

# Functional seed traits of wild edible Eastern Mediterranean plants

Pablo Gómez-Barreiro<sup>1\*</sup>, Efisio Mattana<sup>1</sup>, Khaled Abulaila<sup>2</sup>, Joelle Breidy<sup>3</sup>, Nizar Hani<sup>4</sup>, Michiel van Slageren<sup>1</sup>, Elinor Breman<sup>1</sup>, Udayangani Liu<sup>1</sup>, Tiziana Cossu<sup>1</sup>, Santiago Vilanova<sup>5</sup>, Tiziana Ulian<sup>1</sup>.

<sup>1</sup>Royal Botanic Gardens, Kew. <sup>2</sup>National Agricultural Research Center. <sup>3</sup>Lebanese Agricultural Research Institute. <sup>4</sup>Shouf Biosphere Reserve. <sup>5</sup>Centro de Conservación y Mejora de la Agrodiversidad Valenciana





**↓ FOOD SECURITY**

## WELL BEING

5.000 - 12.000  
edible plants

(Ulian, T. et al., 2018, Kahane et al., 2013)

## Wild Edible Plants

### WEPS

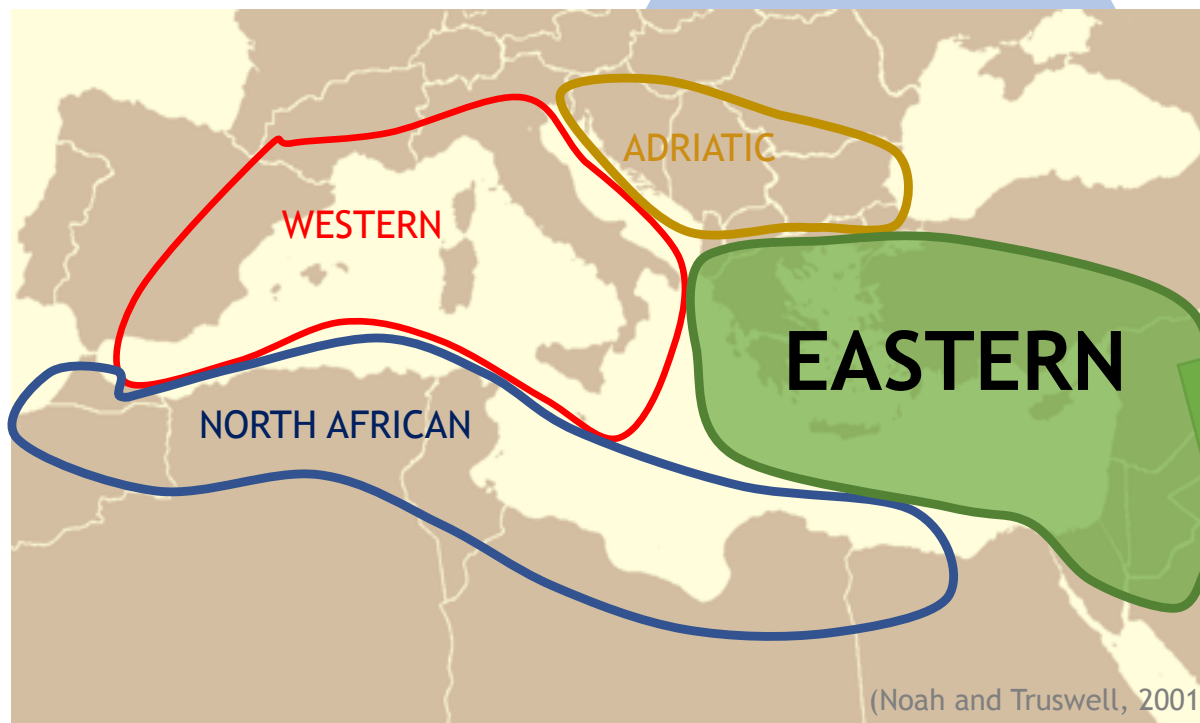
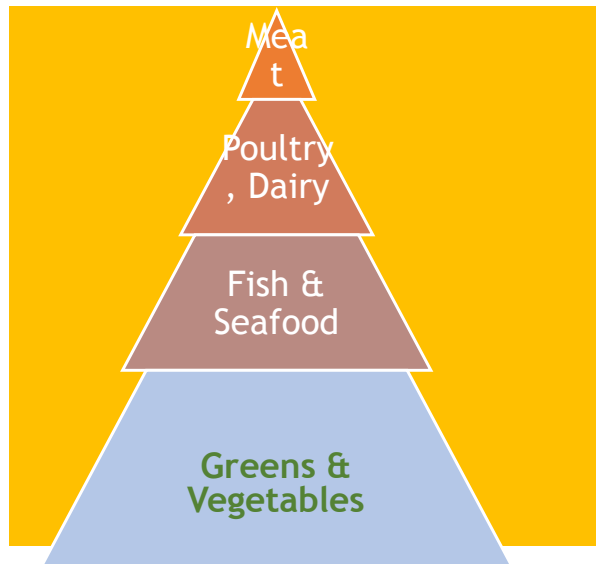
- Enhance food security
- Improve local livelihoods
- Socioeconomical impact
- Nutritional intake balance



# THE MEDITERRANEAN “DIET”

**↓ NCDs risk\***  
Cardiovascular, cancer, diabetes

\* Physical activity required too!



