

Knowledge Networks to Support Management Innovations & Integrated Crop Pollination



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Integrated Crop Pollination (ICP) Practices – Management innovations



Measure and model the factors that increase adoption of ICP practices

Current pollination management

Communities of practice—who talks to whom—to describe networks of information sharing



Integrated Crop Pollination (ICP) – Management innovations

(a)



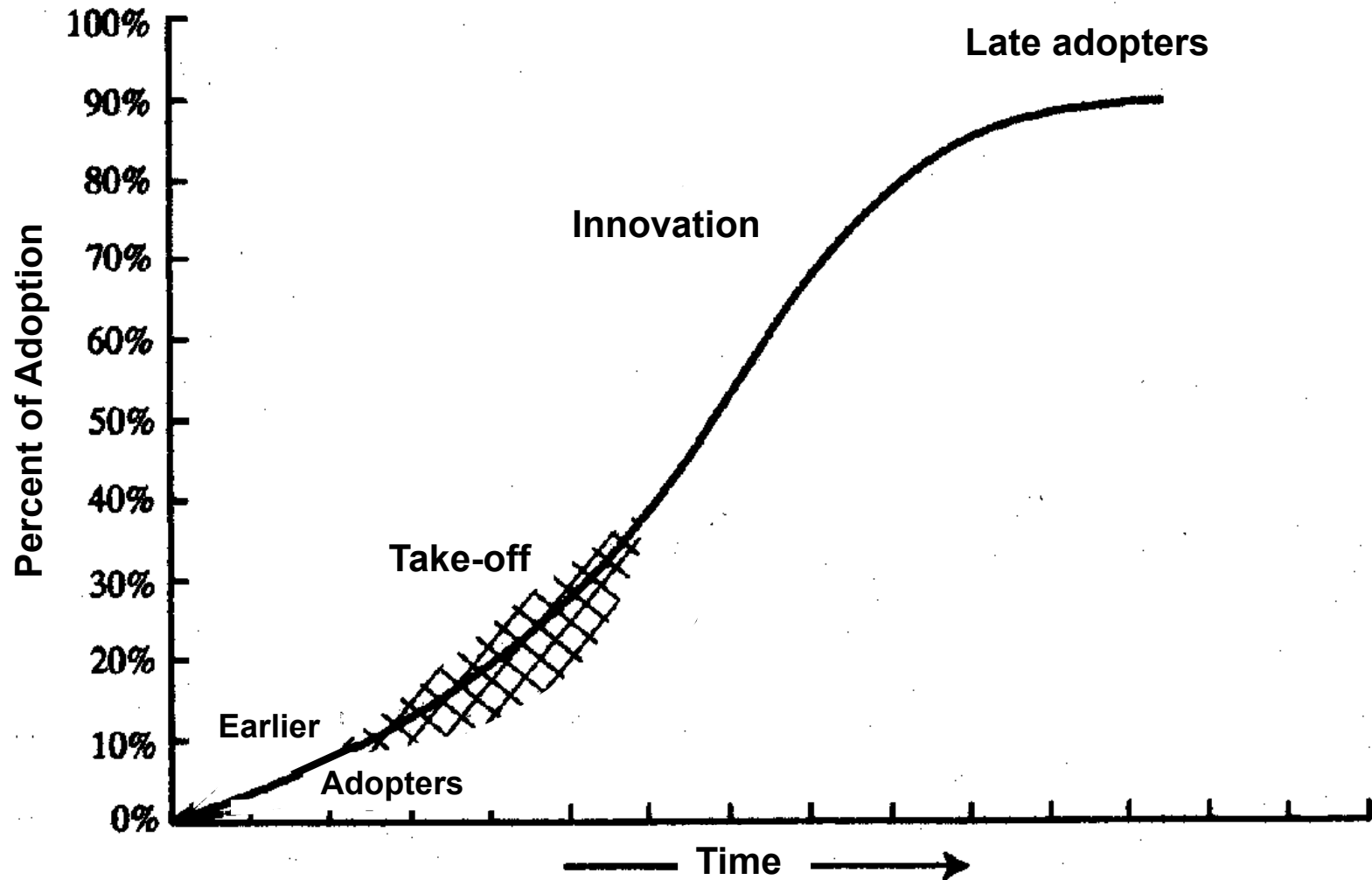
K Ullman

(b)

