

Manejo de la diversidad genética para una agricultura sustentable

Dr. Yuri Jorge Peña-Ramírez

Investigador Titular

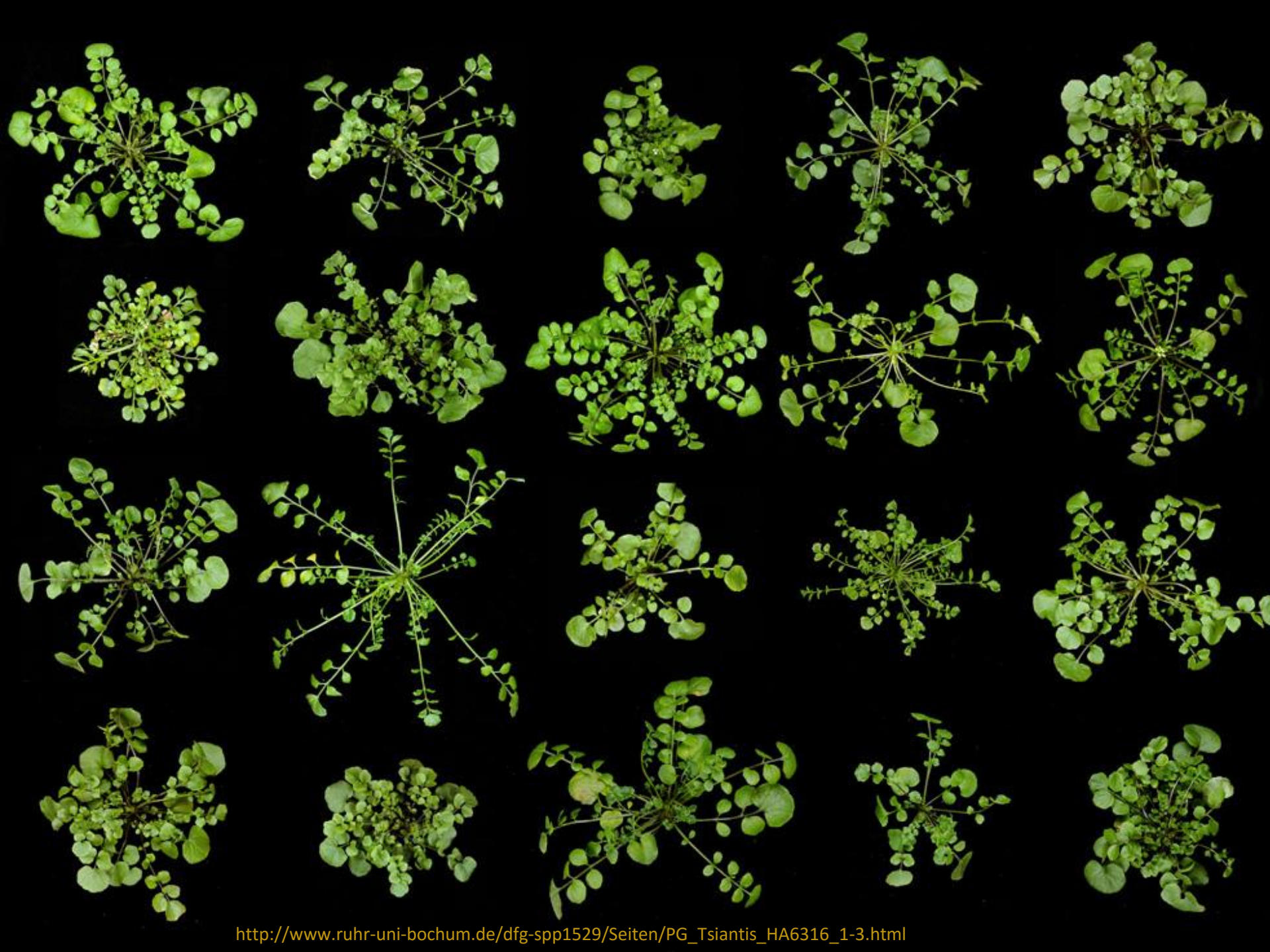
El Colegio de la Frontera Sur Unidad Campeche

