

GLOBAL Extension and Outreach

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GLOBAL Extension and Outreach

Together with our stakeholders:

- Increase the understanding of impacts of Globodera - presentations, workshops, field days;
- Extension and outreach materials;
- Minimize adverse economic impacts to U.S. agriculture and food security;

Objectives

Enhance stakeholder engagement and action in a *Globodera* place and time

- Agricultural practices for potato production.
- Examine economic implications
- Determine changes due to potato cyst nematodes
- Determine regulatory goals for *Globodera* spp. and benefit of containment and quarantine policies

Objectives (cont.)

- Engage minority groups in management of invasive agricultural pests.
- Use the Extension, Outreach, and Education efforts for this proposed work to serve as a model for other present and future invasive agricultural pests.

Specific Objectives from the Advisory Board

- How is resistance developed and deployed for use in an eradication program?
- How and why does the regulatory policy in Europe differ from that of the U.S.?
- What is the current situation with *Globodera* presence in ID, OR, and NY?

Specific Objectives from the Advisory Board

- What are the differences among states which allows policy to differ for regulation of similar quarantine pests...

...why are resistant potatoes allowed to be planted in *G. rostochiensis* infested fields in New York, but not in *G. pallida* infested fields in Idaho.

Objectives (cont.)

- Develop coupled models of nematode population dynamics x potato cropping system x pest economic impacts, to predict effects of susceptible vs. resistant potato cultivars on crop loss.

GLOBAL Extension and Outreach Accomplishments

| Year | Work shops | Presentations | | | Publications | | Field days |
|--------------|------------|---------------------|----------------------|----------|------------------------------------|--|------------|
| | | Scientific meetings | Stakeholder meetings | Posters | Scientific Journals; Book Chapters | Industry newsletter and popular press articles | |
| 1 | 8 | - | 11 | - | - | Multiple | 1 |
| 2 | 5 | 9 | 7 | 3 | 3 | Multiple | 1 |
| 3 | 4 | 15 | 25 | - | 6 | Multiple | 2 |
| 4 | 3 | 26 | 7 | 3 | 9 | Multiple | 1 |
| TOTAL | 20 | 50 | 50 | 6 | 18 | Multiple | 5 |

GLOBAL Symposiums

- The Worldwide Impact of Potato Cyst Nematode Symposium. Society of Nematologist (SON) and the Organization of Nematologist for Tropical America (ONTA), Montréal, QC, Canada. July 19, 2016.
- Potato Cyst Nematode Symposium. PAA annual meeting July 24, 2018, Boise, ID
- How PCN defends itself against resistant plants. First Annual Center for Human Health and the Environment (CHHE) Research Symposium, University of Idaho, Moscow, Idaho. October 11, 2018.



Other Symposium Participation

- Impact of Quarantined Pests on the Potato Industry. Symposium at the Potato Association of America annual meeting. Boise, ID July 23, 2018.
- 32nd Symposium of the European Society of Nematologists (ESN) in Braga, Portugal. August 29 – September 1, 2016
- Risk assessment and eradication of Globodera spp. in U.S. production of potato. Poster presented at the 33rd Symposium of the European Society of Nematologists.



Results disseminated at multiple International, National, Regional, and PNW scientific conferences:

- Western Society of Weed Science
- **Potato Association of America**
- SON, **ONTA**, European
- Society of Nematologists (ESN)
- American Phytopathological Society Caribbean Division
- **World Potato Congress, Cusco, Peru**
- Phytopathological Society (APS) Pacific Division Meeting
- **Idaho Association of Plant Protection annual meetings**
- Idaho Weed Control Association annual meetings



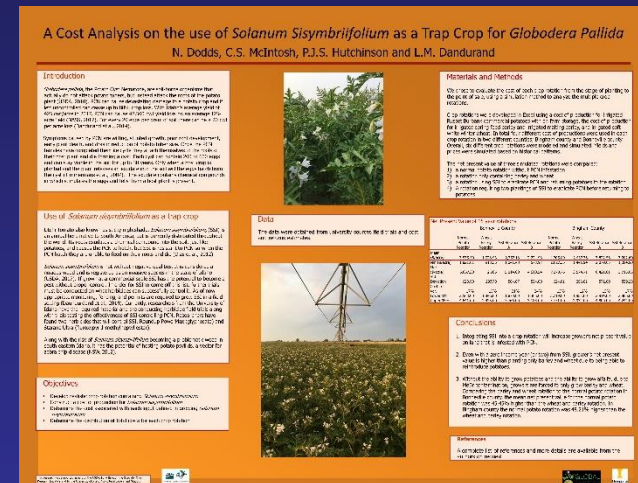
Interaction and Results to Stakeholder Advisory Board

