Project 4

Andrew Johnson

CS 475

Write Up

I decided to use moss as a factor in the project. I had it where a factor of the moss is affected by the temperature and the precipitation. If the moss was in benefiting conditions, it’s factor would be higher. The mold loss factor is the percentage of grass lost by mold that month. So it’s graph can show how much it’s affecting the grass by each month.

**Table of data for Project 4**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Months | Temperature (C˚) | Precip (cm) | Height of Grass (cm) | Number of Deer | Amount Lost by Mold (cm) |
| 0 | 2.428697222 | 19.14179365 | 17.9975256 | 0 | 0.254 |
| 1 | 3.168949444 | 25.9612339 | 36.95172442 | 1 | 1.79975256 |
| 2 | 8.239741667 | 25.7245051 | 48.1379784 | 2 | 3.69517168 |
| 3 | 15.210385 | 25.2071141 | 45.56491776 | 3 | 9.62759568 |
| 4 | 19.42858778 | 23.5442697 | 41.26097412 | 4 | 9.11298406 |
| 5 | 17.03229278 | 16.3451603 | 35.78017228 | 5 | 8.25219584 |
| 6 | 19.07177833 | 11.09942855 | 28.9368738 | 6 | 7.15603598 |
| 7 | 14.14815667 | 0.6368677 | 21.43522002 | 7 | 2.89368738 |
| 8 | 10.61857444 | 0 | 14.46511712 | 8 | 2.14352124 |
| 9 | 11.80561889 | 3.89758495 | 5.78231254 | 7 | 1.44651222 |
| 10 | 2.774603333 | 8.24576655 | 8.59286572 | 6 | 0.578231 |
| 11 | 0.430168333 | 11.1911051 | 9.69357726 | 5 | 0.85928708 |
| 12 | -2.279731111 | 22.18004845 | 7.74339574 | 4 | 0.96935798 |
| 13 | 2.798565556 | 27.18638335 | 20.79951898 | 3 | 0.77433932 |
| 14 | 7.300003889 | 26.01630255 | 32.27802536 | 4 | 2.07995266 |
| 15 | 17.96022222 | 26.9423217 | 26.74411974 | 5 | 6.45560558 |
| 16 | 20.86620778 | 25.58361785 | 19.88937348 | 6 | 5.34882344 |
| 17 | 25.05221056 | 17.24286725 | 11.76139126 | 7 | 3.97787368 |
| 18 | 23.24333167 | 11.864468 | 2.3635589 | 6 | 2.35227876 |
| 19 | 17.79577889 | 3.00644155 | 0 | 5 | 0.23635462 |
| 20 | 17.77248833 | 2.083529 | 0 | 4 | 0 |
| 21 | 8.758506667 | 0 | 0 | 3 | 0 |
| 22 | -1.386549444 | 7.3759847 | 0.07922006 | 2 | 0 |
| 23 | -1.656004444 | 10.6912267 | 1.71412916 | 1 | 0.00792226 |
| 24 | 4.476996667 | 16.91909975 | 18.65421974 | 0 | 0.1714119 |
| 25 | 0.207383889 | 25.3460977 | 29.74486558 | 1 | 1.86542172 |
| 26 | 4.238402222 | 33.1171498 | 46.15171872 | 2 | 2.97448732 |
| 27 | 7.940813889 | 29.8891572 | 56.38627788 | 3 | 4.61517238 |
| 28 | 21.25067389 | 26.21982405 | 52.07042164 | 4 | 11.2772571 |
| 29 | 18.67124333 | 16.75311715 | 46.50850744 | 5 | 10.41408382 |
| 30 | 24.29548889 | 8.66181085 | 39.65054808 | 6 | 9.30170098 |
| 31 | 19.20786556 | 5.202428 | 31.78591306 | 7 | 3.9650543 |
| 32 | 16.45354389 | 0.60255545 | 22.71526318 | 8 | 3.17859156 |
| 33 | 12.26609556 | 0.971033 | 13.41433944 | 9 | 2.27152708 |
| 34 | -2.198266111 | 3.88688335 | 4.12696914 | 8 | 1.34143496 |
| 35 | 3.883196667 | 6.48504465 | 5.42629598 | 7 | 0.41269666 |
| 36 | -4.968343333 | 19.11712215 | 0 | 6 | 0.54263036 |
| 37 | 0.378886111 | 23.14517205 | 3.98415256 | 5 | 0 |
| 38 | 5.744342778 | 31.42841135 | 15.13905278 | 4 | 0.39841424 |
| 39 | 15.98978889 | 27.37683165 | 10.0719382 | 5 | 1.51390604 |
