



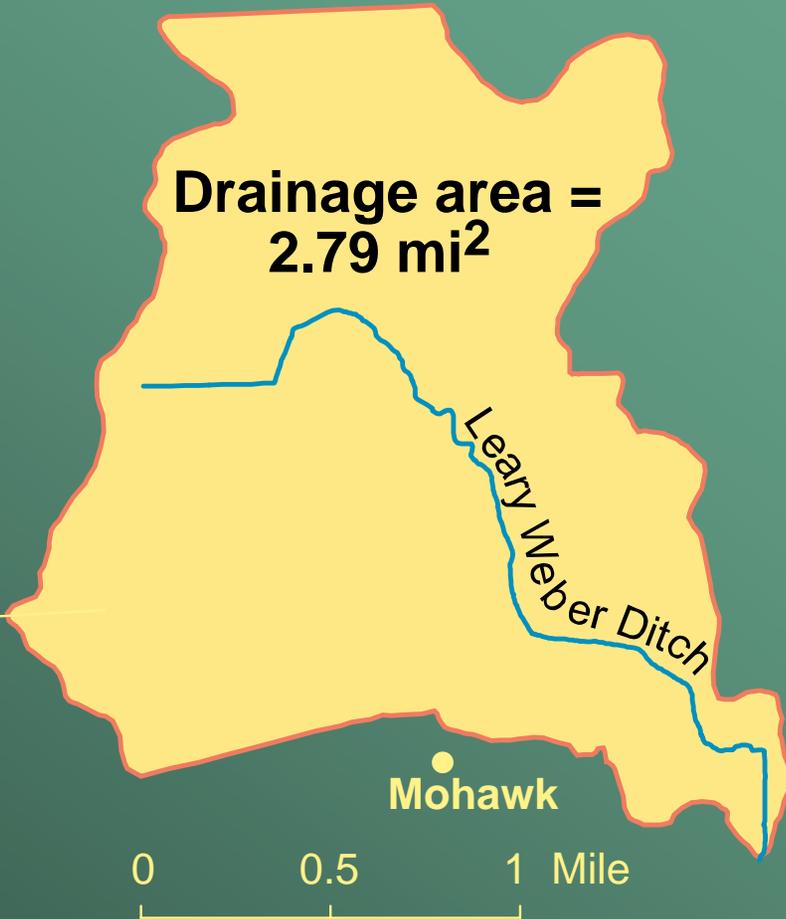
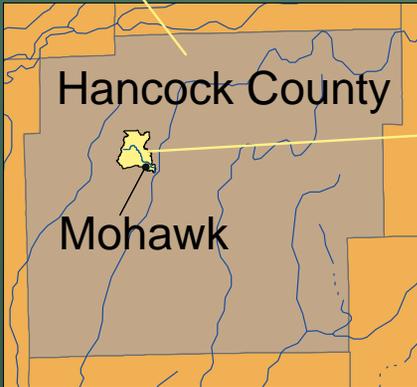
# Glyphosate Concentrations in Various Hydrological Compartments of a Small Watershed in East-Central Indiana

