

Additional materials for the article

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A MODEL SCRIPTS USED FOR LOAD TESTING ABOUT 10^6 – 10^8 ALLELIC COMBINATIONS IN A COMMUNITY

In these scripts, the similar communities are described, which form symbiotic trophic rings of eight populations. The only difference between them is a various level of genetic diversity of community populations (number of various allelic combinations per population). The script number denotes the initial number of allelic combinations in each population of the community i.e. its complexity. For the scripts listed below, the complexity varies from 1 to 10^7 allelic combinations per each population, or from 8 to $8 \cdot 10^7$ per the entire community. These scripts are designed just to demonstrate a speedup of the simulations with the high-performance HEC versions. The HEC script language is described in detail in [16] as well as at the HEC web-site (http://evol-constructor.bionet.nsc.ru/wp-content/uploads/2011/02/EC_script_language_eng.pdf).

Script No. 1. The number of allelic combinations in each population at an initial point of time is equal to 1

```
DECLARE
volume = 1
nonspec = 1
spec = 8
flow = 0.01
substrates_ns = 1e-4
substrates_ss = 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4
comsub = 1e-3

POP=1
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1.5; allele_concentrations: 1
  gene_s=1;allele_values: 1.5; allele_concentrations: 1
  gene_p=2;allele_values: 1.5; allele_concentrations: 1
END POP(1)

POP=2
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1.5; allele_concentrations: 1
  gene_s=2;allele_values: 1.5; allele_concentrations: 1
  gene_p=3;allele_values: 1.5; allele_concentrations: 1
END POP(2)

POP=3
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1.5; allele_concentrations: 1
  gene_s=3;allele_values: 1.5; allele_concentrations: 1
  gene_p=4;allele_values: 1.5; allele_concentrations: 1
END POP(3)

POP=4
  size=1e+5
```

```

increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1.5; allele_concentrations: 1
gene_s=4;allele_values: 1.5; allele_concentrations: 1
gene_p=5;allele_values: 1.5; allele_concentrations: 1
END POP(4)

POP=5
size=1e+5
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1.5; allele_concentrations: 1
gene_s=5;allele_values: 1.5; allele_concentrations: 1
gene_p=6;allele_values: 1.5; allele_concentrations: 1
END POP(5)

POP=6
size=1e+5
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1.5; allele_concentrations: 1
gene_s=6;allele_values: 1.5; allele_concentrations: 1
gene_p=7;allele_values: 1.5; allele_concentrations: 1
END POP(6)

POP=7
size=1e+5
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1.5; allele_concentrations: 1
gene_s=7;allele_values: 1.5; allele_concentrations: 1
gene_p=8;allele_values: 1.5; allele_concentrations: 1
END POP(7)

POP=8
size=1e+5
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1.5; allele_concentrations: 1
gene_s=8;allele_values: 1.5; allele_concentrations: 1
gene_p=1;allele_values: 1.5; allele_concentrations: 1
END POP(8)

END DECLARE

iterate=200000

```

Script No. 2. The number of allelic combinations in each population at an initial point of time is equal to 2

```

DECLARE
volume = 1
nonspec = 1
spec = 8
flow = 0.01
substrates_ns = 1e-4
substrates_ss = 1e-4, 1e-4, 1e-4,1e-4, 1e-4, 1e-4, 1e-4,1e-4
comsub = 1e-3

```

```

POP=1
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1.5; allele_concentrations: 1
  gene_s=1;allele_values: 1.5, 2.5; allele_concentrations: 1, 1
  gene_p=2;allele_values: 1.5; allele_concentrations: 1
END POP(1)

POP=2
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1.5; allele_concentrations: 1
  gene_s=2;allele_values: 1.5, 2.5; allele_concentrations: 1, 1
  gene_p=3;allele_values: 1.5; allele_concentrations: 1
END POP(2)

POP=3
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1.5; allele_concentrations: 1
  gene_s=3;allele_values: 1.5, 2.5; allele_concentrations: 1, 1
  gene_p=4;allele_values: 1.5; allele_concentrations: 1
END POP(3)

POP=4
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1.5; allele_concentrations: 1
  gene_s=4;allele_values: 1.5, 2.5; allele_concentrations: 1, 1
  gene_p=5;allele_values: 1.5; allele_concentrations: 1
END POP(4)

POP=5
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1.5; allele_concentrations: 1
  gene_s=5;allele_values: 1.5, 2.5; allele_concentrations: 1, 1
  gene_p=6;allele_values: 1.5; allele_concentrations: 1
END POP(5)

POP=6
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1.5; allele_concentrations: 1
  gene_s=6;allele_values: 1.5, 2.5; allele_concentrations: 1, 1
  gene_p=7;allele_values: 1.5; allele_concentrations: 1
END POP(6)

POP=7
  size=1e+5

