

# Adapting Lentils To Saskatchewan

Soils and Crops 2017  
University of Saskatchewan

Derek Wright



APPLICATION OF GENOMICS  
TO INNOVATION IN THE LENTIL ECONOMY



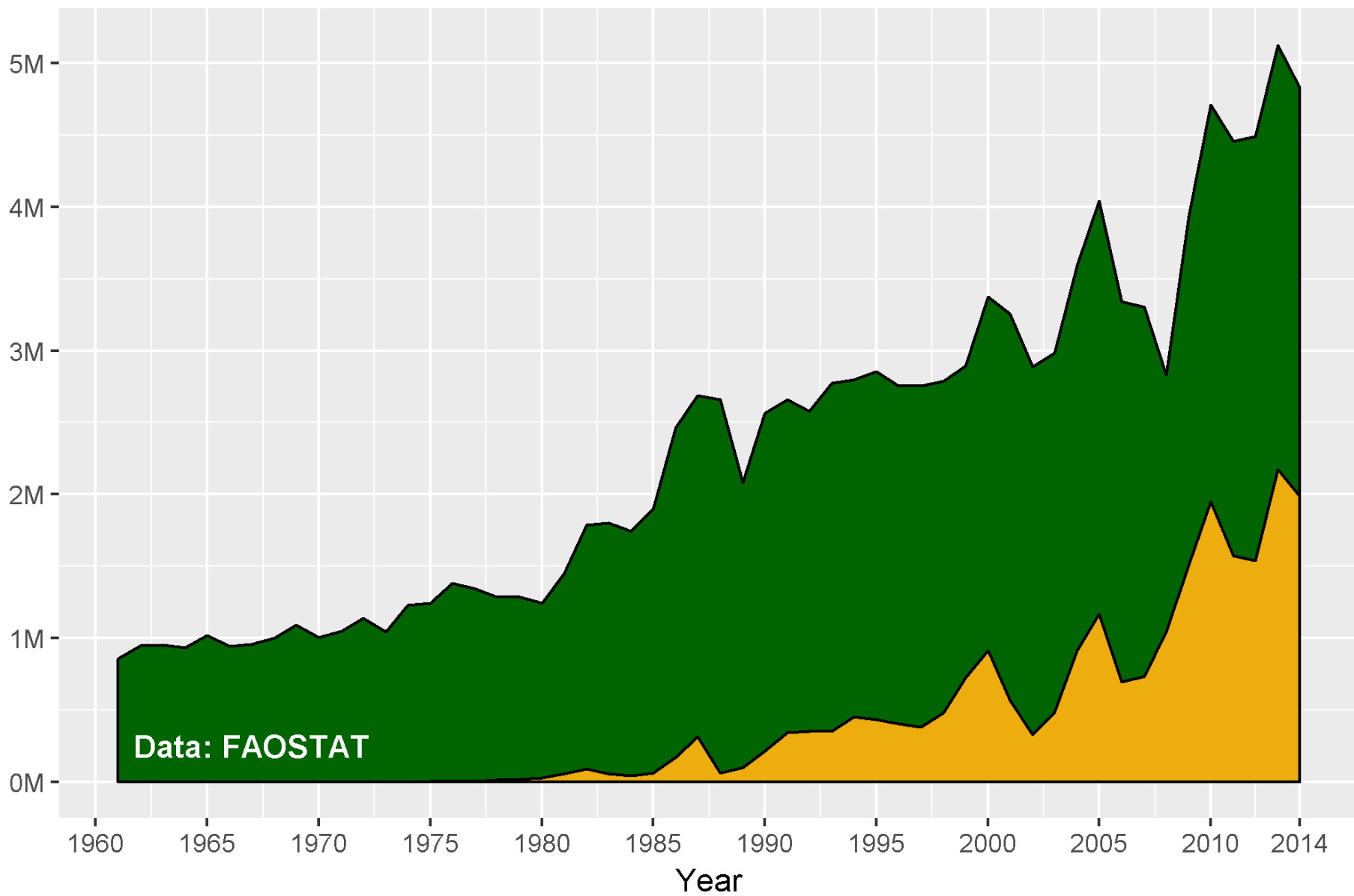


*Lens culinaris*

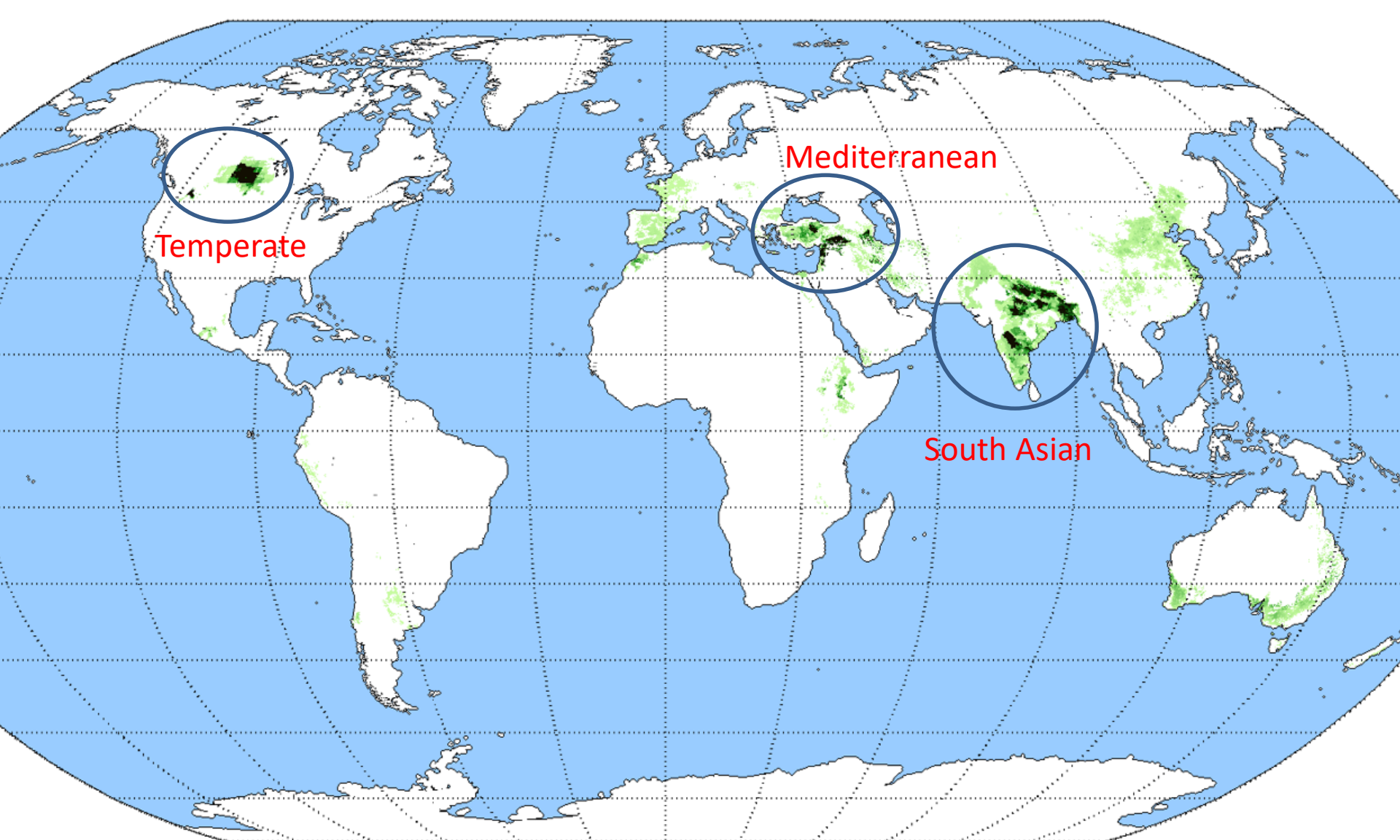


Area ■ Rest of World ■ Canada

Lentil Production (tonnes)



