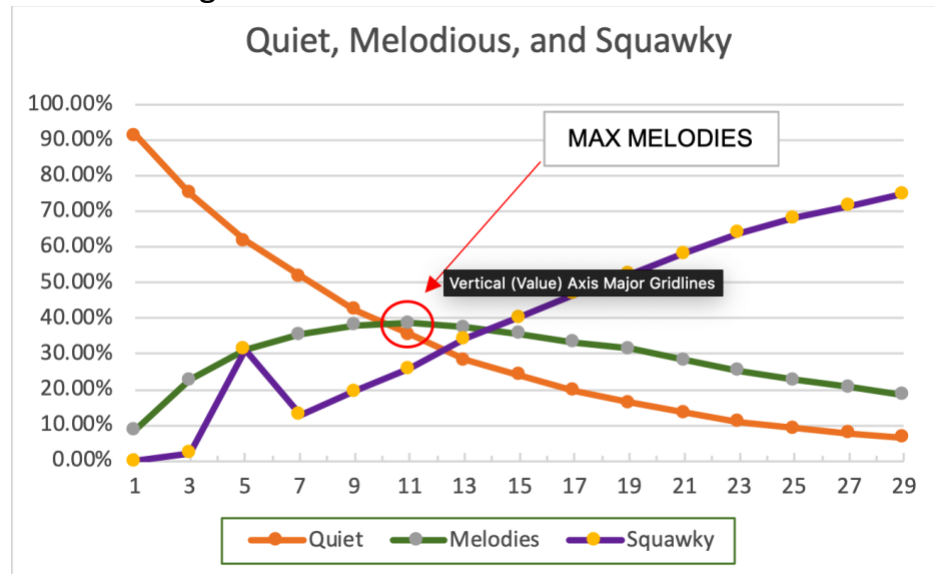# Written summary

1. **Optimal value of N that maximizes Melodious-ness (month worth of data)**
   With the default setting it is clear that the N=11 maximizes Melodious-ness

2. **Proportion of Melodious time varies as a function of N, with one line for each of three different song durations considered(using a month worth of data)**
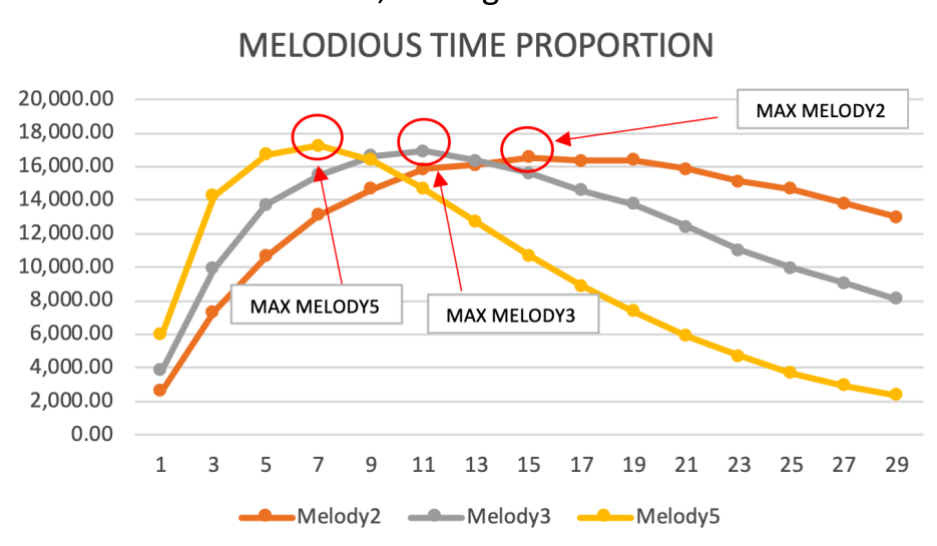   Again we can see that the best N when the song duration is as follows:
   N=16 is best number of birds when song duration is 2
   N=11 is best number of birds when song duration is 3
   N=7 is best number of birds when song duration is 5
   This shows that the lower the S, the higher the N would be

3. **Perfect songs and N graph**

This graph shows that in a month worth of data the number of perfect songs reaches its highest point when only 2 birds are singing but it goes down after that.

Perfect and Attempted Songs

[Chart showing two lines. Y-axis ranges from 0 to 45000 in increments of 5000. X-axis ranges from 1 to 15. The "Attempted" line (orange) increases roughly linearly from near 0 at x=1 to about 39000 at x=15. The "Perfect" line (gray) starts near 1500 at x=1, peaks around 3000 near x=3, then gradually declines toward near 500 by x=15.]

Legend: —●—Attempted —●—Perfect