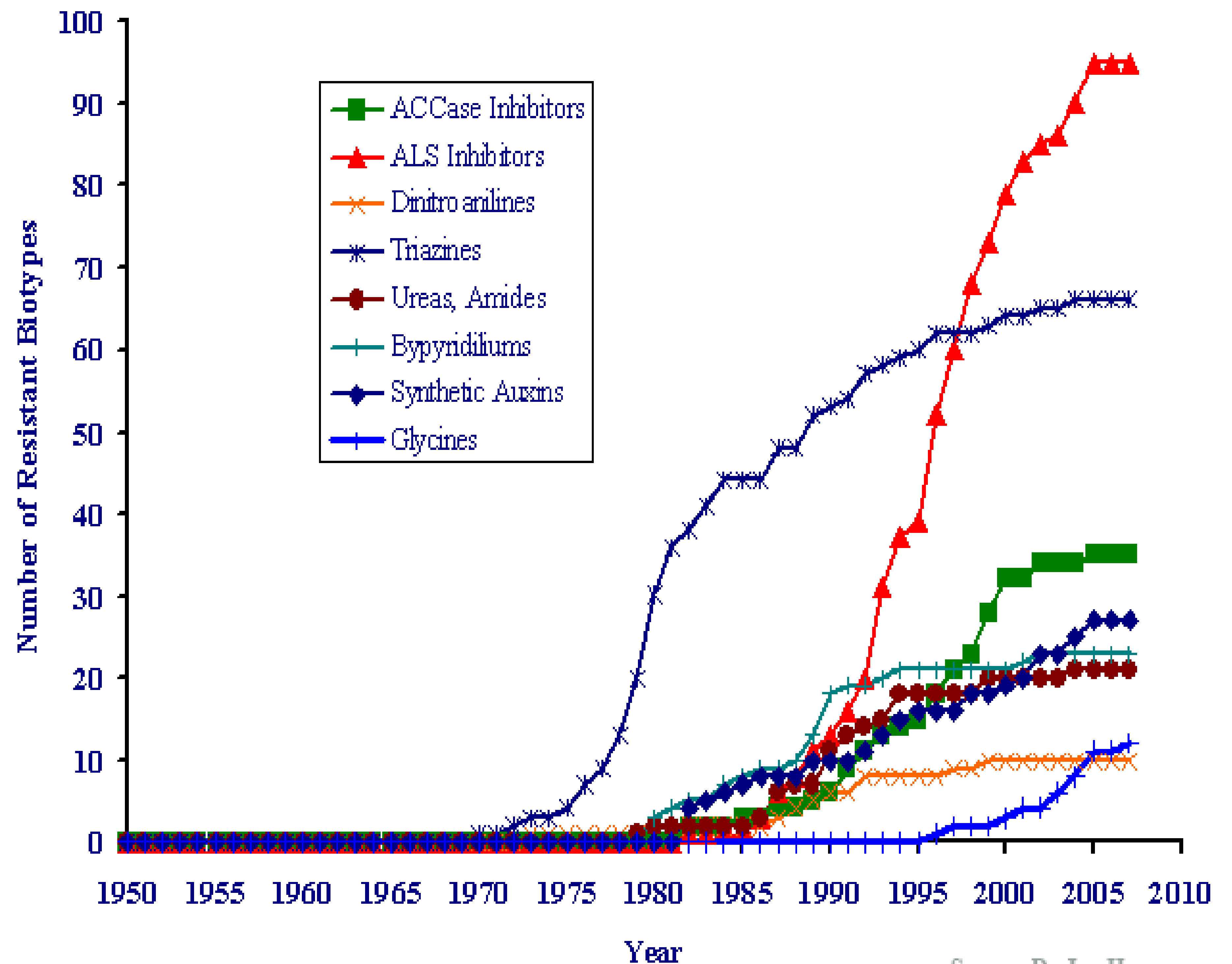


Reducing Herbicide Use in No-till Cropping Systems

Why reduce herbicide use?

- Reduce weed control costs
- Reduce selection potential for herbicide resistant weeds
- Less herbicide use = less potential for pollution (air and water)
- Reduce human and other on-target exposure
- Indirect effects – residues, testing, waste, disposal, etc.



