**SUPPLEMENTARY MATERIALS – ДОПОЛНИТЕЛЬНЫЕ МАТЕРИАЛЫ**

**Soils of agricultural terraces on clay shales in the mid-mountain zone of the Eastern Caucasus.**

**Почвы земледельческих террас на глинистых сланцах в среднегорной зоне Восточного Кавказа.**

V. N. Pinskoy, I. A. Idrisov, N. N. Kashirskaya, M. V. Yeltsov, A.V. Borisov

**В.Н. Пинской, И.А. Идрисов, Н.Н. Каширская, М.В. Ельцов, А.В. Борисов**

**Eurasian Soil Science.**

**Почвоведение.**

**Table S1.** Chemical properties of background soils.

**Таблица S1.** Химические свойства фоновых почв.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Разрез | Глубина, см | Сорг | CaCO3 | pHводн. | P2O5 | K2O | EKOст смоль(экв)/кг |
|  |
| % | | мг/100 г | |  |
| ***Склон северной экспозиции*** | | | | | | | |  |
| Фон север (41.408274, 47.781609) | 0-10 | 5.1 | 1.1 | 6.6 | 0.5 | 11.6 | 3.74 |  |
| 10-20 | 5.3 | 0.9 | 6.3 | 0.4 | 9.8 | 3.74 |  |
| 20-30 | 1.6 | 0.8 | 6.2 | 0.4 | 8.6 | 2.79 |  |
| 30-40 | 1.7 | 1.4 | 6.2 | 0.4 | 8.0 | 2.58 |  |
| 40-50 | 1.4 | 0.6 | 6.4 | 0.4 | 7.6 | 1.93 |  |
| ***Склон южной экспозиции*** | | | | | | | |  |
| Фон юг (41.414989, 47.782360) | 0-10 | 2.2 | 0.9 | 7.7 | 0.9 | 33.0 | 1.76 |  |
| 10-20 | 2.2 | 1.1 | 7.5 | 0.6 | 22.4 | 1.98 |  |
| 20-30 | 1.8 | 0.9 | 7.8 | 0.5 | 15.4 | 2.20 |  |
| 30-40 | 1.3 | 0.9 | 8.1 | 0.4 | 10.8 | 2.20 |  |

**Table S2.** Granulometric composition of background soils.

**Таблица S2.** Гранулометрический состав фоновых почв.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Разрез | Глубина, см | 1-0,25 | 0,25-0,05 | 0,05-0,01 | | 0,01-0,005 | 0,005-0,001 | <0,001 | <0,01 |
| % | | | | | | | |
| ***Склон северной экспозиции*** | | | | | | | | | |
| Фон север (41.408274, 47.781609) | 0-10 | 31 | 15 | 30 | 7 | | 8 | 9 | 24 |
| 10-20 | 33 | 24 | 27 | 5 | | 4 | 8 | 17 |
| 20-30 | 13 | 9 | 24 | 12 | | 19 | 22 | 53 |
| 30-40 | 9 | 11 | 29 | 8 | | 19 | 24 | 51 |
| 40-50 | 5 | 16 | 27 | 10 | | 18 | 24 | 52 |
| ***Склон южной экспозиции*** | | | | | | | | | |
| Фон юг (41.414989, 47.782360) | 0-10 | 14 | 20 | 27 | 10 | | 15 | 14 | 39 |
| 10-20 | 16 | 16 | 30 | 9 | | 14 | 15 | 38 |
| 20-30 | 13 | 12 | 25 | 10 | | 18 | 22 | 50 |
| 30-40 | 6 | 15 | 32 | 9 | | 17 | 20 | 46 |

**Table S3.** Biological activity of background soils.

**Таблица S3.** Биологическая активность фоновых почв.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Разрез | Глубина, см | МБ | УА | ФА | БС | ПА |
| мкг С/г | мкг NH4/г 2ч | мкг Р2О5/г/ч | КОЕ, млн /г почвы | |
|
| ***Склон северной экспозиции*** | | | | | | |
| Фон север (41.408274, 47.781609) | 0-10 | 502.8±5.8 | 466.8±3.1 | 196.9±13.2 | - | - |
| 10-20 | 295.9±20.2 | 155.6±2.8 | 159.8±12.7 | - | - |
| 20-30 | 52.4±10.9 | 39.5±1.3 | 23.6±4.3 | - | - |
| 30-40 | 40.2±6.2 | 27.5±1.3 | 16.3±4.0 | - | - |
| 40-50 | 27.6±3.6 | 19.1±0.6 | 10.5±2.1 | - | - |
| ***Склон южной экспозиции*** | | | | | | |
| Фон юг (41.414989, 47.782360) | 0-10 | 259.9±20.8 | 206.2±1.5 | 14.9±2.5 | - | - |
| 10-20 | 108.0±13.9 | 210.5±8.8 | 8.6±1.1 | - | - |
| 20-30 | 85.0±6.5 | 209.1±1.5 | 4.5±1.0 | - | - |
| 30-40 | 46.3±5.5 | 123.5±3.1 | 2.4±0.4 | - | - |