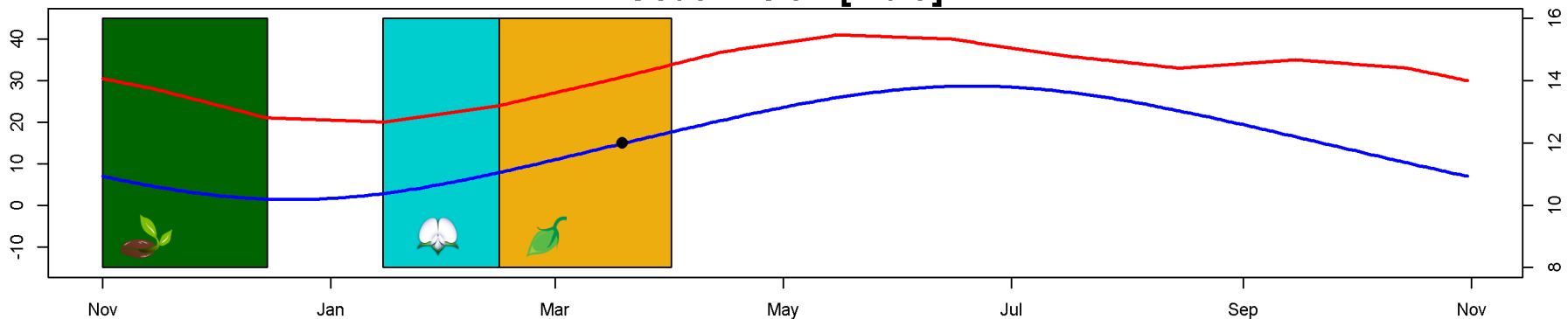
Data: FAOSTAT



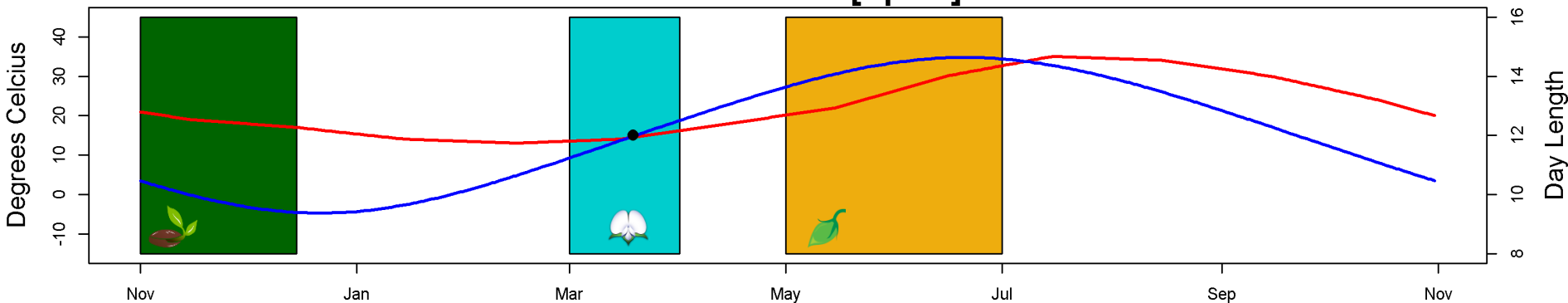
Average regional lentil output (kg/ha)

Image: Wikipedia

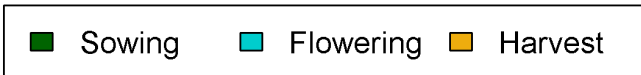
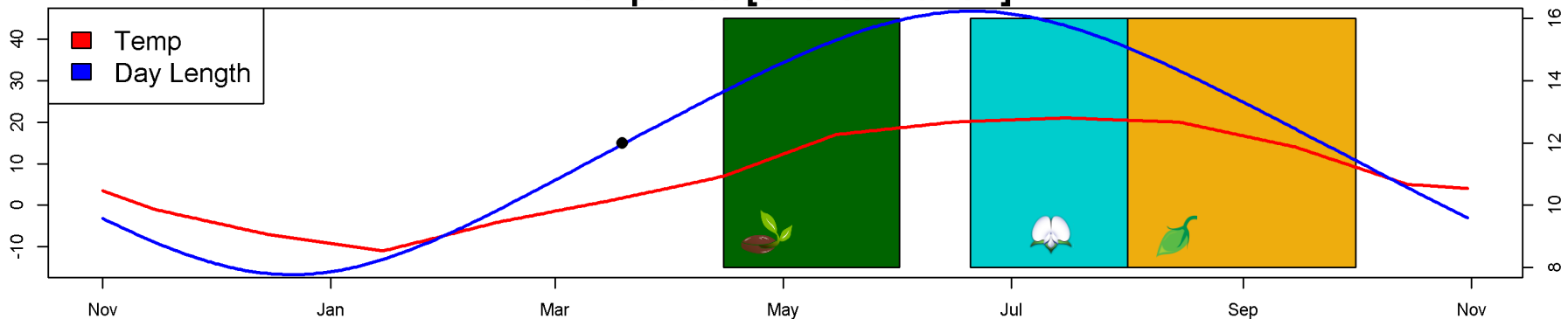
### South Asian [India]



### Mediterranean [Spain]



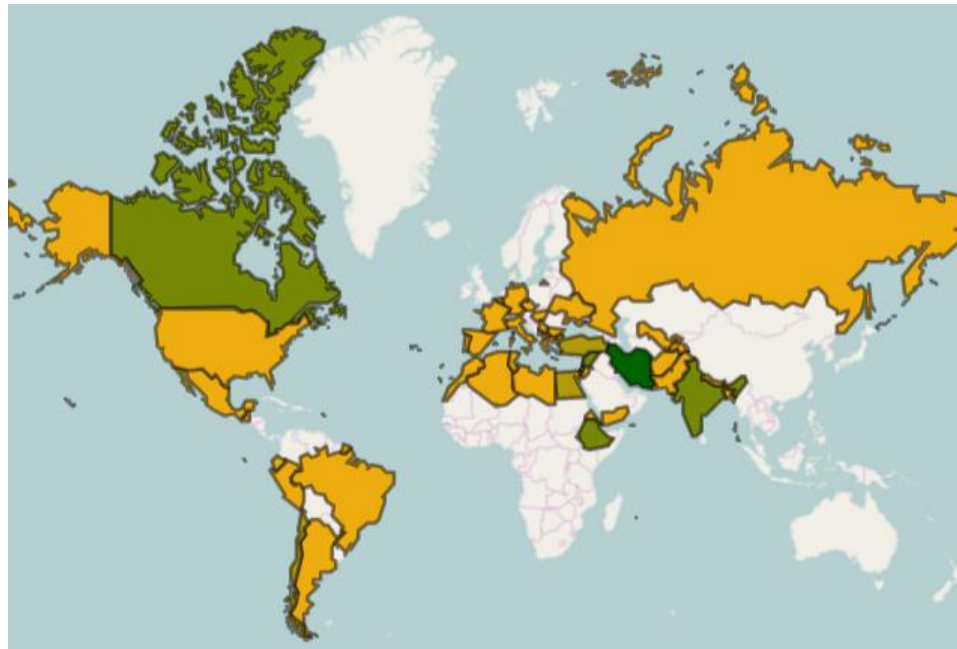
### Temperate [Saskatchewan]





