

International Survey of Herbicide-Resistant Weeds

WSSA CODES

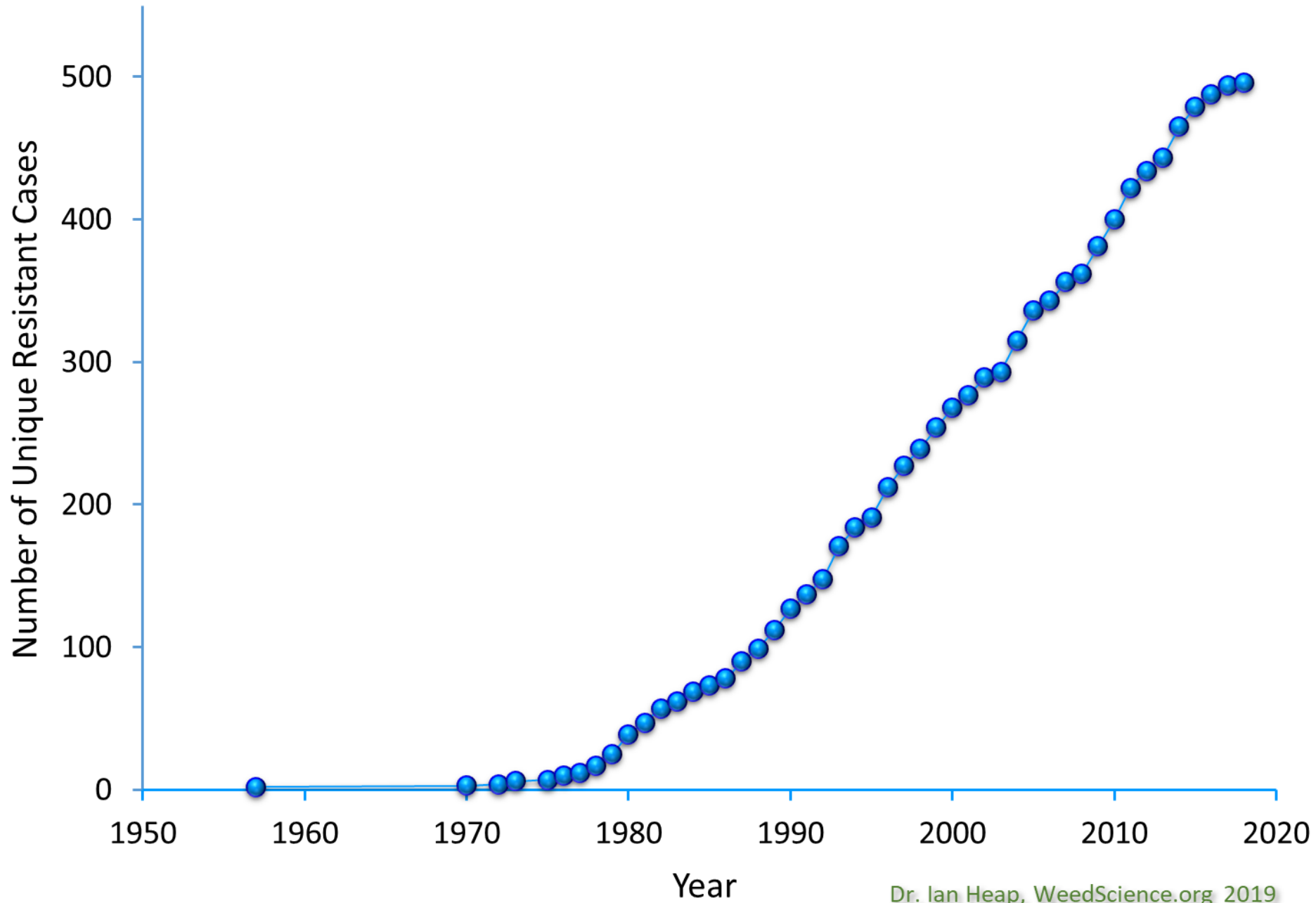
Graphs in this PowerPoint were made from data accessed from the survey website at <http://www.weedscience.org> on February, 2019.

The Site of Action codes used in this slide set are from the Weed Science Society of America (WSSA).

Another version for HRAC codes can be downloaded from the website.

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Global Increase in Unique Resistant Cases



Number Resistant Species for Several Herbicide Sites of Action (WSSA Codes)

ACCase Inhibitors (1)

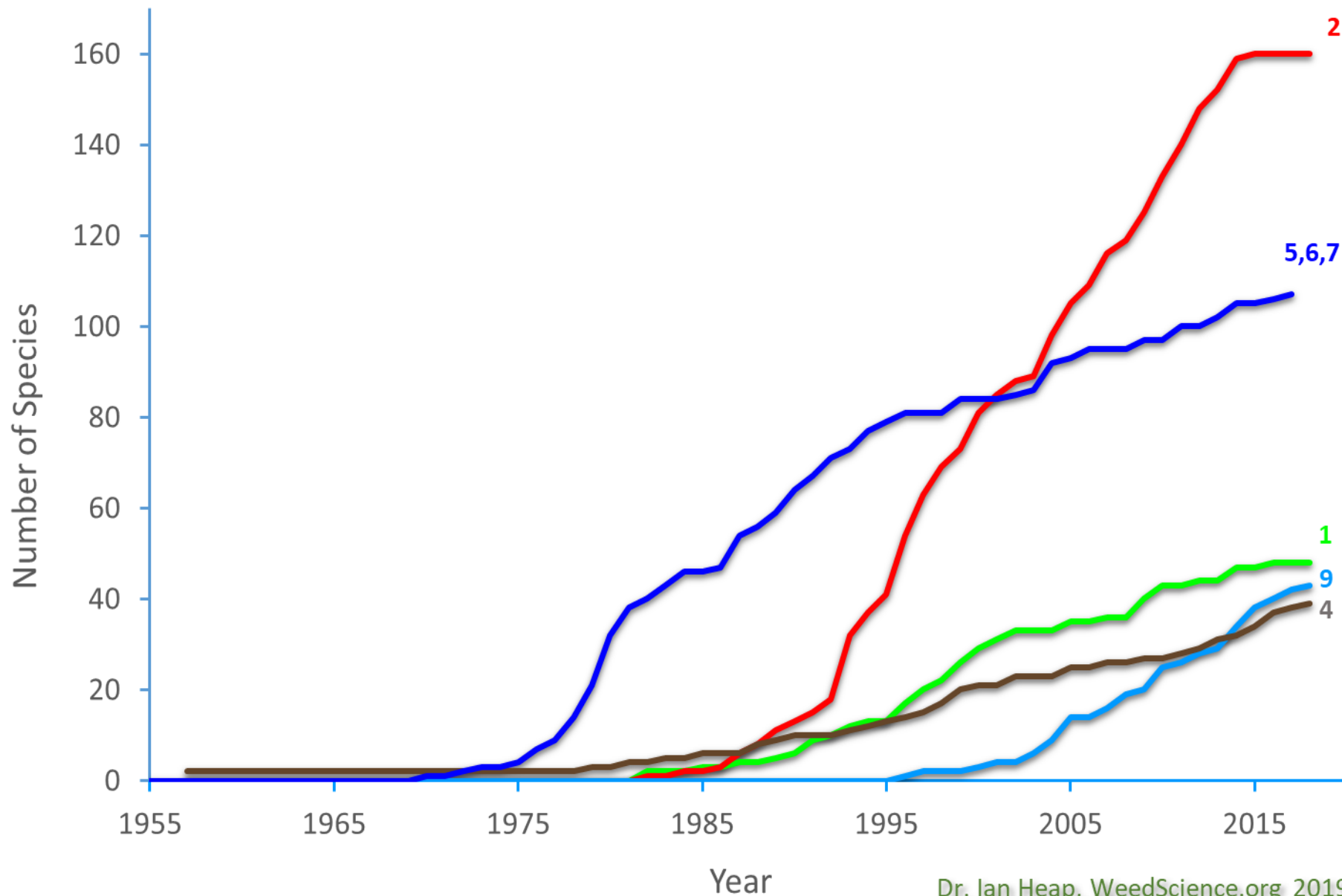
ALS Inhibitors (2)

EPSP Synthase Inhibitors (9)

Synthetic Auxins (4)

PSII Inhibitors (5,6,7)

Note: PSII Inhibitors Combined



Number of Resistant Species for Several Herbicide Sites of Action (WSSA Codes)

ACCase Inhibitors (1)

ALS Inhibitors (2)

EPSP Synthase Inhibitors (9)

Synthetic Auxins (4)