- GLOBAL Stakeholder Advisory Board annual meetings.
- Periodic conference calls with Stakeholder Advisory Board
- Meetings with Idaho growers of PCN infested fields
- Joint Golden Nematode Workgroup Meeting and GLOBAL Project Annual Meeting



Results disseminated to the Potato Industry:

- University of Idaho Extension Annual Potato Conference including Spanish language workshop presentations (Contina)
- Potato Expo
- 2019 Potato-Grower Processor Meeting, Western NY Potato Growers
- Northwest Potato Research Consortium research review and proposal meetings



Results disseminated to the Potato Industry (cont.):

- Meeting with individual growers and other stakeholders such as County Weed Superintendents.
- SpudMan, Potato Grower, Potato Country, distribution and online
- University of Idaho Graduate Student Tour of Potato Industry in 2017 and 2019: interactions with potato production and seed growers, IPC, USDA-APHIS, UI Researchers and Extension Specialists. Potato Processors. Retail outlet potato sales

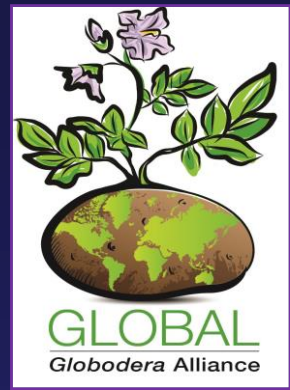
Field Days and Open Houses:

- University of Idaho Snake River
- Weed Management Annual Tour. UI Aberdeen R&E Center.



- University of Idaho Twilight Tours. UI Aberdeen R&E Center.
- Steuben County Twilight Potato Meeting, Cornell Cooperative Extension

Globodera Alliance Newsletter



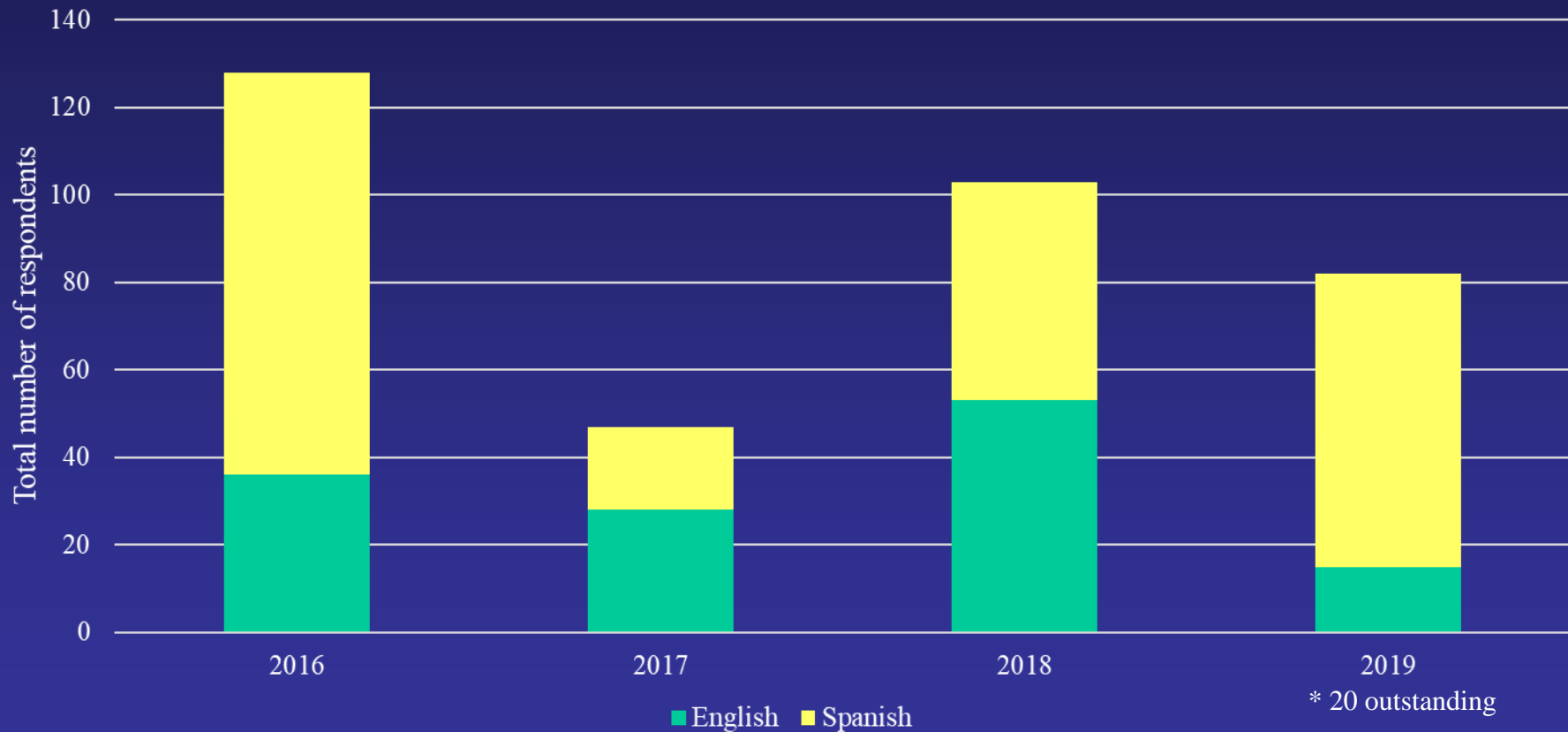
- This quarterly newsletter serves to bring information to our stakeholders and the public
- **Distributed at stakeholder conferences and field days and is made available online.**
- Seven issues have been published to date in both English, Spanish, and more recently a French edition was added.
- **Online newsletter subscribers function attracts a following, including subscribers in Australia, Canada, Egypt, France, India, Kenya, Morocco, the Netherlands, and Mexico.**

