1. **What your own-choice quantity was and how it fits into the simulation.**
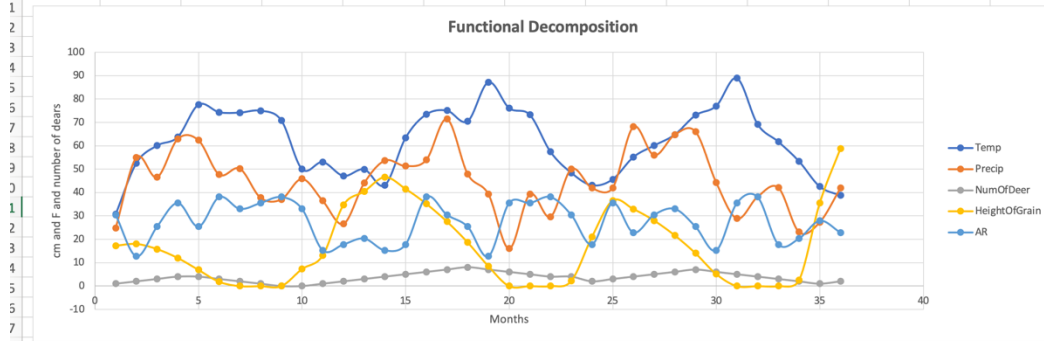   I added artificial rainfall into each month since I found precipitation is really little during some months and the height of grain during these months are too short which becomes 0 inches. Artificial rainfall is randomized. Each month's AR is different, between 5-15 inches. This applies to the simulation decreases the possibility to encounter 0 growth of grain.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Temp	30.69	52.550041	60.092468	63.733482	77.584793	74.338463	74.18882	75.018158	70.883369	49.999397	53.038624	47.127174	49.931995	43.144062	63
Precip	24.767525	55.042623	46.567992	62.978355	62.432943	47.723997	50.26341	37.766546	37.09447	45.87638	36.480328	26.58457	44.059008	53.738247	51
NumOfDeer	1	2	3	4	4	3	2	1	0	0	1	2	3	4	
HeightOfGrai	17.272	18.026873	15.822623	12.02827	6.9479033	1.8680379	0	0	0	7.3187992	13.072582	34.678236	40.420547	46.551108	41
AR	30.48	12.7	25.4	35.56	25.4	38.1	33.02	35.56	38.1	33.02	15.24	17.78	20.32	15.24	

Functional Decomposition

2.
   Data in the table has been measured in cm using Excel's function
   I only input the first 3 years' data.

   Raw data:

```
0/2021 Temp: 30.690914 Precip: 9.750994 NumOfDeer: 1 HeightOfGrain: 6.801826 AR: 12.000000
1/2021 Temp: 52.550041 Precip: 21.670324 NumOfDeer: 2 HeightOfGrain: 7.097194 AR: 5.000000
2/2021 Temp: 60.092468 Precip: 18.333855 NumOfDeer: 3 HeightOfGrain: 6.229379 AR: 10.000000
3/2021 Temp: 63.733482 Precip: 24.794628 NumOfDeer: 4 HeightOfGrain: 4.735394 AR: 14.000000
4/2021 Temp: 77.584793 Precip: 24.579899 NumOfDeer: 4 HeightOfGrain: 2.735395 AR: 10.000000
5/2021 Temp: 74.338463 Precip: 18.788975 NumOfDeer: 3 HeightOfGrain: 0.735448 AR: 15.000000
6/2021 Temp: 74.188820 Precip: 19.788744 NumOfDeer: 2 HeightOfGrain: 0.000000 AR: 13.000000
7/2021 Temp: 75.018158 Precip: 14.868719 NumOfDeer: 1 HeightOfGrain: 0.000000 AR: 14.000000
8/2021 Temp: 70.883369 Precip: 14.604122 NumOfDeer: 0 HeightOfGrain: 0.000000 AR: 15.000000
9/2021 Temp: 49.999397 Precip: 18.061567 NumOfDeer: 0 HeightOfGrain: 2.881417 AR: 13.000000
10/2021 Temp: 53.038624 Precip: 14.362334 NumOfDeer: 1 HeightOfGrain: 5.146686 AR: 6.000000
11/2021 Temp: 47.127174 Precip: 10.466366 NumOfDeer: 2 HeightOfGrain: 13.652849 AR: 7.000000