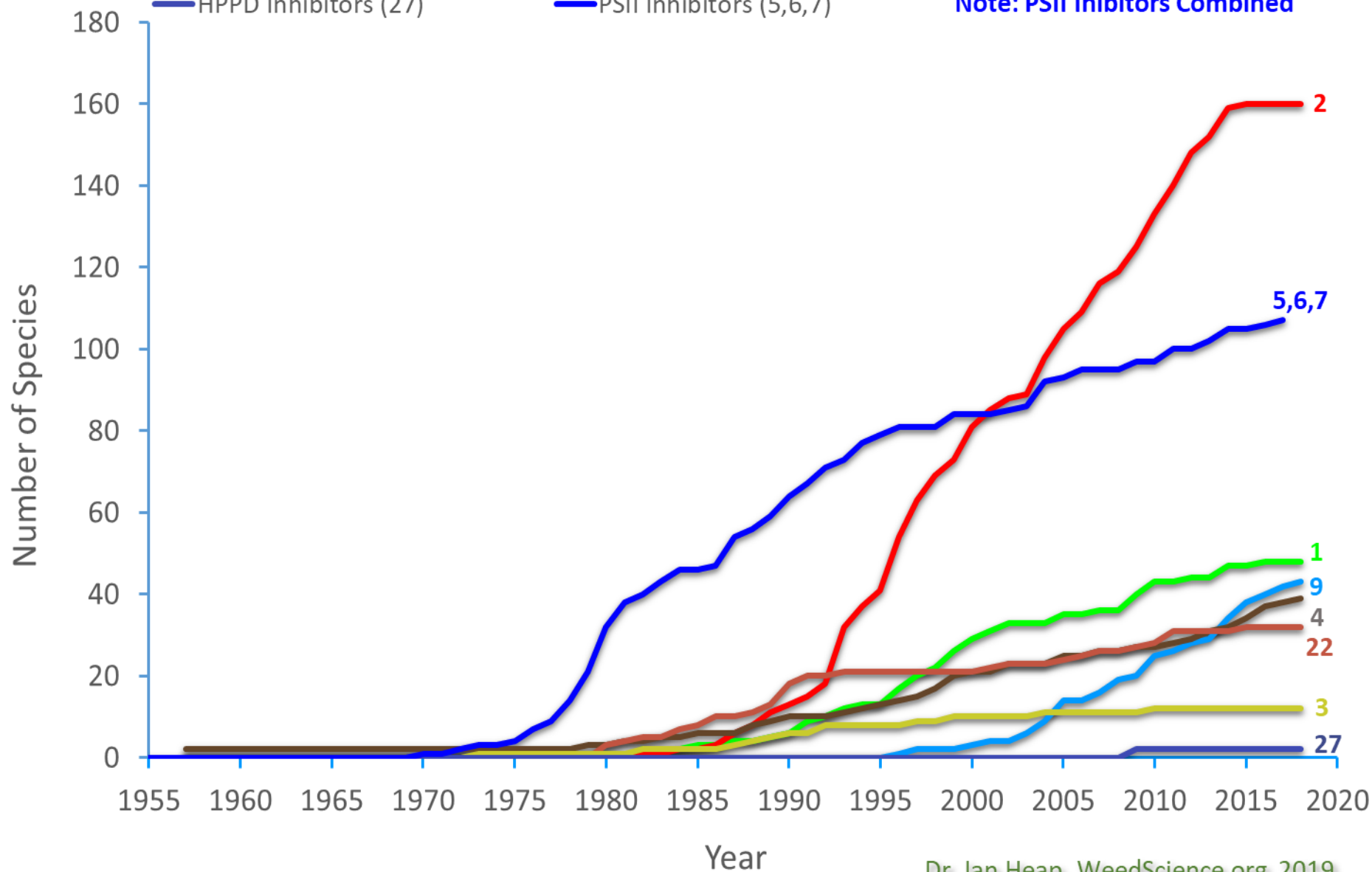
PSI Electron Diverter (22)

Microtubule Inhibitors (3)

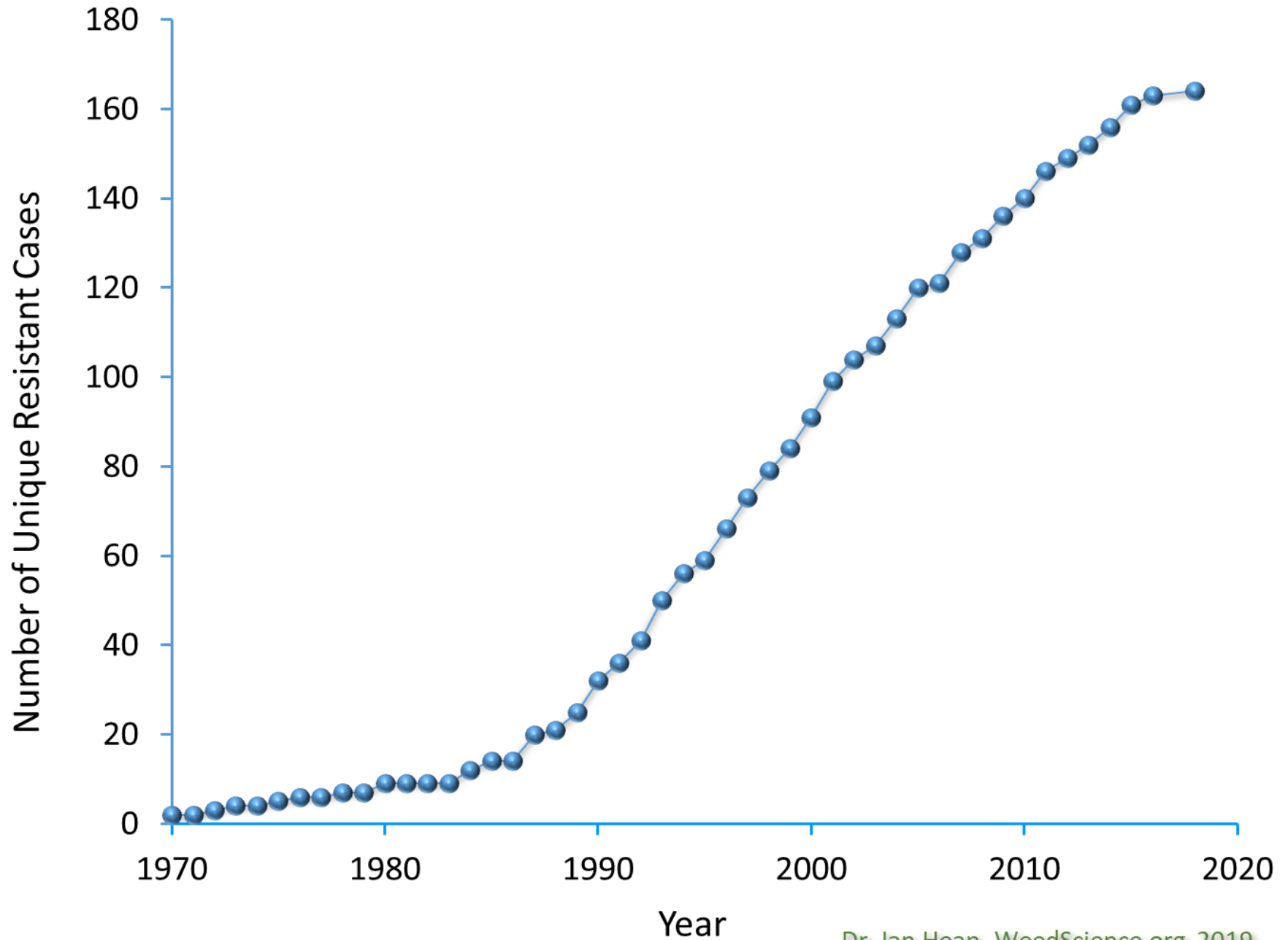
HPPD Inhibitors (27)

PSII Inhibitors (5,6,7)

