

Favorable Environmental Conditions Forecast for the Incidence of Crop Pest Using AI

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Directory of Agrometeorology



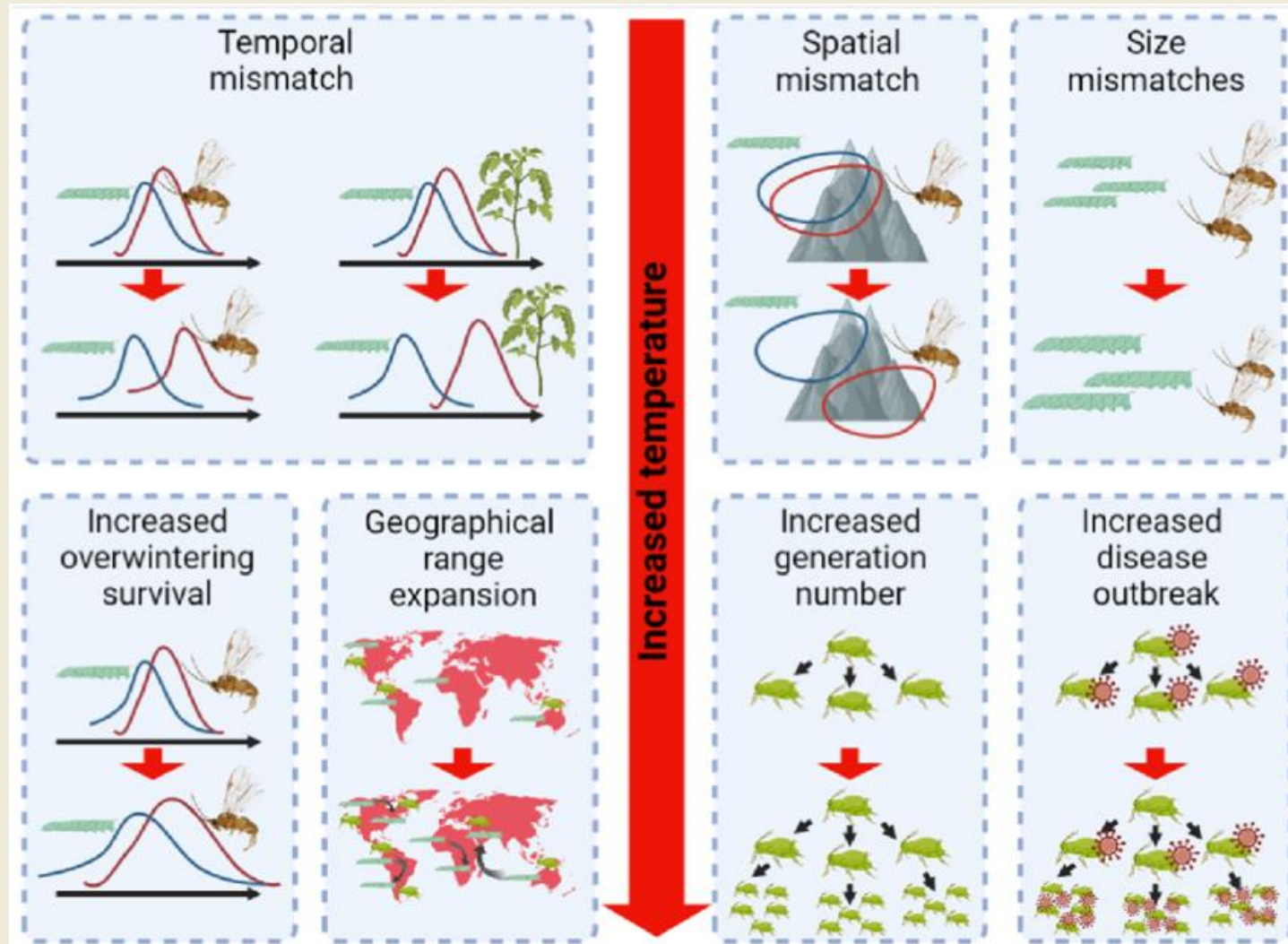
Why do we study insect pests?



