculation of nodule-forming bacteria. Root nodules were not found in the plants in mineral N. In the variants with inoculation, root nodules were formed in all plants. When infected with active strains the root nodules were large, pinkish,

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Abs Jour : Ref Zhur Biol., No 19, 1958, 86787

concentrated on the main root in the form of a sleeve; when infected with inactive strains the root nodules were white, solitary or in the form of clusters, more frequently on lateral roots, the plants had the poorest development. By the time the experiment ended, the plants had achieved greatest development; the plants infected with active strains of nodule-forming bacteria contained more total N than the plants cultivated on a full quota of mineral N. A comparison of the findings of fractional analysis of the protein in the plants of these two variants disclosed that the former were not inferior to the latter in qualitative indices. In plants infected with inactive strains the percentage of total N and the percentage of the water-soluble fraction of protein are very low and the content of the alkaline fraction is heightened.
-- N.M. Lazareva

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CHINA/Soil Science - Soil Biology. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86788

Author : Chang Hsian-Wu; Hsu Kuang Juei
Inst : -
Title : Study of Nodule-Forming Bacteria in Soybean.

Orig Pub : T'y-jang wei-sheng-wu-hsueh chi-k'an, 1957, No 1, 25-42

Abstract : From 849 specimens of soils of northeastern China, 500 strains of the nodule-forming bacteria of soybean, including 17 active ones, were isolated. When beans were inoculated with strains corresponding to a given variety, the harvest yield was raised. The capacity of the nodule-forming bacteria for nitrogen fixation was intensified after passage through the plant. -- From the authors' abstract.

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USSR/Soil Science - Soil Biology. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86789

Author : Vintika, Yaroslav
Inst : -
Title : The Value of Mutual Homology Between Organisms for Bacterial Infection with Nodule-Forming Bacteria.

Orig Pub : Za sots. s.-kh. nauku, 1957, A6, No 2, 127-142

Abstract : It was demonstrated that certain strains of Rhizobium (bacteria of alfalfa, clover, peanut) are very sensitive to antibiotics, others are resistant or their growth is stimulated by antibiotic substances. Rh. japonicum is most resistant against penicillin. The author employed antibiotics for purification of cultures of nodule-forming bacteria. The purity test was conducted by the method of differential staining with methylene blue and safranine. When seeds of clover were treated with a mixture of Rh. trifolii with B. mesentericus, Bact. coli, Chr. prodigiosum,

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Abs Jour : Ref Zhur Biol., No 19, 1958, 86789

Ps. radiobacter, Ps. pyocyanea, Ps. fluorescens, a negative effect of non-nodule bacteria on the formation of root nodules and the growth of plants was not detected. The mixture of strains of Rh. trifolii was more effective than the separate stmains. -- Z.A. Arkad'yeva.

Card 2/2

USSR/Soil Science - Soil Biology. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86790

Author : Fedorov, M.V., Laslo, D.

Inst : Moscow Academy of Agriculture im. K.A. Timiryazev

Title : The Nitrogen Fixing Activity of Nodule-forming Bacteria of Peas and Vetch in Root Nodules at Various Phases in Leguminous Plant Development.

Orig Pub : Izv. Timiryazevsk. s.-kh. akad., 1956, No 2, 61-82

Abstract : At various phases of plant development, pure cultures of nodule bacteria were isolated from the root nodules of peas and vetch infected with strains No 248 and No 134 respectively and cultivated in vegetation vessels in sand with 3 doses of nitrogen (full quota; 0.5 quota and 0.1 quota of the Hel'riegel mixture). To determine the virulence and nitrogen fixation capacity of these strains of

