

Herbicide Plant Back Restrictions and Potential Residual Problems

Jared Bell
Graduate Research Assistant, WSU

Herbicide Persistence: Plantback Restriction

- **Persistence of herbicides depend upon**
 - **Rate**
 - **$1/2$ Life**
 - **Repeated use**
 - **Herbicide availability**
- **Plantback restriction depends upon above plus**
 - **Sensitivity of the crop**

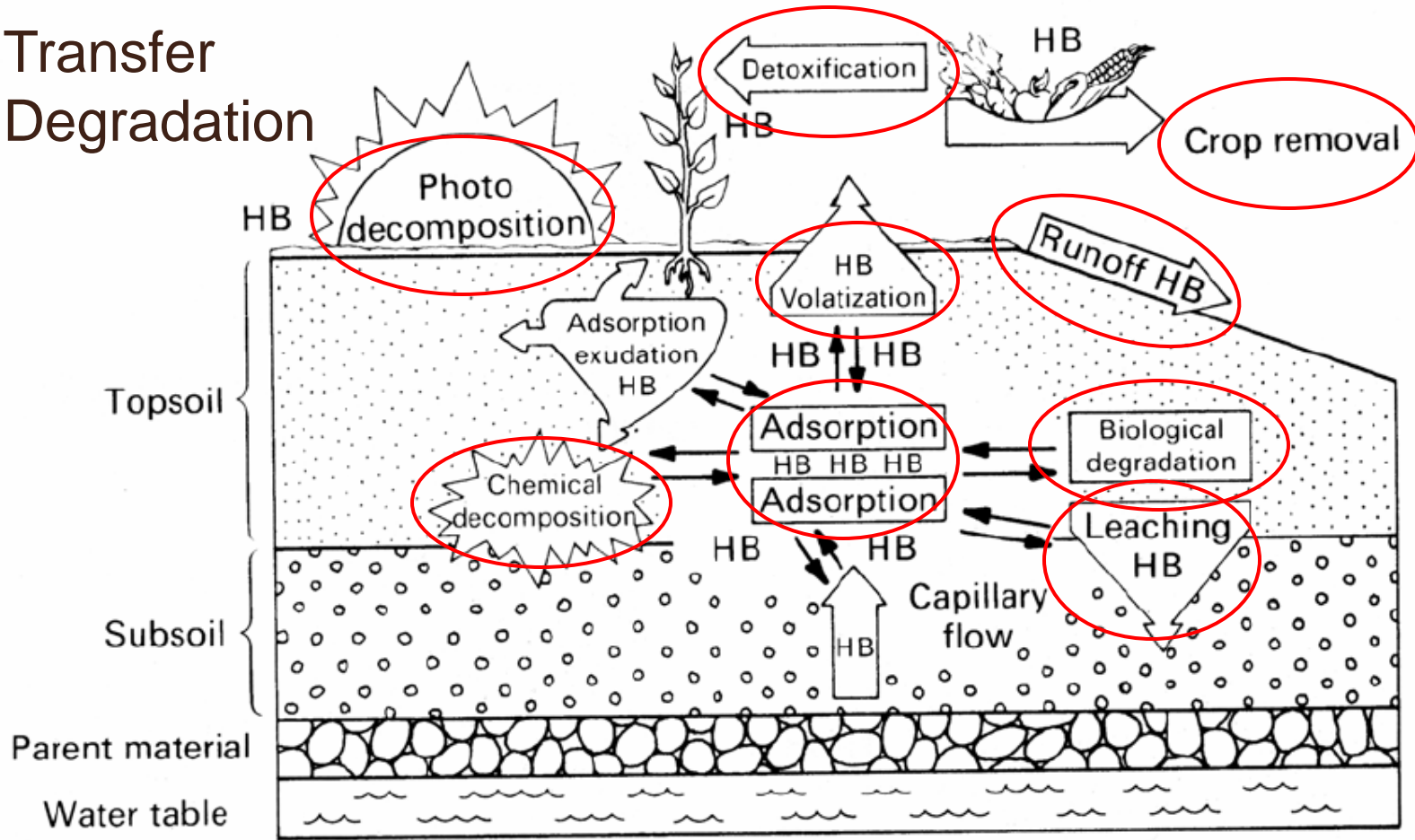
Herbicide Half-life

- **Length of time required for one half of the original herbicide application to dissipate**
- **Determined by herbicide physical characters and environmental factors**
 - **Moisture**
 - **pH**
 - **Soil texture**
 - **Soil organic matter**