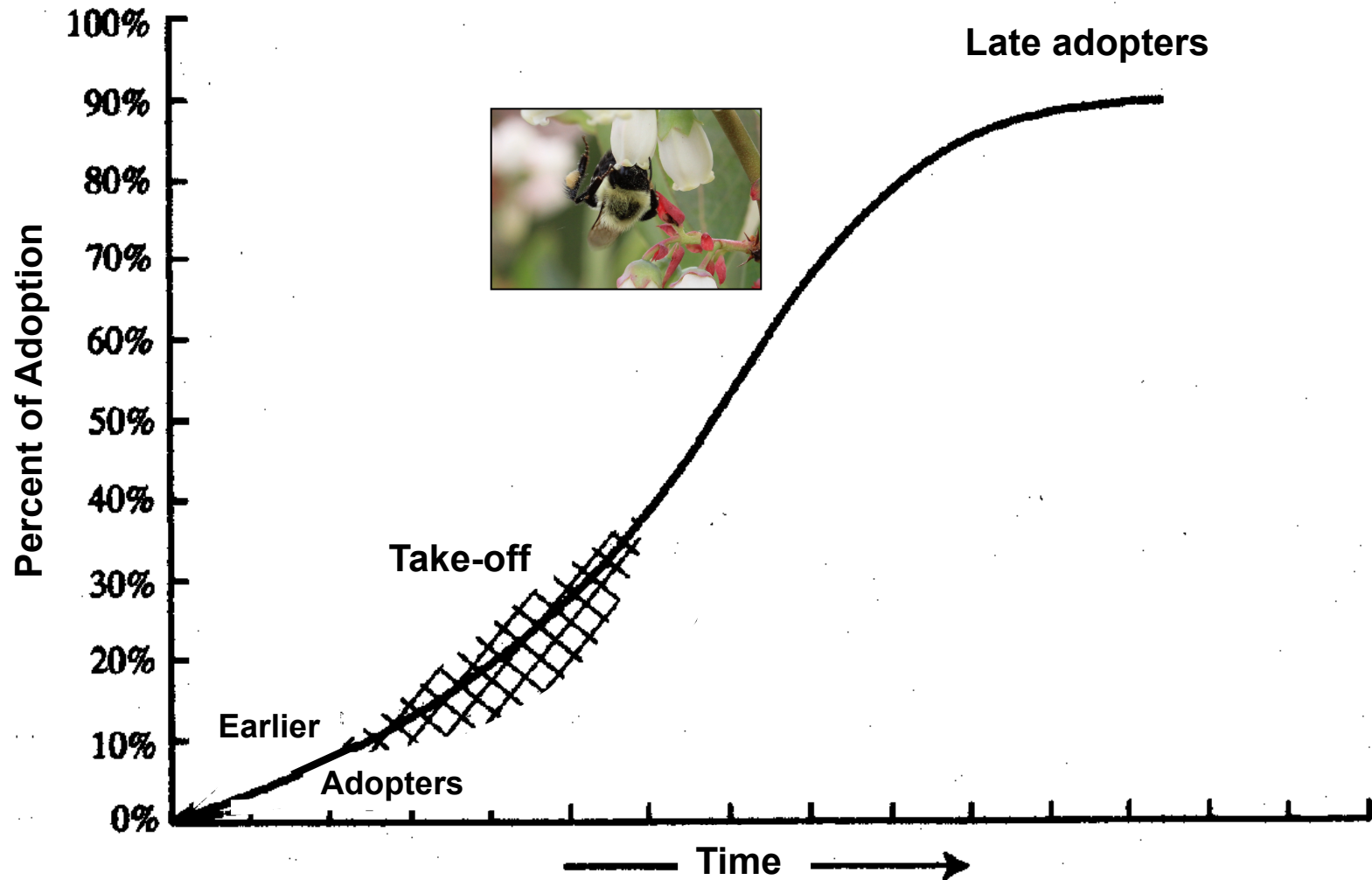


L M'Gonigle

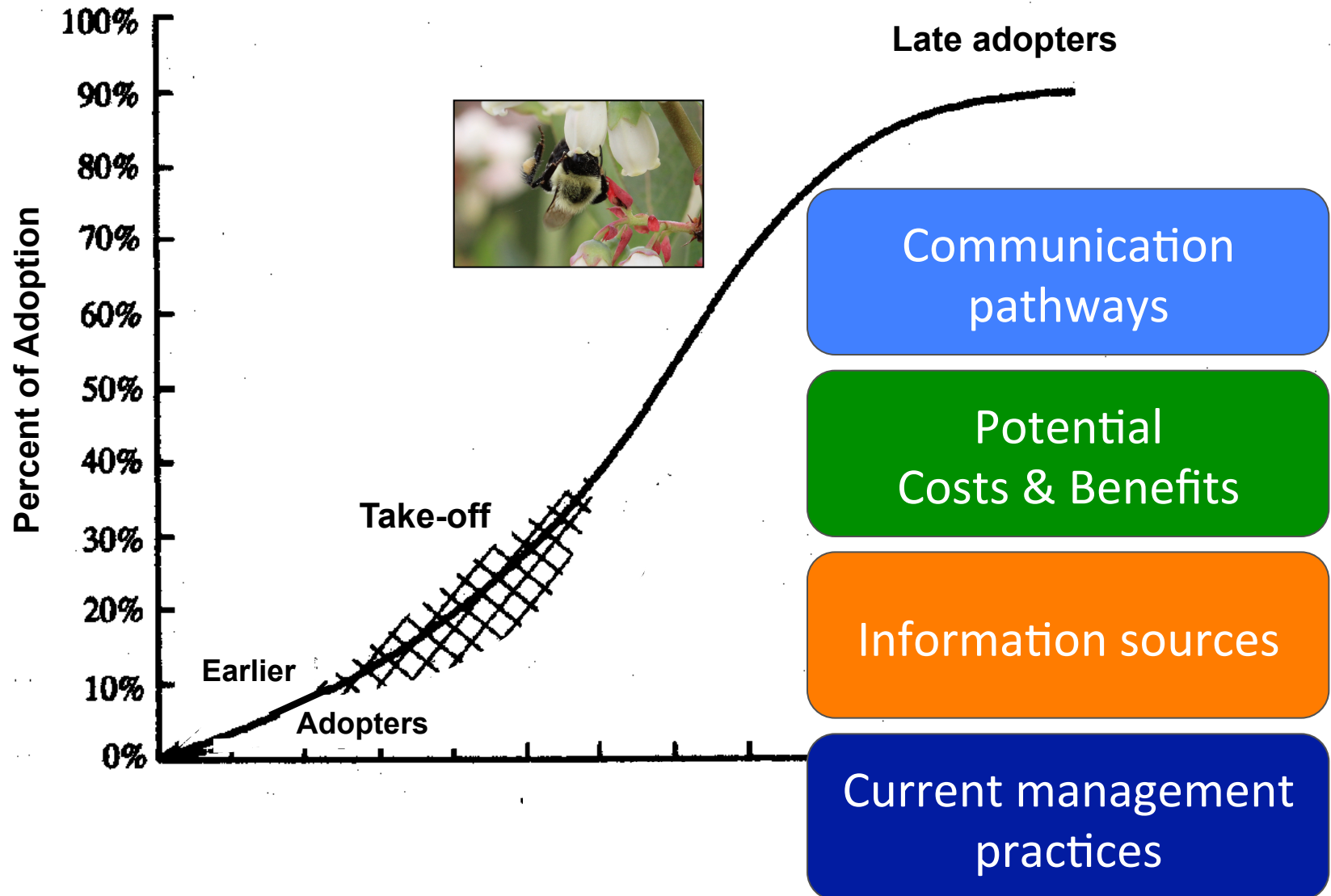
Management innovations: Who adopts new practices, when, and why?



Management innovations: Who adopts new practices, when, and why?



Management innovations: key drivers



Grower Survey



Integrated Crop Pollination (ICP) Grower Survey - MI Growers



2. Which crop is MOST IMPORTANT to your farm's gross income from crop production?

Crop (please select):

Crop

Other (please specify)

3. How many acres were dedicated to this crop in 2013?

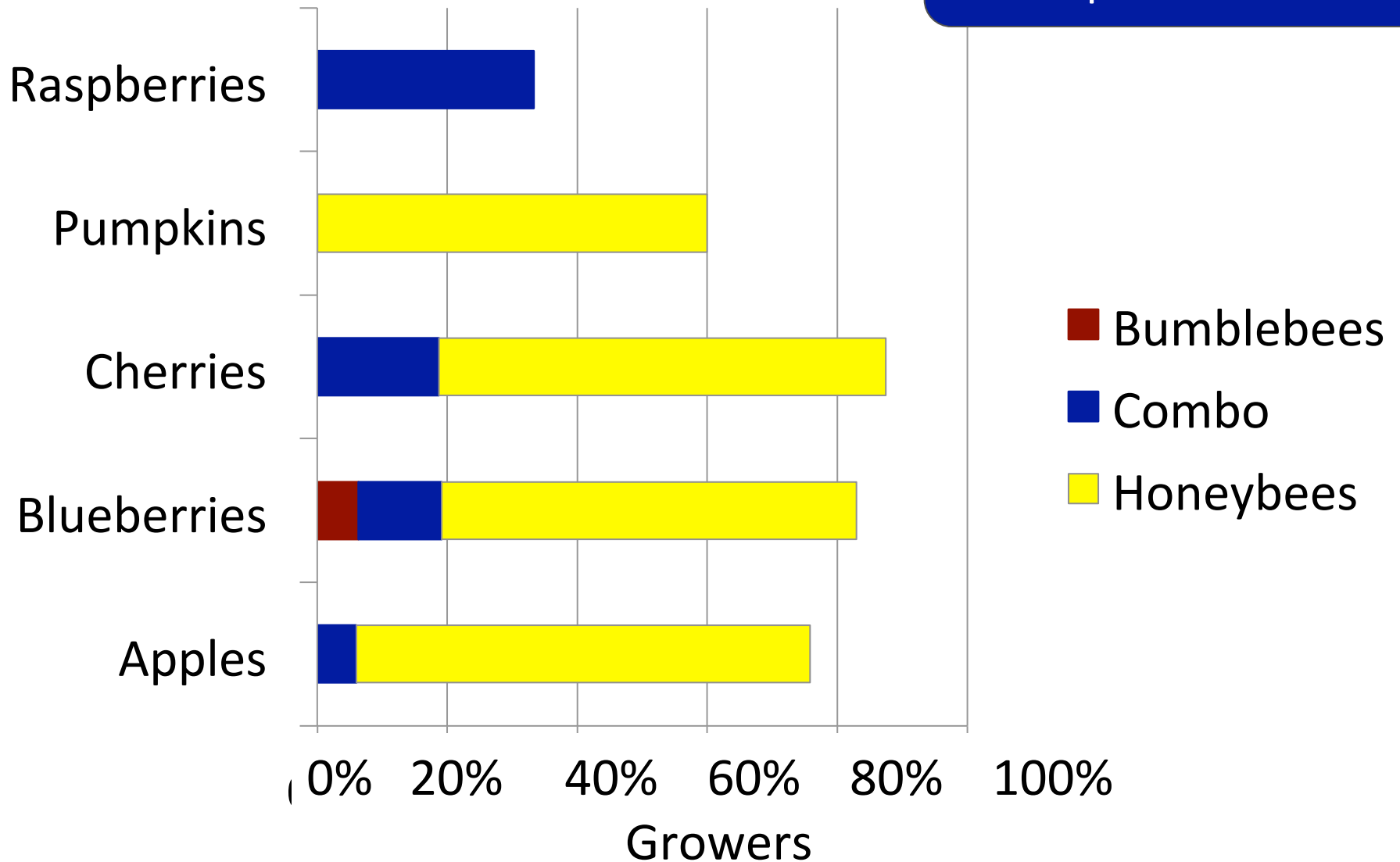
4. Do you buy or rent bees to pollinate this crop?