GLOBAL Website

www.globodera.org

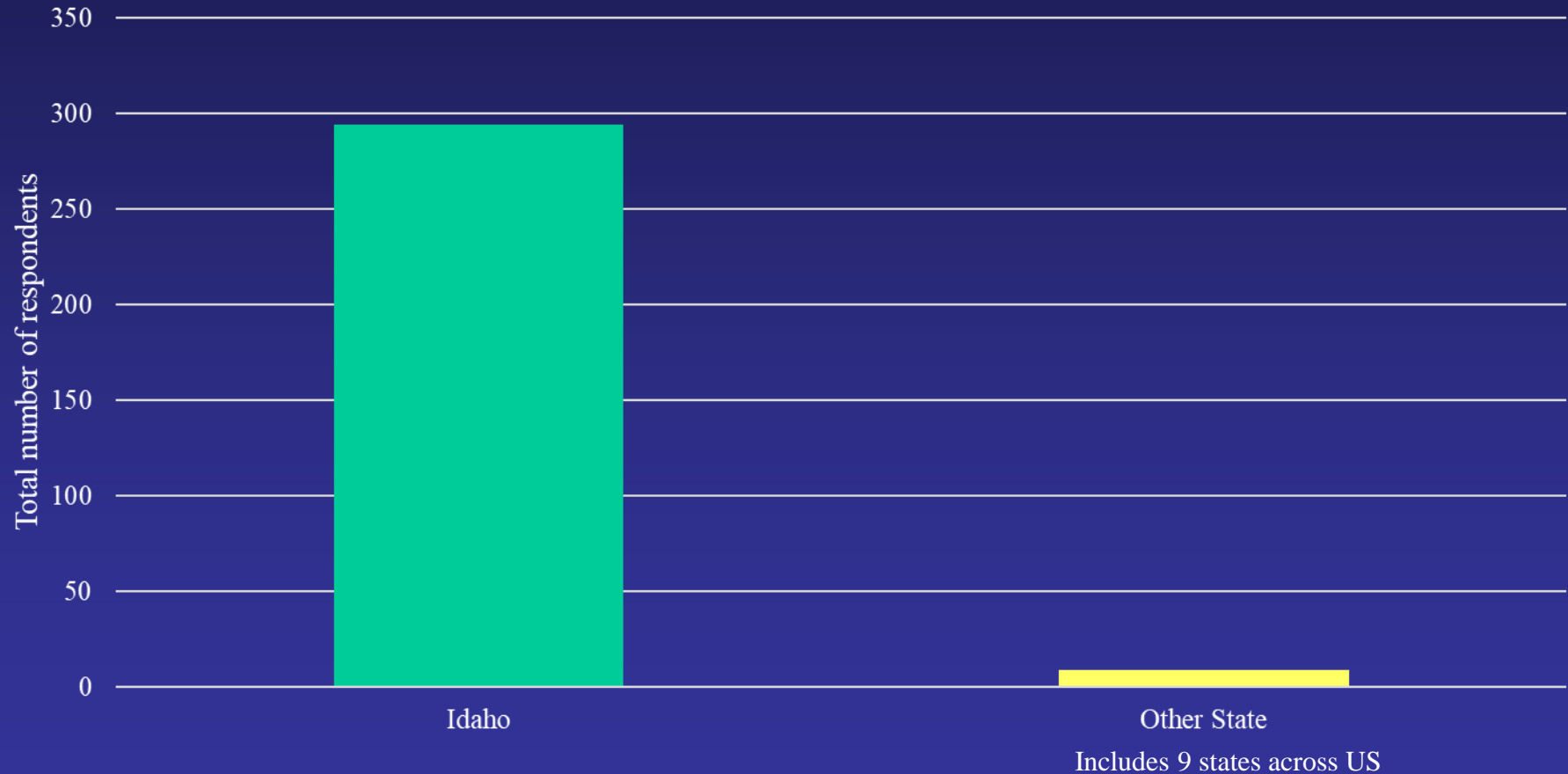
- Targeted to both English, Spanish, and French speaking audiences
- **Designed to keep stakeholder audience informed throughout the year.**
- The website allows viewers to see videotapes of international scientist presentations and/or posters as well as link to journal articles, detailing the Project's published research findings.