```

```

    increaser=symbiotic
    k_death=1e-11
    k_flow=0.01
    cprod=1e+6
    ccons_nsp=5e+7
    ccons_sp=100000.0
    gene_n=1;allele_values: 1.5; allele_concentrations: 1
    gene_s=7;allele_values: 1.5, 2.5; allele_concentrations: 1, 1
    gene_p=8;allele_values: 1.5; allele_concentrations: 1
END POP(7)

POP=8
    size=1e+5
    increaser=symbiotic
    k_death=1e-11
    k_flow=0.01
    cprod=1e+6
    ccons_nsp=5e+7
    ccons_sp=100000.0
    gene_n=1;allele_values: 1.5; allele_concentrations: 1
    gene_s=8;allele_values: 1.5, 2.5; allele_concentrations: 1, 1
    gene_p=1;allele_values: 1.5; allele_concentrations: 1
END POP(8)

END DECLARE

iterate=100000

```

Script No. 3. The number of allelic combinations in each population at an initial point of time is equal to 4

```

DECLARE
volume = 1
nonspec = 1
spec = 8
flow = 0.01
substrates_ns = 1e-4
substrates_ss = 1e-4, 1e-4,1e-4,1e-4, 1e-4, 1e-4,1e-4,1e-4
comsub = 1e-3

POP=1
    size=1e+5
    increaser=symbiotic
    k_death=1e-11
    k_flow=0.01
    cprod=1e+6
    ccons_nsp=5e+7
    ccons_sp=100000.0
    gene_n=1;allele_values: 1.5, 2.5; allele_concentrations: 1, 1
    gene_s=1;allele_values: 1.5, 2.5; allele_concentrations: 1, 1
    gene_p=2;allele_values: 1.5; allele_concentrations: 1
END POP(1)

POP=2
    size=1e+5
    increaser=symbiotic
    k_death=1e-11
    k_flow=0.01
    cprod=1e+6
    ccons_nsp=5e+7
    ccons_sp=100000.0
    gene_n=1;allele_values: 1.5, 2.5; allele_concentrations: 1, 1
    gene_s=2;allele_values: 1.5, 2.5; allele_concentrations: 1, 1
    gene_p=3;allele_values: 1.5; allele_concentrations: 1
END POP(2)

POP=3
    size=1e+5
    increaser=symbiotic
    k_death=1e-11
    k_flow=0.01
    cprod=1e+6
    ccons_nsp=5e+7
    ccons_sp=100000.0
    gene_n=1;allele_values: 1.5, 2.5; allele_concentrations: 1, 1
    gene_s=3;allele_values: 1.5, 2.5; allele_concentrations: 1, 1
    gene_p=4;allele_values: 1.5; allele_concentrations: 1
END POP(3)

```

```

POP=4
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1.5, 2.5; allele_concentrations: 1, 1
  gene_s=4;allele_values: 1.5, 2.5; allele_concentrations: 1, 1
  gene_p=5;allele_values: 1.5; allele_concentrations: 1
END POP(4)

POP=5
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1.5, 2.5; allele_concentrations: 1, 1
  gene_s=5;allele_values: 1.5, 2.5; allele_concentrations: 1, 1
  gene_p=6;allele_values: 1.5; allele_concentrations: 1
END POP(5)

POP=6
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1.5, 2.5; allele_concentrations: 1, 1
  gene_s=6;allele_values: 1.5, 2.5; allele_concentrations: 1, 1
  gene_p=7;allele_values: 1.5; allele_concentrations: 1
END POP(6)

POP=7
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1.5, 2.5; allele_concentrations: 1, 1
  gene_s=7;allele_values: 1.5, 2.5; allele_concentrations: 1, 1
  gene_p=8;allele_values: 1.5; allele_concentrations: 1
END POP(7)

POP=8
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1.5, 2.5; allele_concentrations: 1, 1
  gene_s=8;allele_values: 1.5, 2.5; allele_concentrations: 1, 1
  gene_p=1;allele_values: 1.5; allele_concentrations: 1
END POP(8)

END DECLARE

iterate=50000