0/2022 Temp: 49.931995 Precip: 17.346066 NumOfDeer: 3 HeightOfGrain: 15.913601 AR: 8.000000
1/2022 Temp: 43.144062 Precip: 21.156790 NumOfDeer: 4 HeightOfGrain: 18.327208 AR: 6.000000
2/2022 Temp: 63.401287 Precip: 20.234959 NumOfDeer: 5 HeightOfGrain: 16.349230 AR: 7.000000
3/2022 Temp: 73.424942 Precip: 21.247616 NumOfDeer: 6 HeightOfGrain: 13.849289 AR: 15.000000
4/2022 Temp: 75.050766 Precip: 28.135666 NumOfDeer: 7 HeightOfGrain: 10.849292 AR: 12.000000
5/2022 Temp: 70.504951 Precip: 18.867329 NumOfDeer: 8 HeightOfGrain: 7.349913 AR: 10.000000
6/2022 Temp: 87.196678 Precip: 15.483625 NumOfDeer: 7 HeightOfGrain: 3.349913 AR: 5.000000
7/2022 Temp: 76.126274 Precip: 6.300043 NumOfDeer: 6 HeightOfGrain: 0.000000 AR: 14.000000
8/2022 Temp: 73.243782 Precip: 15.482206 NumOfDeer: 5 HeightOfGrain: 0.000000 AR: 10.000000
9/2022 Temp: 57.407295 Precip: 11.679447 NumOfDeer: 4 HeightOfGrain: 0.000000 AR: 15.000000
10/2022 Temp: 48.457901 Precip: 19.690664 NumOfDeer: 3 HeightOfGrain: 0.867956 AR: 12.000000
11/2022 Temp: 43.109154 Precip: 16.518351 NumOfDeer: 2 HeightOfGrain: 8.271887 AR: 7.000000
0/2023 Temp: 45.645096 Precip: 16.544788 NumOfDeer: 3 HeightOfGrain: 14.378577 AR: 14.000000
1/2023 Temp: 55.175987 Precip: 26.842075 NumOfDeer: 4 HeightOfGrain: 12.966473 AR: 9.000000
2/2023 Temp: 60.095207 Precip: 22.039192 NumOfDeer: 5 HeightOfGrain: 11.028540 AR: 12.000000
3/2023 Temp: 64.769890 Precip: 25.509895 NumOfDeer: 6 HeightOfGrain: 8.531469 AR: 13.000000
4/2023 Temp: 73.058548 Precip: 26.030037 NumOfDeer: 7 HeightOfGrain: 5.531490 AR: 10.000000
5/2023 Temp: 77.001068 Precip: 17.456408 NumOfDeer: 6 HeightOfGrain: 2.031500 AR: 6.000000
6/2023 Temp: 88.893936 Precip: 11.368521 NumOfDeer: 5 HeightOfGrain: 0.000000 AR: 14.000000
7/2023 Temp: 69.186951 Precip: 15.057359 NumOfDeer: 4 HeightOfGrain: 0.000000 AR: 15.000000
8/2023 Temp: 61.764706 Precip: 16.587337 NumOfDeer: 3 HeightOfGrain: 0.000000 AR: 6.000000
9/2023 Temp: 53.360390 Precip: 9.088459 NumOfDeer: 2 HeightOfGrain: 0.996129 AR: 8.000000
10/2023 Temp: 42.555130 Precip: 10.761325 NumOfDeer: 1 HeightOfGrain: 13.966897 AR: 11.000000
11/2023 Temp: 38.758076 Precip: 16.498350 NumOfDeer: 2 HeightOfGrain: 23.149597 AR: 9.000000
0/2025 Temp: 44.987785 Precip: 22.238861 NumOfDeer: 5 HeightOfGrain: 3.035164 AR: 8.000000
1/2025 Temp: 43.757633 Precip: 19.270798 NumOfDeer: 4 HeightOfGrain: 6.049632 AR: 15.000000