**Table S4.** Chemical properties of terraced soils on different slopes.

**Таблица S4.** Химические свойства почв террас на разных склонах.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Разрез | Глубина, см | Сорг | CaCO3 | pHводн. | P2O5 | K2O | EKOст смоль(экв)/кг |
|  |
| % | | мг/100 г | |  |
| ***Склон северной экспозиции*** | | | | | | | |  |
| Узкая терраса на крутом склоне (41.409162, 47.781888) | 0-10 | 2.9 | 1.1 | 6.9 | 0.8 | 38.0 | 2.86 |  |
| 10-20 | 2.4 | 1.2 | 7.0 | 0.6 | 12.8 | 2.64 |  |
| 20-30 | 2.4 | 1.1 | 7.0 | 0.5 | 11.0 | 2.64 |  |
| 30-40 | 2.1 | 1.1 | 6.6 | 0.4 | 11.2 | 3.08 |  |
| 40-50 | 2.1 | 1.1 | 6.5 | 0.4 | 9.4 | 2.86 |  |
| 50-60 | 2.1 | 0.9 | 6.5 | 0.4 | 9.2 | 2.42 |  |
| 60-70 | 2.3 | 0.9 | 6.4 | 0.4 | 8.8 | 2.64 |  |
| 70-80 | 2.3 | 0.6 | 6.5 | 0.4 | 8.2 | 2.86 |  |
| 80-90 | 2.8 | 0.9 | 6.5 | 0.4 | 6.8 | 3.30 |  |
| 90-100 | 3.2 | 1.1 | 6.7 | 0.4 | 6.4 | 2.64 |  |
| 100-110 | 1.6 | 0.9 | 6.9 | 0.4 | 6.2 | 2.86 |  |
|  |  |  |  |  |  |  |  |  |
| Широкая терраса на покатом склоне (41.409404, 47.785986) | 0-10 | 2.0 | 0.7 | 7.2 | 0.8 | 47.1 | 2.15 |  |
| 10-20 | 1.6 | 0.6 | 7.4 | 0.4 | 22.2 | 1.94 |  |
| 20-30 | 1.6 | 0.8 | 7.6 | 0.5 | 14.6 | 2.15 |  |
| 30-40 | 1.5 | 0.8 | 7.4 | 0.4 | 11.8 | 1.51 |  |
| 40-50 | 1.4 | 0.8 | 7.2 | 0.3 | 11.3 | 2.37 |  |
| 50-60 | 1.4 | 0.8 | 7.1 | 0.3 | 12.2 | 2.37 |  |
| 60-70 | 1.3 | 0.8 | 7.2 | 0.3 | 12.0 | 1.94 |  |
| 70-80 | 1.3 | 0.8 | 7.2 | 0.3 | 8.2 | 2.37 |  |
| 80-90 | 1.2 | 0.8 | 7.2 | 0.2 | 7.6 | 2.58 |  |
| 90-100 | 1.1 | 0.8 | 7.4 | 0.2 | 7.0 | 2.37 |  |
| ***Склон южной экспозиции*** | | | | | | | |  |
| Узкая терраса на крутом склоне (41.416071, 47.783111) | 0-20 | 1.2 | 1.1 | 8.0 | 0.4 | 11.8 | 1.76 |  |
| 20-40 | 1.2 | 1.0 | 8.1 | 0.6 | 9.8 | 1.76 |  |
| 40-60 | 1.0 | 0.9 | 8.3 | 0.5 | 10.0 | 2.20 |  |
| 60-80 | 0.9 | 1.0 | 8.3 | 0.4 | 10.0 | 2.20 |  |
| 80-100 | 0.9 | 0.9 | 8.3 | 1.6 | 10.2 | 2.64 |  |
| 100-120 | 0.9 | 1.1 | 7.9 | 0.6 | 10.0 | 1.54 |  |
| 120-140 | 1.0 | 1.1 | 8.4 | 0.4 | 10.8 | 2.20 |  |
|  |  |  |  |  |  |  |  |  |
| Широкая терраса на покатом склоне (41.411355, 47.787660) | 0-20 | 1.7 | 0.9 | 7.7 | 0.6 | 45.0 | 1.76 |  |
| 20-40 | 1.0 | 0.9 | 8.4 | 0.4 | 25.8 | 1.76 |  |
| 40-60 | 1.2 | 0.9 | 8.4 | 0.4 | 22.2 | 1.98 |  |
| 60-80 | 1.2 | 0.9 | 8.4 | 0.4 | 20.6 | 2.20 |  |
| 80-100 | 0.9 | 1.1 | 8.3 | 0.3 | 17.4 | 1.98 |  |
| 100-120 | 1.0 | 1.1 | 8.4 | 0.2 | 15.0 | 2.20 |  |