**WEPs FROM  
JORDAN AND  
LEBANON**



# IDENTIFYING WEPs FROM JORDAN & LEBANON



*Asparagus aphyllus*

Databases analysis  
Literature review  
In-country experts



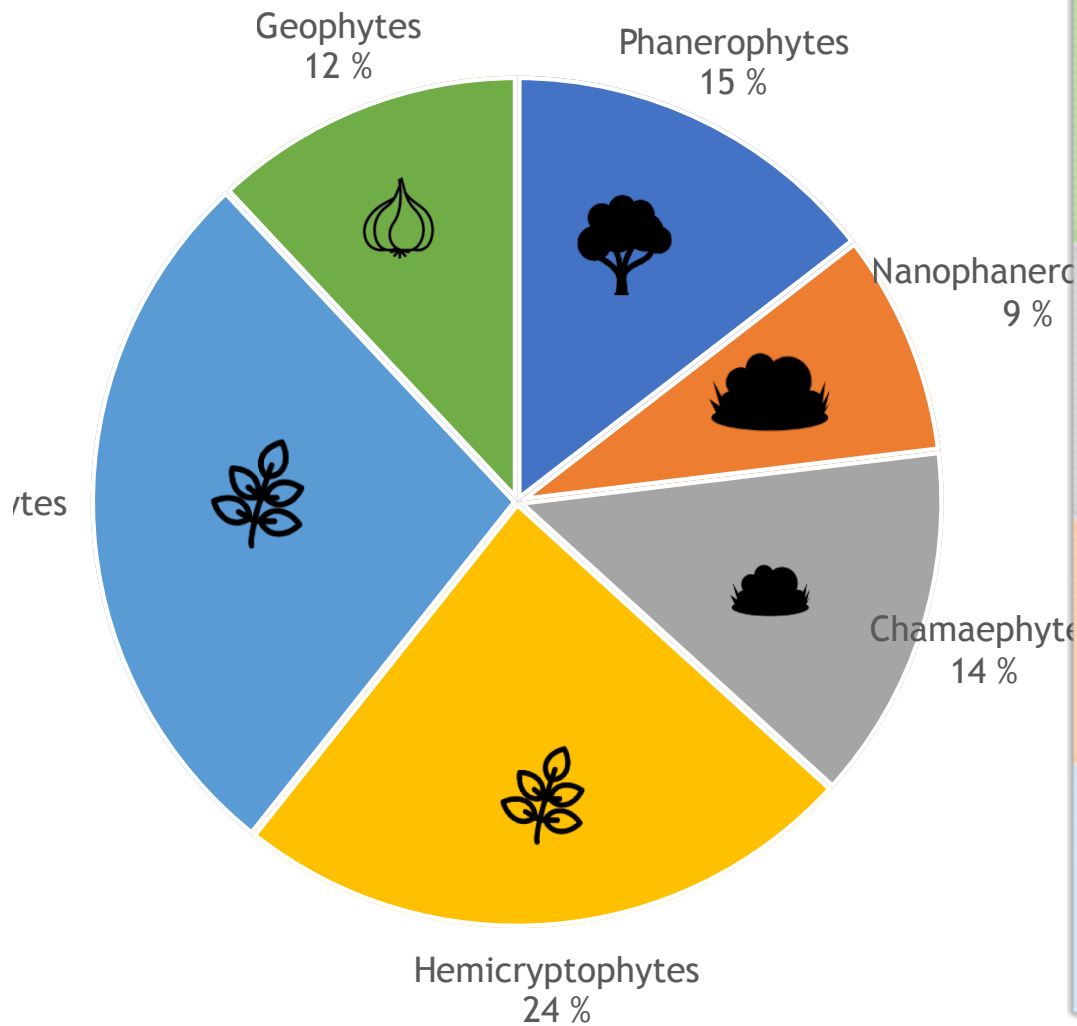
**142**  
POTENTIAL  
WEPs



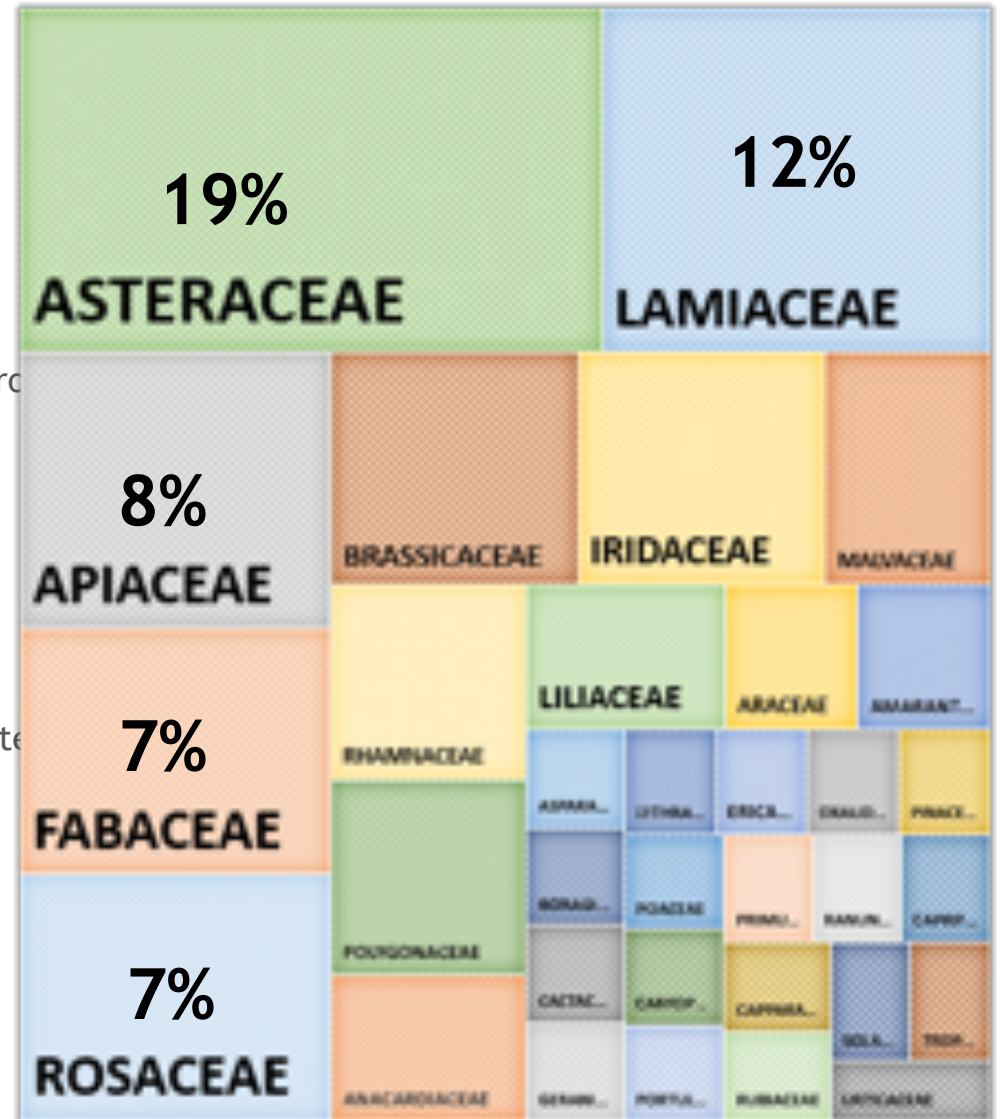
**117**  
CONFIRMED  
WEPs

# WEPs TRAITS

## Life form

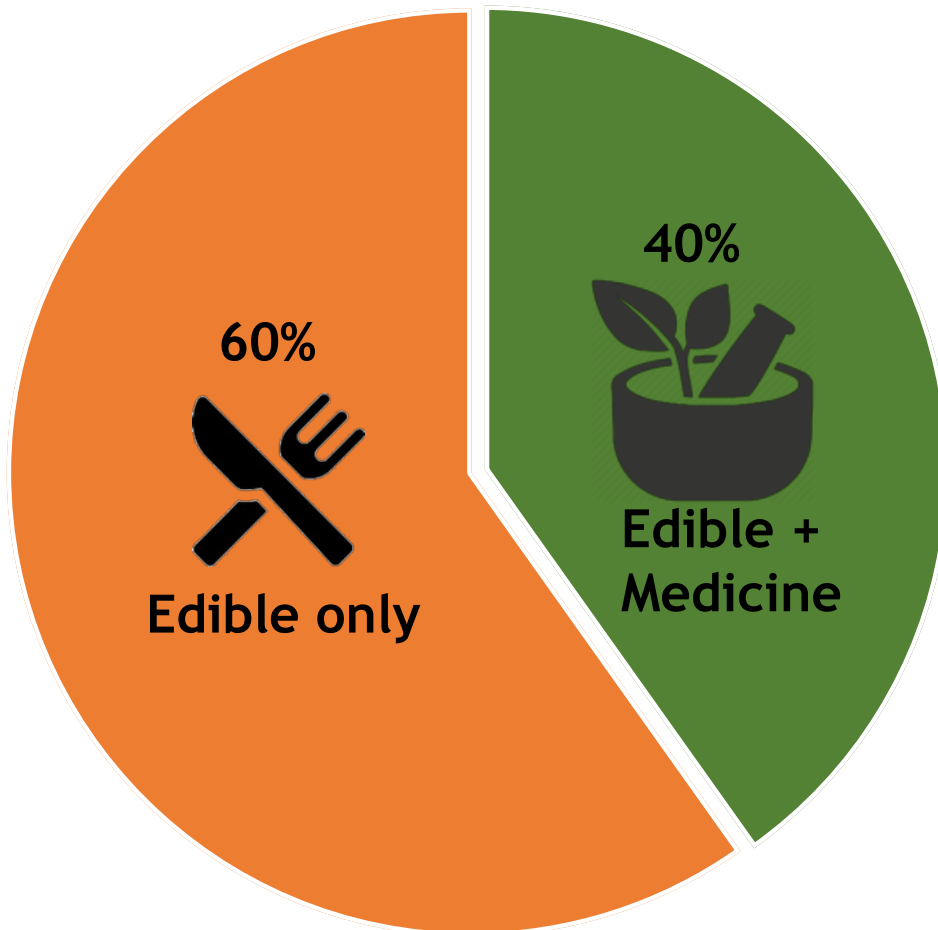


## Families



# OTHER USES OF WEPs

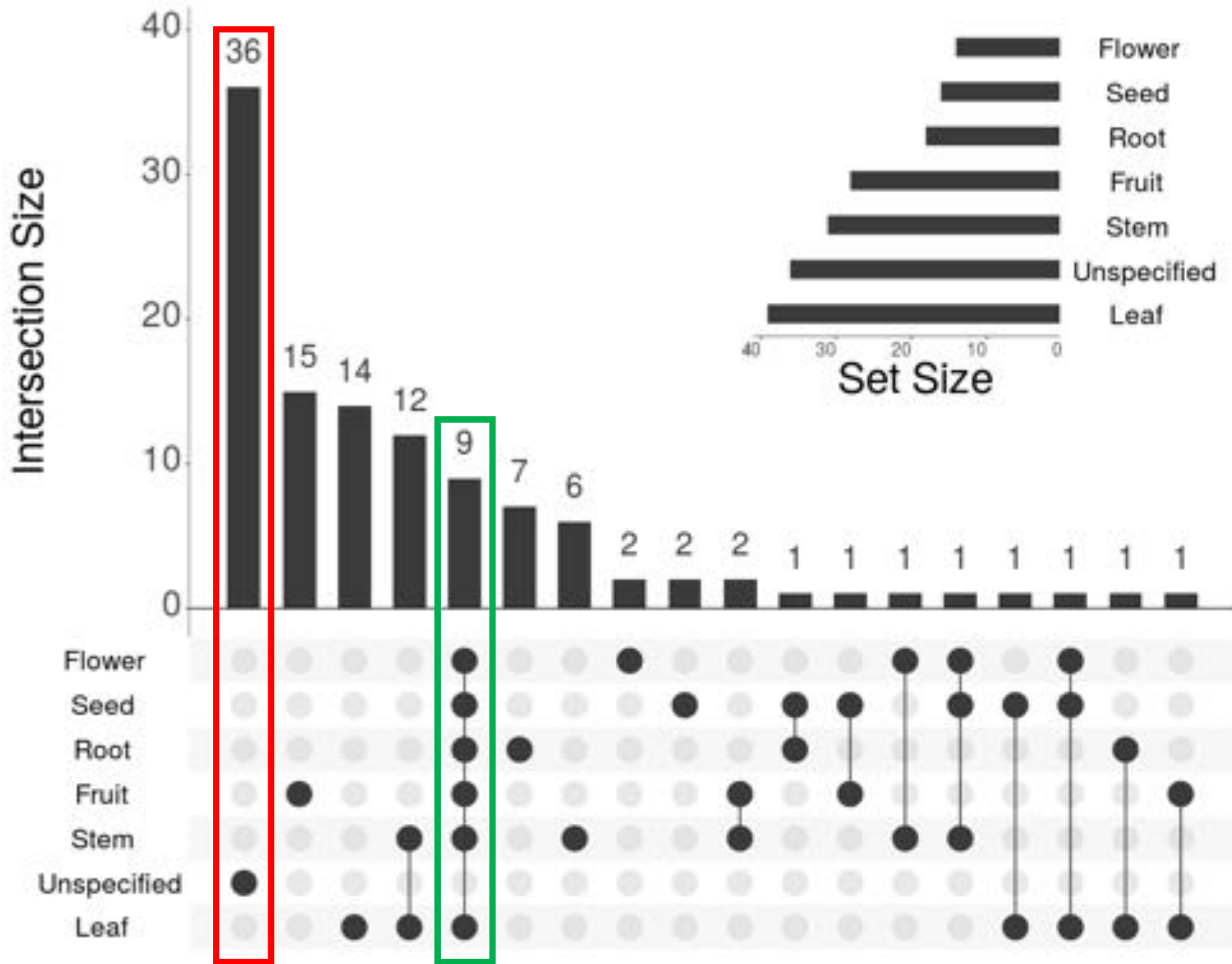
## Food & Medicine



*Lavandula stoechas*



