Hive Simulation

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Outline

Simulation results and analysis

Evolution of the model

- Daily simulation

Missing flower season comparison

- Spring
- Summer

Critical points in the fall season

- Death criteria:
- Overview
- Variation

Hive Simulation

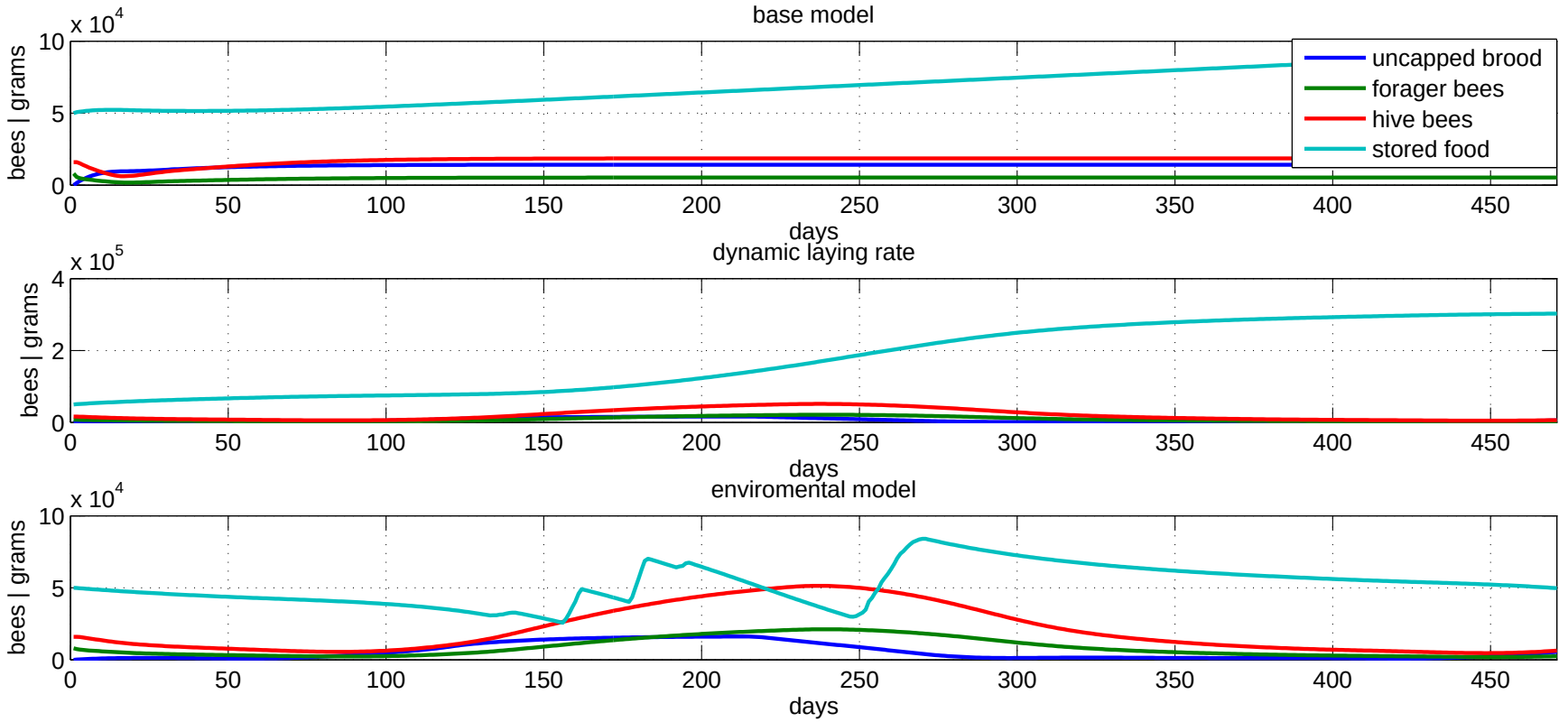
Peak value influence

Delay influence around breaking point

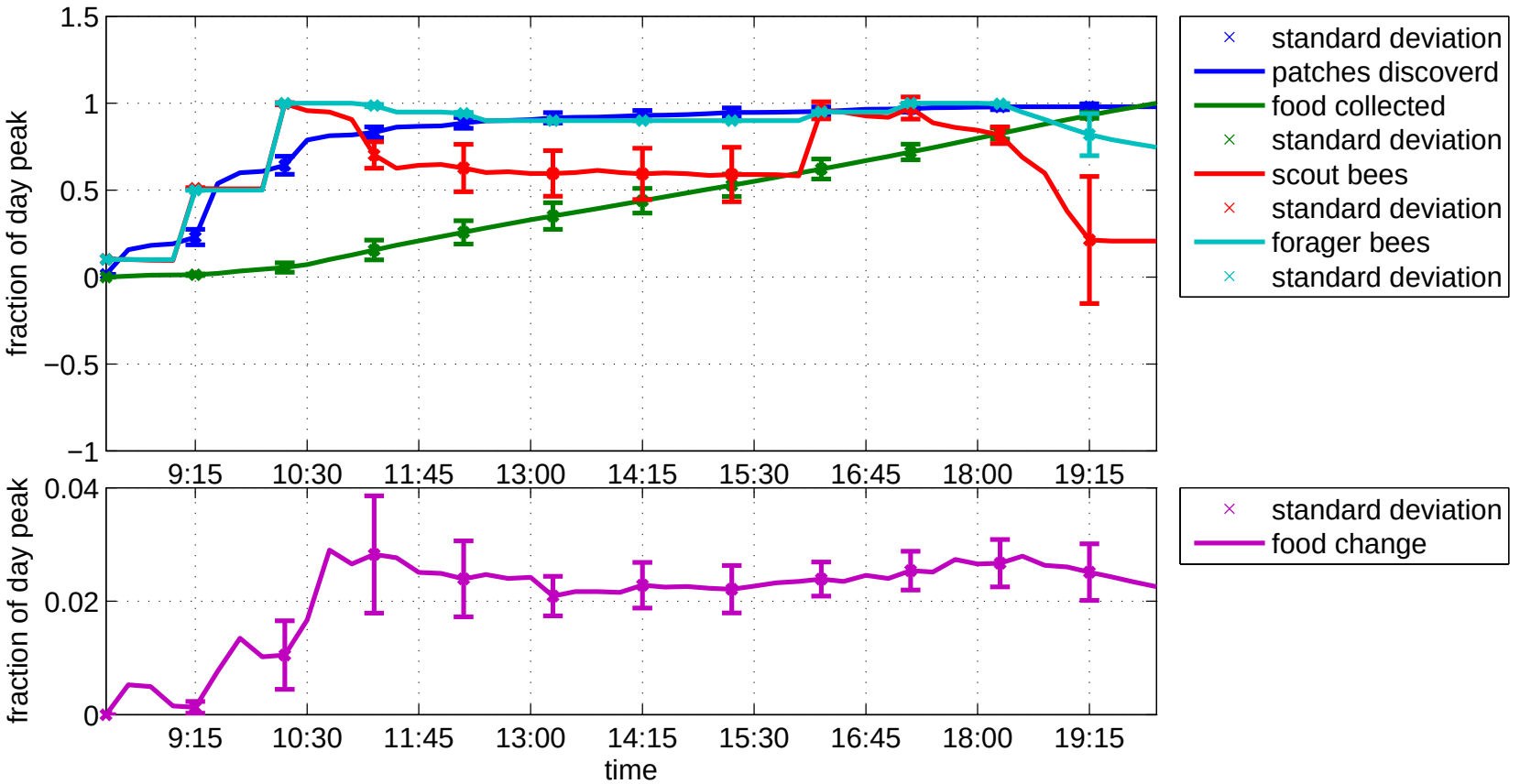
Simulation results and analysis

- Evolution of the model
- Missing flower season comparison
- Critical points in the fall season

