



Diseases of Bajra/ Pearl millet

Presented By:- Devendra
Choudhary



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1. Downy mildew
2. Ergot



Bajra Downy mildew



Causal organism

Sclerospora graminicola

Devendra

Symptom



DKC

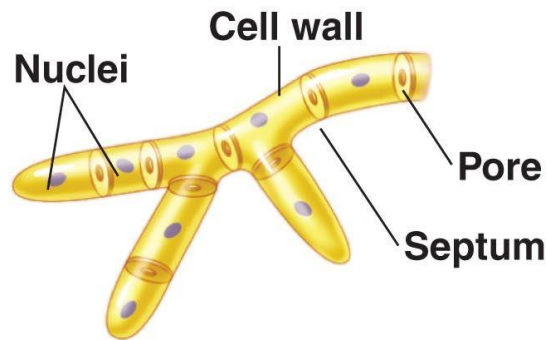
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Symptom

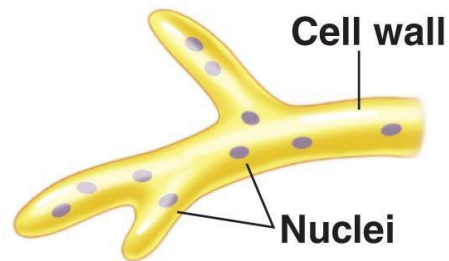
- Symptoms often vary as a result of systemic infection.
- Leaf symptoms begin as chlorosis at the base and successively higher leaves show greater chlorosis.
- Infected chlorotic leaf areas can support abundant white asexual sporulation on the lower leaf surface.
- Severely infected plants are generally stunted and do not produce panicles.
- Green ear symptoms result from transformation of floral parts into leafy structures.

Etiology

- Mycelium - coenocytic and hyaline
- Produce sporangiophores and sporangia
- Sporangiophores are quite short and stout, branch profusely into series of pointed sterigmata which bear hyaline, oblong or ovoid sporangia (conidia).
- Sporangia germinate directly and infect the plants.
- oospores are formed which are spherical, thick walled and deep brown