# EDIBLE PARTS





# EDIBLE PARTS

*Gundelia tournefortii*

*Salvia hierosolymitana*

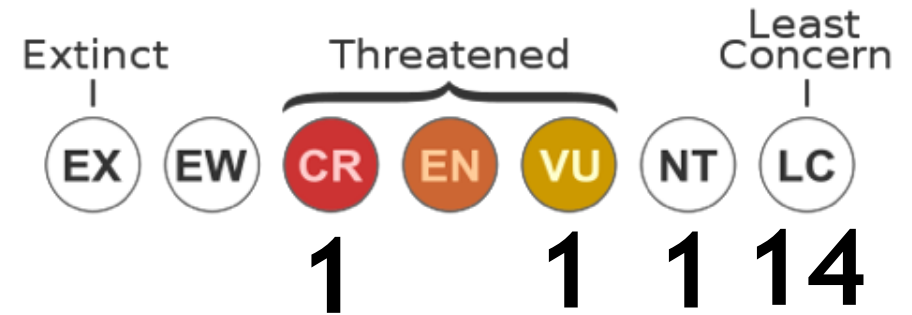


# CONSERVATION

## THREATS



## IUCN RED LIST



**Data deficient: 1**  
**Not assessed: 99**

*From: The IUCN Red List of Species. Nov 2018*



## KEW MILLENNIUM SEED BANK PARTNERSHIP (MSB)



**> 39,000 wild species banked**  
> 2.2 billion seeds



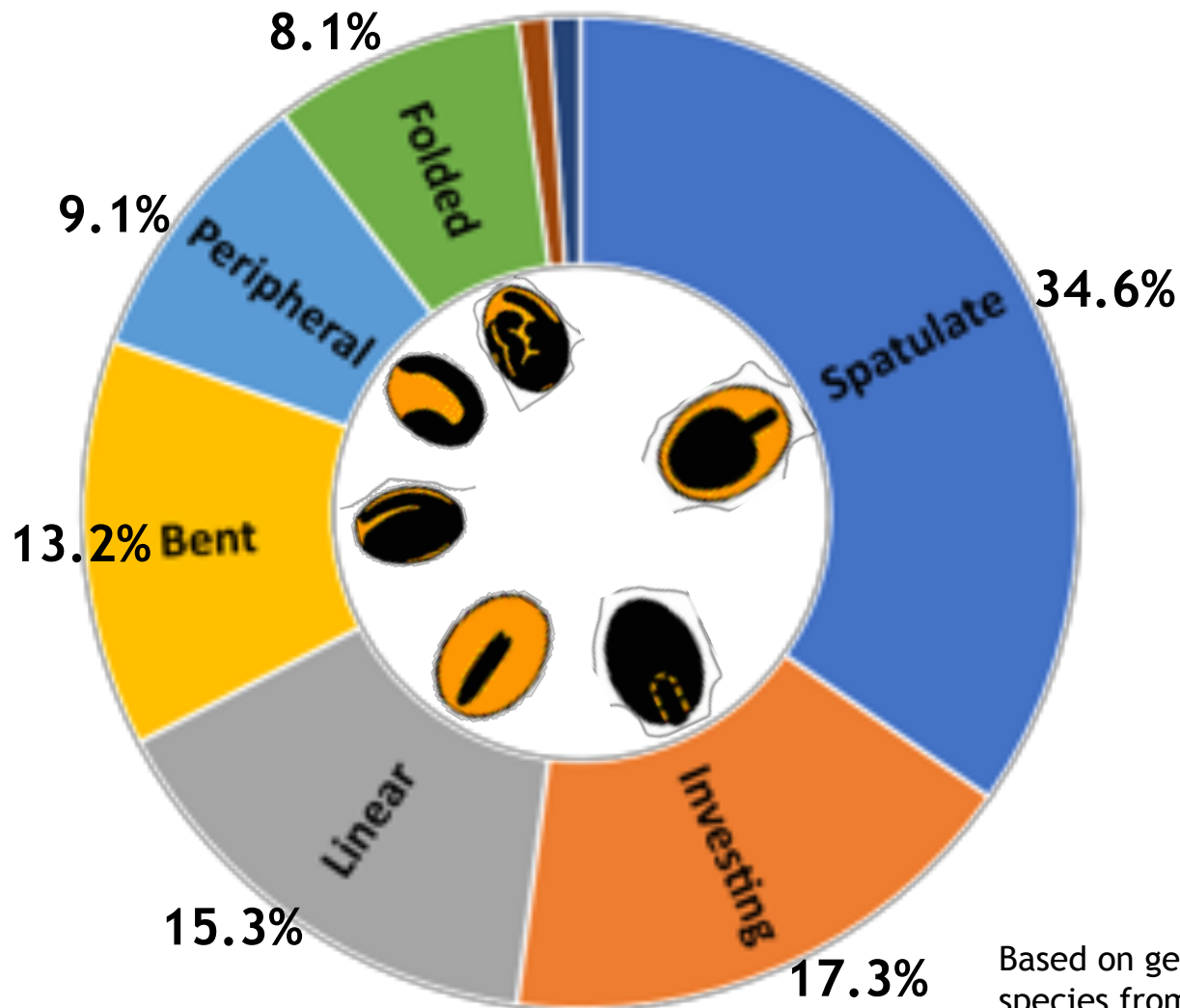
**2,553 accessions, 1,626 taxa**  
Jordan: 662 taxa  
Lebanon: 964 taxa



