

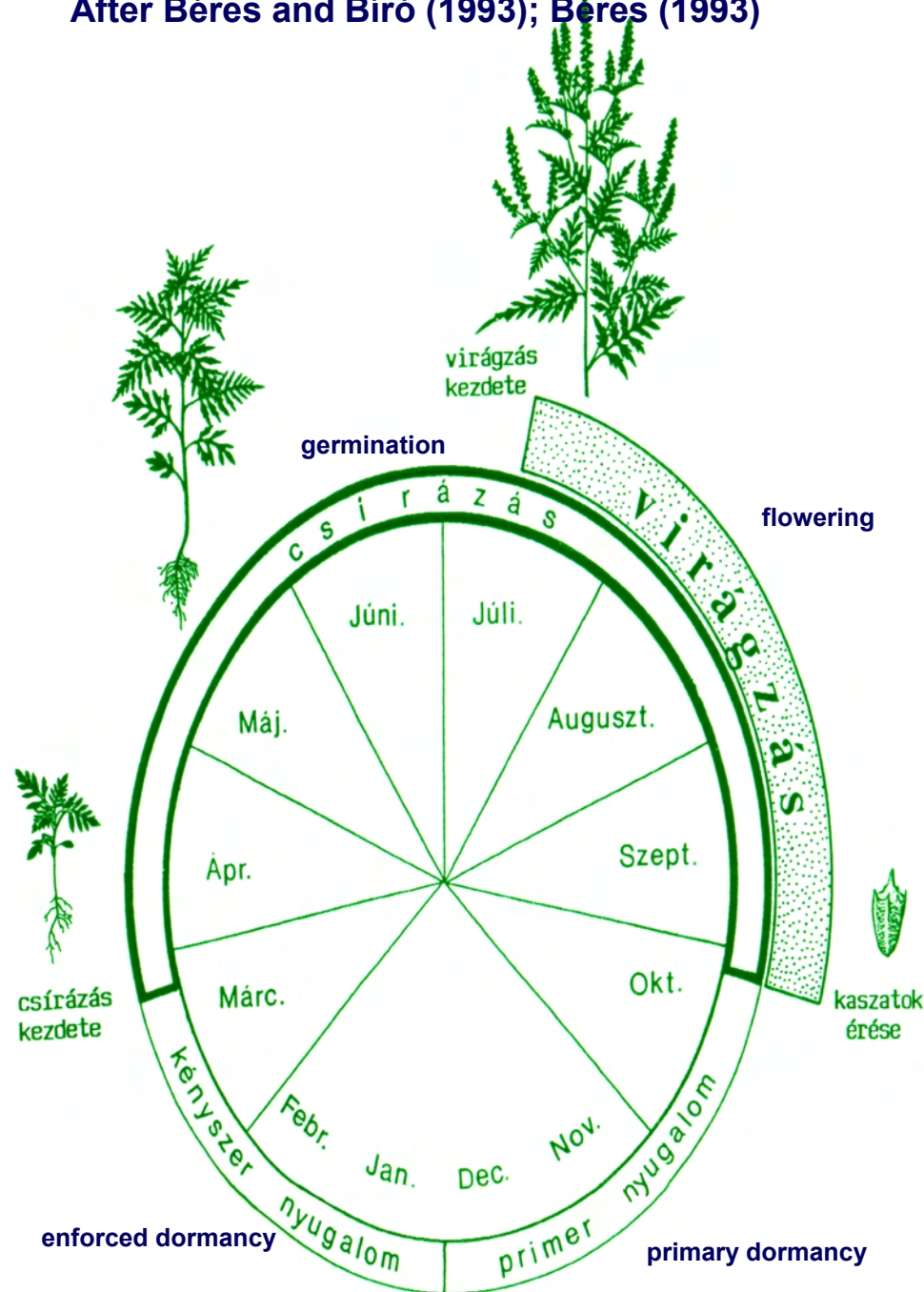
Biology and life cycle of *A. artemisiifolia* L. in Hungary

Gabriella Kazinczi and Imre Beres

Office for Academy Research Groups Attached
to Universities and Other Institutions,
Pannon University, Plant Protection
Institute, Keszthely

kg@georgikon.hu

After Béres and Bíró (1993); Béres (1993)



Life cycle of *A. artemisiifolia* in Hungary (180 days from germination until seed ripening)