**Table S5.** Granulometric composition of soils of terraces on different slopes.

**Таблица S5.** Гранулометрический состав почв террас на разных склонах.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Разрез | Глубина, см | 1-0,25 | 0,25-0,05 | 0,05-0,01 | 0,01-0,005 | 0,005-0,001 | <0,001 | | <0,01 |
| % | | | | | | | |
| ***Склон северной экспозиции*** | | | | | | | | | |
| Узкая терраса на крутом склоне (41.409162, 47.781888) | 0-10 | 14 | 18 | 27 | 12 | 14 | | 15 | 41 |
| 10-20 | 12 | 14 | 30 | 10 | 17 | | 17 | 44 |
| 20-30 | 11 | 16 | 30 | 7 | 19 | | 17 | 43 |
| 30-40 | 12 | 14 | 31 | 8 | 18 | | 17 | 43 |
| 40-50 | 3 | 18 | 28 | 11 | 20 | | 20 | 51 |
| 50-60 | 2 | 15 | 30 | 11 | 25 | | 16 | 52 |
| 60-70 | 3 | 19 | 26 | 10 | 22 | | 20 | 52 |
| 70-80 | 3 | 17 | 29 | 10 | 22 | | 20 | 51 |
| 80-90 | 5 | 14 | 34 | 8 | 21 | | 18 | 48 |
| 90-100 | 3 | 14 | 34 | 11 | 18 | | 20 | 49 |
| 100-110 | 8 | 18 | 27 | 11 | 17 | | 20 | 47 |
|  |  |  |  |  |  |  | |  |  |
| Широкая терраса на покатом склоне (41.409404, 47.785986) | 0-10 | 20 | 12 | 26 | 10 | 16 | | 16 | 42 |
| 10-20 | 24 | 10 | 27 | 8 | 15 | | 16 | 39 |
| 20-30 | 6 | 12 | 30 | 10 | 19 | | 22 | 52 |
| 30-40 | 15 | 11 | 26 | 10 | 18 | | 21 | 48 |
| 40-50 | 3 | 8 | 32 | 11 | 22 | | 24 | 57 |
| 50-60 | 4 | 10 | 31 | 11 | 21 | | 23 | 56 |
| 60-70 | 7 | 10 | 30 | 11 | 21 | | 22 | 53 |
| 70-80 | 5 | 8 | 29 | 10 | 20 | | 28 | 59 |
| 80-90 | 6 | 8 | 30 | 11 | 19 | | 27 | 56 |
| 90-100 | 5 | 11 | 29 | 10 | 18 | | 27 | 55 |
| ***Склон южной экспозиции*** | | | | | | | | | |
| Узкая терраса на крутом склоне (41.416071, 47.783111) | 0-20 | 2 | 13 | 28 | 11 | 21 | | 25 | 57 |
| 20-40 | 2 | 15 | 27 | 12 | 20 | | 24 | 56 |
| 40-60 | 3 | 12 | 28 | 12 | 21 | | 24 | 56 |
| 60-80 | 2 | 14 | 29 | 8 | 24 | | 23 | 55 |
| 80-100 | 5 | 14 | 28 | 8 | 23 | | 23 | 54 |
| 100-120 | 5 | 9 | 29 | 11 | 20 | | 26 | 57 |
| 120-140 | 5 | 9 | 28 | 11 | 20 | | 26 | 58 |
|  |  |  |  |  |  |  | |  |  |
| Широкая терраса на покатом склоне (41.411355, 47.787660) | 0-20 | 17 | 29 | 26 | 6 | 10 | | 11 | 27 |
| 20-40 | 14 | 27 | 25 | 6 | 13 | | 15 | 34 |
| 40-60 | 3 | 29 | 28 | 6 | 18 | | 16 | 40 |
| 60-80 | 4 | 31 | 23 | 8 | 17 | | 17 | 42 |
| 80-100 | 3 | 22 | 29 | 8 | 17 | | 21 | 46 |
| 100-120 | 6 | 19 | 25 | 9 | 17 | | 23 | 50 |