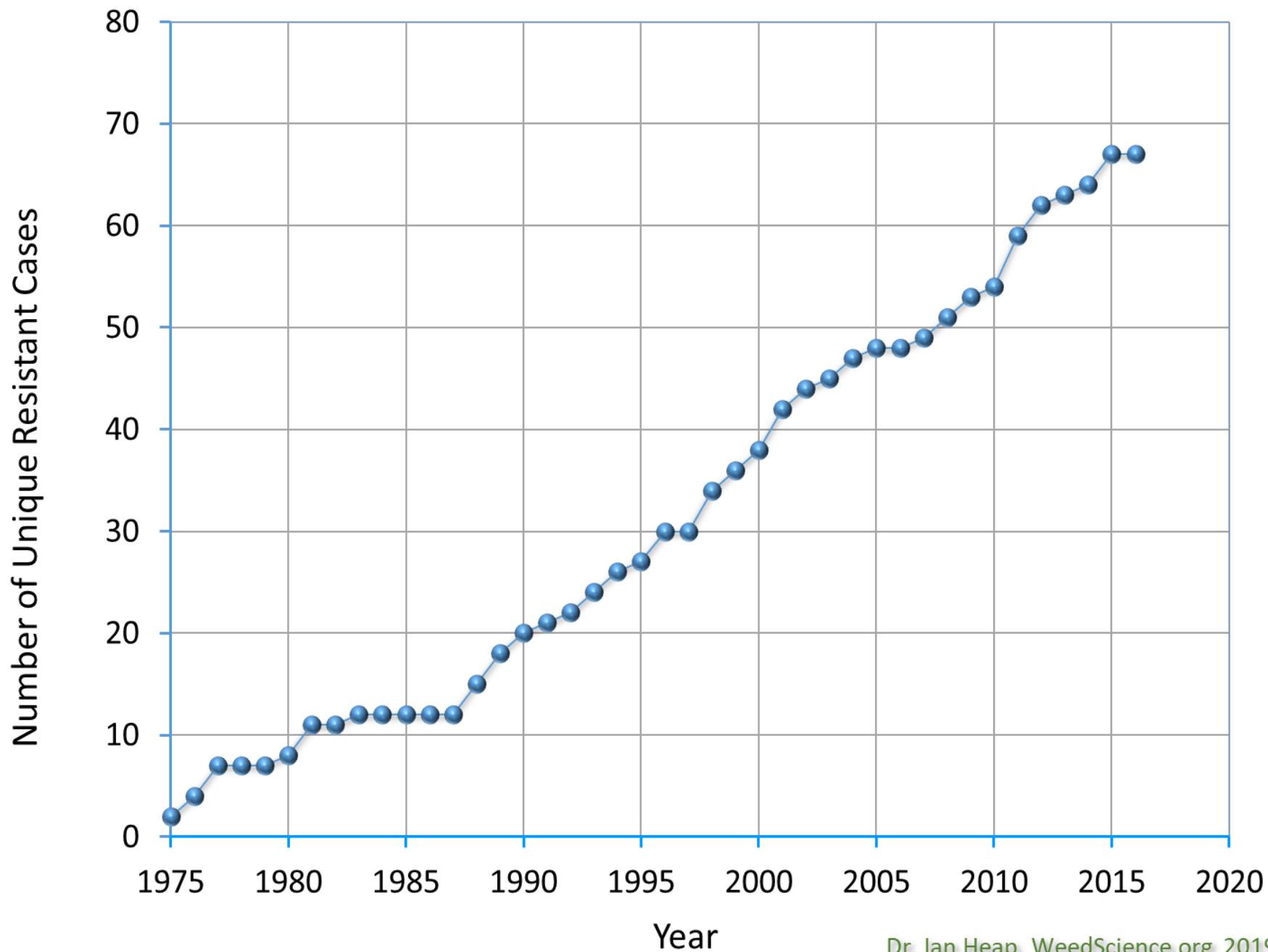
Note: PSII Inhibitors Combined



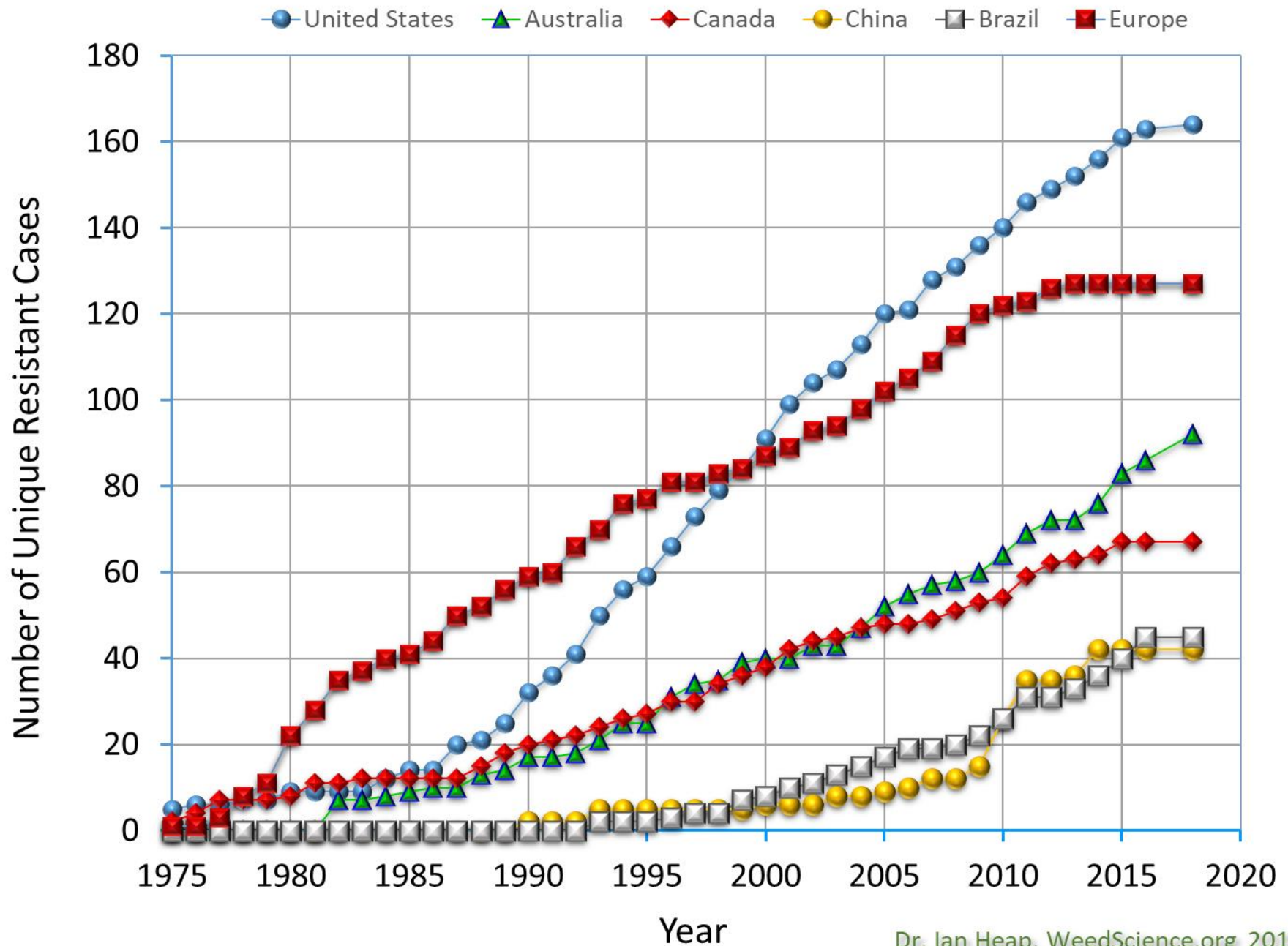
Increase in Unique Resistant Cases in the USA



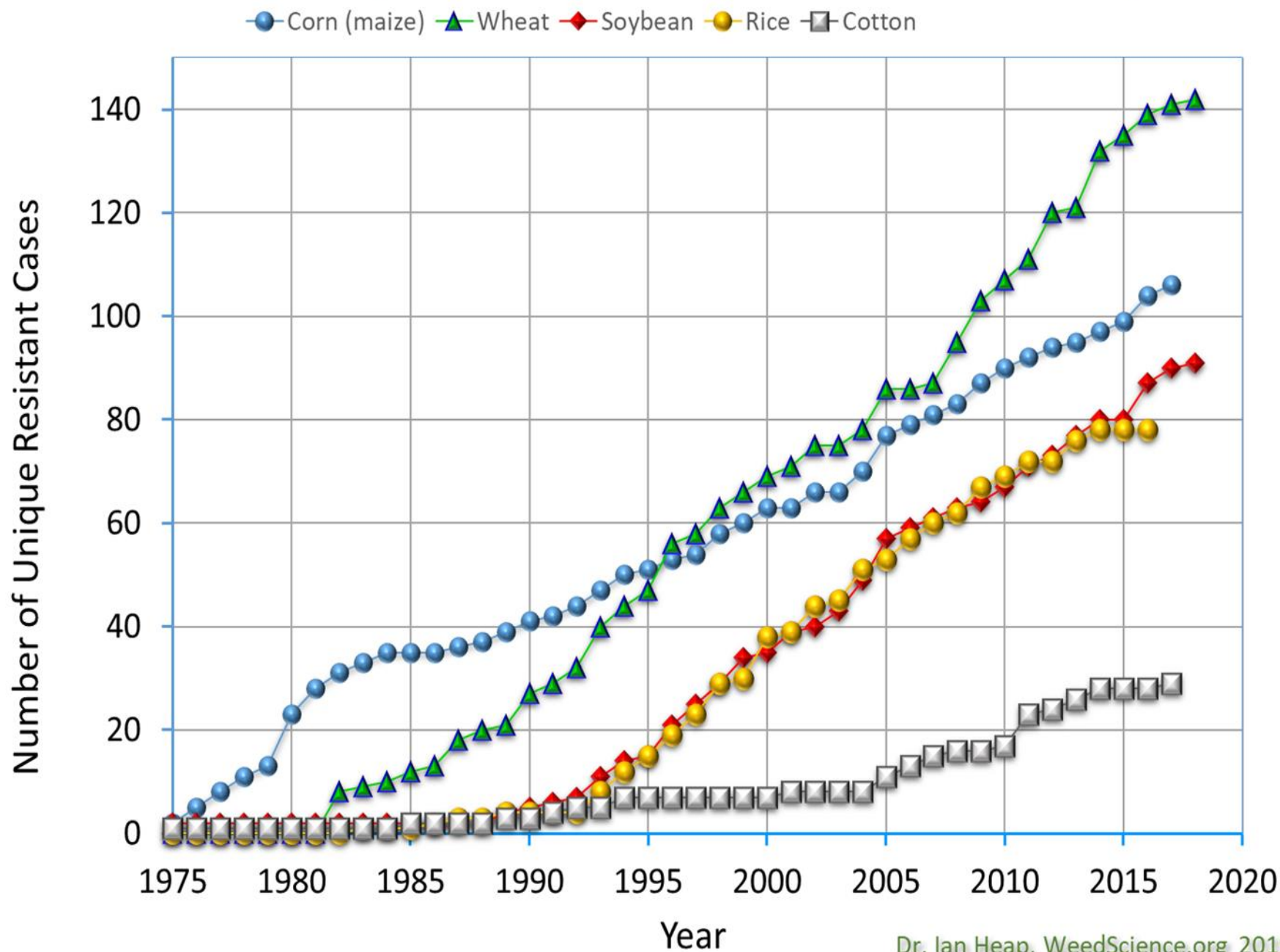
Increase in Unique Resistant Weed Cases for Canada