**By: Nancy T. Baker and Michael T. Meyer**

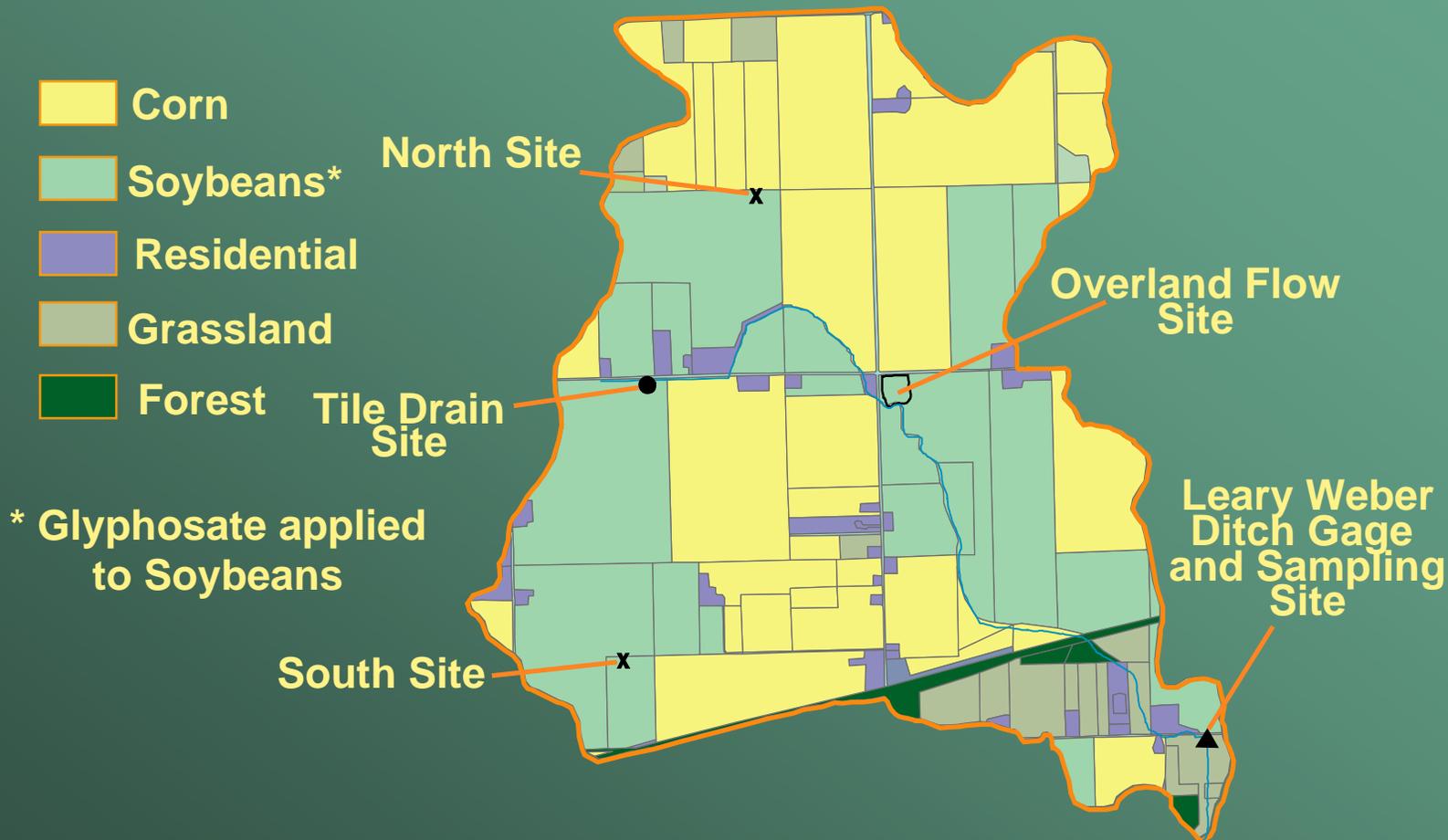
# Overview

- Study area and background
- Hydrologic compartments
- Glyphosate in the hydrologic compartments

