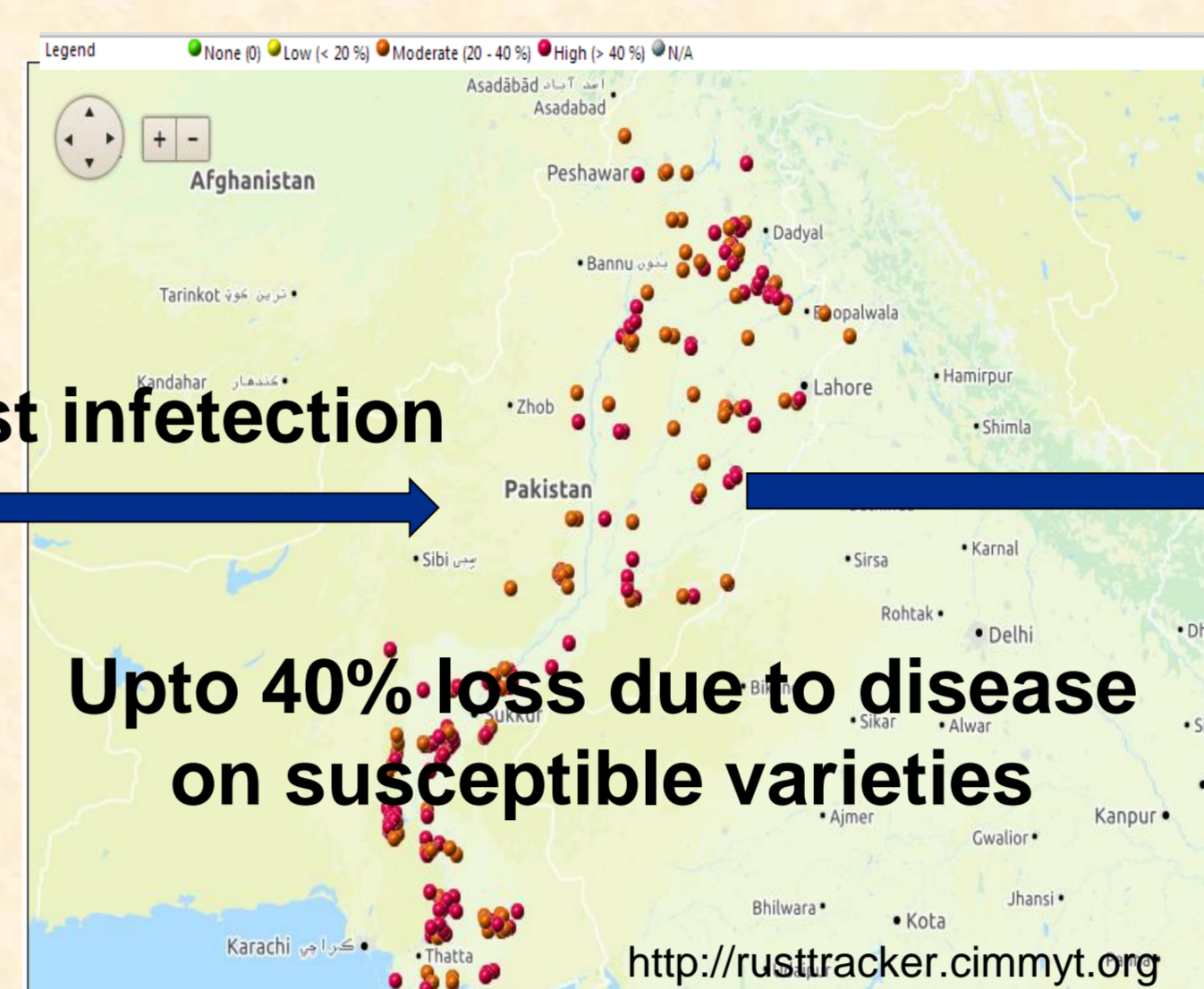