Crop **pests** and diseases are responsible for losses of **20% to 40%** of annual global food production.
Source: FAO 2019



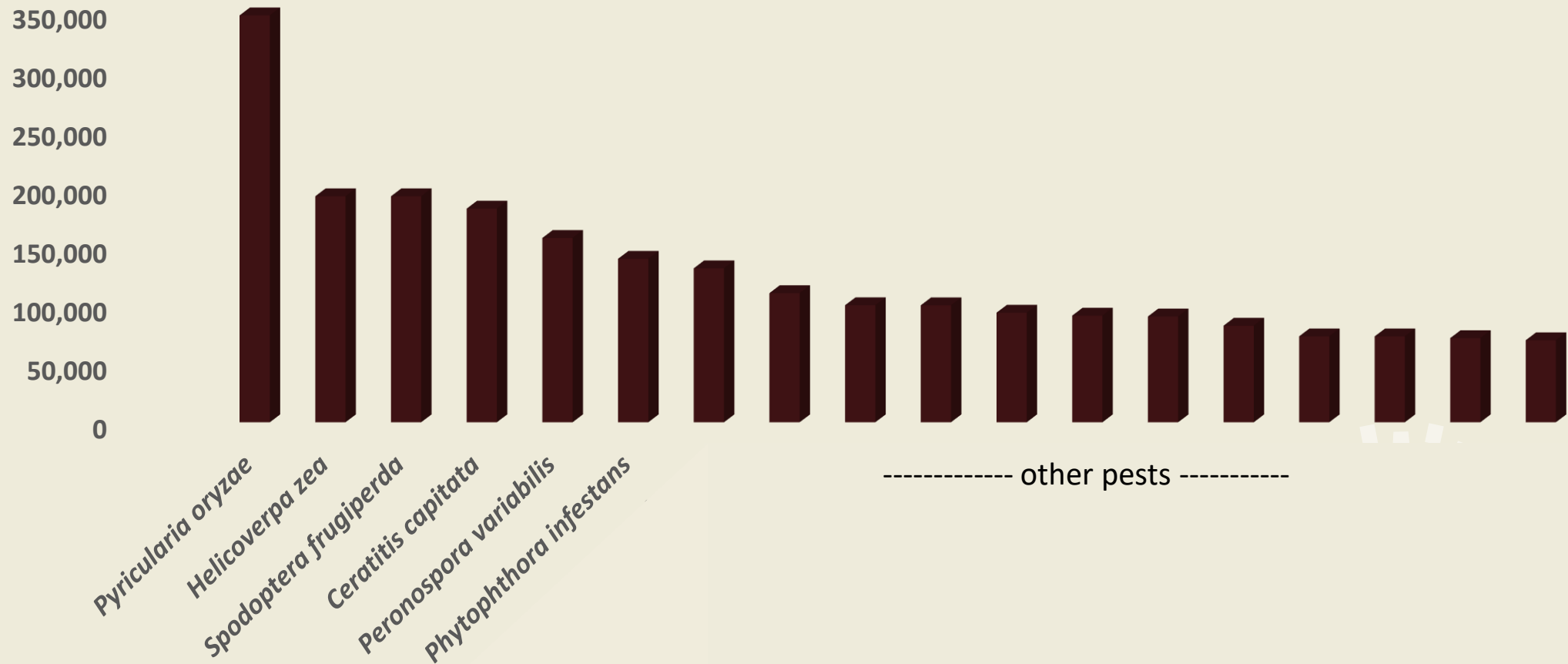
Effect of increased temperature on insect pests



Source: Subedi et al., 2023

Impact of pests on economy

Loss due to the effect of pest by species (thousands of S/.)



Source: MIDAGRI 2015

How are pests monitored and evaluated?



CONVENTIONAL EVALUATION

How are pests monitored and evaluated?



SMART INSECT TRAPS

Remote pest monitoring



Smart insect traps located in coastal and andean region of Perú.