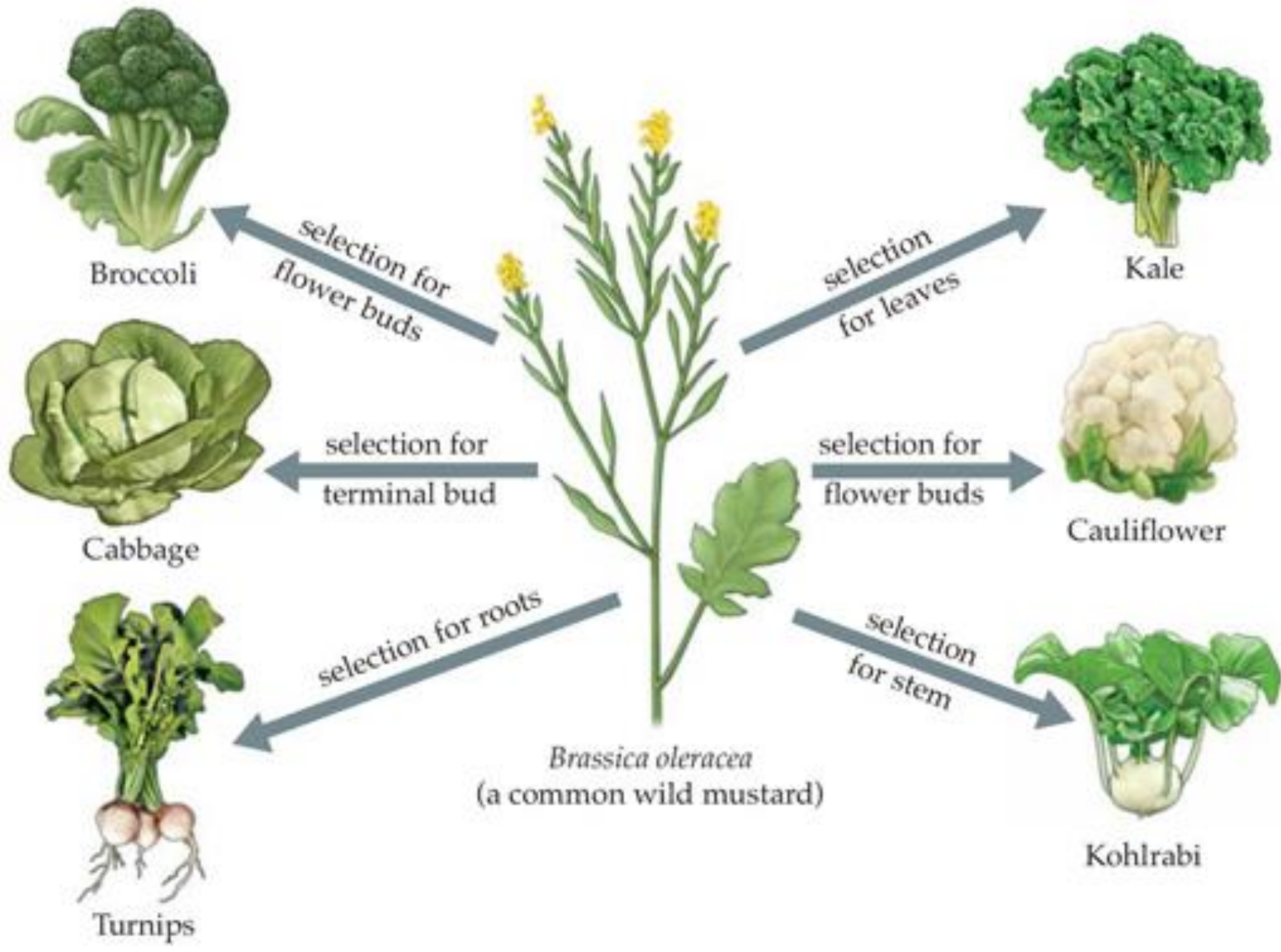
Noviembre de 2015



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Diversidad
morfológica
en
*Cardamine
hirsuta*







http://www2.oardc.ohio-state.edu/vanderknaap/caps_project.php



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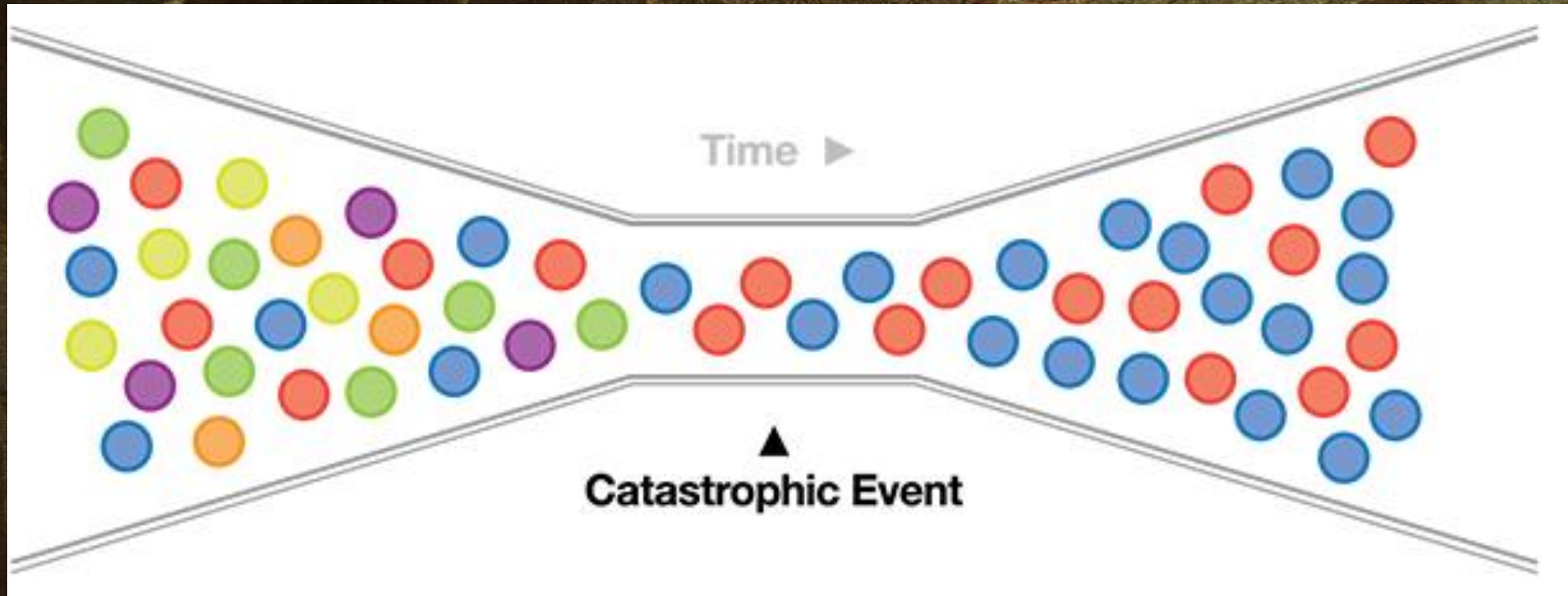
Silvestre vs domesticado