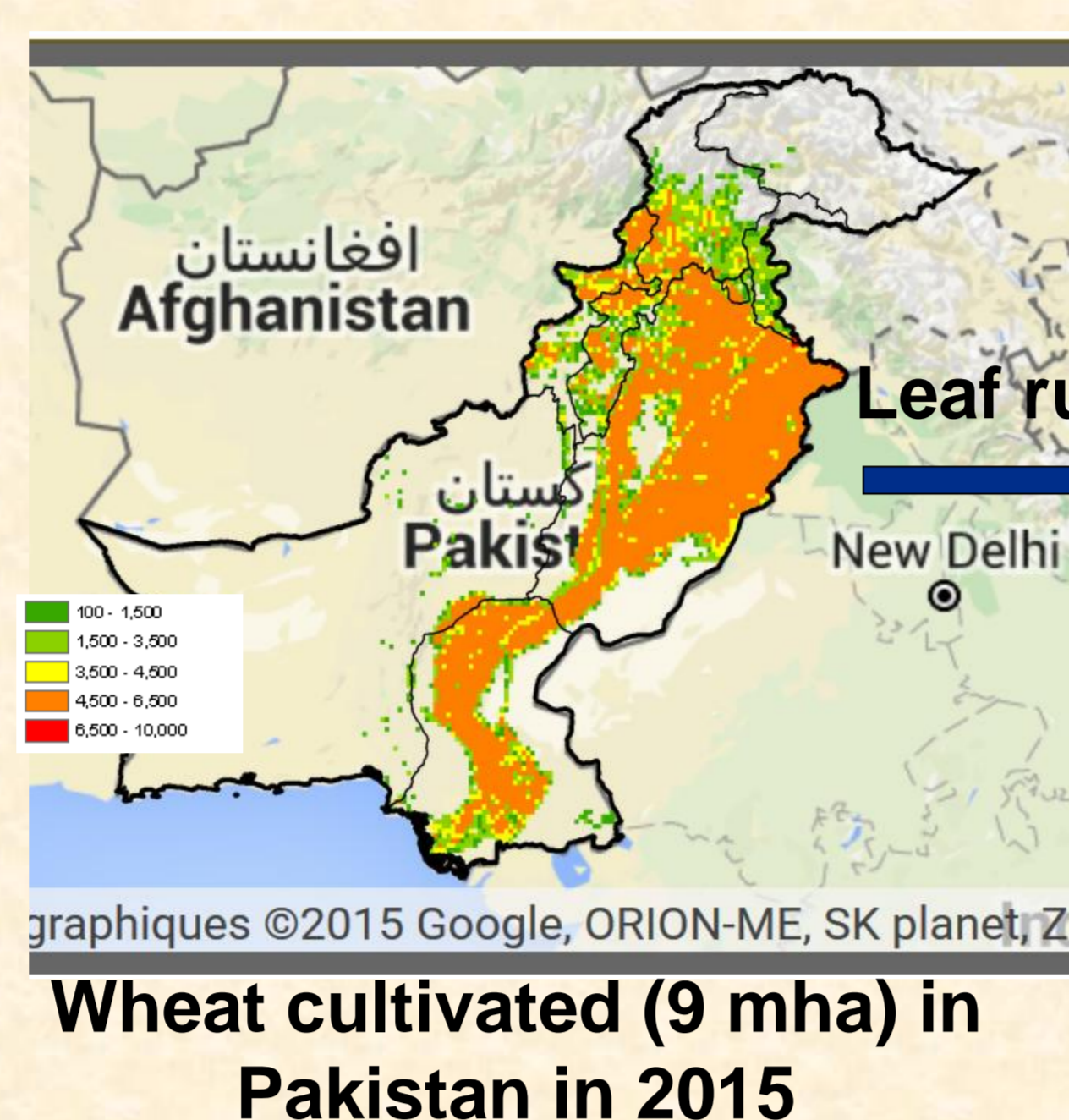


