

# Organic seed production challenges & opportunities

Økologisk  
frøproduktion –  
Udfordringer og  
muligheder



# Content

- Production challenges/udfordringer:
  - Which crops and why? / hvilke afgrøder og hvorfor?
  - Biennial vs Annual Crops / Flerårige mod én-årige afgrøder
  - Hybrids vs Open Pollinated / hybrider mod OP- eller frøfaste sorter
  - Indoor vs Outdoor Production / Tunnel/væksthus mod frilandsproduktion
- Organic seed production research/Forskning i Økologisk frøproduktion:
  - Understand the problem/at forstå problemet
  - Design a solution/Skabe en løsning



# Challenges, which crops and why?



BRASSICAS



ROOTED CROPS



ALLIUM



FRUIT CROPS

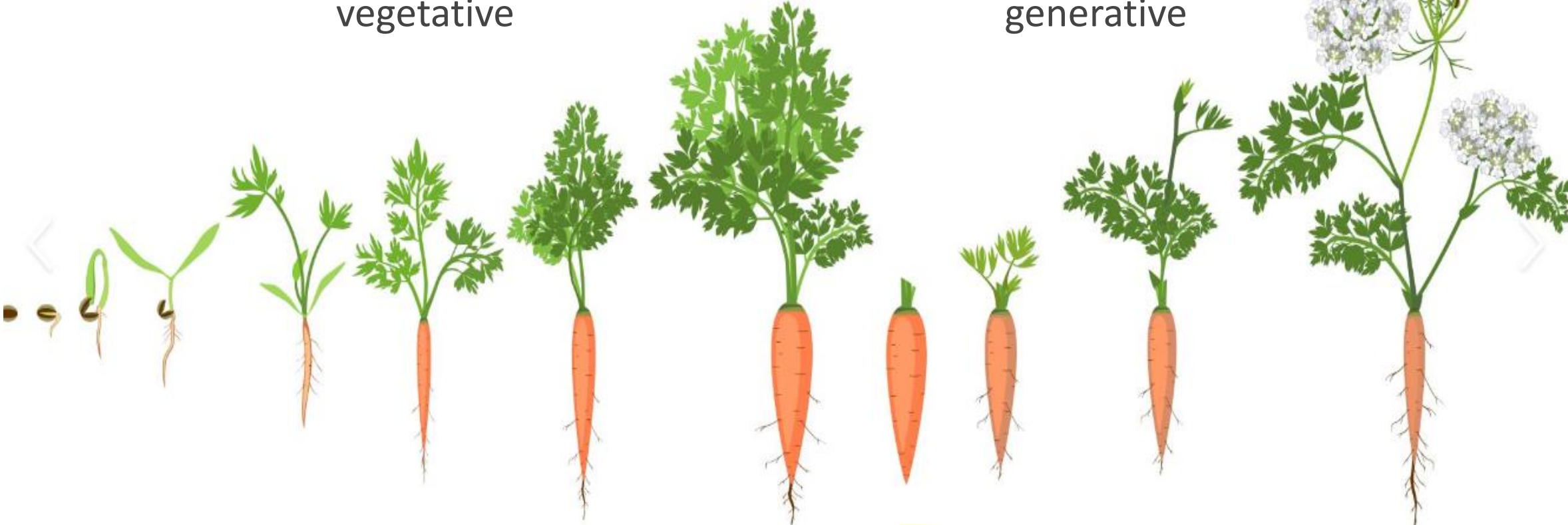


LEAF CROPS

# Biennial vs annual seed production

Aug-Nov  
vegetative

Feb-Sep  
generative



1st yr

2nd yr



# Hybrid versus Open pollinated





# Indoor versus Outdoor production







## Organic seed production research:

- Understand the problem
- Design a solution



# Carrot case: Which insects?

## EDB: Embryo Damaging Bugs

### Insekter, der ødelægger frøkim

#### Phytofagus insects (planteædende insekter);

- Many hosts / mange værter
- Very mobile / meget mobile
- Most prevalent during flowering and ripening / Mest udbredt under blomstring og afmodning
- Feeding on the seed
- Affecting / påvirker:
  - Seed yield / frøudbytte
  - Seed quality / frøkvalitet