**Table S6.** Biological activity of terraced soils on different slopes.

**Таблица S6.** Биологическая активность почв террас на разных склонах.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Разрез | Глубина, см | МБ | УА | ФА | БС | ПА |
| мкг С/г | мкг NH4/г 2ч | мкг Р2О5/г/ч | КОЕ, млн /г почвы | |
| ***Склон северной экспозиции*** | | | | | | |
| Узкая терраса на крутом склоне (41.409162, 47.781888) | 0-10 | 251.0±38.1 | 464.2±33.7 | 98.8±5.5 | 5.1±2.30 | 9.2±0.55 |
| 10-20 | 104.6±9.0 | 281.1±14.1 | 41.8±1.2 | 3.6±0.64 | 8.1±0.13 |
| 20-30 | 85.1±1.2 | 273.8±2.6 | 36.4±4.8 | 3.3±0.42 | 7.7±0.36 |
| 30-40 | 85.3±4.0 | 226.0±2.6 | 33.0±5.9 | 2.8±0.02 | 8.1±0.20 |
| 40-50 | 59.4±13.1 | 239.3±1.3 | 32.8±4.0 | 2.4±0.09 | 6.6±0.92 |
| 50-60 | 48.9±3.9 | 271.0±3.3 | 40.1±8.1 | 2.5±0.20 | 6.2±1.61 |
| 60-70 | 55.2±6.7 | 312.4±5.4 | 47.5±10.5 | 3.4±0.00 | 12.7±2.12 |
| 70-80 | 83.1±19.4 | 248.6±5.4 | 46.2±13.8 | 2.4±0.47 | 5.5±0.56 |
| 80-90 | 51.0±8.8 | 169.9±8.2 | 28.3±4.3 | 2.5±2.20 | 4.9±0.53 |
| 90-100 | 40.2±3.9 | 90.8±5.5 | 15.1±4.2 | 1.3±0.10 | 2.1±0.48 |
| 100-110 | 48.6±12.6 | 158.7±7.8 | 13.8±3.7 | 1.7±0.18 | 2.0±0.09 |
|  |  |  |  |  |  |  |
| Широкая терраса на покатом склоне (41.409404, 47.785986) | 0-10 | 248.4±10.4 | 372.1±9.7 | 32.6±3.1 | 5.9±0.07 | 12.1±1.37 |
| 10-20 | 122.7±16.3 | 330.6±3.3 | 22.2±1.2 | 4.0±0.18 | 12.3±0.98 |
| 20-30 | 39.4±7.3 | 319.5±16.5 | 18.3±1.3 | 3.2±0.24 | 10.4±0.55 |
| 30-40 | 56.5±7.0 | 284.9±13.3 | 15.2±0.5 | 3.8±0.58 | 8.8±0.00 |
| 40-50 | 50.7±10.1 | 227.0±20.0 | 13.1±0.6 | 3.9±1.55 | 10.6±1.39 |
| 50-60 | 34.0±14.3 | 180.1±3.2 | 11.3±0.7 | 3.1±0.21 | 7.5±0.40 |
| 60-70 | 34.6±11.7 | 182.0±3.2 | 10.7±1.4 | 1.5±0.00 | 7.2±0.37 |
| 70-80 | 75.0±23.3 | 62.0±4.9 | 8.5±0.2 | 1.2±0.07 | 2.8±0.29 |
| 80-90 | 28.6±6.7 | 31.0±3.4 | 8.3±1.0 | 1.0±0.14 | 1.9±0.34 |
| 90-100 | 63.9±18.6 | 37.2±6.5 | 6.2±3.1 | 0.2±0.02 | 0.8±0.05 |
| ***Склон южной экспозиции*** | | | | | | |
| Узкая терраса на крутом склоне (41.416071, 47.783111) | 0-20 | 56.3±2.2 | 136.2±1.5 | 3.1±0.1 | 2.9±0.07 | 7.6±0.45 |
| 20-40 | 13.0±4.8 | 93.0±4.4 | 2.0±0.1 | 1.5±0.32 | 3.0±0.11 |
| 40-60 | 8.7±2.3 | 65.8±3.0 | 2.5±0.6 | 0.9±0.01 | 3.3±0.10 |
| 60-80 | 8.0±1.6 | 42.2±3.0 | 1.9±0.5 | 1.4±0.04 | 2.7±0.11 |
| 80-100 | 18.5±4.3 | 33.0±3.0 | 2.1±0.5 | 0.6±0.01 | 2.0±0.16 |
| 100-120 | 30.3±6.2 | 33.1±2.8 | 0.9±0.2 | 1.5±0.00 | 3.4±0.08 |
| 120-140 | 14.1±2.7 | 24.0±2.9 | 1.7±0.00 | 0.8±0.18 | 2.4±0.55 |
|  |  |  |  |  |  |  |
| Широкая терраса на покатом склоне (41.411355, 47.787660) | 0-20 | 169.2±28.7 | 201.4±5.8 | 9.9±0.2 | 4.7±0.79 | 10.3±0.24 |
| 20-40 | 67.6±15.5 | 209.8±4.4 | 6.2±1.6 | 1.5±0.26 | 8.1±0.04 |
| 40-60 | 45.2±8.6 | 200.4±10.2 | 3.6±0.1 | 2.2±0.82 | 4.7±0.11 |
| 60-80 | 63.3±7.0 | 169.8±1.5 | 3.0±0.2 | 1.3±0.31 | 3.7±0.17 |
| 80-100 | 36.5±4.7 | 51.6±13.3 | 2.9±0.1 | 0.5±0.09 | 1.0±0.06 |
| 100-120 | 38.0±8.6 | 40.8±1.5 | 12.7±8.6 | 0.5±0.09 | 1.5±0.18 |

