

LIVESTOCK DISEASE PREDICTION & MEDICINE RECOMMENDATION

DISEASE COMMON IN INDIA:

1) Infectious keratoconjunctivitis :

- Infectious keratoconjunctivitis (IBK), also known as pinkeye, is a highly contagious bacterial infection of the eye that affects cattle.
- It's the most common eye disease in cattle and can affect both dairy and beef cattle populations.
- A study documented the first report of *Moraxella bovis* infection in a dairy herd outbreak in Bareilly, Uttar Pradesh [Nexus Academic Publisher].



2) Foot and mouth disease:

- It's caused by an Aphthovirus in the Picornaviridae family, and there are at least seven types of the virus. FMD can spread rapidly through direct and indirect transmission,
- Foot and mouth disease (FMD) is a highly contagious viral disease that's common in Asia, the Middle East, South America, and parts of Africa.



3) Lumpy skin disease:

- Lumpy skin disease is a viral disease that affects cattle. It is transmitted by blood-feeding insects, such as certain species of flies and mosquitoes, or ticks. It causes fever, nodules on the skin and can also lead to death.
- In India, the disease first appeared in Gujarat in May 2022, and by August 2022 had spread to many other states, including Rajasthan, Punjab, Himachal Pradesh, Haryana, Maharashtra, Uttar Pradesh, Uttarakhand, Jammu Kashmir, and Andaman Nicobar.
- As of August 2022, around 900,000 cattle had been infected and 35,000 had died.



4) Dermatophilosis:

- Dermatophilosis, also known as rain rot or rain scald, is a common, contagious skin infection in cattle and other large animals caused by the bacterium *Dermatophilus congolensis*.
- It's more prevalent in hot, humid environments and areas with heavy rain.
- Tamil Nadu: Particularly the delta districts, where there seems to be a higher prevalence in dairy cattle compared to draft animals. The winter season sees more cases than summer.
- Kerala: A study in Kerala also identified a high number of dermatophilosis cases in dairy cattle.



5) Pediculosis:

- Pediculosis in cattle is an infestation of lice. These are small, wingless insects that feed on the animal's blood or skin debris. It's a common problem for cattle worldwide, including India.
- Seasonal variations: Lice populations tend to be higher in winter and early spring months [IntechOpen].



6) Ringworm:

- Ringworm is a common fungal skin infection in young cattle caused by dermatophytes, such as *Trichophyton verrucosum* and *Trichophyton mentagrophytes*.
- Studies in Rajasthan and Jaipur regions reported a higher prevalence in calves.




DATA SET OVERVIEW:

The dataset created with the help of Roboflow includes comprehensive information on the mentioned cattle diseases. It is accessible at the following links:

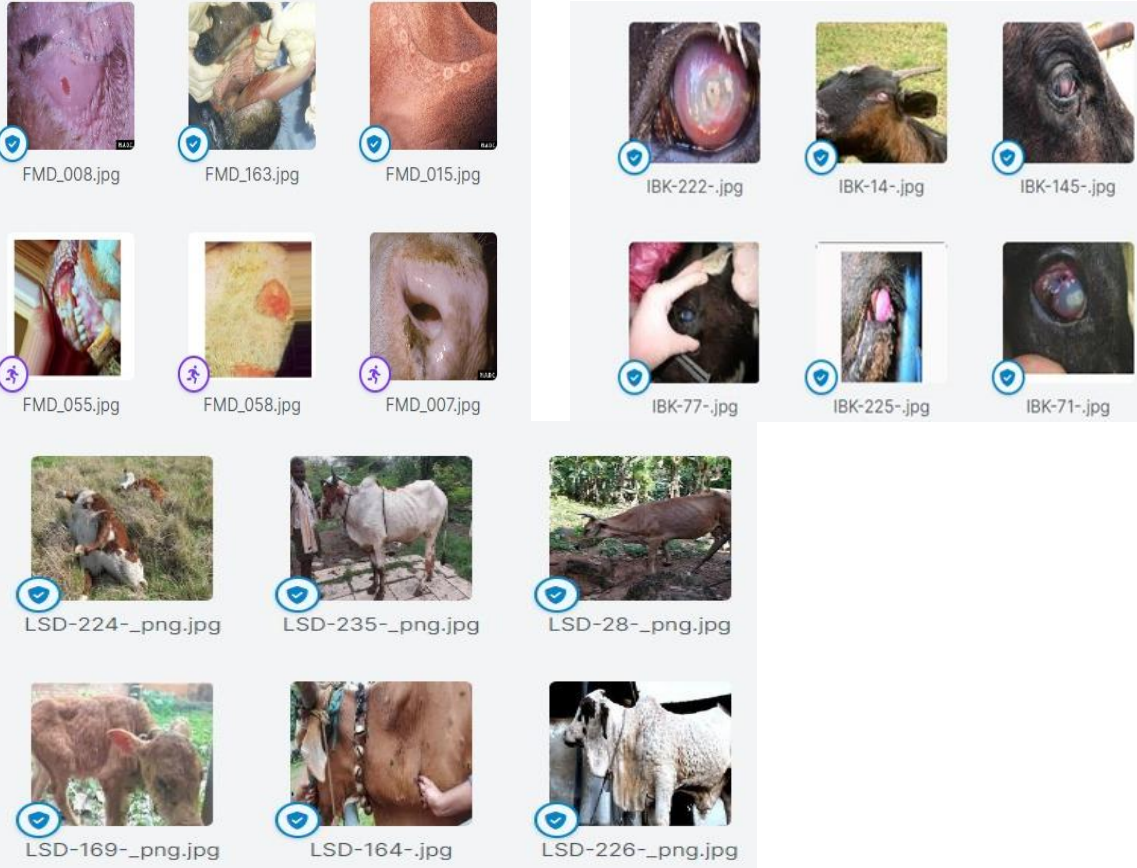
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- <https://app.roboflow.com/ganesh73005/cow-kmqwy/1>