# Lentil Diversity Panel

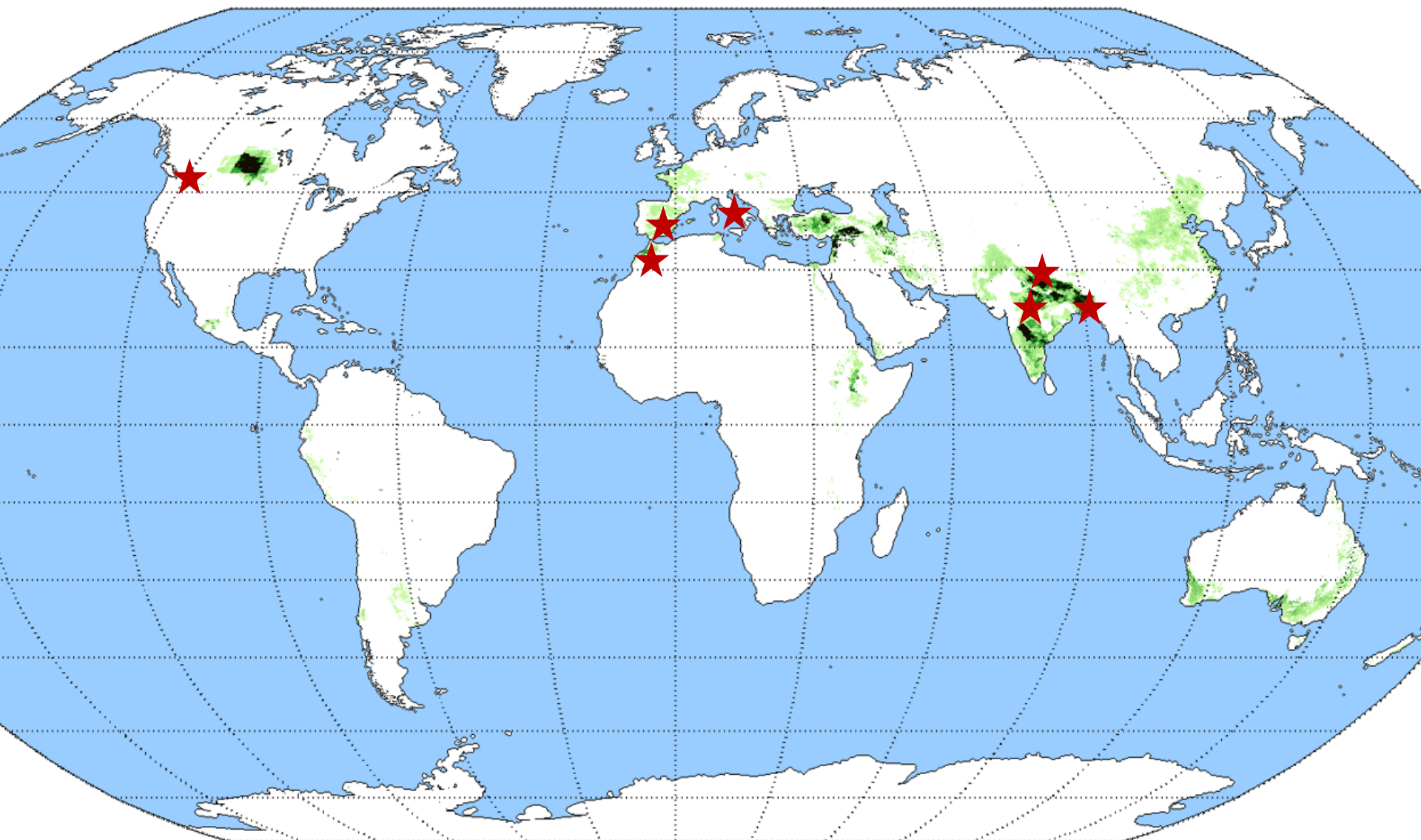
324 accessions representing  
global genetic diversity









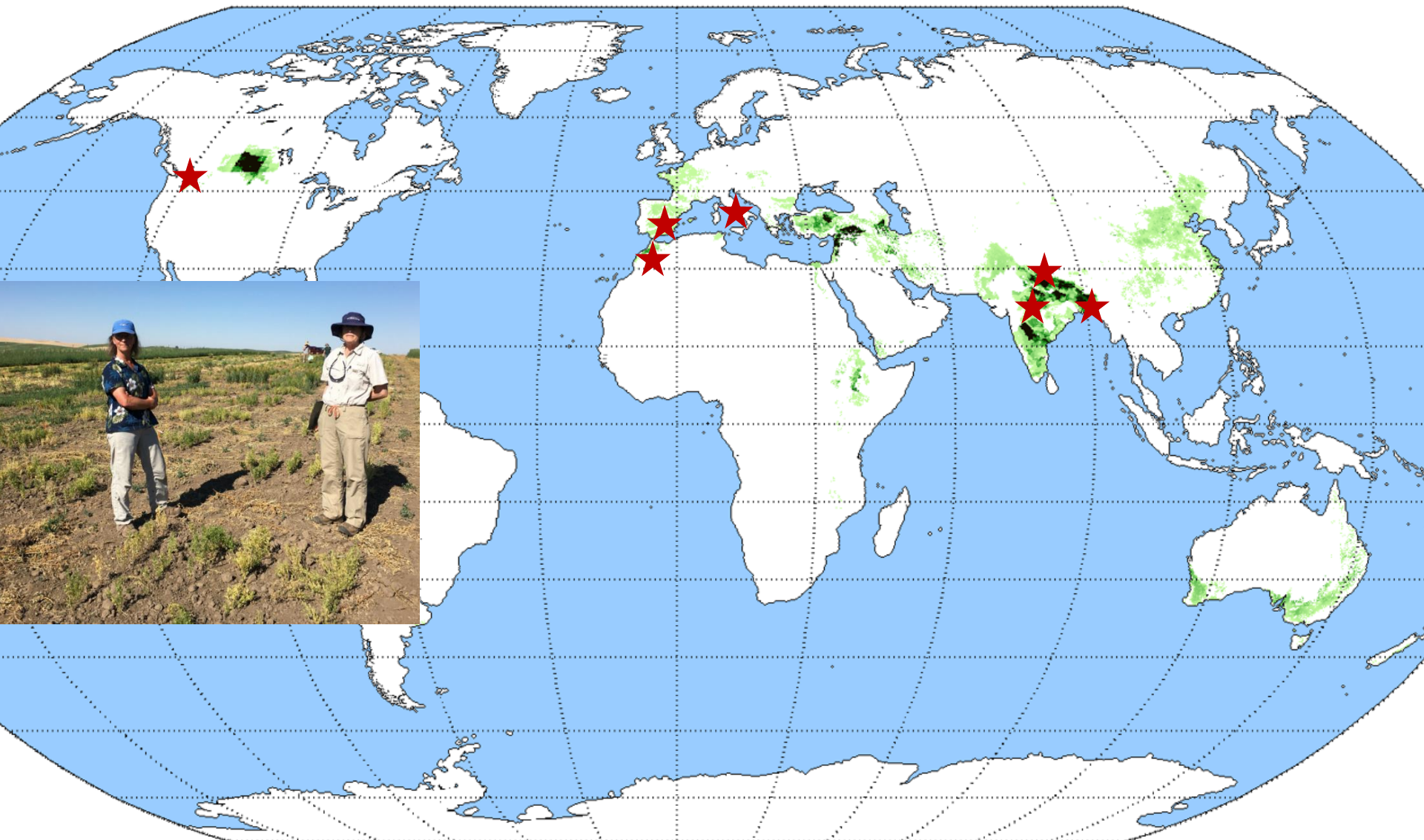


0 2 4 6 8 10 12 14



Average regional lentil output (kg/ha)

