

Tomatoes growth rate analysis:

Day	Height (cm)	Leaf Count	Fruit Count	Soil Moisture (%)	Temperature (°C)	Growth Stage	Notes
1	2	2	0	60	20	Germination	Seeds planted
2	2.5	3	0	65	21	Seedling	First true leaves visible
3	3	3	0	70	22	Seedling	Healthy growth
4	4	4	0	65	23	Seedling	Transplanted to pots
5	5	5	0	60	24	Early Vegetative	Increased sunlight
6	6.5	6	0	55	25	Early Vegetative	Watered regularly
7	8	7	0	50	26	Vegetative	Strong leaf development
8	9	8	0	55	24	Vegetative	Healthy leaf color
9	10	9	0	60	25	Vegetative	No pests observed
10	12	10	0	65	24	Vegetative	Stable growth
11	13.5	11	0	70	23	Early Flowering	Buds starting to form
12	15	12	0	68	22	Early Flowering	Pollination observed
13	16.5	12	1	65	23	Flowering	First fruit visible
14	18	13	1	60	24	Flowering	Healthy pollination

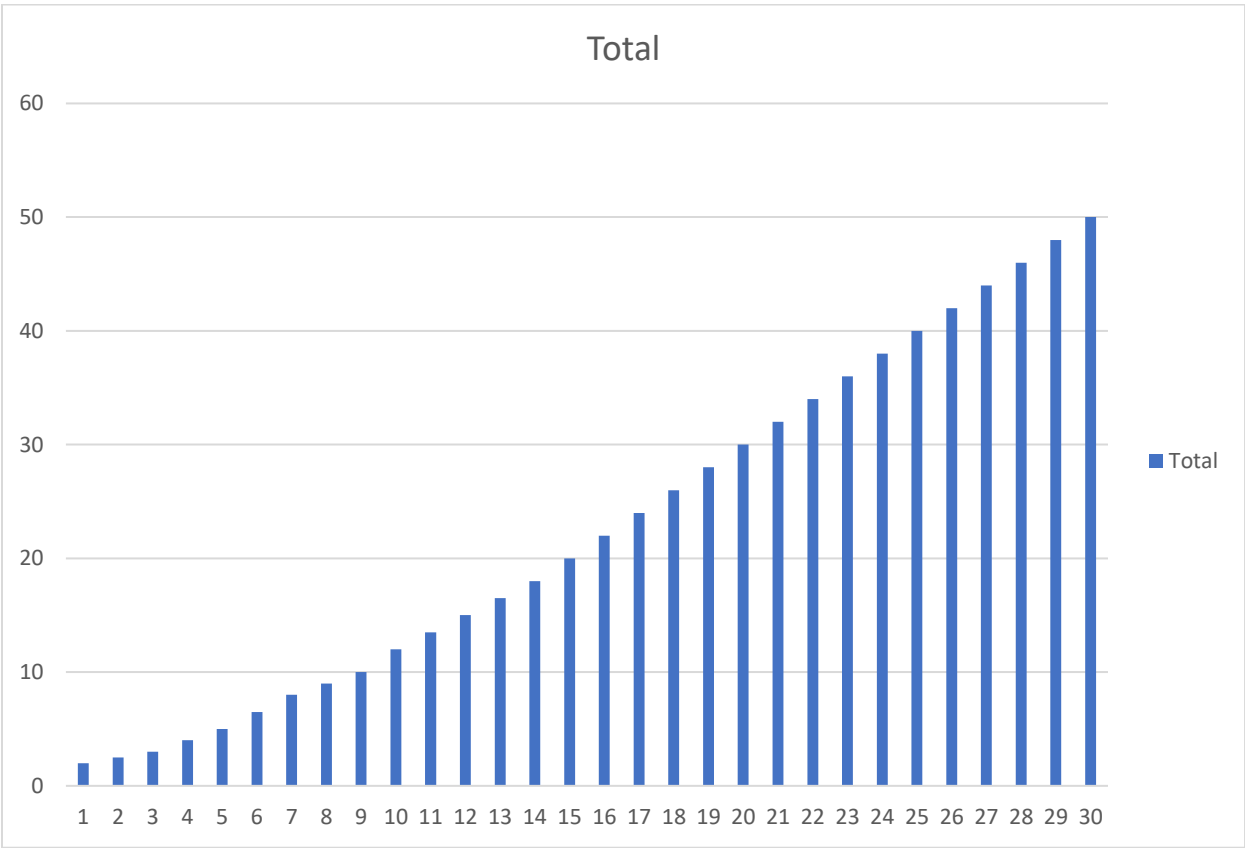
15	20	14	2	55	25	Flowering	More fruits developing
16	22	15	3	50	26	Fruit Set	Fruits growing larger
17	24	16	4	52	27	Fruit Set	Good weather conditions
18	26	17	4	55	26	Fruit Set	Monitoring for pests
19	28	18	5	60	25	Maturing	Fruits changing color
20	30	19	6	65	24	Maturing	Continuous watering
21	32	20	7	70	23	Maturing	Good fruit size
22	34	21	8	68	22	Maturing	Preparing for harvest
23	36	22	9	65	23	Harvesting	Early fruits ready
24	38	23	10	62	24	Harvesting	Harvested first batch
25	40	24	11	60	25	Harvesting	Continued harvest
26	42	25	12	58	26	Post-Harvest	Plant still growing
27	44	26	13	55	27	Post-Harvest	Monitoring new blooms
28	46	27	14	52	26	Post-Harvest	New fruits forming
29	48	28	15	50	25	Post-Harvest	Preparing for late harvest

