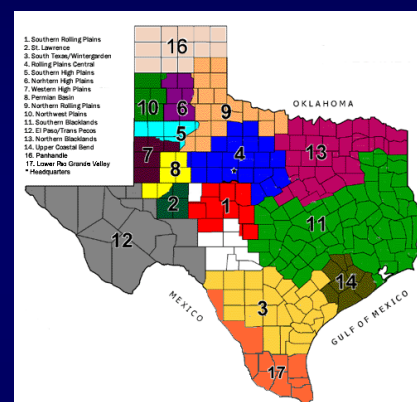


Profile of Pheromone Released from Hercon, Plato, and Scentry Lures



TAC Meeting
McAllen, TX
Feb. 14-15, 2011

C. Suh & J. Westbrook
USDA-ARS, APMRU



Agricultural
Research
Service

Experimental Approaches

Residual Content

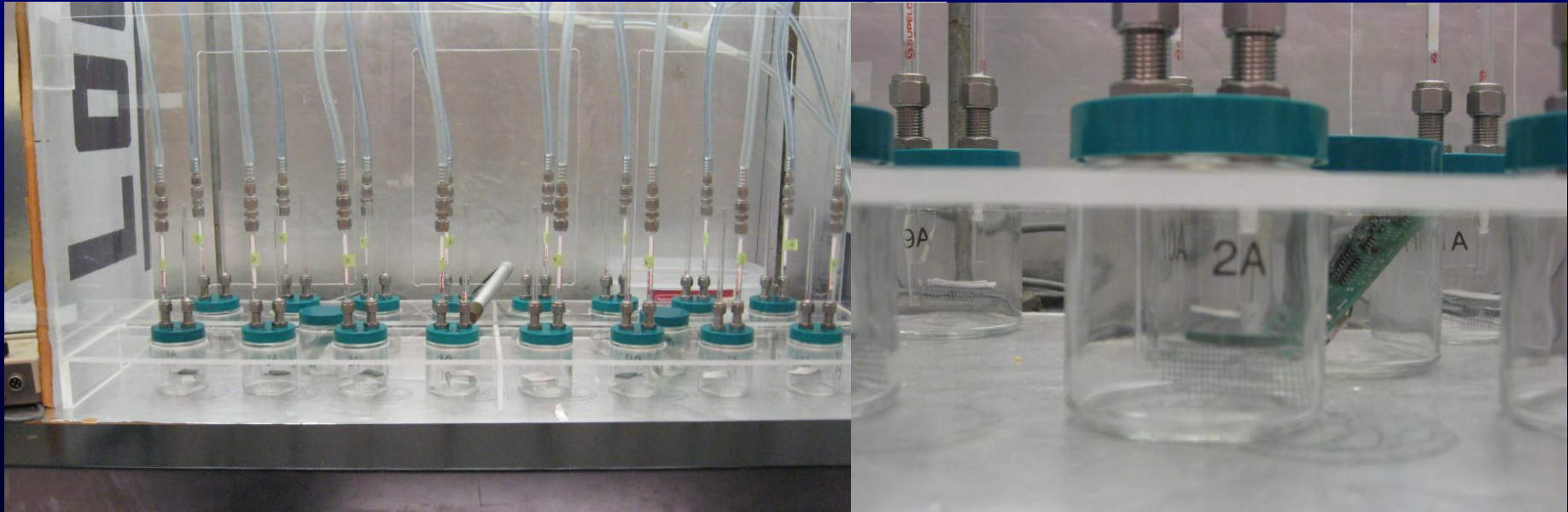
- Dispensers aged in a glass greenhouse
- Temperature: 68 to 95°F (77°F); RH=23 to 65%
- 10 lures of each type collected at 0, 2, 4, 6, 8, 10, 12, and 14 d of aging