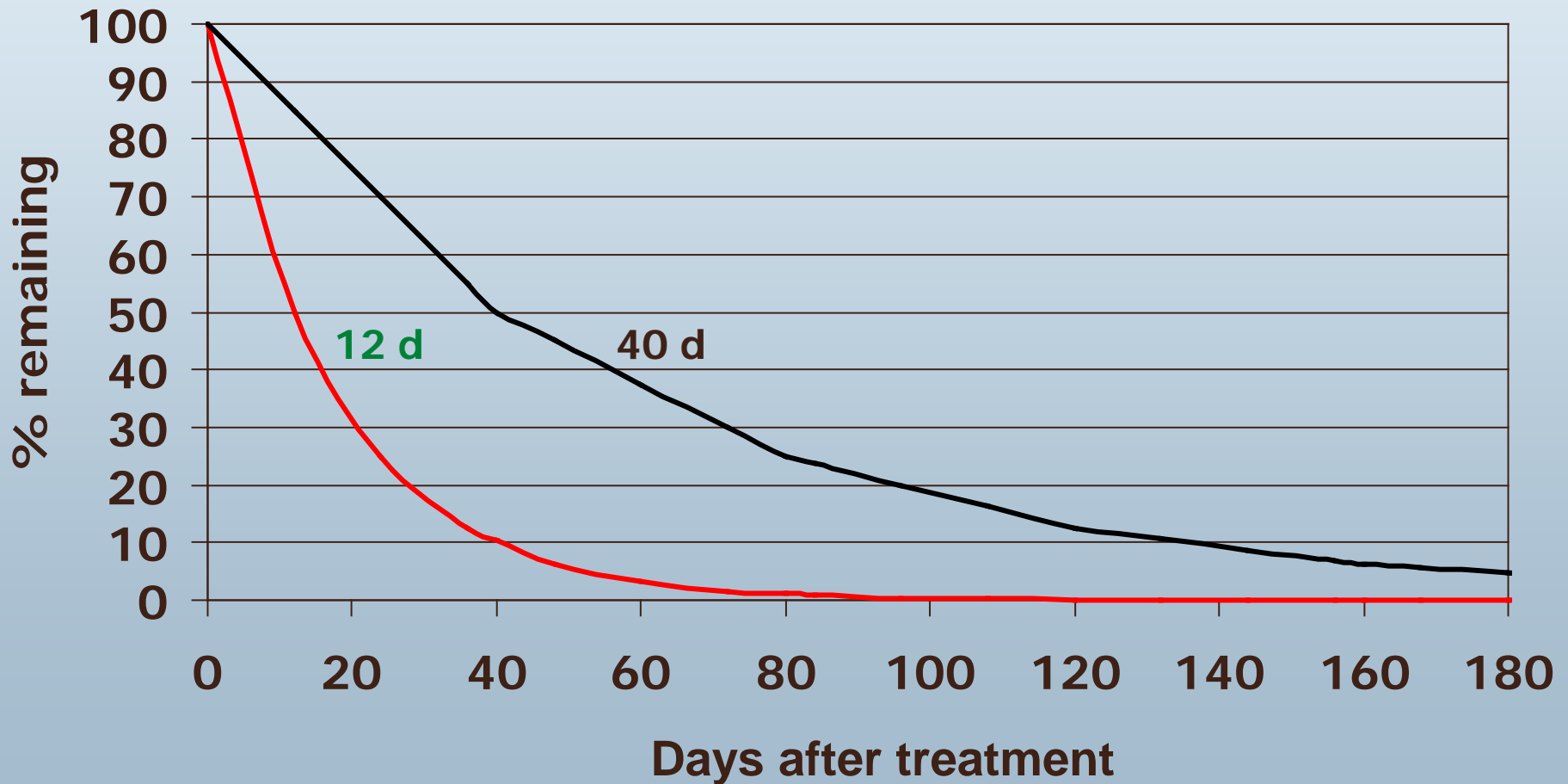
Herbicide Fate

- 1. Transfer
- 2. Degradation



Half-life of two sulfonylurea herbicides

— Harmony GT — Glean



Properties	Maverick	Powerflex	Olympus	Osprey	Everest
AI	Sulfosulfuron	Pyroxsulam	Propoxy-carbazine	Mesosulfuron	Flucarbazone
Safener?	No	Yes – cloquintocet-mexyl	No	Yes – mefenpyr-diethyl	No
Soil half life (d)	14-75	5-23	4-54	13-21	8-22 (8 in WA)
Rotation Restrictions (months):					
Canola	22	9?	22	9	9
Peas			12	3	11
Lentil			18	3	24