| 40 | 13.37121111 | 21.2335963 | 4.72372182 | 4 | 2.01438764 |
| 41 | 24.84742056 | 16.9030988 | 0 | 3 | 0.94474538 |
| 42 | 15.58190667 | 15.07208395 | 0 | 2 | 0 |
| 43 | 22.71899333 | 7.6561471 | 0 | 1 | 0 |
| 44 | 13.33163778 | 0 | 0 | 0 | 0 |
| 45 | 3.381707778 | 0 | 6.95271152 | 0 | 0 |
| 46 | 2.411876111 | 7.09630985 | 17.42982036 | 1 | 0.69527166 |
| 47 | 4.303228333 | 9.38788305 | 29.78640474 | 2 | 1.74298102 |
| 48 | -3.008647222 | 22.58128495 | 30.33149382 | 3 | 2.97864022 |
| 49 | 6.522691667 | 24.15768845 | 43.93047856 | 4 | 3.03314862 |
| 50 | 5.716069444 | 31.9328247 | 56.18372558 | 5 | 4.39304684 |
| 51 | 12.36885278 | 28.8211042 | 52.15485378 | 6 | 5.61837332 |
| 52 | 16.435195 | 27.99119365 | 44.21564436 | 7 | 10.43096974 |
| 53 | 23.98953778 | 20.93377265 | 34.81772818 | 8 | 8.84312938 |
| 54 | 21.32891333 | 11.61462435 | 24.15122932 | 9 | 6.96354462 |
| 55 | 13.32936611 | 5.77531885 | 13.34512952 | 10 | 2.41512344 |
| 56 | 14.86940611 | 5.0370971 | 0.71072502 | 9 | 1.33451346 |
| 57 | 12.53040944 | 2.61644565 | 0 | 8 | 0.07107174 |
| 58 | 6.466310556 | 8.4622804 | 1.18193058 | 7 | 0 |
| 59 | -0.090592778 | 10.21037255 | 0 | 6 | 0.11819382 |
| 60 | -4.329763889 | 20.66990275 | 0 | 5 | 0 |
| 61 | 5.385475 | 27.05861095 | 12.92709632 | 4 | 0 |
| 62 | 7.187775556 | 31.300269 | 22.33548238 | 5 | 1.29271014 |
| 63 | 7.837965 | 31.84760145 | 28.5199836 | 6 | 2.233549 |
| 64 | 19.64563556 | 29.41379105 | 20.40292338 | 7 | 5.70399672 |
| 65 | 17.457805 | 13.9404461 | 11.07480132 | 8 | 4.08058366 |
| 66 | 23.51373056 | 12.4599699 | 0.66092324 | 7 | 1.10748064 |
| 67 | 18.14903278 | 0.6047629 | 0 | 6 | 0.06609334 |
| 68 | 12.378415 | 0 | 0 | 5 | 0 |
| 69 | 11.23802611 | 0 | 0 | 4 | 0 |
| 70 | 6.508068333 | 8.84074905 | 6.43079994 | 3 | 0 |
| 71 | 1.032968889 | 11.60351115 | 12.9307336 | 2 | 0.64307974 |

**Graph of Data Given Above**

**Commentary:**

I am gladly seeing a fluctuation between the deer and the grass height. When the grass is very high the deer get to eat and grow and grass falls. This pattern is followed throughout the whole test. I can also see that my mold function is working where at higher temperatures it’s growing faster therefore killing off more grass. It is interesting that it had a bit of a fault between months 35-45. I’m thinking this is because the measurement is more of a ratio to the grass, and since there is such little grass in those months the moss wouldn’t be killing much grass. The grass does grow properly where when the temperature is good and precipitation is high the grass does thrive.

Something very noticeable about the grass is how much it is affected by both the mold and deer. One big example is after the 29th month both deer and mold were either at their greatest value or close to it and the grass drastically died off. I looked at the rate at which the grass is losing height and I saw that it had an average rate of loss of 6.3 cm per month.

I was glad to see a graph similar to population graphs I’ve seen in textbooks.