Evolution of the model



Daily simulation

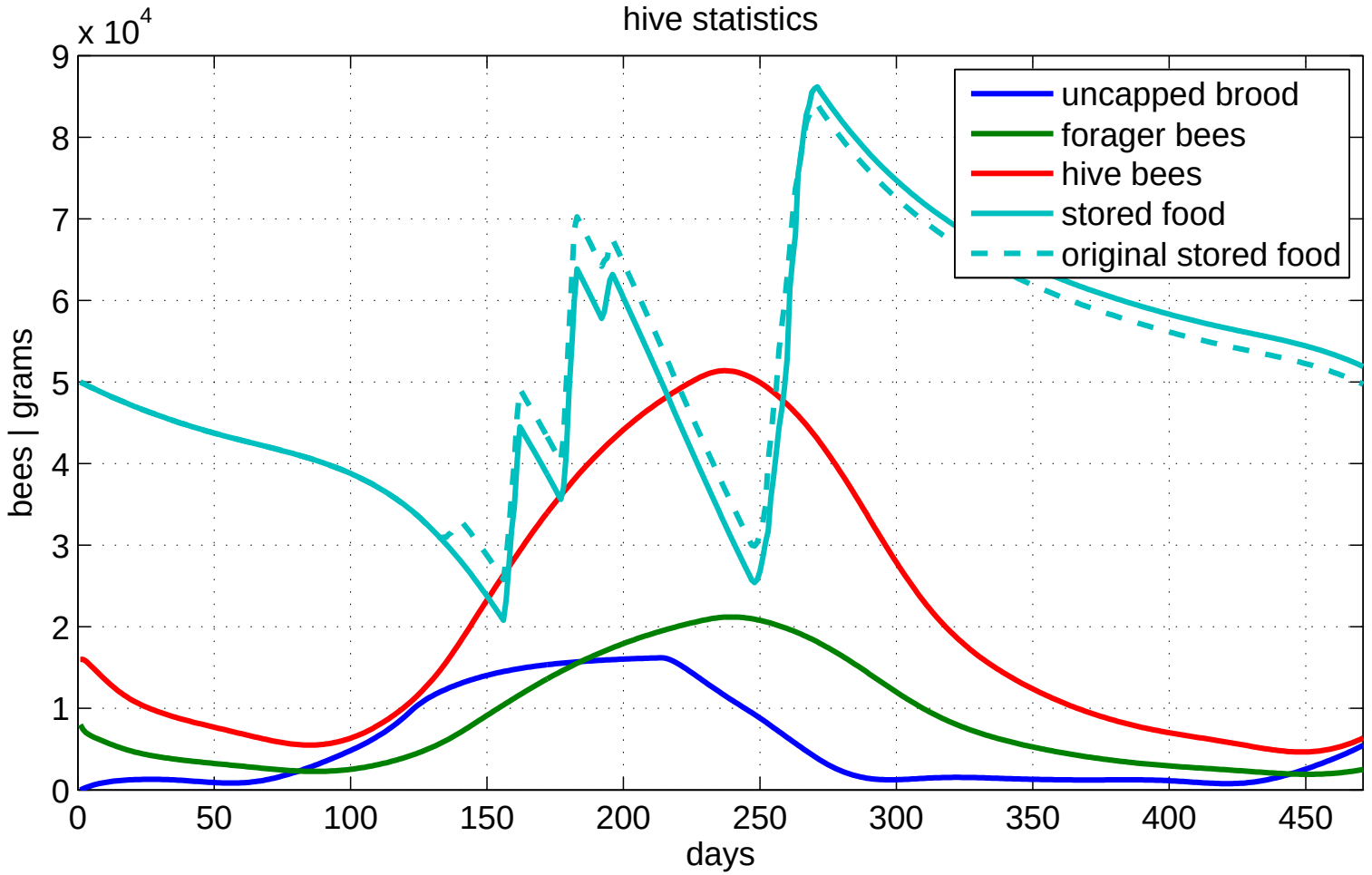


Missing flower season comparison

- Eliminate non critical seasons
- Study effects of missing season
- Observe the hives compensation measures