**49% J&L WES banked**



## Embryo types according to Martin (1946)



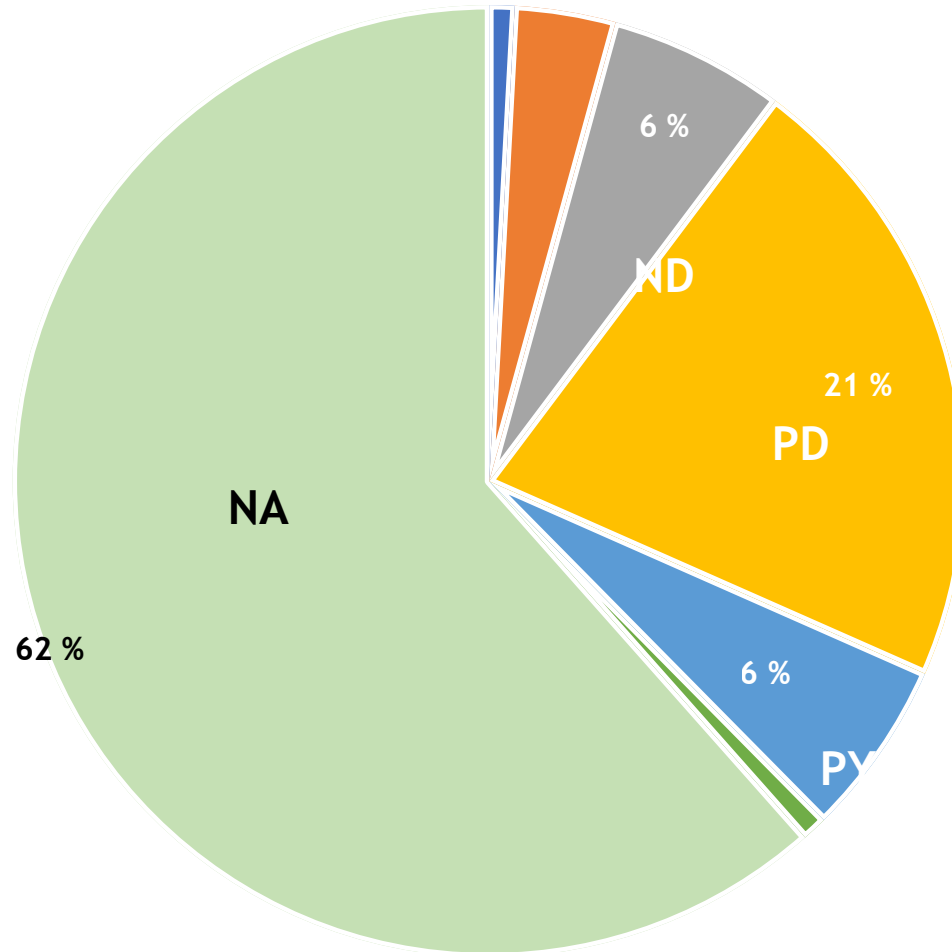
Based on genus information from the 117 identified species from Jordan & Lebanon



