Uehling Crop Disaster Meeting

10 June 2014

Roger W. Elmore

Univ. of Nebraka - Lincoln

Damage from 3 June Hail – Marquette NE, 9 June photo

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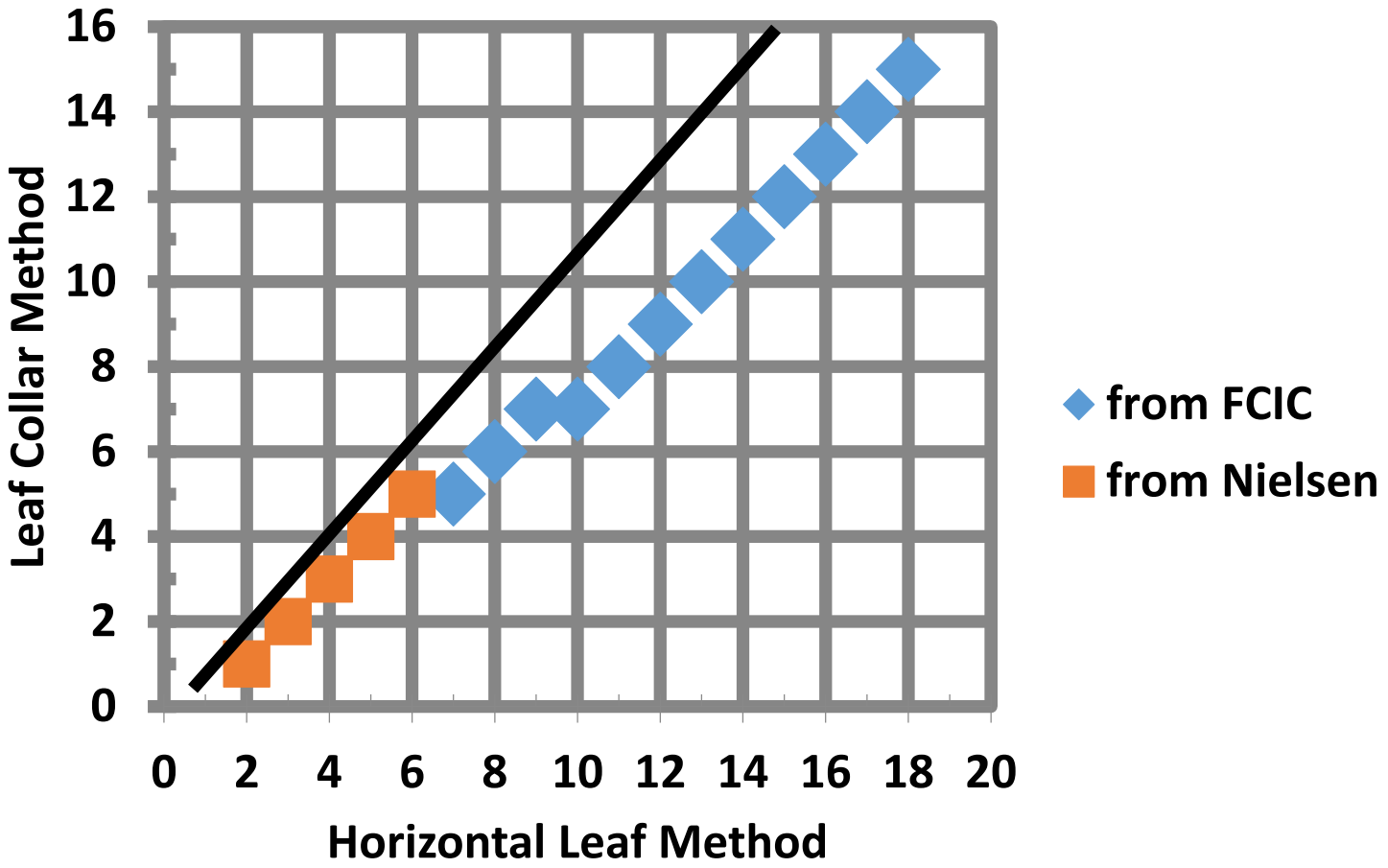
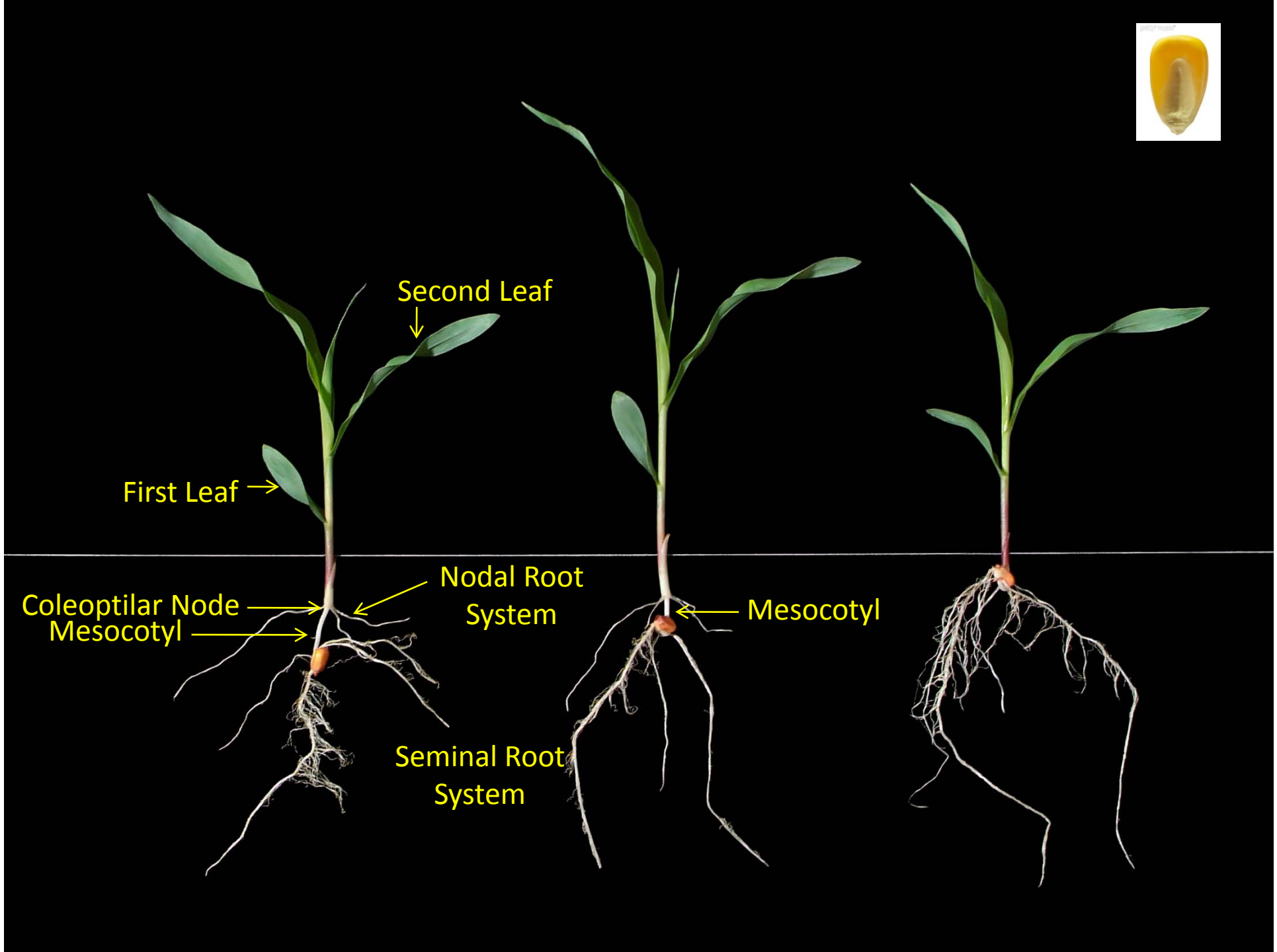
Leaf Staging Comparisons




Second Leaf
First Leaf
Coleoptilar Node
Mesocotyl
Nodal Root System
Seminal Root System
Mesocotyl