```

Script No. 4. The number of allelic combinations in each population at an initial point of time is equal to 10

```

DECLARE
volume = 1
nonspec = 1
spec = 8
flow = 0.01
substrates_ns = 1e-4
substrates_ss = 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4

```

```

comsub = 1e-3

POP=1
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2; allele_concentrations: 1, 1
  gene_s=1;allele_values: 1, 2, 3, 4, 5; allele_concentrations: 1, 1, 1, 1, 1
  gene_p=2;allele_values: 1.5; allele_concentrations: 1
END POP(1)

POP=2
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2; allele_concentrations: 1, 1
  gene_s=2;allele_values: 1, 2, 3, 4, 5; allele_concentrations: 1, 1, 1, 1, 1
  gene_p=3;allele_values: 1.5; allele_concentrations: 1
END POP(2)

POP=3
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2; allele_concentrations: 1, 1
  gene_s=3;allele_values: 1, 2, 3, 4, 5; allele_concentrations: 1, 1, 1, 1, 1
  gene_p=4;allele_values: 1.5; allele_concentrations: 1
END POP(3)

POP=4
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2; allele_concentrations: 1, 1
  gene_s=4;allele_values: 1, 2, 3, 4, 5; allele_concentrations: 1, 1, 1, 1, 1
  gene_p=5;allele_values: 1.5; allele_concentrations: 1
END POP(4)

POP=5
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2; allele_concentrations: 1, 1
  gene_s=5;allele_values: 1, 2, 3, 4, 5; allele_concentrations: 1, 1, 1, 1, 1
  gene_p=6;allele_values: 1.5; allele_concentrations: 1
END POP(5)

POP=6
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2; allele_concentrations: 1, 1
  gene_s=6;allele_values: 1, 2, 3, 4, 5; allele_concentrations: 1, 1, 1, 1, 1
  gene_p=7;allele_values: 1.5; allele_concentrations: 1
END POP(6)

```

```

POP=7
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2; allele_concentrations: 1, 1
  gene_s=7;allele_values: 1, 2, 3, 4, 5; allele_concentrations: 1, 1, 1, 1, 1
  gene_p=8;allele_values: 1.5; allele_concentrations: 1
END POP(7)

POP=8
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2; allele_concentrations: 1, 1
  gene_s=8;allele_values: 1, 2, 3, 4, 5; allele_concentrations: 1, 1, 1, 1, 1
  gene_p=1;allele_values: 1.5; allele_concentrations: 1
END POP(8)

END DECLARE

iterate=20000

```

Script No. 5. The number of allelic combinations in each population at an initial point of time is equal to 20

```

DECLARE
volume = 1
nonspec = 1
spec = 8
flow = 0.01
substrates_ns = 1e-4
substrates_ss = 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4
comsub = 1e-3

POP=1
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4; allele_concentrations: 1, 1, 1, 1
  gene_s=1;allele_values: 1, 2, 3, 4, 5; allele_concentrations: 1, 1, 1, 1, 1
  gene_p=2;allele_values: 1.5; allele_concentrations: 1
END POP(1)

POP=2
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4; allele_concentrations: 1, 1, 1, 1
  gene_s=2;allele_values: 1, 2, 3, 4, 5; allele_concentrations: 1, 1, 1, 1, 1
  gene_p=3;allele_values: 1.5; allele_concentrations: 1
END POP(2)

POP=3
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4; allele_concentrations: 1, 1, 1, 1
  gene_s=3;allele_values: 1, 2, 3, 4, 5; allele_concentrations: 1, 1, 1, 1, 1