☐ Yes

☐ No

Managed Pollinators

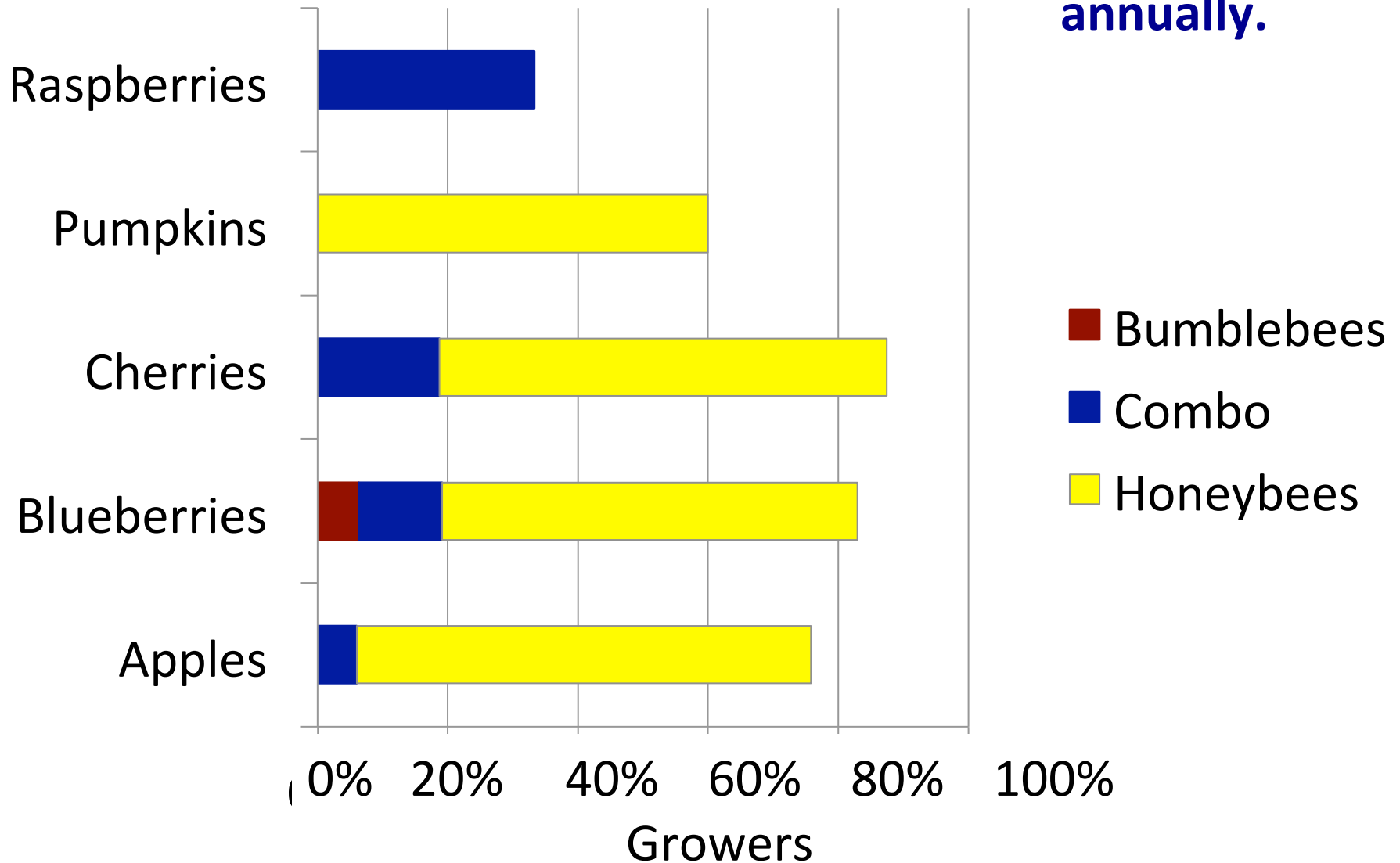
Current management practices



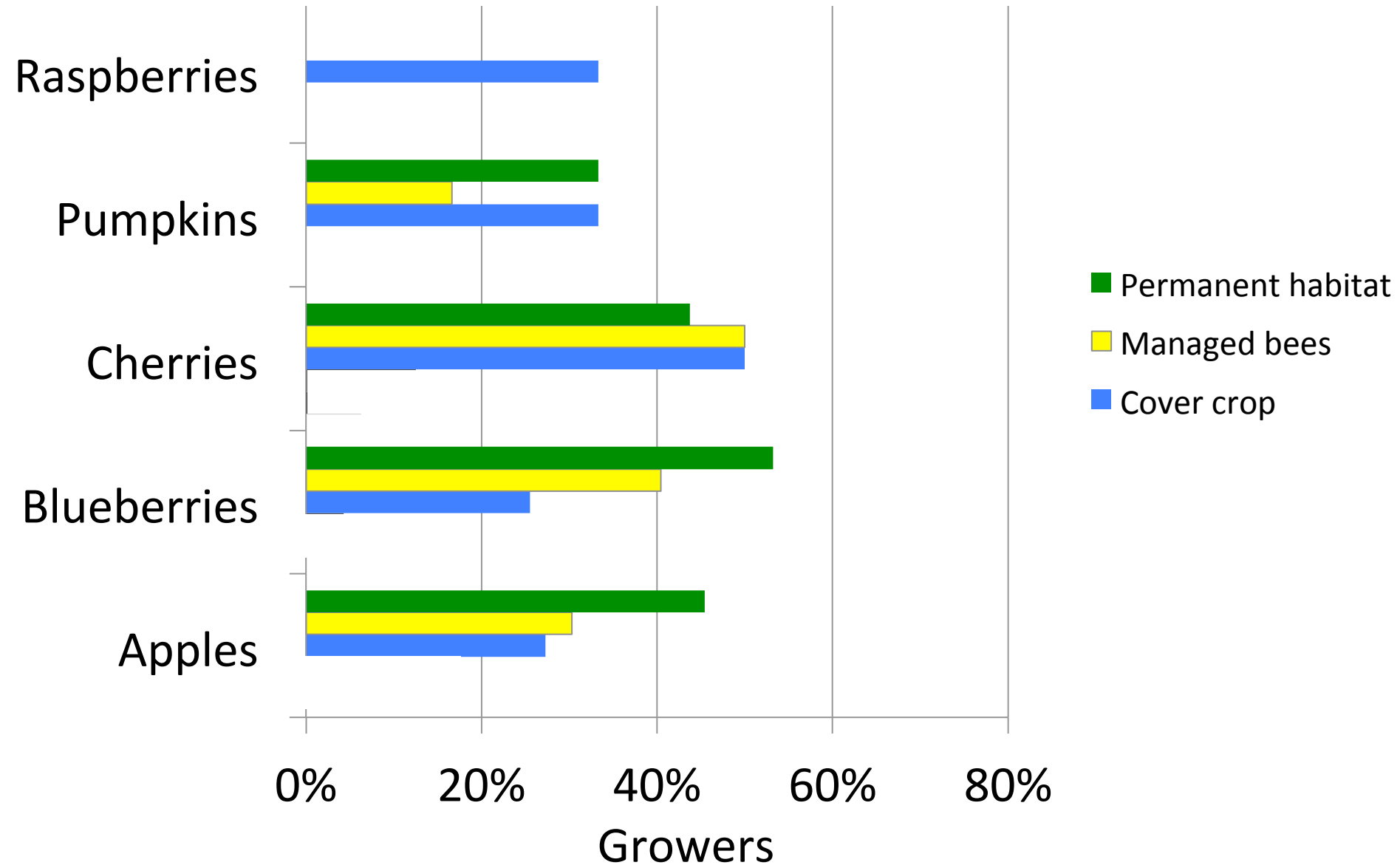
n = 115, MI growers 2014

Managed Pollinators

80% of growers buy or rent pollinators annually.

