

Giant Chickweed (*Myosotan aquaticum*) Growth and Management in Alfalfa?

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Giant Chickweed ??



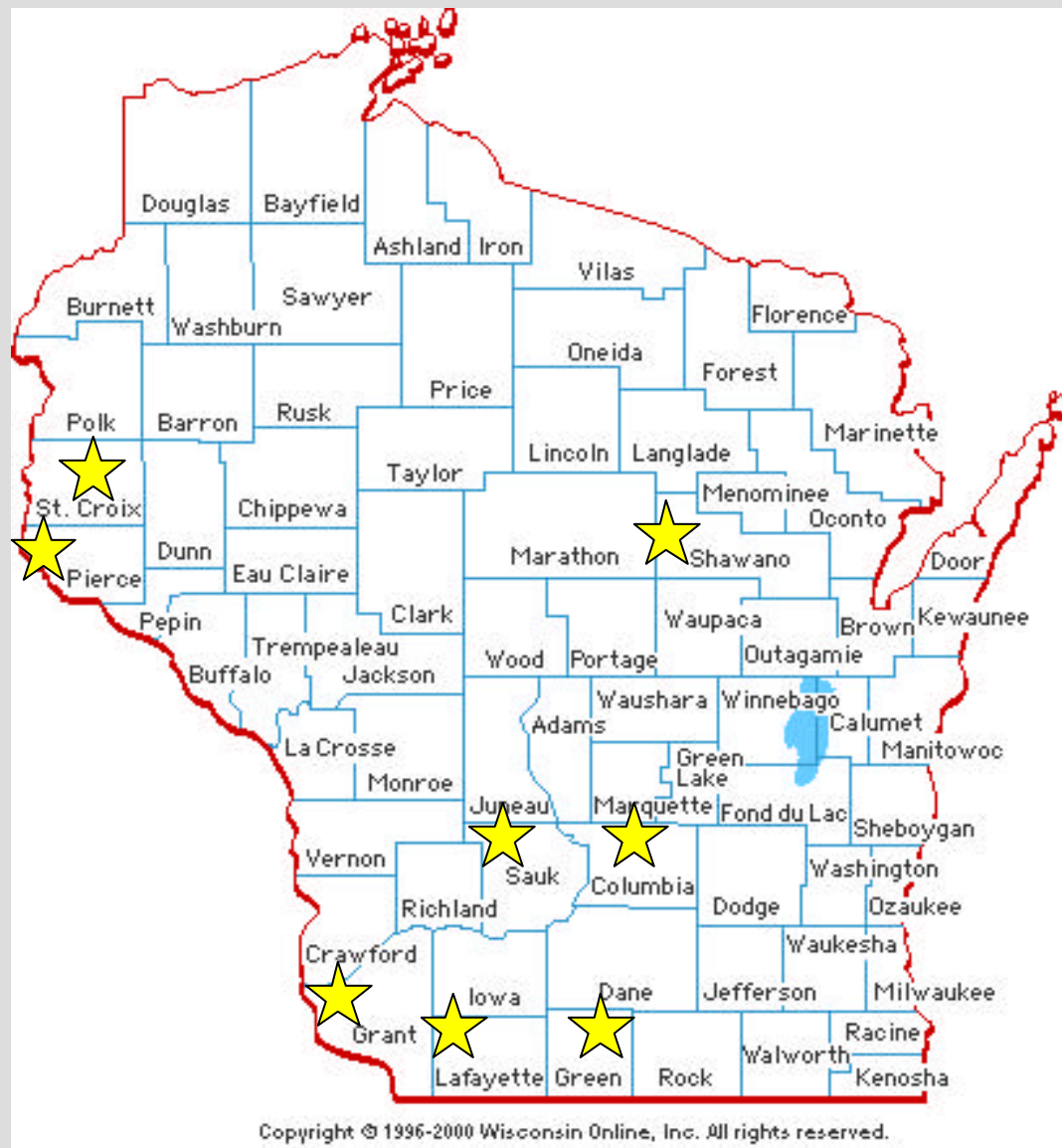
- AKA
 - Water Chickweed
- Family:
 - Caryophyllaceae
- Wisconsin State Herbarium
 - *Stellaria aquatica*
- USDA Plant Database
 - *Myosotan aquaticum*