# LEARY WEBER DITCH BASIN



# 2004 LAND USE





**Mustard weed infested field prior to glyphosate application**

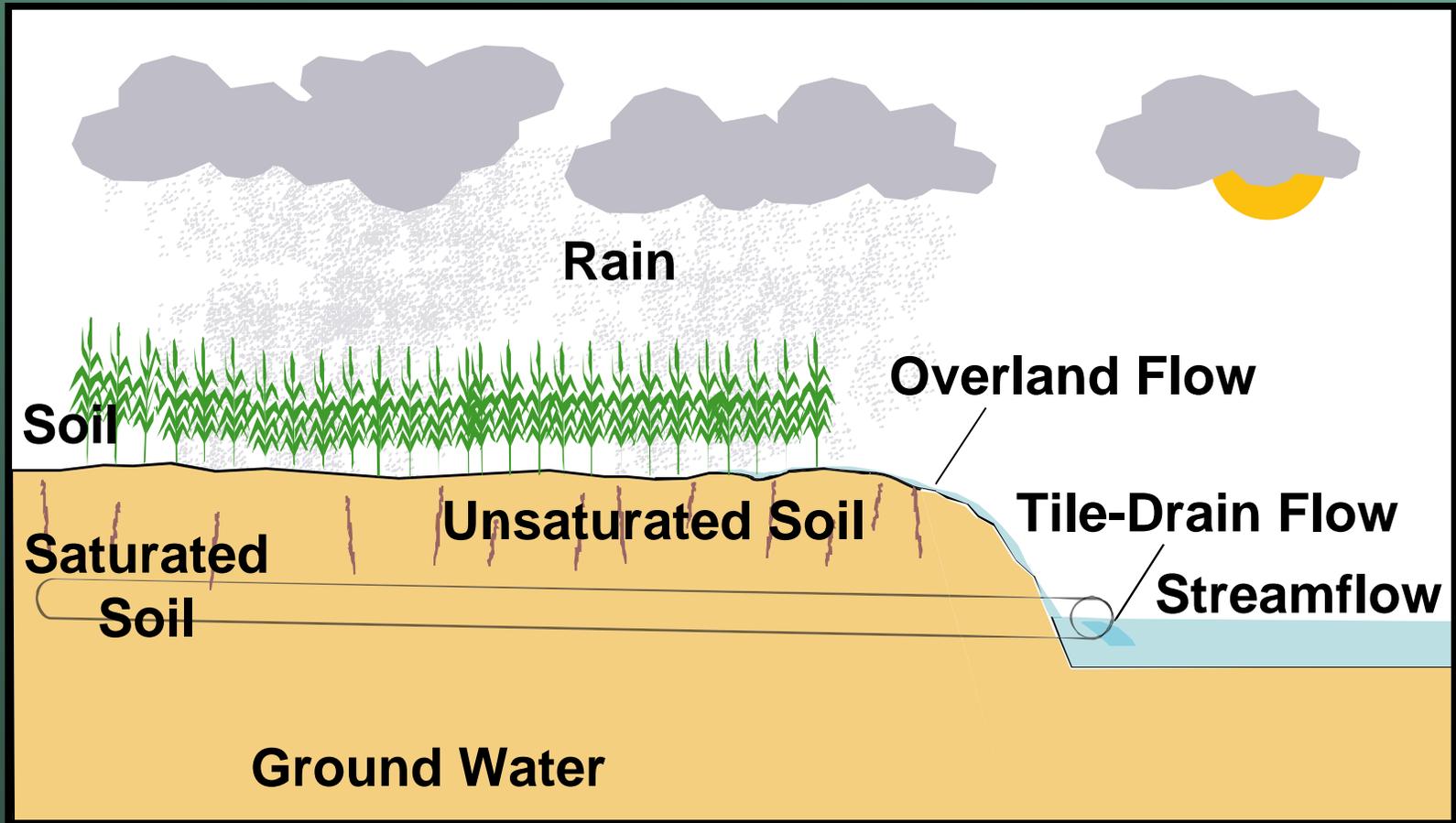


**Weed free soybean field two months after glyphosate application**

## **GLYPHOSATE (Commonly named Round-up)**

- Widely used herbicide on *Round-up* ready Soybeans and Corn
- Spray application/ usually post emergence
- Strongly adsorbed to soil
- Degrades quickly (half-life around 60 days)
- Primary degradation product is AMPA
- Preferential flow facilitates leaching to tile drains
- High intensity rainfall shortly after application may trigger rapid transport