Experimental Approaches

Headspace Collection

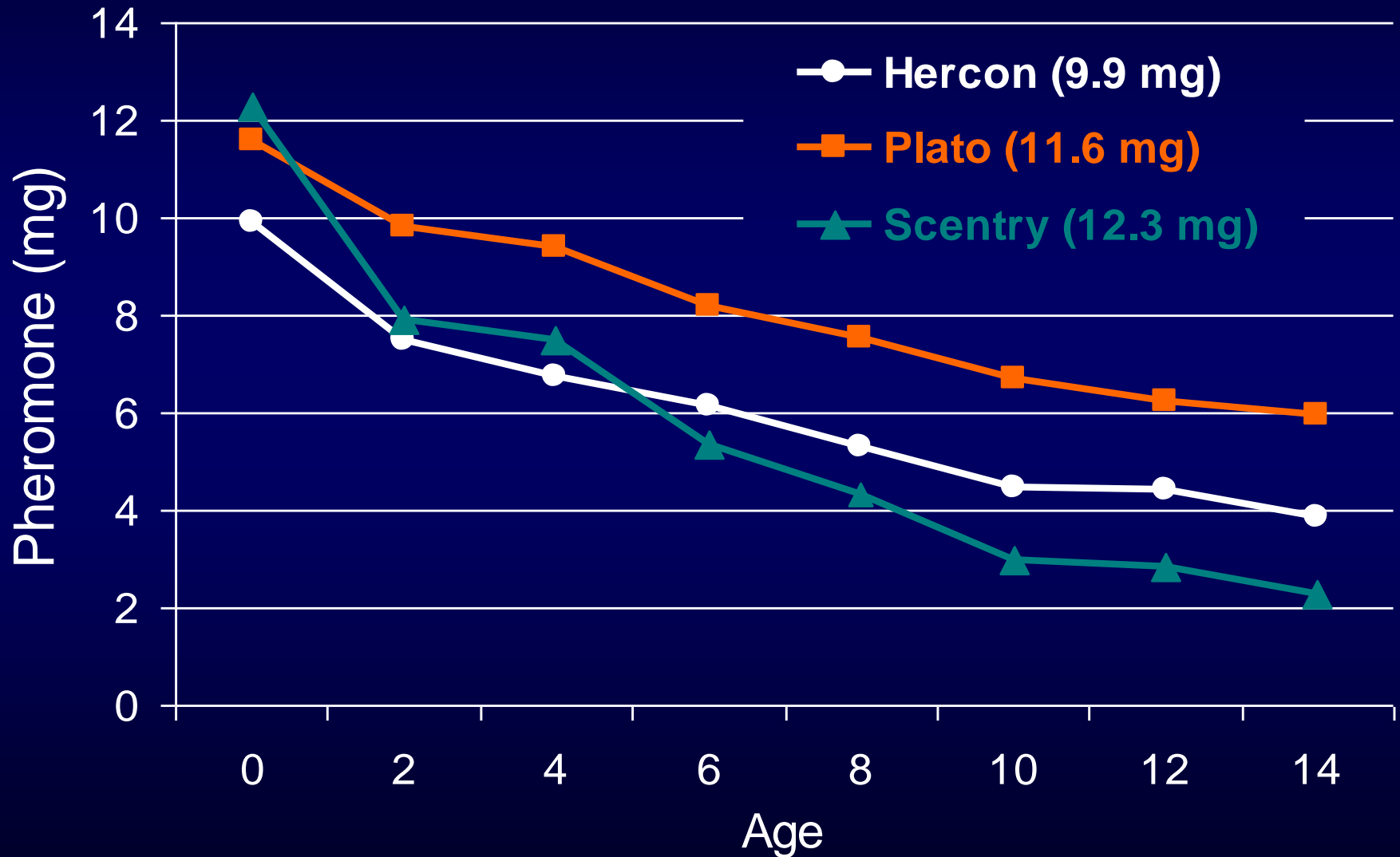
- Pheromone released into headspace of vessels collected daily for 14 d ($80 \pm 5^\circ\text{F}$, 10 to 50% RH)
- 5 Hercon, 5 Plato, and 6 Scentry lures examined