```

```

    gene_p=4;allele_values: 1.5; allele_concentrations: 1
END POP(3)

POP=4
    size=1e+5
    increaser=symbiotic
    k_death=1e-11
    k_flow=0.01
    cprod=1e+6
    ccons_nsp=5e+7
    ccons_sp=100000.0
    gene_n=1;allele_values: 1, 2, 3, 4; allele_concentrations: 1, 1, 1, 1
    gene_s=4;allele_values: 1, 2, 3, 4, 5; allele_concentrations: 1, 1, 1, 1, 1
    gene_p=5;allele_values: 1.5; allele_concentrations: 1
END POP(4)

POP=5
    size=1e+5
    increaser=symbiotic
    k_death=1e-11
    k_flow=0.01
    cprod=1e+6
    ccons_nsp=5e+7
    ccons_sp=100000.0
    gene_n=1;allele_values: 1, 2, 3, 4; allele_concentrations: 1, 1, 1, 1
    gene_s=5;allele_values: 1, 2, 3, 4, 5; allele_concentrations: 1, 1, 1, 1, 1
    gene_p=6;allele_values: 1.5; allele_concentrations: 1
END POP(5)

POP=6
    size=1e+5
    increaser=symbiotic
    k_death=1e-11
    k_flow=0.01
    cprod=1e+6
    ccons_nsp=5e+7
    ccons_sp=100000.0
    gene_n=1;allele_values: 1, 2, 3, 4; allele_concentrations: 1, 1, 1, 1
    gene_s=6;allele_values: 1, 2, 3, 4, 5; allele_concentrations: 1, 1, 1, 1, 1
    gene_p=7;allele_values: 1.5; allele_concentrations: 1
END POP(6)

POP=7
    size=1e+5
    increaser=symbiotic
    k_death=1e-11
    k_flow=0.01
    cprod=1e+6
    ccons_nsp=5e+7
    ccons_sp=100000.0
    gene_n=1;allele_values: 1, 2, 3, 4; allele_concentrations: 1, 1, 1, 1
    gene_s=7;allele_values: 1, 2, 3, 4, 5; allele_concentrations: 1, 1, 1, 1, 1
    gene_p=8;allele_values: 1.5; allele_concentrations: 1
END POP(7)

POP=8
    size=1e+5
    increaser=symbiotic
    k_death=1e-11
    k_flow=0.01
    cprod=1e+6
    ccons_nsp=5e+7
    ccons_sp=100000.0
    gene_n=1;allele_values: 1, 2, 3, 4; allele_concentrations: 1, 1, 1, 1
    gene_s=8;allele_values: 1, 2, 3, 4, 5; allele_concentrations: 1, 1, 1, 1, 1
    gene_p=1;allele_values: 1.5; allele_concentrations: 1
END POP(8)

END DECLARE

iterate=50000

```

Script No. 6. The number of allelic combinations in each population at an initial point of time is equal to 100

```

DECLARE
volume = 1
nonspec = 1
spec = 8

```



```

flow = 0.01
substrates_ns = 1e-4
substrates_ss = 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4
comsub = 1e-3

POP=1
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_p=2;allele_values: 1.5; allele_concentrations: 1
END POP(1)

POP=2
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=2;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_p=3;allele_values: 1.5; allele_concentrations: 1
END POP(2)

POP=3
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=3;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_p=4;allele_values: 1.5; allele_concentrations: 1
END POP(3)

POP=4
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=4;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_p=5;allele_values: 1.5; allele_concentrations: 1
END POP(4)

POP=5
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=5;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_p=6;allele_values: 1.5; allele_concentrations: 1
END POP(5)

```

```

POP=6
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
  1, 1, 1, 1
  gene_s=6;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
  1, 1, 1, 1, 1
  gene_p=7;allele_values: 1.5; allele_concentrations: 1
END POP(6)

POP=7
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
  1, 1, 1, 1, 1
  gene_s=7;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
  1, 1, 1, 1, 1
  gene_p=8;allele_values: 1.5; allele_concentrations: 1
END POP(7)

POP=8
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
  1, 1, 1, 1, 1
  gene_s=8;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
  1, 1, 1, 1, 1
  gene_p=1;allele_values: 1.5; allele_concentrations: 1
END POP(8)

END DECLARE

iterate=25000