Remote pest monitoring

20240619.d7f4d40 / Onion
FieldClimate by Pessi Instruments

20240619.d7f4d40 / Onion

CÁMARAS
0720E285 • DZ4_Huayan_MoscaFruta • iScout • Últimos datos: 2024-07-30 17:31:07

The following devices are connected to this iScout: 07D0E3E0

CÁMARA













- iScout
- iScout Insects
- iScout Glue Boards
- iScout Seasons
- Supervisión de datos
- Presentación

iScout imágenes de la cámara

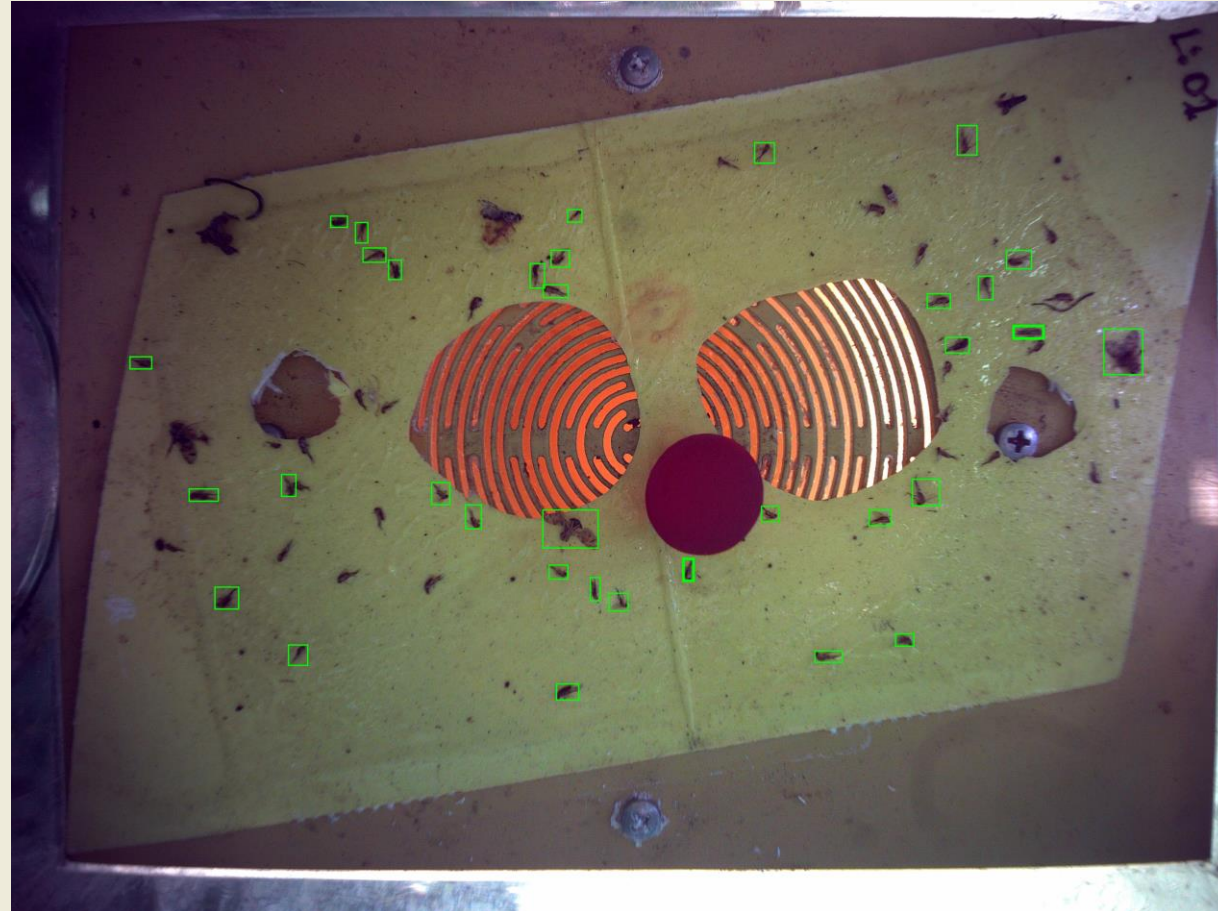
DZ4_HUAYAN_MOSCAFRUTA [07... MES ◯ ◀ ▶ ▶▶