Source: Dr. Ian Heap
<http://WeedScience.com>

Herbicide resistant weeds:

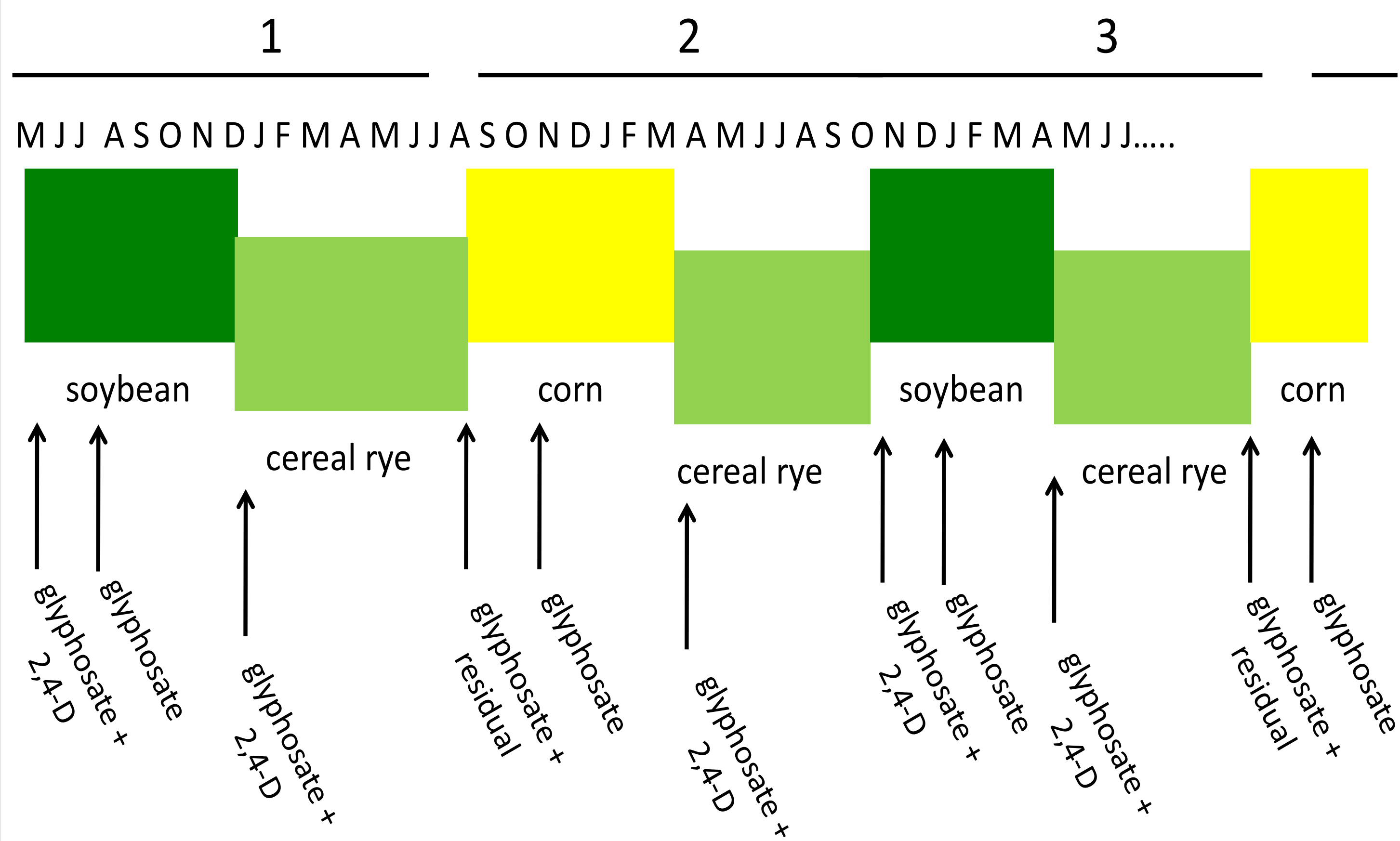
- 331 biotypes found globally
- 189 species found globally
- 126 found in USA

Ways to Reduce Herbicide Use

- Adopt an Integrated approach
- Rotate crops with different life cycles – annuals mixed with perennials, summer, winter, etc.
- Include cover crops in the rotation
- When possible, grow high biomass covers and roll if applicable
- Include companion crops with forages
- Band herbicides
- Use mechanical weed control to help break up weed lifecycles and to supplement control (mowing and cultivation)