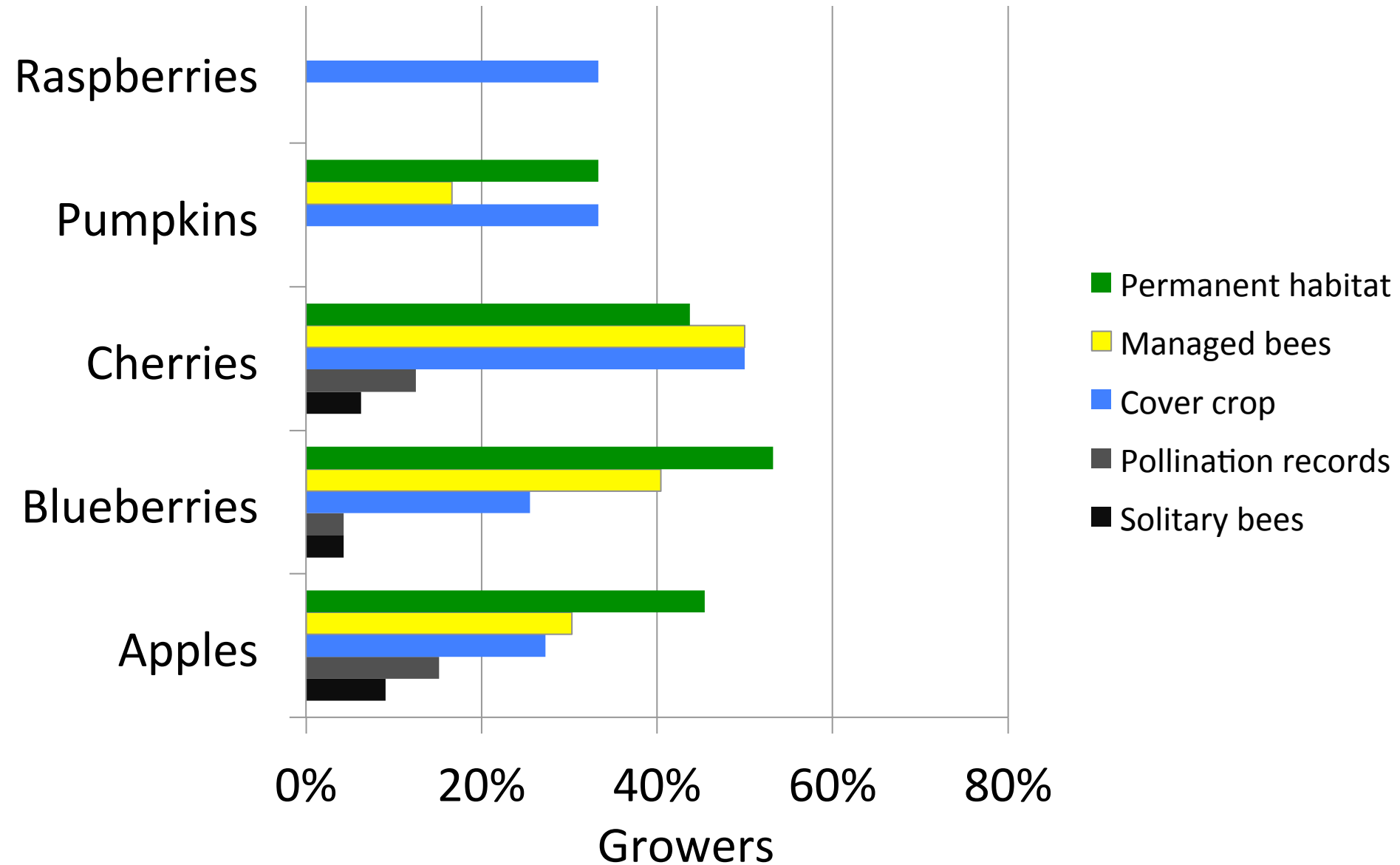


Management Practices, wild & managed bees



n = 115, MI growers 2014

Management Practices, wild & managed bees



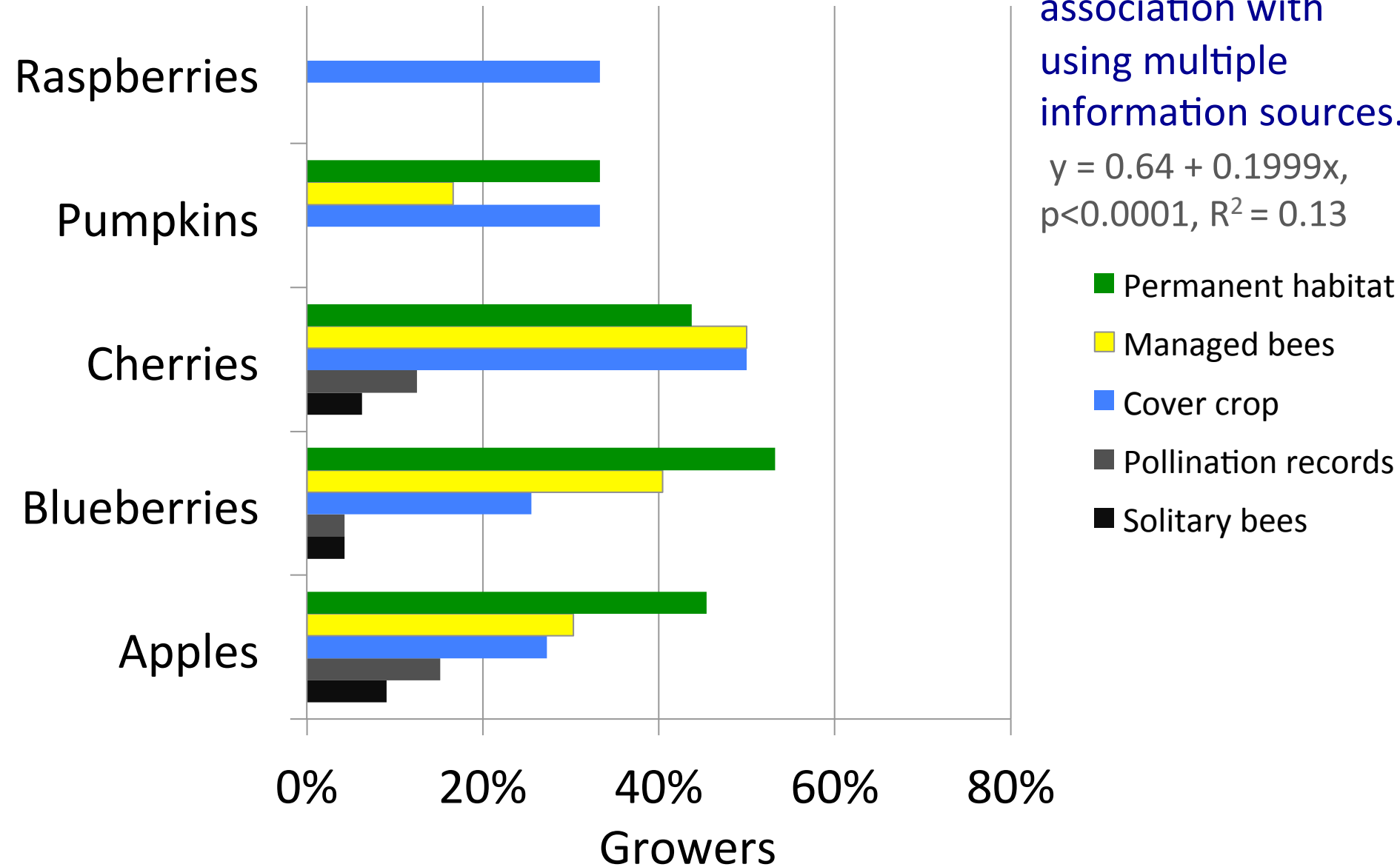
n = 115, MI growers 2014

Management Practices

Diverse practices:
significant positive
association with
using multiple
information sources.