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Abs Jour : Ref Zhur Biol., No 19, 1958, 86790

bacteria, the seeds of peas and vetch were inoculated with them the following year. The initial cultures served as the control. Determined in harvesting were the plant weight, the quantity and volume of root nodules, the nitrogen content in the root nodules and the total nitrogen content in the plants. The bacteria isolated in the phase of bean formation possessed the greatest activity both in the peas and in vetch, but at the rate of 0.1 nitrogen in the peas and 0.5 in vetch. The root nodules formed by the bacteria with varied activity, differ in form, size, structure and morphological state of bacteria. In the large active root nodules, the bacteria was in the form of large bacteroids, actively fixing the nitrogen of the atmosphere. The number of root nodules is not an objective criterion of their activity. It was established that after two-year storage in the laboratory, the activity of the strains is less diminished in the more active forms. Beginning with

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with the phase of sprouting and up to the phase of flowering, the nitrogen fixing activity increases and only thereafter begins to decline. The maximal accumulation of atmospheric nitrogen by bacteria occurs in the milky stage of plants. In the variants with placement of the full quota and the half quota of nitrogen, the nitrogen fixation activity of the bacteria is initiated after the plant has exhausted the supply of mineral nitrogen. This coincides with the conversion of short rods to bacteroids. It should therefore be assumed that the nitrogen fixation is realized most intensively precisely in the bacteroids stage. -- N.M. Lazareva.

USSR/Soil Science - Soil Biology. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86791

Author : Petrosyan, A.P., Navasardyan, A.G.

Inst : AS Armenian SSR

Title : Effect of Development Phase and Age of Leguminous Plants on the Activity of Nodule-forming Bacteria. (First Report)

Orig Pub : Izv. AN ArmSSR, biol. i s.-kh. n., 1956, 9, No 11, 45-56

Abstract : The nodule-forming bacteria isolated from the roots of lucerne in the period of budding and flowering (field experiments in brown irrigated cultured soil with pH 7.6) possessed the greatest activity. In comparison with the control crop, the crop gain amounted to 31 to 55% in all harvests. Strains isolated in the autumn and winter months, and also in the initial phases of plant growth, not only did not raise but diminished the crop by 5 to 35%. The

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Abs Jour : Ref Zhur Biol., No 19, 1958, 86791

Crop findings of various harvests, and also the nitrogen content in the above-ground parts of the plants show that the nodule-forming bacteria isolated in the second and third year of the life of alfalfa were, as a rule, more effective than those isolated in the first and fourth years. -- G.N. Chernov

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POLAND/Soil Science - Soil Biology. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86794

Author : Vrubel', T., Golembevska, Yu.
Inst : -
Title : The Inoculation of Leguminous Plants with Nodule-forming Bacteria in Various Soils.

Orig Pub : Acta microbiol. polon., 1956, 5, No 1-2, 121-124

Abstract : A study was made of the effects of nodule-forming bacteria on the crop and on N accumulation in alfalfa, lupine, saradelle, peas in sandy, sandy loam, alluvial soils, podzolic loam, loess and chernozem in vegetation experiments. With bacterization, the alfalfa especially in sandy, sandy loam soils and loess produced the greatest gains in crop and N. The pea crop was raised only on sandy loam soil and podzolic loam, of lupine in all soils, saradelle in podzol loam and especially in alluvial soil. It is noted that the dimensions, forms, arrangement, coloration of the root

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Abs Jour : Ref Zhur Biol., No 19, 1958, 86794

nodules on all plants, and on peas and saradelle especially, vary depending on the soil character. -- Ye. N. Kondratyeva

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BULGARIA/Soil Science - Soil Biology. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86796

Author : Dinchev, D.
Inst : -
Title : Nodule-forming Bacteria of Kidney Beans and Their Use.

Orig Pub : Selskostop. mis"l, 1957, 2, No 10, 608-615

Abstract : No abstract.

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USSR/Soil Science - Soil Biology. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86797

Author : Melkumova, T.A.

Inst : AS USSR

Title : Strain Characteristics of Nodule-forming Bacteria, Isolated from Various Sorts of Alfalfa Cultivated in the Azerbaidzhan SSR.