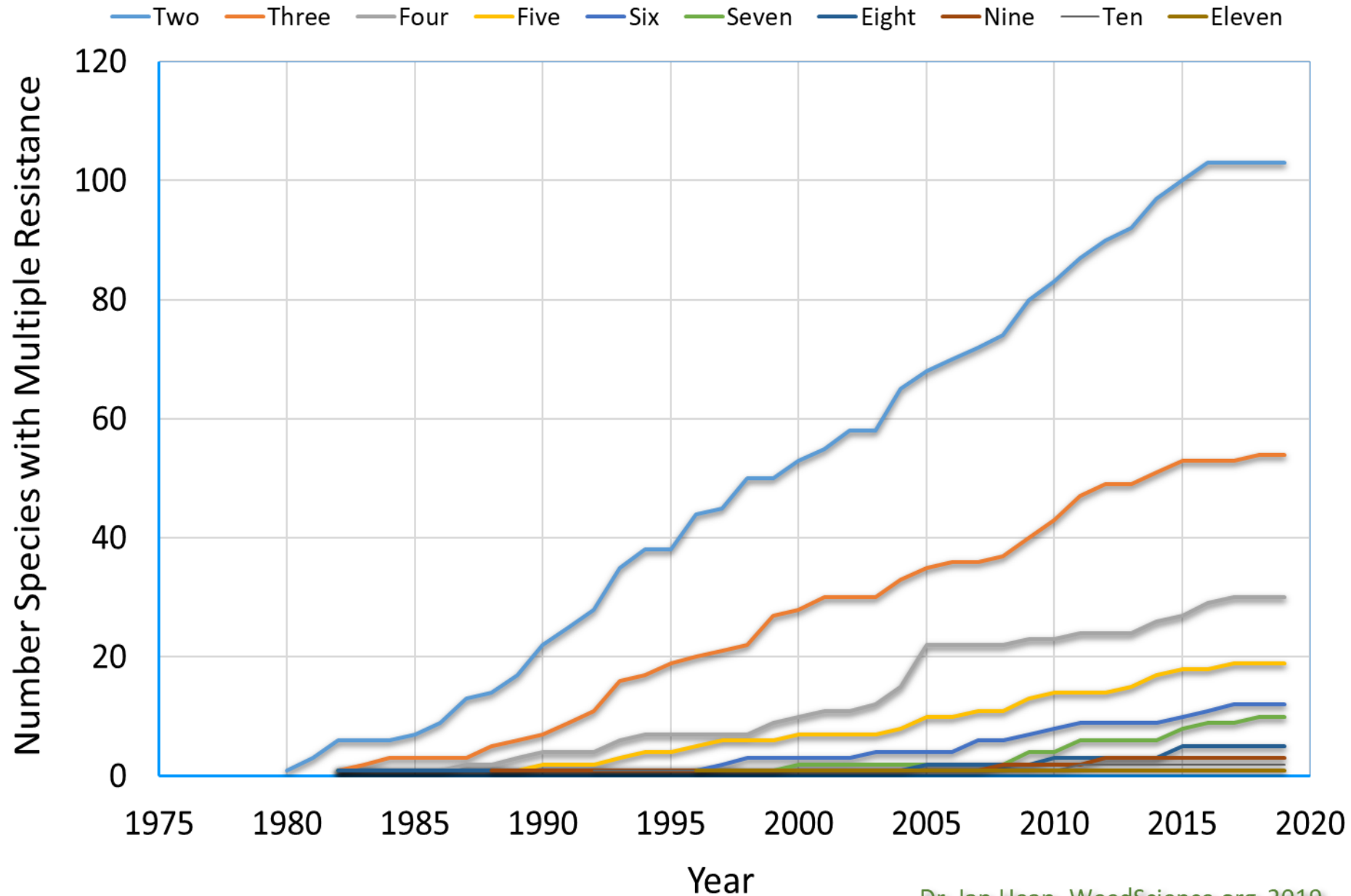
Increase in Unique Resistant Cases for Selected Countries and Europe



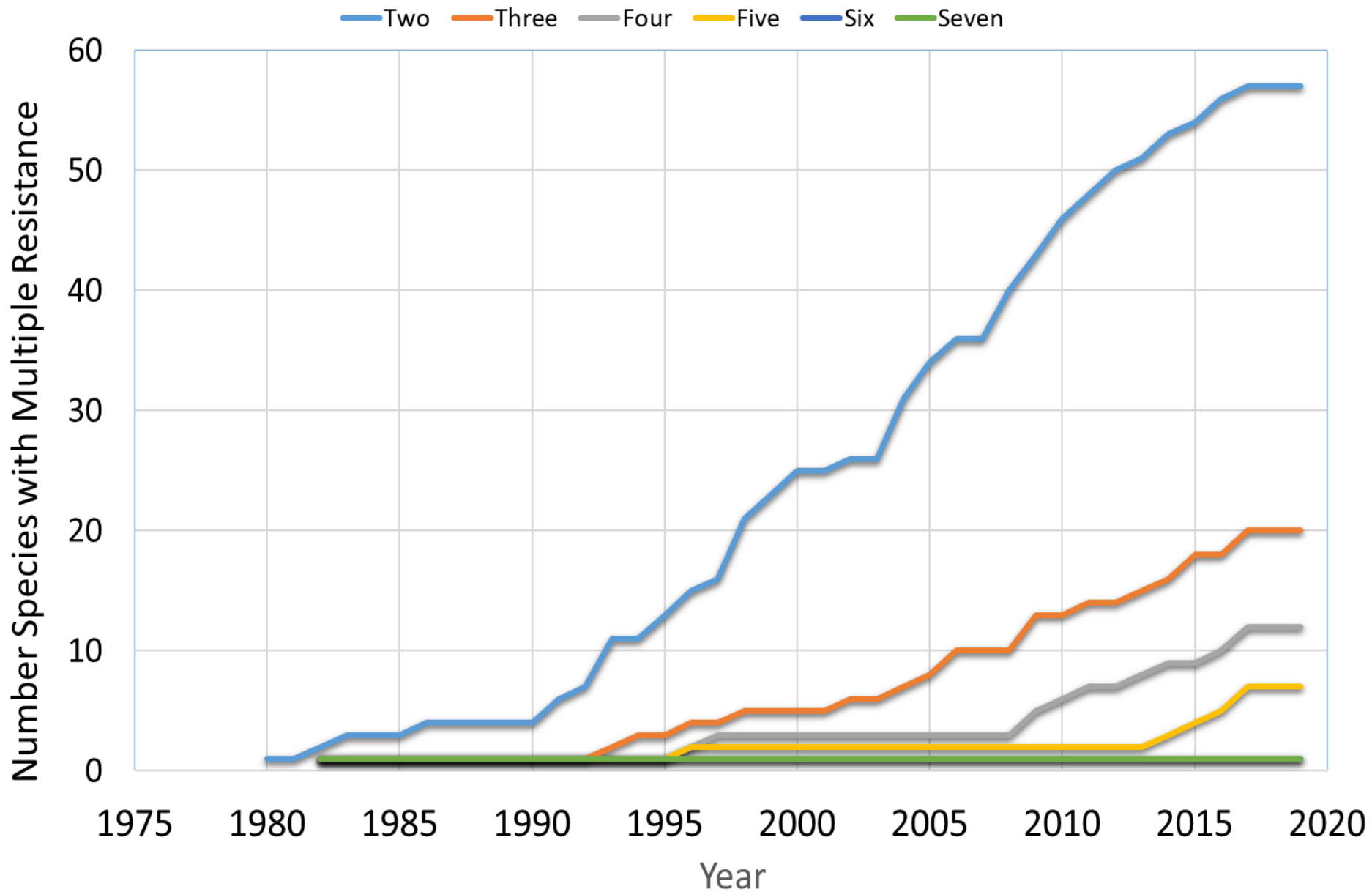
Increase in Unique Herbicide Resistant Weed Cases for Selected Crops