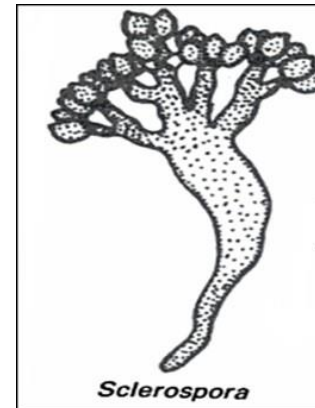


(a) Septate hypha

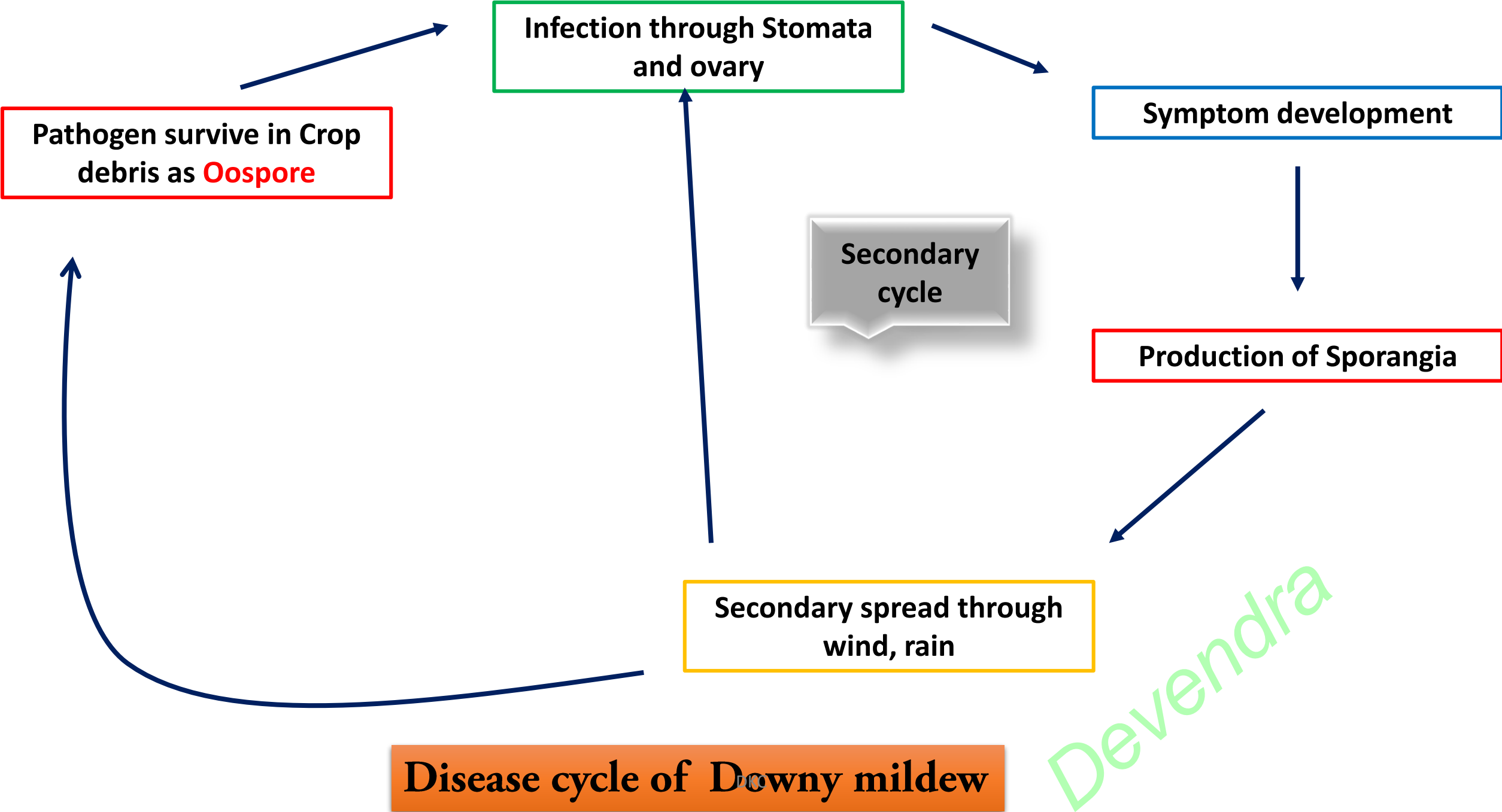


(b) Coenocytic hypha

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Disease cycle of Downy mildew

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Epidemiology

- RH >90 %
- presence of water on the leaves
- Low temperature of 15-25°C

Management

- Deep ploughing.
- Crop rotation with pulses.
- Remove infected plants as soon as they are seen; take them out of the planting and burn them.
- Collect the remains of the crop and destroy by burning, burying, or remove
- Treat the seeds with metalaxyl at 6g/kg.
- Grow resistant varieties and hybrids viz. WCC-75, Co7 and Co (Cu)9
- Metalaxyl MZ (Ridomil MZ) @0.2%