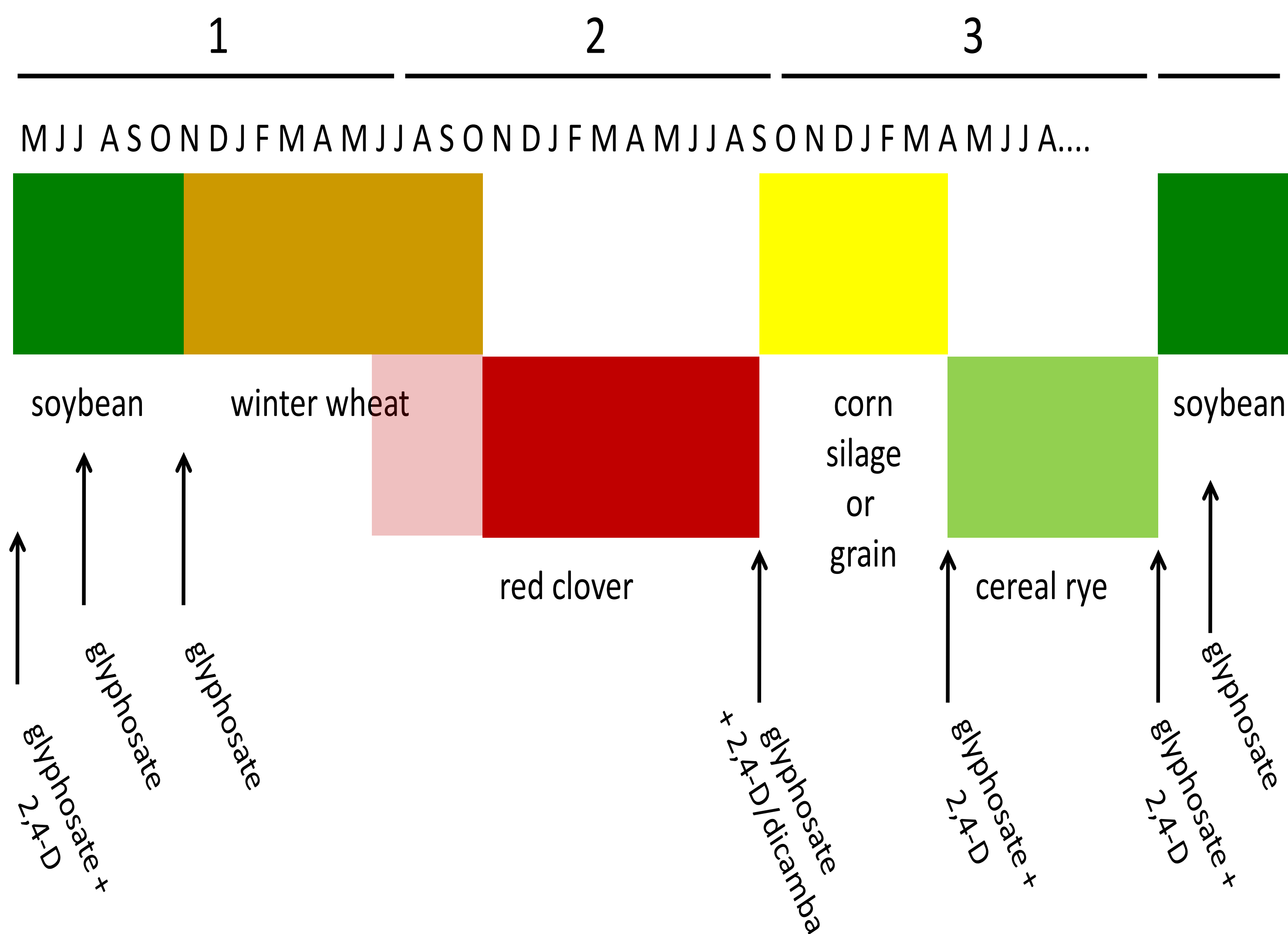


No-till Crop Rotation – RR corn/RR soybean w/ a rye cover crop



Up to **11 glyphosate applications** in 3 years

No-till Crop Rotation – corn-RR soybean-wheat/red clover



Up to **7 glyphosate applications** in 3 years

Preventing *herbicide-resistant weeds*:

- Rotate herbicide modes of action
 - Rotate herbicides with herbicide tolerant crops
- Tank mix or use sequential herbicides with different effective modes of action
- Use nonchemical weed control tactics – cultural, mechanical, etc.