# HYDROLOGIC COMPARTMENTS



# GLYPHOSATE SAMPLING STRATEGY

## North Site



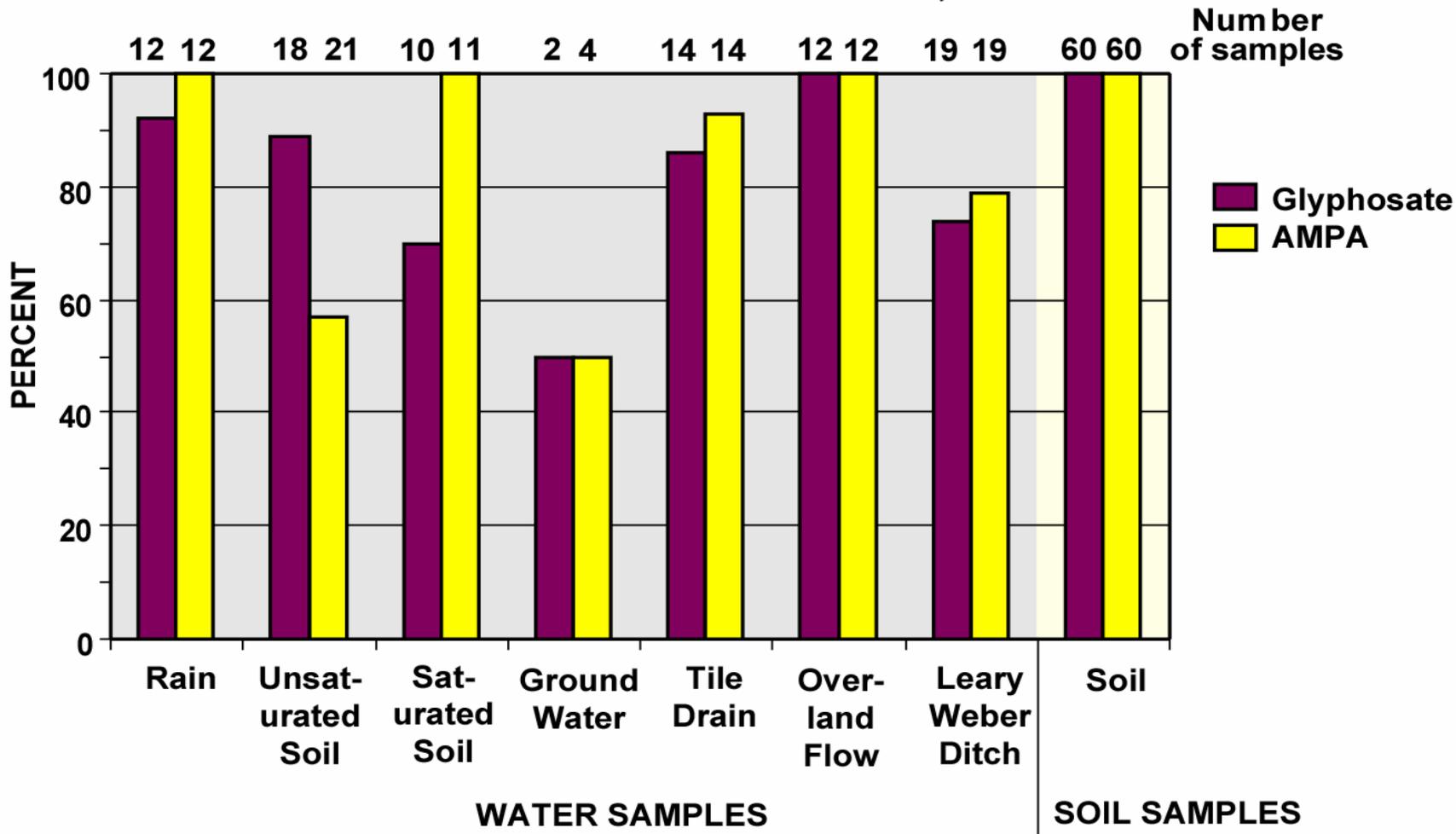
## SOIL SAMPLES (Solid Material)

Site	Sampling Depth
N,S,O,T	0-6" 6-12" 12-18"