Survey respondents by year

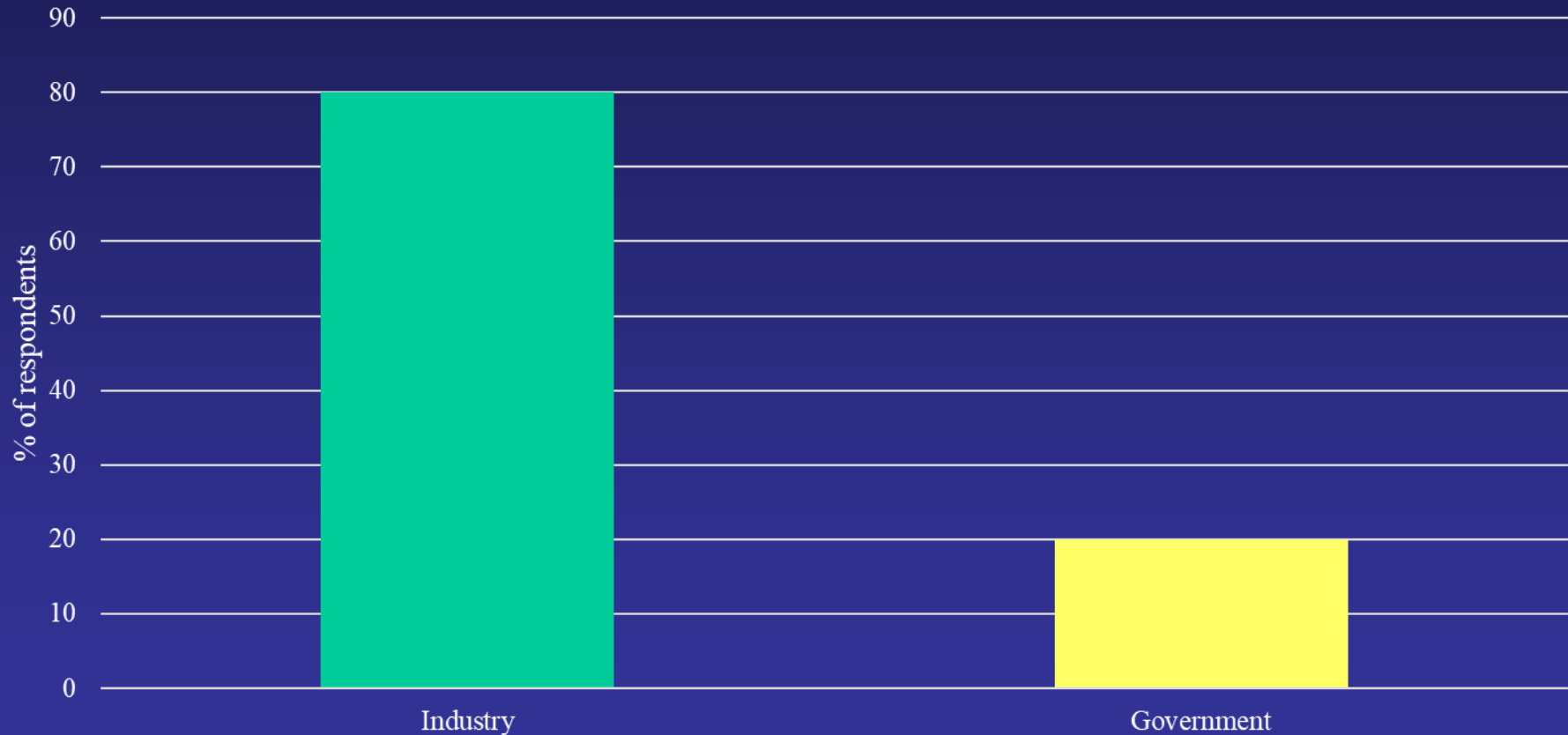


Total of 360 respondents (94% at Idaho Potato Conference)