Habitat



- **Norman Fassett (1976)**
 - occasional weed in moist places
 - scattered throughout the state
- **Favors mowing**

Distribution (Jerry Doll, 2001)



Caryophyllaceae Systematics

- **Mostly perfect flowers**
 - 4-5 sepals
 - 4-5 petals
 - 2-5 styles
 - stamens twice the number petals
- **Fruit is a capsule**



Giant Chickweed

- Introduced from Europe
- Simple perennial
- Angled stems
- Leaves
 - large
 - course
 - cordate-ovate



Giant Chickweed

- 1/3 inch flowers with deeply notched petals
- Pubescent, sticky stems
- Roots at the nodes



Pierce County Wisconsin



• **Declining alfalfa stand**

• **Turfgrass**









Growth Analysis Study Objectives

- **Model giant chickweed:**
 - **Biomass accumulation**
 - **Leaf area development**
 - **Leaf area ratio**
 - **Relative growth rate**

Growth Analysis Study

- **UWRF Mann Valley Farm**
- **Split plot design w/four replications.**
 - **Sub-plot treatments were weeks growth**
 - **Whole-plot treatments were bare ground or established alfalfa.**



Growth Analysis Study

- **G. chickweed plants were germinated and grown under greenhouse conditions**
- **Transplanted into the field on June 12, 2001**