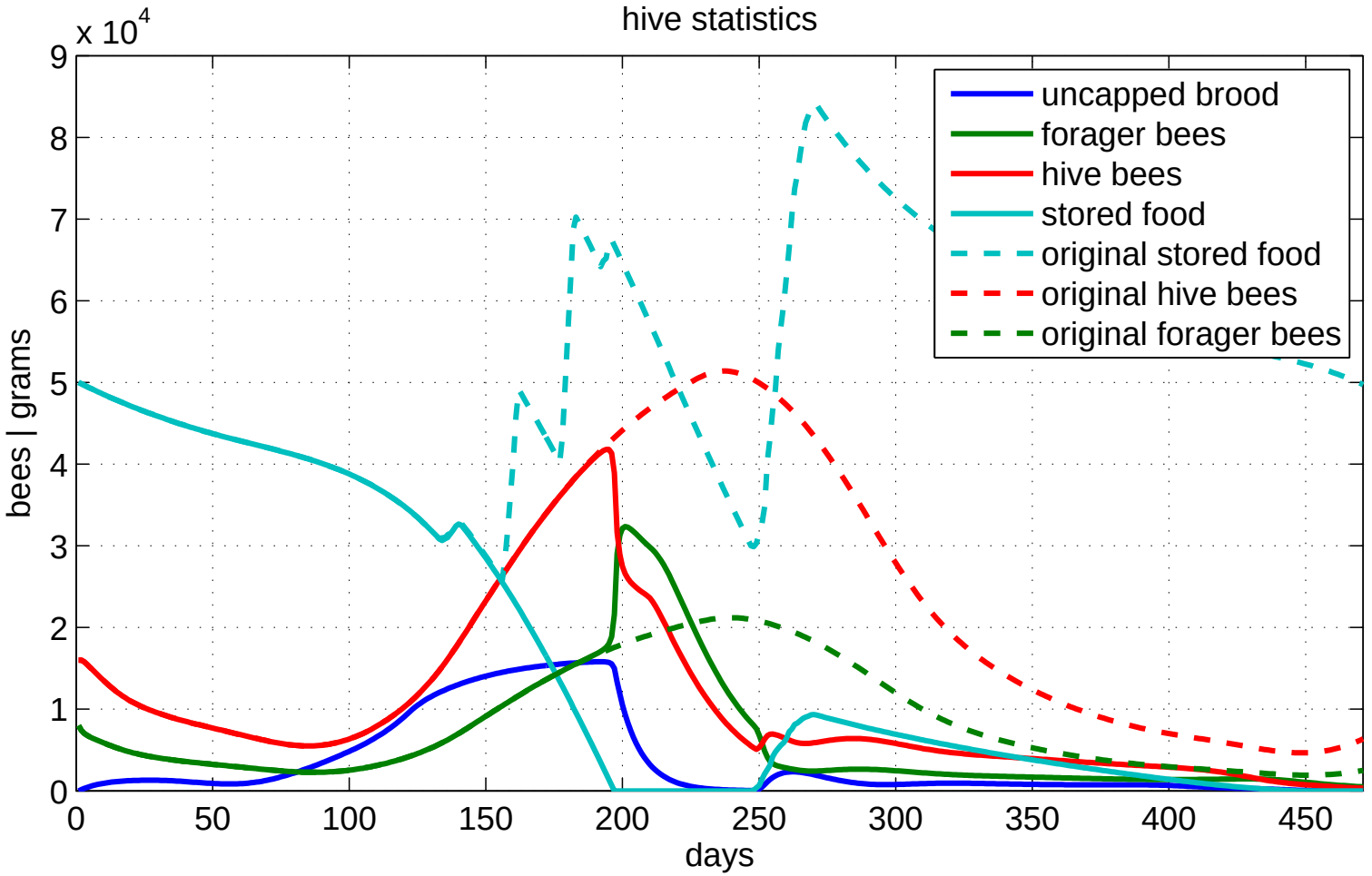
Hive Simulation

Spring


hive statistics
x 10^4
bees | grams
days
uncapped brood
forager bees
hive bees
stored food
original stored food
0
1
2
3
4
5
6
7
8
9
0
50
100
150
200
250
300
350
400
450