Survey respondents by state



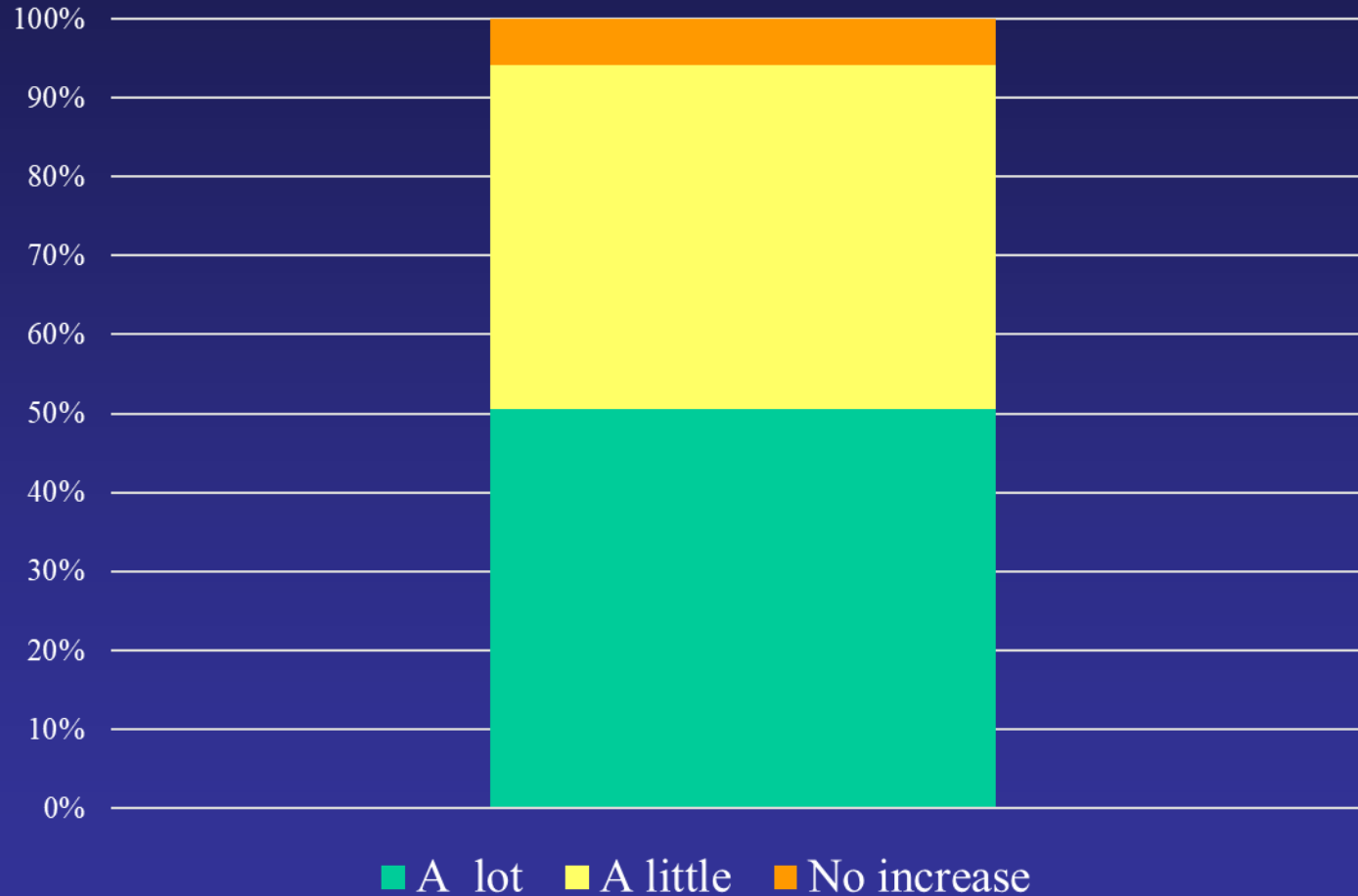
Survey respondents by occupation



67% of industry were producers/farmers