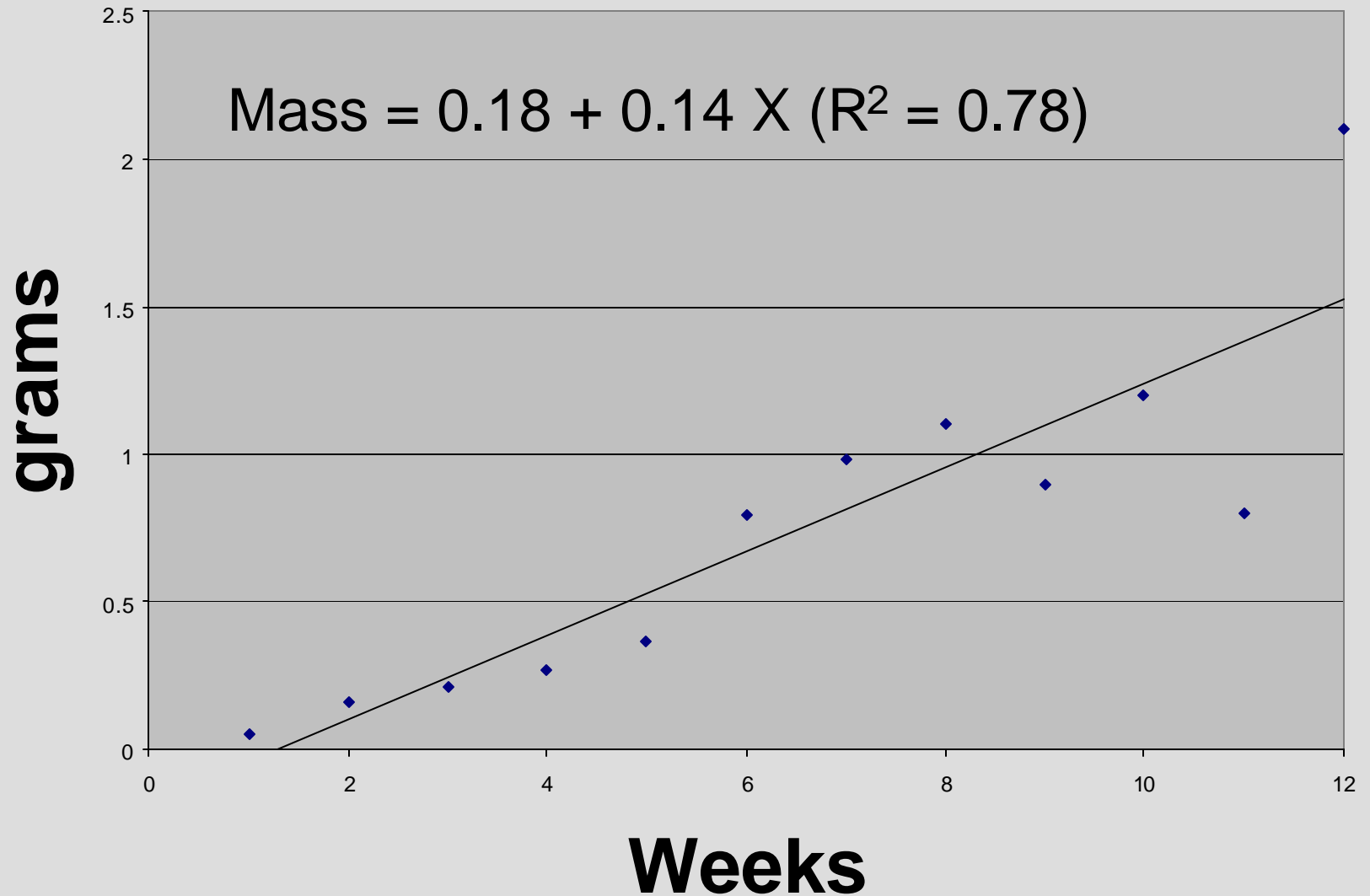


Growth Analysis Study

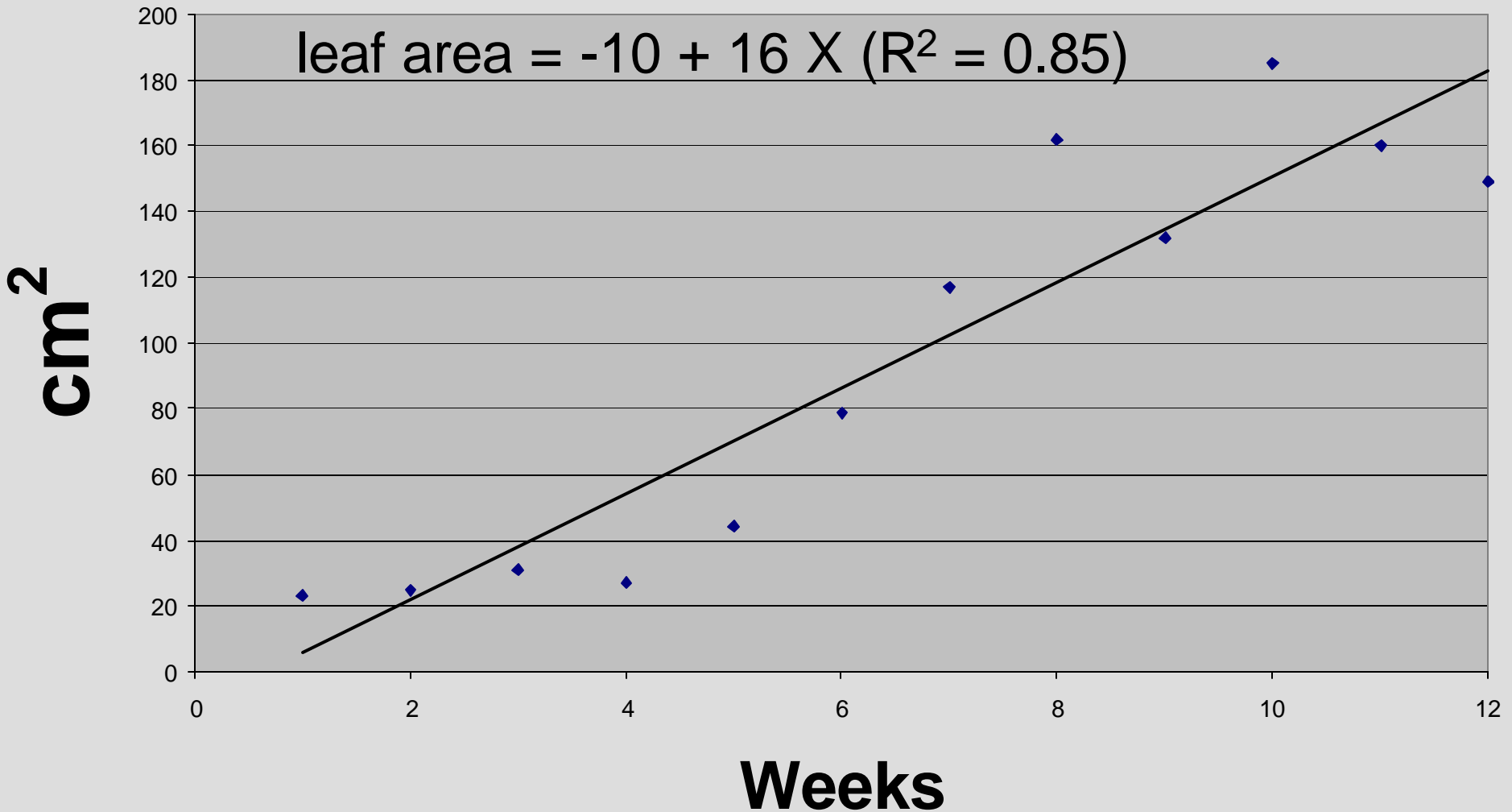
- **Relative growth rates were analyzed using:**
 - **ANOVA procedure of SAS¹**
 - **means separation was conducted using Fisher's protected LSD test¹**
- **Leaf area, leaf area ratio, and biomass data were subjected to regression analysis¹**