Image: Wikipedia



Average regional lentil output (kg/ha)

Image: Wikipedia





Average regional lentil output (kg/ha)

Image: Wikipedia



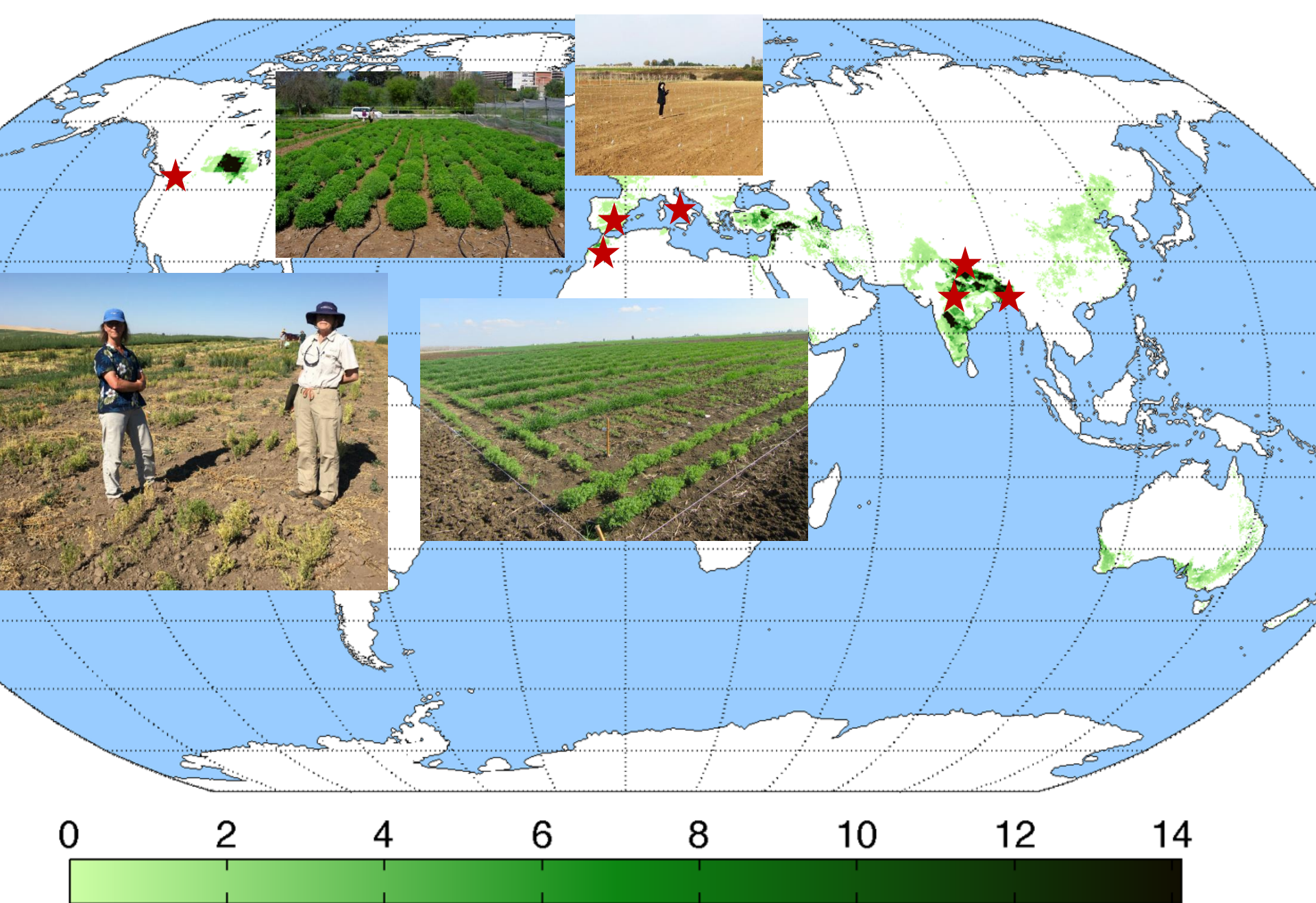
0 2 4 6 8 10 12 14



Average regional lentil output (kg/ha)

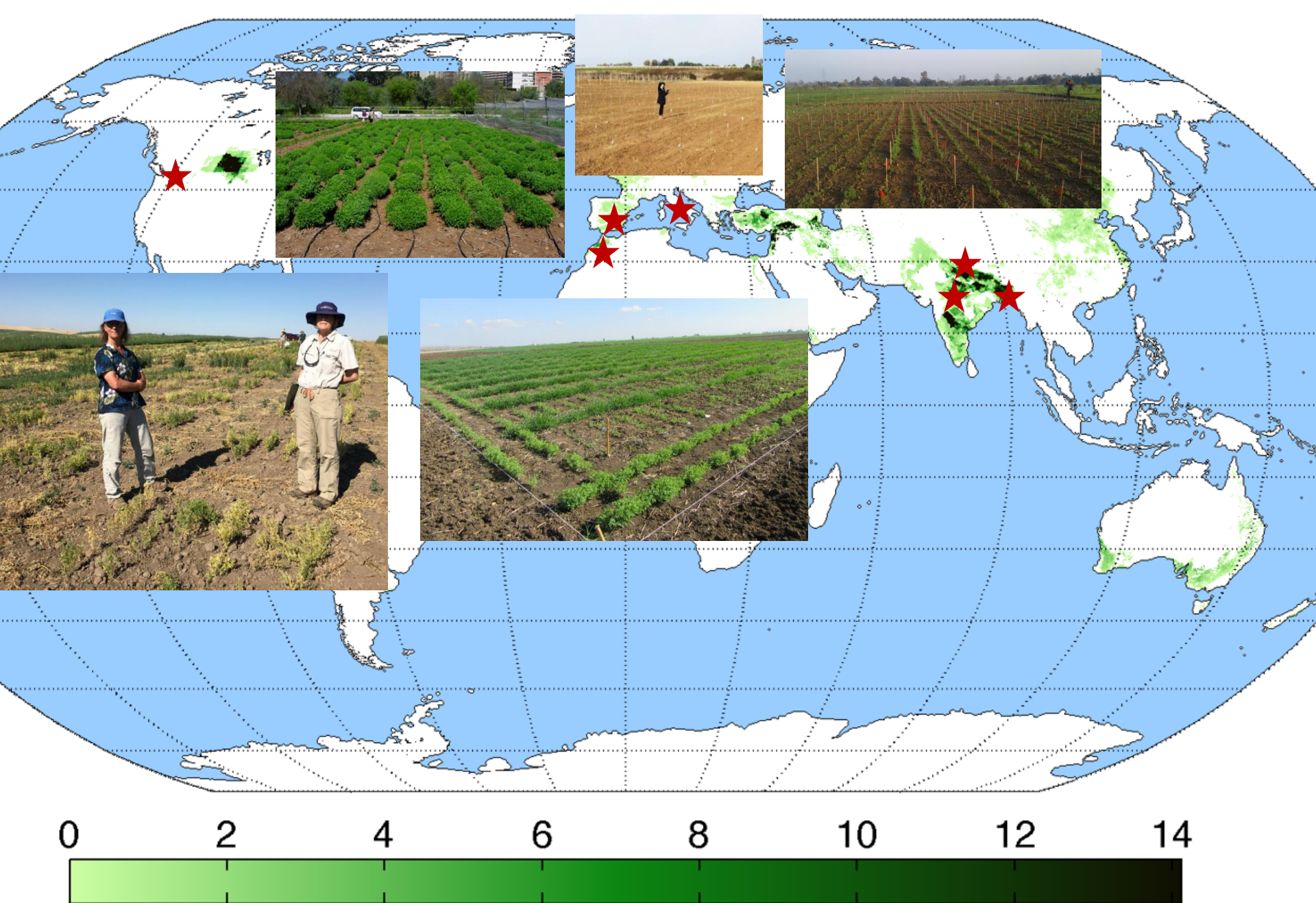
Image: Wikipedia





Average regional lentil output (kg/ha)