Imazethapyr Degradation

Pullman, 2007-2008

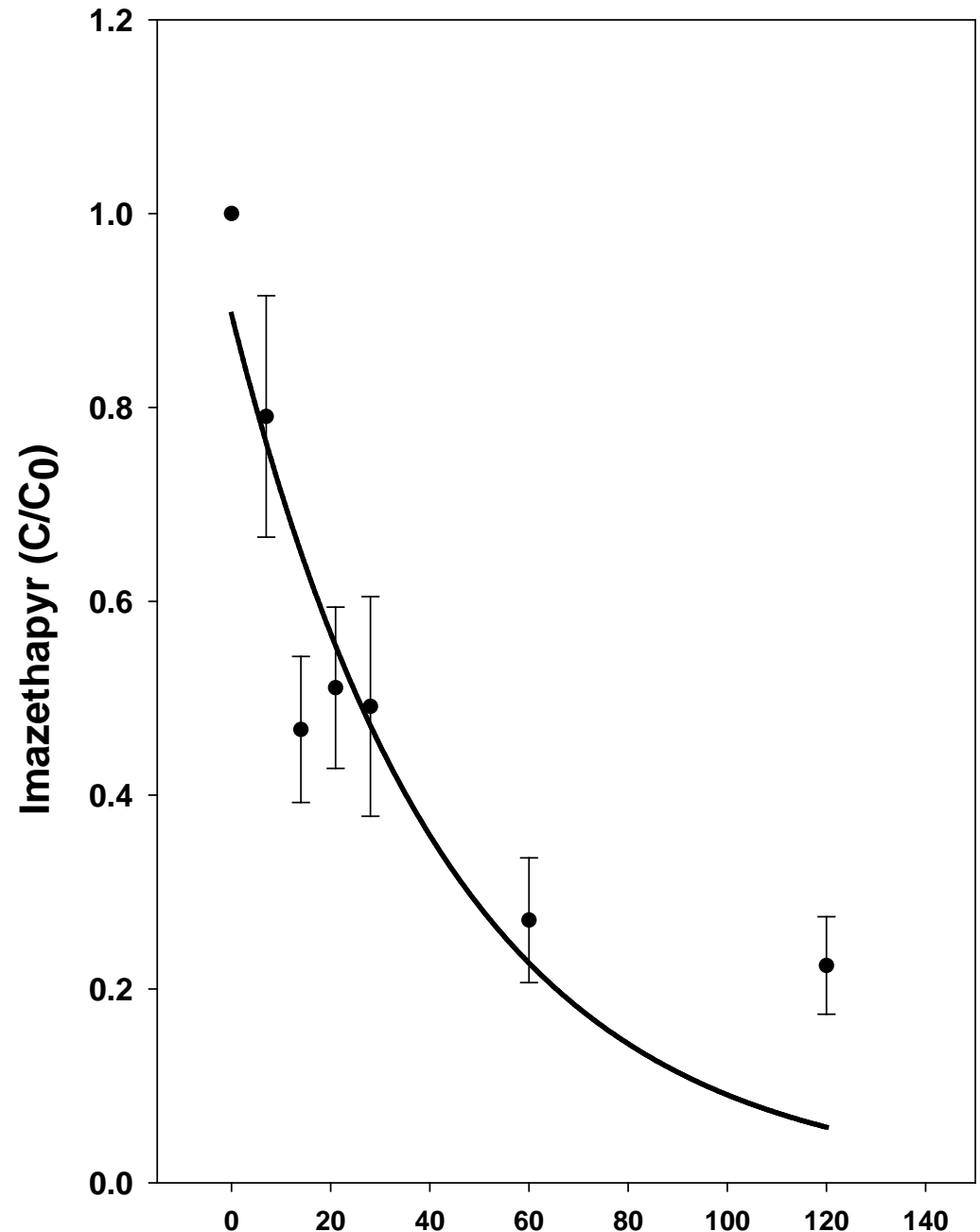
pH=5.4 OM=2.8%

$$C=0.8962e^{-0.0229t}$$

$$R^2=0.83$$

Calculated half-life: 30 days

No injury



Imazethapyr Degradation

Pullman, 2008-2009

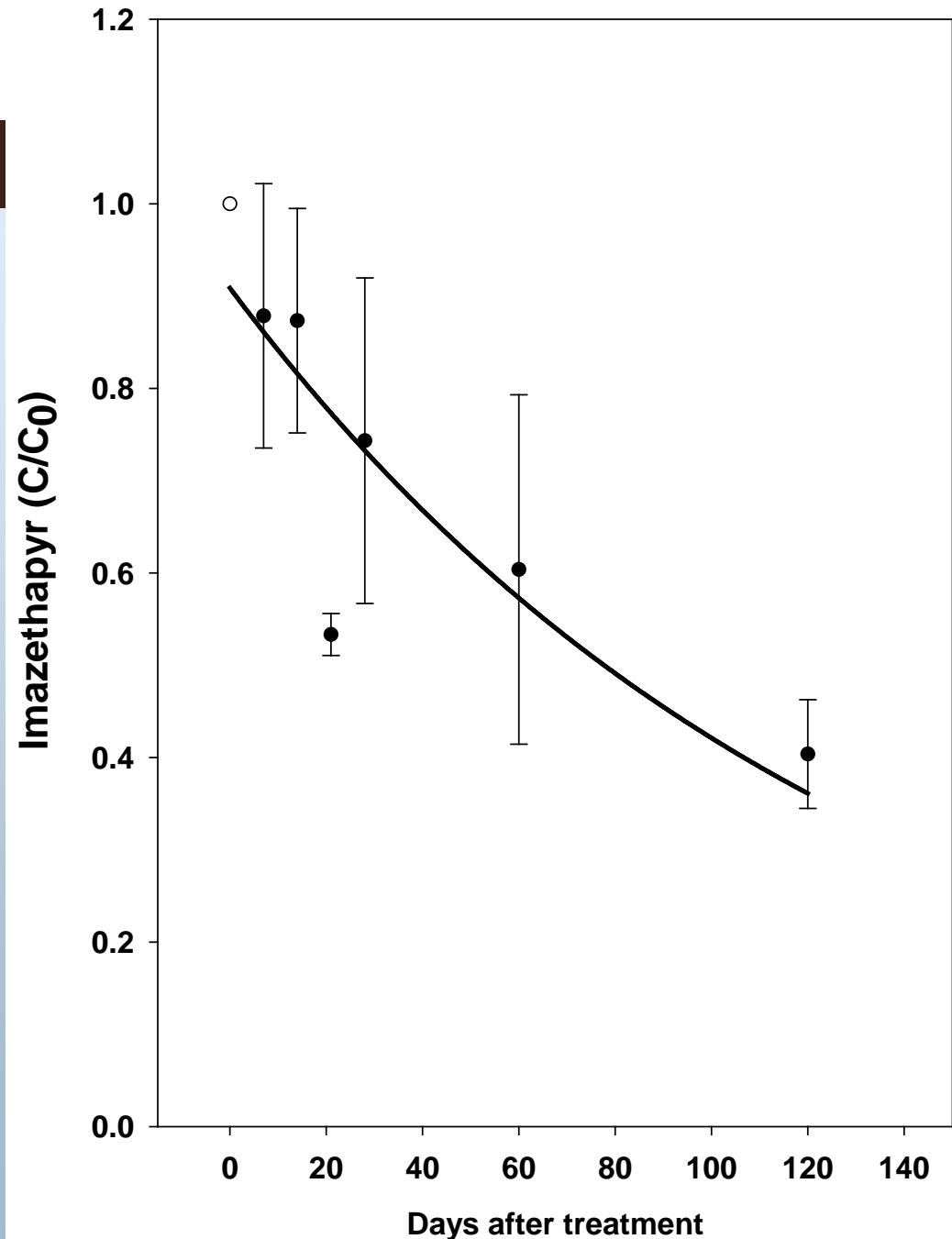
pH=5.3 OM=4.1%

$$C=0.9087e^{-0.0077t}$$

$$R^2=0.74$$

Calculated half-life: 90 days

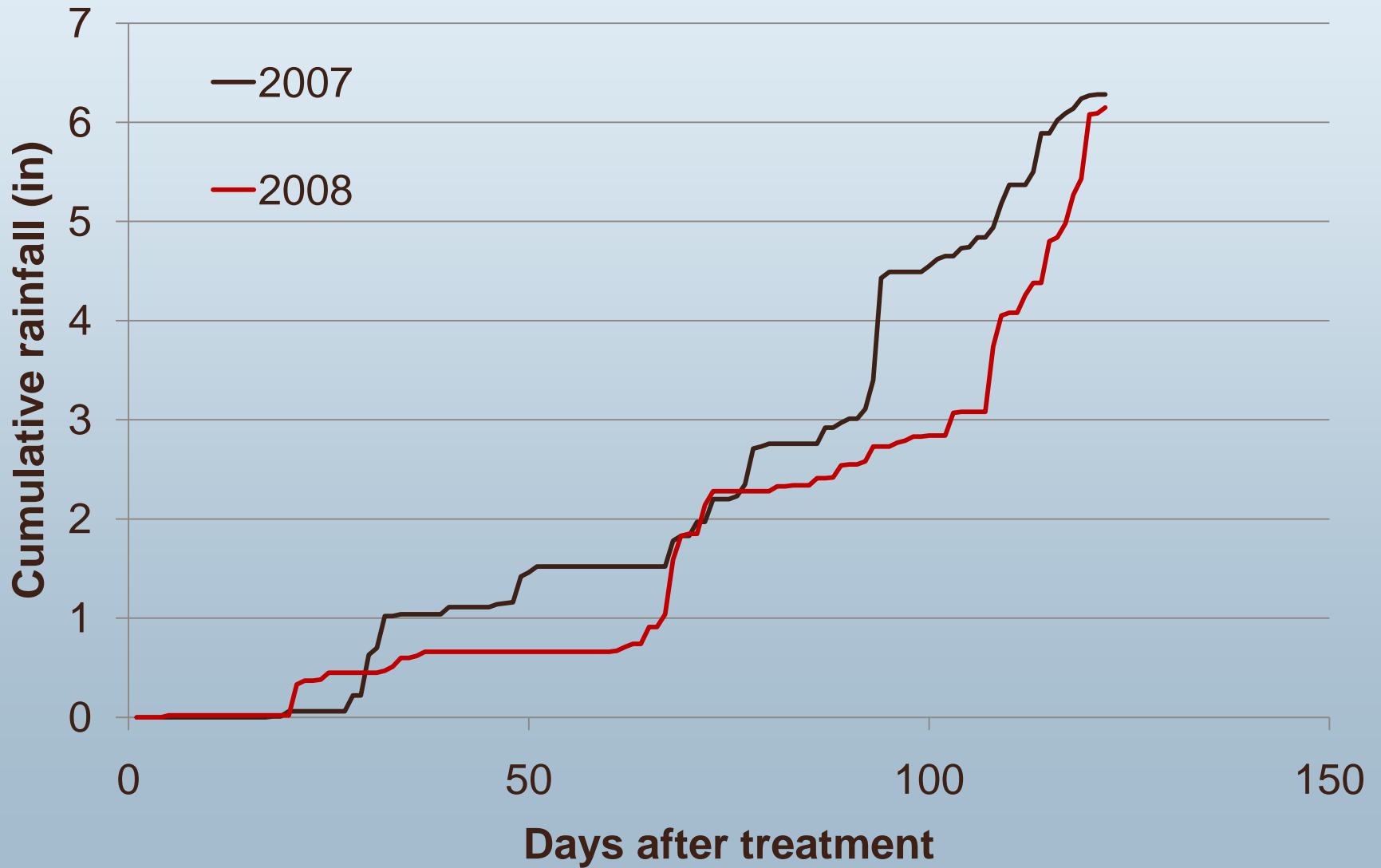
Time to reach a
concentration equivalent to
2.6 g/ha ~ 317 days



24 h Soil Temperature



Cumulative Rainfall



Conclusions: Herbicide Carryover

- **When rotating to canola**
 - Herbicide families of primary concern (ALS Inhibitors – Group 2)
 - Imidazolinones (IMI's)
 - Assert, Pursuit, Beyond
 - Sulfonylurea (SU's)
 - Ally, Amber, Express, Glean, Harmony GT, Maverick, Osprey, Peak
 - Sulfonylaminocarbonyltriazolinones
 - Everest, Olympus
- **Check your records and read labels**

Questions

Jared Bell

bellja@wsu.edu

Ian Burke

burke@wsu.edu

Extension Bulletins

PNW 0437

Herb. Res. Weeds & Their Mgmt.

PNW 0571

Plantback Restrictions...

PNW 0572

**Mgmt. Strategies for Prev. Herb.
Resist. Grass Weeds in Clearfield
Wheat Systems**

<http://ext.wsu.edu/>

<http://www.uidaho.edu/extension/>