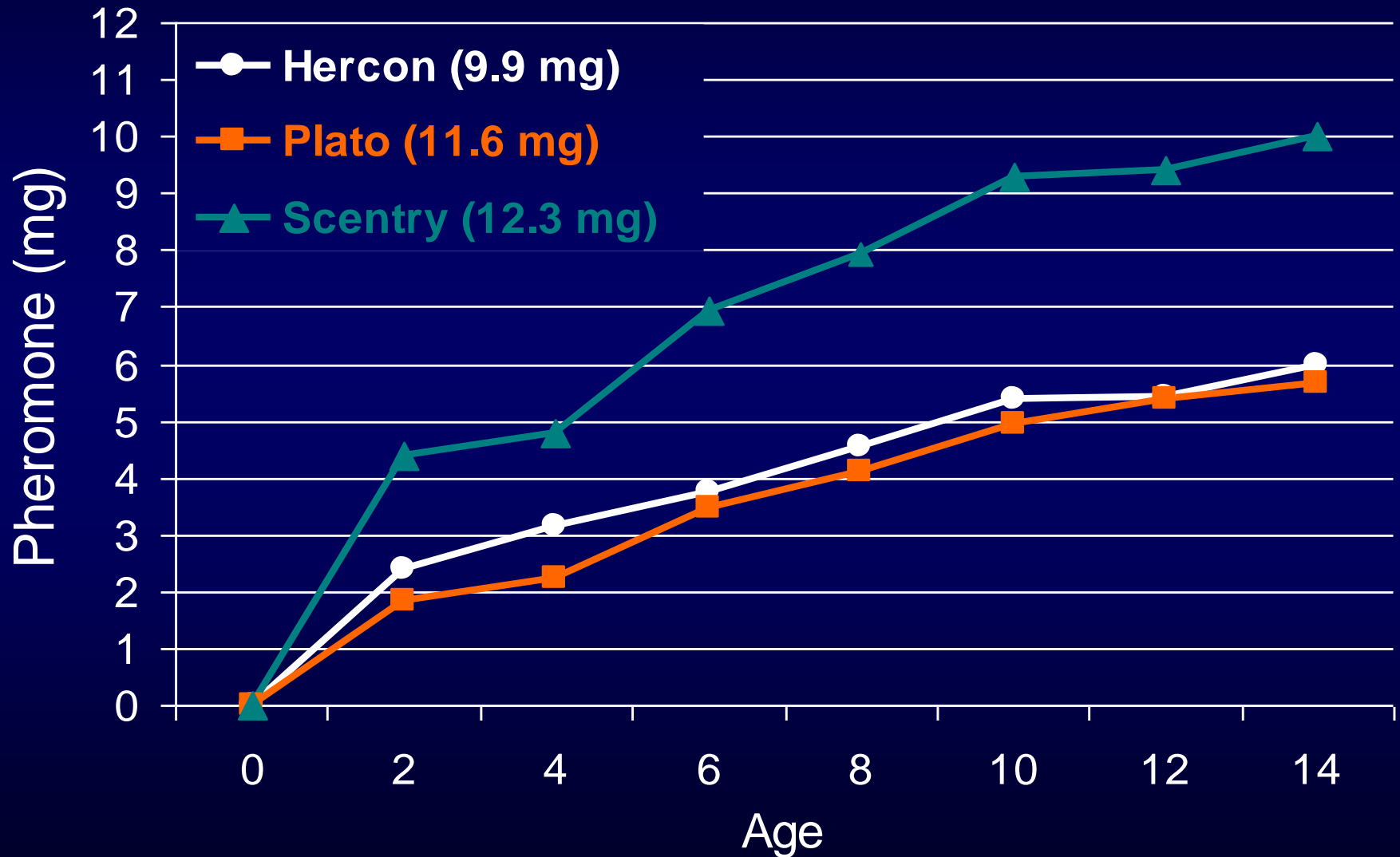
Composition of Pheromone

Environment	Lure	Comp 1	Comp II	Comp III	Comp IV
Greenhouse	Hercon	32 ± 1	38 ± 1	15 ± 1	15 ± 1
	Plato	31 ± 1	36 ± 2	17 ± 1	16 ± 1
	Scentry	31 ± 1	37 ± 3	16 ± 2	16 ± 2
Laboratory	Hercon	32 ± 1	41 ± 1	14 ± 1	13 ± 1
	Plato	33 ± 1	40 ± 1	14 ± 1	13 ± 1
	Scentry	32 ± 1	41 ± 2	14 ± 1	13 ± 1

