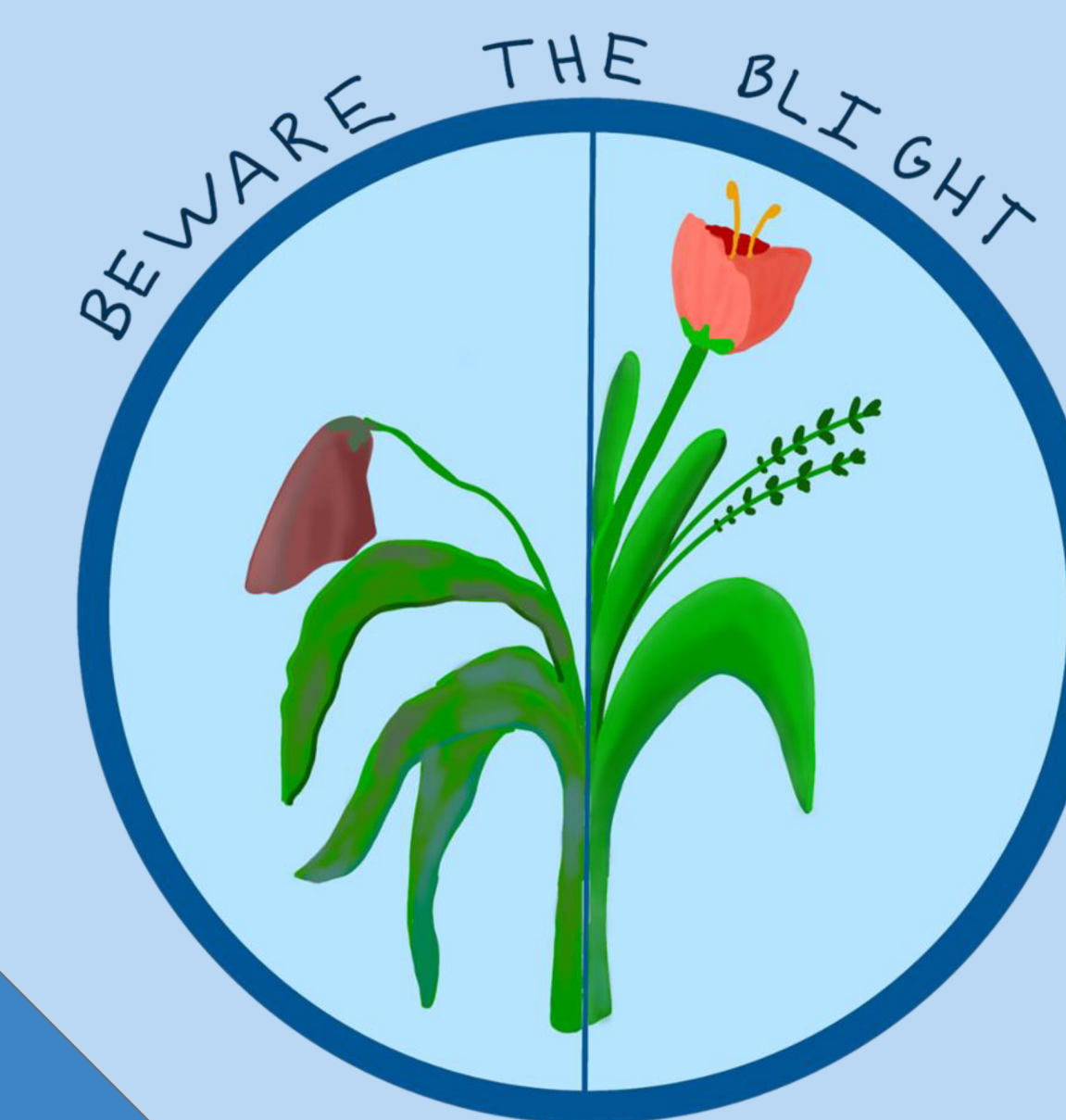


Effect of Late Blight on Monocultures

By: Michelle Miller, Stephanie Dean, Mary Lombardi, Elizabeth Howie
Advisors: Professor Bakermans, Professor San Martín



What is Blight?

Blight is a fungal disease that makes crops unusable

Some symptoms include curling leaves and brown spots

What is Our Project?

Our project is focused on severity of blight in monoculture farms in northeastern US

Monoculture farms only have one crop

Why Does This Matter?