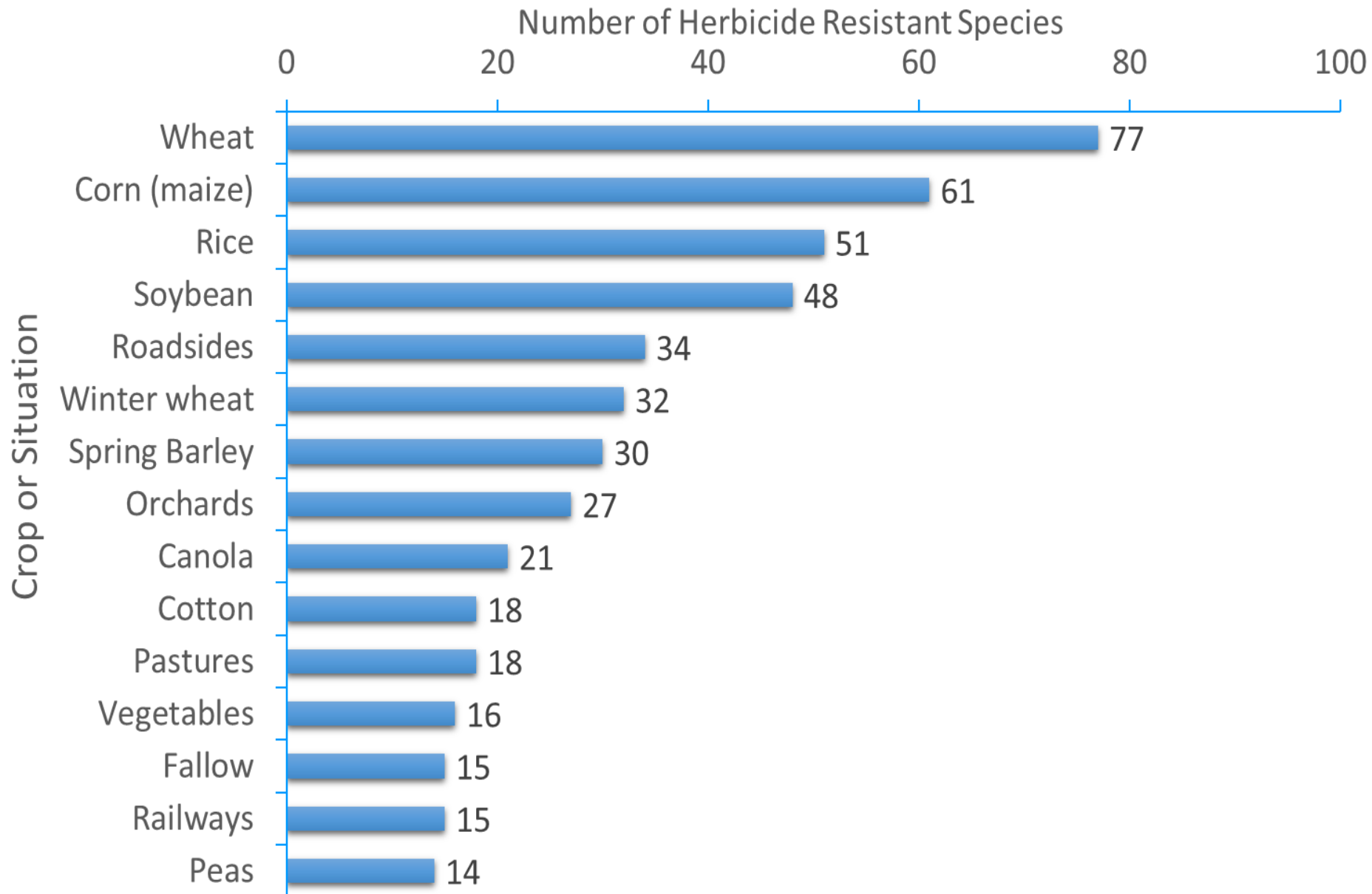
Weed Species with Resistance to More than One Site of Action



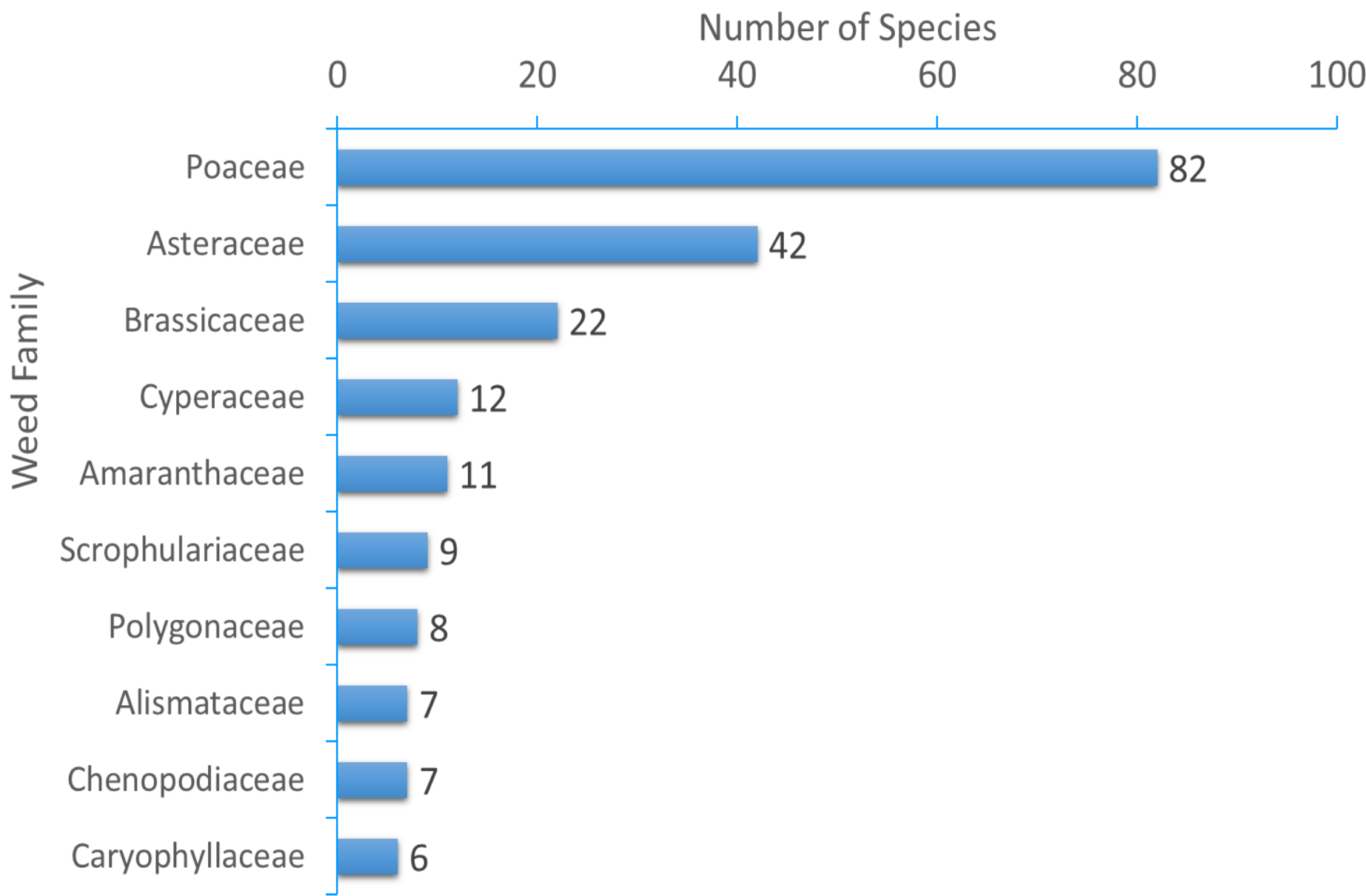
Weeds Resistant to Multiple Sites of Action within a Population



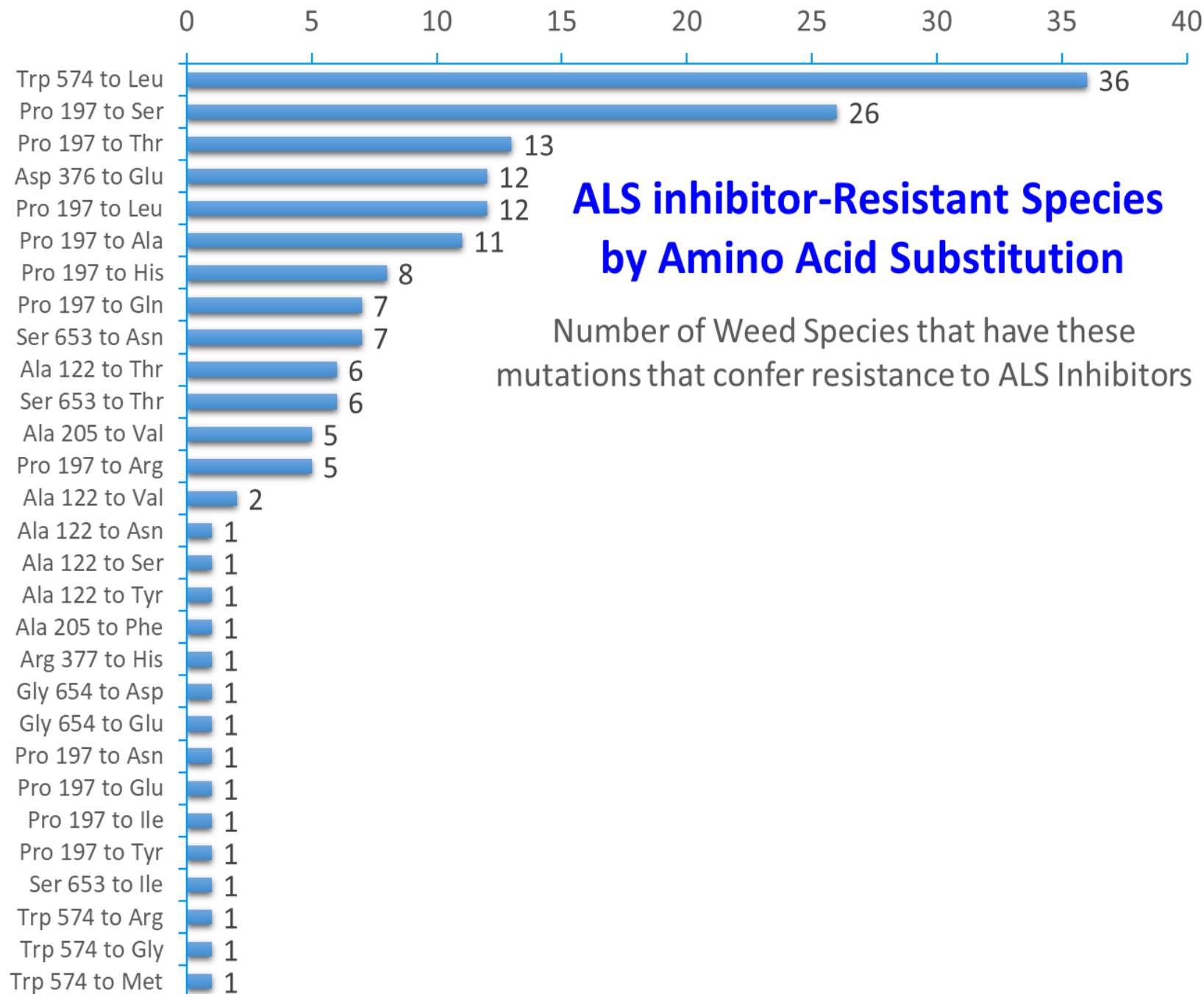
Number of Herbicide-Resistant Species by Crop