V1 to <V6

- First leaf has rounded tip; useful in identification
- A freeze/frost prior to V6 will not likely cause plant death because the growing point is below the soil surface

Root Development at V2

- Seminal root system is at maximum size
- Nodal root system is visible by V2
- Placement of nodal root system is consistent unless planted shallow
- By V3, nodal root mass is equal to seminal root mass

V6 – Sixth Leaf

- All leaves are initiated by V6
- Tassel initiated and visible by V7
- Primary ear is initiated at ~V6
  - Row number determined ~V7
  - Kernels per row are initiated now and continues to ~V15/V16
- Growing point is above the soil surface

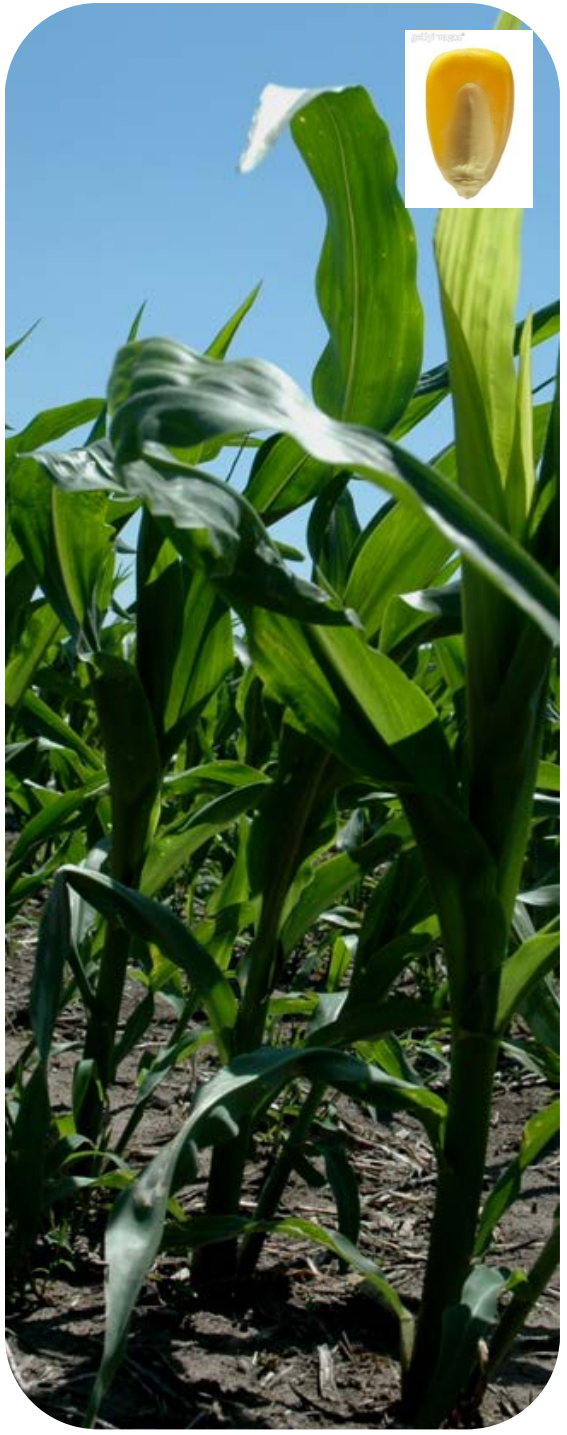


Figure 1. Early-season Leaf Defoliation from Hail & Corn Yield Reductions – Leaf-collar staging system

