<https://www.kaggle.com/datasets/vipoooool/new-plant-diseases-dataset>

<https://www.kaggle.com/code/aminumusa/lightweight-model-of-disease-detection>

https://github.com/spMohanty/PlantVillage-Dataset

Here's the corrected list with the plant name, disease name in the category, and the correctly formatted disease name:

| **Plant Name** | **Disease Name in Category** | **Correct Disease Name** |
| --- | --- | --- |
| Apple | Apple\_\_\_Apple\_scab | Apple Scab |
| Apple | Apple\_\_\_Black\_rot | Black Rot |
| Apple | Apple\_\_\_Cedar\_apple\_rust | Cedar Apple Rust |
| Apple | Apple\_\_\_healthy | Healthy |
| Corn (Maize) | Corn\_(maize)\_\_\_Cercospora\_leaf\_spot Gray\_leaf\_spot | Cercospora Leaf Spot / Gray Leaf Spot |
| Corn (Maize) | Corn\_(maize)\_\_\_Common\_rust | Common Rust |
| Corn (Maize) | Corn\_(maize)\_\_\_healthy | Healthy |
| Corn (Maize) | Corn\_(maize)\_\_\_Northern\_Leaf\_Blight | Northern Leaf Blight |
| Grape | Grape\_\_\_Black\_rot | Black Rot |
| Grape | Grape\_\_\_Esca\_(Black\_Measles) | Esca (Black Measles) |
| Grape | Grape\_\_\_healthy | Healthy |
| Grape | Grape\_\_\_Leaf\_blight\_(Isariopsis\_Leaf\_Spot) | Leaf Blight (Isariopsis Leaf Spot) |
| Potato | Potato\_\_\_Early\_blight | Early Blight |
| Potato | Potato\_\_\_healthy | Healthy |
| Potato | Potato\_\_\_Late\_blight | Late Blight |
| Tomato | Tomato\_\_\_Bacterial\_spot | Bacterial Spot |
| Tomato | Tomato\_\_\_Early\_blight | Early Blight |
| Tomato | Tomato\_\_\_healthy | Healthy |
| Tomato | Tomato\_\_\_Late\_blight | Late Blight |
| Tomato | Tomato\_\_\_Leaf\_Mold | Leaf Mold |
| Tomato | Tomato\_\_\_Septoria\_leaf\_spot | Septoria Leaf Spot |
| Tomato | Tomato\_\_\_Spider\_mites\_two-spotted\_spider\_mite | Spider Mites (Two-Spotted Spider Mite) |
| Tomato | Tomato\_\_\_Target\_Spot | Target Spot |
| Tomato | Tomato\_\_\_Tomato\_mosaic\_virus | Tomato Mosaic Virus |
| Tomato | Tomato\_\_\_Tomato\_Yellow\_Leaf\_Curl\_Virus | Tomato Yellow Leaf Curl Virus |

This format makes it easier to understand the plant-disease relationship and corrects the disease names for better readability. Let me know if you need any modifications! 😊

Here's a brief explanation of each disease in the list:

**Apple Diseases**

1. **Apple Scab**
   * **Cause:** Fungus (*Venturia inaequalis*)
   * **Symptoms:** Dark, scabby lesions on leaves and fruit, leading to premature leaf drop.
   * **Spread:** Spores spread by wind and rain.
   * **Control:** Fungicides, resistant varieties, and good air circulation.
2. **Black Rot**
   * **Cause:** Fungus (*Botryosphaeria obtusa*)
   * **Symptoms:** Circular, sunken brown spots on fruit that enlarge over time; leaves may develop a "frogeye" pattern.
   * **Spread:** Spores spread via rain and wind.
   * **Control:** Pruning infected branches, fungicide application.
3. **Cedar Apple Rust**
   * **Cause:** Fungus (*Gymnosporangium juniperi-virginianae*)
   * **Symptoms:** Orange or rust-colored spots on leaves, affecting fruit and twigs.
   * **Spread:** Requires both apple and cedar trees to complete its lifecycle.
   * **Control:** Removing nearby juniper trees, fungicides.

**Corn (Maize) Diseases**

1. **Cercospora Leaf Spot / Gray Leaf Spot**
   * **Cause:** Fungus (*Cercospora zeae-maydis*)
   * **Symptoms:** Long, rectangular gray or tan lesions on leaves, reducing photosynthesis.
   * **Spread:** Wind and waterborne spores.
   * **Control:** Crop rotation, resistant varieties, fungicide application.
2. **Common Rust**
   * **Cause:** Fungus (*Puccinia sorghi*)
   * **Symptoms:** Reddish-brown pustules on both sides of the leaf.
   * **Spread:** Windborne spores.
   * **Control:** Resistant hybrids, fungicides if severe.
3. **Northern Leaf Blight**
   * **Cause:** Fungus (*Exserohilum turcicum*)
   * **Symptoms:** Long, cigar-shaped grayish lesions on leaves.
   * **Spread:** Spores spread through wind and rain.
   * **Control:** Crop rotation, resistant hybrids, fungicide use.