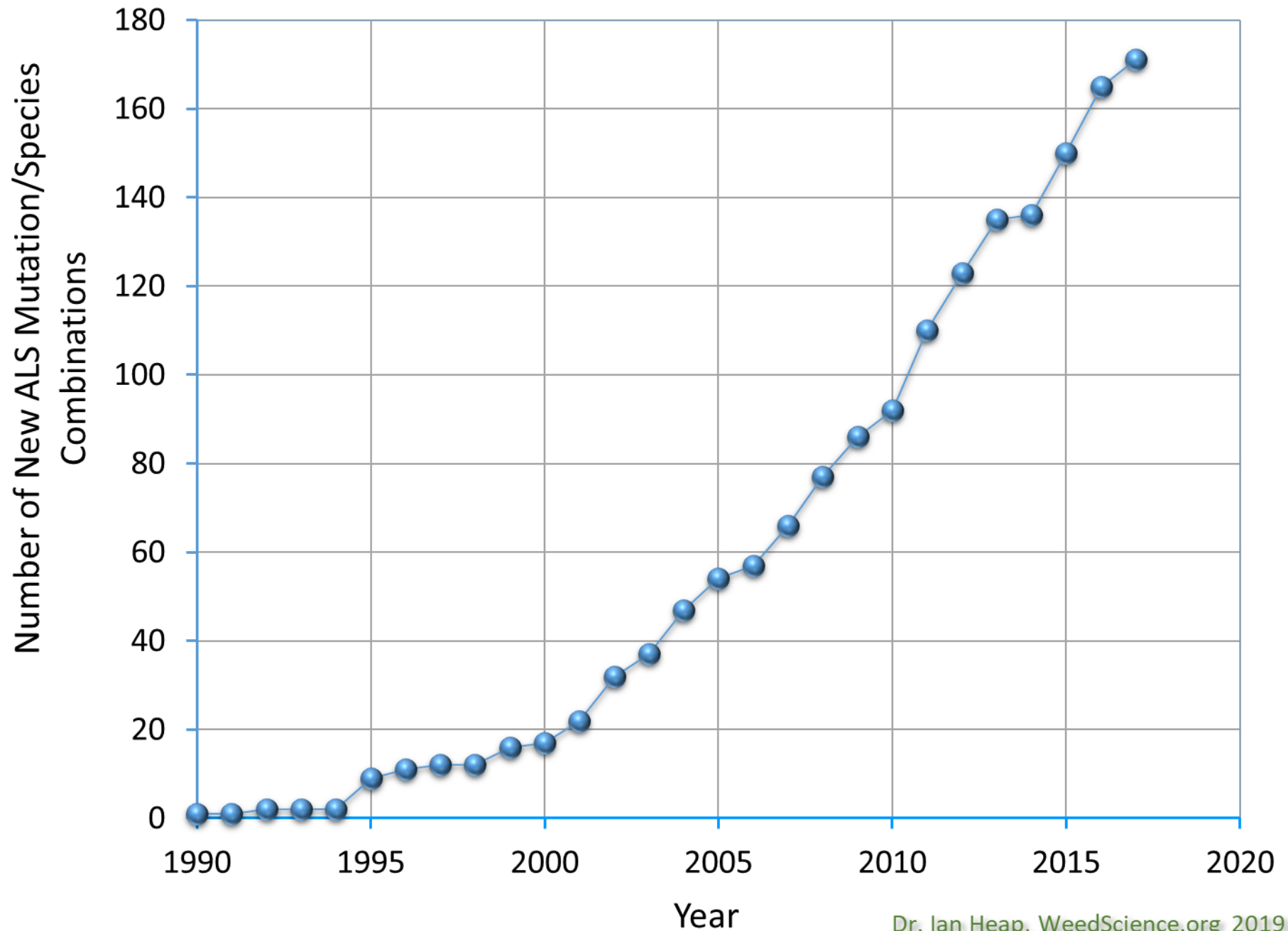
Number of Herbicide Resistant Weed Species by Weed Family (Top 10)