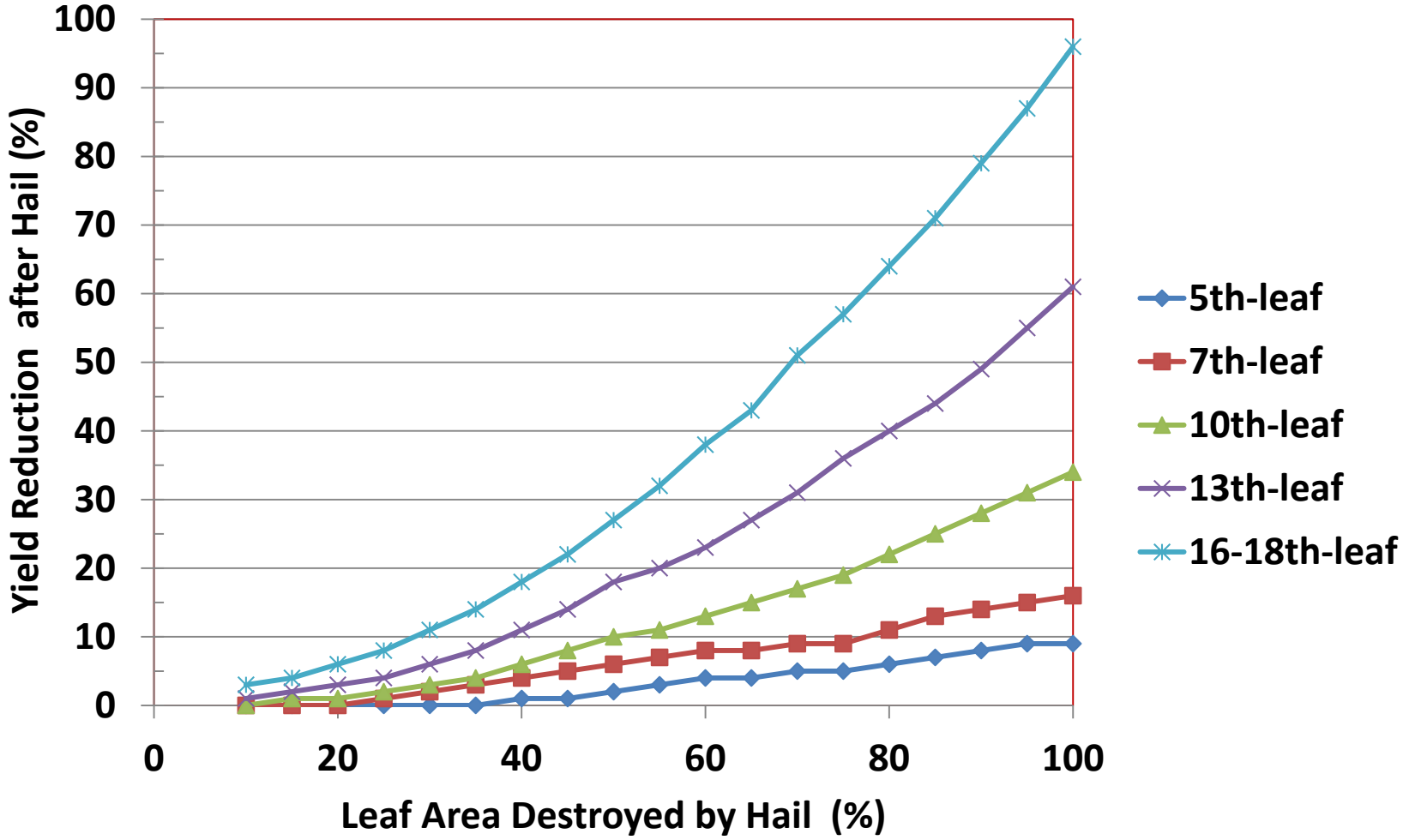