```

Script No. 7. The number of allelic combinations in each population at an initial point of time is equal to 10^3

```

DECLARE
volume = 1
nonspec = 1
spec = 8
flow = 0.01
substrates_ns = 1e-4
substrates_ss = 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4
comsub = 1e-3

POP=1
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
  1, 1, 1, 1, 1
  gene_s=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
  1, 1, 1, 1, 1
  gene_s=2;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
  1, 1, 1, 1, 1
  gene_p=2;allele_values: 1.5; allele_concentrations: 1
END POP(1)

POP=2

```

```

size=1e+5
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=2;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=3;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_p=3;allele_values: 1.5; allele_concentrations: 1
END POP(2)

POP=3
size=1e+5
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=4;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=3;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_p=4;allele_values: 1.5; allele_concentrations: 1
END POP(3)

POP=4
size=1e+5
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=5;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=4;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_p=5;allele_values: 1.5; allele_concentrations: 1
END POP(4)

POP=5
size=1e+5
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=5;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=6;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_p=6;allele_values: 1.5; allele_concentrations: 1
END POP(5)

POP=6
size=1e+5
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=6;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1

```

```

gene_s=6;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_p=7;allele_values: 1.5; allele_concentrations: 1
END POP(6)

POP=7
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=7;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=7;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_p=8;allele_values: 1.5; allele_concentrations: 1
END POP(7)

POP=8
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=8;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_p=1;allele_values: 1.5; allele_concentrations: 1
END POP(8)

END DECLARE

iterate=25000

```

Script No. 8. The number of allelic combinations in each population at an initial point of time is equal to $5 \cdot 10^3$

```

DECLARE
volume = 1
nonspec = 1
spec = 8
flow = 0.01
substrates_ns = 1e-4
substrates_ss = 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4
comsub = 1e-3

POP=1
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=2;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=3;allele_values: 1, 2, 3, 4, 5; allele_concentrations: 1, 1, 1, 1, 1
  gene_p=2;allele_values: 1.5; allele_concentrations: 1
END POP(1)

POP=2
  size=1e+5
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01

```

```

cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=2;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=3;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=4;allele_values: 1, 2, 3, 4, 5; allele_concentrations: 1, 1, 1, 1, 1
gene_p=3;allele_values: 1.5; allele_concentrations: 1
END POP(2)

POP=3
size=1e+5
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=3;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=4;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=5;allele_values: 1, 2, 3, 4, 5; allele_concentrations: 1, 1, 1, 1, 1
gene_p=4;allele_values: 1.5; allele_concentrations: 1
END POP(3)

POP=4
size=1e+5
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=4;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=5;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=6;allele_values: 1, 2, 3, 4, 5; allele_concentrations: 1, 1, 1, 1, 1
gene_p=5;allele_values: 1.5; allele_concentrations: 1
END POP(4)

POP=5
size=1e+5
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=5;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=6;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=7;allele_values: 1, 2, 3, 4, 5; allele_concentrations: 1, 1, 1, 1, 1
gene_p=6;allele_values: 1.5; allele_concentrations: 1
END POP(5)

POP=6
size=1e+5
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=6;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1

```

```

gene_s=7;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1, 1, 1, 1, 1
gene_s=8;allele_values: 1, 2, 3, 4, 5; allele_concentrations: 1, 1, 1, 1, 1
gene_p=7;allele_values: 1.5; allele_concentrations: 1
END POP(6)

POP=7
size=1e+5
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1, 1, 1, 1, 1
gene_s=7;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1, 1, 1, 1, 1
gene_s=8;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1, 1, 1, 1, 1
gene_s=1;allele_values: 1, 2, 3, 4, 5; allele_concentrations: 1, 1, 1, 1, 1
gene_p=8;allele_values: 1.5; allele_concentrations: 1
END POP(7)

POP=8
size=1e+5
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1, 1, 1, 1, 1
gene_s=8;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1, 1, 1, 1, 1
gene_s=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1, 1, 1, 1, 1
gene_s=2;allele_values: 1, 2, 3, 4, 5; allele_concentrations: 1, 1, 1, 1, 1
gene_p=1;allele_values: 1.5; allele_concentrations: 1
END POP(8)

END DECLARE

iterate=10000