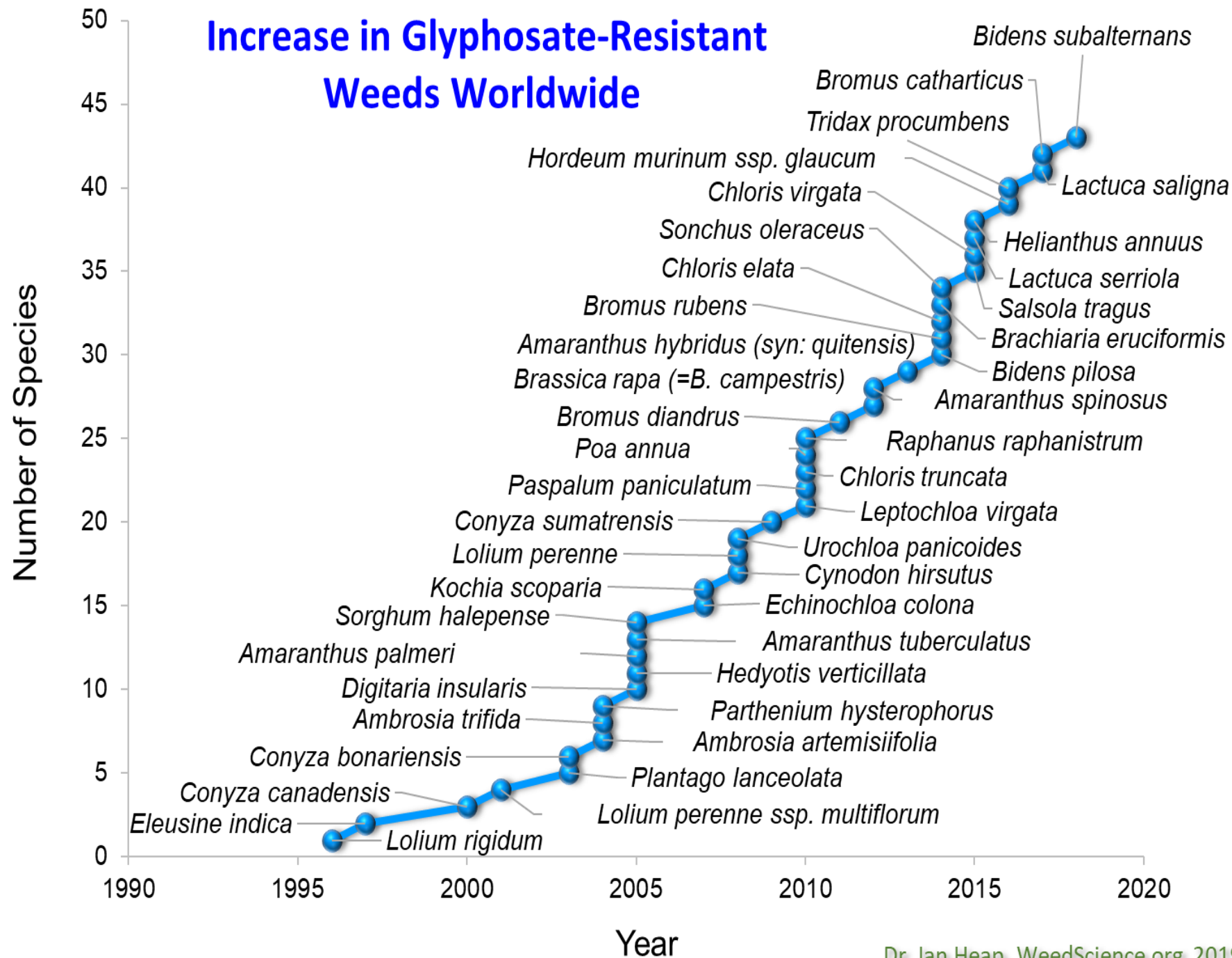
Amino Acid Substitutions



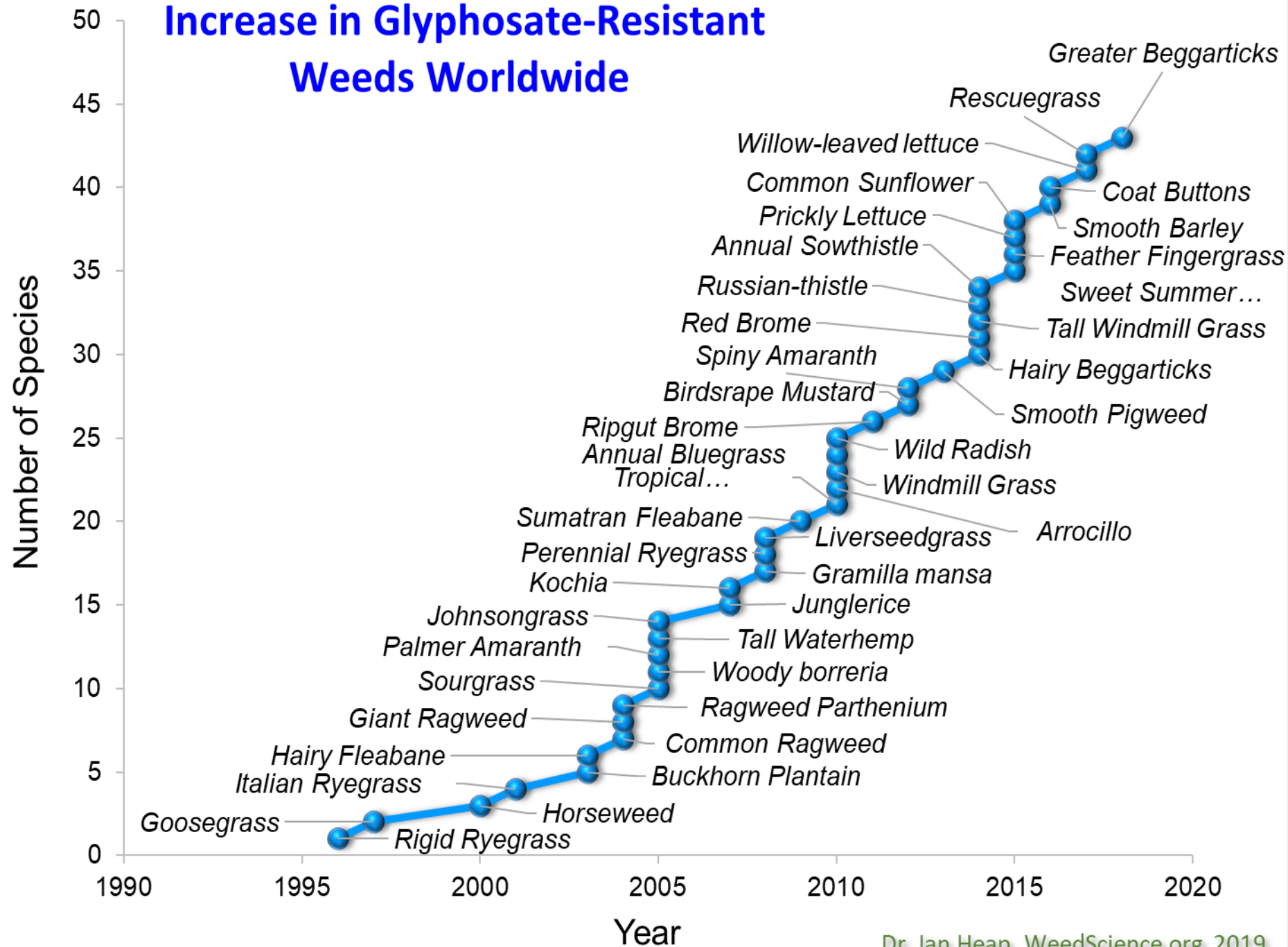
Accumulation of New ALS Mutations/Species Combinations Identified by Year



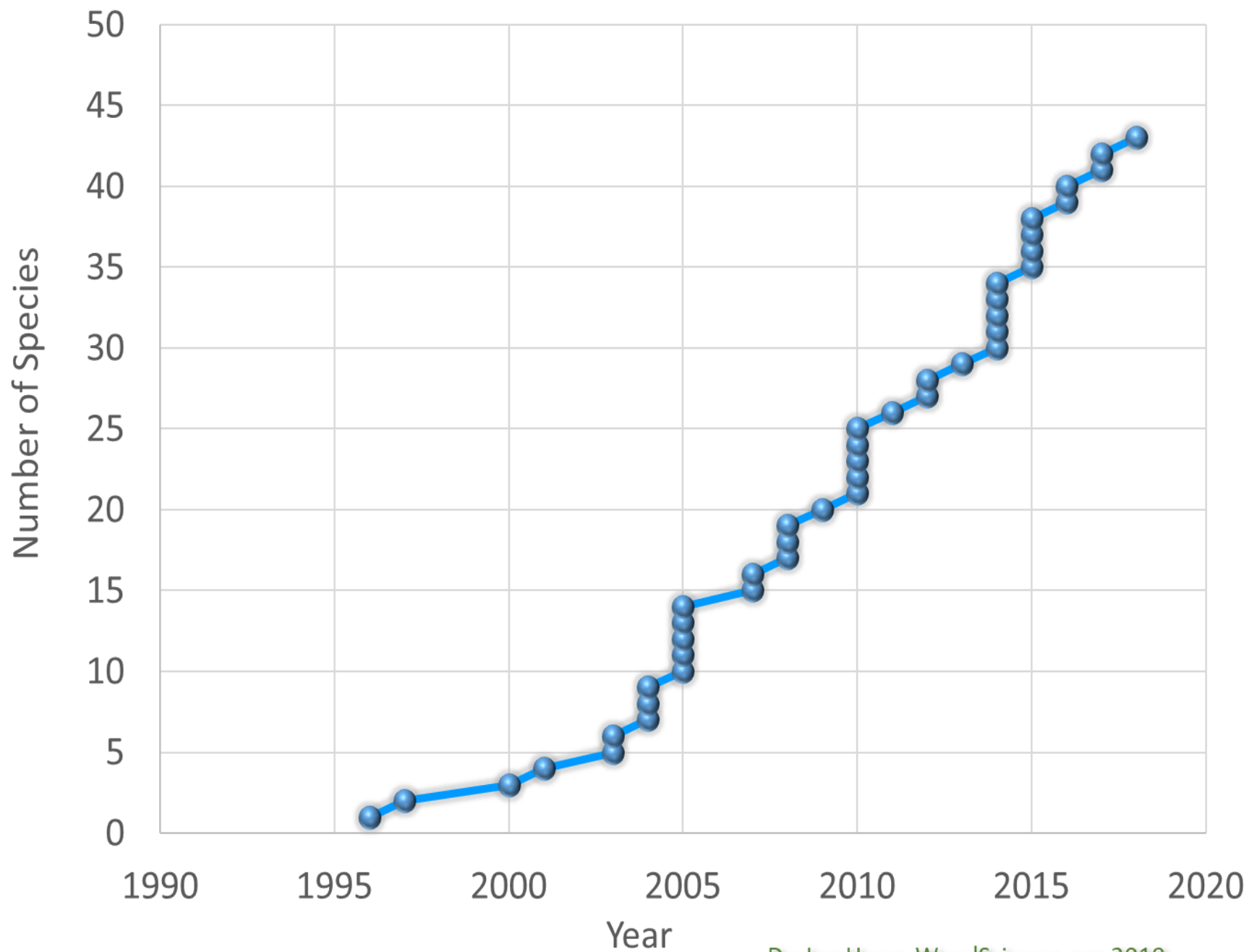
Increase in Glyphosate-Resistant Weeds Worldwide



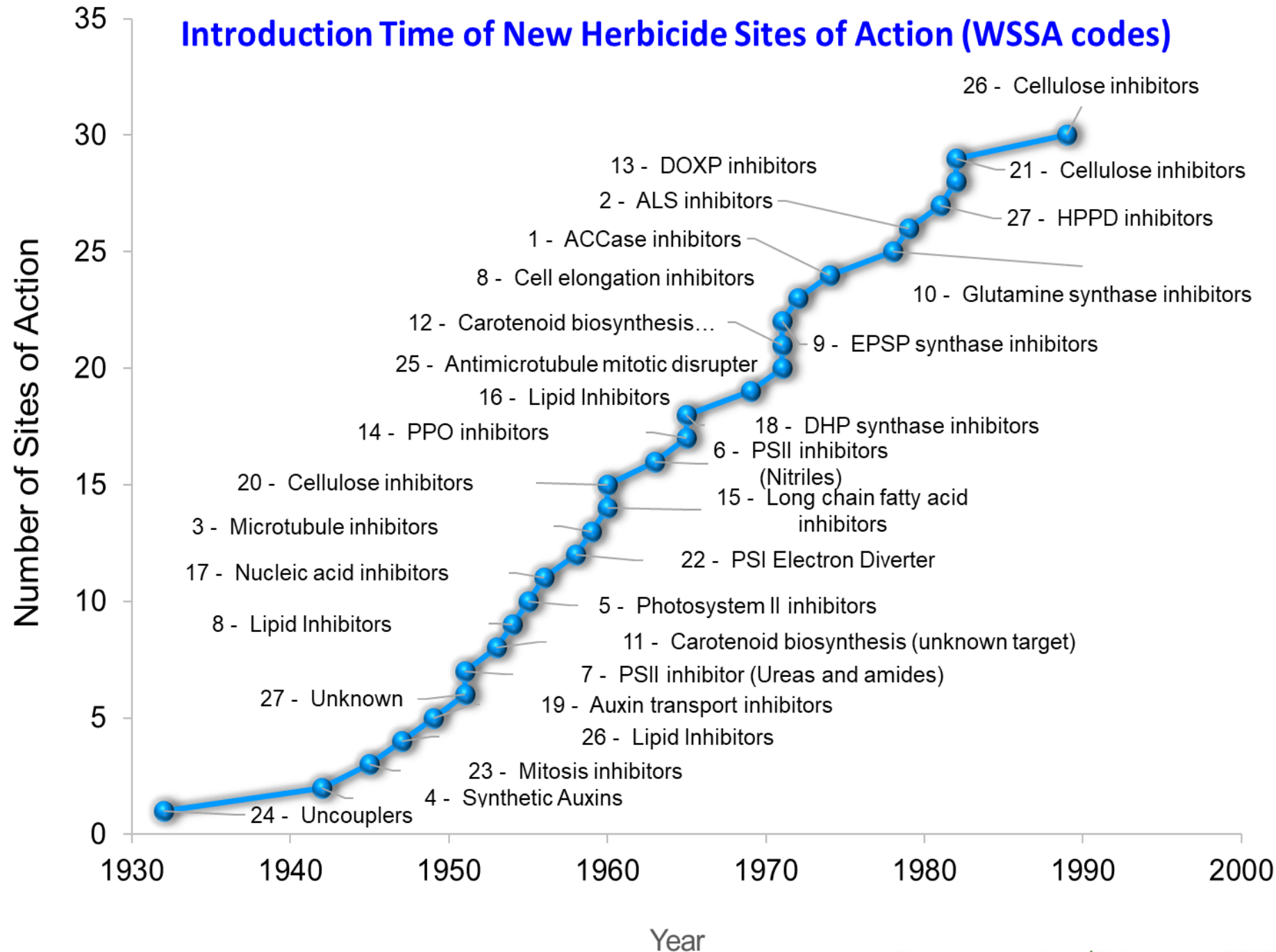
Increase in Glyphosate-Resistant Weeds Worldwide