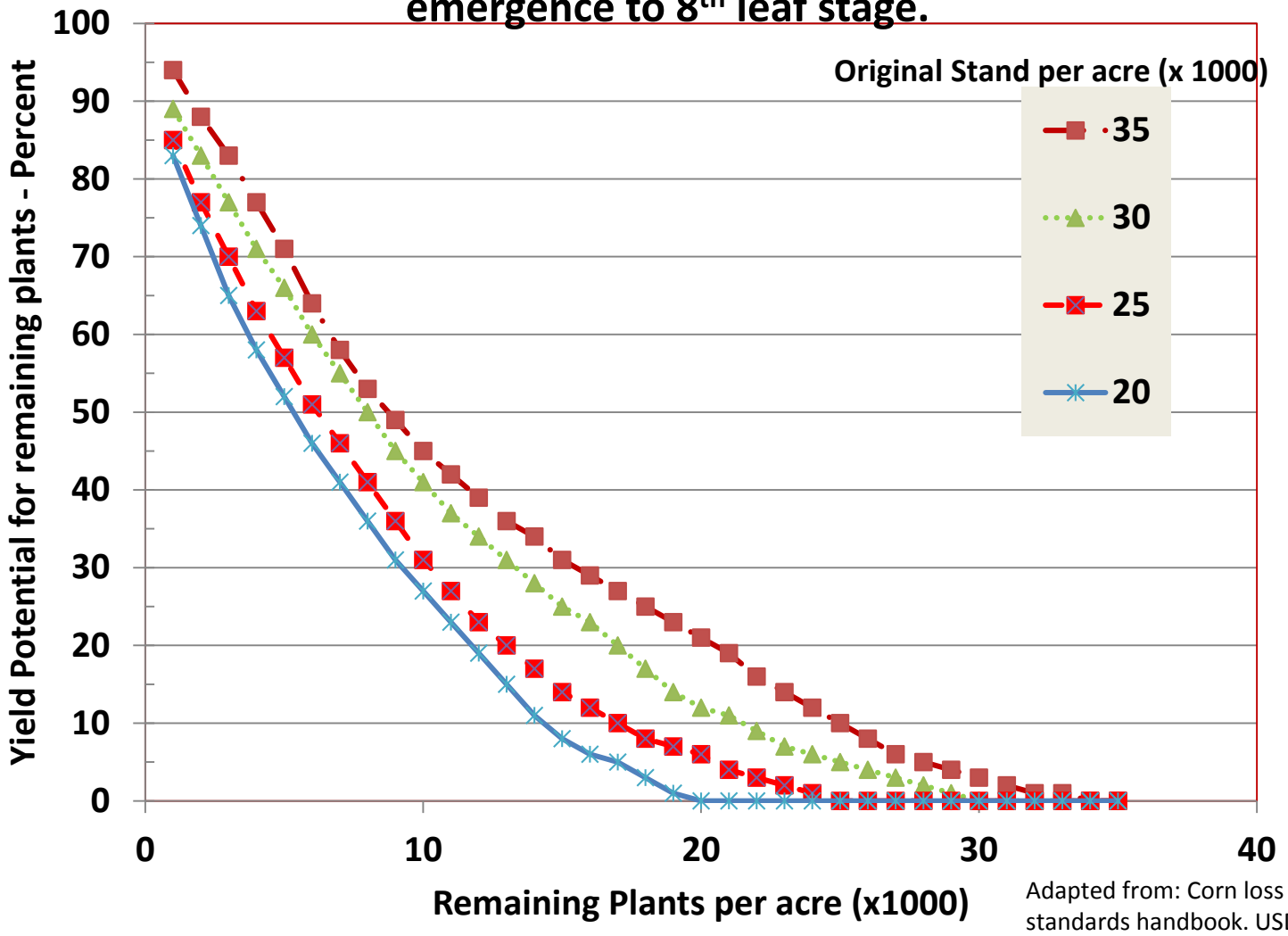