```

Script No. 9. The number of allelic combinations in each population at an initial point of time is equal to 10^4

```

DECLARE
volume = 1
nonspec = 1
spec = 8
flow = 0.01
substrates_ns = 1e-4
substrates_ss = 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4
comsub = 1e-3

POP=1
size=1e+5
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1, 1, 1, 1, 1
gene_s=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1, 1, 1, 1, 1
gene_s=3;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1, 1, 1, 1, 1
gene_s=2;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1, 1, 1, 1, 1
gene_p=2;allele_values: 1.5; allele_concentrations: 1
END POP(1)

POP=2

```

```

size=1e+5
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=2;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=3;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=4;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_p=3;allele_values: 1.5; allele_concentrations: 1
END POP(2)

POP=3
size=1e+5
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=5;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=3;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=4;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_p=4;allele_values: 1.5; allele_concentrations: 1
END POP(3)

POP=4
size=1e+5
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=5;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=6;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=4;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_p=5;allele_values: 1.5; allele_concentrations: 1
END POP(4)

POP=5
size=1e+5
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=5;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=6;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=7;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_p=6;allele_values: 1.5; allele_concentrations: 1
END POP(5)

POP=6
size=1e+5
increaser=symbiotic
k_death=1e-11
k_flow=0.01

```

```

cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=6;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=7;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=8;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_p=7;allele_values: 1.5; allele_concentrations: 1
END POP(6)

POP=7
size=1e+5
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=7;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=8;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_p=8;allele_values: 1.5; allele_concentrations: 1
END POP(7)

POP=8
size=1e+5
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=2;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=8;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_p=1;allele_values: 1.5; allele_concentrations: 1
END POP(8)

END DECLARE

iterate=5000

```

Script No. 10. The number of allelic combinations in each population at an initial point of time is equal to 10^5

```

DECLARE
volume = 1
nonspec = 1
spec = 8
flow = 0.01
substrates_ns = 1e-4
substrates_ss = 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4
comsub = 1e-3

POP=1
size=1e+6
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1

```



```

    gene_s=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=3;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=2;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=4;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
    gene_p=2;allele_values: 1.5; allele_concentrations: 1
END POP(1)

POP=2
    size=1e+6
    increaser=symbiotic
    k_death=1e-11
    k_flow=0.01
    cprod=1e+6
    ccons_nsp=5e+7
    ccons_sp=100000.0
    gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
    gene_s=2;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=3;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=4;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=5;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
    gene_p=3;allele_values: 1.5; allele_concentrations: 1
END POP(2)

POP=3
    size=1e+6
    increaser=symbiotic
    k_death=1e-11
    k_flow=0.01
    cprod=1e+6
    ccons_nsp=5e+7
    ccons_sp=100000.0
    gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
    gene_s=6;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=3;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=4;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=5;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
    gene_p=4;allele_values: 1.5; allele_concentrations: 1
END POP(3)

POP=4
    size=1e+6
    increaser=symbiotic
    k_death=1e-11
    k_flow=0.01
    cprod=1e+6
    ccons_nsp=5e+7
    ccons_sp=100000.0
    gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
    gene_s=7;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=6;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=4;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=5;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
    gene_p=5;allele_values: 1.5; allele_concentrations: 1
END POP(4)

POP=5
    size=1e+6
    increaser=symbiotic
    k_death=1e-11
    k_flow=0.01
    cprod=1e+6

```

```

ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=6;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=7;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=8;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=5;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_p=6;allele_values: 1.5; allele_concentrations: 1
END POP(5)

POP=6
size=1e+6
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=6;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=7;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=8;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_p=7;allele_values: 1.5; allele_concentrations: 1
END POP(6)

POP=7
size=1e+6
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=7;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=8;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=2;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_p=8;allele_values: 1.5; allele_concentrations: 1
END POP(7)

POP=8
size=1e+6
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=2;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=3;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=8;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_p=1;allele_values: 1.5; allele_concentrations: 1
END POP(8)

END DECLARE