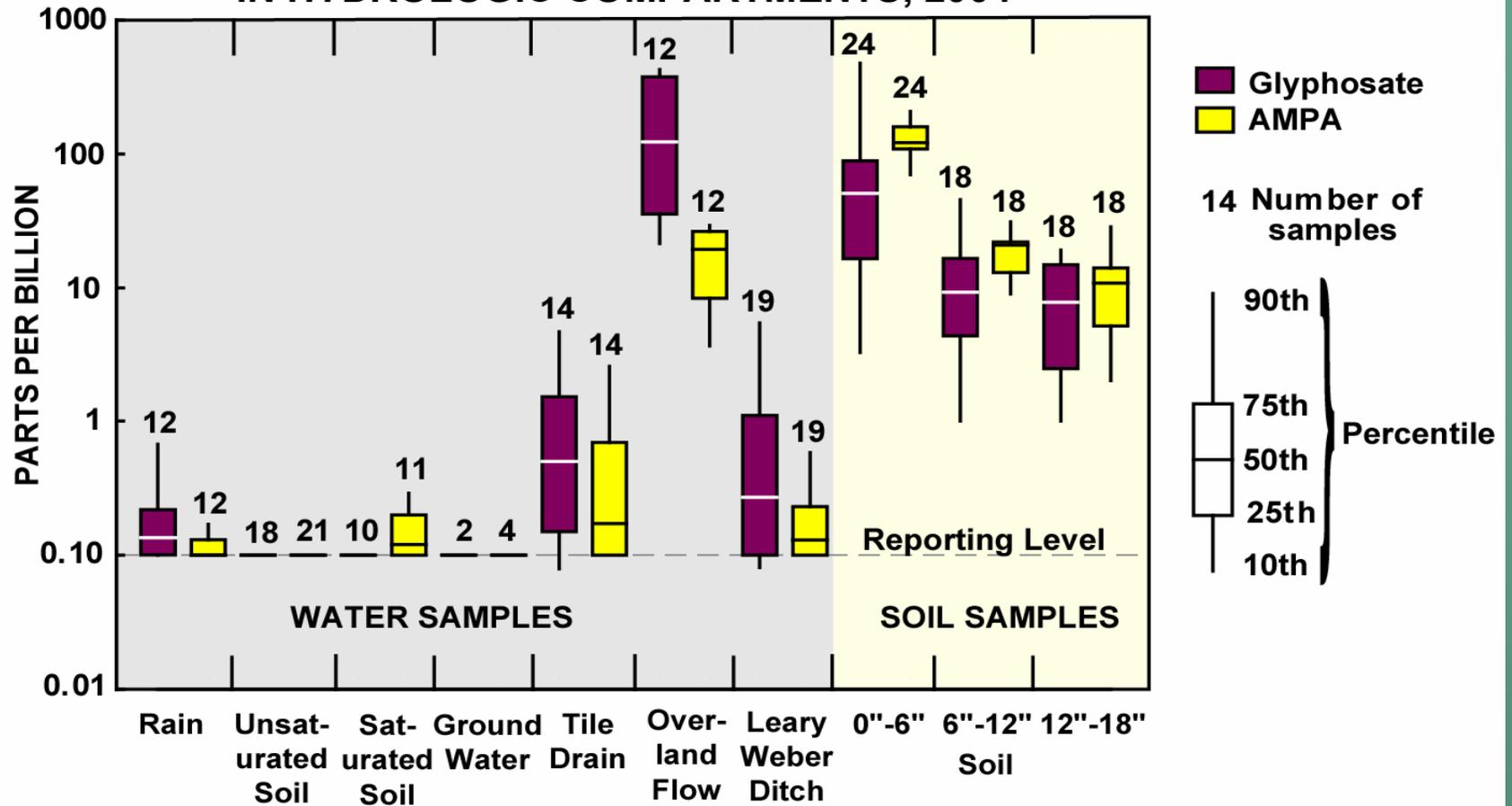
## WATER SAMPLES

Site	Compartment
N	Rain
N,S	Unsaturated Soil
N,S	Saturated Soil
N,S	Ground Water
O	Overland Flow Water
T	Tile-Drain Water
LW	Stream Water