Continuous germination until the frost with a peak at the beginning of April (temperature of the upper 5 cm soil layer is above 5 C)

Main flowering time and the highest pollen concentration is in August-Sept

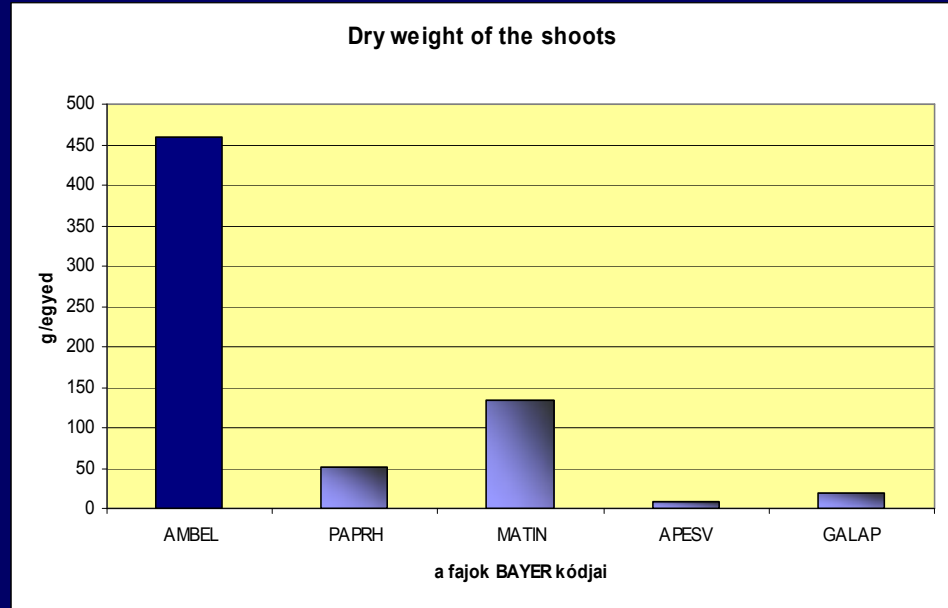
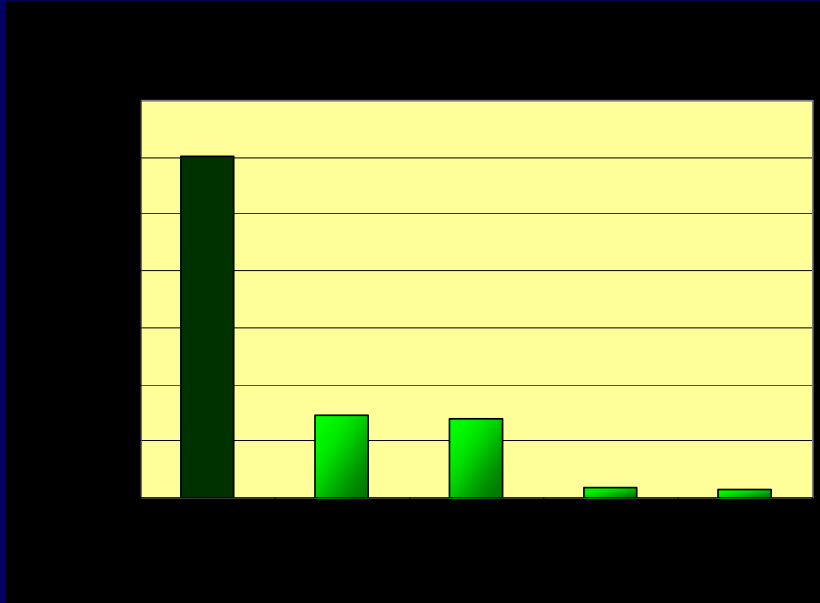
First ripened achenes can be expected by the first decade of Oct