ACTUALIZAR

Julio, 2024

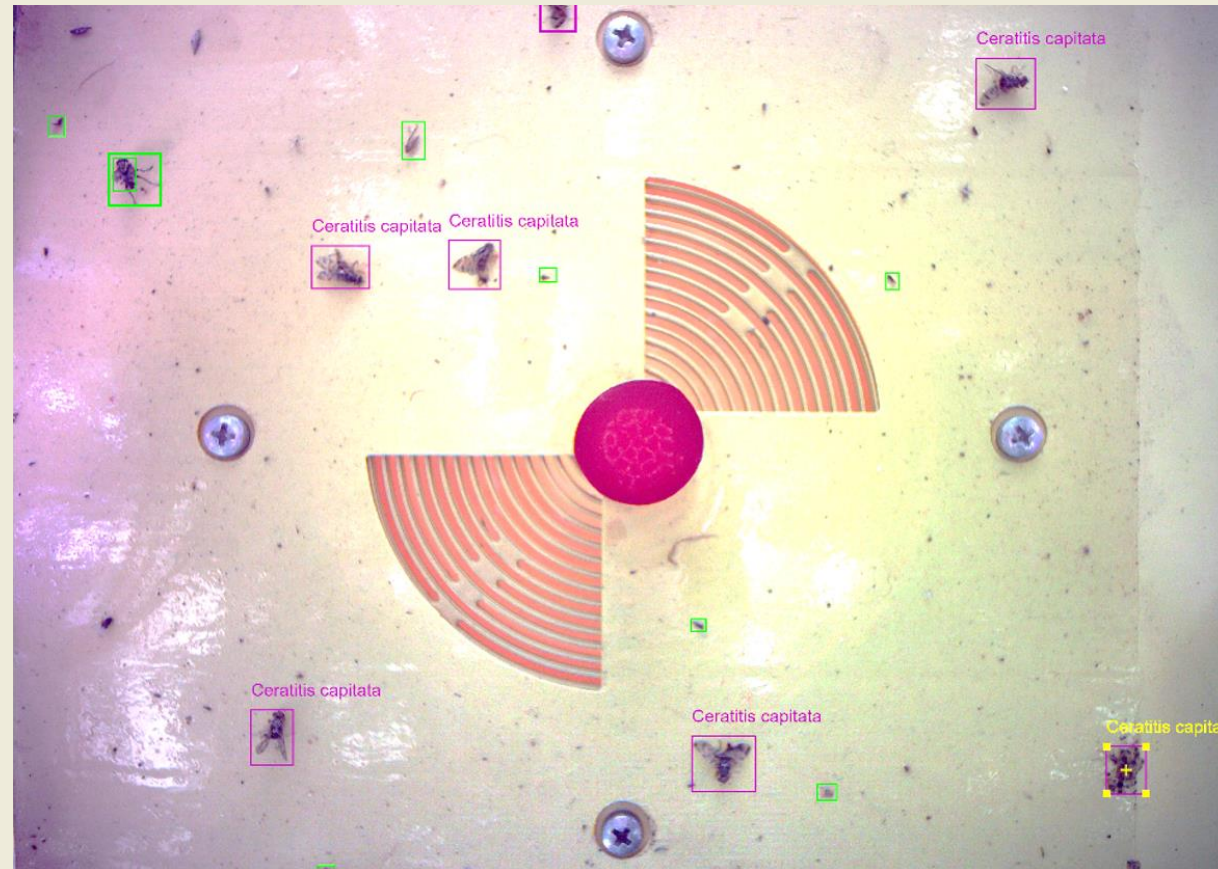
<p>Detecciones: 15</p>  <p>2024-07-30 12:02:26</p>	<p>Detecciones: 15</p>  <p>2024-07-29 12:02:20</p>	<p>Detecciones: 14</p>  <p>2024-07-28 12:02:26</p>	<p>Detecciones: 16</p>  <p>2024-07-27 12:02:18</p>
<p>Detecciones: 16</p>  <p>2024-07-26 12:02:02</p>	<p>Detecciones: 15</p>  <p>2024-07-25 12:02:26</p>	<p>Detecciones: 15</p>  <p>2024-07-24 12:02:17</p>	<p>Detecciones: 13</p>  <p>2024-07-23 12:02:35</p>
<p>Detecciones: 15</p>  <p>2024-07-22 12:02:35</p>	<p>Detecciones: 16</p>  <p>2024-07-21 12:02:35</p>	<p>Detecciones: 15</p>  <p>2024-07-20 12:02:18</p>	<p>Detecciones: 14</p>  <p>2024-07-19 12:02:35</p>