Ergot of Bajra

Causal organism

- **Ergot or Sugary disease**
- *Claviceps fusiformis*
- *C. purpurea*

Symptom

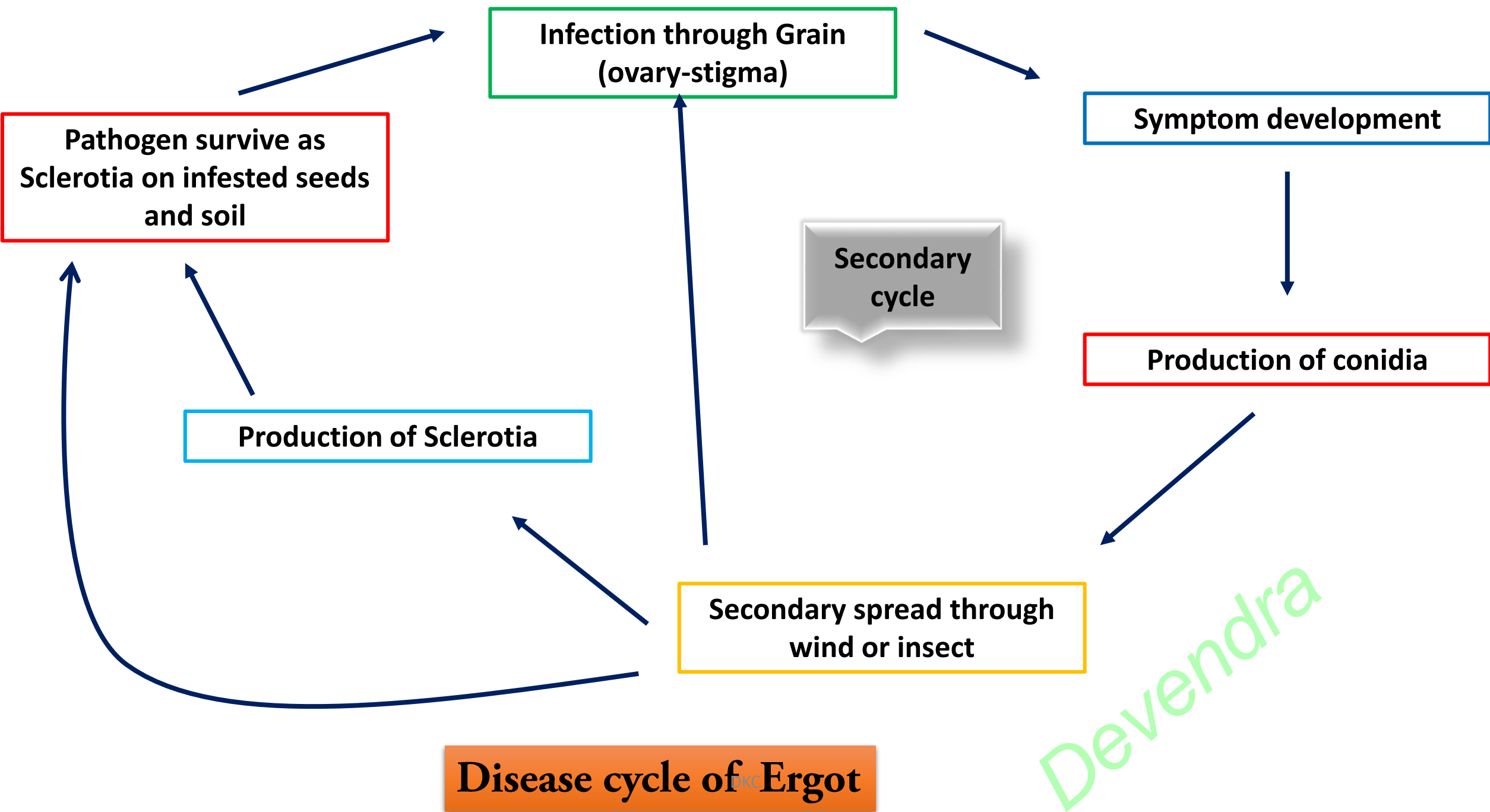
- Cream to pink mucilaginous droplets of "honeydew" ooze out of infected florets on pearl millet panicles.
- Within 10 to 15 days, the droplets dry and harden, and dark brown to black sclerotia develop in place of seeds on the panicle.
- Sclerotia are larger than seed and irregularly shaped, and generally get mixed with the grain during threshing



Etiology

- The pathogen produces septate mycelium, hyaline, branched
- produces conidiophores and is closely arranged.
- Macro and micro conidia
- Conidia are hyaline and one celled.
- The sclerotia are small (3-8mm x 0.3-15mm) and dark grey but white inside.
- Produce ascospore in perithecia