30	50	30	17	48	24	Post-Harvest	Final harvest completed
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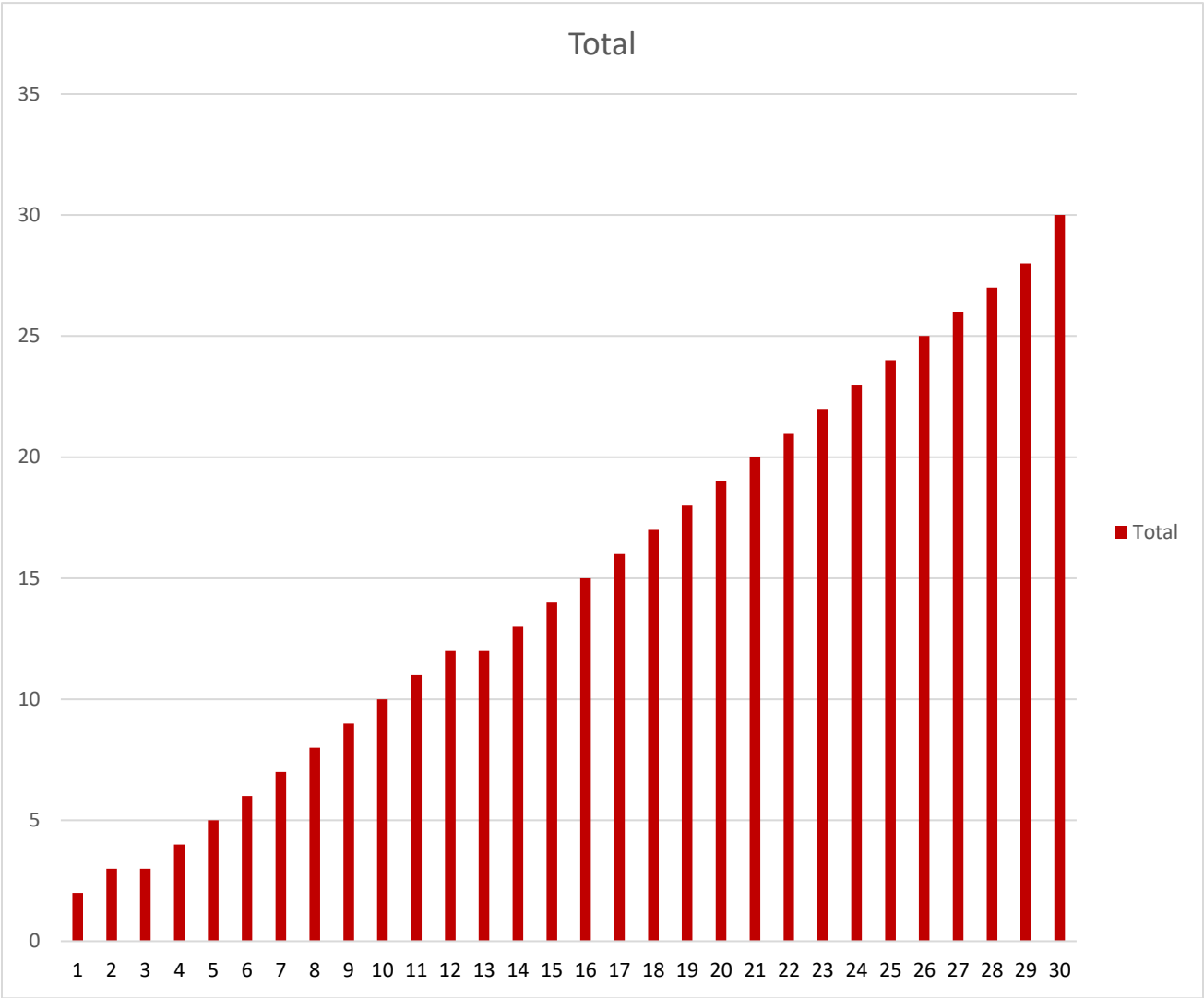
Additional Parameters Explained:

- **Soil Moisture (%)**: Indicates the percentage of moisture in the soil, which affects plant health.
- **Temperature (°C)**: Daily temperature, crucial for growth.
- **Growth Stage**: Describes the developmental phase of the plant.
- **Notes**: Additional observations regarding care and conditions.

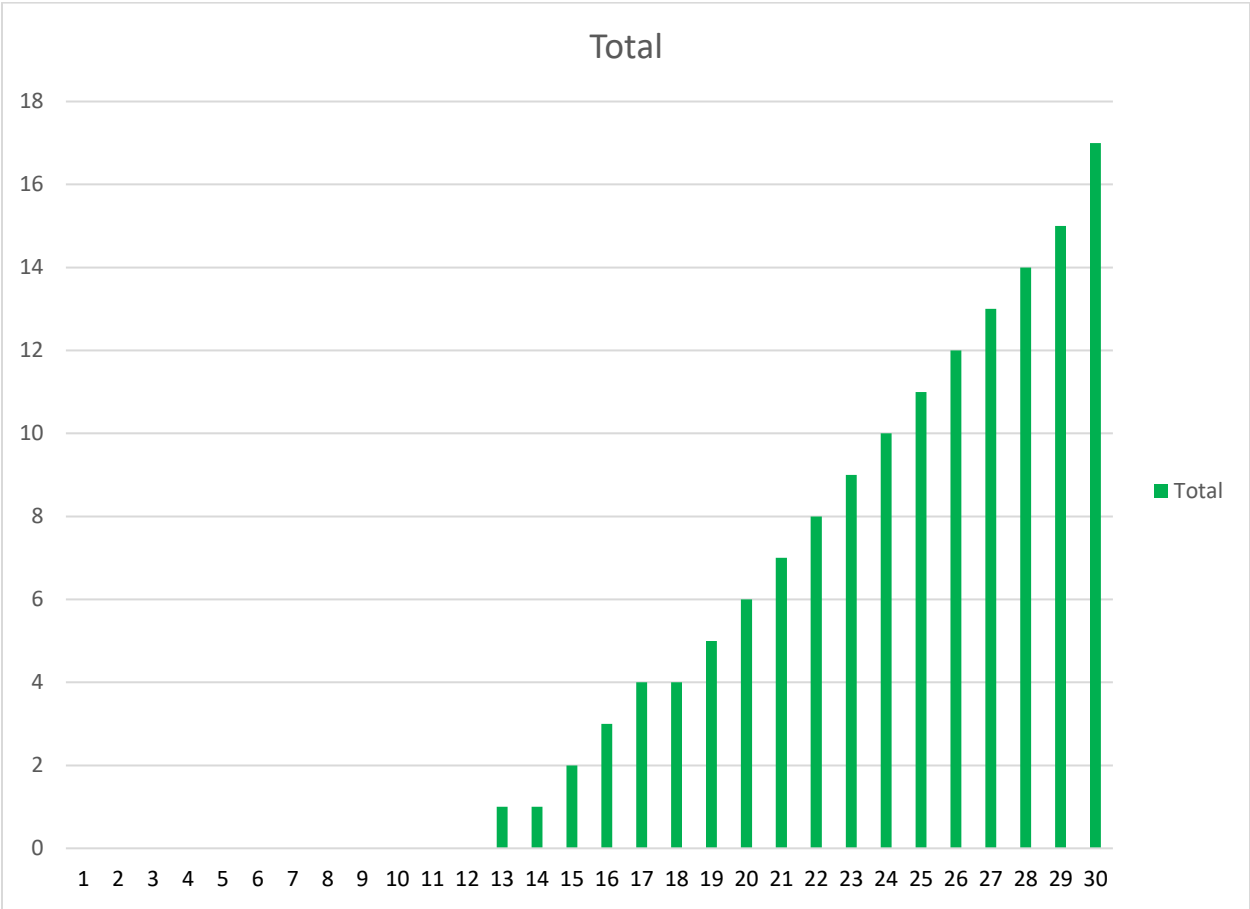
Height growth analysis:



Leaf growth analysis:



Fruit growth analysis:



Overview of the Dataset:

1. Growth Parameters:

- **Height (cm):** This column tracks the vertical growth of the tomato plant, showing a steady increase over the 30 days, indicating healthy growth.
- **Leaf Count:** The number of leaves is a critical indicator of the plant's health and vigor. An increase from 2 to 30 leaves suggests good photosynthetic capability and overall plant health.

- **Fruit Count:** This measures the plant's productivity. The dataset shows gradual fruit development, with the first fruit appearing around Day 13 and reaching 17 fruits by Day 30.

2.Environmental Conditions:

- **Soil Moisture (%):** Optimal moisture levels are crucial for tomato plants. The dataset indicates a slight decrease over time, which could suggest either a natural drying process or changes in watering practices.
- **Temperature (°C):** The temperatures recorded range from 20°C to 27°C, which are generally favorable for tomato growth. The consistent temperature indicates a stable growing environment.

3.Growth Stages:

- The dataset categorizes growth into distinct phases: Germination, Seedling, Early Vegetative, Flowering, Fruit Set, Maturing, and Post-Harvest. This classification helps in understanding the life cycle of the tomato plant.

4.Notes:

- The notes section provides qualitative observations about the growth conditions, such as pest monitoring, watering practices, and the health of the plant. This is useful for identifying potential issues and successes in cultivation.

Key Insights:

- **Steady Growth:** The height and leaf count increase steadily, suggesting that the plant is receiving adequate nutrients, water, and sunlight.
- **Fruit Development:** The gradual increase in fruit count shows that the flowering and fruit-setting processes are successful, indicating effective pollination and environmental conditions.
- **Optimal Conditions:** The temperature range and soil moisture levels suggest that the plants are growing under favorable conditions. The slight decrease in soil moisture might indicate a need for more regular watering as the plants mature and require more resources.

- **Timely Harvesting:** The dataset shows a transition from maturing to harvesting stages around Day 23, indicating that the fruits were ready to be picked, reflecting successful cultivation practices.

Considerations for Improvement:

- **Water Management:** The gradual decline in soil moisture could be monitored more closely, especially during the fruiting phase, to prevent stress on the plants.
- **Pest and Disease Monitoring:** While the notes indicate no pests were observed initially, continuous monitoring is essential, especially as plants mature and attract more pests.
- **Nutrient Management:** Ensuring balanced nutrient supply through fertilizers can optimize growth and fruiting, particularly in later stages when the demand increases.

Conclusion:

The extended tomato growth dataset provides a comprehensive view of the growth and development of tomato plants over a 30-day period. The following conclusions can be drawn:

1. **Healthy Growth Dynamics:** The steady increase in height and leaf count demonstrates robust plant health and vigorous growth, indicative of optimal conditions in terms of light, nutrients, and care.
2. **Successful Fruit Development:** The gradual rise in fruit count, starting from Day 13 and culminating in 17 fruits by Day 30, highlights effective flowering and pollination processes, leading to a productive harvest.
3. **Environmental Suitability:** The recorded temperatures (20°C to 27°C) and soil moisture levels suggest that the environmental conditions were generally favorable for tomato growth. However, a slight decline in soil

4. moisture over time indicates a need for careful water management, especially during the fruiting stage when plants require more resources.
5. **Growth Stage Insights:** The dataset effectively outlines the key growth stages of tomato plants, from germination to harvesting. This categorization aids in understanding the developmental milestones and optimizing care practices throughout the lifecycle.
6. **Future Considerations:** Continuous monitoring of soil moisture, pest management, and nutrient supply will be crucial for sustaining healthy growth and maximizing yield in future cultivation cycles. Adjustments to watering practices and vigilant pest monitoring can mitigate risks and enhance productivity.

Overall, this dataset serves as a valuable resource for gardeners and agriculturalists seeking to understand the growth patterns of tomato plants and improve their cultivation practices for better yield and plant health.