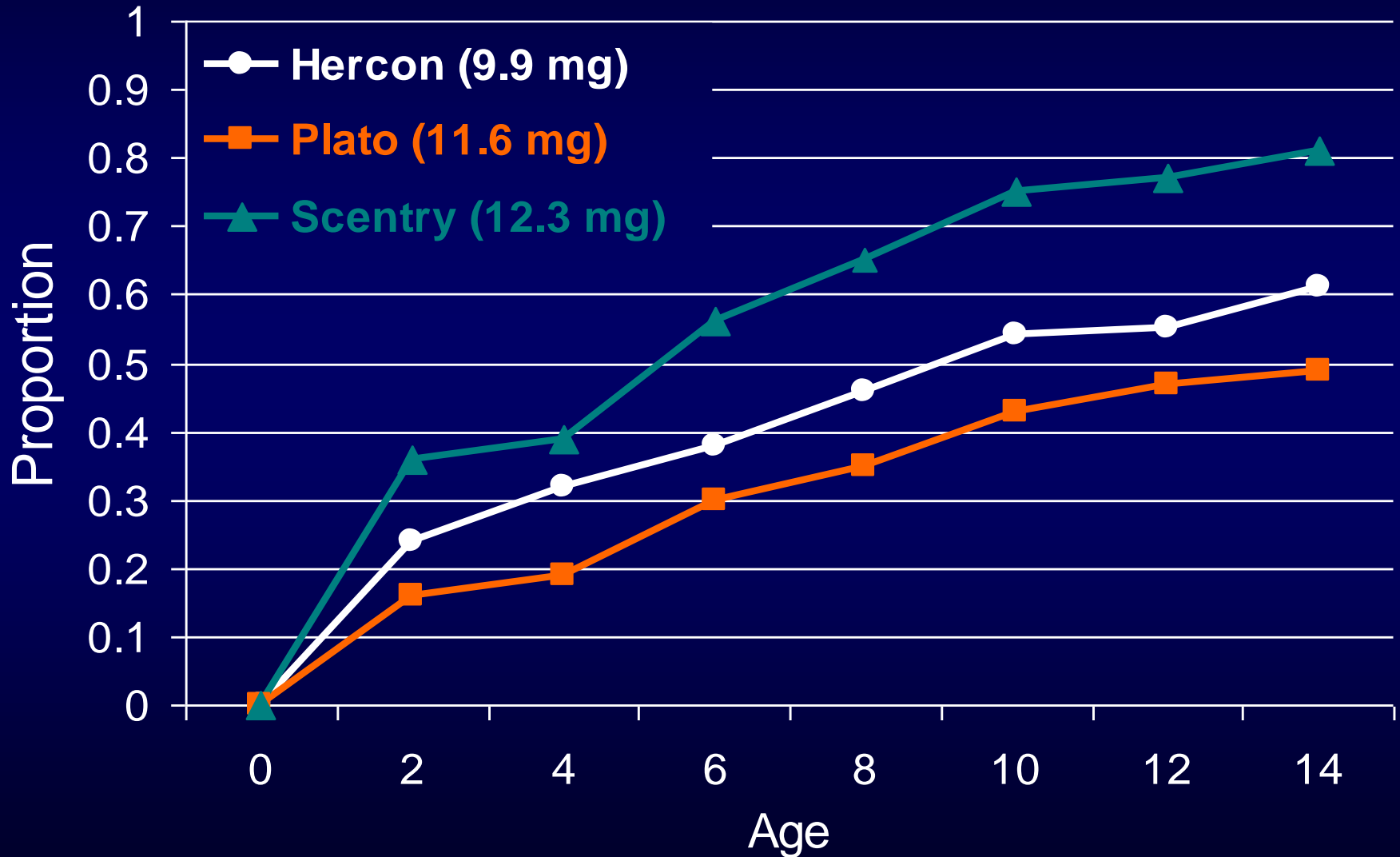
Residual Pheromone Content (GH)