Orig Pub : Izv. AN SSSR, Ser. biol., 1957, No 5, 617-624

Abstract : No abstract.

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USSR/Soil Science - Soil Biology. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86801

Author : Lyashenko, L.A.

Inst : Rostov University

Title : Effect of Various Kinds of Granulated Fertilizers on the Virulence and Activity of Nodule-forming Bacteria of Alfalfa

Orig Pub : Sb. stud. bot. Rostovsk. un-t, 1957, vyp. 3, 69-71

Abstract : No abstract.

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BULGARIA/Soil Science - Soil Biology. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86802

Author : Raycheva, L.
Inst : -
Title : Utilization of Nodule-forming Bacteria in Our Conditions (in Bulgaria)

Orig Pub : Selskostop. mis"l, 1957, 2, No 1, 17-22

Abstract : No abstract.

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USSR/Soil Science - Organic Fertilizers. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86806

Author : Yershova, K.P.

Inst : Kinel' State Experimental Station

Title : Effectiveness of Organic Mineral Fertilizers in Kuybyshevskaya Oblast

Orig Pub : S. kh. Povolzh'ya, 1957, No 5, 19-23

Abstract : The doses and methods of placing organic mineral granulated fertilizers and the ratio of Pc and organic substance in them were studied in crops of Lutescens 801 wheat at the Kinel State Experimental Station in 1951-1953. The author thinks it possible to apply organic-mineral granules, mixtures and composted manure to the chernozems of Kuybyshevskaya Oblast under spring and winter wheat when they are placed under the plow while plowing fall land or fallows.

-- V.D. Astafyeva

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USSR/Soil Science - Organic Fertilizers. J

Abs Jour : Ref Zhur Biol., No19, 1958, 86807

Author : Zalyalov, F.K.

Inst : Novo-Annenskiy Auxiliary Point of the Agronomic Soil Station im. Vil'yams in Stalingradskyaya Oblast',Organic -Mineral Mixtures in the Chernozems of Stalingradskaya Oblast.

Orig Pub : S. kh. Povolzh'ya, 1957, No 11, 18-20

Abstract : It was established that winter crops are most responsive to fertilizers by experiments which were conducted, beginning in 1949, at the Novo-Annenskiy base of the Agricultural Soil Station im Vil'yams (Stalingradskaya Oblast) with insufficient moistening of the soil (380 mm of precipitation per year, including one-third in winter) and air humidity (dry winds) in clayey and heavily-loamy southern chernozems. During 8 years in 10-field crop

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USSR/Soil Science - Organic Fertilizers. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86807

rotations with placement of manure (20 tons $P_{35}K_{30}$ for wheat and $P_{20}K_{20}$ for rye) in fallow land, the harvest of winter wheat and Volzhanka variety rye amounted on the average to 18.6 amd 17.6 centners per hectare respectively; with placement of an organic-mineral mixture of 2.5 tons of broadcast manure and the same quantity of PK - 18.6 and 17.9 centners/hectare, and for the control 14.2 and 14.0 centners/hectare. The organic mineral mixtures placed under spring wheat and sunflower beneath plough-land are more effective than mineral fertilizers alone and secure the best results. -- B.D. Aleglan.

Card 2/2

USSR/Soil Science - Organic Fertilizers. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86808

Author : Bogoyavlenskaya, R.O.

Inst : Smolensk State Agric. Experimental Station

Title : Organic Mineral Mixtures.

Orig Pub : Byul. nauchno-tekhn. inform. Smolenskoy gos. s.-kh. opytn. st., 1957, No 1, 4-8

Abstract : The result are described (without indicating the experimental conditions) of the testing of organic mineral mixtures under various crops and the conclusion is drawn that organic phosphate neutralized mixtures "in large and small doses" have the advantage, acting better in Smolenskaya Oblast in the more cultivated soils.