```

iterate=500

Script No. 11. The number of allelic combinations in each population at an initial point of time is equal to 10^6

```
DECLARE
volume = 1
nonspec = 1
spec = 8
flow = 0.01
substrates_ns = 1e-4
substrates_ss = 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4, 1e-4
comsub = 1e-3

POP=1
  size=1e+7
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=3;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=2;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=5;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=4;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_p=2;allele_values: 1.5; allele_concentrations: 1
END POP(1)

POP=2
  size=1e+7
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=2;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=3;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=4;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=5;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=6;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_p=3;allele_values: 1.5; allele_concentrations: 1
END POP(2)

POP=3
  size=1e+7
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=7;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=3;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=4;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=5;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
```

```

gene_s=6;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_p=4;allele_values: 1.5; allele_concentrations: 1
END POP(3)

POP=4
  size=1e+7
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=7;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=8;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=4;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=5;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=6;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_p=5;allele_values: 1.5; allele_concentrations: 1
END POP(4)

POP=5
  size=1e+7
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=7;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=8;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=5;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=6;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_p=6;allele_values: 1.5; allele_concentrations: 1
END POP(5)

POP=6
  size=1e+7
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=2;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=7;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=8;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=6;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_p=7;allele_values: 1.5; allele_concentrations: 1
END POP(6)

POP=7
  size=1e+7
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6

```

```

ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=3;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=7;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=8;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=2;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_p=8;allele_values: 1.5; allele_concentrations: 1
END POP(7)

POP=8
size=1e+7
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=2;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=4;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=8;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=3;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_p=1;allele_values: 1.5; allele_concentrations: 1
END POP(8)

END DECLARE

iterate=5

```

Script No. 12. The number of allelic combinations in each population at an initial point of time is equal to 10^7

```

DECLARE
volume = 1
nonspec = 1
spec = 9
flow = 0.01
substrates_ns = 100
substrates_ss = 100, 100, 100, 100, 100,100,100,100,100
comsub = 1e-3

POP=1
size=1e+8
increaser=symbiotic
k_death=1e-11
k_flow=0.01
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=3;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=2;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=5;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=4;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1

```

```

gene_s=9;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_p=2;allele_values: 1.5; allele_concentrations: 1
END POP(1)

POP=2
  size=1e+8
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=2;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=3;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=4;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=5;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=6;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=9;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_p=3;allele_values: 1.5; allele_concentrations: 1
END POP(2)

POP=3
  size=1e+8
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=7;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=3;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=4;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=5;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=6;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=9;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_p=4;allele_values: 1.5; allele_concentrations: 1
END POP(3)

POP=4
  size=1e+8
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=7;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=8;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=4;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=5;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=6;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=9;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_p=5;allele_values: 1.5; allele_concentrations: 1
END POP(4)

```

```

POP=5
  size=1e+8
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=7;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=8;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=5;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=6;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=9;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_p=6;allele_values: 1.5; allele_concentrations: 1
END POP(5)

POP=6
  size=1e+8
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_s=2;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=7;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=8;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=6;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=9;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
  gene_p=7;allele_values: 1.5; allele_concentrations: 1
END POP(6)

POP=7
  size=1e+8
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01
  cprod=1e+6
  ccons_nsp=5e+7
  ccons_sp=100000.0
  gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_s=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=3;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=7;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=8;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=2;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=9;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
  gene_p=8;allele_values: 1.5; allele_concentrations: 1
END POP(7)

POP=8
  size=1e+8
  increaser=symbiotic
  k_death=1e-11
  k_flow=0.01

```

```
cprod=1e+6
ccons_nsp=5e+7
ccons_sp=100000.0
gene_n=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=2;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1
gene_s=1;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=4;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=8;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=3;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_s=9;allele_values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; allele_concentrations: 1, 1, 1, 1, 1, 1,
1, 1, 1, 1
gene_p=1;allele_values: 1.5; allele_concentrations: 1
END POP(8)
```

END DECLARE

iterate=10