Dos mundos diferentes: El natural y el artificial



Deriva génica durante la domesticación



Plagas



<http://aquaponicsphilippines.com/wp-content/uploads/2013/07/plant-pests.png>

Enfermedades





Susceptibilidad
ante
condiciones
ambientales
extremas

Consecuencias de la domesticación





Agricultura protegida



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Aplicación de agroquímicos

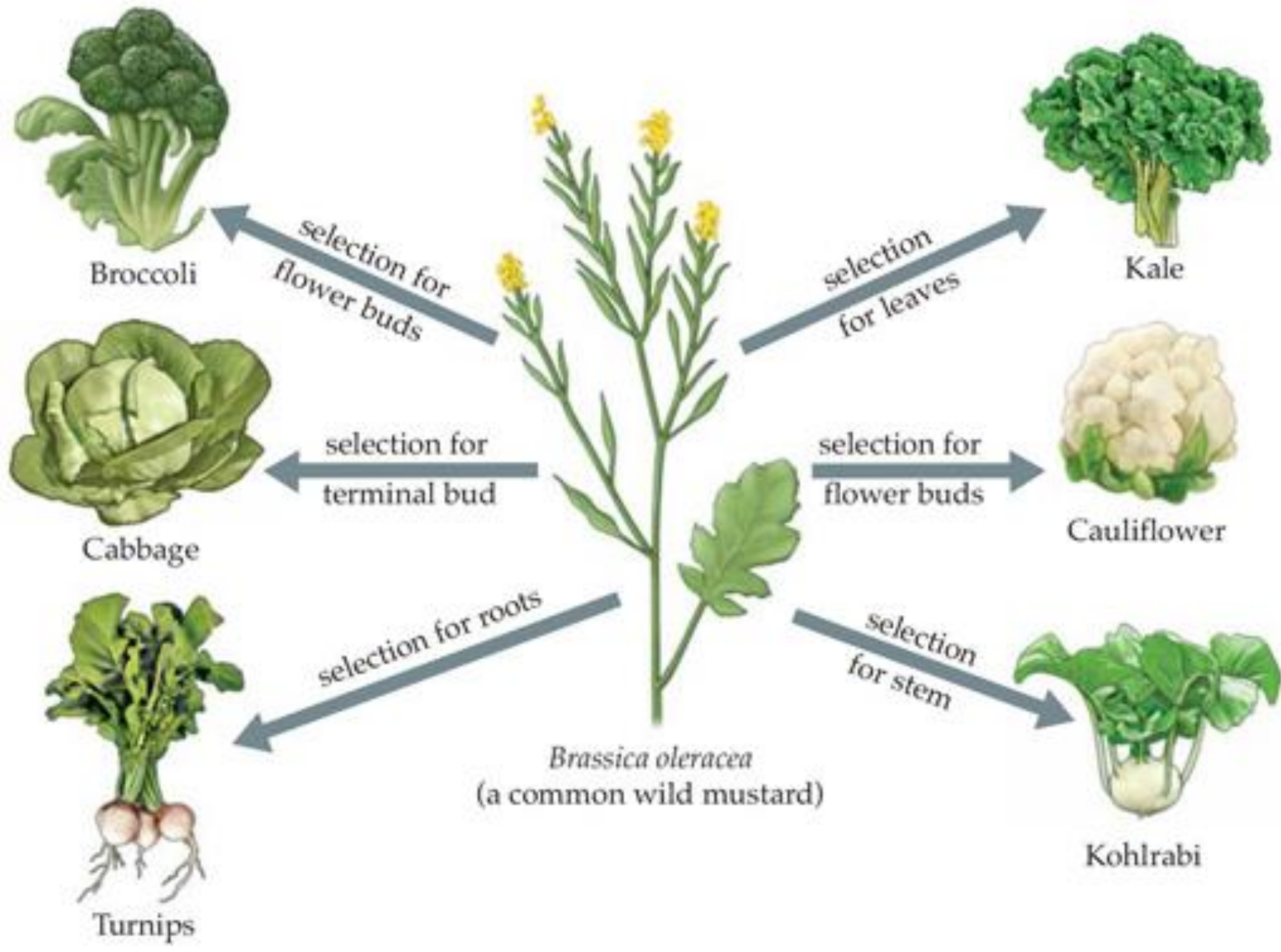


NaturalNews.com

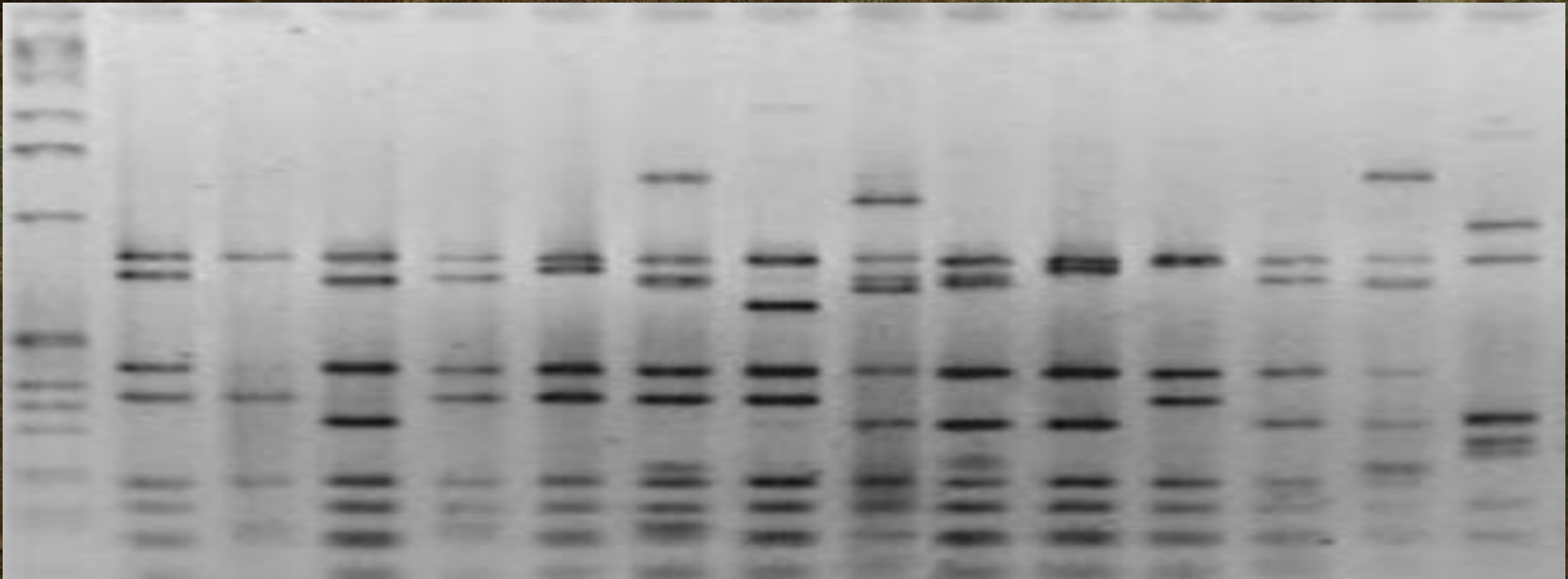


Riego



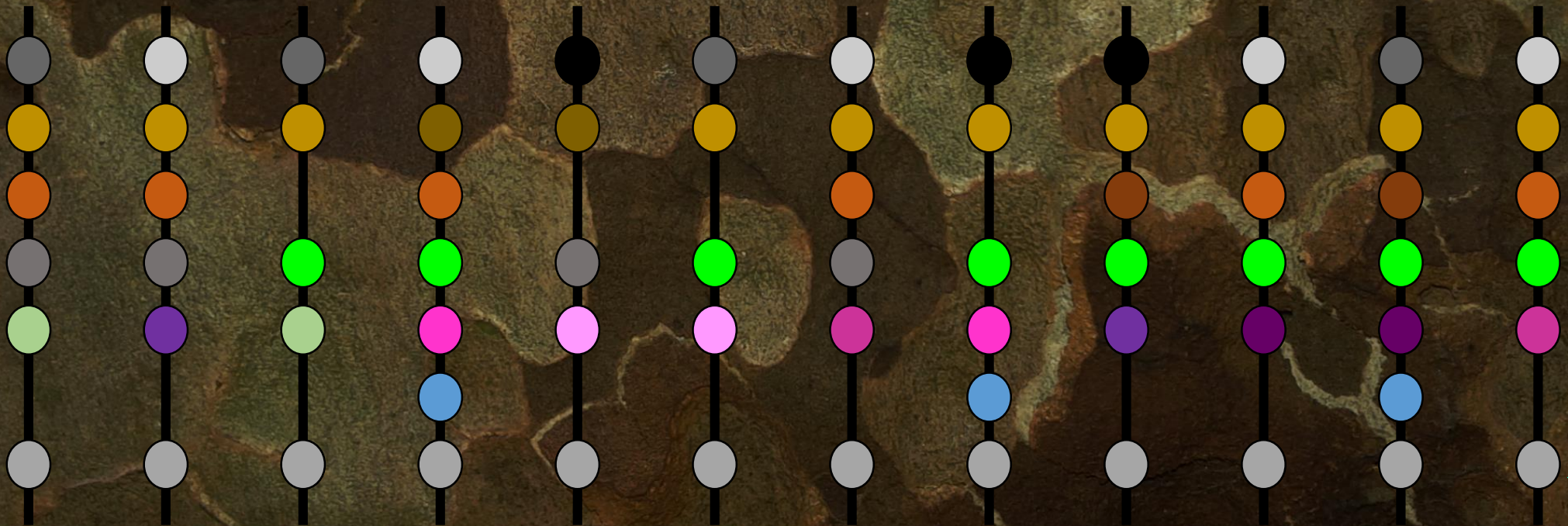


Marcadores moleculares



Administración de la diversidad genética

Variabilidad "natural"



Crianza tradicional

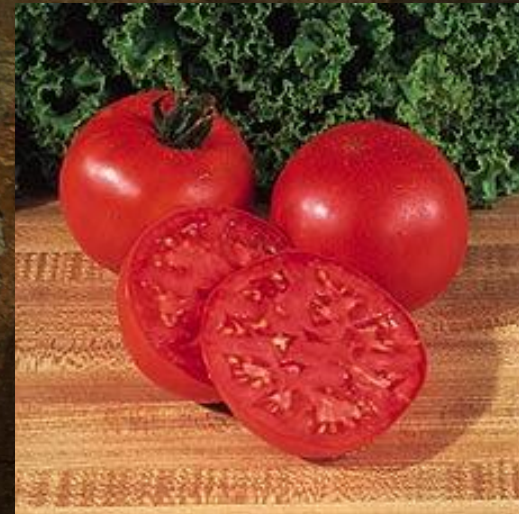
Tomate silvestre:

- Pequeño
- Sabores intensos
- Resistente a plagas



Tomate comercial:

- Grande
- Insípido
- Sensible a plagas

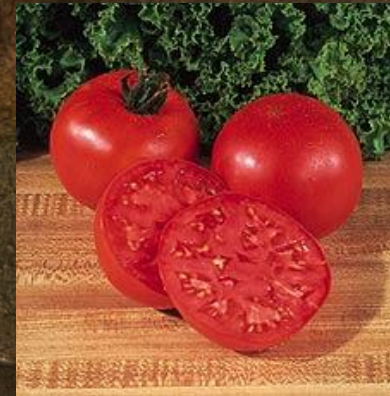


Esquema tradicional de mejoramiento

Tomate silvestre



Tomate comercial



Cruza
X

= híbrido con características mezcladas



Esquema tradicional de mejoramiento

Tomate híbrido

Tomate híbrido



Cruza

X



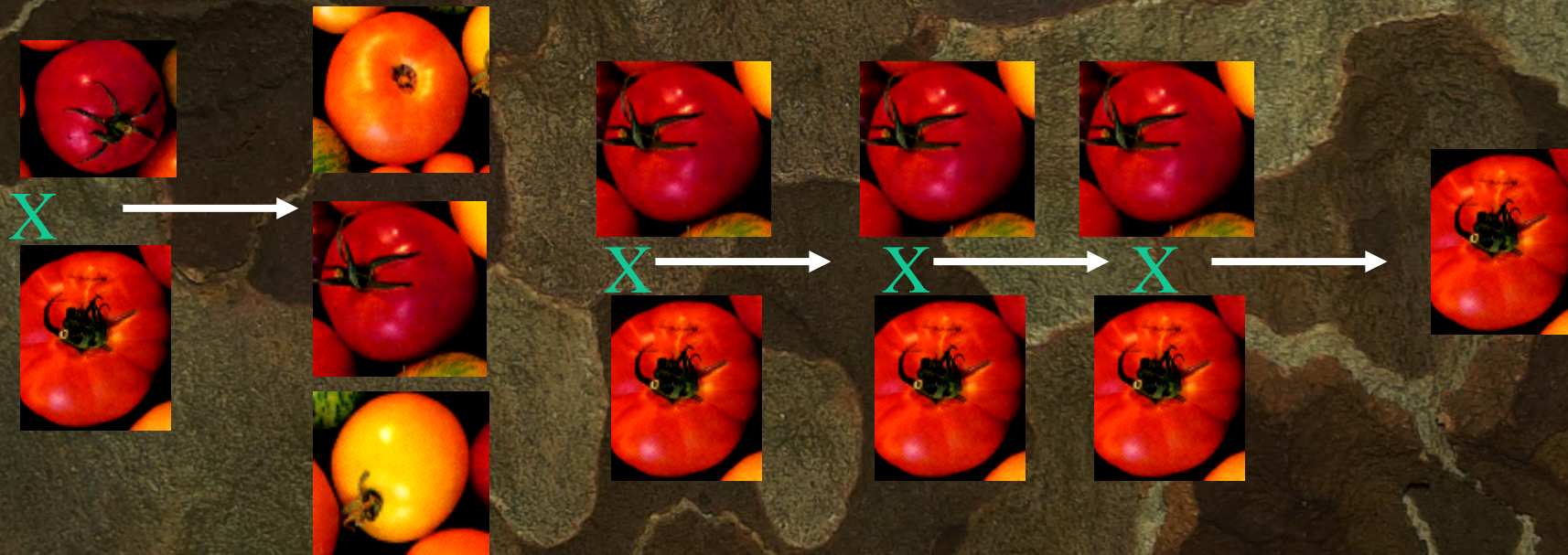
= variabilidad



Se hace necesario
seleccionar las
características
deseadas y cruzar
nuevamente

Esquema tradicional de mejoramiento

Se realizan cruces sucesivos hasta fijar las características deseadas