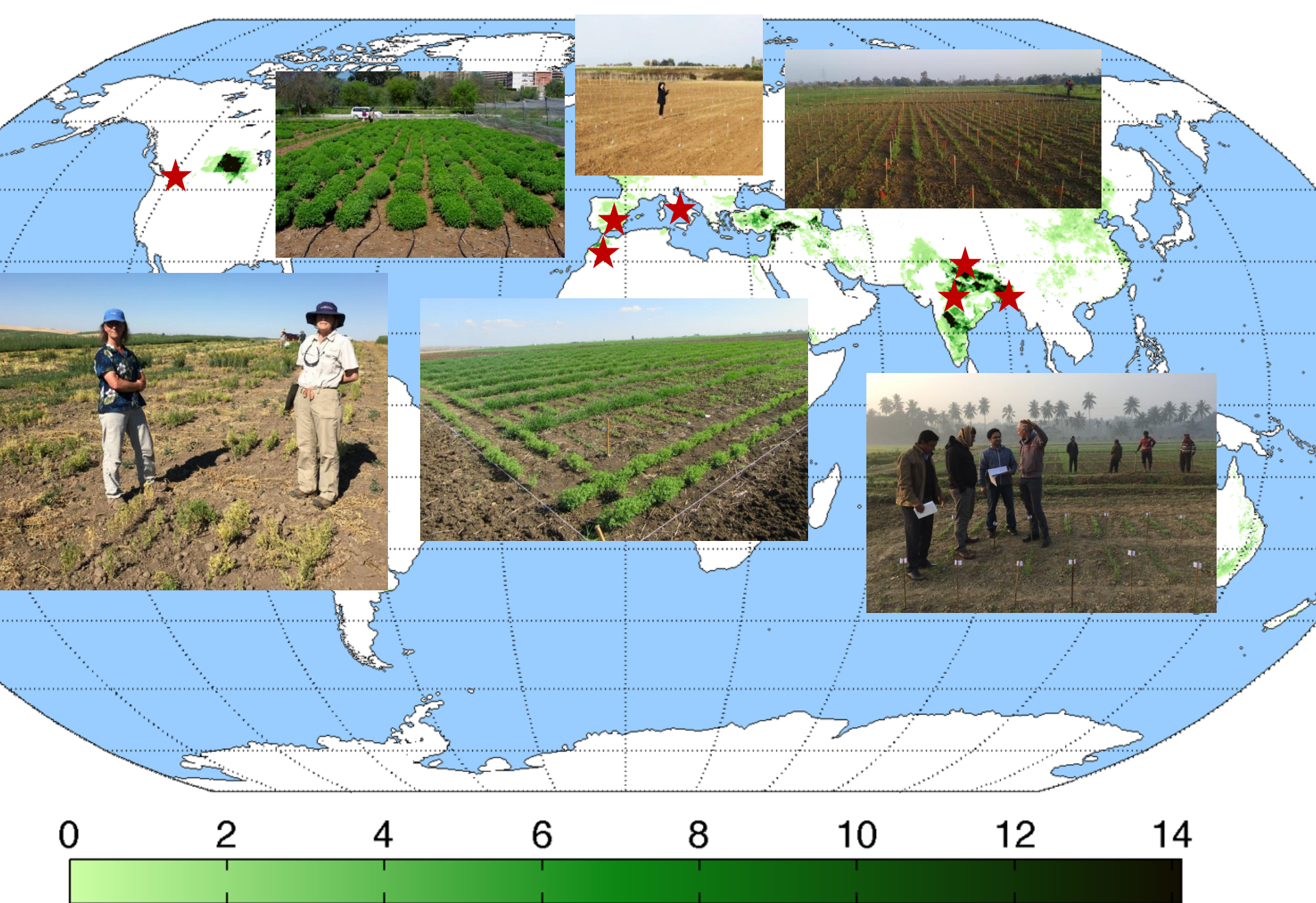
Image: Wikipedia



Average regional lentil output (kg/ha)

Image: Wikipedia





Average regional lentil output (kg/ha)