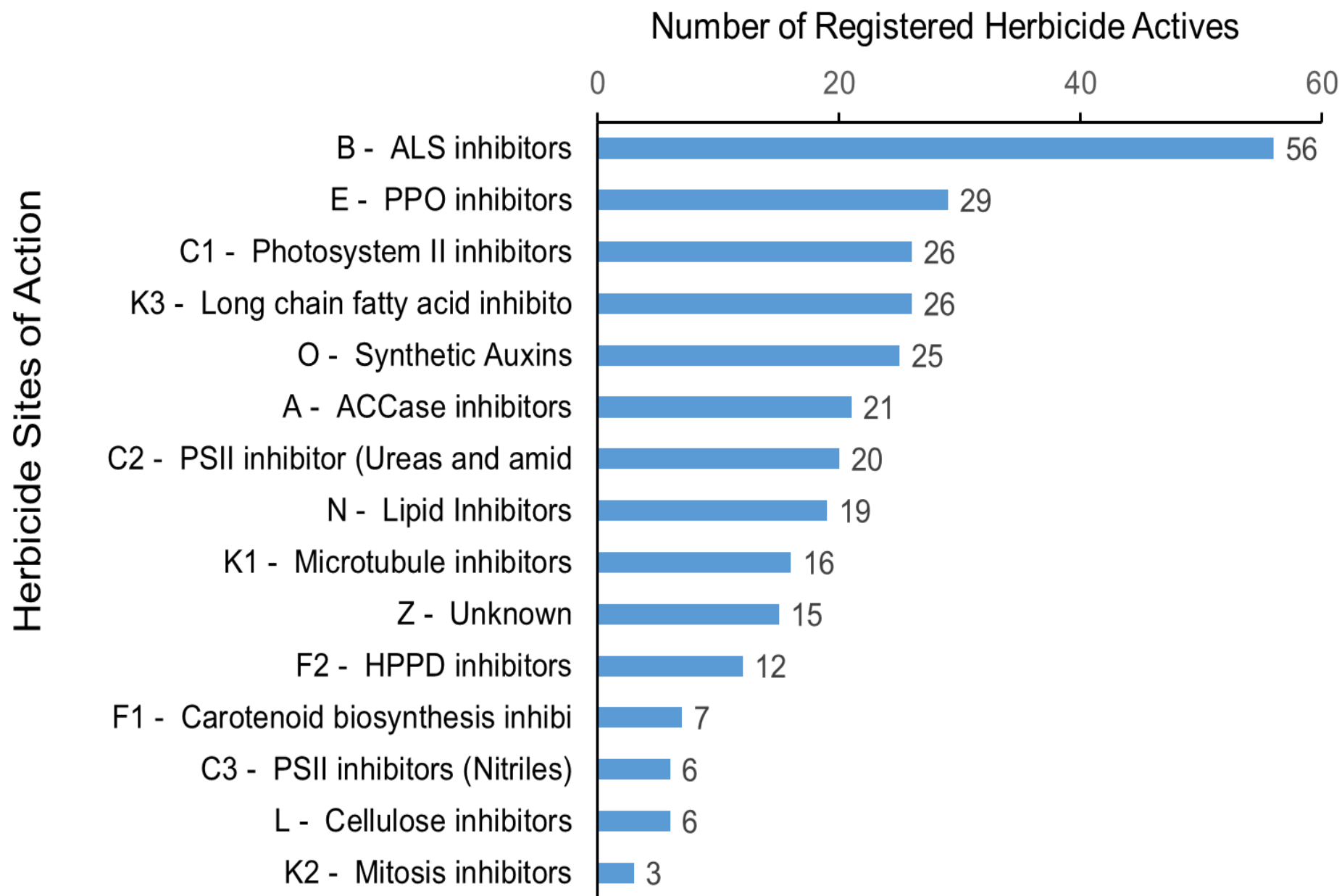
Increase in Glyphosate-Resistant Weeds Worldwide



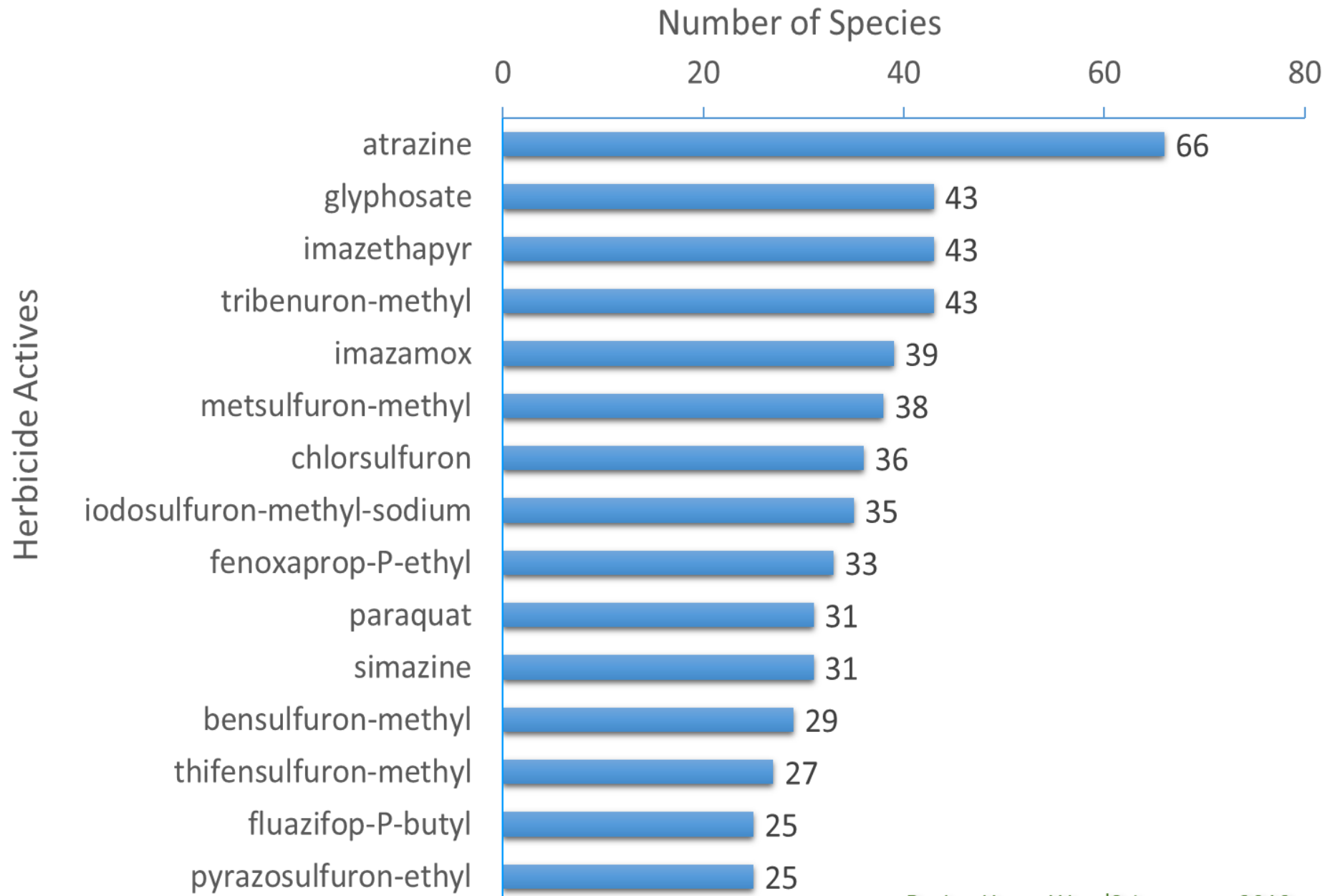
Introduction Time of New Herbicide Sites of Action (WSSA codes)



of Registered Herbicides for the Major Herbicide Sites of Action (HRAC codes)



Number of Resistant Species to Individual Active Herbicides (Top 15)



Weed Species Resistance to Multiple Herbicide Sites of Action