**Table S7.** Chemical properties of soils of terraces with different periods of functioning.

**Таблица S7.** Химические свойства почв террас с разным периодом функционирования.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Разрез | Глубина, см | Сорг | CaCO3 | pHводн. | P2O5 | K2O | EKOст смоль(экв)/кг |
|  |
| % | | мг/100 г | |  |
| ***Современная терраса*** | | | | | | | |  |
| 50 лет функциони-рования (41.409404, 47.785986) | 0-10 | 2.0 | 0.7 | 7.2 | 0.8 | 47.1 | 2.15 |  |
| 10-20 | 1.6 | 0.6 | 7.4 | 0.4 | 22.2 | 1.94 |  |
| 20-30 | 1.6 | 0.8 | 7.6 | 0.5 | 14.6 | 2.15 |  |
| 30-40 | 1.5 | 0.8 | 7.4 | 0.4 | 11.8 | 1.51 |  |
| 40-50 | 1.4 | 0.8 | 7.2 | 0.3 | 11.3 | 2.37 |  |
| 50-60 | 1.4 | 0.8 | 7.1 | 0.3 | 12.2 | 2.37 |  |
| 60-70 | 1.3 | 0.8 | 7.2 | 0.3 | 12.0 | 1.94 |  |
| 70-80 | 1.3 | 0.8 | 7.2 | 0.3 | 8.2 | 2.37 |  |
| 80-90 | 1.2 | 0.8 | 7.2 | 0.2 | 7.6 | 2.58 |  |
| 90-100 | 1.1 | 0.8 | 7.4 | 0.2 | 7.0 | 2.37 |  |
| ***Средневековая терраса*** | | | | | | | |  |
| 500 лет функциони-рования (41.420869, 47.781030) | 0-10 | 2.1 | 1.1 | 8.1 | 0.9 | 63.8 | 2.58 |  |
| 10-20 | 1.4 | 1.2 | 7.9 | 0.6 | 50.6 | 2.58 |  |
| 20-30 | 1.4 | 1.2 | 8.0 | 0.5 | 39.2 | 2.37 |  |
| 30-40 | 1.2 | 1.2 | 8.0 | 0.4 | 26.7 | 2.58 |  |
| 40-50 | 1.2 | 1.2 | 8.1 | 0.4 | 26.0 | 2.15 |  |
| 50-60 | 1.2 | 1.2 | 8.3 | 0.3 | 21.4 | 2.15 |  |
| 60-70 | 1.0 | 1.2 | 8.4 | 0.3 | 22.4 | 2.15 |  |
| 70-80 | 1.0 | 1.2 | 8.5 | 0.4 | 19.0 | 2.37 |  |
| 80-90 | 0.9 | 1.2 | 8.6 | 0.4 | 17.4 | 2.15 |  |
| 90-100 | 0.9 | 1.2 | 8.6 | 0.4 | 16.2 | 2.15 |  |
| 100-110 | 1.0 | 1.2 | 8.6 | 0.4 | 16.6 | 1.94 |  |