2/2025 Temp: 62.590500 Precip: 28.004154 NumOfDeer: 5 HeightOfGrain: 4.053196 AR: 11.000000
3/2025 Temp: 59.930874 Precip: 23.961800 NumOfDeer: 4 HeightOfGrain: 1.593405 AR: 14.000000
4/2025 Temp: 68.798553 Precip: 26.375322 NumOfDeer: 3 HeightOfGrain: 0.000000 AR: 14.000000
5/2025 Temp: 84.396873 Precip: 23.428385 NumOfDeer: 2 HeightOfGrain: 0.000000 AR: 7.000000
6/2025 Temp: 84.404900 Precip: 10.871000 NumOfDeer: 1 HeightOfGrain: 0.000000 AR: 5.000000
7/2025 Temp: 79.326332 Precip: 8.329378 NumOfDeer: 0 HeightOfGrain: 0.000000 AR: 12.000000
8/2025 Temp: 69.892815 Precip: 13.052111 NumOfDeer: 0 HeightOfGrain: 0.001798 AR: 9.000000
9/2025 Temp: 52.639786 Precip: 10.313138 NumOfDeer: 0 HeightOfGrain: 3.034421 AR: 10.000000
10/2025 Temp: 44.766678 Precip: 13.847872 NumOfDeer: 1 HeightOfGrain: 13.340942 AR: 7.000000
11/2025 Temp: 33.076591 Precip: 14.302725 NumOfDeer: 2 HeightOfGrain: 20.559134 AR: 12.000000
0/2026 Temp: 32.160767 Precip: 20.828156 NumOfDeer: 3 HeightOfGrain: 22.070997 AR: 11.000000
1/2026 Temp: 40.420525 Precip: 22.377106 NumOfDeer: 4 HeightOfGrain: 23.807051 AR: 5.000000
2/2026 Temp: 52.448326 Precip: 18.637474 NumOfDeer: 5 HeightOfGrain: 23.317463 AR: 11.000000
3/2026 Temp: 60.298138 Precip: 24.834522 NumOfDeer: 6 HeightOfGrain: 20.844440 AR: 10.000000
4/2026 Temp: 75.452675 Precip: 22.055277 NumOfDeer: 7 HeightOfGrain: 17.844452 AR: 9.000000
5/2026 Temp: 87.711456 Precip: 19.189489 NumOfDeer: 8 HeightOfGrain: 14.344452 AR: 7.000000
6/2026 Temp: 86.407227 Precip: 10.857730 NumOfDeer: 9 HeightOfGrain: 10.344452 AR: 14.000000
7/2026 Temp: 84.011597 Precip: 15.288372 NumOfDeer: 10 HeightOfGrain: 5.844452 AR: 7.000000
8/2026 Temp: 61.317478 Precip: 8.283194 NumOfDeer: 9 HeightOfGrain: 0.999228 AR: 8.000000
9/2026 Temp: 58.131420 Precip: 9.021866 NumOfDeer: 8 HeightOfGrain: 0.000000 AR: 15.000000
10/2026 Temp: 42.728619 Precip: 18.615301 NumOfDeer: 7 HeightOfGrain: 2.628393 AR: 5.000000
11/2026 Temp: 47.856850 Precip: 8.839896 NumOfDeer: 6 HeightOfGrain: 7.111208 AR: 7.000000
```

3. By looking at the graph deeply, I noticed that the height of the grain is increasing while precipitation and temp are both increasing.
My quantity AR actually affects the precipitation directly and affects number of deer indirectly. For example, in month 15, there is a peek in AR, and precipitation also has a peek in the next month.