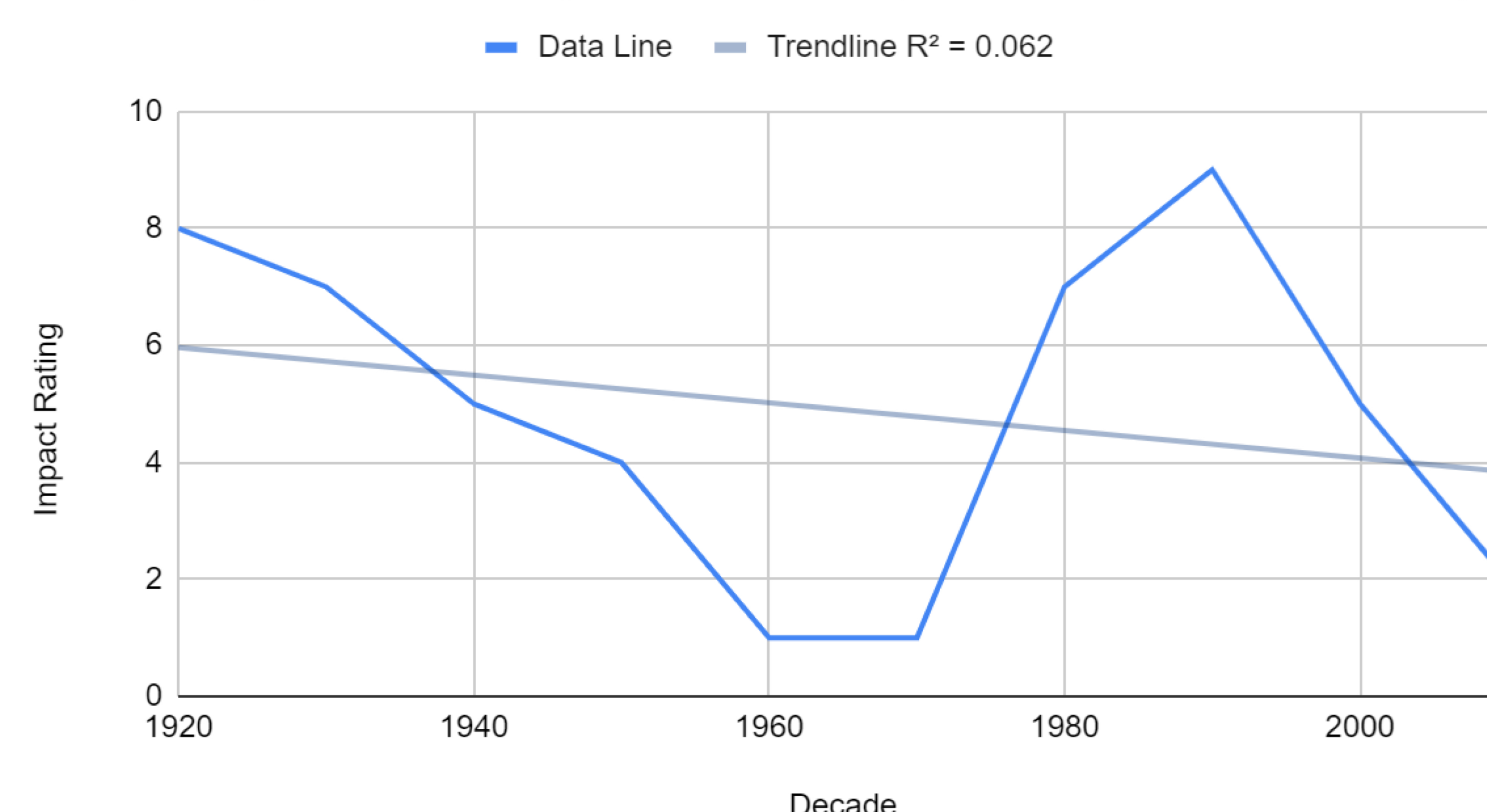
Potatoes are a very important source of food

This will show the effects of lack of biodiversity, which contributes to the broader issue of extinction

Project Goals:

- Compare frequency and severity of blight from 1920s to present
- Review this in comparison to growth of farm size to show effect of monoculture
- Share effects of blight on other species to show significance of blight outbreaks

Frequency and Severity of Potato Blight Over the Last Century



Solutions:

- Crossbreed potatoes with a wild immune variety to protect against blight
- Leave fields fallow over the winter and build erosion barriers to prevent excessive loss of topsoil
- Create stricter federal laws to prevent spread of blight



"Phytophthora infestans potato Parel" by Rasbak, licensed under CC BY-SA 3.0.

Methods:

- Compare blight in each decade based on severity, length, and impact from 1920s to present

References

Fry, & Goodwin, S. (1997). Re-emergence of potato and tomato late blight in the United States. *Plant Disease*, 81(12), 1349–1357. <https://doi.org/10.1094/PDIS.1997.81.12.1349>
Cox, A. E., & Large, E. C. (1960). United States of America. In *Potato blight epidemics throughout the world* (pp. 118–137). essay, Agricultural Research Service, U.S. Dept. of Agriculture.
Song, Bradeen, J. M., Naess, S. K., Raasch, J. A., Wielgus, S. M., Haberland, G. T., Liu, J., Kuang, H., Austin-Phillips, S., Buell, C. R., Helgeson, J. P., & Jiang, J. (2003). Gene RB Cloned from *Solanum bulbocastanum* Confers Broad Spectrum Resistance to Potato Late Blight. *Proceedings of the National Academy of Sciences - PNAS*, 100(16), 9128–9133. <https://doi.org/10.1073/pnas.1533501100>