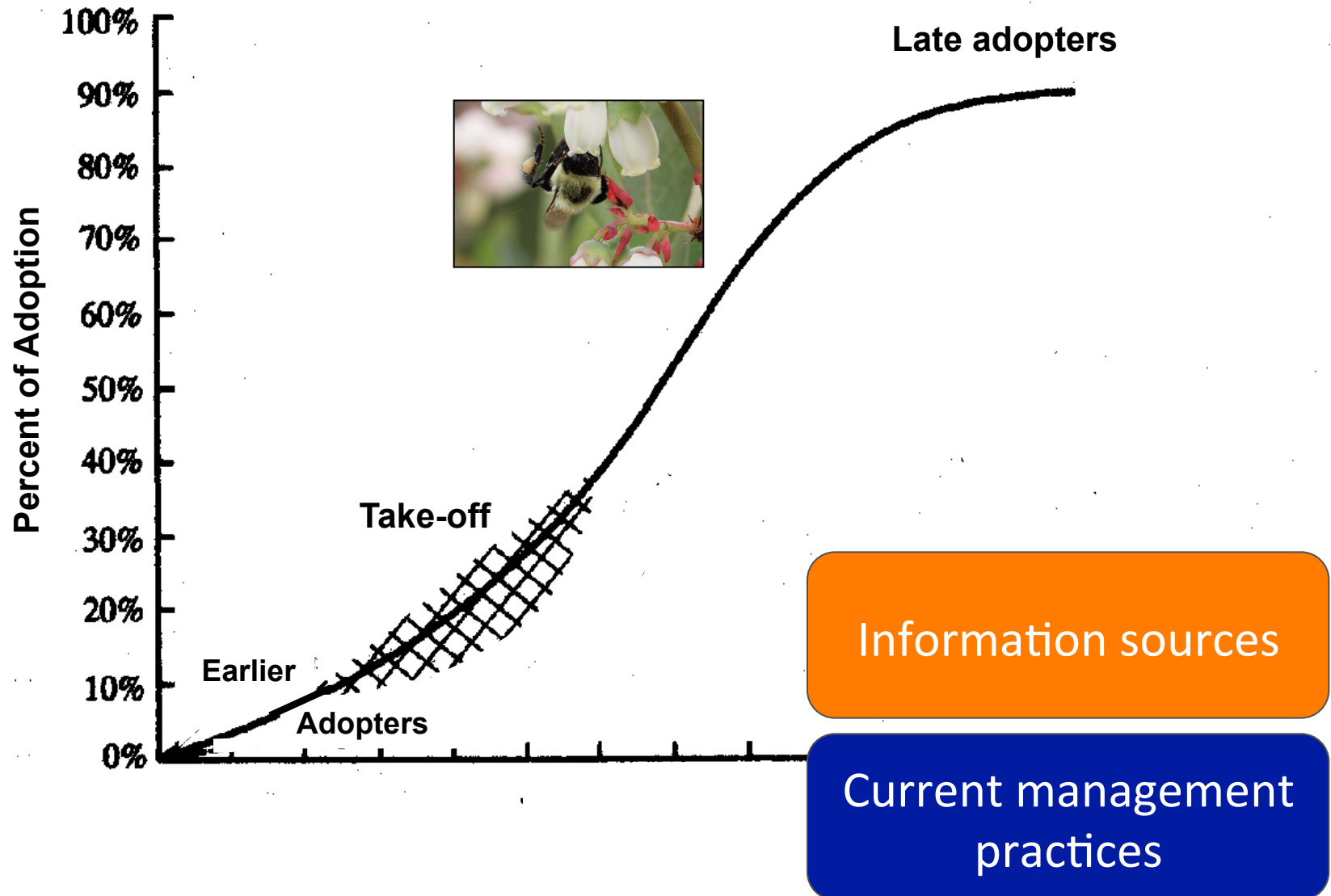
$$y = 0.64 + 0.1999x,$$

$p < 0.0001, R^2 = 0.13$

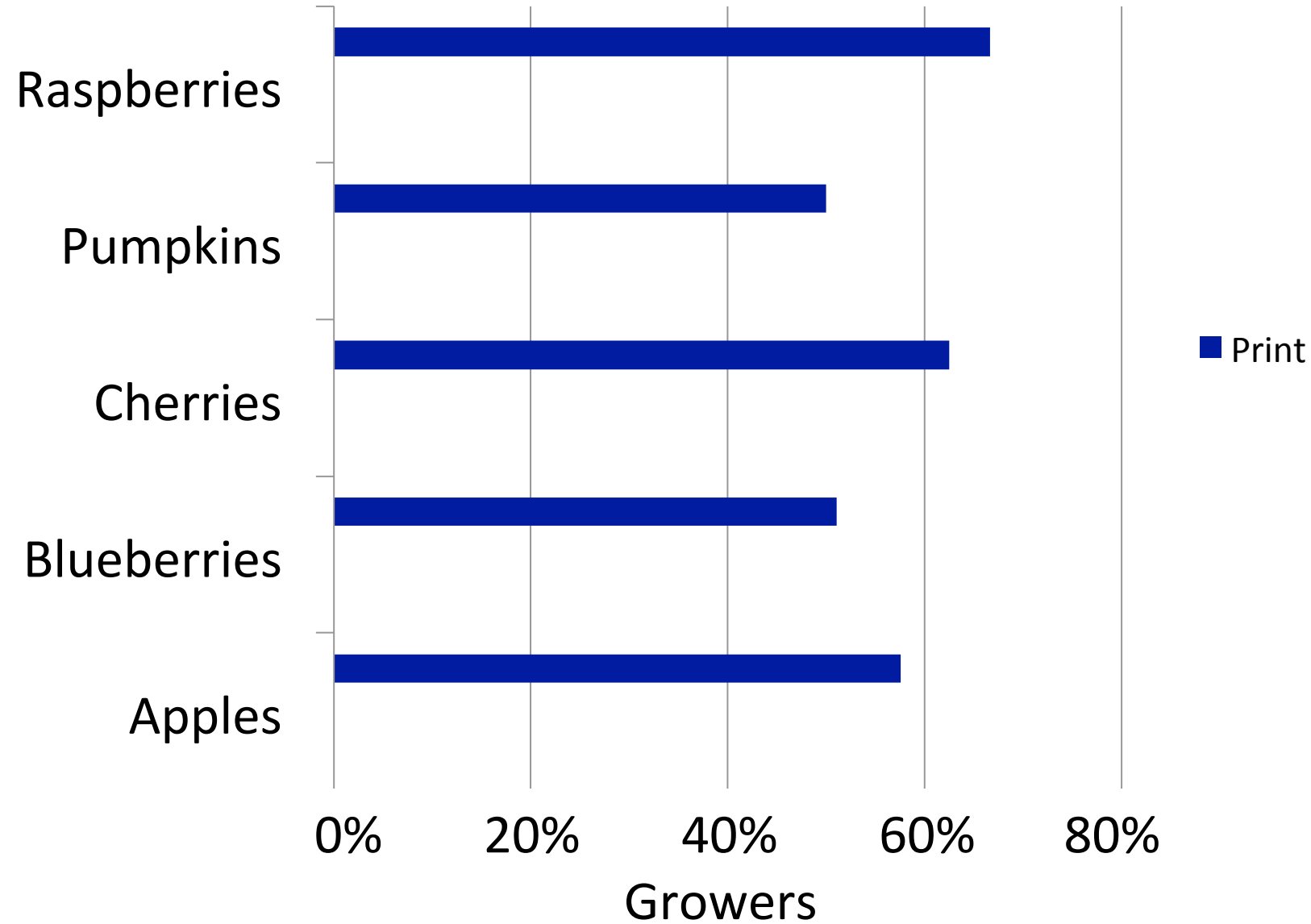


n = 115, MI growers 2014

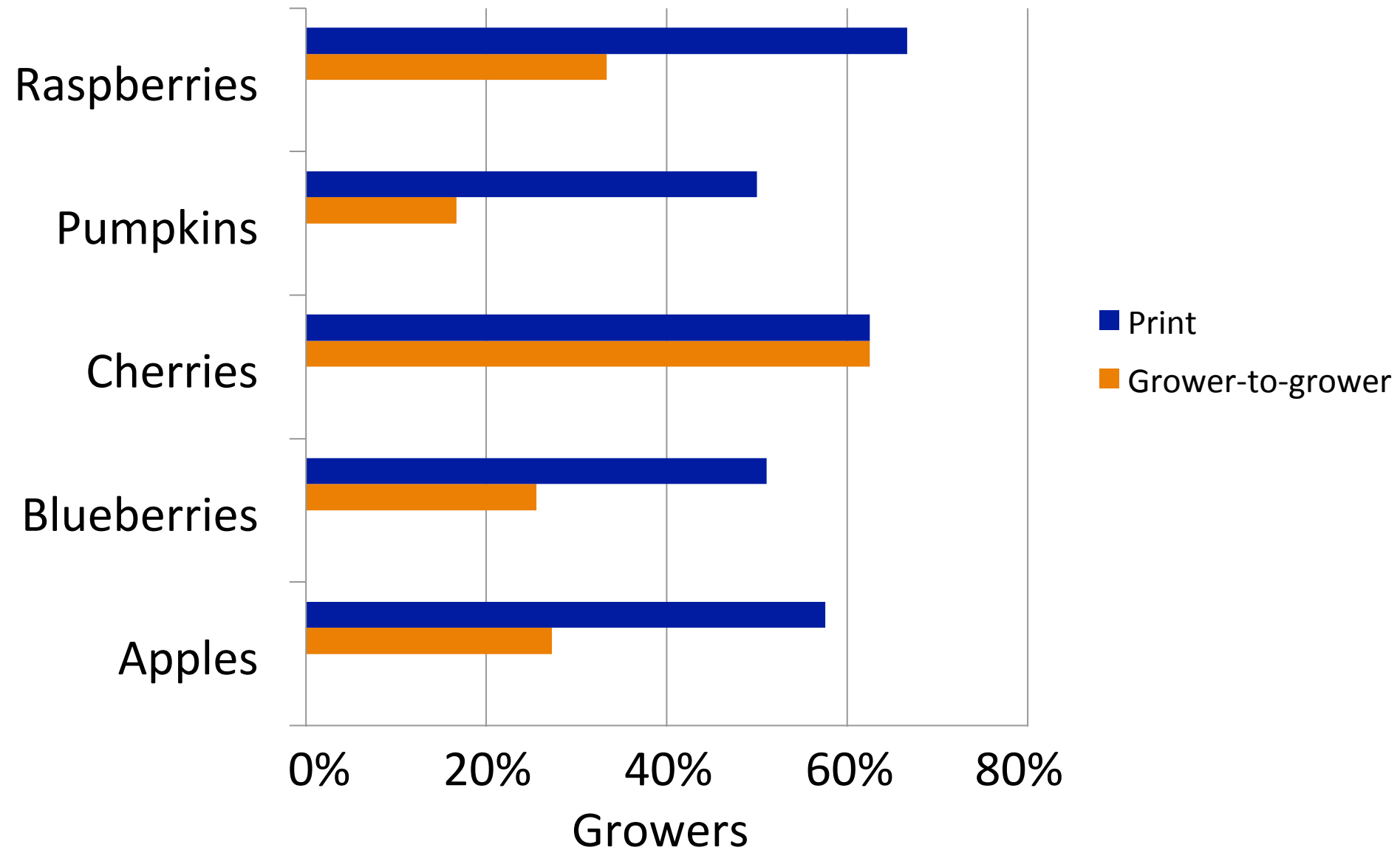
Management innovations: key drivers



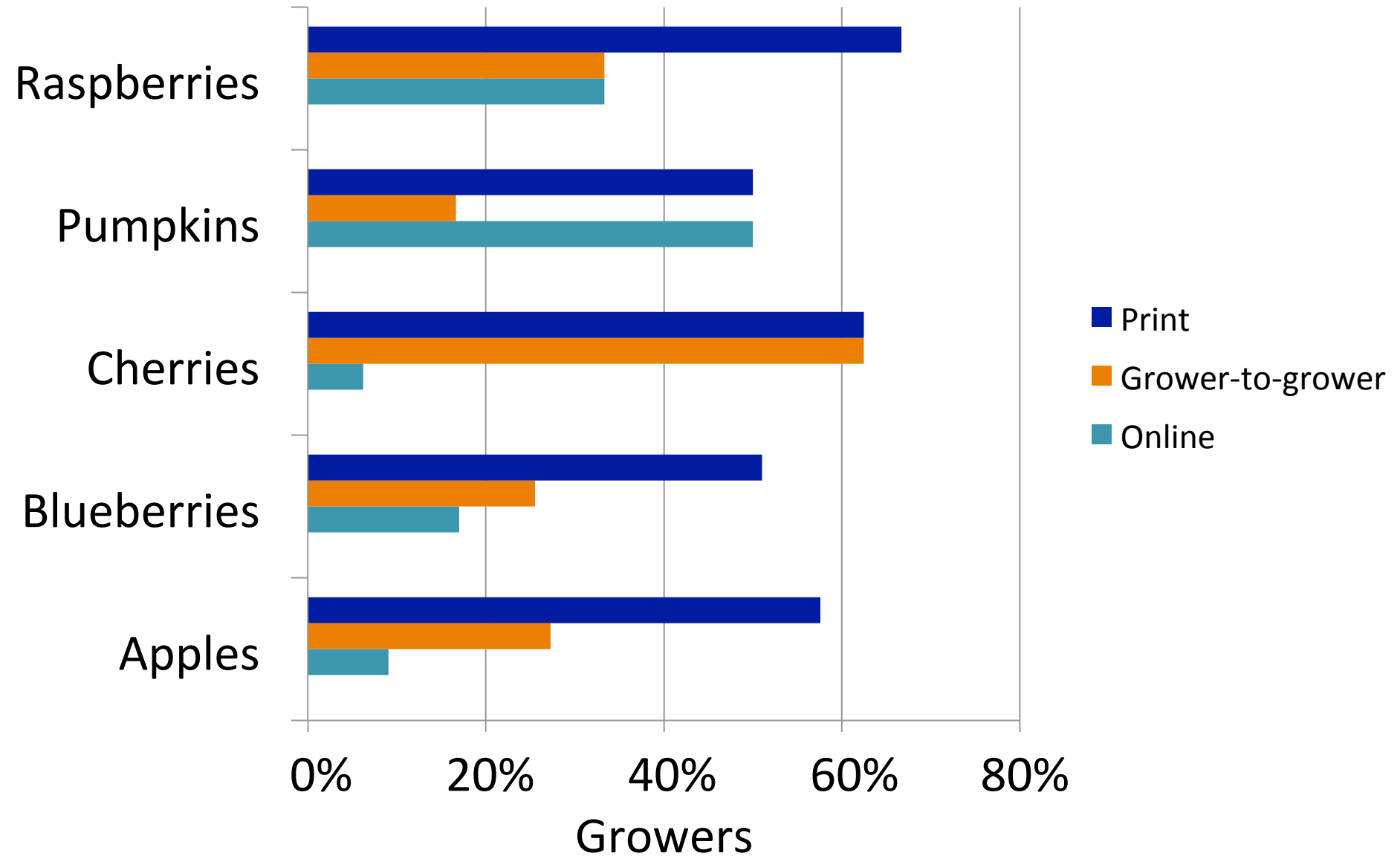