#### Vulnerable crops (Følsomme afgrøder);

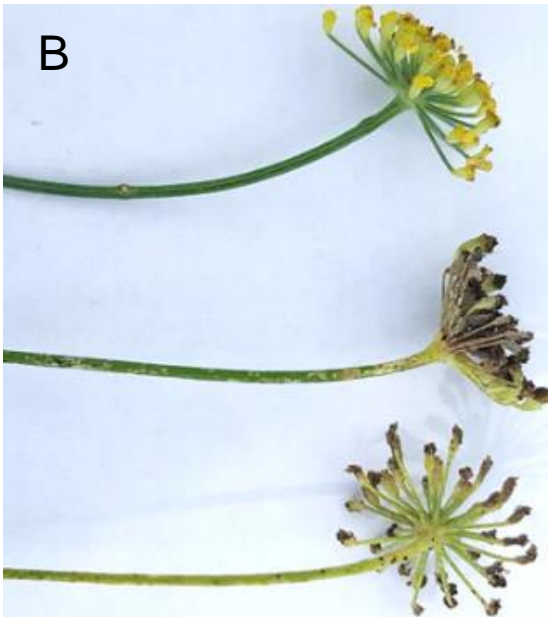
- Umbelliferae / skærmplanter
- Late maturing crops / afgrøder, der modner sent
- Attractive locations (attraktive arealer) :
  - Large area / store arealer
  - Very nutritious (seed crop) / meget næringsrige afgrøder
  - Isolations (in semi-desert) / Isolerede områder





# Vulnerability of the crop

Damage to the plant:

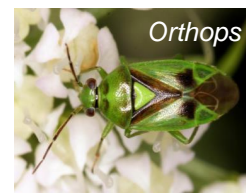


Yield loss



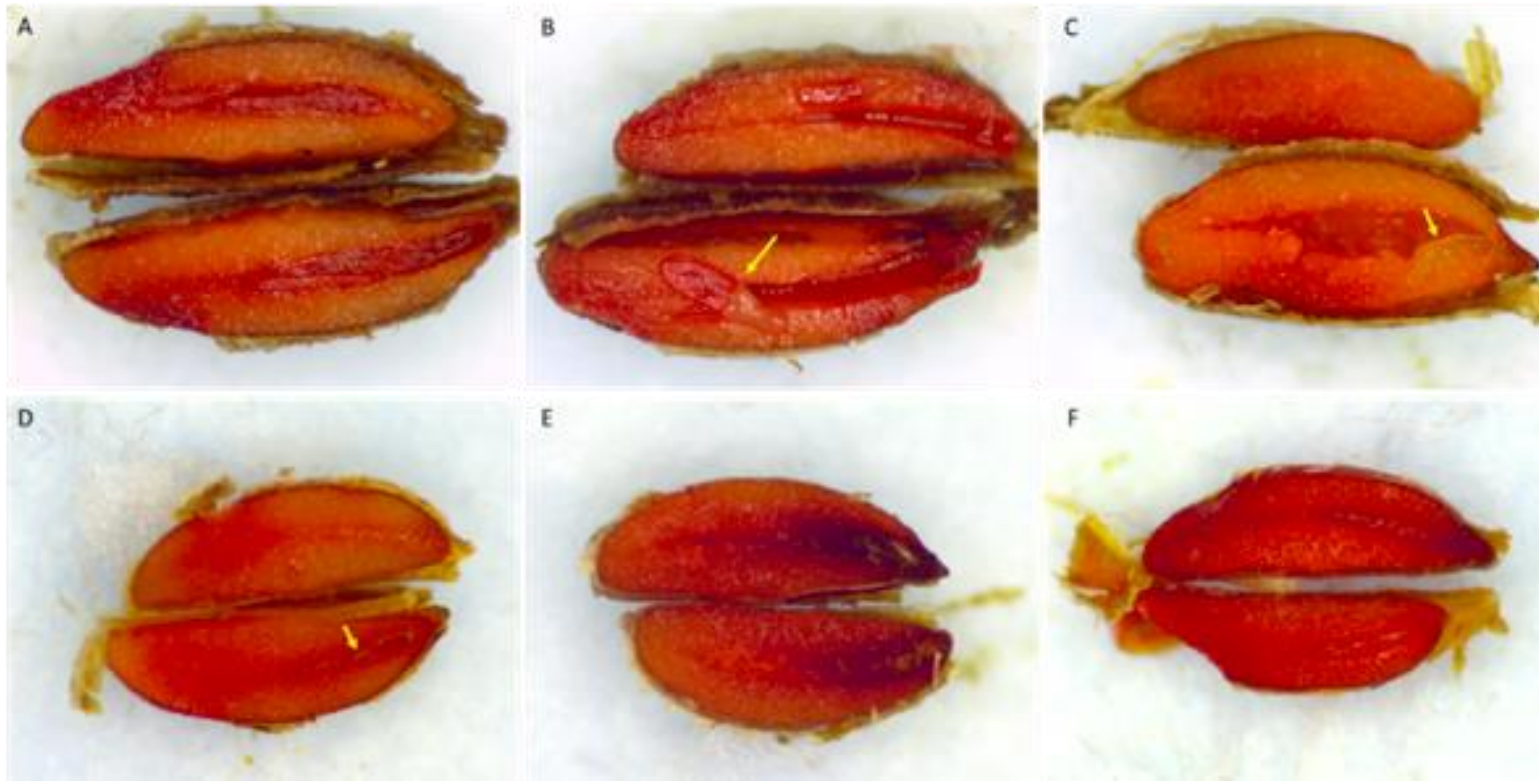


# Vulnerability of the crop



## Damage to the seed

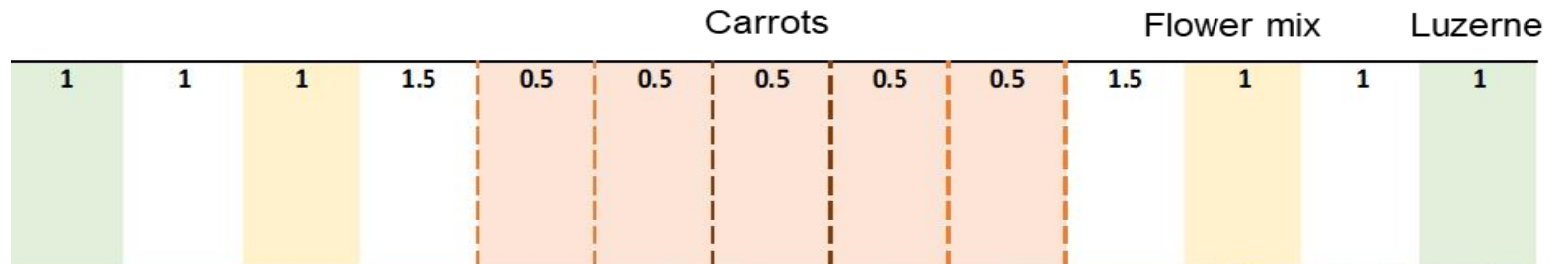
ID	Characteristic	Description	Viability	Characterization
A	Non-damaged	Whole embryo intact	yes	Non-damaged
B	Partially damaged	Embryo present but partially damaged	not	Lygus/Orthops damage
C	Liquefied	Embryo present with jelly appearance	not	Lygus/Orthops damage
D	Pellicle	Embryo absent with its skin remaining	not	Lygus/Orthops damage
E	Rotten	Embryo destroyed, rotten	not	NOT Lygus/Orthops
F	Absent	Embryo absent, embryoless seed	not	Lygus/Orthops damage





