

**Late Blight related
activities in India for
2021-22: a brief report**

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& Scientific Committee member,
AsiaBlight**

Uttar Banga Krishi Viswa

▲ Vidyalyaya (West Bengal)

▲ ICAR-Central Potato Research
Institute
(Himachal Pradesh & Uttar
Pradesh, Punjab, Madhya Pradesh,
Bihar, Meghalaya & Tamil Nadu)

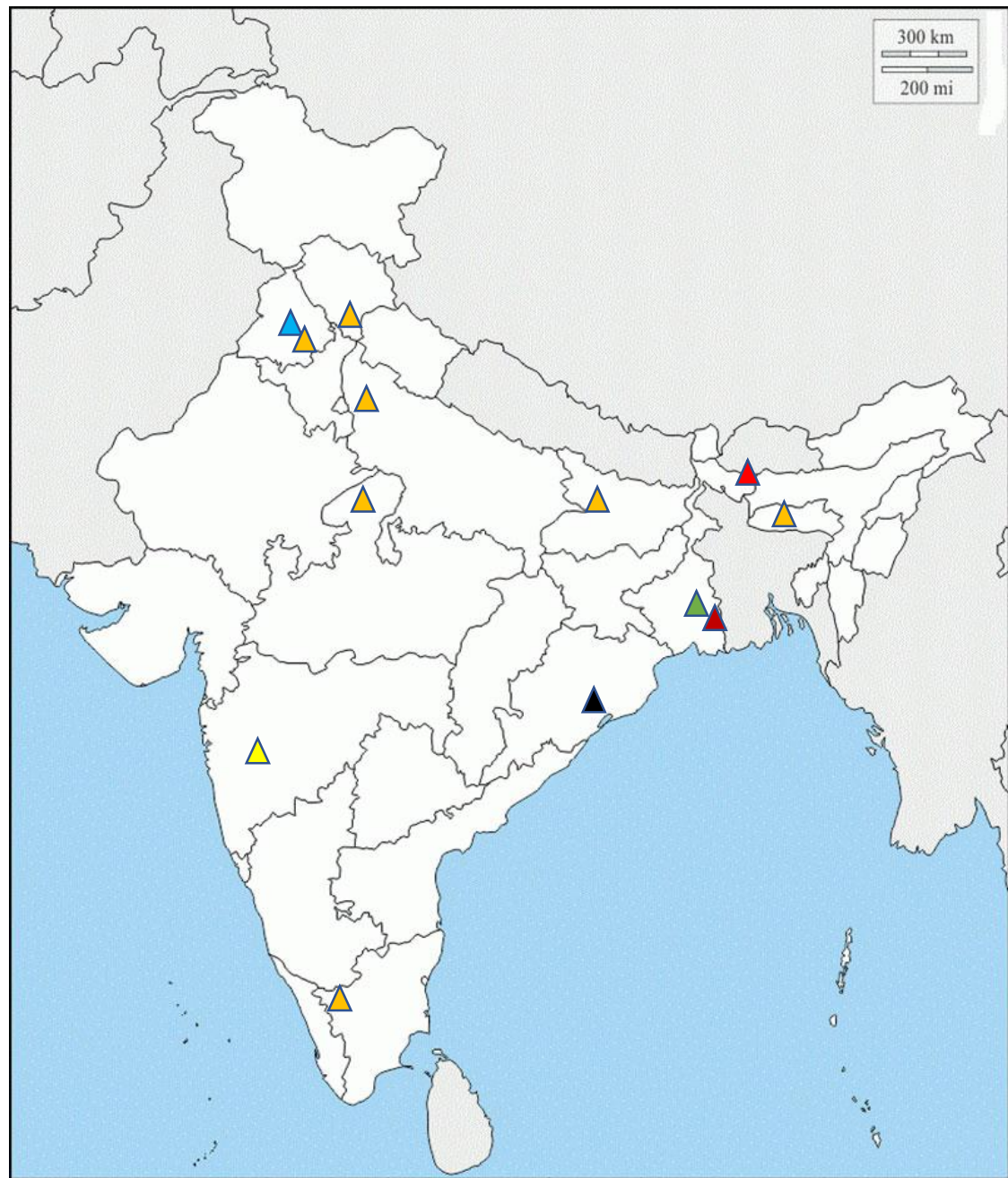
▲ Bidhan Chandra Krishi Viswa
Vidyalyaya (West Bengal)

▲ Small Farmers Large Field
(Odisha)