Most useful information sources



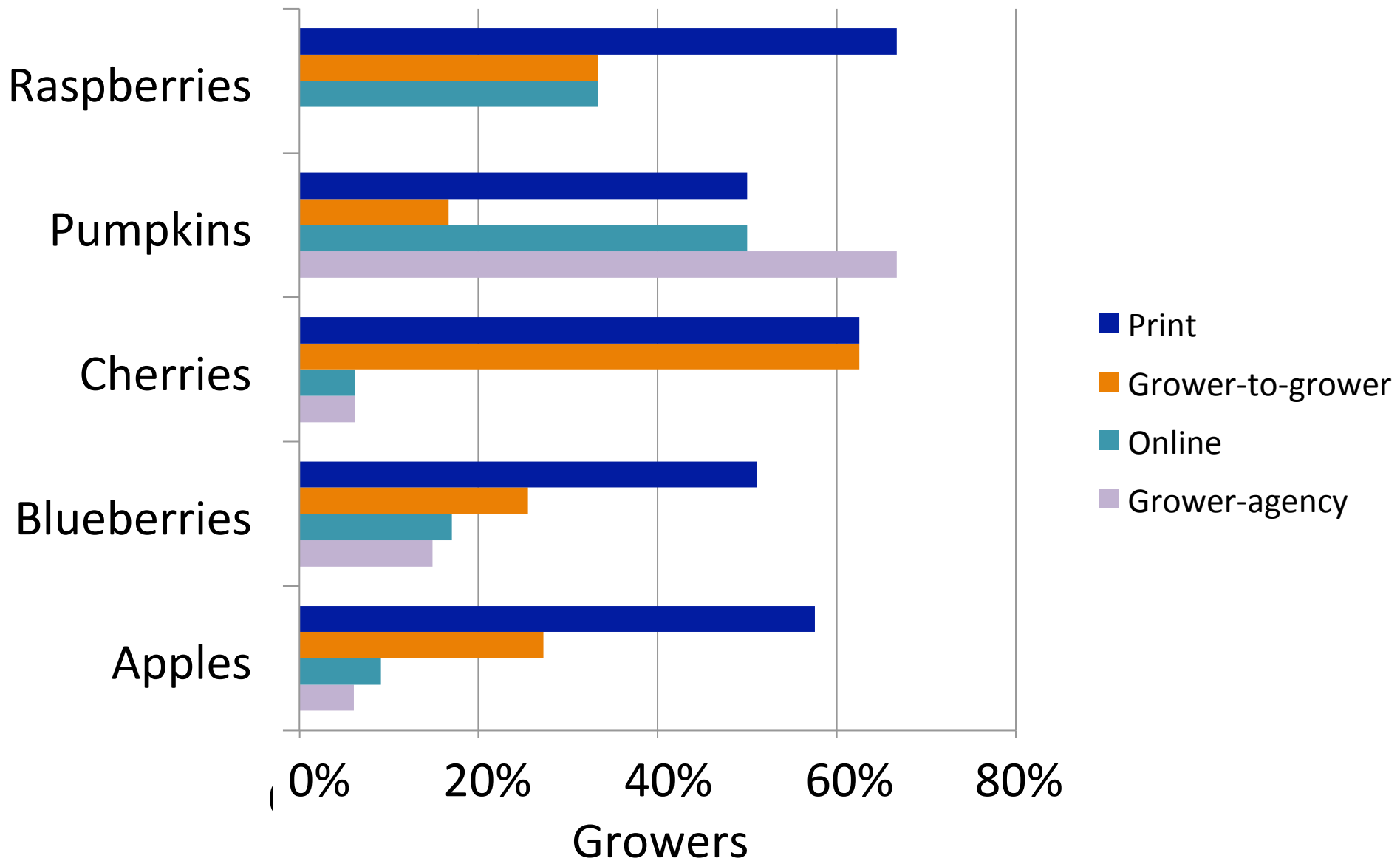
Most useful information sources



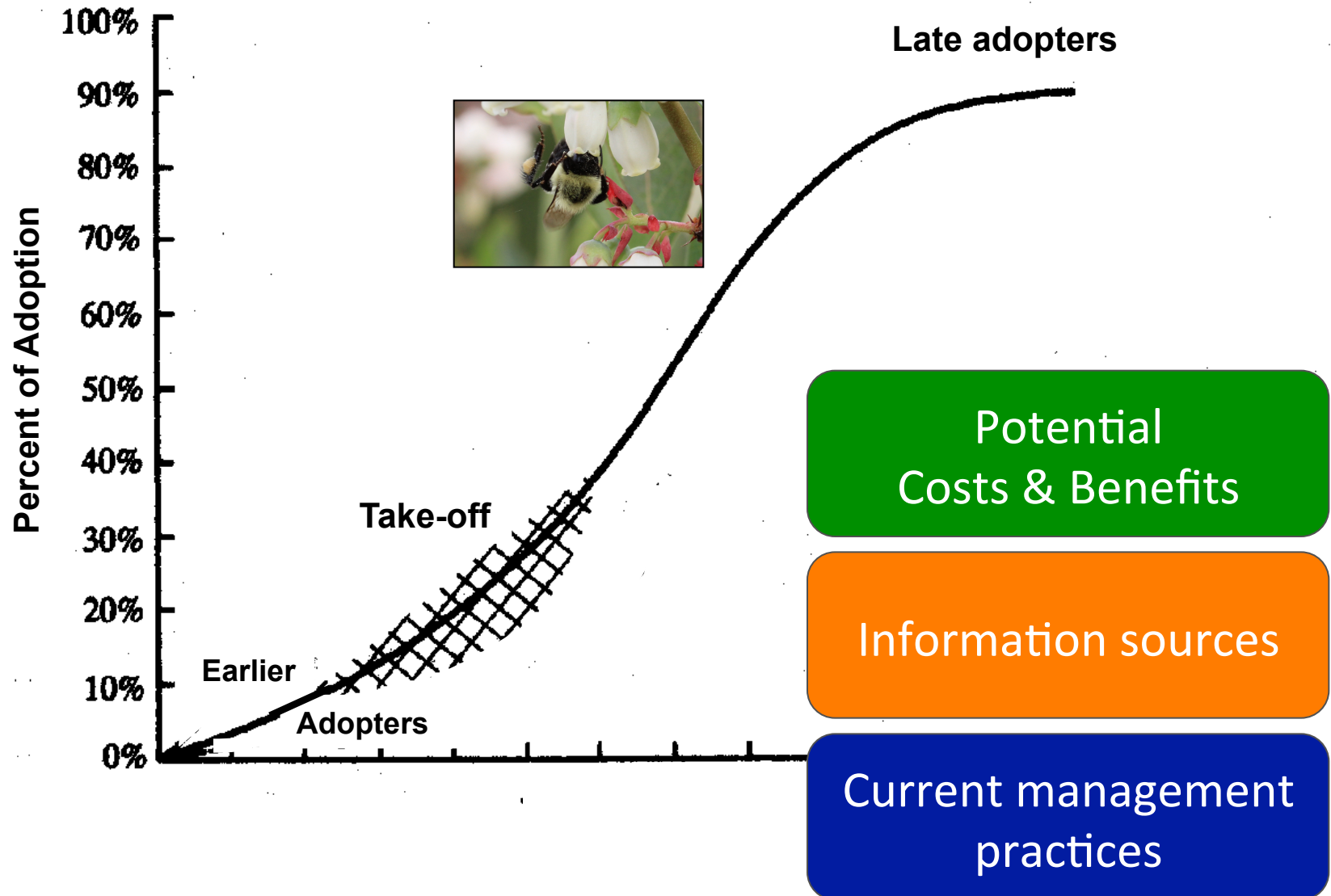
Most useful information sources



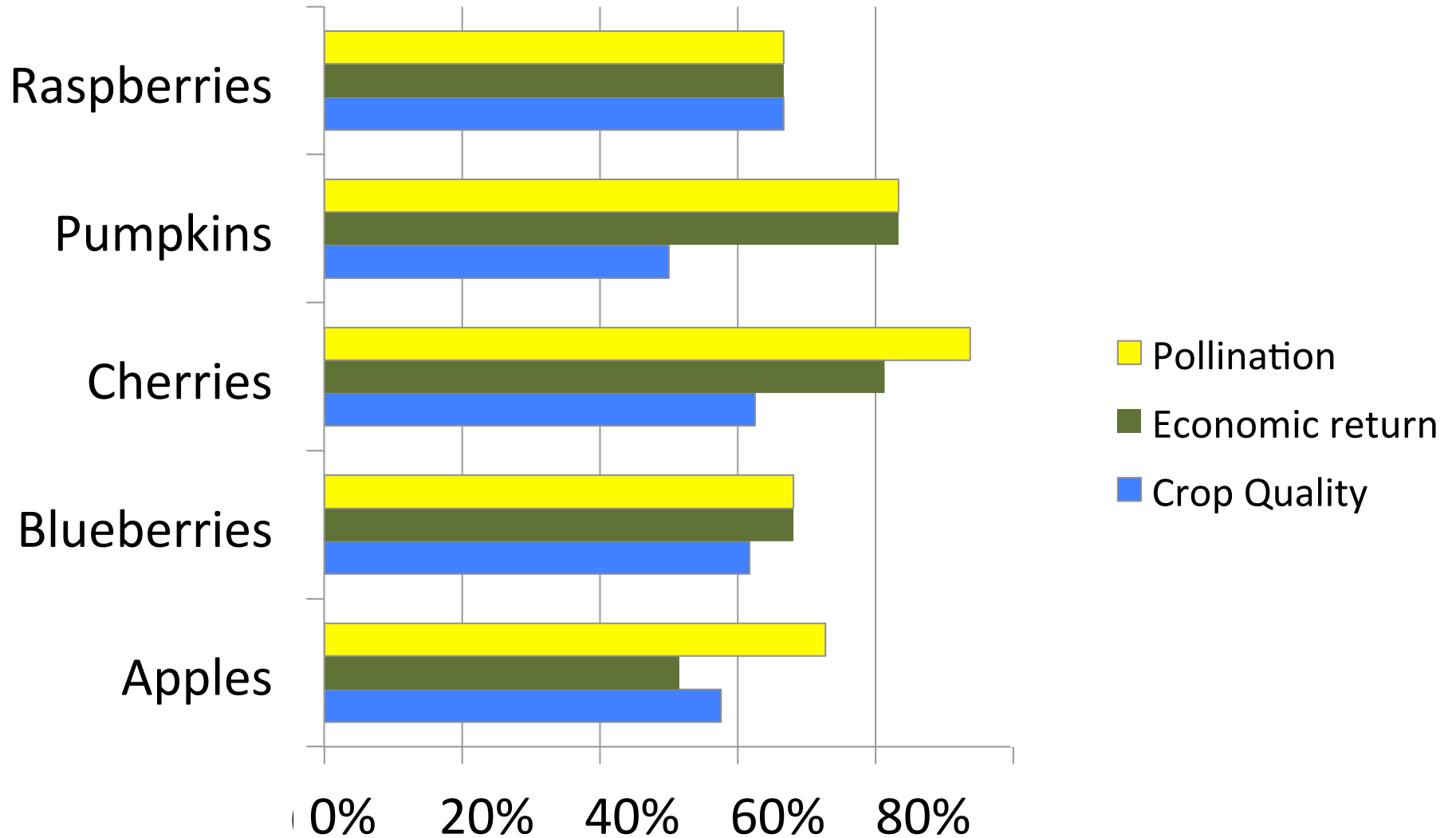
Most useful information sources



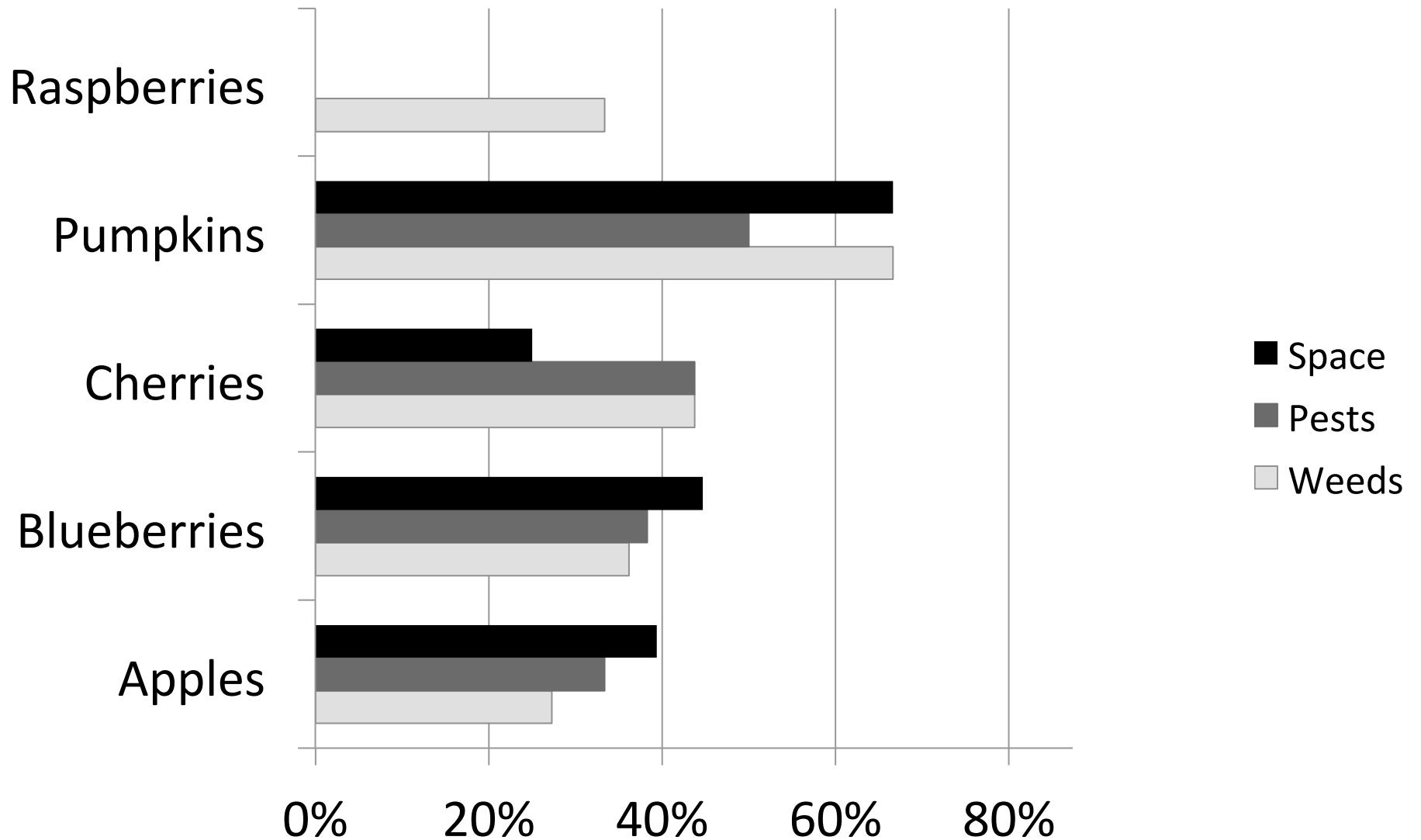