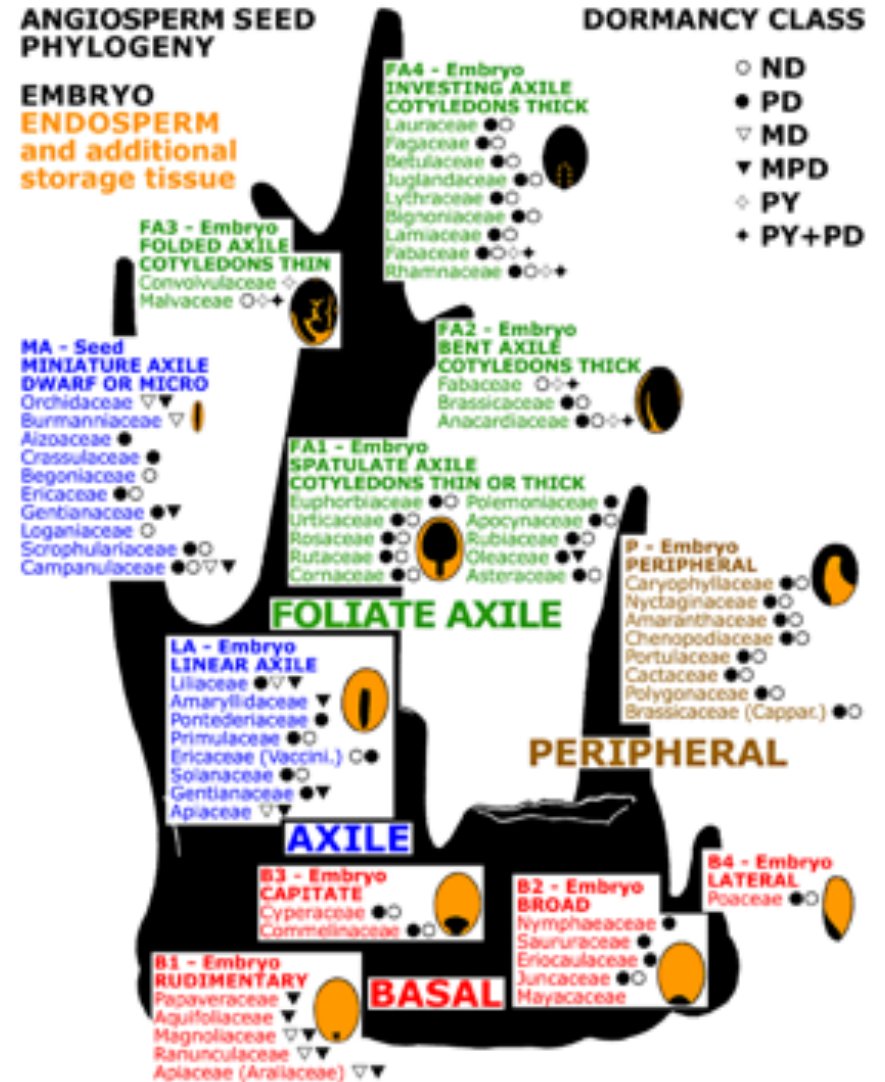


# WEPs SEED TRAITS

## DORMANCY

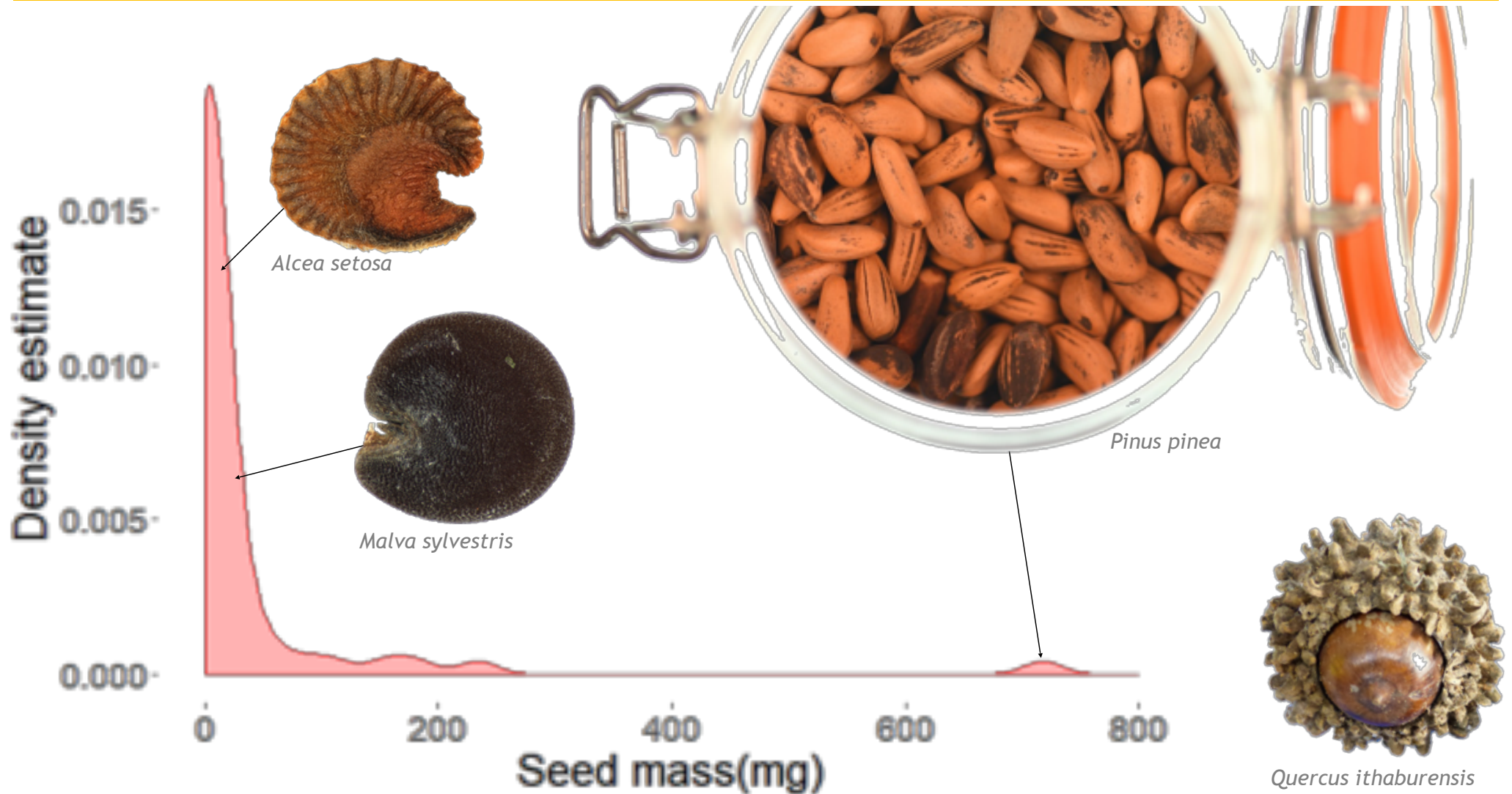


Based on species information