**Grape Diseases**

1. **Black Rot**
   * **Cause:** Fungus (*Guignardia bidwellii*)
   * **Symptoms:** Brown leaf spots with black margins; fruit shrivels into black mummies.
   * **Spread:** Spores spread by wind and rain.
   * **Control:** Removing infected berries, fungicides.
2. **Esca (Black Measles)**
   * **Cause:** Complex fungal infection (*Phaeomoniella chlamydospora*, *Togninia minima*)
   * **Symptoms:** Yellow and brown leaf streaks, vine decline, black spots on fruit.
   * **Spread:** Pruning wounds, soil transmission.
   * **Control:** Sanitation, pruning, and fungicides.
3. **Leaf Blight (Isariopsis Leaf Spot)**
   * **Cause:** Fungus (*Isariopsis griseola*)
   * **Symptoms:** Small brown spots that merge to form large blighted areas.
   * **Spread:** Spores spread by rain and wind.
   * **Control:** Proper vineyard sanitation, fungicides.

**Potato Diseases**

1. **Early Blight**
   * **Cause:** Fungus (*Alternaria solani*)
   * **Symptoms:** Small dark spots with concentric rings on leaves, affecting older leaves first.
   * **Spread:** Spores spread by wind, water, and tools.
   * **Control:** Crop rotation, fungicides, resistant varieties.
2. **Late Blight**
   * **Cause:** Oomycete (*Phytophthora infestans*)
   * **Symptoms:** Large, irregular grayish lesions with water-soaked appearance; rapid leaf decay.
   * **Spread:** Windborne spores; thrives in wet conditions.
   * **Control:** Fungicides, resistant varieties, removing infected plants.

**Tomato Diseases**

1. **Bacterial Spot**
   * **Cause:** Bacteria (*Xanthomonas campestris pv. vesicatoria*)
   * **Symptoms:** Small, water-soaked spots on leaves and fruit; may lead to defoliation.
   * **Spread:** Rain, irrigation splash, infected seeds.
   * **Control:** Copper-based fungicides, certified seeds, crop rotation.
2. **Early Blight**
   * **Cause:** Fungus (*Alternaria solani*)
   * **Symptoms:** Concentric brown rings on leaves, starting from the lower plant.
   * **Spread:** Wind, soil, and waterborne spores.
   * **Control:** Fungicides, crop rotation, removing infected leaves.
3. **Late Blight**
   * **Cause:** Oomycete (*Phytophthora infestans*)
   * **Symptoms:** Water-soaked lesions that turn brown and spread quickly in humid conditions.
   * **Spread:** Windborne spores, rain splash.
   * **Control:** Resistant varieties, fungicides, removing infected plants.
4. **Leaf Mold**
   * **Cause:** Fungus (*Passalora fulva*)
   * **Symptoms:** Yellowing of leaves with velvety olive-green mold underneath.
   * **Spread:** Spores in humid conditions.
   * **Control:** Proper ventilation, fungicides, removing infected leaves.
5. **Septoria Leaf Spot**
   * **Cause:** Fungus (*Septoria lycopersici*)
   * **Symptoms:** Small, circular spots with gray centers and dark margins, leading to defoliation.
   * **Spread:** Rain, wind, contaminated tools.
   * **Control:** Crop rotation, fungicides, sanitation.
6. **Spider Mites (Two-Spotted Spider Mite)**
   * **Cause:** Mite (*Tetranychus urticae*)
   * **Symptoms:** Tiny yellow spots on leaves, fine webbing on undersides.
   * **Spread:** Wind, infested plants.
   * **Control:** Miticides, neem oil, predatory mites.
7. **Target Spot**
   * **Cause:** Fungus (*Corynespora cassiicola*)
   * **Symptoms:** Brown leaf spots with concentric rings; fruit may be affected.
   * **Spread:** Wind, rain, contaminated soil.
   * **Control:** Fungicides, crop rotation, resistant varieties.
8. **Tomato Mosaic Virus**
   * **Cause:** Virus (*Tobamovirus*)
   * **Symptoms:** Mosaic-like mottling, curling, and reduced fruit production.
   * **Spread:** Contaminated seeds, hands, tools.
   * **Control:** Resistant varieties, sanitization, removing infected plants.
9. **Tomato Yellow Leaf Curl Virus**
   * **Cause:** Virus (*Begomovirus*)
   * **Symptoms:** Yellowing and curling of leaves, stunted growth, reduced yield.
   * **Spread:** Whiteflies.
   * **Control:** Whitefly control, resistant varieties, removing infected plants.