≈ 10 generaciones

Breeding/selection

10 000 BC

Today

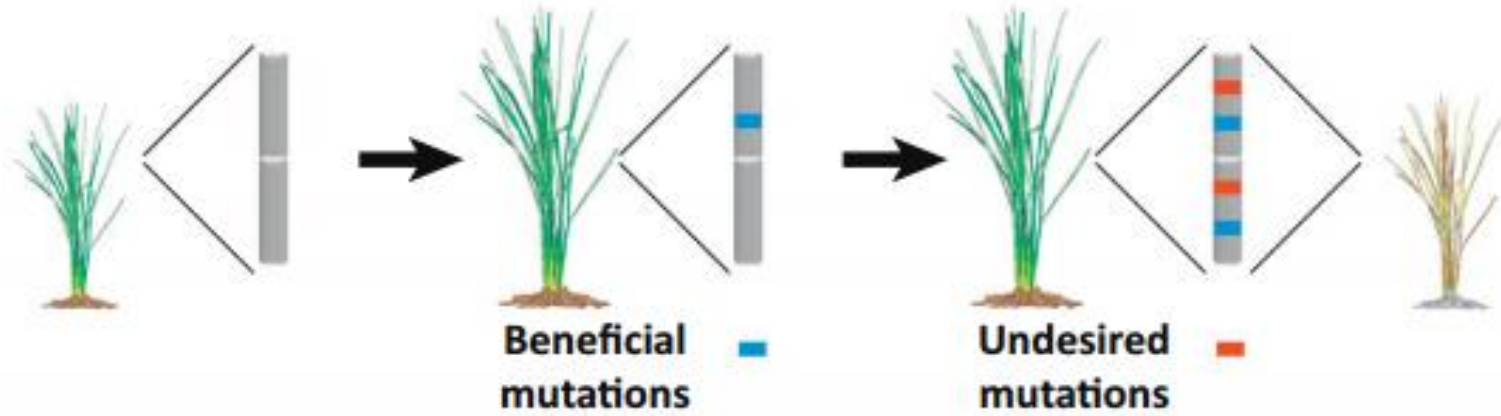
Wild plant

Ancestral crop

Current crop

Nurtured conditions

Stress conditions



Rewilding

Today

Future goal

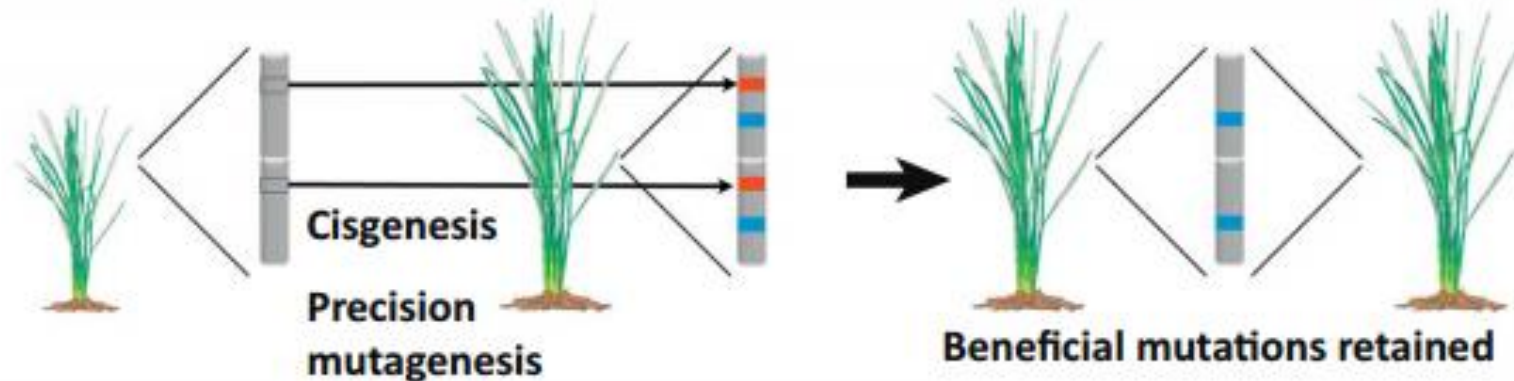
Wild plant

Current crop

Detrimental mutations removed

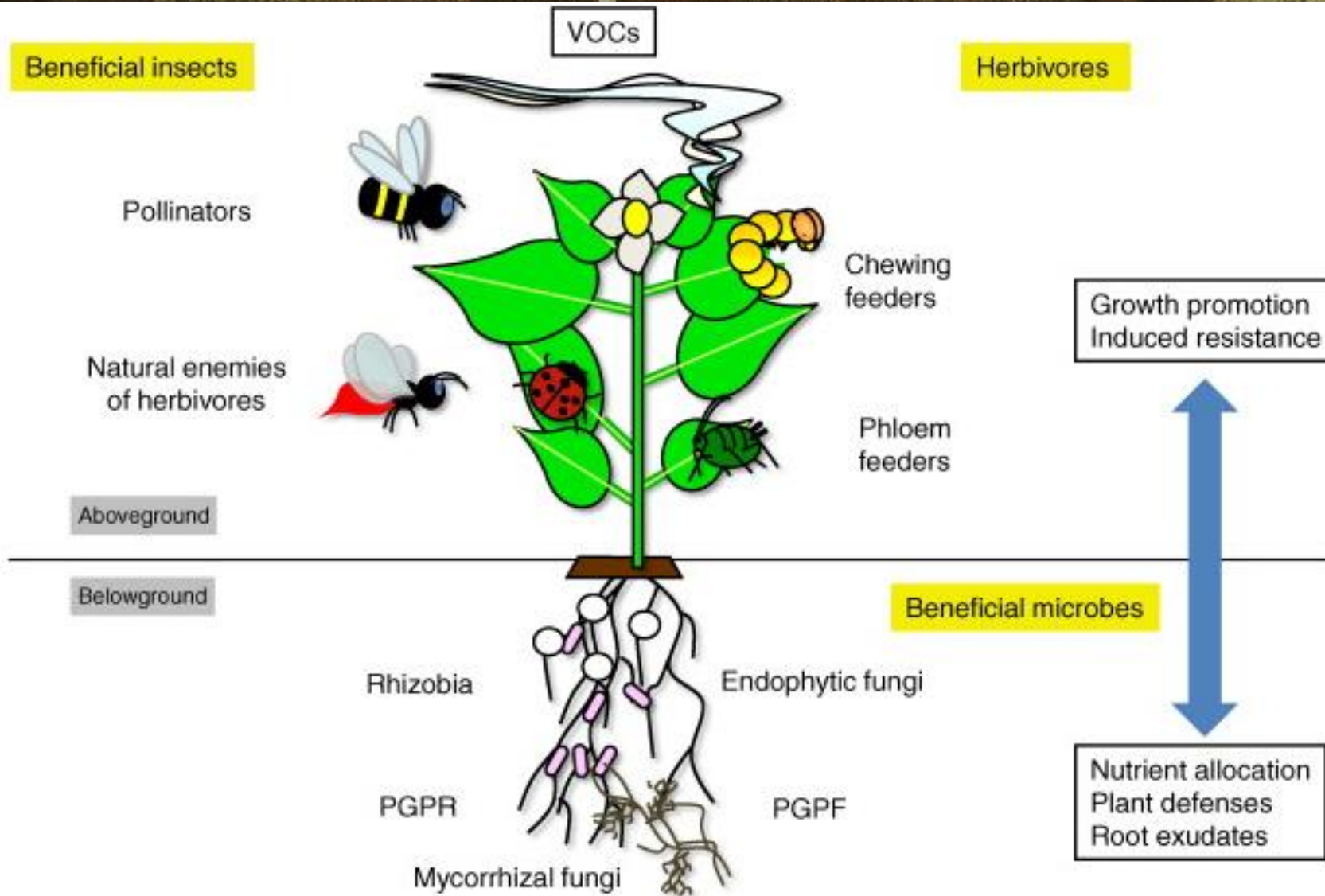
Nurtured conditions

Stress conditions



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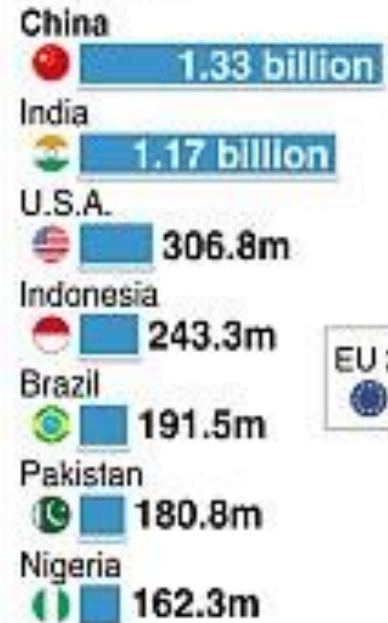
Plantas diseñadas para Manejo Integrado de Plagas



