



## Sustainable Practices

Nathan Curtis

1. Will and Hildegarde both had plots in the raised beds, but they did not have adjacent plots. Since Hildegarde had plot 6 (the NE plot in the raised beds), Will must have plot 5.
2. Since everyone but Mary had a plot in the raised beds, Kara and Esther must have plots 4 and 7, in some order.
3. Since Hildegarde had plots adjacent to everyone but Will, her second plot, in plot 8 (the NE corner of the garden), must be adjacent to Mary in plot 9.
4. Esther has plots adjacent to all 4 other gardeners, so both of her plots must be adjacent to 2 other plots. One of these is 4 or 7, and the only remaining plot adjacent to 2 other plots is plot 2, which must belong to Esther.
5. Mary's cauliflower plot was directly to the north of Esther's garlic plot. Since Mary did not have a plot in the raised beds, Mary's cauliflower plot must be plot 1, and Esther's garlic plot must be plot 2.
6. So far, Esther has plots adjacent to Mary, Hildegarde, and Will. Since she has plots adjacent to all 4 other gardeners, Kara must be her remaining neighbor in plot 3.
7. Kara has plot 3 and plot 4 or 7. Since her spinach plot is directly north of Will's garlic plot, her spinach plot cannot be 3 or 7, so she must grow spinach in plot 4, and Will grows garlic in plot 5. Also, Esther must grow tomatoes in plot 7.
8. The only remaining plot is plot 10, which must belong to Will.
9. Since Mary grew cauliflower in plot 1, her tomato plot must be plot 9.
10. The two radish plots were at opposite corners of the garden. Since plot 1 has cauliflower, the radish plots must be 3 (Kara) and 8 (Hildegarde)
11. The remaining crops are spinach and cauliflower. Since no two adjacent plots grew the same crop, Hildegarde must grow cauliflower in plot 6, and Will must grow spinach in plot 10.
12. There were 30 kg of produce grown in total. If Kara grew less than 4 kg of produce, Esther would have grown 6 kg or less. Since Esther grew the largest amount of produce out of 5 people, this is impossible.
13. If Kara had grown more than 4 kg of produce, the minimum total amount grown would be  $5+6+7+8+10\text{kg}=36\text{ kg}$ , also impossible. So Kara grew 4 kg, and Esther grew 8 kg.
14. Since Kara grew the least and Esther grew the most produce, the total amounts for each person must have been 4, 5, 6, 7, 8, in some order.
15. Since Will's amount was exactly halfway between Kara's and Hildegarde's amounts, Will must have grown 5 kg and Hildegarde 6 kg.
16. Therefore, Mary must have grown 7 kg.
17. Kara's individual yields must have been 1 and 3 kg; Esther's individual yields must have been 3 and 5 kg. Since no single yield appeared more than twice, the remaining individual yields must be 1 and 4 kg for Will, 2 and 4 kg for Hildegarde, and 2 and 5 kg for Mary.
18. Since Esther's tomato plot had a greater yield than Mary's tomato plot, Mary's tomato plot must have yielded 2 kg. Therefore, her cauliflower grew 5 kg.
19. The yield from one of Kara's plots was equal to the sum of the yields of the adjacent plots. This must be Kara's spinach plot, the only one adjacent to two other plots, and it must grow 3 kg, so Hildegarde's cauliflower and Will's garlic grew 1 and 2 kg, in some order.
20. Since Will's yields were 1 and 4 kg, Will's garlic grew 1 kg, and Hildegarde's cauliflower grew 2 kg. Therefore, Kara's radish plot grew 1 kg, Will's spinach plot grew 4 kg, and Hildegarde's radish plot grew 4 kg.



# Sustainable Practices

21. Since no two adjacent plots grew the same amount, Esther's garlic in plot 2 must have yielded 3 kg, and her tomatoes in plot 7 must have yielded 5 kg.
22. Use the yield of each plot to index into the type of crop grown in each plot. Taking the letters in plot order spells the answer, **IRRIGATION**

1 Mary Cauliflower 5 kg	<b>N</b> ↑	8 Hildegarde Radish 4 kg				
2 Esther Garlic 3 kg	<table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 50%; vertical-align: top;">           4 Kara Spinach 3 kg         </td> <td style="width: 50%; vertical-align: top;">           6 Hildegarde Cauliflower 2 kg         </td> </tr> <tr> <td style="vertical-align: top;">           5 Will Garlic 1 kg         </td> <td style="vertical-align: top;">           7 Esther Tomato 5 kg         </td> </tr> </table>	4 Kara Spinach 3 kg	6 Hildegarde Cauliflower 2 kg	5 Will Garlic 1 kg	7 Esther Tomato 5 kg	9 Mary Tomato 2 kg
4 Kara Spinach 3 kg	6 Hildegarde Cauliflower 2 kg					
5 Will Garlic 1 kg	7 Esther Tomato 5 kg					
3 Kara Radish 1 kg		10 Will Spinach 4 kg				