from the 117 identified species from Jordan & Lebanon

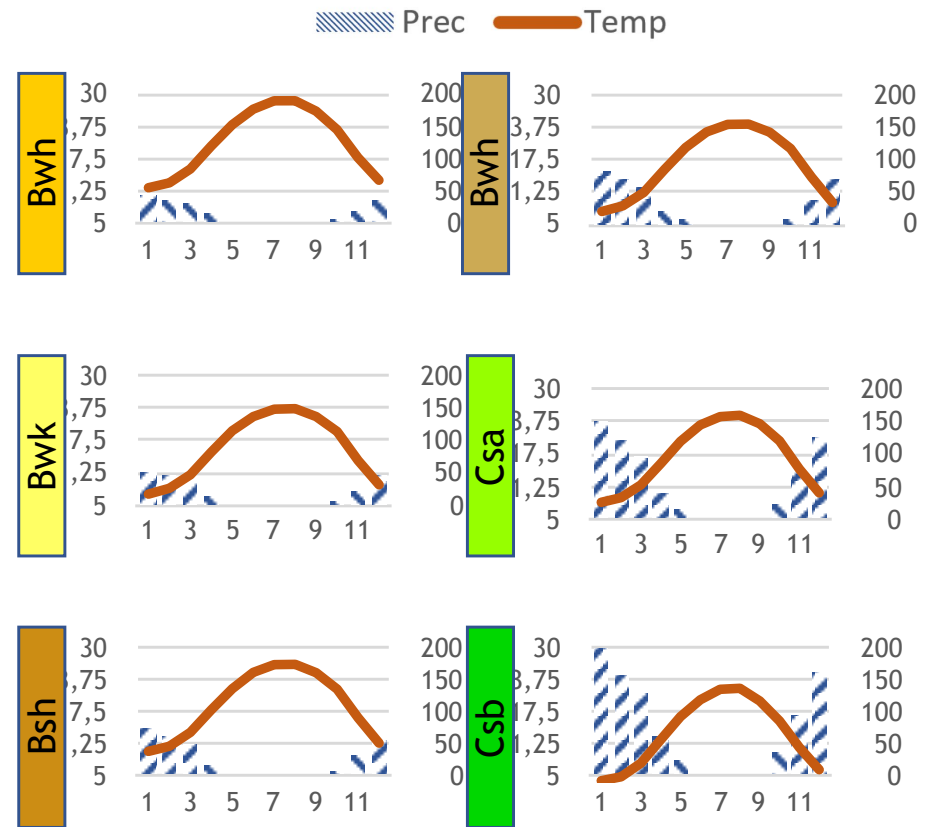
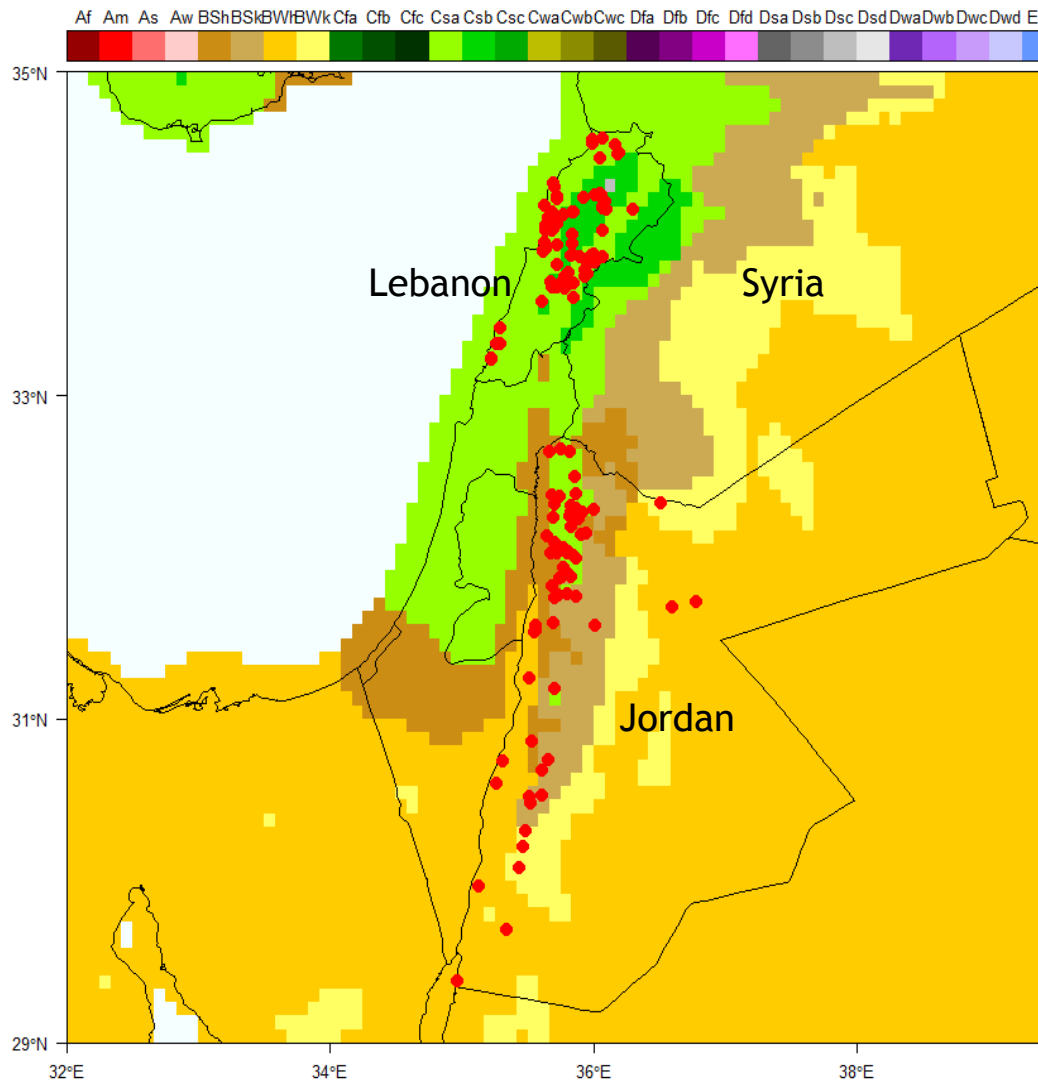