Length of primary dormancy is 6-12 weeks

From Jan enforced dormancy

Intraspecific differences in dormancy characteristics

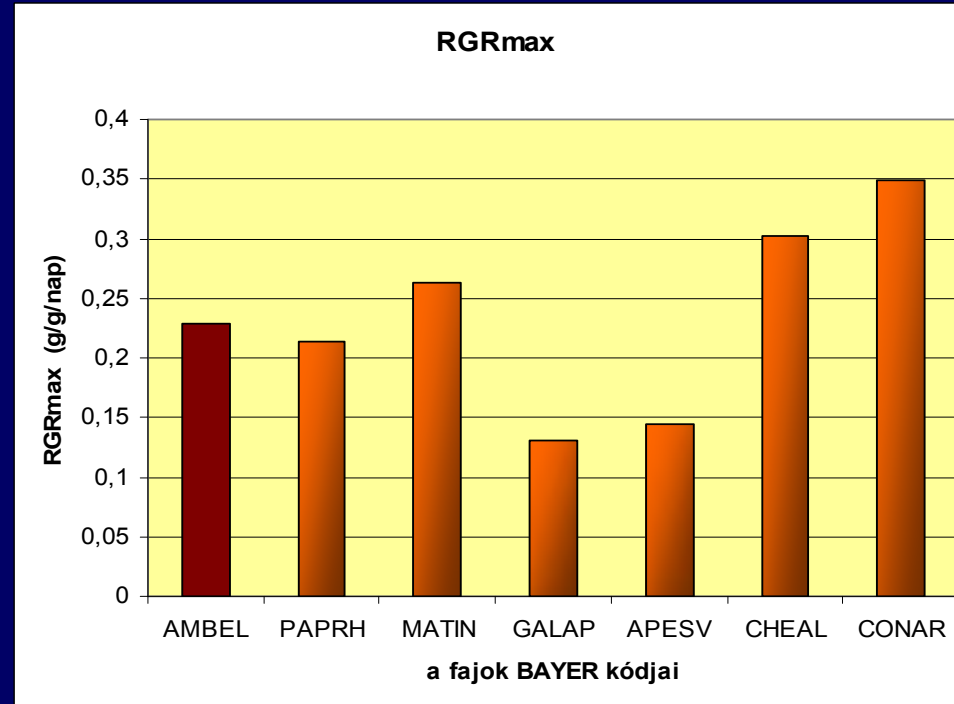
Biomass production



The maximum of the **RGR** (Relative Growth Rate) is at the beginning of the vegetation period

$$RGR = \frac{\ln(W_2/W_1)}{t_2 - t_1}$$

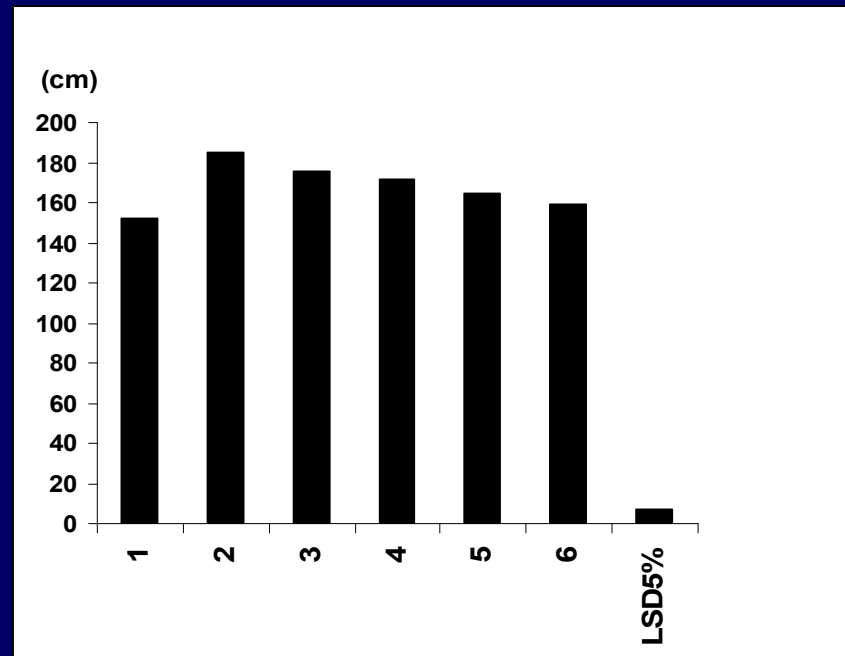
(W, dry weight; t, time)



(Kazinczi 1993)