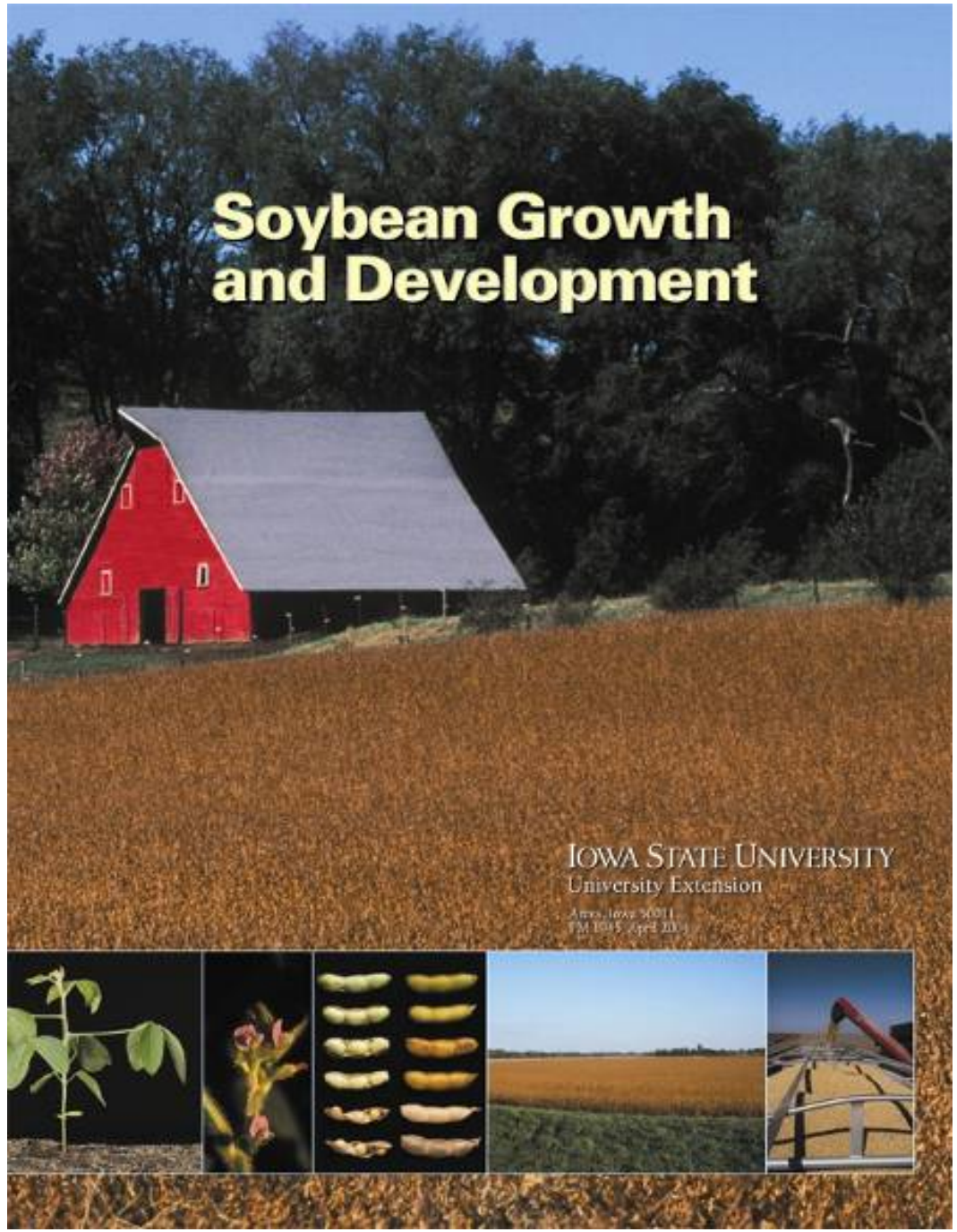
Figure 4. Corn Stand Reduction Effect on Corn Yield from emergence to 8th leaf stage.



Adapted from: Corn loss adjsutments standards handbook. USDA, 2004

Table 2. Relative yield potential of corn by planting date and population

	Planting Date				
Population	April 20–May 5	May 5–15	May 15–25	May 25-June 5	June 5–15
(Plants/Acre)	Percent Maximum Yield				
45,000	97	93	85	68	52
40,000	99	95	86	69	53
35,000	100	96	87	70	54
30,000	99	95	86	69	53
25,000	95	91	83	67	51
20,000	89	85	77	63	48
15,000	81	78	71	57	44
10,000	71	68	62	50	38


Soybean Growth
and Development
IOWA STATE UNIVERSITY
University Extension

V1 Stage

- Two nodes
- One trifoliolate
- Trifoliolate nodes are produced singularly and alternately

Hail Damage

- Assess mortality
- Know the growing points
- Determine remaining stand
- Use calendar date and stand to determine replant options
- Populations as low as 70,000 ppa will give 90% maximum yield

Hail Damage

- Yield loss depends on event timing
- Hail during vegetative stages has minimal impact
- Hail during R1 to R5 stages is the most damaging
  - Plant unable to recover
  - Directly reduces yield by reducing growth
- Other considerations
  - Viable bud
  - Bruised stems