Topic	EuroBlight	Tizon Latino	USA Blight	Asia Blight	Africa Blight
Key research questions	Evolution, selection pressures and spread of new variants of *P. infestans.* Develop markers for phenotypic traits e.g. fungicide resistance Understand host-pathogen interactions better.	Global database of genotypes. Genotype monitoring and aggressiveness profile characterization (LAC have new genotypes from EU). Decision support systems considering different genotypes. Calibration of curves for models according to territory, genotype and varietal susceptibility (FONTAGRO project). Dissemination of knowledge on the use of DSS and BAP, considering gender focus (CIP and FONTAGRO project). Promotion of the use of resistant varieties, considering commercial characteristics of the varieties (adaptation and early production).	USA Blight and has now transitioned into the Plant Aid Database (PaDB). Developed a global SSR phylogeny and querying system to identify emerging lineages. Incorporate population genomics into forecasting systems to track spread of *P infestans* and understand evolution of 1c clade. Developing a targeted amplicon sequencing "Marples platform" to monitor emergence of new lineages and traits within US-23. Deploying and testing LyoBead LAMP assays for rapid in field detection of specific lineages of	Introducing existing sources of host resistance into breeding pipelines (CIP-China now has various sources of genetic material). Also looking for novel sources of resistance. Potato late blight (PLB) high resistance potato population for distribution to regional partners. It should be complete in 2025. Understand the population structure of P. infestans in key countries in Asia (L. Cooke paper). Understanding fungicide sensitivity in key countries in Asia.	Understand the population structure of P. infestans in key countries in Africa (Rwanda). Understanding fungicide sensitivity in key countries in Africa.

Topic	EuroBlight	Tizon Latino	USA Blight	Asia Blight	Africa Blight
Key research questions	Evolution, selection pressures and spread of new variants of *P. infestans.* Develop markers for phenotypic traits e.g. fungicide resistance Use of biologicals in anti-resistance strategies.	Global database of genotypes. Genotype monitoring and aggressiveness profile characterization (LAC have new genotypes from EU). Decision support systems considering different genotypes. Calibration of curves for models according to territory, genotype and varietal susceptibility (FONTAGRO project). Dissemination of knowledge on the use of DSS and BAP, considering gender focus (CIP and FONTAGRO project). Promotion of the use of resistant varieties, considering commercial characteristics of the varieties (adaptation and early production). Protocols to evaluate Biocontol.	USA Blight and has now transitioned into the Plant Aid Database (PaDB). Developed a global SSR phylogeny and querying system to identify emerging lineages. Incorporate population genomics into forecasting systems to track spread of *P infestans* and understand evolution of 1c clade. Developing a targeted amplicon sequencing “Marples platform” to monitor emergence of new lineages and traits within US-23. Deploying and testing LyoBead LAMP assays for rapid in field detection of specific lineages of *Phytophthora infestans.*	Introducing existing sources of host resistance into breeding pipelines (CIP-China now has various sources of genetic material). Also looking for novel sources of resistance. Potato late blight (PLB) high resistance potato population for distribution to regional partners. It should be complete in 2025. Understand the population structure of P. infestans in key countries in Asia (L. Cooke paper). Understanding fungicide sensitivity in key countries in Asia.	Understand the population structure of P. infestans in key countries in Africa (Rwanda). Understanding fungicide sensitivity in key countries in Africa.

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Key Management issues	**Fungicide resistance avoidance strategies.** **Paradigm shift: From IPM ti ICM**.	Excessive use of pesticides. Best agricultural practices, especially in family farming. Relative importance of late blight versus other sanitary problems of emerging importance in LAC. Need for training throughout the production chain. Restrictions on the use of some pesticides (MZ). Pesticide use strategies Fungicide resistance monitoring. Biocontrol and alternative products development and evaluation. Certificated potato seed: Standarization and self production in LAC (FONTAGRO).	US - 23 clonal lineage widespread and sensitive to mefenoxan. All US 23 are not the same- differ in virulence and host specificity. Need better phenotypic markers and genotyping to guide management Co occurrence of US 23 and US25 in NY, 2023. Potential for sexual reproduction	Funds in AsiaBlight-China are of less concern, with about 30 people regularly involved in the management. However, a corresponding imbalance in influence within AsiaBlight can be an issue. Leadership in AsiaBlight-China has an enduring focus on practical farmer-based extension, but limited concern for 'research' - i.e., things like genotype frequency analysis and mapping have limited sway in conversations. Funds are always an issue for other Regions, and correspondingly, one individual represents most of the Regions. Hence, capacity is also a problem. AsiaBlight comprehensive management an issue. Would like to hire an individual to coordinate all operations, events and communication. Need to closely align with other networks.	Launch Africa Blight, create a structure similar to that of existing networks.