Pest identification using AI



Motupe - Lambayeque

Pest identification using AI



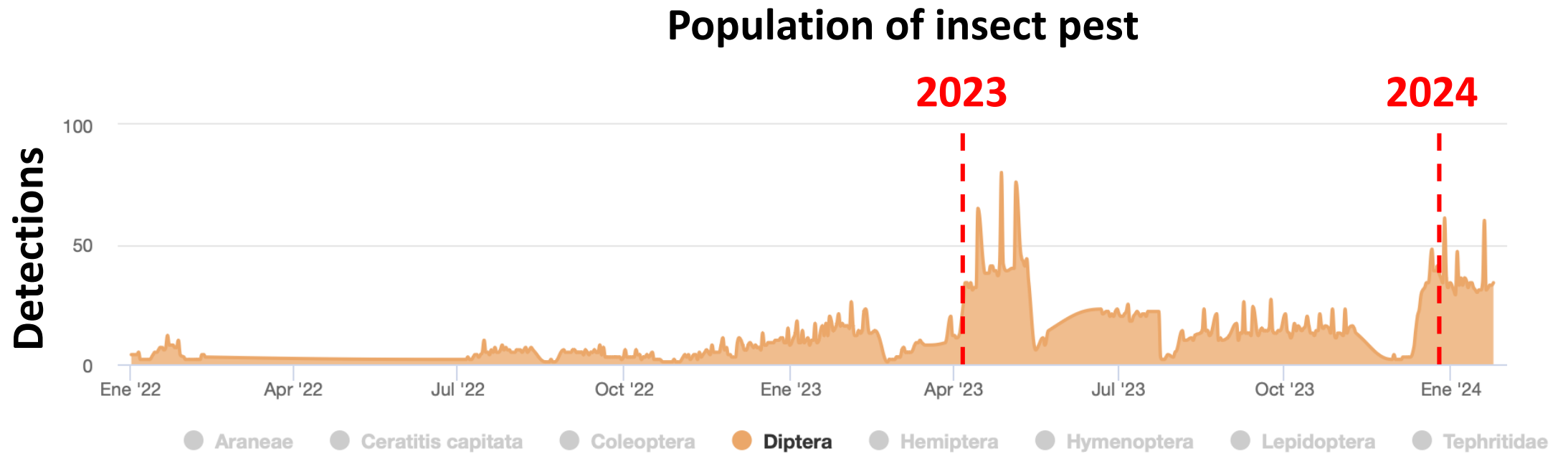
Pest identification using AI



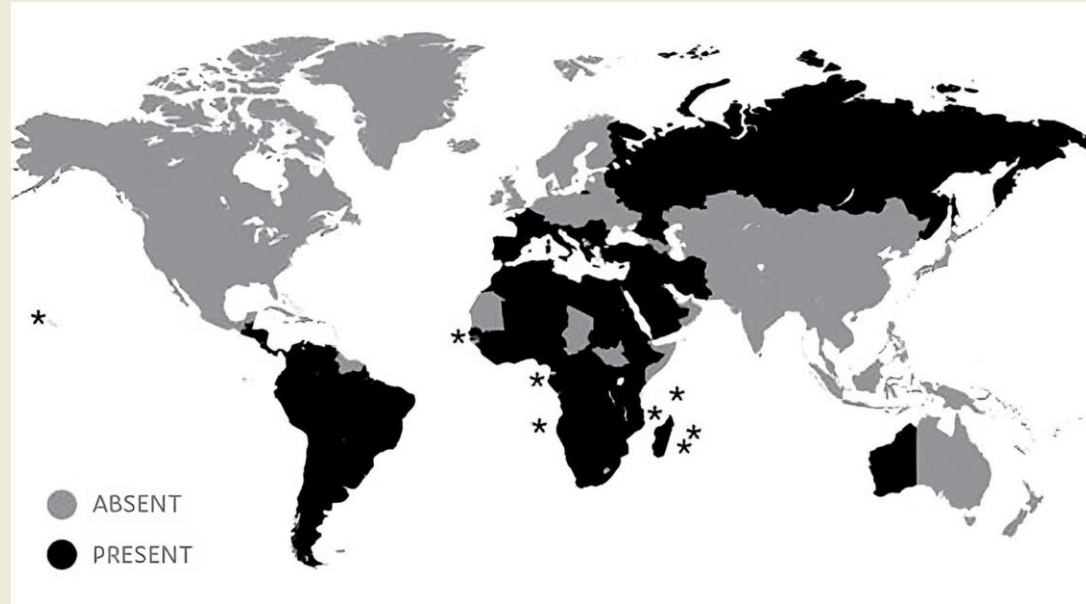
Illpa - Puno

Insect Pest Population Dynamic

January 1, 2022 – January 25, 2024



Monitoring for Mediterranean fruit fly