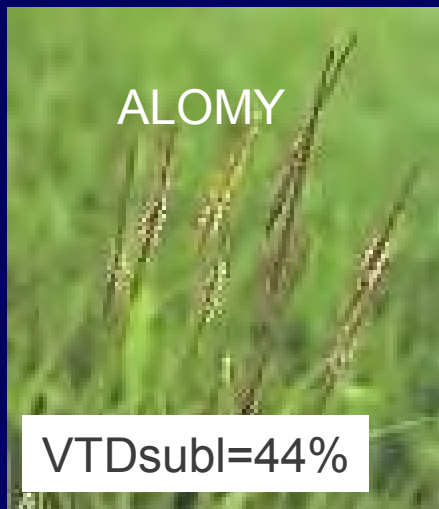
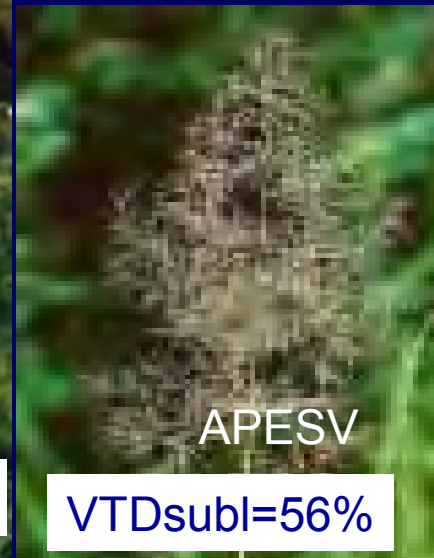
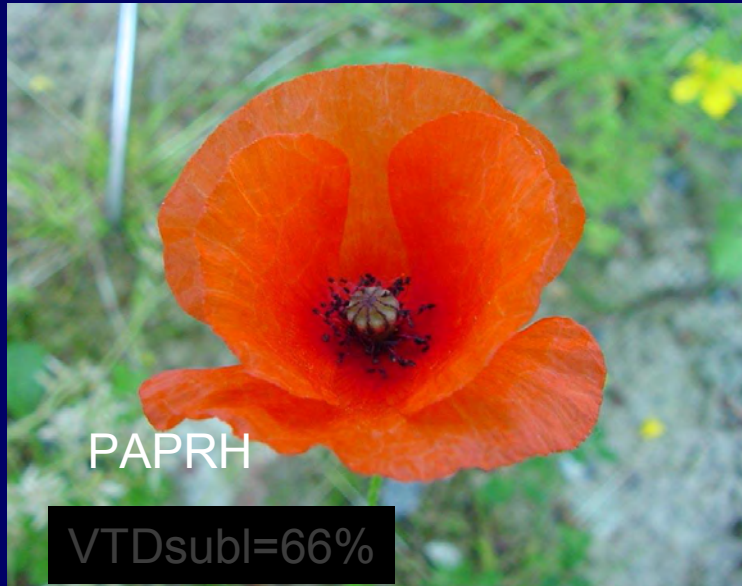
Allelopathy (*Brückner 2001, Béres et al. 2002*), *A. artemisiifolia* as recipient species is not considerable

Good competition ability (*Varga et al. 2000, 2006; Béres és Top 1985*)
1 plant/m² cause 7% yield loss in sunflower



The effect of *A. artemisiifolia* weed density on the height of sunflower (1, weedy control; 2, weed-free control; 3, *A. artemisiifolia*, one plant m⁻²; 4, *A. artemisiifolia*, 2 plant m⁻²; 5, *A. artemisiifolia*, 5 plant m⁻²; 6, *A. artemisiifolia*, 10 plant m⁻²)

Good drought tolerance



(Almádi 1976, Kazinczi 1993)

Seed production



Depends on growing technology,
competition and ecological conditions

Varies between 0 and 62 000
achenes/plant

Average 3000 achenes /plant
(emergence occurs at the end of
March)

When germination occurs in August, 4-
6 achenes/plant

Summary

- Morphological-genetical variability
- Broad ecological amplitude
- Continuous germination
- Considerable biomass production and competitive ability
- Good nutrient utilization
- Drought tolerance
- Allelopathy
- Herbicide resistant biotypes
- Neotherny (survival the stress conditions)

Recent availabilities about *Ambrosia* situation in Hungary

www.uac.pt/~isiwpi

www.fvm.hu/main.php?folderID=1925

Magyar Gyomkutatás és Technológia (Hungarian Weed Research and Technology)

Gyomnövények, gyomirtás (Weeds, weed control)

Növényvédelem (Plant Protection)

Agrofórum

Thank you for the attention!