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Key breeding issues	**Breeding.** **NGT potatoes.** **Release and regulation of NGT potato varieties.** **Protection of resistance genes in ICM strategies**	CIP cisgenic varieties will be released in Dec 2025 and Dec 2026 (Africa, landraces), but in LAC there are restrictions. Characterization of native (*S. tuberosum tuberosum,* S. *tuberosum andigena, and S.phureja*) and wild varieties (INIA Chile, CIP Perú, Universidad de Los Andes, Colombia).	Resistance breaking strains of *P. infestans* are overcoming Ph 2+3 genes in tomato- There is little to no lb resistance being deployed in potato In NY they are screening wild relatives of potato for resistance Transgenic or gene edited potatoes with pyramidded R genes need to be made widely available to reduce fungicide load on potato/tomato	Establishing systems for sharing clean seed-systems in domestic and international trade (same for Africa and LAC) Improving sources for resistance to PLB: Partners in China are very interested in R8 (and novel sources) for PLB resistance. Working on the creation of markers for marker-aided selection (MAS) in breeding that can be used to identify resistant cultivars.	Disseminating resistant varieties and advanced clones from Kenya to other African countries. Potato biotech varieties produced by cisgenesis are expected to be launched in 2025 in Kenya and Nigeria

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Collaboration, shared facilities, outreach	**Pan-european** ***P. infestans* monitoring, Virulence monitoring,** **Living labs**	Global database. Nagoya and other protocols for exchange of materials and study of pathogens. Protocols and restrictions for exchange of plant material (native).	SSR Neighbor joining tree is live in TBAS SSR query tool is live Global community input needed to keep it up to date	Nanjing Agriculture University (NAU): 15 graduate students currently based in CIP-China are working on a very large effector screening of the PLB project (and many other pathogens) in a diversity panel of CIP germplasm. Dr. Waqas Raza: "Adjunct Scientist" at CIP-China - Postdoc at NAU (Reg. Rep. for Pakistan) working to complete all of the sample collections from across Asia. AsiaBlight-China is always very active - providing regular training to farmers across the country (typically training ~1000 farmers/year). Just signed an "Adjunct Scientist" position with Dr. Ram Khadka from AsiaBlight-Nepal. He is expected to establish joint research in CIP-China labs in 2024. Also, negotiating this type of position with Dr. Guo Mei from Heilongjiang Academy of Ag. Sciences. The AsiaBlight-China delegation visited AsiaBlight-Bangladesh in March for exchange and training. Some fungicide companies within the network also participated in the study tour. An MOU was signed with CIP-	Increase South to South collaboration Collaboration with Penn State University and CIP to validate a decision support tool for PLB management in Kenya and Rwanda, and including it in Plant Village as a digital tool

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Activities / initiatives / Action plans	**Policy White paper.** **European action plan.** **EuroBlight early warning system.** **Network of living labs.**	Visibility for varieties with resistance to late blight. Warning systems implementatio. Search for other markers for population studies. **Grants:** ADELANTE ICT AGRI FOOD 2024 (open) Link: https://ictagrifood.eu/node/45821 Green ERA-Hub: Contributions towards a sustainable and resilient agri-food system (open on April 15?) (information regarding 2023 bases) Link: https://greenerahub.eu/1st_GEH_call	Pending NSF PIPP Phase 2 and more convergence work with modelers, population genomics, data analytics and remote sensing for disease is expected.	FAO-SSC (South-South Cooperation) proposal almost ready for submission (2.8M USD/3yrs): capacity building in potato production, including crop protection. Connecting with AsiaBlight labs working on PLB. Bangladesh, China, Kenya, Rwanda, Nepal and Vietnam. Will initiate a similar proposal with IFAD in 2024. AsiaBlight has collaborated with a company to produce an app for tracking FTA card shipping and delivery, and data at the point of collection. This can reduce data collection errors (i.e., GPS and photo identification of sample collected) and provide a real-time count of in-region FTA cards.	FAO-SSC proposal includes Kenya and Rwanda. IFAD proposal could also include African countries.