Card 1/1

USSR/Soil Science - Organic Fertilizers. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86809

Author : Chizhevskiy, M.G.
Inst : -
Title : Application of Mixtures of Organic mineral Fertilizers (From the Findings of Research Made of the V.P. Vil'yams Agricultural Soil Station).

Orig Pub : Udobreniye i urozhay, 1957, No 6, 6-15

Abstract : The placement of mixtures of organic fertilizers with P, K, and Ca, and also double mixtures of organic fertilizer with P or Ca gives higher crop yields than the separate placement of these fertilizers; for example, 2 centners pf P_c and 10 centners of peat per 1 hectare in the form of a mixture gave a barley crop gain of 5.6 centners, and with separate placement, a gain of 3.5 centners. The effectiveness of a mixture of small doses of manure and lime with P_c in poor N soils is lower than that of 20 tons

Card 1/2

USSR/Soil Science - Organic Fertilizers. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86809

of semi-rotted manure and is raised with the addition of N to it. In addition K is also required in sandy soils and for root and tuber crops and in cohesive soils. In acid soils it is necessary to place normal doses of lime and organic fertilizers. -- N.N. Sokolov

Card 2/2

USSR/Soil Science - Organic Fertilizers. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86810

Author : Gnibeda, N.

Inst : Siberian Sci. Res. Inst. of Grain Cultivation

Title : Effectiveness of Organic Mineral Fertilizers in the Chernozems of Omskaya Oblast

Orig Pub : S. kh. Sibiri, 1957, No 6, 42-48

Abstract : The results are presented of experiments conducted in the Siberian Scientific Research Institute of Grain Farming in wich the effect of organic mineral granules on the germination and growth of plants, the microbiological activity of soil and crop yield were studied, also of experiments with organic mineral mixtures under grain crops and potatoes. -- L.B.

Card 1/1

USSR/Soil Science - Organic Fertilizers. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86811

Author : Prozorov, N.I.

Inst : Penza Experimental Station

Title : Effectiveness of Organic Mineral Fertilizers in Penzanskaya Oblast.

Orig Pub : S. kh. Povolzh'ya, 1957, No 6, 20-23

Abstract : The authors cite the findings of experiments of the Penza Experimental Station in 1954-1956 with winter and spring wheat, millet and winter rye and of experiments of the Kuznetskaya Station and oblast collective farms, in reaching the conclusion that organic mineral mixtures are highly effective. --

Card 1/1

HUNGARY/Soil Science - Organic Fertilizers. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86813

Author : Konya, Kalman
Inst : -
Title : The Effect Deep Plamement of Fertilizer has on the Quantity of Stubble and Root Remnants.

Orig Pub : Novenytermeles, 1957, 6, No 1, 17-26

Abstract : The effectiveness of deep placement of fertilizers is felt not only in raising the harvest yield, but also in the increase of the quantity of stubble and root remnants (organic substances are returned to the soil in large quantity). In comparison with the control, the placement of manure in the top horizon (0 - 30 cm) increases by 55% the weight of stubble and root remnants of winter wheat, by 29% the remnants of Sudan grass, and raises the grain yield of winter wheat by 3 centners/hectare when the control crop is 12.7 centners/hectare. A soil turnover at 60 cm increases the

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HUNGARY/Soil Science - Organic Fertilizers. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86813

quantity of stibble and root remnants of wheat and Sudan grass and the grain crop yield of wheat respectively by 39%, 41% and 5.9 centners/hectare; the deep placement of manure in 1 layer - by 102%, 62% and 16.1 centners/hectare, and deep manure placement in 2 layers - by 129%, 167% and 16.7 centners/hectare. -- B.D. Aleglan

Card 2/2

USSR/Soil Science - Organic Fertilizers. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86814

Author : Mayboroda, N.M.

Inst : Omsk Agriculture Institute

Title : Effect of Manure and Composts on the Yield and Quality of Agricultural Crops.