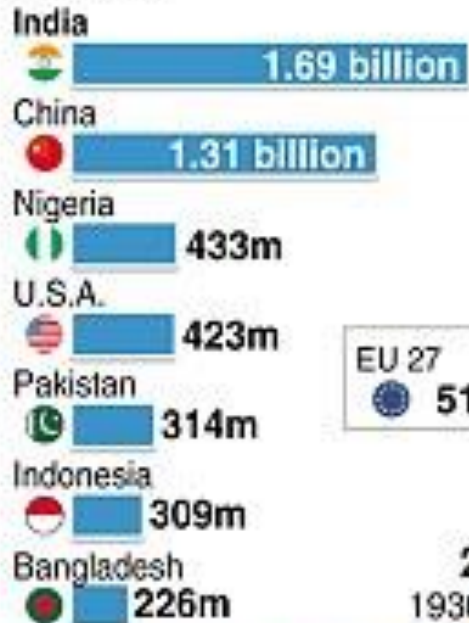
THE WORLD'S POPULATION

The seven most populous countries

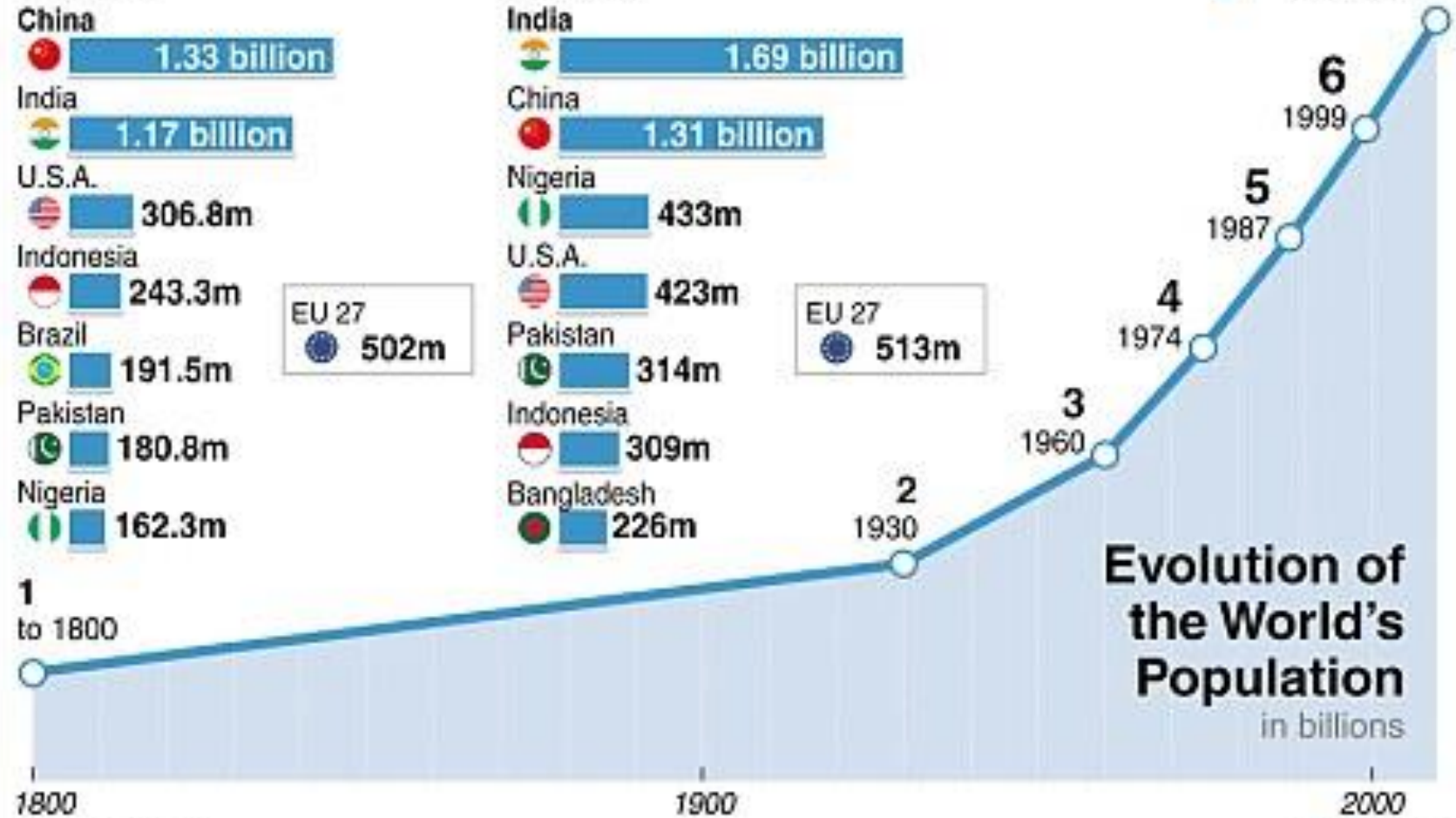
In 2011



In 2050



7 Billion Humans end 2011



Sources : UN, IRED

Idé REUTERS



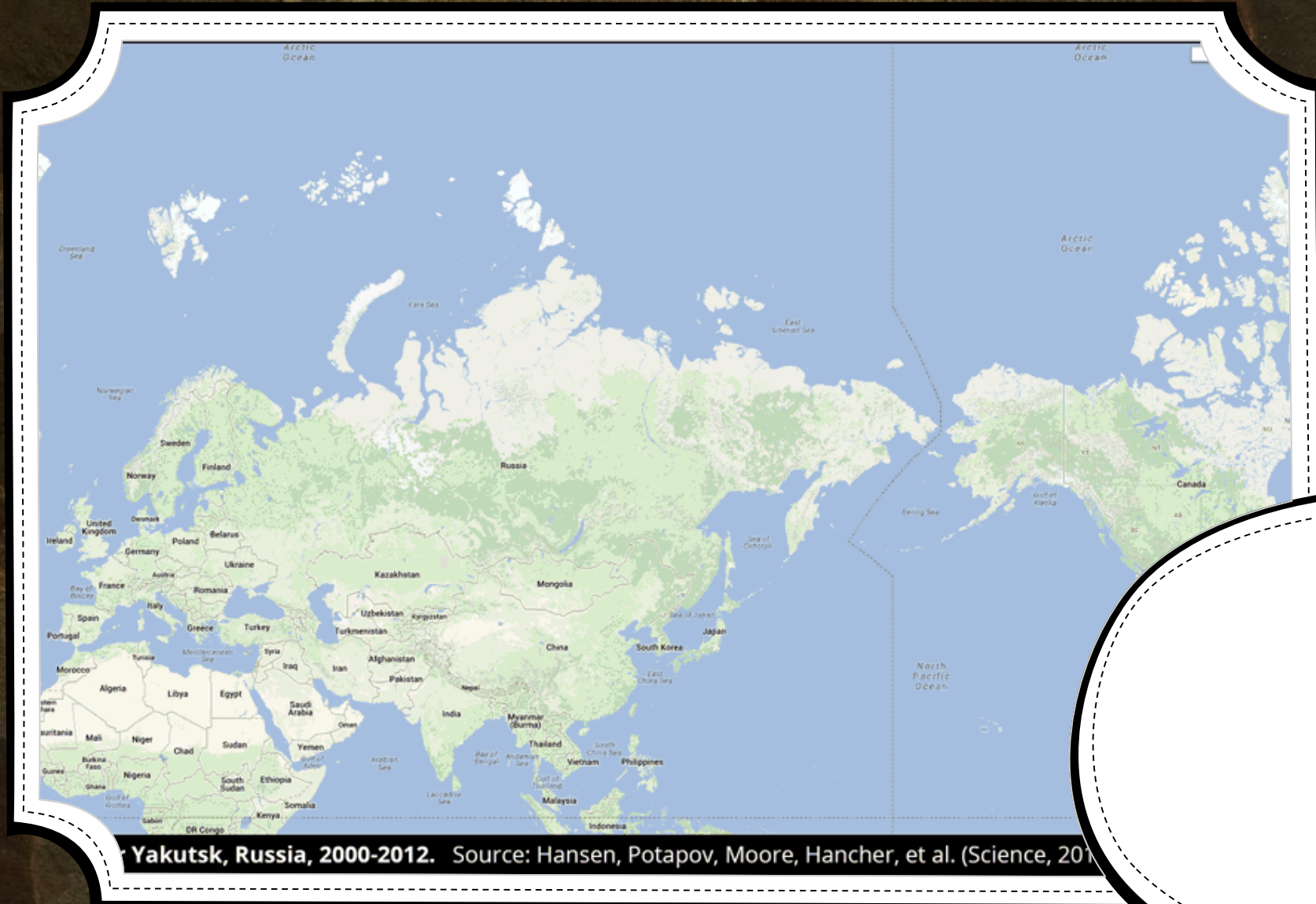
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au, Indonesia, 2000-2012. Source: Hansen, Potapov, Moore, Hancher, et al. (Science, 2013)