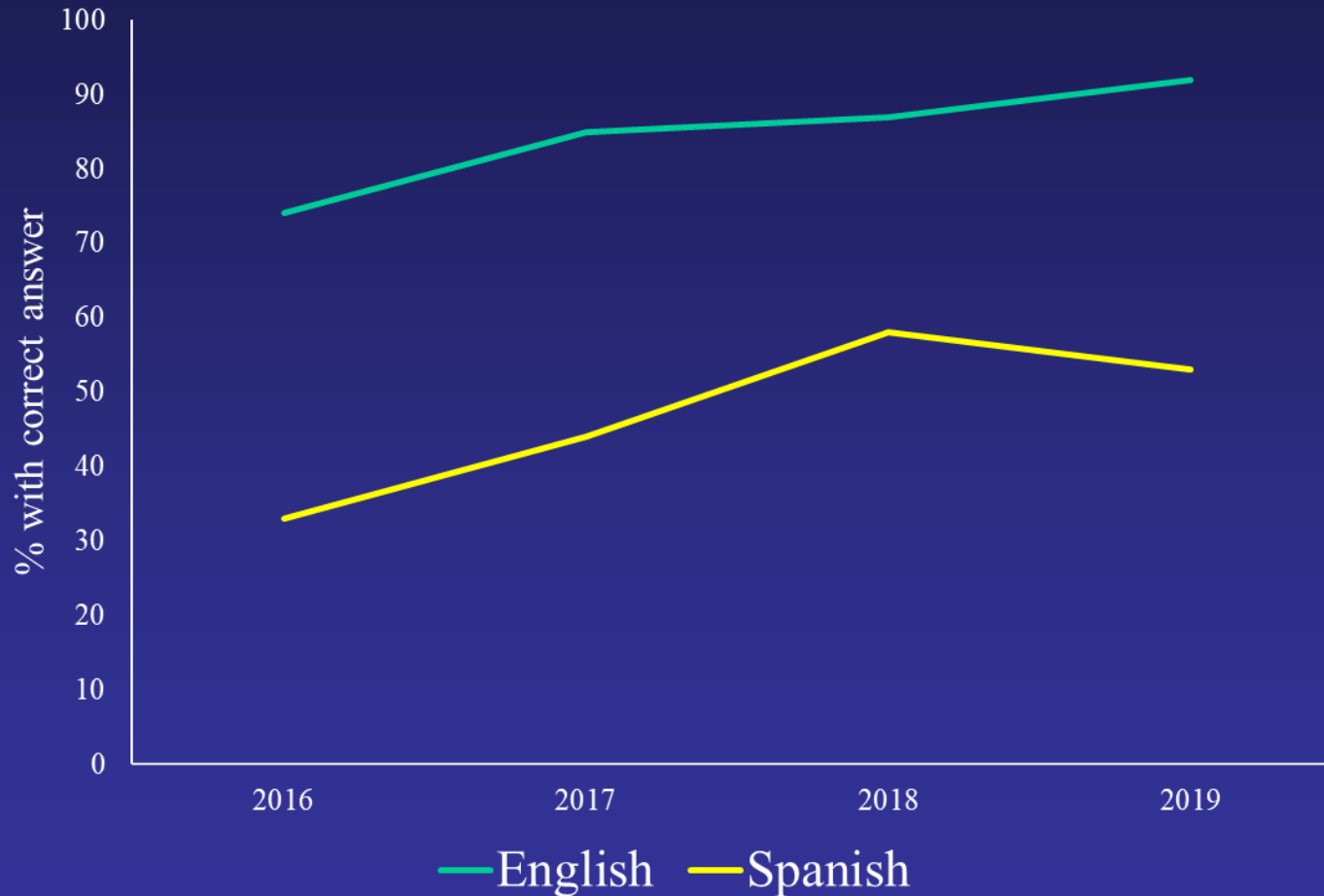
Effectiveness of education

(To what extent has your knowledge increased as a result of participation?)