# WEPs SEED TRAITS

## “Seed” mass



## CLIMATE AND GERMINATION



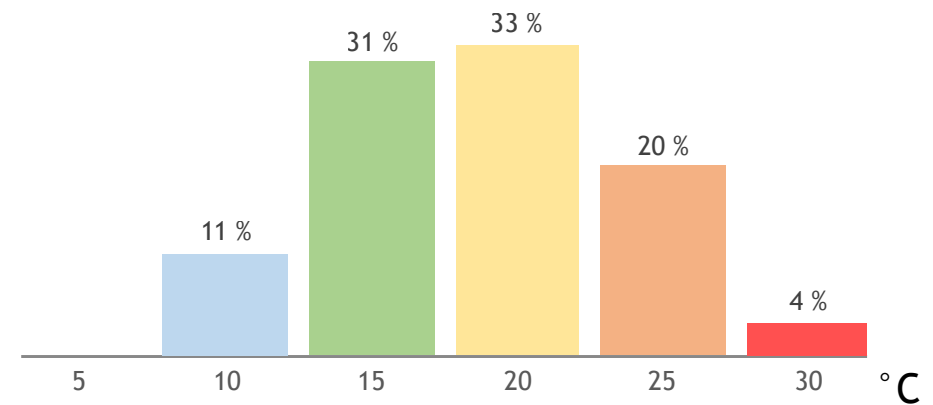
Climatic data for Jordan and Lebanon WEPs from the MSB collection, Fick, S.E. and R.J. Hijmans (2017)