Image: Wikipedia



- Days to Emergence



- Days to Swollen Pod



- Days to Flower



- Days to Maturity



Days to Tendril

Cotyledon Colour

Testa Type

1000 Seed Mass

Stem Pigmentation

Pubescence

Flower Colour

Seeds/Pod

Pods/Peduncle

Canopy Height

Lowest Pod Height

Node of First Flower

Number of Nodes on  
Primary Stem

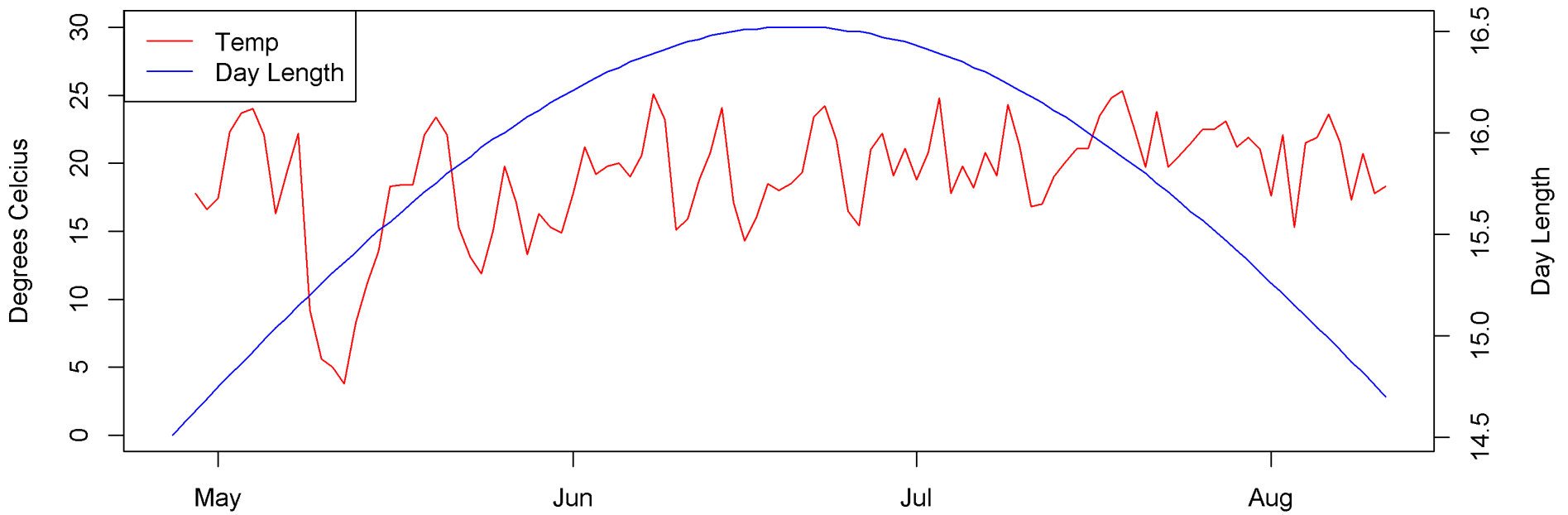
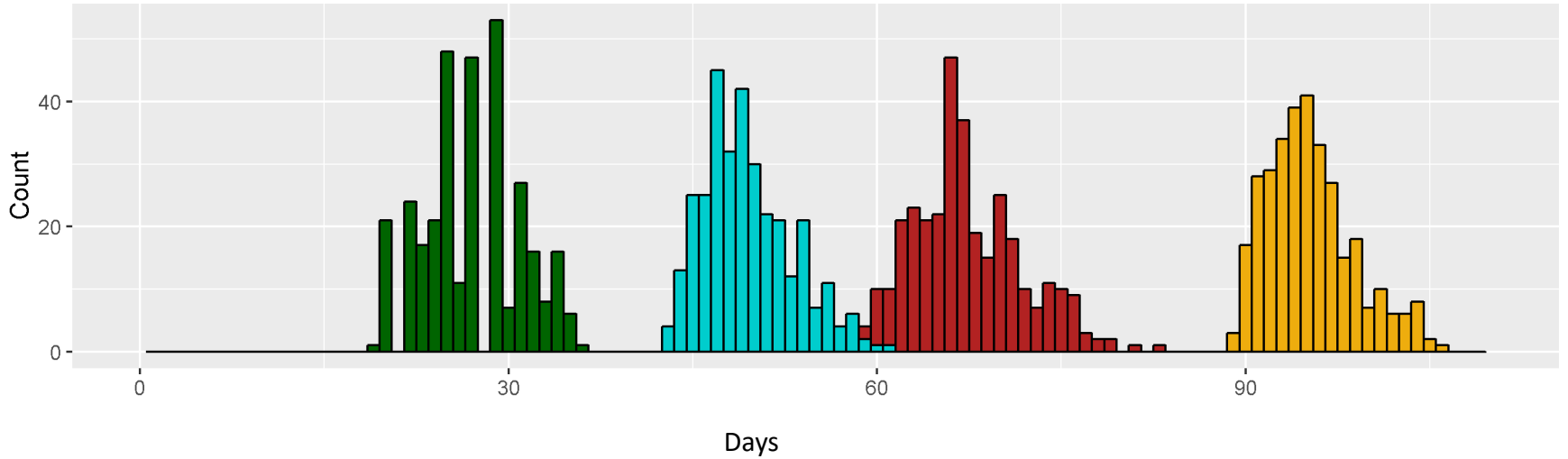
Plant Mass