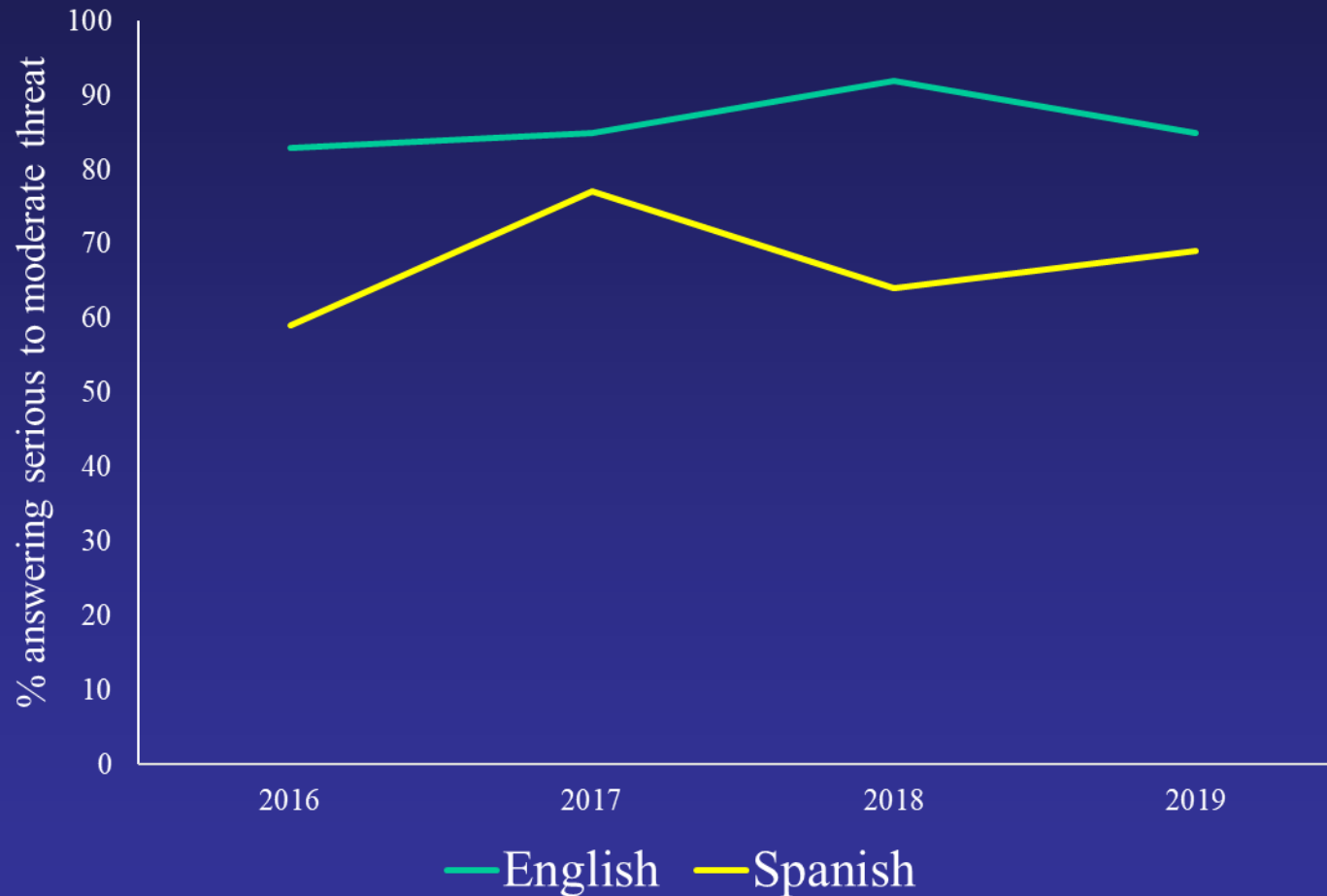
Effectiveness of education

(What is the most important way to prevent the spread of a quarantined pest?)



