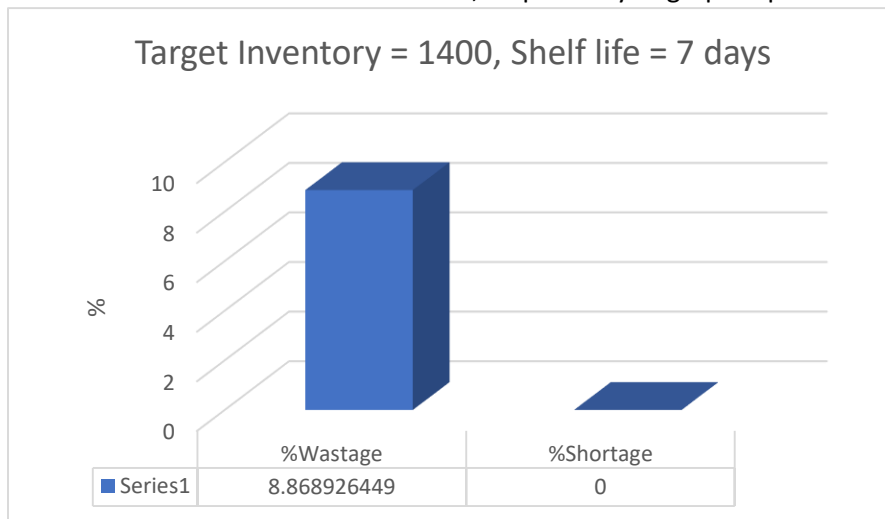
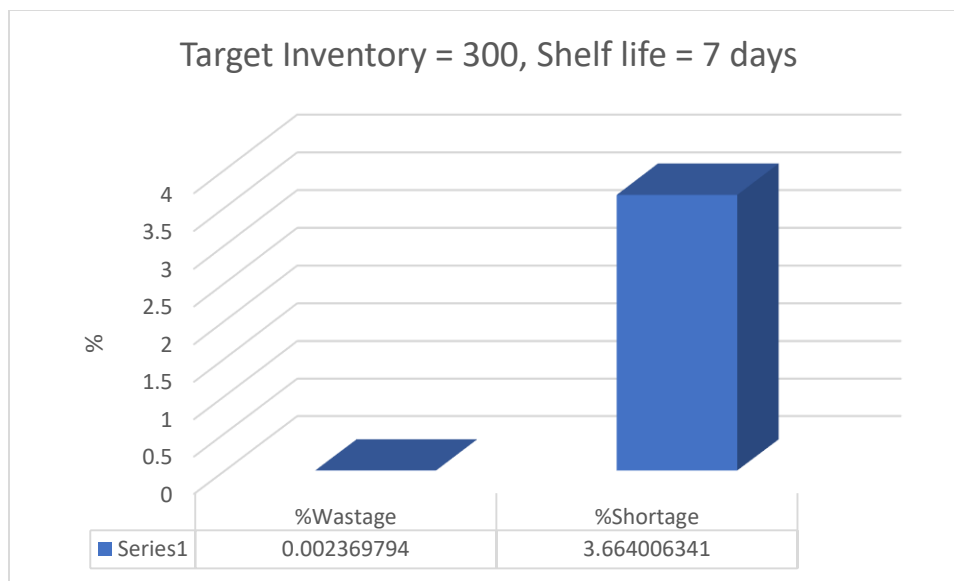


Full data presented in “Solutions_Assignment8” csv file.

- A) The average wastage and shortage when the target inventory was 1400 and shelf life = 7 days was determined to be around 33 and 0, respectively. A graph is presented:

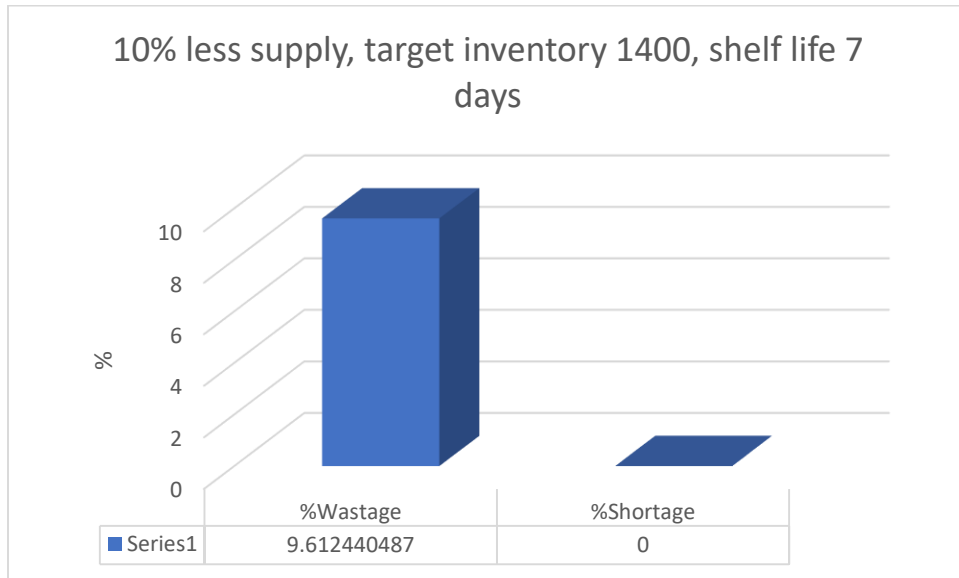


When the target inventory decreased to 300 units, the average wastage and shortage for the blood bank were respectively 0 and 6. Graph is presented:

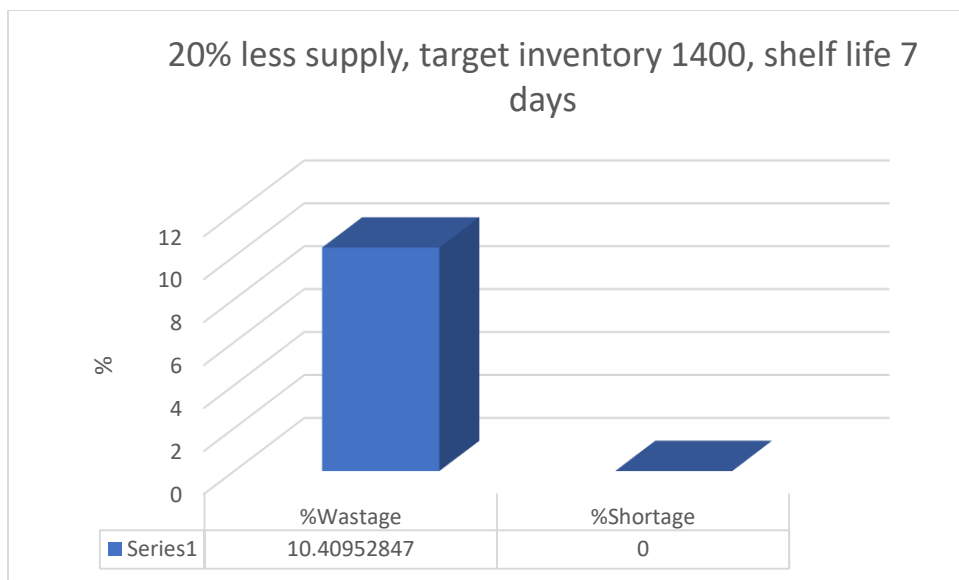


Due to the decrease in inventory capacity, less of the old supply can be carried over to the next day. As a result, this causes demands to not be met. When the inventory target was 1400, there was more wastage since there were more perishable item at inventory. Therefore, decreasing inventory space results in fresher blood products.

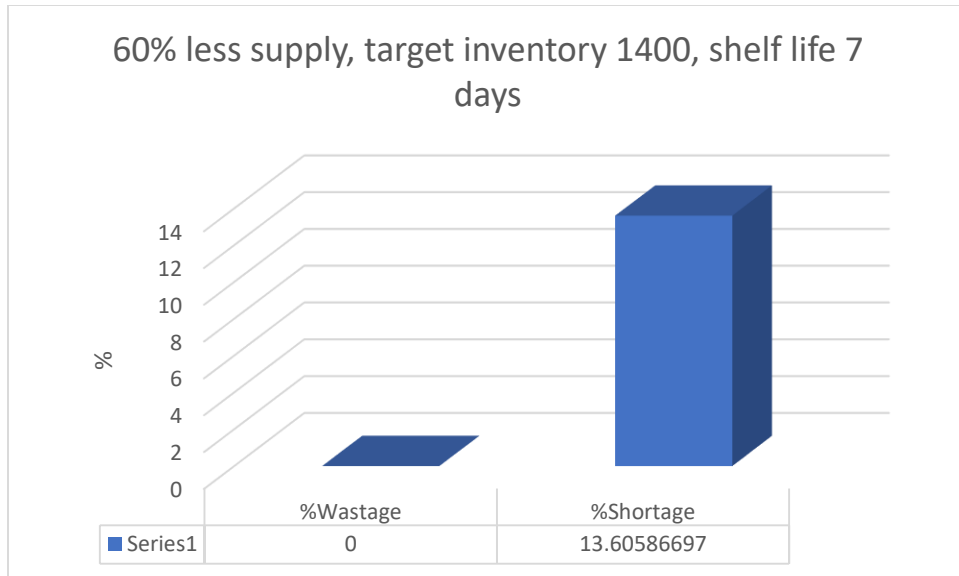
B) Summary of how the wastage and shortage change as the supply decreases is shown visually:



Average wastage = 32, average shortage = 0



Average wastage = 31, average shortage = 0

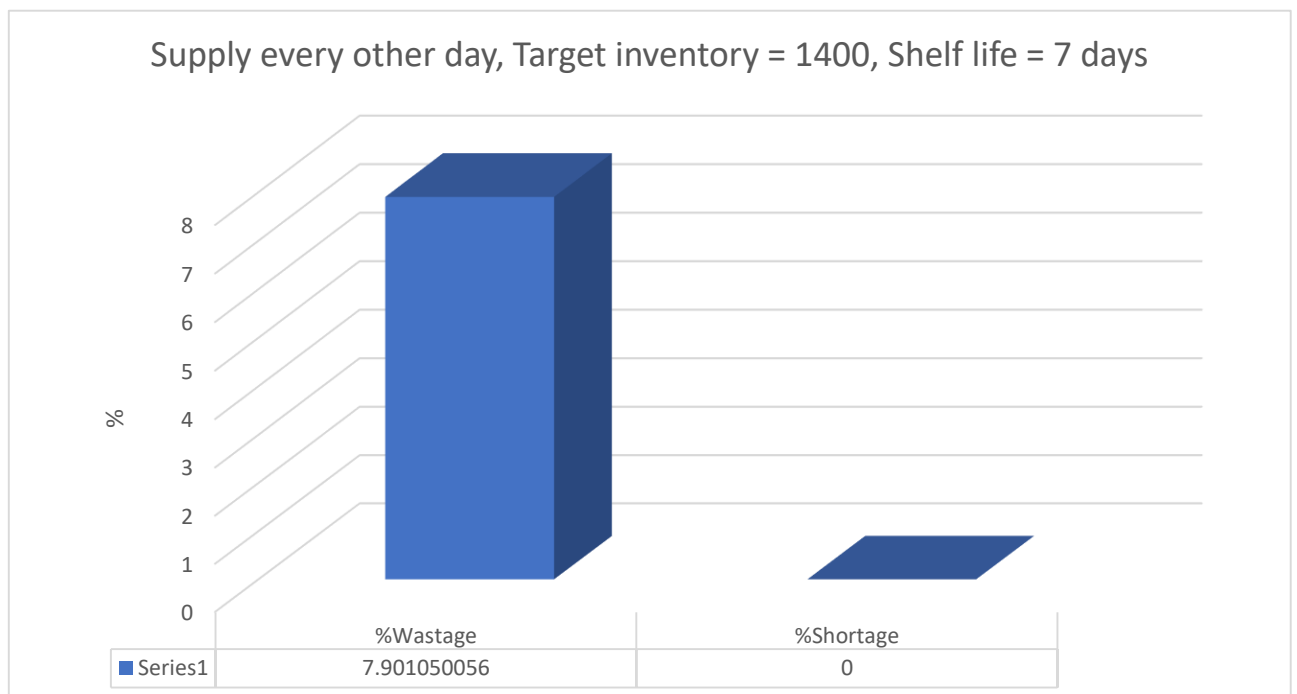


Average wastage = 0, average shortage = 23

Overall, there was a slight decrease in wastage as there was a decrease in donation camp duration between 3 and 4 hours (leading to 10% and 20% supply reduction). In those cases, there was more wastage than shortage. However, when the supply decreased by a lot (60%), the average wastage decreased while shortage increased.

Therefore, if MBB wants to avoid shortage problem where demand is not met then they should not reduce the donation camp's duration. On the other hand, if they want to meet more demands then it would be recommended to increase donation camp duration.

- c) The calculation of the supply every other day was performed with R. The average wastage was determined to be 30 while average shortage was 0. A graph is presented:



Compared to the results in A), where blood was supplied daily, target inventory = 1400, and shelf life = 7 days the wastage decreased from 8.9% to 7.9%. Therefore, reducing the frequency of donation camps to supplying blood every other day would help with decreasing wastage. It does not appear to have an effect on shortage.