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Professor Bailey
CS 475 – Spring 2017
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Project 4: Commentary

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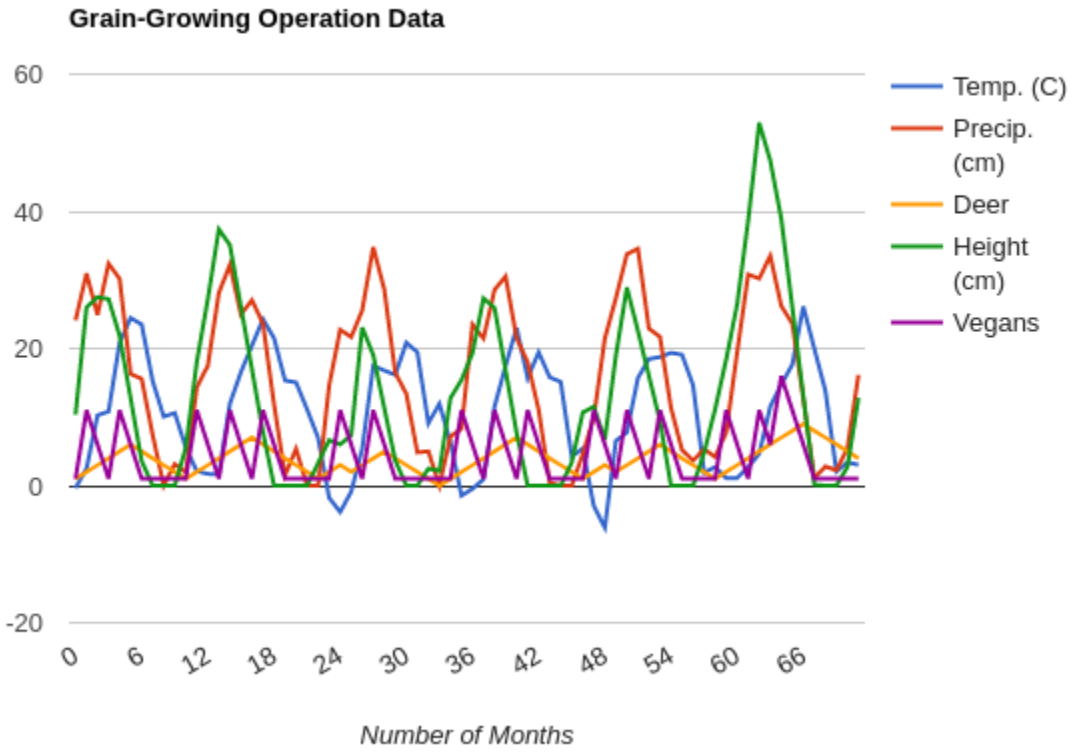
1. What your own-choice quantity was and how it fits into the simulation.

A recent transplant to Portland, I've decided to model the phenomenon of the vegan population oscillating back and forth between grazing in the grain fields alongside the graindeer and eschewing the grain fields in favor of something that happens to be "less popular with the crowd."

Like the graindeer, the PDX vegans have a capacity limit. It's half the grain height, because these vegans like the scarcity of "more obscure" grains that aren't tall enough to attract the graindeer. In contrast with the graindeer, the vegans leave in greater numbers (five at a time) when the capacity is exceeded, and their population is explosive (they accrue ten more vegans through word of mouth of this "hip new restaurant") when the capacity is not yet met.

2. A table showing values for temperature, precipitation, number of graindeer, height of the grain, and your own-choice quantity as a function of month number.



3. A graph showing temperature, precipitation, number of graindeer, height of the grain, and your own-choice quantity as a function of month number.