Management innovations: key drivers



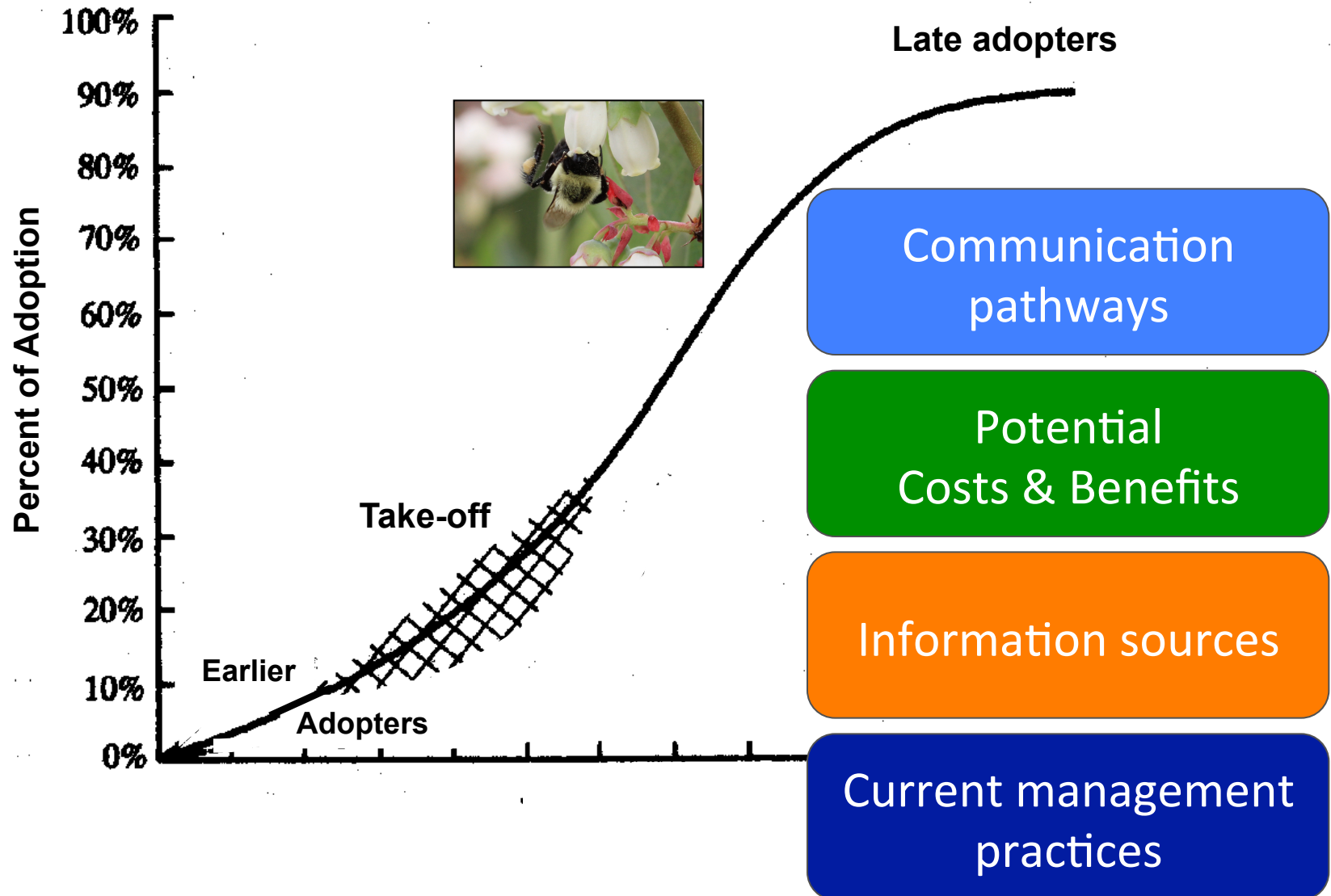
Potential benefits



Potential costs



Management innovations: key drivers

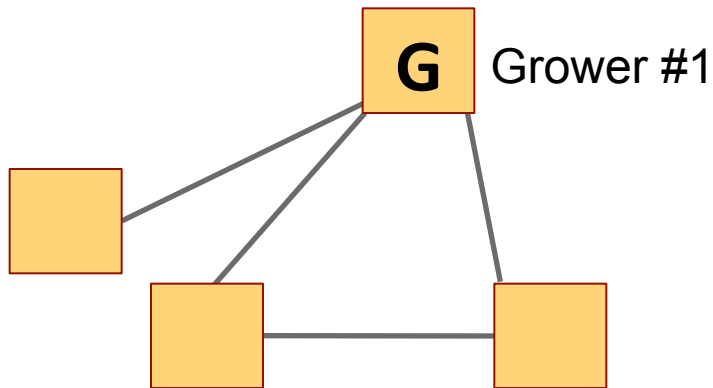


Knowledge networks describe connections within a community of practice