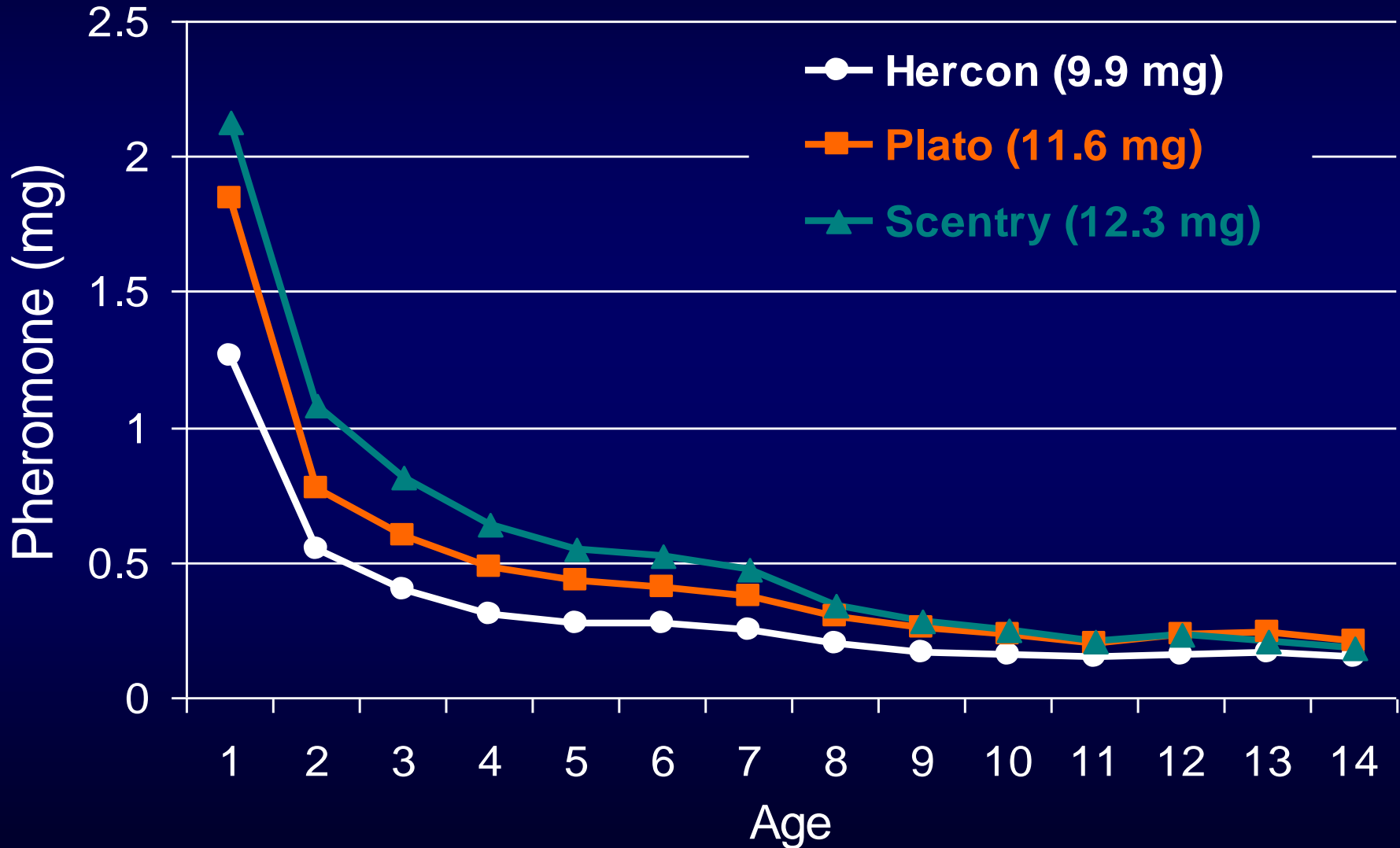
Cumulative Total Released (GH)