Orig Pub : Tr. Omskogo s.-kh. in-ta, 1957, 22, No 1, 45-52

Abstract : Various methods of preparing manure and composts and their effect on the crop yield were studied in field and vegetation experiments in 1952-1954 in the Western Siberian conditions in average-humus chernozem. In I M prepared with addition of 12 kg/t P_c, the microorganisms were greater in quantity, the combustion temperature was raised by 2 to 4°, the period for preparation of fertilizer was shortened by 17 to 19 days, the nitrates were increased 2 to 6 times

Card 1/2

USSR/Soil Science - Organic Fertilizers. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86814

in quantity. M with the addition of P_c facilitates the accumulation in the soil of nitrates and assimilable P_2O_5, and during spreading on the field loses 10 times less NH_3 than without P_c. Most effective is M with P_c in straw cutting stored in a trench. M and compost with P_c and liquid fertilizers raised the crop yield (by 41.9 - 44.7 centners/hectare) and marketability (by 16.8 to 24.9%) of potato tubers, the yield of starch (by 544 to 749% kg/ha), the content of vitamin C and lowered the solanine quantity. M with P_c raised the crop yield (by 4.1 - 6.9 centners/hectare) and the quality of spring wheat grain. -- B.D. Aleglan

Card 2/2

GDR/Soil Science - Organic Fertilizers. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86816

Author : Kemenesy, E.
Inst : -
Title : Composting Stall Manure with Lowland Peat.

Orig Pub : Albrecht. Thaer-Arch., 1957, 2, No 3, 310-314

Abstract : No abstract.

Card 1/1

USSR/Soil Science - Organic Fertilizers. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86817

Author : Boyarkina, I.S.

Inst : Central Peat Bog Experimental Station

Title : Effectiveness of Peat Fertilizers in Soils Differing in Mechanical Composition.

Orig Pub : Byul. Nauchno-tekhn. inform. Tsentr. torfo-bolotn. opytn. st., 1957, No 1, 52-54

Abstract : The Central Peat Bog Experimental Station's experiments in sandy and loamy soils showed that the effectiveness of fertilizers prepared from different kinds of peat is identical for both soils. All kinds of lowland peats proved most effective, the upland peats - least. The kind of peat did not have significance in composting with manure. -- O.P. Medvedeva

Card 1/1

USSR/Soil Science - Organic Fertilizers. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86818

Author : Galuza, O.I.

Inst : Ubinsk. Experimental Reclamation Station

Title : The Peat in the Land Near the Vasyugan River as Fertilizer

Orig Pub : Byul. Nauchno-issled. i opytn. rabot Ubinsk. opytn. melior st., 1957, No 2, 62-67

Abstract : The findings of experiments conducted in the podzolic soils of Tomskaya Oblast established that all kinds of peat occurring near the Vasyugan River being distinguished by high agrochemical indices, can be used in the form of organic fertilizers (peat-manure compost, peat manure, organic mineral mixtures) which it is expedient to place in autumn at depths of 15 to 18 cm in a dose of 30 to 40 tons/hectare, and in strongly podzolic soils, 50 to 80

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USSR/Soil Science - Organic Fertilizers. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86818

t/ha. Exerting a positive influence on the physical, physico-chemical and chemical properties of soil, these fertilizers bring about a rise in the crop yield and quality of the product. The peat-manure compost (3:1) is especially effective. -- O.P. Medvedeva

Card 2/2

HUNGARY/Soil Science - Organic Fertilizers. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86821

Author : Beres, Tibor
Inst : -
Title : Derivation of Humic Acids from Excrements.

Orig Pub : Agrokem. es talaj, 1957, 6, No 1, 93-96

Abstract : No abstract.

Card 1/1

USSR/Soil Science - Organic Fertilizers. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86824

Author : Alekseyev, Ye.K.
Inst : -
Title : Once Again About Narrow-Leaved Lupines.

Orig Pub : Zemledeliye, 1958, No 3, 68-72

Abstract : No abstract.