Hive Simulation

Summer


hive statistics
x 10^4
bees | grams
days
uncapped brood
forager bees
hive bees
stored food
original stored food
original hive bees
original forager bees
0
1
2
3
4
5
6
7
8
9
0
50
100
150
200
250
300
350
400
450

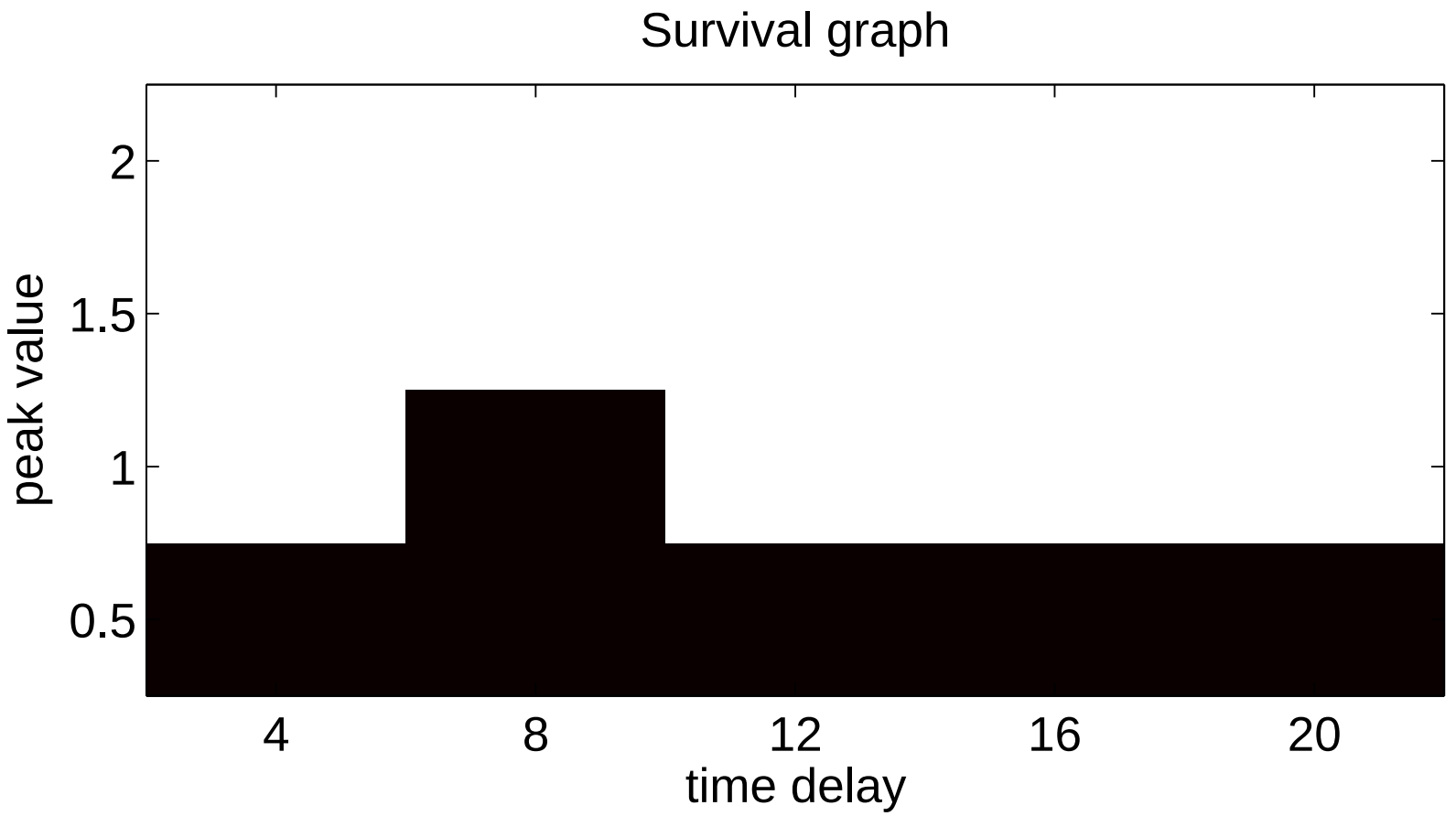
Critical points in the fall season

Death criteria:

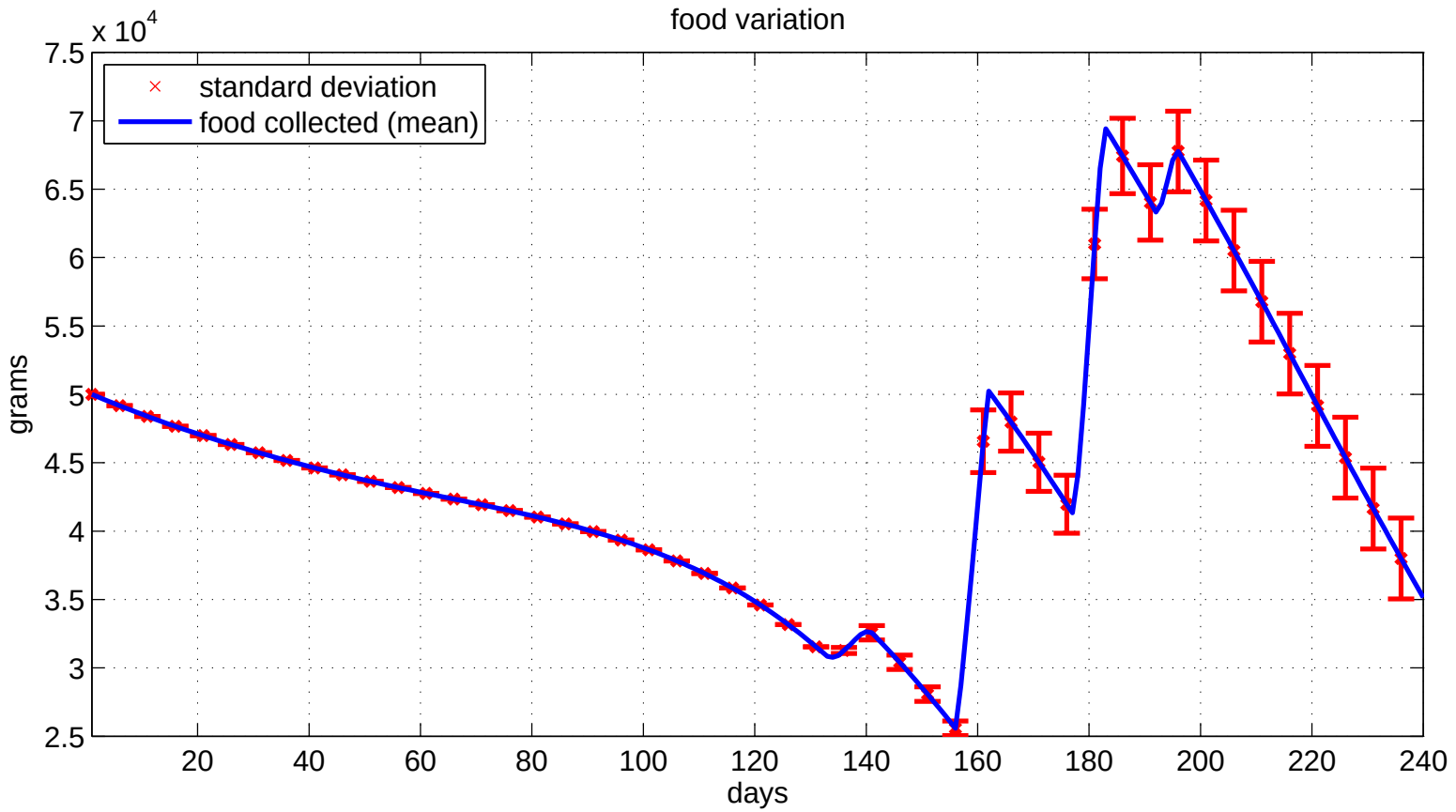
- Less than 1000 bees at day 400
- Less than 20 kg of stored food at day 400