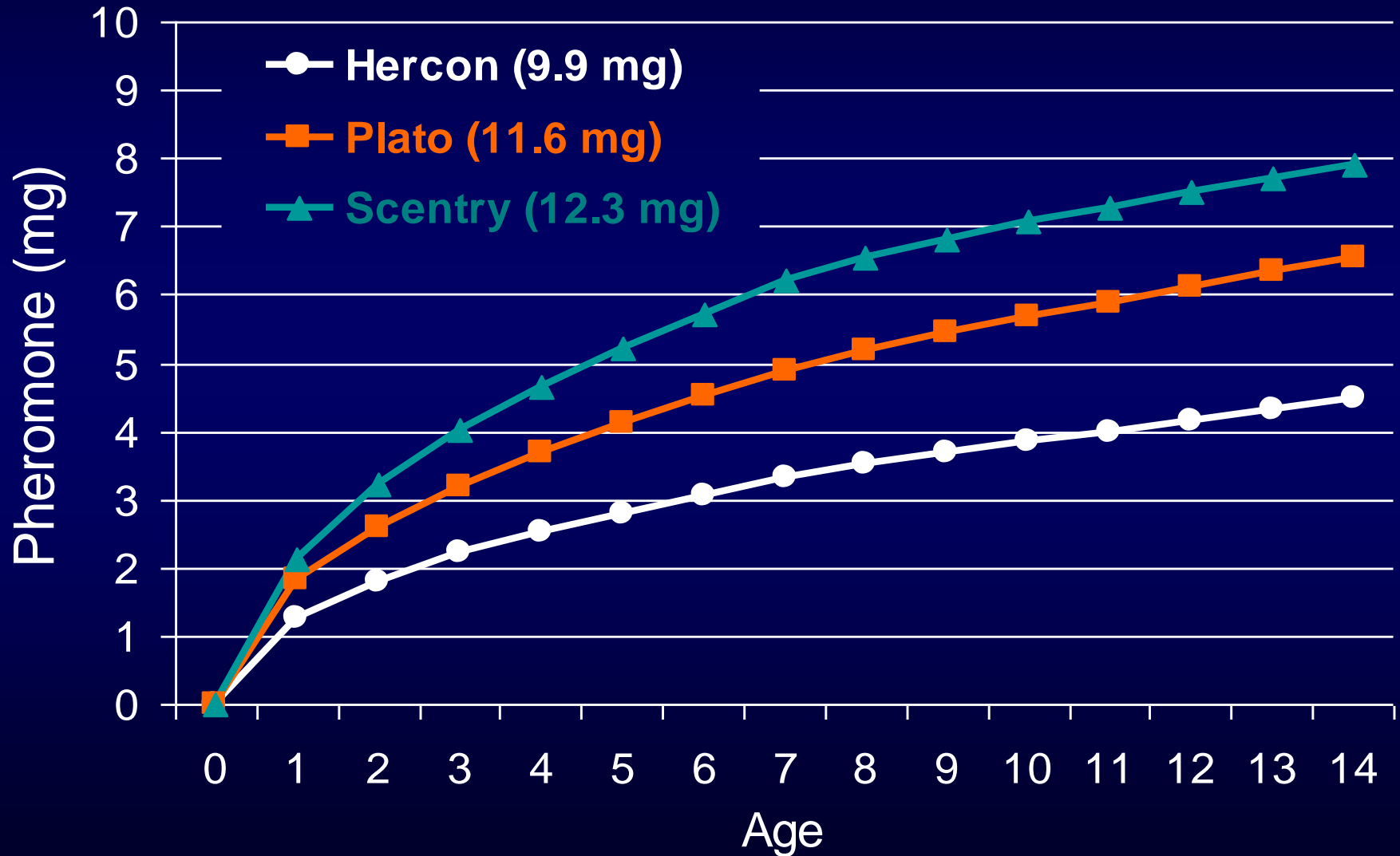
Cumulative Proportion Released (GH)