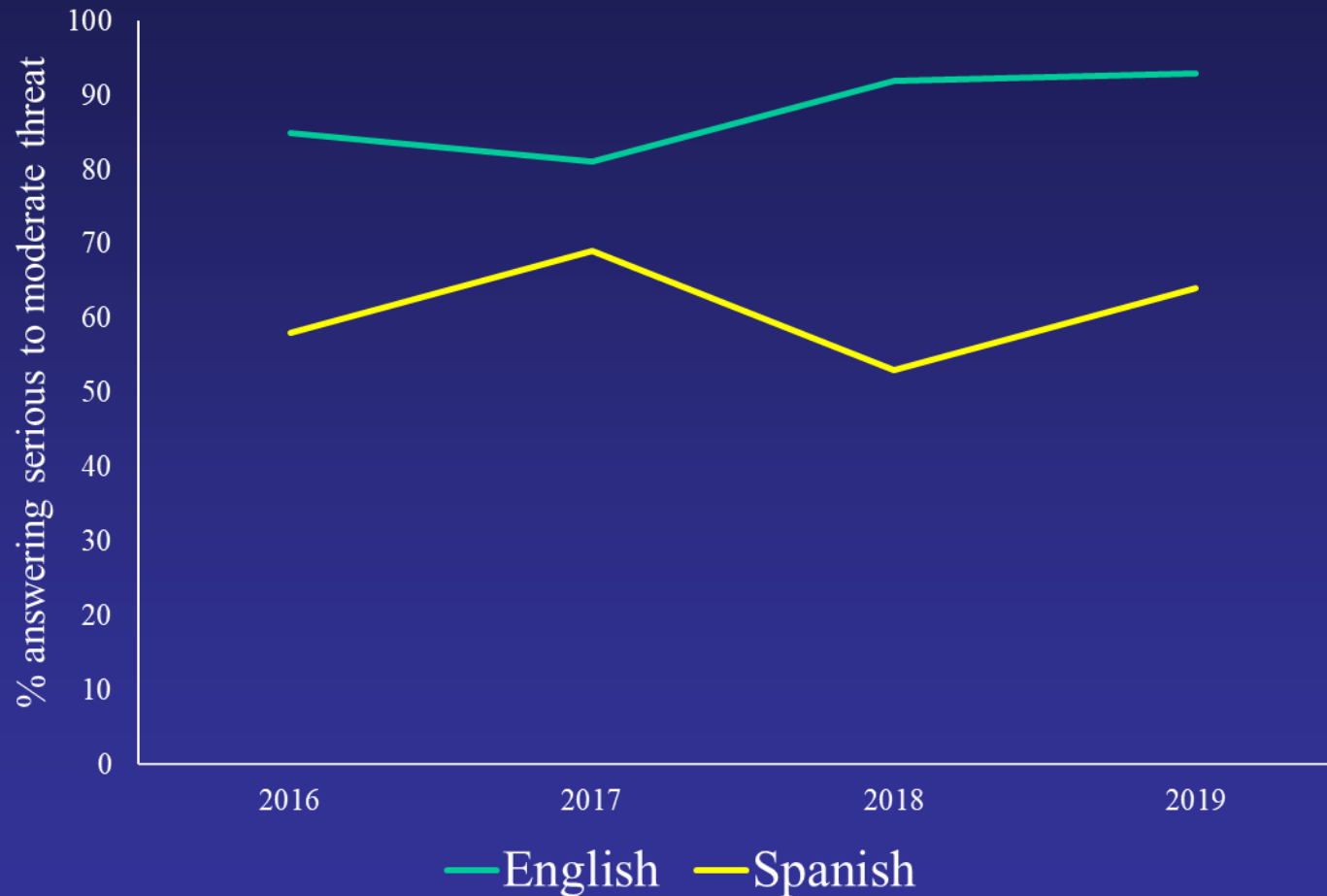
Perception of threat

(Extent to which PCN's are a threat to international markets?)



Perception of threat

(Extent to which PCN's are a threat to potato industry in their state?)



Effectiveness of education

(What makes PCN difficult to control?)