Would you like me to add treatment or preventive measures for each disease? 😊

|  | **Plant Name** | **Disease Name** | **Number of Images** |
| --- | --- | --- | --- |
| 0 | Apple | Apple scab | 2016 |
| 1 | Apple | Black rot | 1987 |
| 2 | Apple | Cedar apple rust | 1760 |
| 3 | Apple | healthy | 2008 |
| 4 | Corn\_(maize) | Cercospora leaf spot Gray leaf spot | 1642 |
| 5 | Corn\_(maize) | Common rust | 1907 |
| 6 | Corn\_(maize) | healthy | 1859 |
| 7 | Corn\_(maize) | Northern Leaf Blight | 1908 |
| 8 | Grape | Black rot | 1888 |
| 9 | Grape | Esca Black Measles | 1920 |
| 10 | Grape | healthy | 1692 |
| 11 | Grape | Leaf blight Isariopsis Leaf Spot | 1722 |
| 12 | Potato | Early blight | 1939 |
| 13 | Potato | healthy | 1824 |
| 14 | Potato | Late blight | 1939 |
| 15 | Tomato | Bacterial spot | 1702 |
| 16 | Tomato | Early blight | 1920 |
| 17 | Tomato | healthy | 1926 |
| 18 | Tomato | Late blight | 1851 |
| 19 | Tomato | Leaf Mold | 1882 |
| 20 | Tomato | Septoria leaf spot | 1745 |
| 21 | Tomato | Spider mites two-spotted spider mite | 1741 |
| 22 | Tomato | Target Spot | 1827 |
| 23 | Tomato | Tomato mosaic virus | 1790 |
| 24 | Tomato | Tomato Yellow Leaf Curl Virus | 1961 |

Plant Name Disease Name Number of Images

0 Apple Apple scab 2016

1 Apple Black rot 1987

2 Apple Cedar apple rust 1760

3 Apple healthy 2008

4 Corn\_(maize) Cercospora leaf spot Gray leaf spot 1642

5 Corn\_(maize) Common rust 1907

6 Corn\_(maize) healthy 1859

7 Corn\_(maize) Northern Leaf Blight 1908

8 Grape Black rot 1888

9 Grape Esca Black Measles 1920

10 Grape healthy 1692

11 Grape Leaf blight Isariopsis Leaf Spot 1722

12 Potato Early blight 1939

13 Potato healthy 1824

14 Potato Late blight 1939

15 Tomato Bacterial spot 1702

16 Tomato Early blight 1920

17 Tomato healthy 1926

18 Tomato Late blight 1851

19 Tomato Leaf Mold 1882

20 Tomato Septoria leaf spot 1745

21 Tomato Spider mites two-spotted spider mite 1741

22 Tomato Target Spot 1827

23 Tomato Tomato mosaic virus 1790

24 Tomato Tomato Yellow Leaf Curl Virus 1961

The PlantVillage dataset is a collection of images of plant leaves, both healthy and diseased, used for research and development in plant pathology and machine learning, containing 54,303 images across 38 disease classes from 14 plant species.

Here's a more detailed description:

Key Features:

* **Purpose:**

The dataset is designed to facilitate the development of algorithms for plant disease detection and classification.

* **Content:**

It comprises 54,303 images of plant leaves, encompassing both healthy and diseased leaves.

* **Plant Species:**

The dataset includes images of 14 different plant species: apple, blueberry, cherry, corn, grape, orange, peach, pepper, potato, raspberry, soybean, squash, strawberry, and tomato.

* **Disease Classes:**

The dataset covers 38 different disease classes, including 17 basic diseases, 4 bacterial diseases, 2 diseases caused by mold (oomycete), 2 viral diseases, and 1 disease caused by a mite.

* **Data Collection:**

The images were collected under controlled conditions, with uniform lighting and simple backgrounds.

* **Image Resolution:**

The original image resolution is 256x256 pixels.

* **Data Splits:**

Some versions of the dataset include pre-defined splits for training, testing, and validation.

* **Availability:**

The original dataset is not directly available from the original source (plantvillage.org), but can be accessed through various sources like TensorFlow Datasets and Kaggle.

* **Augmentation:**

Some versions of the dataset have been augmented with techniques like scaling, rotation, noise injection, gamma correction, image flipping, and PCA color augmentation.

* **Use Cases:**

The dataset is used for various applications, including plant disease detection, classification, and severity assessment.

* **Educational Tool:**

The dataset can be used as an educational tool to teach students about plant health, diseases, and the process of disease identification.