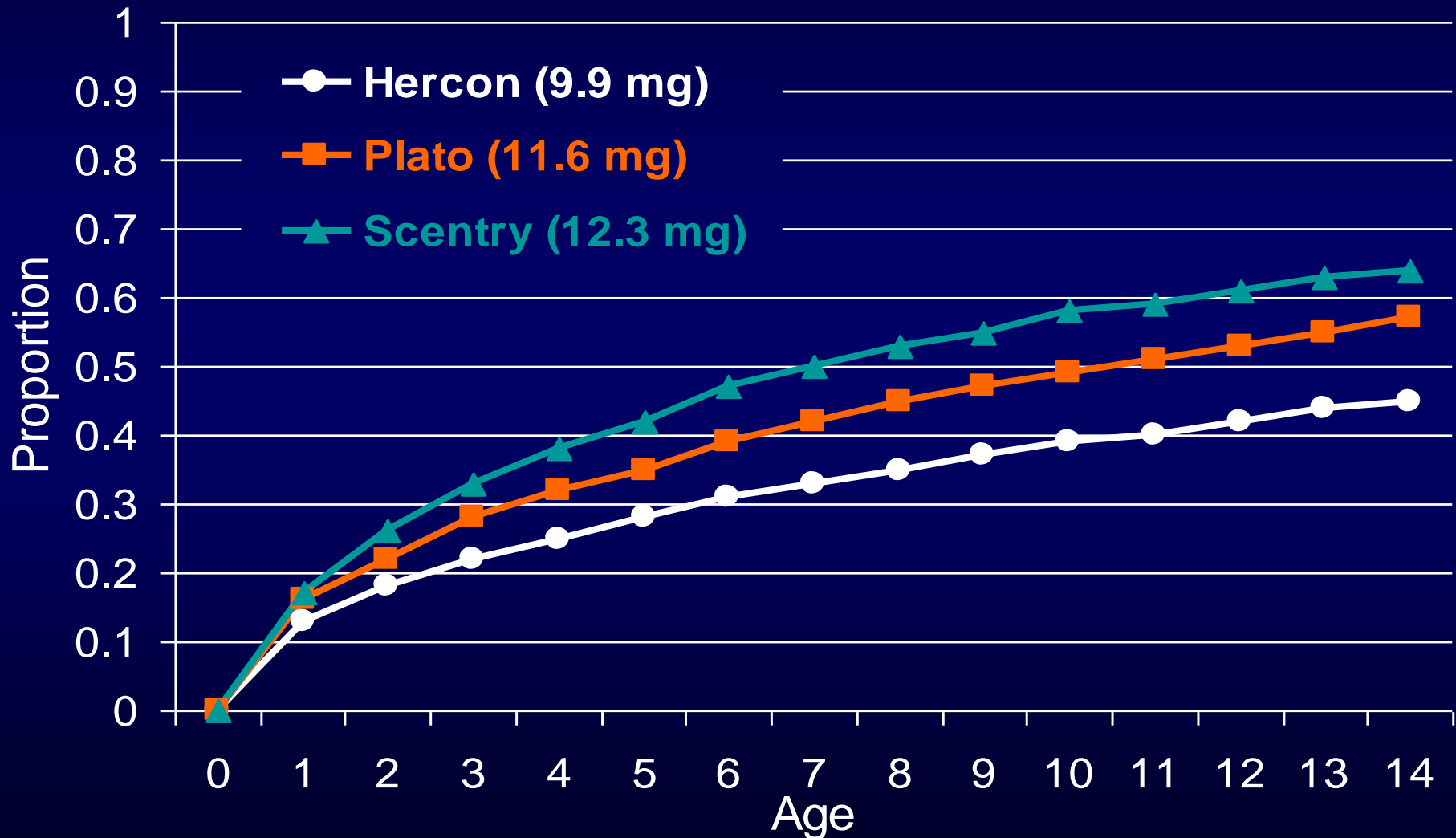
Pheromone Released (HS)



Cumulative Total Released (HS)



Cumulative Proportion Released (HS)



Avg. pheromone released (mg day⁻¹)

Environment	Lure	Week 1	Week 2
Greenhouse	Hercon	0.59	0.26
	Plato	0.54	0.27
	Scentry	1.06	0.36
Laboratory	Hercon	0.47	0.17
	Plato	0.70	0.24
	Scentry	0.89	0.24

% of total pheromone released

Environment	Lure	Week 1	Week 2
Greenhouse	Hercon	69	31
	Plato	66	34
	Scentry	74	26
Laboratory	Hercon	74	26
	Plato	75	25
	Scentry	78	22

Summary

- Component ratios were similar among lure types and remained consistent with aging
- Under laboratory and simulated field conditions, Scentry lures released more pheromone (amount- and proportion-wise) than the other lure types
- Differences among lure types were less apparent during the second week of aging
- Amount of pheromone released during the second week of aging was approx. $1/4$ to $1/2$ of the amount released during the first week of aging
- Considerable amount of pheromone retained in Hercon and Plato lures after 14 d of aging

Considerations

- Need to evaluate lures under a broader range of environmental conditions
- A single weevil is capable of releasing as much pheromone as 10-mg lures aged >7 d
- Replace lures weekly or increase pheromone dose, particularly during certain environmental conditions
- Identify/develop/evaluate alternative dispensers (Trece Inc.)
- Lure additives to alter pheromone release rates or to increase weevil attraction to lures – positive and negative impacts of eugenol, DDVP, etc.?