Indonesia

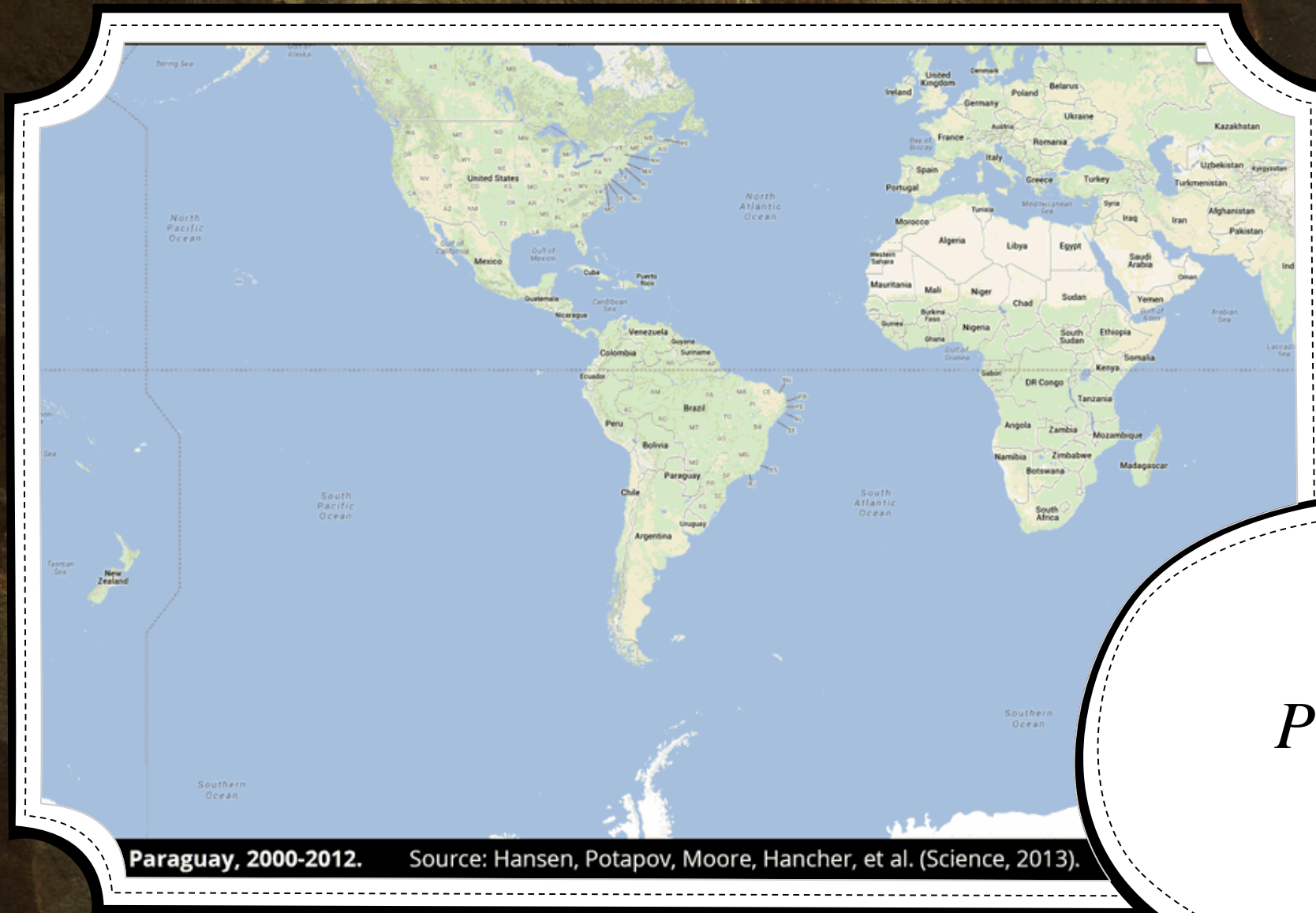




Yakutsk, Russia, 2000-2012. Source: Hansen, Potapov, Moore, Hancher, et al. (Science, 2010)

Rusia





Paraguay, 2000-2012. Source: Hansen, Potapov, Moore, Hancher, et al. (Science, 2013).

Paraguay





Cobertura Forestal 2000-2014

*Hansen, M. C., Potapov,
P. V., Moore, R.,
Hancher, M.,
Turubanova, S. A.,
Tyukavina, A., ... &
Townshend, J. R. G.
(2013). High-resolution
global maps of 21st-
century forest cover
change. science,
342(6160), 850-853.*

*Extensión
Pérdida
Ganancia*



*Cobertura
Forestal
2000-2014*

*Hansen, M. C., Potapov,
P. V., Moore, R.,
Hancher, M.,
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Tyukavina, A., ... &
Townshend, J. R. G.
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Pérdida



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Ganancia

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Gracias por su atención

yuri.pena@gmail.com

ypena@ecosur.mx

@BiotecForestal

www.cultivo.com.mx