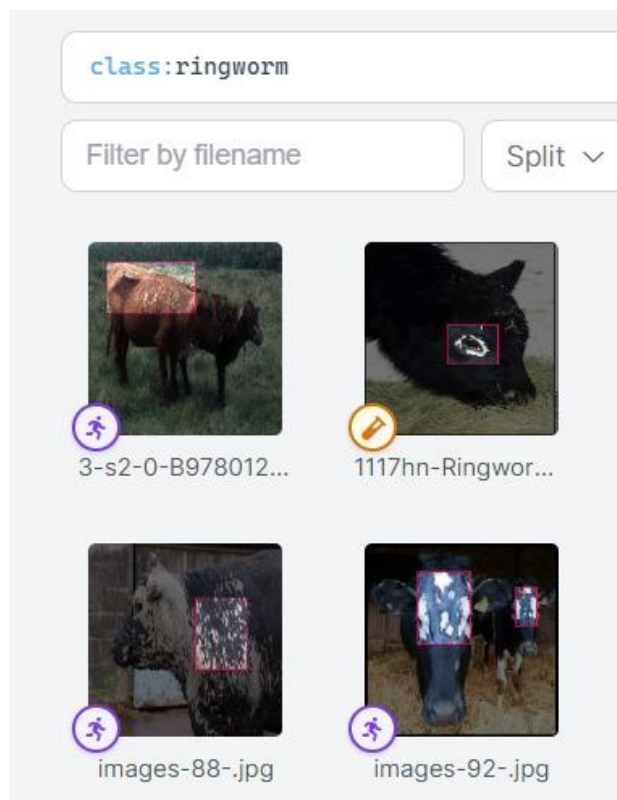
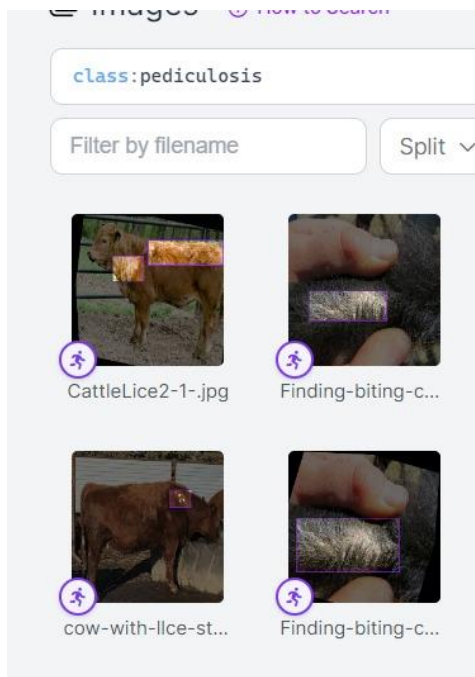
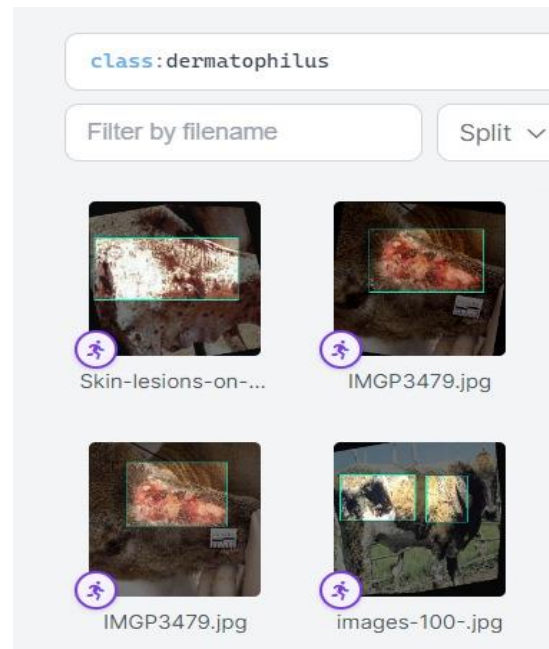
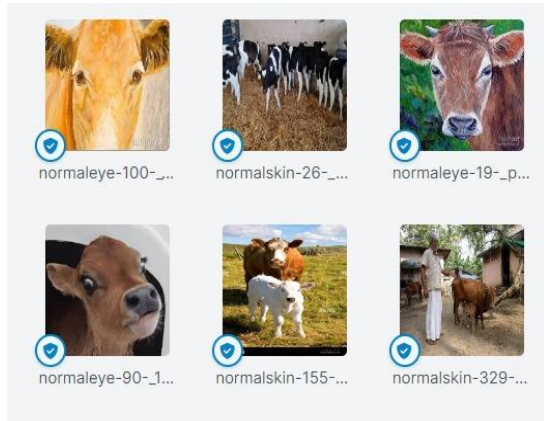
1346 Total Images [View All Images →](#)