**Table S8.** Granulometric composition of soils of terraces with different periods of functioning.

**Таблица S8.** Гранулометрический состав почв террас с разным периодом функционирования.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Разрез | |  | Глубина, см | 1-0,25 | 0,25-0,05 | 0,05-0,01 | 0,01-0,005 | 0,005-0,001 | <0,001 | | <0,01 |
|  | % | | | | | | | |
|  | ***Современная терраса*** | | | | | | | | | | |
| 50 лет функциони-рования (41.409404, 47.785986) | |  | 0-10 | 20 | 12 | 26 | 10 | 16 | | 16 | 42 |
|  | 10-20 | 24 | 10 | 27 | 8 | 15 | | 16 | 39 |
|  | 20-30 | 6 | 12 | 30 | 10 | 19 | | 22 | 52 |
|  | 30-40 | 15 | 11 | 26 | 10 | 18 | | 21 | 48 |
|  | 40-50 | 3 | 8 | 32 | 11 | 22 | | 24 | 57 |
|  | 50-60 | 4 | 10 | 31 | 11 | 21 | | 23 | 56 |
|  | 60-70 | 7 | 10 | 30 | 11 | 21 | | 22 | 53 |
|  | 70-80 | 5 | 8 | 29 | 10 | 20 | | 28 | 59 |
|  | 80-90 | 6 | 8 | 30 | 11 | 19 | | 27 | 56 |
|  | 90-100 | 5 | 11 | 29 | 10 | 18 | | 27 | 55 |
|  | ***Средневековая терраса*** | | | | | | | | | | |
| 500 лет функциони-рования (41.420869, 47.781030) | |  | 0-10 | 2 | 17 | 29 | 9 | 19 | | 23 | 51 |
|  | 10-20 | 7 | 14 | 28 | 10 | 19 | | 22 | 51 |
|  | 20-30 | 10 | 9 | 29 | 9 | 19 | | 25 | 52 |
|  | 30-40 | 4 | 10 | 30 | 10 | 21 | | 25 | 56 |
|  | 40-50 | 6 | 13 | 28 | 9 | 19 | | 25 | 53 |
|  | 50-60 | 8 | 13 | 23 | 12 | 17 | | 27 | 56 |
|  | 60-70 | 4 | 8 | 29 | 10 | 20 | | 28 | 58 |
|  | 70-80 | 2 | 9 | 30 | 10 | 19 | | 30 | 59 |
|  | 80-90 | 1 | 8 | 31 | 14 | 16 | | 29 | 60 |
|  | 90-100 | 1 | 8 | 28 | 11 | 19 | | 32 | 63 |
|  | 100-110 | 1 | 8 | 32 | 10 | 20 | | 29 | 60 |

**Table S9.** Biological activity of soils of terraces with different periods of functioning.

**Таблица S9.** Биологическая активность почв террас с разным периодом функционирования.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Разрез | Глубина, см | МБ | УА | ФА | БС | ПА |
| мкг С/г | мкг NH4/г 2ч | мкг Р2О5/г/ч | КОЕ, млн /г почвы | |
| ***Современная терраса*** | | | | | | |
| 50 лет функциони-рования (41.409404, 47.785986) | 0-10 | 248.4±10.4 | 372.1±9.7 | 32.6±3.1 | 5.9±0,07 | 12.1±1.37 |
| 10-20 | 122.7±16.3 | 330.6±3.3 | 22.2±1.2 | 4.0±0.18 | 12.3±0.98 |
| 20-30 | 39.4±7.3 | 319.5±16.5 | 18.3±1.3 | 3.2±0.24 | 10.4±0.55 |
| 30-40 | 56.5±7.0 | 284.9±13.3 | 15.2±0.5 | 3.8±0.58 | 8.8±0.00 |
| 40-50 | 50.7±10.1 | 227.0±20.0 | 13.1±0.6 | 3.9±1.55 | 10.6±1.39 |
| 50-60 | 34.0±14.3 | 180.1±3.2 | 11.3±0.7 | 3.1±0.21 | 7.5±0.40 |
| 60-70 | 34.6±11.7 | 182.0±3.2 | 10.7±1.4 | 1.5±0.00 | 7.2±0.37 |
| 70-80 | 75.0±23.3 | 62.0±4.9 | 8.5±0.2 | 1.2±0.07 | 2.8±0.29 |
| 80-90 | 28.6±6.7 | 31.0±3.4 | 8.3±1.0 | 1.0±0.14 | 1.9±0.34 |
| 90-100 | 63.9±18.6 | 37.2±6.5 | 6.2±3.1 | 0.2±0.02 | 0.8±0.05 |
| ***Средневековая терраса*** | | | | | | |
| 500 лет функциони-рования (41.420869, 47.781030) | 0-10 | 294.4±23.3 | 916.2±7.8 | 11.3±2.0 | - | - |
| 10-20 | 195.7±13.1 | 607.0±2.5 | 4.9±1.1 | - | - |
| 20-30 | 153.1±6.4 | 451.9±6.3 | 3.8±0.8 | - | - |
| 30-40 | 97.2±11.0 | 444.0±10.0 | 3.2±0.8 | - | - |
| 40-50 | 68.8±12.9 | 409.1±3.8 | 4.0±0.6 | - | - |
| 50-60 | 85.7±15.1 | 352.5±5.1 | 2.8±0.4 | - | - |
| 60-70 | 64.6±18.1 | 248.8±5.7 | 2.8±0.2 | - | - |
| 70-80 | 38.8±12.1 | 208.0±2.5 | 1.9±0.3 | - | - |
| 80-90 | 44.8±12.0 | 184.1±9.5 | 2.1±0.3 | - | - |
| 90-100 | 28.5±8.2 | 170.5±1.3 | 1.8±0.1 | - | - |
| 100-110 | 49.4±3.8 | 167.2±1.9 | 1.8±0.2 | - | - |