Yield

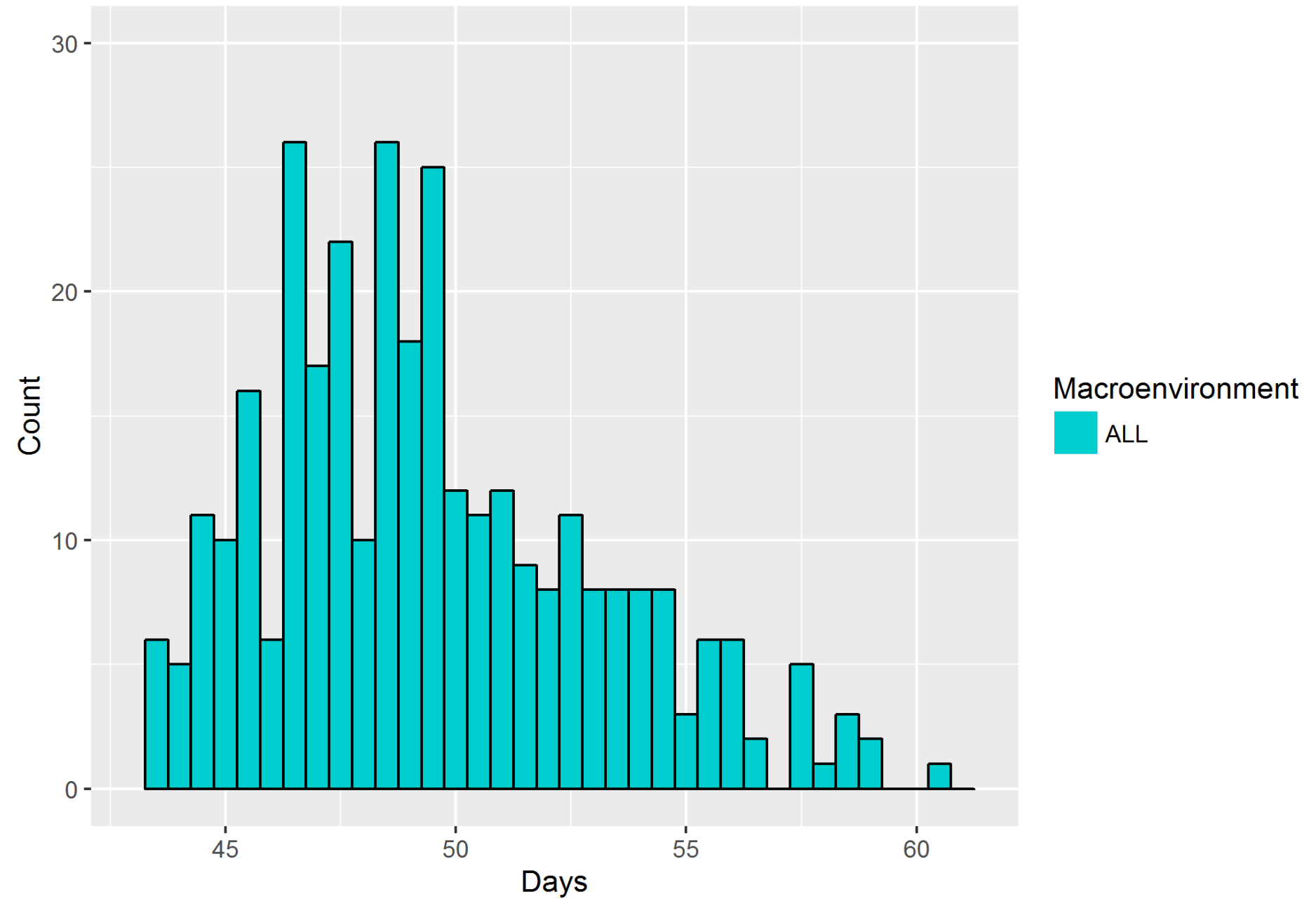


# Sutherland 2016

Days To Emergence Flower Swollen Pod Maturity

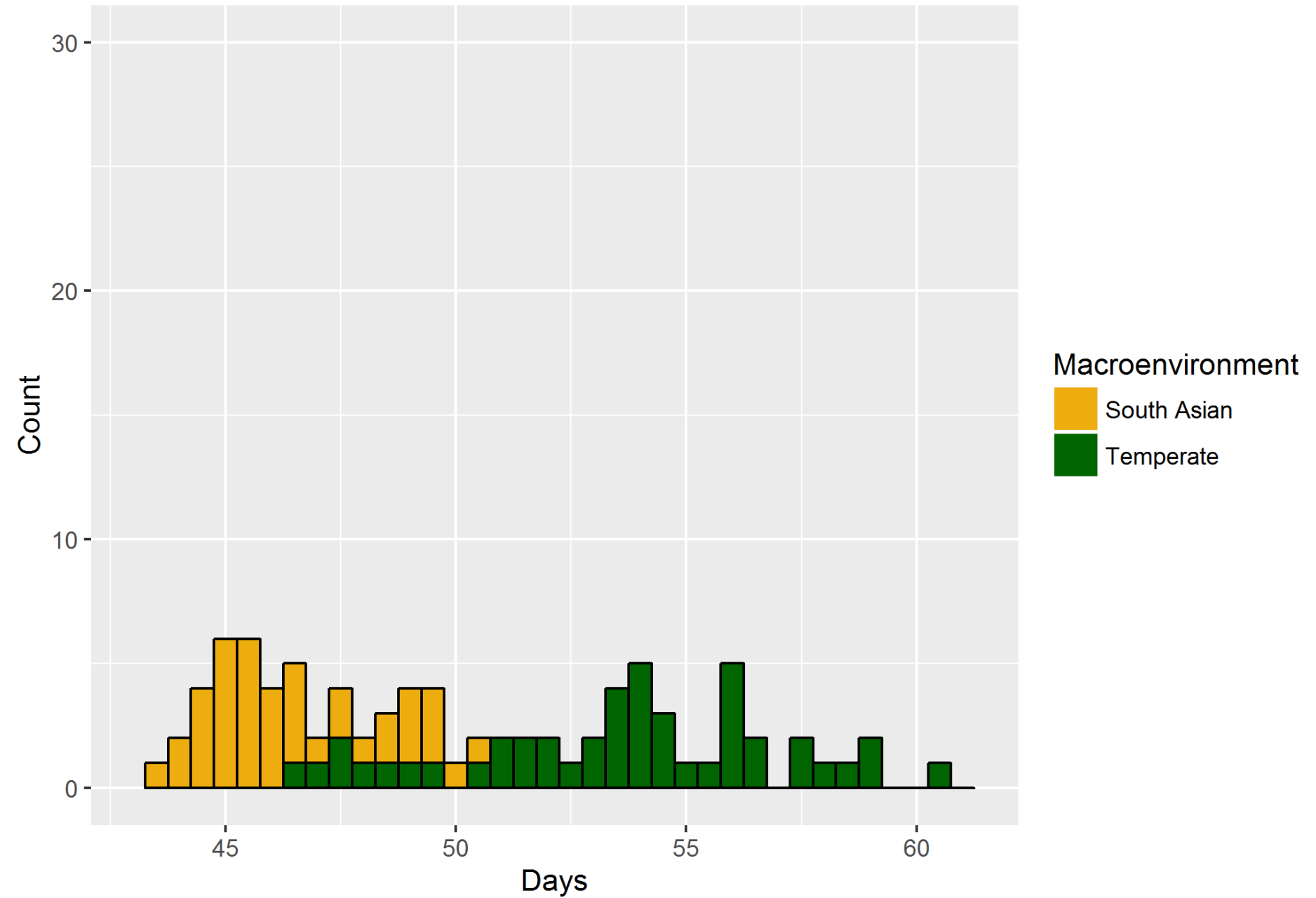


# Days To Flower

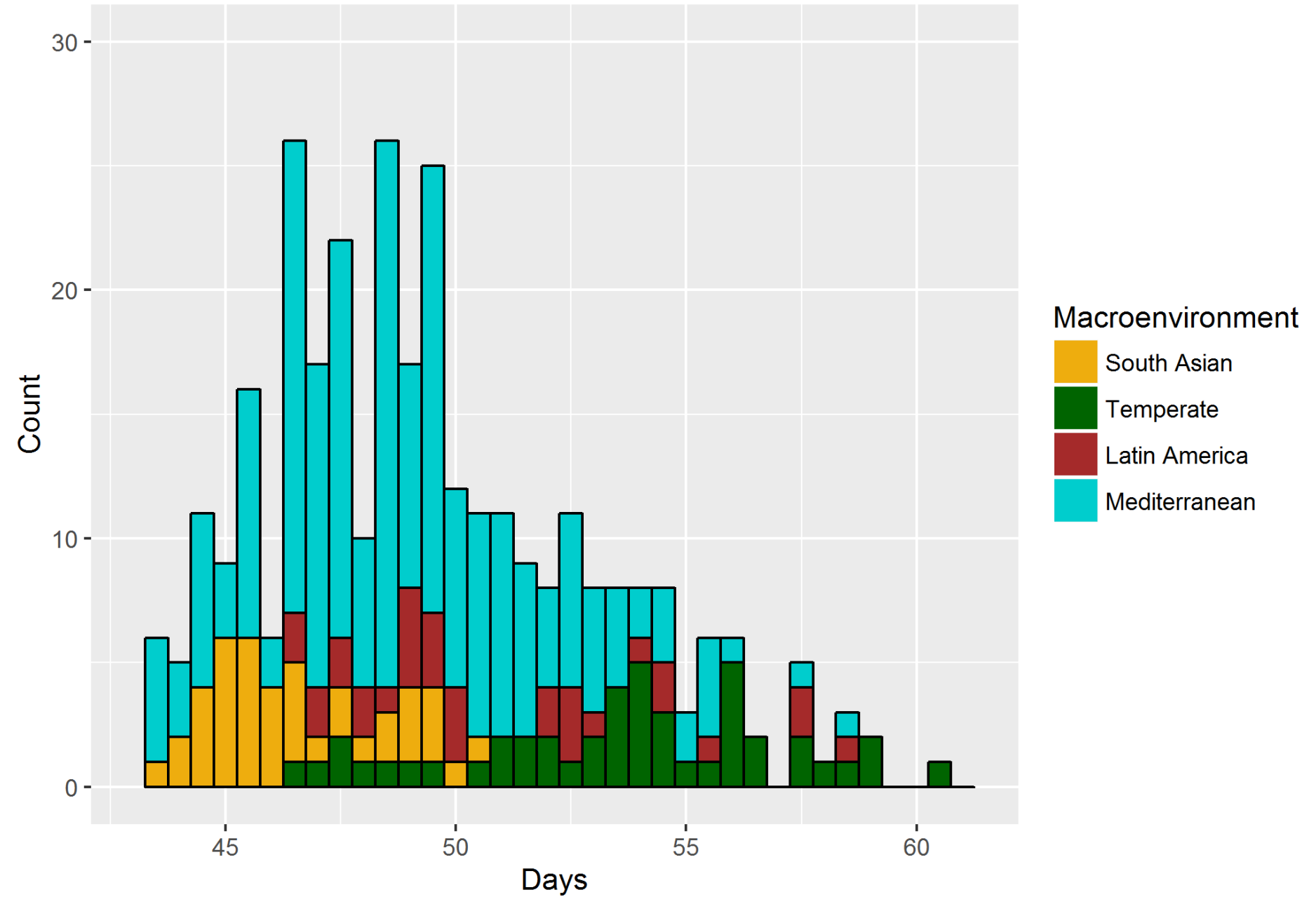




# Days To Flower



# Days To Flower

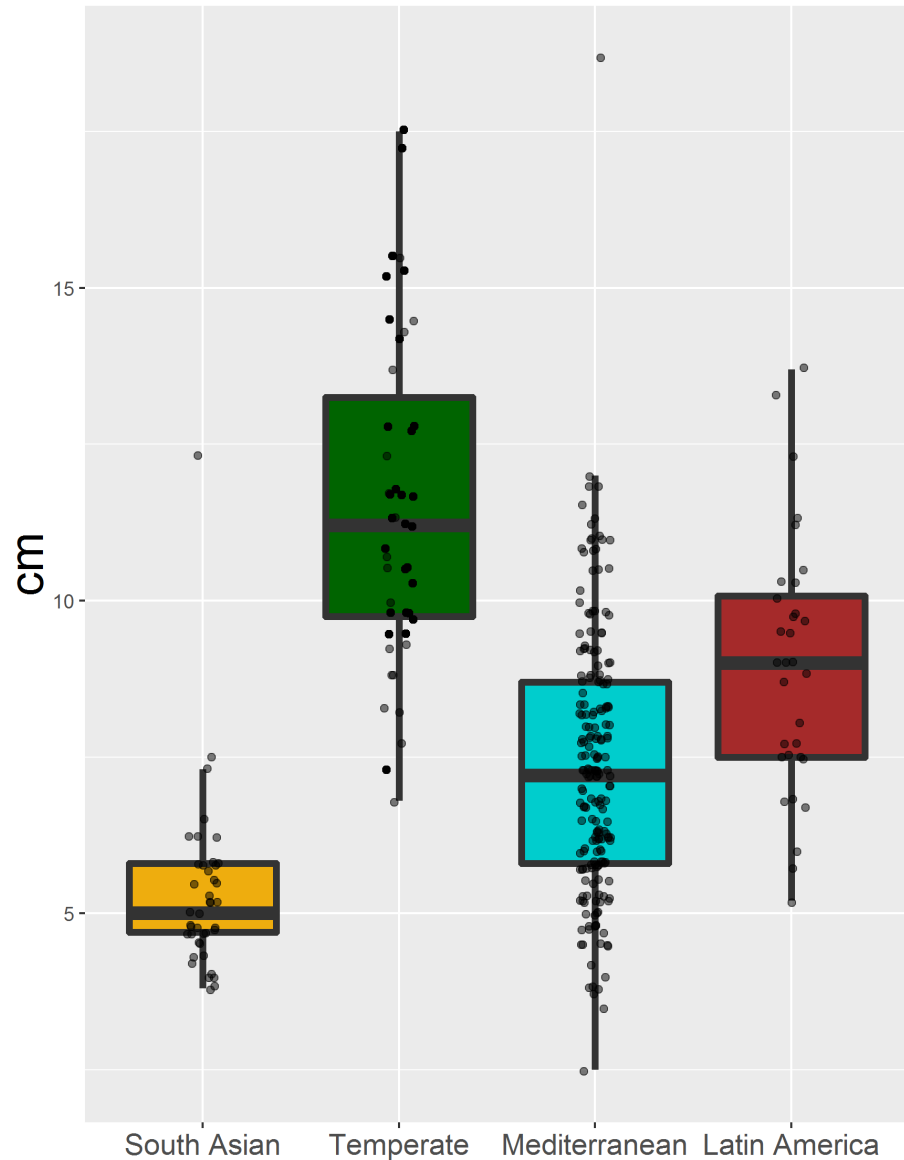
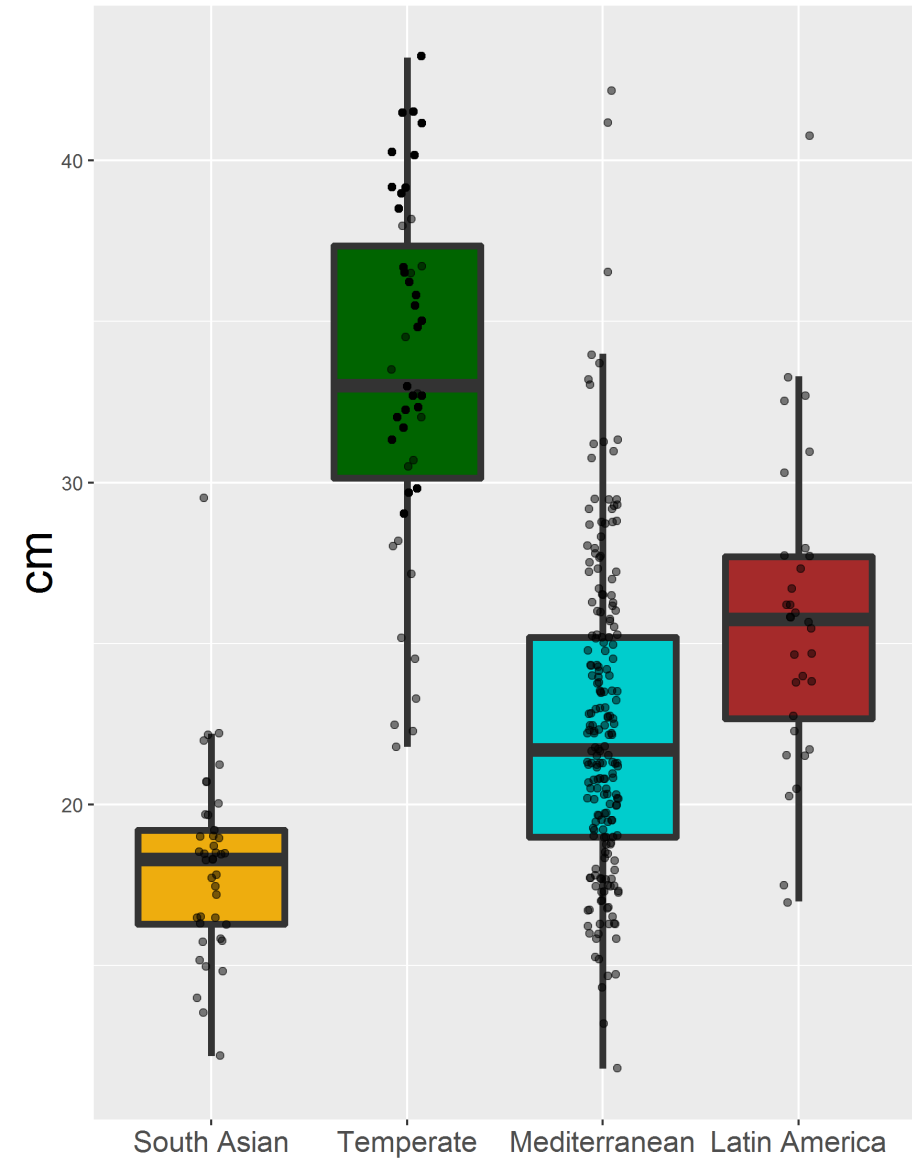




# Machine Harvestability

Canopy Height

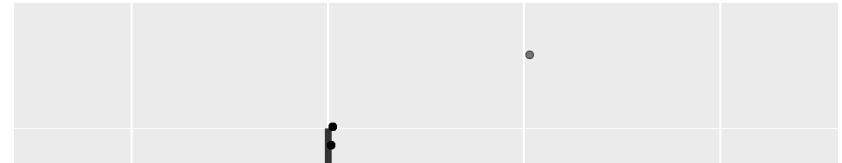
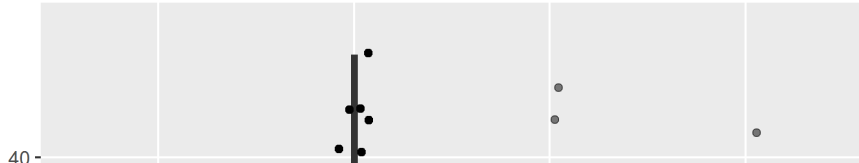
Lowest Pod Height



# Machine Harvestability

Canopy Height

Lowest Pod Height



South Asian    Temperate    Mediterranean    Latin America

South Asian    Temperate    Mediterranean    Latin America



# Genetic Data


- Lentil Genome v1.2 ([knowpulse.usask.ca](http://knowpulse.usask.ca))
- Genotyping all 324 accessions



**KnowPulse**  
pulse crop breeding & genetics



# Acknowledgments

- Taryn Heidecker
- Sandesh Neupane
- Pulse Lab Field Crew
- Team  Agile