Card 1/1

USSR/Soil Science - Organic Fertilizers. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86827

Author : Gladilovich, B.R.
Inst : -
Title : AMB Bacterial Fertilizer

Orig Pub : Vestn. s.-kh. nauki, 1957, No 9, 64-69

Abstract : Experiments made with AMB bacterial fertilizer in Leningradskaya Oblast showed the expediency of using it in turf-podzolic and bog soils. The application of AMB gave a significant gain in the crop yield of grain (to 6.9 centners/hectare), potatoes (to 35 centners/hactore), vegetable and fodder crops, and also grass. In a number of crops the greatest gain from AMB was secured when it was placed together with organic and mineral fertilizers. Moreover, AMB increased the effectiveness of liming acid soils, increased $1\frac{1}{2}$ to 2 times the soil content of free K and P and increased the content of P, K, Ca, Mg in the plants ash. -- O.P. Medvedeva

Card 1/1

USSR/Soil Science - Organic Fertilizers. J

Abs Jour : Ref Zhur Biol., No 19, 1958, 86828

Author : Gladilovich, B.R.

Inst : Leningrad Agriculture Institute

Title : AMB Bacterial Fertilizer as an Element in the Fertilizer System of Fodder Crop Rotations.

Orig Pub : Zap. Leningradsk. s.-kh. in-ta, 1956, vyp. 11, 300-305

Abstract : No abstract.

#1471 END

Card 1/1

Country : German Democratic Republic
CATEGORY : Meadow Cultivation L

ABS. JOUR. : RZBiol., No. 19, 1958, No. 86909

AUTHOR : Hundt
INST. : Not given
TITLE : Phytocoenological Methods of Determining Meadow Grassland Moisture and Productivity.

ORIG. PUB. : Dtsch. Landwirtsch., 1957, 8, No. 7, 333-338

ABSTRACT : The relation between the grass stand composition, meadow and grassland productivity and prevailing moisture is described. A survey is presented of the literature on evaluating the condition and productivity of meadow grasslands in Germany on the basis of their vegetation. Plant groups are noted whose occurrence indicates with considerable accuracy the moisture conditions and productivity of meadows and pastures.--B.K. Flerov

CARD: 1/1

COUNTRY :USSR
CATEGORY :Meadow Cultivation L

ABS. JOUR. : RZBiol., No. 19, 1958, No.86910

AUTHOR : Gorshkova, A.A.
INST. Eastern Affiliate, Acad. Sciences USSR
TITLE : Alternation in the Natural Pasture Plant Associations on Balaganskaya Forest-Steppe

ORIG. PUB. : Izv. vost. fil. AN SSSR, 1957, No.2,109-114

ABSTRACT : Three stages in the alternation of the sheep fescue steppe are differentiated in the region of the Buryat-Mongolian Republic. In the absence of sharp changes in the vegetation from the second stage, gray veronica and hard sedge (Carex gracilis [illegible]) grow profusely. The alternation of meadow fescue with red clover is also expressed by a reduction in the abundance of valuable forage grasses. Inedible species spread out:

CARD: 1/2

Country :
CATEGORY :

ABS. JOUR. : RZBiol., No. 19, 1958, No.86910

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : silverweed cinquefoil (Potentilla anserina), sweet plantain, Plantago minuta, Circium acaule, forming tussocks. The determinations of soil moisture have shown increasing drying out with intensified alternation of the pasture.--N.G. Buyakovich

CARD: 2/2

COUNTRY : USSR
CATEGORY : Meadow Cultivation L

ABS. JOUR. : RZBiol., No. 19, 1958, No. 86931

AUTHOR : Larin, I.V.; Rabotnov, T.A.
INST. : Not given
TITLE : Wild Forage Vegetation in the USSR. (A Review of the Three Volume Monograph "Fodder Plants in the Grasslands and Pastures of *
ORIG. PUB. : Vestn. s.-kh. nauki, 1957, No.4, 9-20, 21-22

ABSTRACT : No abstract

* the USSR").

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