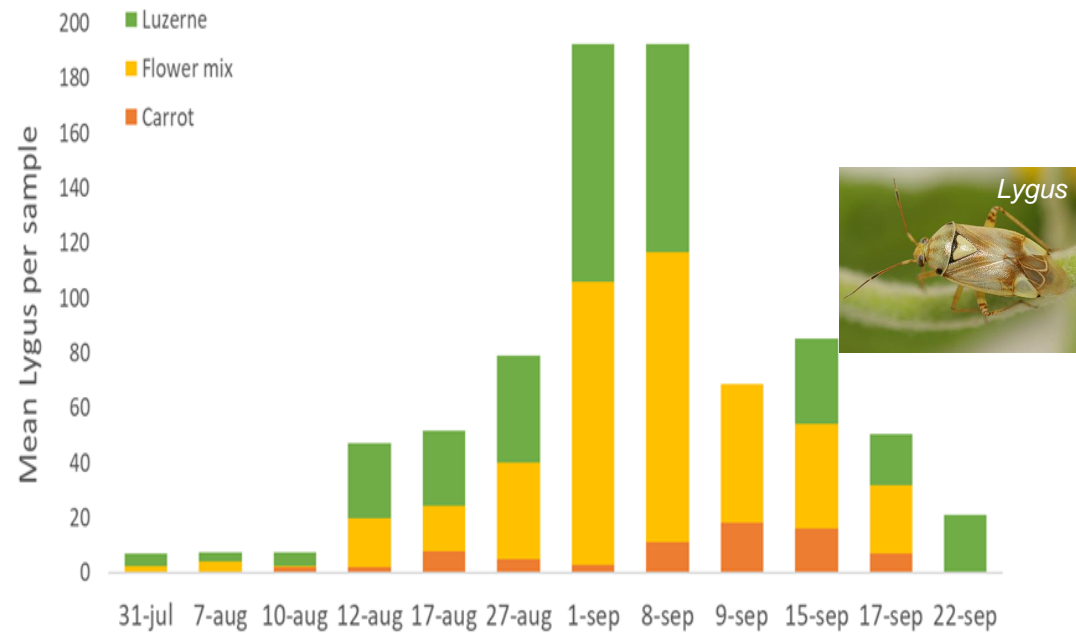
# Thinking of a solution

- Catch crop / push-pull strategy

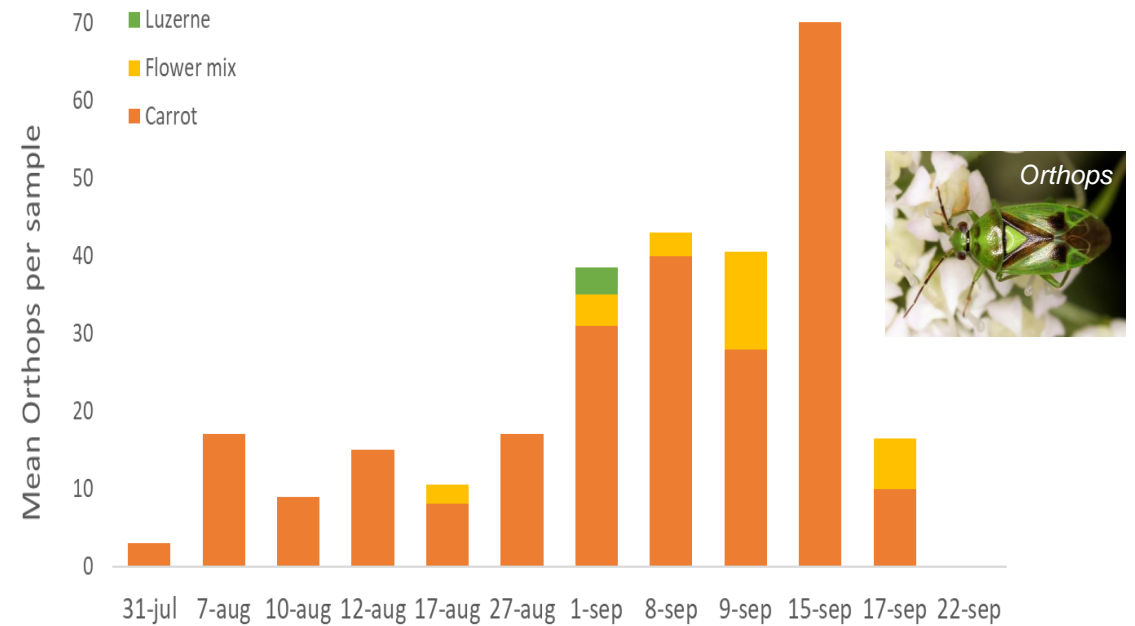




# Trap crop



Harvest of nearby Barley and Luzerne fields ↑

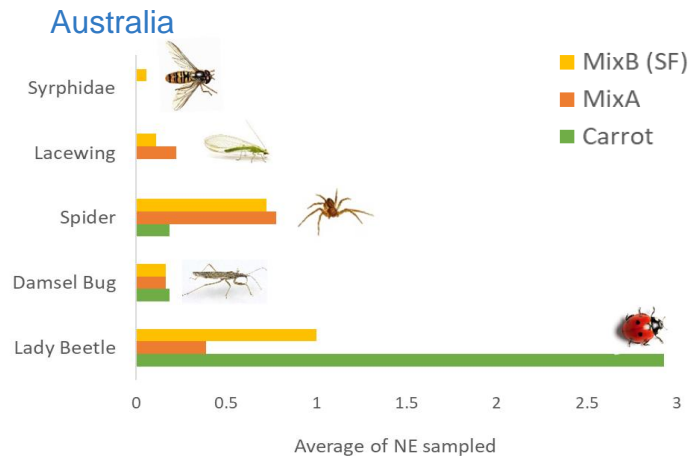
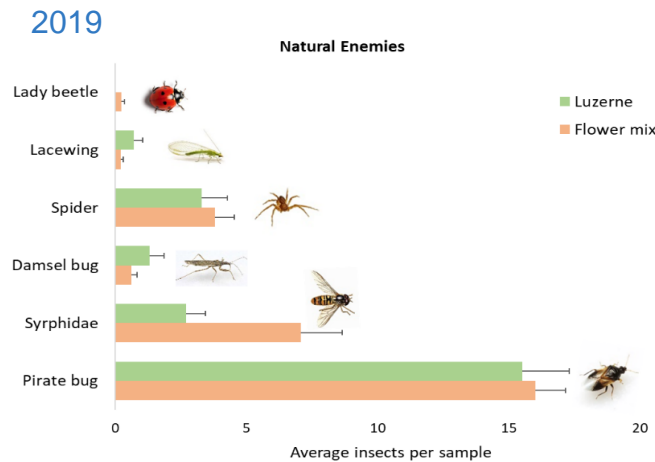
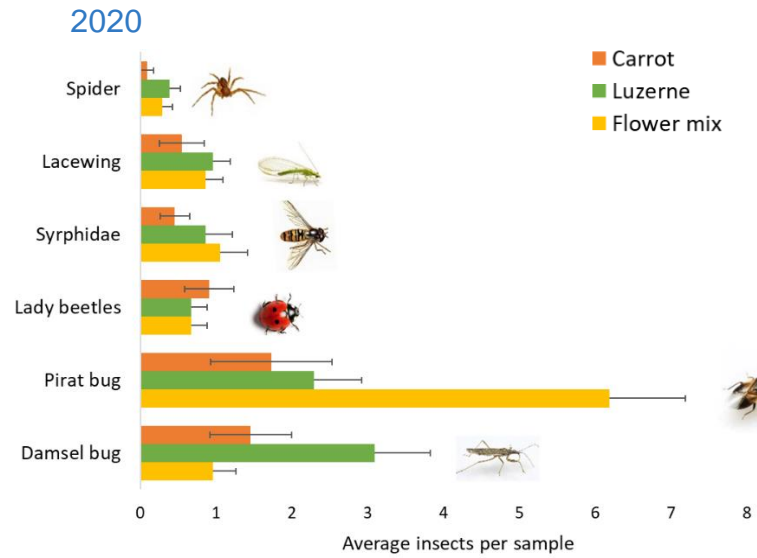
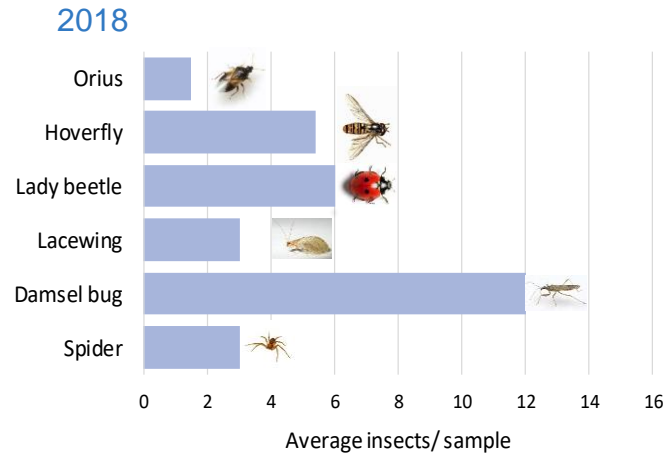


Harvest of nearby Barley and Luzerne fields ↑



# Thinking of a solution

Natural predators vary with the choice of flowerborder



# Conclusion

- What are we looking for when deciding to grow carrot seed? / Hvad kigger vi efter som beslutningsgrundlag for at dyrke gulerodsfrø?
- Isolations without wild carrot / isolerede områder uden vild gulerod
- Right latitude for flowering and nicking / den rigtige breddegrad for blomstring og timing af bestøvning
- Experienced organic farmers / Erfarne økologiske producenter
- Low EDB pressure / lav skadedyrstryk af EDB
- Possibility for processing/storage of seeds / mulighed for bearbejde og lagre frø





Thank you!