## CLIMATE AND GERMINATION

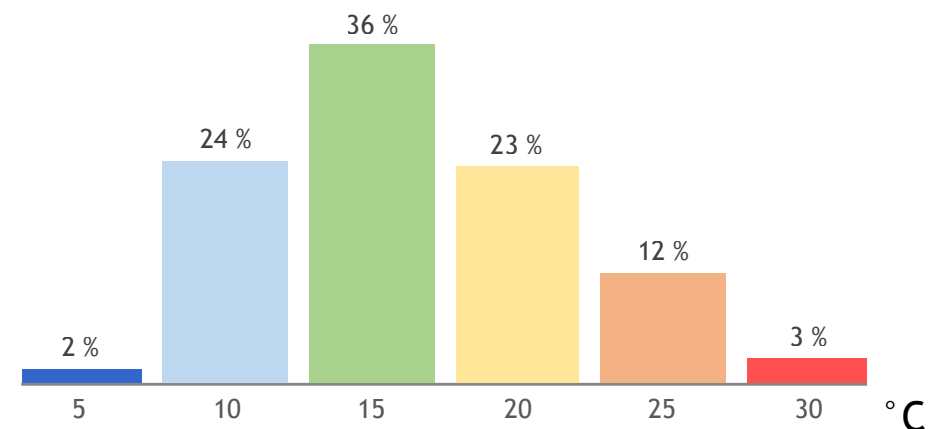


*Gundelia tournefortii* seedling

Arid & Semi-Arid



Mediterranean

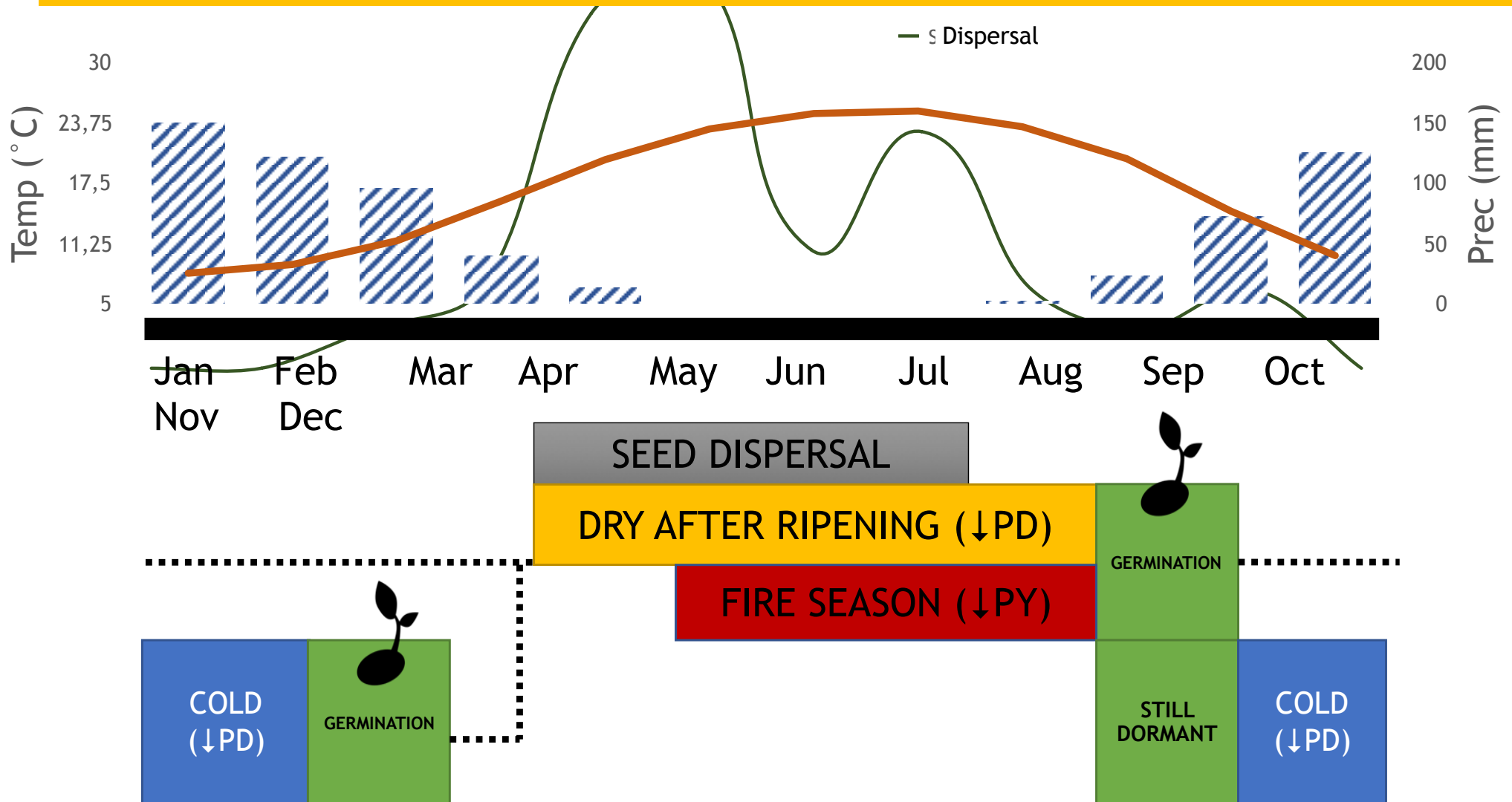


Based on the germination of WEPs from the Jordan and Lebanon collection at the MSR



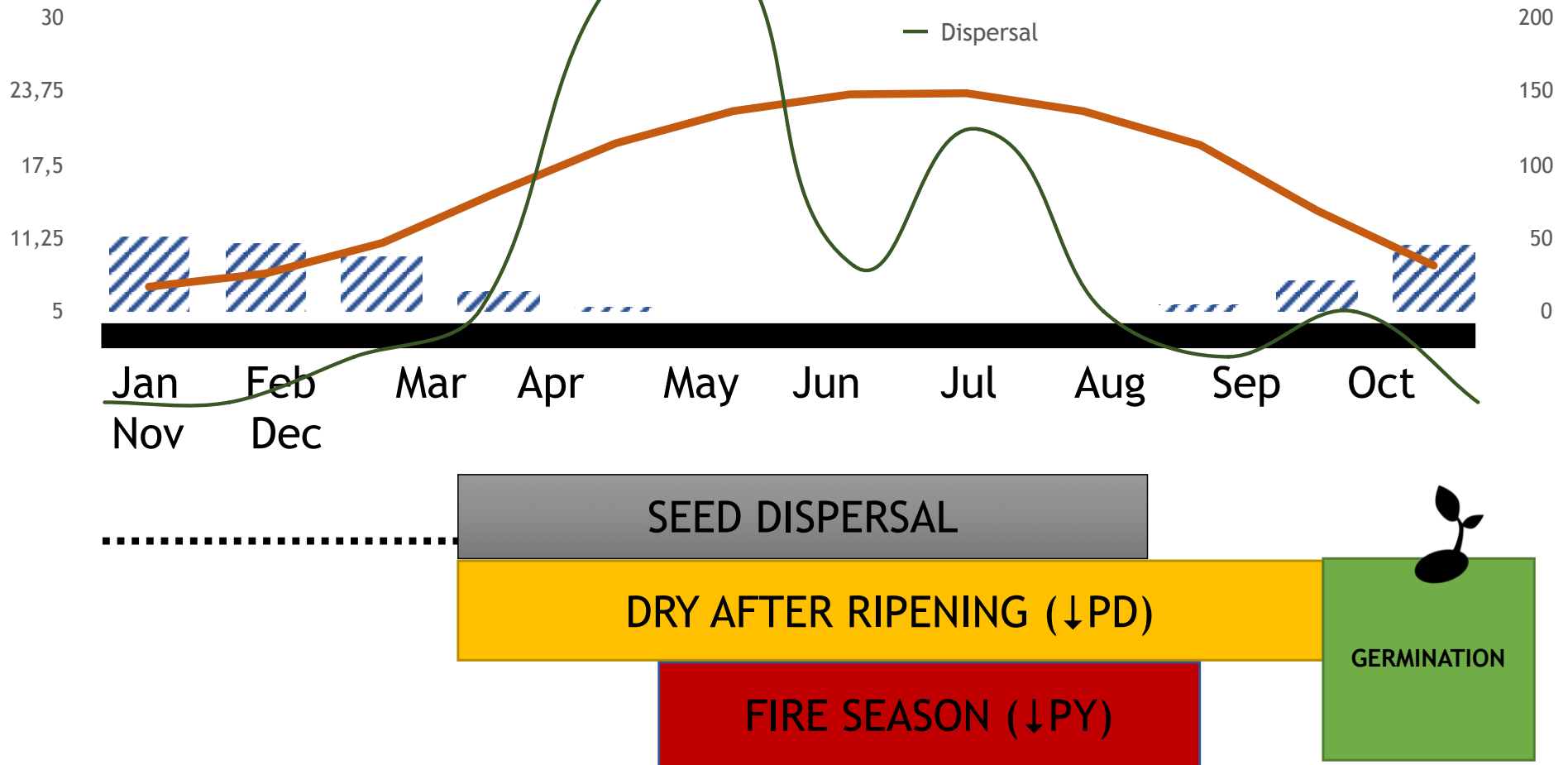
# ECOLOGICAL IMPLICATIONS

## WEPs under a Mediterranean climate



# ECOLOGICAL IMPLICATIONS

## WEPs under an Arid/Semi-Arid climate







# THANKS!

 [p.gomez@kew.org](mailto:p.gomez@kew.org)

Front cover image: [missdaisydee.co](http://missdaisydee.co)