Hive Simulation

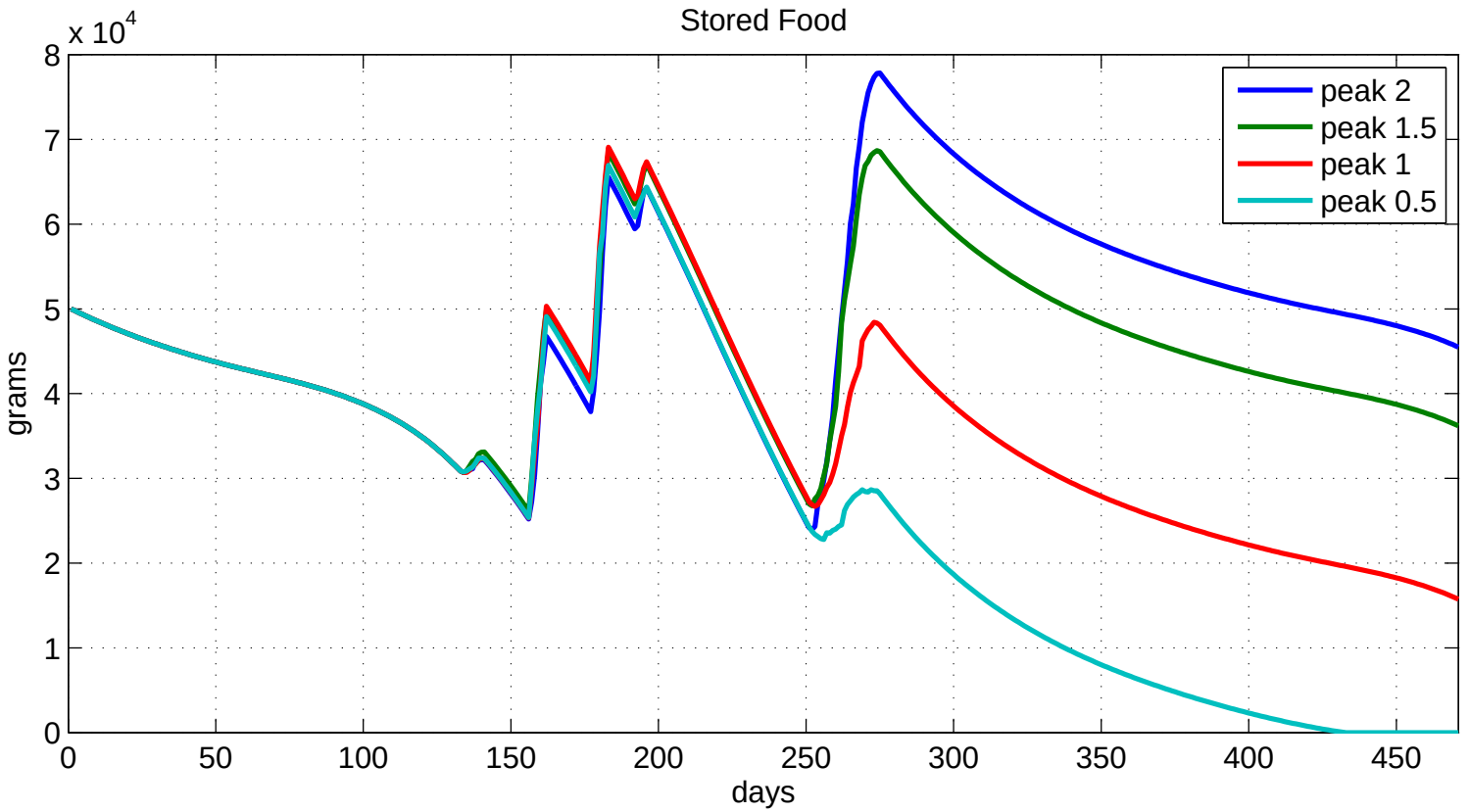
Overview



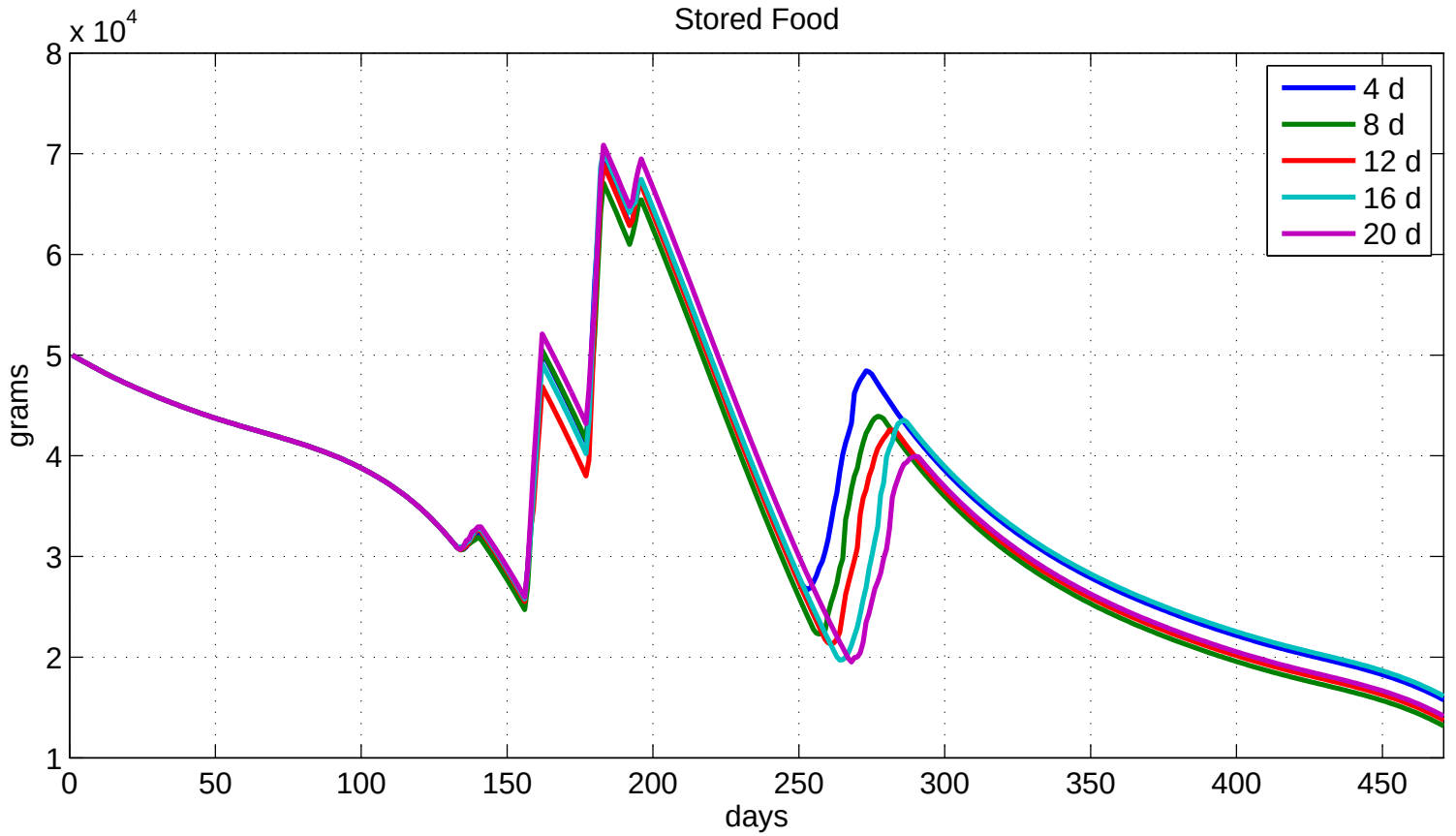
Variation


food variation
x 10^4
standard deviation
food collected (mean)
grams
days
7.5
7
6.5
6
5.5
5
4.5
4
3.5
3
2.5
20
40
60
80
100
120
140
160
180
200
220
240

Peak value influence



Delay influence around breaking point




Questions?