# FREQUENCY OF GLYPHOSATE AND AMPA DETECTIONS IN HYDROLOGIC COMPARTMENTS, 2004

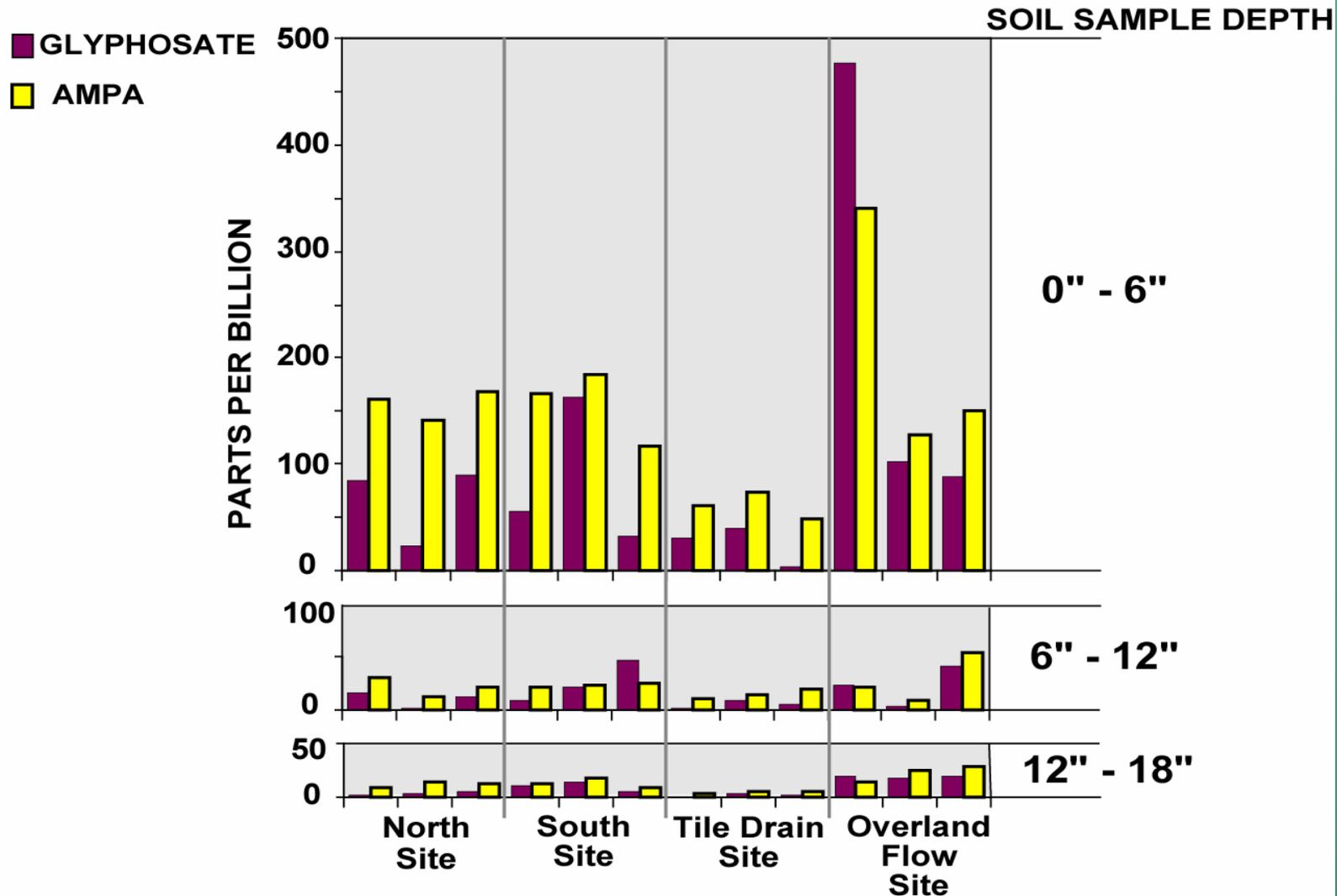


# GLYPHOSATE AND AMPA CONCENTRATIONS IN HYDROLOGIC COMPARTMENTS, 2004

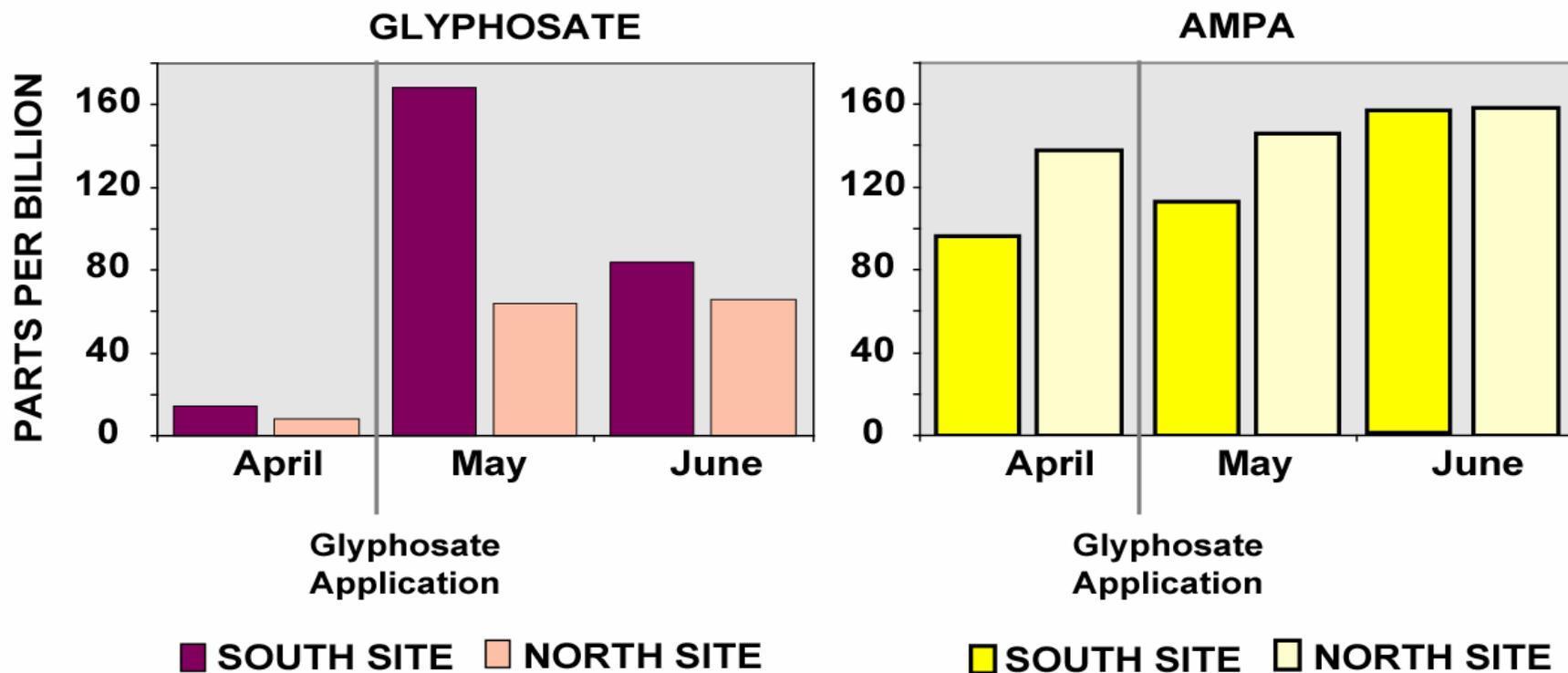