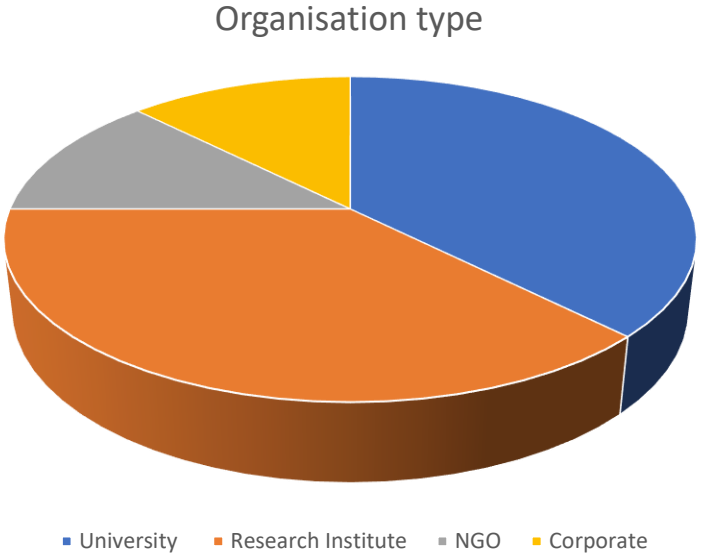
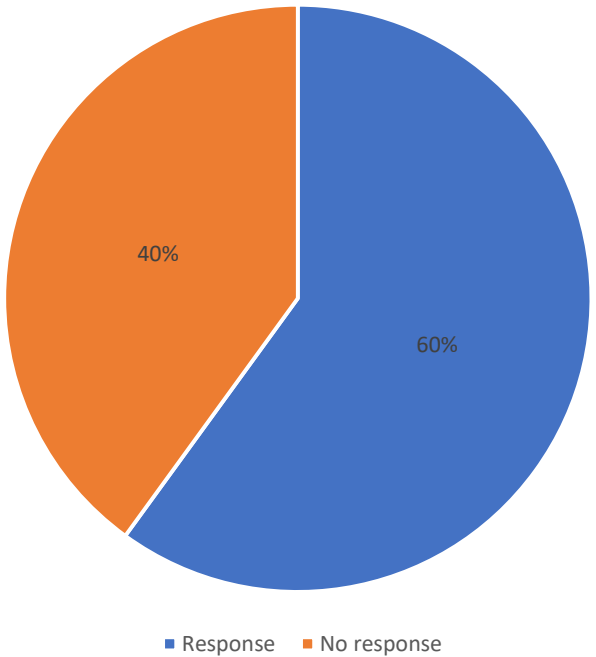
▲ Mahindra HZPC Pvt. Ltd
(Punjab)

▲ Indian Institute of Science
Education and Research, (IISER)
(Maharashtra)

▲ West Bengal State University
(West Bengal)



Responses and Types of organizations





Uttar Banga Krishi Viswavidyalaya

Public university in Cooch Behar, West Bengal :

Dr. Sekhar Bandyopadhyay, Dr. Surojit Khalko, Prof. Apurba Chowdhury and Prof. S.K. Chakrabarti.

A. Trials for Potato varieties

1.Kufri sindhuri, 2. Kufri khyati, 3. Kufri pukhraj, 4.Holland, 5. Kufri frysona, 6. Kufri Ashoka, 7. Kufri chipsona 3, 8. Kekab, 9. Kufri Jyoti, 10. Kufri Chandramukhi, 11. Badami, 12. Desi and 13.Sada gulab

Most Tolerant varieties

Kufri frysona and Kufri chipsona 3



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Dr. Sekhar Bandyopadhyay, Dr. Surojit Khalko, Prof. Apurba Chowdhury and Prof. S.K. Chakrabarti.

B. Fertilizer (Nitrogen) application on LB disease incidence

Different doses (50Kg/ha, 100 kg/ha, 150 kg/ha, 200 kg/Ha and 250 kg/ha) of nitrogen were tested for their effect on late blight disease incidence.

Least disease incidence

150 kg /ha nitrogen was found to produce less late blight disease in potato as well higher cost benefit ratio.



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C. Assay of chemical fungicides and dosage schedule

Azoxystrobin+difenoconazole, tebuconazole 50% + trifloxystrobin 25%, cymoxanil 8% + mancozeb 64% WP, dimethomorph 50% WP, iprovalicarb 5.5% + propineb 61.25% WP and (pyraclostrobin 5% + metiram 55%) WG.

Most effective (iprovalicarb 5.5% + propineb 61.25%) WP and (pyraclostrobin 5% + metiram 55%) WG

Chlorothalonil 75 % WP @ 625 gm/ha, 875 gm/ha, 1250 g/ha, 1750 g/ha and 2500 g/ha

Chlorothalonil 75% WP @ 1750 g/ha 3 times at 10 days interval was found to be most effective, produced highest yield and highest number of tuber/plant too without any phytotoxic effect.

For last week of December planting, the sequence of fungicide treatment

Mancozeb 75% WP followed by copper hydroxide 77% WP followed by Mancozeb 75% WP followed by Azoxystrobin 23% SC twice spray at 7 days interval was found to manage LB of potato most effectively.