**Table S10.** Spatial variation of soil properties within the terrace.

**Таблица S10.** Пространственное варьирование почвенных свойств в пределах террасы.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Разрез | Глубина, см | Сорг | CaCO3 | pHводн. | P2O5 | K2O | EKOст смоль(экв)/кг |
|  |
| % | | мг/100 г | |  |
| ***Терраса на склоне северной экспозиции*** | | | | | | | |  |
| Прибровочная зона (41.409162, 47.781888) | 0-10 | 2.9 | 1.1 | 6.9 | 0.8 | 38.0 | 2.86 |  |
| 10-20 | 2.4 | 1.2 | 7.0 | 0.6 | 12.8 | 2.64 |  |
| 20-30 | 2.4 | 1.1 | 7.0 | 0.5 | 11.0 | 2.64 |  |
| 30-40 | 2.1 | 1.1 | 6.6 | 0.4 | 11.2 | 3.08 |  |
| 40-50 | 2.1 | 1.1 | 6.5 | 0.4 | 9.4 | 2.86 |  |
| 50-60 | 2.1 | 0.9 | 6.5 | 0.4 | 9.2 | 2.42 |  |
| 60-70 | 2.3 | 0.9 | 6.4 | 0.4 | 8.8 | 2.64 |  |
| 70-80 | 2.3 | 0.6 | 6.5 | 0.4 | 8.2 | 2.86 |  |
| 80-90 | 2.8 | 0.9 | 6.5 | 0.4 | 6.8 | 3.30 |  |
| 90-100 | 3.2 | 1.1 | 6.7 | 0.4 | 6.4 | 2.64 |  |
| 100-110 | 1.6 | 0.9 | 6.9 | 0.4 | 6.2 | 2.86 |  |
|  |  |  |  |  |  |  |  |  |
| Центральная зона (41.409162, 47.781888) | 0-10 | 2.5 | 0.8 | 6.5 | 0.5 | 15.2 | 2.86 |  |
| 10-20 | 2.2 | 0.8 | 6.4 | 0.5 | 9.0 | 2.86 |  |
| 20-30 | 1.9 | 0.8 | 6.5 | 0.4 | 7.2 | 3.08 |  |
| 30-40 | 2.0 | 0.8 | 6.5 | 0.5 | 5.6 | 3.30 |  |
| 40-50 | 2.6 | 0.8 | 6.5 | 0.4 | 5.2 | 3.74 |  |
| 50-60 | 3.1 | 0.9 | 6.7 | 0.4 | 6.0 | 3.96 |  |
| 60-70 | 1.5 | 0.8 | 7.0 | 0.5 | 13.4 | 3.08 |  |
|  |  |  |  |  |  |  |  |  |
| Область тылового шва (41.409162, 47.781888) | 0-10 | 2.1 | 0.8 | 6.4 | 0.4 | 7.2 | 3.08 |  |
| 10-20 | 1.4 | 0.8 | 6.7 | 0.5 | 8.2 | 2.86 |  |
| 20-30 | 1.5 | 0.8 | 6.8 | 0.5 | 6.6 | 2.86 |  |
| 30-40 | 1.4 | 0.8 | 6.9 | 0.5 | 6.8 | 2.64 |  |
| 40-50 | 1.6 | 0.8 | 6.8 | 0.9 | 4.1 | 2.42 |  |

**Table S11.** Spatial variation of granulometric composition in soils within the terrace.

**Таблица S11.** Пространственное варьирование гранулометрического состава в почвах в пределах террасы.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Разрез | Глубина, см | 1-0,25 | 0,25-0,05 | 0,05-0,01 | 0,01-0,005 | 0,005-0,001 | <0,001 | <0,01 |
| % | | | | | | |
| ***Терраса на склоне северной экспозиции*** | | | | | | | | |
| Прибровочная зона (41.409162, 47.781888) | 0-10 | 14 | 18 | 27 | 12 | 14 | 15 | 41 |
| 10-20 | 12 | 14 | 30 | 10 | 17 | 17 | 44 |
| 20-30 | 11 | 16 | 30 | 7 | 19 | 17 | 43 |
| 30-40 | 12 | 14 | 31 | 8 | 18 | 17 | 43 |
| 40-50 | 3 | 18 | 28 | 11 | 20 | 20 | 51 |
| 50-60 | 2 | 15 | 30 | 11 | 25 | 16 | 52 |
| 60-70 | 3 | 19 | 26 | 10 | 22 | 20 | 52 |
| 70-80 | 3 | 17 | 29 | 10 | 22 | 20 | 51 |
| 80-90 | 5 | 14 | 34 | 8 | 21 | 18 | 48 |
| 90-100 | 3 | 14 | 34 | 11 | 18 | 20 | 49 |
| 100-110 | 8 | 18 | 27 | 11 | 17 | 20 | 47 |
|  |  |  |  |  |  |  |  |  |
| Центральная зона (41.409162, 47.781888) | 0-10 | 12 | 16 | 30 | 9 | 15 | 18 | 41 |
| 10-20 | 17 | 8 | 37 | 7 | 14 | 16 | 37 |
| 20-30 | 8 | 12 | 30 | 9 | 19 | 21 | 50 |
| 30-40 | 10 | 13 | 28 | 9 | 18 | 22 | 49 |
| 40-50 | 6 | 20 | 31 | 7 | 18 | 19 | 43 |
| 50-60 | 5 | 18 | 34 | 7 | 19 | 18 | 44 |
| 60-70 | 3 | 16 | 33 | 7 | 21 | 20 | 48 |
|  |  |  |  |  |  |  |  |  |
| Область тылового шва (41.409162, 47.781888) | 0-10 | 19 | 21 | 22 | 7 | 14 | 17 | 38 |
| 10-20 | 13 | 5 | 31 | 10 | 16 | 25 | 51 |
| 20-30 | 7 | 12 | 27 | 10 | 19 | 24 | 53 |
| 30-40 | 18 | 12 | 23 | 10 | 16 | 20 | 46 |
| 40-50 | 5 | 15 | 28 | 8 | 21 | 23 | 52 |