Fruit fly (*Ceratitis capitata*) can cause damage to more than **250** fruit and vegetable species and cause more than **40%** of production losses; in addition to restricting access to international markets.



Workflow for fruit fly forecasting

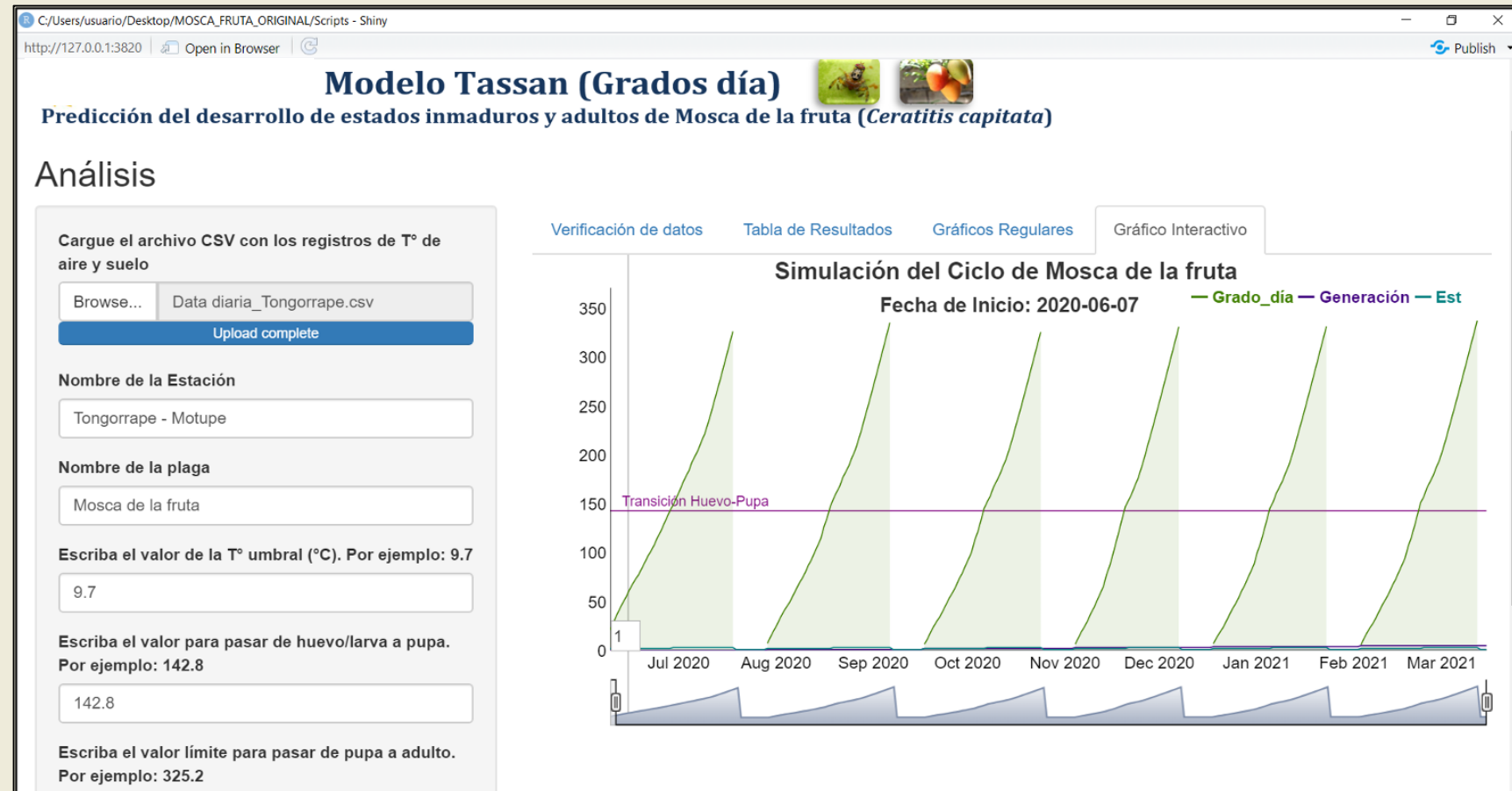
1) Pest monitoring and agrometeorology data