Functional Decomposition – Grain-Growing Operation Data

Month	Temp	Precip	Deer	Height	Vegans	Month	Temp	Precip	Deer	Height	Vegans
2017						2020					
0	-0.36	24.10	1	10.35	1	0	-0.46	23.50	3	19.34	6
1	2.51	30.94	2	26.00	11	1	0.94	21.48	4	27.32	1
2	10.25	24.89	3	27.49	6	2	11.54	28.56	5	25.91	11
3	10.82	32.38	4	27.20	1	3	17.46	30.51	6	16.84	6
4	20.84	30.16	5	21.87	11	4	23.03	21.52	7	7.70	1
5	24.45	16.29	6	12.73	6	5	15.68	17.99	6	0.00	11
6	23.51	15.58	5	3.59	1	6	19.45	11.05	5	0.00	6
7	15.24	7.37	4	0.00	1	7	15.80	0.41	4	0.00	1
8	10.07	0.00	3	0.00	1	8	15.13	0.00	3	0.00	1
9	10.60	3.15	2	0.00	1	9	4.22	0.00	2	3.40	1
10	5.58	1.93	1	5.50	1	10	5.43	4.60	1	10.67	1
11	2.10	14.35	2	18.05	11	11	-2.97	9.97	2	11.52	11
2018						2021					
0	1.72	17.49	3	27.20	6	0	-6.12	21.46	3	6.72	6
1	1.62	28.12	4	37.39	1	1	6.53	27.33	2	18.94	1
2	11.96	32.20	5	35.09	11	2	7.77	33.75	3	28.89	11
3	16.55	24.98	6	26.12	6	3	15.70	34.56	4	22.58	6
4	20.42	27.05	7	16.98	1	4	18.47	22.90	5	16.01	1
5	24.28	23.63	6	7.84	11	5	18.75	21.69	6	9.43	11
6	21.51	11.90	5	0.00	6	6	19.37	11.34	5	0.00	6
7	15.34	1.51	4	0.00	1	7	19.10	5.21	4	0.00	1
8	15.05	5.36	3	0.00	1	8	14.65	3.64	3	0.00	1
9	11.13	0.00	2	0.00	1	9	1.91	5.33	2	4.78	1
10	6.97	0.00	1	3.29	1	10	2.70	4.19	1	11.15	1
11	-1.76	14.59	2	6.64	1	11	1.12	7.72	2	18.37	11
2019						2022					
0	-3.85	22.73	3	6.01	11	0	1.11	19.45	3	26.45	6
1	-0.88	21.67	2	7.35	6	1	2.68	30.80	4	38.67	1
2	5.37	25.58	3	23.06	1	2	4.67	30.20	5	52.91	11
3	17.47	34.79	4	19.06	11	3	11.51	33.52	6	47.41	6
4	16.79	28.61	5	11.33	6	4	14.74	26.21	7	38.92	16
5	16.16	16.46	4	3.67	1	5	17.66	23.62	8	26.04	11
6	20.85	13.38	3	0.00	1	6	26.11	12.68	9	13.09	6
7	19.46	4.85	2	0.00	1	7	19.95	1.11	8	0.13	1
8	9.11	5.00	1	2.48	1	8	13.85	2.79	7	0.00	1
9	11.94	0.00	0	2.16	1	9	2.07	2.25	6	0.00	1
10	6.30	7.16	1	12.76	1	10	3.39	5.49	5	2.73	1
11	-1.46	8.31	2	15.41	11	11	3.03	16.15	4	12.80	1

4. What evidence in the curves proves that your own quantity is actually affecting the simulation?

The vegans arrive in droves when the food is plentiful (but not too plentiful), and disappear just as quickly as they came when the food supply is expended. When low precipitation renders the grain length low, the graindeer die out and the vegans clear out (except for the perennial vegan who's always there; there's always one). However, the deer population will always be proportionate with the grain length when conditions are especially favorable. When the grain is high, the vegans find the field "too pedestrian" and clear out. This is the best indicator that the vegans are interacting with the simulation: they are especially sensitive to the grain's height and will only remain in the field if it is within a narrow range.