

IHC2022, 15 – 17 August 2022 International symposium on Banana: Celebrating organic banana production (S21)

Containment of TR4 in smallholder production systems in Peru Towards a territorial approach with support of digital mapping

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Outbreak and spread of Fusarium TR4 in Peru

• First case detected and confirmed by SENASA: Chocán, April 2021.

April 2021 -June 2022: 1.810 valid samples screened; TR4 confirmed on 82 plots, in Querecotillo, Salitral and Marcavelica.



Claudio Márquez, presentation 12 July 2022 mini conference on TR4, Mallares, Sullana

Vulnerability of the banana sector in Peru

- More than 160.000 ha banana and plantains in Peru; consumption of 67 kg per capita / year. Food security may be at risk ...!
- Export sector: +/- 10.000 ha in Chira Valley, Morropón and between Sullana and Piura, all located in the Piura Department.
- Highly fragmented sector: +/- 9.000 small farmers organized in around 35 producer organizations, managing hundreds of small packing stations and around 40 palettizing centers.
- Flood irrigation in the Chira Valley. Harvesting teams walk the shortest way to the packing stations ... Risk of further spreading!
- Small and young sector: *incipient* institutional development.
- Local economy 'floats on banana': USD 150 million gross revenue, many families depend *directly* and *indirectly* on the sector.

Biosecurity measures - applicable in the context of Peru?











Shirwas

piculi fue al país vinitado ? piaco cuánte florego visitá una país? Setuvo en el carego? Retuvo en la planta empacadoro ?











Para prevenir la dispersión del Foc R4T ¡Entre limpio! ¡Salga limpio!



Medida Reina de prevención

'Banana farms' in the Chira Valley: ... 0,5 – 1,0 ha !



What is a 'territorial approach' in rural development?

- In the economic dimension: extend the concept of competitiveness to a whole territory, at an appropriate spatial and sociopolitical scale. Take advantage of the strengths, opportunities and local assets, to link a region successfully to highly rewarding markets.
- In the environmental dimension: apply a landscape approach in the sustainable management of watersheds, soils, forests, biodiversity, ecosystem services. Rural development is highly dependent on this natural capital!
- Local institutions play an important role in creating an enabling environment: promote investments in research, innovation, education, infrastructure, platforms for public-private collaboration, connectivity, culture, etc. 'Cooperating to compete'.

Towards a territorial approach to cope with TR4

- With arrival of TR4, not only the *competitiveness* but the *survival* of the export sector is at stake; and in the long run, food security.
- Develop a 'territorial vision' on biosecurity: from the banana plant to the plot, groups of plots, to banana zones and to entire landscapes.
- Biosecurity with a territorial approach, zonification, at <u>two levels</u>:

 (1) groupings of banana plots and banana plantations, sharing access roads, irrigation canals etc.: responsibility of banana companies and producer associations; and
- (2) in the public domain, on roads, ports, airports, frontiers etc., responsability of SENASA, Regional and Local governments.
- Requires <u>collaboration</u> between the **public** and the **private** sector
- Requires <u>collaboration</u> between **producer organisations**.

Biosecurity - territorial approach: digital mapping as tool

Mapping project: collaboration

between several companies, institutions and organizations.

Contracting Opus
 Insights, August
 2021 – July 2022.

 WhatsApp group, 85 members.



Digital mapping, step 1: define area to be mapped (1)



- Chira Valley, and the middle
 Piura river basin
- Province of Morropón ->

- Global banana mapping project
 University of Exeter, UK.
 - Detection of 0,25 ha compact area banana plantations.



Digital mapping, step 1: define area to be mapped (2)



Digital mapping, step 2: flight plan, technical aspects

- Small Cessna airplane, equipped with a 36,6
 megapixels camera; 2000 feet (700 m).
- 34 flight
 zones of +/ 3000 ha; total
 area covered:
 100.000 ha.



Digital mapping, step 3: uploading images to the platform



Digital platform with menu, accesible with user name and password.

Digital mapping, step 4: presentation of results (1)

Visualization of topography, access roads, canals, plantations, packing stations ..., highly detailed. Workshops: on 3 December 2021, 5 May 2022; mini **conference 12 July** 2022; technical workshop 15 July.



Digital mapping, step 4: presentation of results (2)



'Area of interest': destruction of banana plants? Ash, trenches ...

Digital mapping, step 4: presentation of results (3)



Low-lying areas: accumulation of water. Zone intervened by SENASA (tapped with blue plastic). Is there a relationship between lack of drainage and susceptibility to TR4 ...?

Digital mapping, step 4: presentation of results (4)



Compare changes over time - banana farm, 24 September 2021

Digital mapping, step 4: presentation of results (5)



Same banana farm, 1 July 2022: observe the affected areas ...

Digital mapping, step 5: joint risk analysis per zone (1)

- With support of the digital map: → zonification, define 'Territorial Exclusion Units': groupings of plots sharing the same access roads, sharing a common packing station, the proximity of a community, etc.
- These banana plots may belong to different producer associations requires close collaboration.
- Involve technicians of SENASA and local governments, communities !
- Consider these Units as 'a banana farm'. Apply a joint risk analysis, for example using the TR4 Add-on of GlobalGAP.
- Analyse 'on-farm' risks and risks in the surroundings irrigation canals, communities, access roads, movement of people and vehicles,

etc.





https://www.globalgap.org/uk_en/forproducers/globalg.a.p.-add-on/tr4biosecurity/

Digital mapping, step 5: joint risk analysis per zone (2)

RIESGOS VECINOS

- Ingresos / circulación
- Zonas pobladas
- Cercanía rio

© OpenStreetMap contributors. Community, irrigation canal, access roads, river, intervened areas ...

Digital mapping, step 6: define biosecurity measures

With support of the digital map: for each Territorial Exclusion Unit, define **realistic** biosecurity measures, joint efforts and investments with economies of scale and shared responsabilities; e.g. footbaths at the entry of access roads, living fences for certain sectors ..., etc. Involvement of Public Sector (SENASA) and local governments: negotiate **public investments**, e.g. disinfection facilities for vehicles

on main access roads. Awareness raising in communities.







Mini conference on strategies to cope with TR4



Tuesday 12 July, INIA, Mallares, Sullana

Learning workshop for technicians on the digital platform



Friday 15 July, producer organisation APBOSMAM, Marcavelica

Perspectives? - Concluding remarks

- The observed 'relaxed attitude' (= underestimation, denial) towards TR4 is making place for a more realistic perception of the threat.
- Consensus on the need for stronger collaboration between SENASA, INIA, private sector and producer organisations.
- Multi-stakeholder meetings every 3 4 months, agreed on the mini conference 12 July in Mallares; to coordinate and lead strategies.
- Pilots in territorial biosecurity measures by DOLE and APPBOSA.
- Promotion of healthy soils by the CLAC another defence line.
- Will a territorial approach be helpful? Will the digital map be useful for joint risk analysis and promotion of biosecurity measures?
- Could the digital map also be instrumental to promote cross-sectoral collaboration and build up social capital to cope with TR4?

ony time will tell.

Thanks, gracias