¹($P=0.05$; SAS Institute, Cary NC)

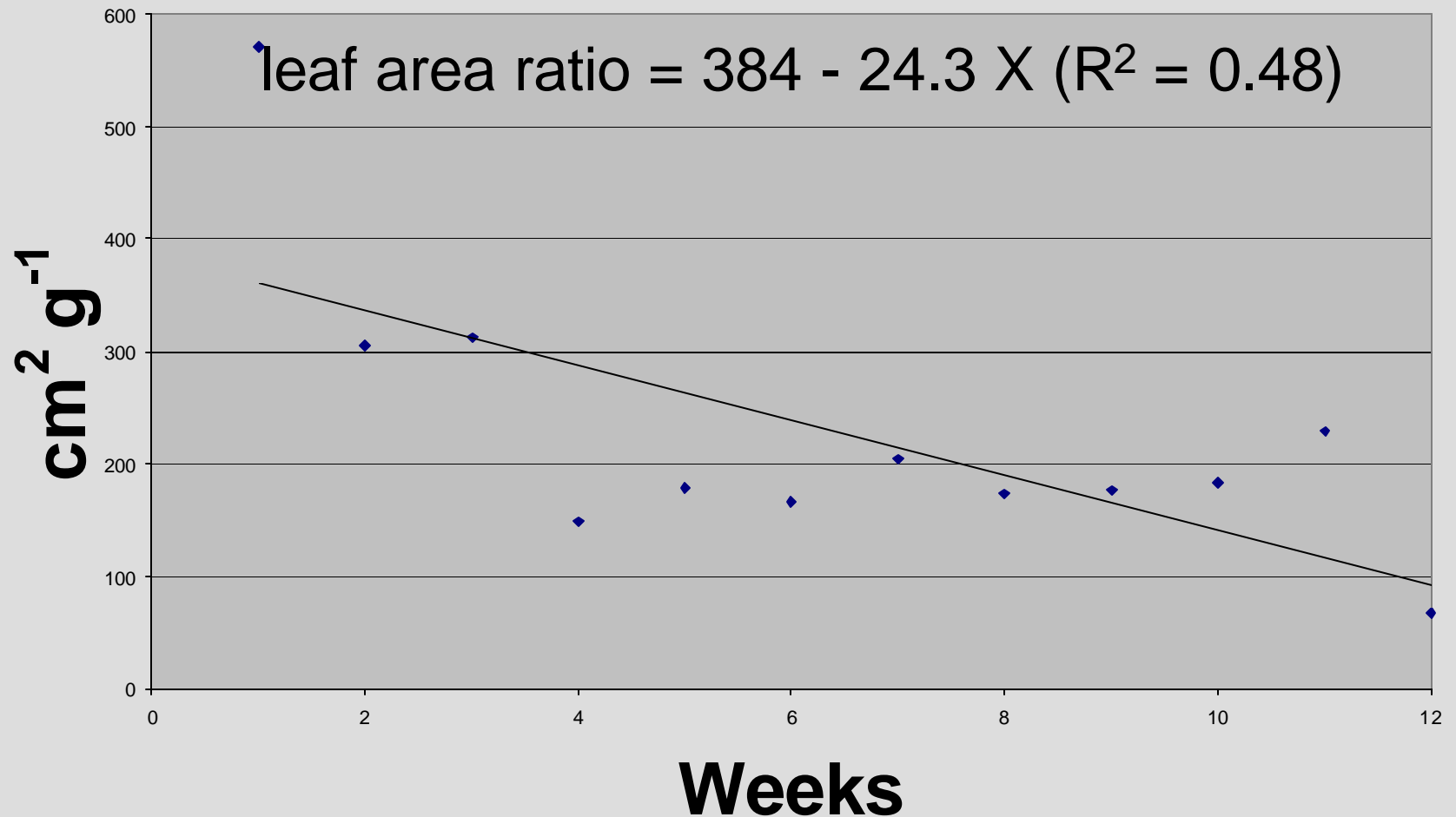
Giant Chickweed Mass



Giant Chickweed Leaf Area



Giant Chickweed Leaf Area Ratio



Relative growth rate (RGR) of giant chickweed (*Myosotan aquaticum*) as influence by week of growth¹.

Weeks after planting	--- g g⁻¹ week⁻¹---
1	0.40 ab
2	0.13 bcd
3	0.10 cde
4	0.16 abcd
5	0.25 abc
6	0.13 bcd
7	0.10 bcde
8	- 0.07 de
9	0.12 bcd
10	- 0.2 e
11	0.46 a

¹Means followed by the same letter within the column are not significantly different

Growth Analysis Study

Conclusions

- **Biomass accumulation, leaf area, and relative growth rate of giant chickweed were similar in both environments**
- **Leaf area ratio decreased over time, indicating less dry matter allocation to leaf tissue late in the season**

Growth Analysis Study

Conclusions

- **Negative relative growth rates were associated with unusually high daily average temperatures for those weeks**
- **Alfalfa interference does not appear to negatively impact giant chickweed growth and development**

G. Chickweed Herbicide Trial

- **Design:**
 - RCB w/2 replications
 - 6.7' X 12' plots
- **Crop:**
 - Grass pasture
- **Sprayer:**
 - CO₂ Backpack
- **Carrier:**
 - 25 GPA Carrier
- **Growth stage:**
 - 30'' chickweed
- **Treated:**
 - 26 July 2001

G. Chickweed Herbicide Trial

<u>Treatments</u>	<u>Rate</u>
– Check	---
– Ally 60 DF (metsulfuron)	0.3 oz/A
– Banvel 4S (dicamba)	0.75 pt/A
– 2,4-D 3.8S	2.0 pt/A
– Dicamba (1S) + 2,4-D (2.87S)	2.0 pt/A
– Pursuit 70 DF (imazethapyr)	1.44 oz/A
– Sencor 75DF (metribuzin)	0.67 lb/A

G. Chickweed Herbicide Trial

<u>Treatments</u>	<u>Control (21 DAT)</u>
	----%/----
– Ally 60 DF (metsulfuron)	87
– Banvel 4S (dicamba)	80
– 2,4-D 3.8S	23
– Dicamba (1S) + 2,4-D (2.87S)	30
– Pursuit 70 DF (imazethapyr)	75
– Sencor 75DF (metribuzin)	93

Doll (2002)

Rating

– **Metsulfuron** **G/E**

– **Tryclopyr +2,4-D** **G**

– **Glyphosate** **G**

A3646

Pest management in **Wisconsin Field Crops**



2002

*A guide to managing weeds, insects, and diseases in
corn, soybeans, forages, and small grains*

C.M. Boerboom, J.D. Doll, R.A. Flahinski, C.R. Grau, & J.L. Wedberg

Where do we go from here?

- **Giant v.s. other chickweeds ?**
- **Toxicity ?**
- **Relative Feed Value ?**
- **Palatability ?**
- **Invasiveness, Competitiveness ?**
- **Management ?**