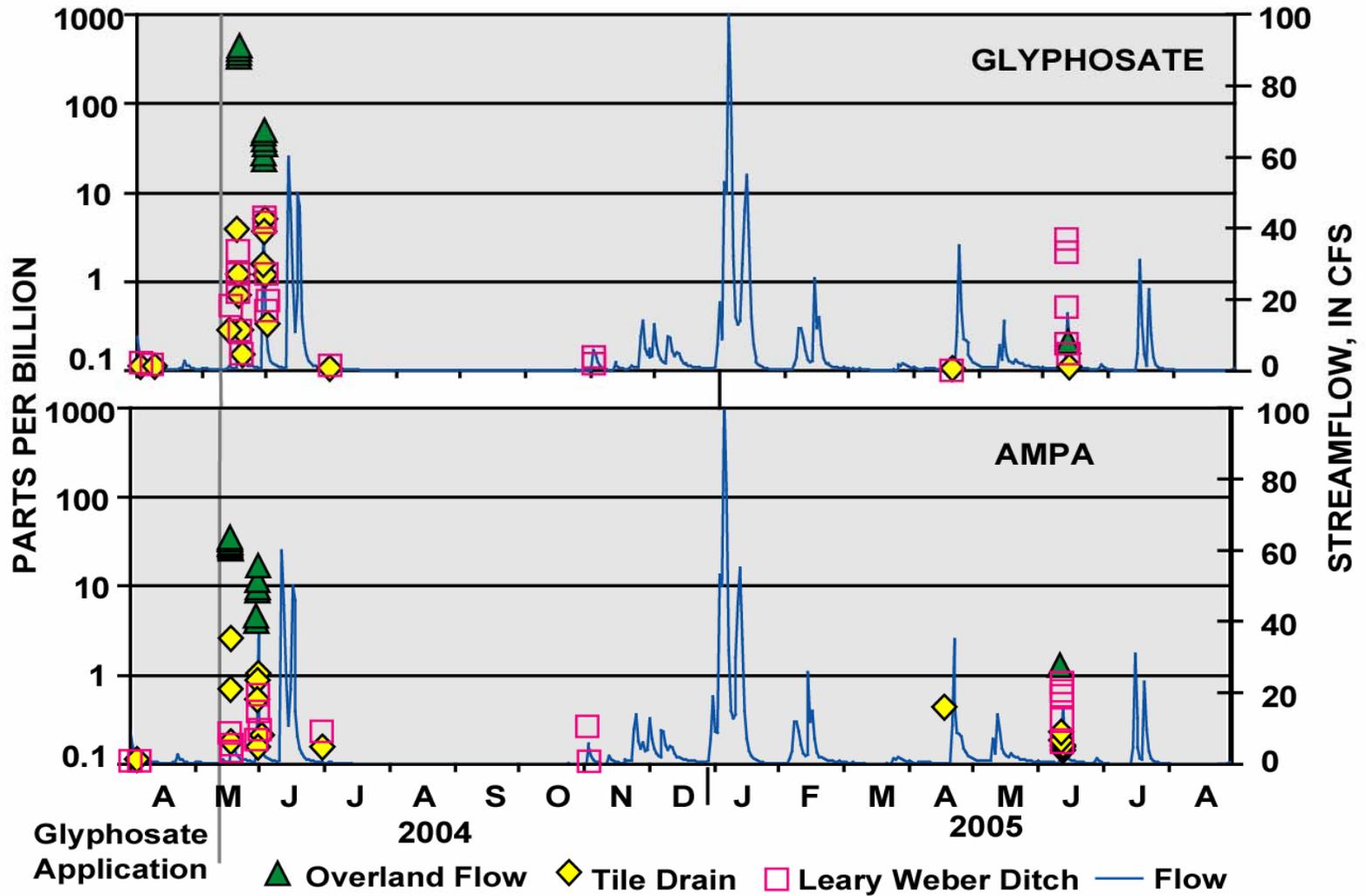
# GLYPHOSATE AND AMPA CONCENTRATIONS IN SOIL, JULY 7, 2004



## AVERAGE GLYPHOSATE AND AMPA CONCENTRATIONS IN SOIL (6" DEPTH) AT SOUTH AND NORTH SITES



# TILE DRAIN, OVERLAND FLOW, AND LEARY WEBER DITCH, 2004-2005



# SUMMARY

- Glyphosate and AMPA were found in every hydrologic compartment
- Glyphosate and AMPA were persistent in shallow soils over the season
- Glyphosate concentrations were similar tile-drain water and streamflow
- Glyphosate was much higher in overland flow water