Durable resistance to wheat leaf rust: adaptive potential of the pathogen

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An important disease: **80% of the wheat cultivated area was infected with leaf rust in Pakistan in 2015**

Complete control

Use of fungicide

Cost: the farmers can't afford

Environmental contamination

Plant host resistance

Partial control

Resistant wheat varieties are developed

Selection pressure: The pathogen quickly overcomes the varietal resistance

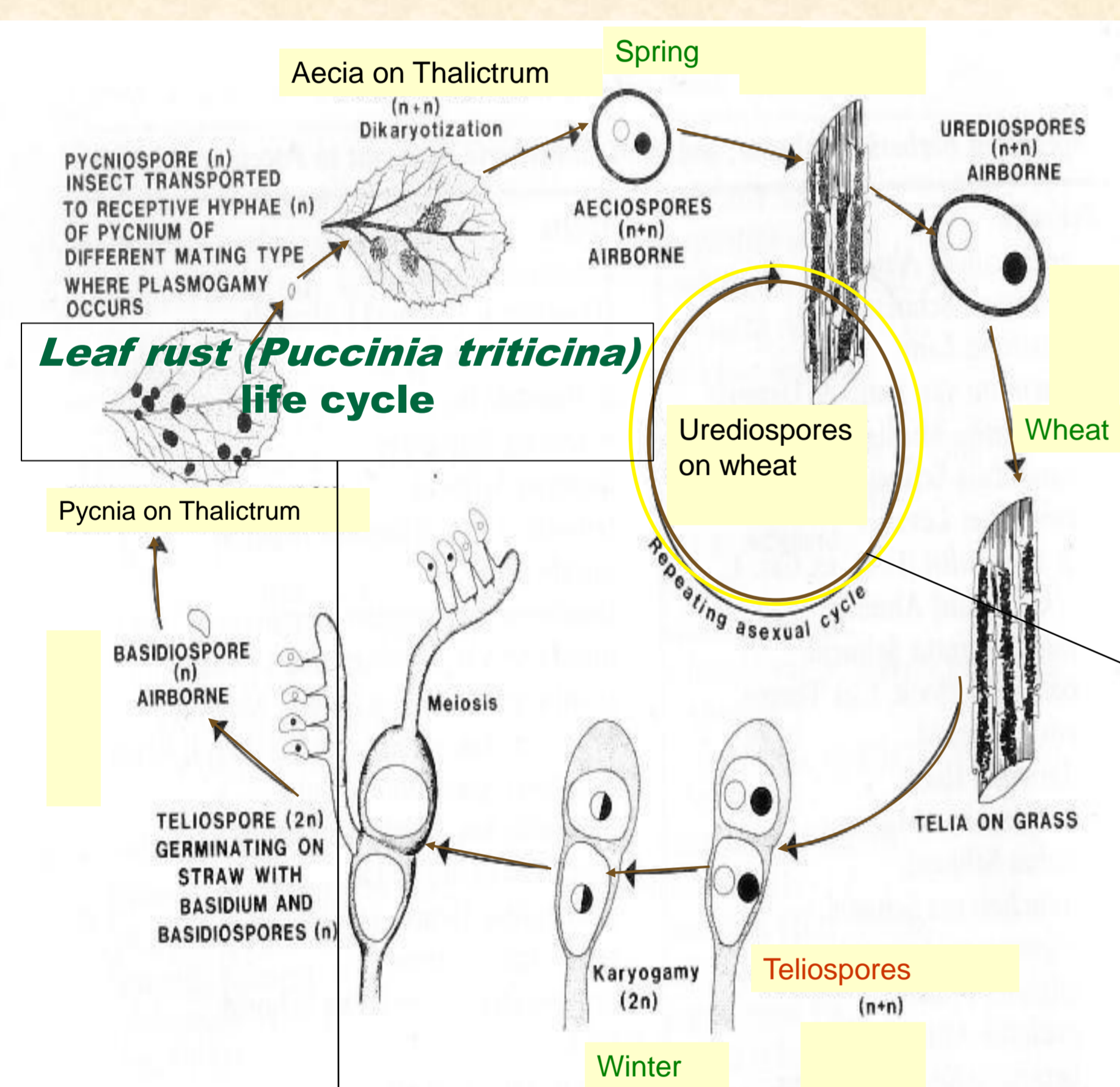
High genetic variability despite clonal reproduction

What are the sources of variability?

Migration: pathogen wind-dispersed over long distance

Mutation: change in genetic make up

Is there any role of sexual recombination in the high genetic variability and adaptation?



Why Pakistan? Near to the putative center of origin of the fungus and host; Genetic recombination of a closely related rust pathogen been found there!

Objectives:

- ✓ Investigate genetic recombination in leaf rust population of Pakistan
- ✓ To set up a perennial survey in Pakistan

Experimental approach:

- ✓ Disease sampling from different areas and wheat varieties

- ✓ Pathotyping and genotyping

Population genetic analysis