भाकृअनुप - केन्द्रीय आलू अनुसंधान संस्थान, शिमला

ICAR-Central Potato Research Institute, Shimla



Compiled from 7 Regional Centers at Kufri-Fagu (HP), Modipuram (UP), Jalandhar (Punjab), Gwalior (MP), Patna (Bihar), Shillong (Meghalaya), and Ootacamund (Tamil Nadu)
by Dr. Sanjeev Sharma at HQ

A. *P. infestans* isolates collection, maintenance and characterization.

B. LB prediction & issuance of agro-advisories: - using Indo-Blightcast model and weather data analysis

C. Assay of chemicals, dsRNA and dosage schedule: Evaluation of bio-efficacy of different molecules against late blight and to develop spray schedules for its management. Besides, efficacy of **phosphorous acid at full and reduced (half) dose with standard fungicides** was also tested under field conditions

Evaluation of dsRNA formulation against late blight under containment facility
<https://onlinelibrary.wiley.com/doi/10.1002/ps.6949>

D. Development of potato varieties: Screening of potato germplasm (wild & cultivated) under laboratory, screening chamber and field conditions for resistance to late blight using conventional, Marker Assisted Selection, and transgenic approaches.

E. Extension: Organization of training programmes, Radio talks, TV talks for various stakeholders.



WEST BENGAL STATE UNIVERSITY

Public university in Kolkata, West Bengal ∴

Professor Sanjoy Guha Roy's Laboratory

A. Late blight disease surveillance in potato & tomato growing regions of India.

Isolation, phenotypic and genotypic characterization including population structure analysis of collected *P. infestans* samples from potato & tomato crops.

Continued dominance of 13_A2

Rapid evolution of sub-clonal diversity: 26, new sub-clonal lineages (2021) & 11 new sub-clonal lineages (2020), Host adapted lineages.

The 13_A2 population is rapidly expanding its sub-clonal diversity in India with changed phenotypic pathogen characteristics (host adaptiveness, differing fungicide sensitivity, and adaptability to higher temperatures of growth) –implications for managements –potential to cause diseases necessitating continuous evaluation and changes in the management practices.



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B. Fungicide sensitivity analysis of different commercially available fungicide formulations:

Baseline data generated for Indian sub clonal lineages of 13_A2 population for **Metalaxyl**, **Dimethomorph**, **Mancozeb**, **Azoxystrobin**, **Curzate** (Cymoxanil+Mancozeb) and **Fosetyl-Al**.

Comparison of *P. infestans* population of epidemic years 2014, 2020 with 2021

POPULATION

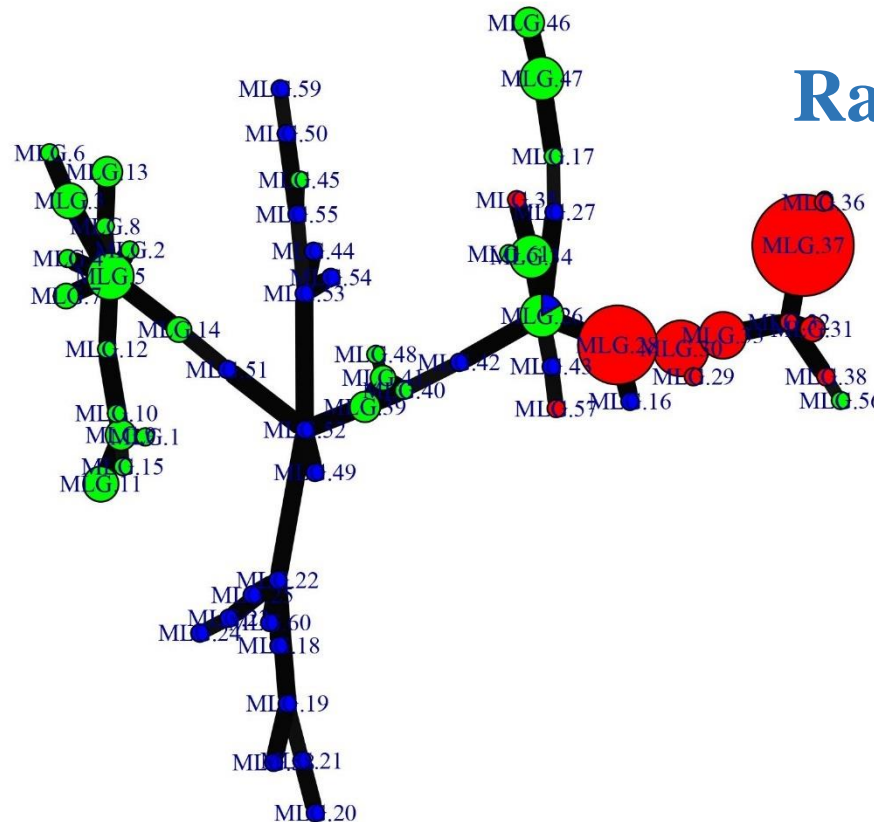


Samples/Node

33

20

01



Rapid evolution of clonal diversity

- Presence of New sub-clones of 13_A2 in every epidemic year
- Total 61 MLGs among 201 individual
- Only 1 identical MLG



DISTANCE