Workflow for fruit fly forecasting

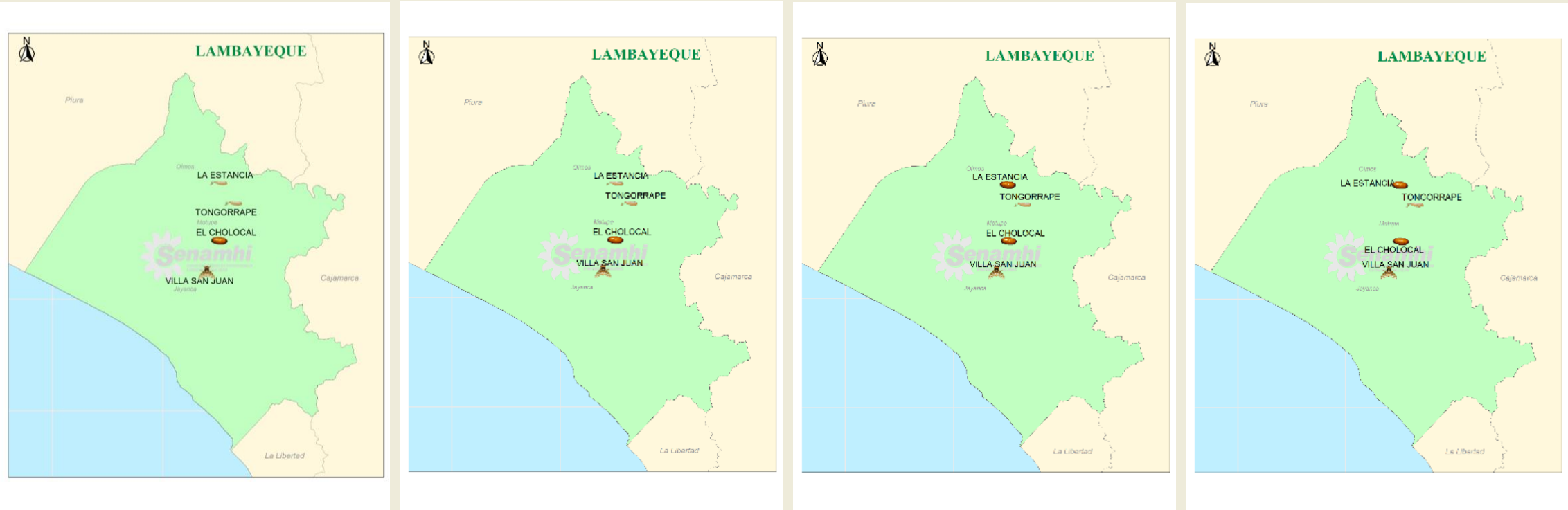
2) Process data and apply the model

Degree days model based on Tassan et al., 1982



Workflow for fruit fly forecasting

3) Daily Risk Maps



Adults