Dataset Split

| | | | | | |
|-------------------------|-----|-------------------------|-----|------------------------|-----|
| TRAIN SET 942 Images | 70% | VALID SET 269 Images | 20% | TEST SET 135 Images | 10% |
|-------------------------|-----|-------------------------|-----|------------------------|-----|





COMMAN BREED AND ITS DISTRIBUTION:

Jersey

Overview: The Jersey breed, originating from the Island of Jersey, is known for its high-quality milk with high butterfat content. Jerseys are typically smaller but highly efficient in converting feed into milk.

Distribution:

- **North America:** Widely distributed across the United States and Canada.
- **Europe:** Common in the UK, France, Denmark, and other countries.
- **Australia and New Zealand:** Popular due to adaptability.
- **Asia:** Increasingly common in India, China, etc.
- **Africa:** Present in emerging dairy industries like Kenya and South Africa.

Jersey Cross

Overview: Jersey crossbreeds, often crossed with other dairy breeds like Holstein, combine high butterfat content with high milk yield, valued for hybrid vigor and adaptability.

Distribution:

- **North America:** Common in regions seeking improved milk quality.
- **Europe:** Used to enhance local breeds.
- **Asia:** Popular in India and similar countries.
- **Africa:** Utilized to enhance local cattle performance.

Holstein Friesian

Overview: Holstein Friesians, originally from the Netherlands and Germany, are known for high milk yield, making them the most common dairy breed worldwide.

Distribution:

- **North America:** Dominant in the US and Canada.
- **Europe:** Widely distributed across the continent.
- **Australia and New Zealand:** Primary dairy breed.
- **Asia:** Popular in China and India.
- **Africa:** Gaining popularity in expanding dairy industries.

Statistical Data on Disease Prevalence

- **North America:** IKC affects about 15% of herds annually, with mastitis common in Holstein herds.
- **Europe:** IKC prevalence up to 10% annually, mastitis affects 20-30% of cows.
- **Australia and New Zealand:** IKC impacts around 12% of herds, mastitis a major concern.
- **Asia:** BRD and mastitis common in Jersey crosses and Holsteins, IKC around 15%.
- **Africa:** Variable prevalence, with IKC affecting up to 25% of herds, TB a concern in some areas.