Disease cycle of Ergot

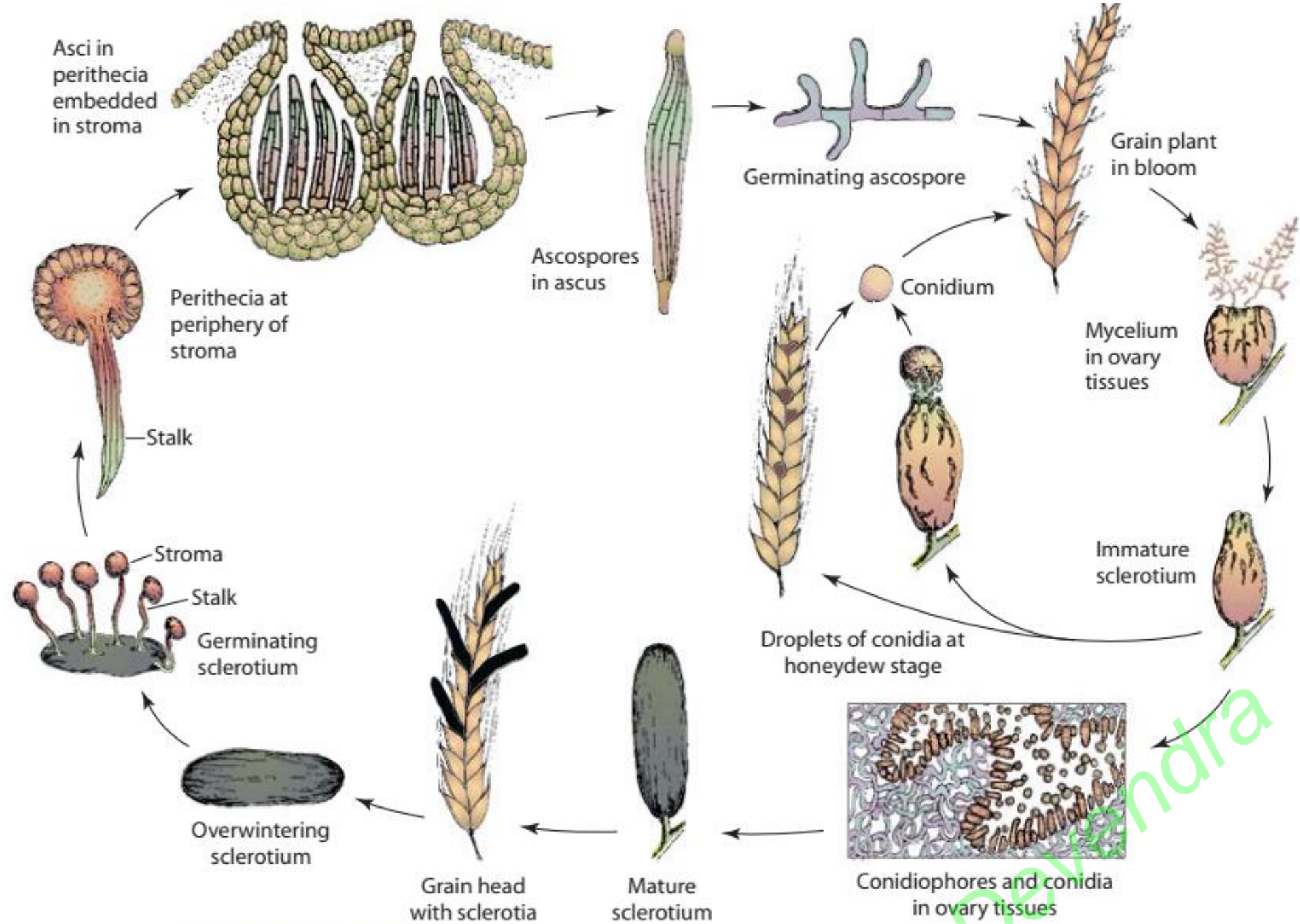


FIGURE 11-88 Disease cycle of ergot of grains caused by *Claviceps purpurea*.

Epidemiology

- drizzling rain with a temperature of 20-30°C
- during flowering period

Management

- Adjust the sowing date so that the crop does not flower during September when high rainfall and high relative humidity favour the disease spread.
- Immerse the seeds in 10 per cent common salt solution and remove the floating sclerotia.
- Remove collateral hosts
- Mancozeb @ 0.3%
- Carbendazim @ 0.1%

Multiple data have been reported to suggest that modern, non-photosynthetic eukaryotes have a common ancestor with the green alga *Chlamydomonas reinhardtii*. This is supported by the fact that the two organisms share a common ancestor that lived approximately 1.5 billion years ago. The common ancestor is thought to have been a photosynthetic organism that lost its ability to photosynthesize and became a non-photosynthetic organism. This is supported by the fact that the two organisms share a common ancestor that lived approximately 1.5 billion years ago. The common ancestor is thought to have been a photosynthetic organism that lost its ability to photosynthesize and became a non-photosynthetic organism. This is supported by the fact that the two organisms share a common ancestor that lived approximately 1.5 billion years ago.

nanoschematic

DNA contains the genetic information that allows all modern living things to function, grow and reproduce. However, it is unclear how long in the 4-billion-year history of life DNA has performed this function as it has been proposed that the earliest forms of life may have used RNA as their genetic material [94][10] RNA may have acted as the central part of many cells in early life as it can both transmit genetic information and carry out catalysis as part of ribozymes [11] This ancient RNA world where nucleic acids would have been used for both catalysis and genetics may have influenced the evolution of the current genetic code based on four nucleotide bases. This would occur, since the number of different bases in such an organism is a trade-off between a small number of bases (increasing replication accuracy and a large number of bases (increasing the catalytic efficiency per base pair) [12]

However, there is no direct evidence of ancient genetic systems, and the evolution of the genetic code is still a matter of debate. The genetic code is thought to have evolved in the early stages of life, and it is possible that it was influenced by the environment. The genetic code is thought to have evolved in the early stages of life, and it is possible that it was influenced by the environment. The genetic code is thought to have evolved in the early stages of life, and it is possible that it was influenced by the environment.

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Thank You