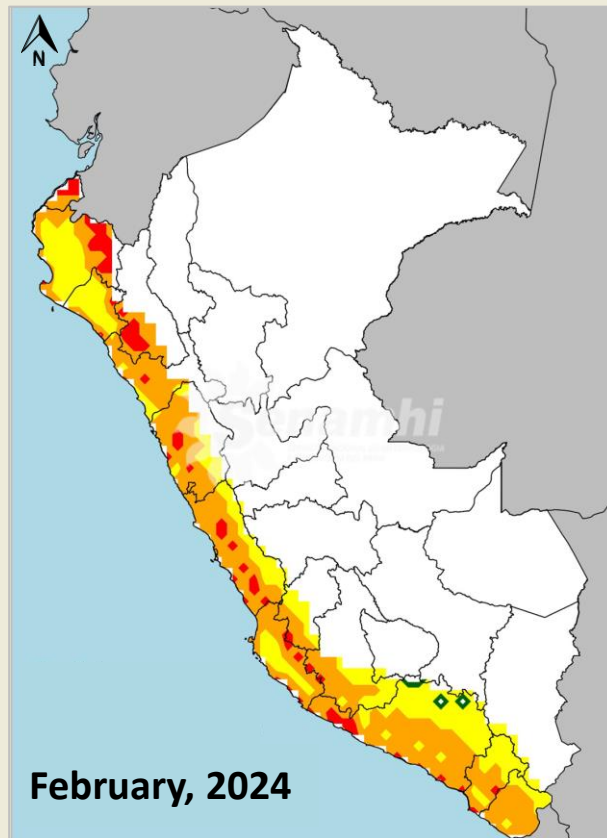
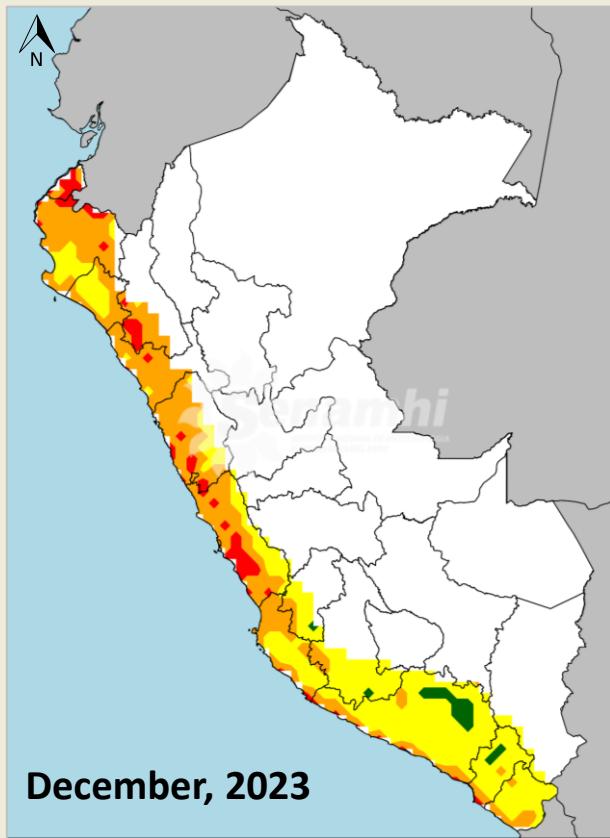
Pupae



Larvae

Workflow for fruit fly forecasting

3) Spatial Risk Maps



Based on Bodemheimer 1951

Publication in different platforms





APEC PERU

2024