**Table S12.** Spatial variation of biological activity in soils within the terrace. **Таблица S12.** Пространственное варьирование биологической активности в почвах в пределах террасы.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Разрез | Глубина, см | МБ | УА | ФА | БС | ПА |
| мкг С/г | мкг NH4/г 2ч | мкг Р2О5/г/ч | КОЕ, млн /г почвы | |
| ***Терраса на склоне северной экспозиции*** | | | | | | |
| Прибровочная зона (41.409162, 47.781888) | 0-10 | 251.0±38.1 | 464.2±33.7 | 98.8±5.5 | 5.1±2.30 | 9.2±0.55 |
| 10-20 | 104.6±9.0 | 281.1±14.1 | 41.8±1.2 | 3.6±0.64 | 8.1±0.13 |
| 20-30 | 85.1±11.2 | 273.8±2.6 | 36.4±4.8 | 3.3±0.42 | 7.7±0.36 |
| 30-40 | 85.3±4.0 | 226.0±2.6 | 33.0±5.9 | 2.8±0.02 | 8.1±0.20 |
| 40-50 | 59.4±13.1 | 239.3±1.3 | 32.8±4.0 | 2.4±0.09 | 6.6±0.92 |
| 50-60 | 48.9±3.9 | 271.0±3.3 | 40.1±8.1 | 2.5±0.20 | 6.2±1.61 |
| 60-70 | 55.2±6.7 | 312.4±5.4 | 47.5±10.5 | 3.4±0.00 | 12.7±2.12 |
| 70-80 | 83.1±19.4 | 248.6±5.4 | 46.2±13.8 | 2.4±0.47 | 5.5±0.56 |
| 80-90 | 51.0±8.8 | 169.9±8.2 | 28.3±4.3 | 2.5±2.20 | 4.9±0.53 |
| 90-100 | 40.2±3.9 | 90.8±5.5 | 15.1±4.2 | 1.3±0.10 | 2.1±0.48 |
| 100-110 | 48.6±12.6 | 158.7±7.8 | 13.8±3.7 | 1.7±0.18 | 2.0±0.09 |
|  |  |  |  |  |  |  |
| Центральная зона (41.409162, 47.781888) | 0-10 | 184.8±7.2 | 162.9±2.6 | 60.3±7.8 | - | - |
| 10-20 | 158.5±2.6 | 170.6±2.6 | 42.9±4.3 | - | - |
| 20-30 | 105.1±16.3 | 165.1±2.7 | 31.1±3.9 | - | - |
| 30-40 | 54,7±5.0 | 204.3±1.3 | 28.1±4.1 | - | - |
| 40-50 | 49.2±17.9 | 143.3±8.3 | 16.5±1.3 | - | - |
| 50-60 | 17.2±6.3 | 96.5±2.8 | 12.1±2.2 | - | - |
| 60-70 | 14.9±6.3 | 141.9±3.9 | 12.0±1.9 | - | - |
|  |  |  |  |  |  |  |
| Область тылового шва (41.409162, 47.781888) | 0-10 | 271.8±56.5 | 136.5±3.2 | 78.5±6.5 | - | - |
| 10-20 | 34.1±3.8 | 43.8±1.3 | 13.6±1.3 | - | - |
| 20-30 | 56.1±21.9 | 30.8±1.3 | 7.4±0.6 | - | - |
| 30-40 | 11.5±13.0 | 47.5±4.1 | 7.4±1.1 | - | - |
| 40-50 | 19.7±5.5 | 34.2±1.4 | 9.1±1.2 | - | - |