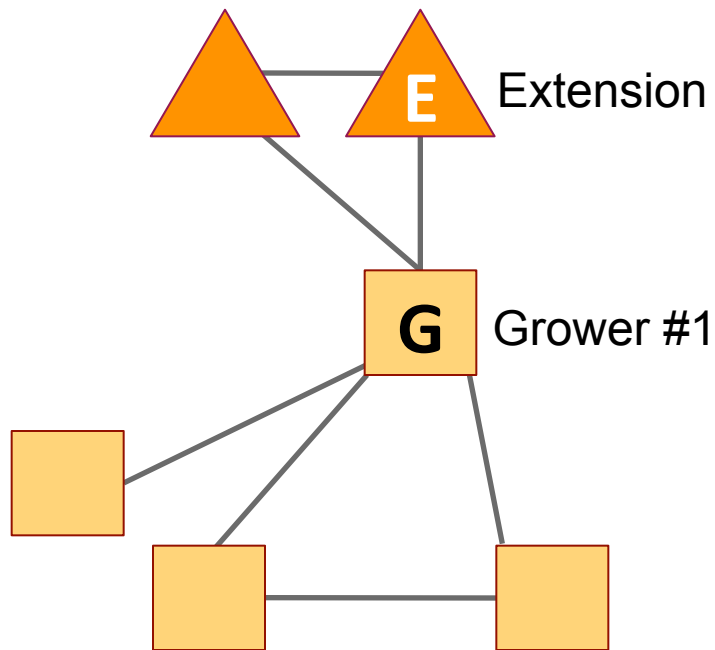
G Grower #1



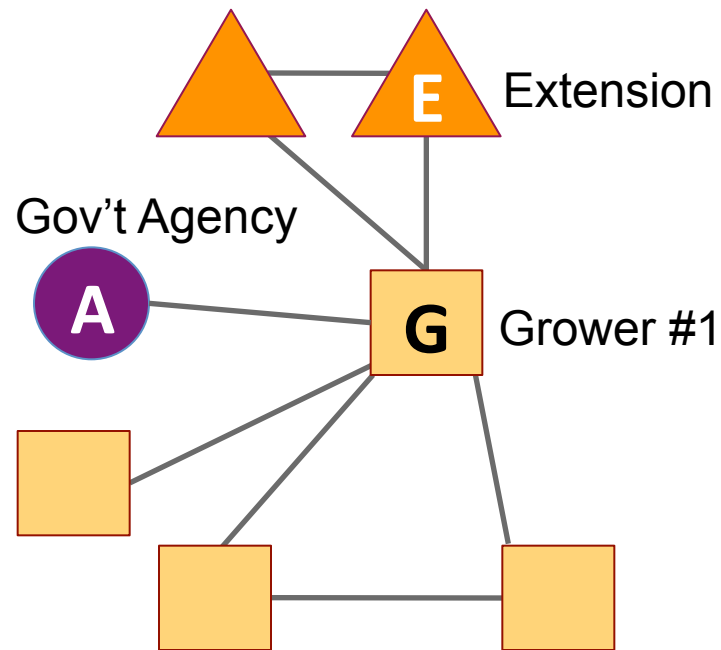
Knowledge networks describe connections within a community of practice



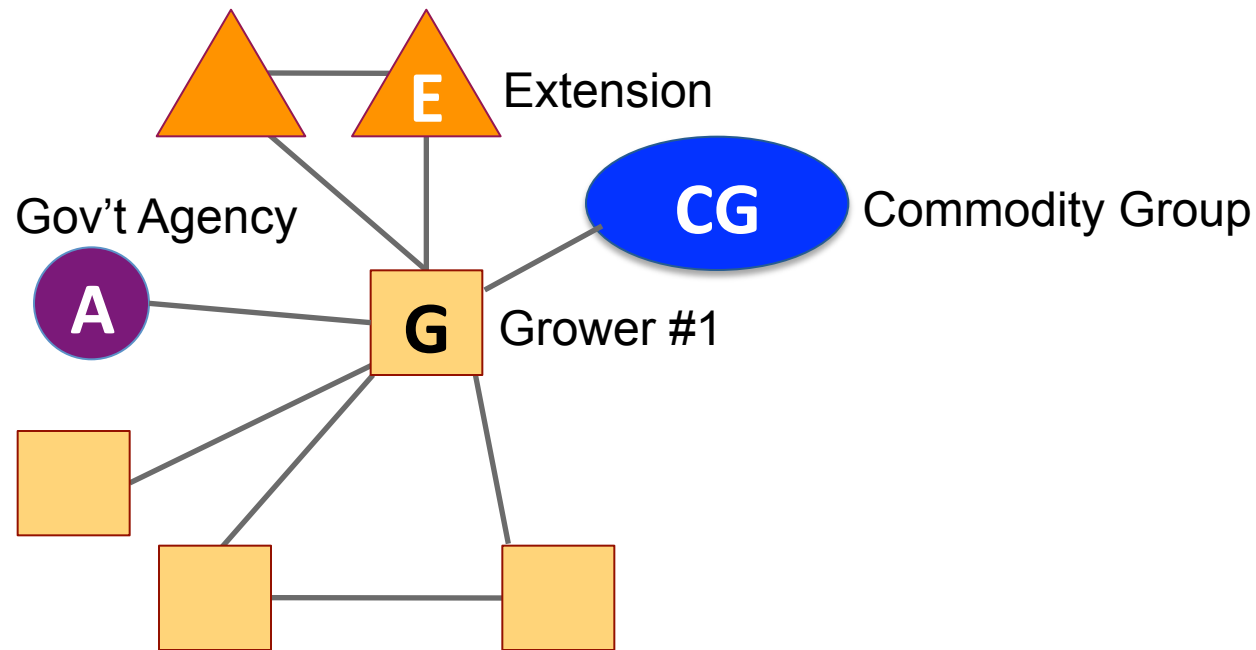
Knowledge networks describe connections within a community of practice



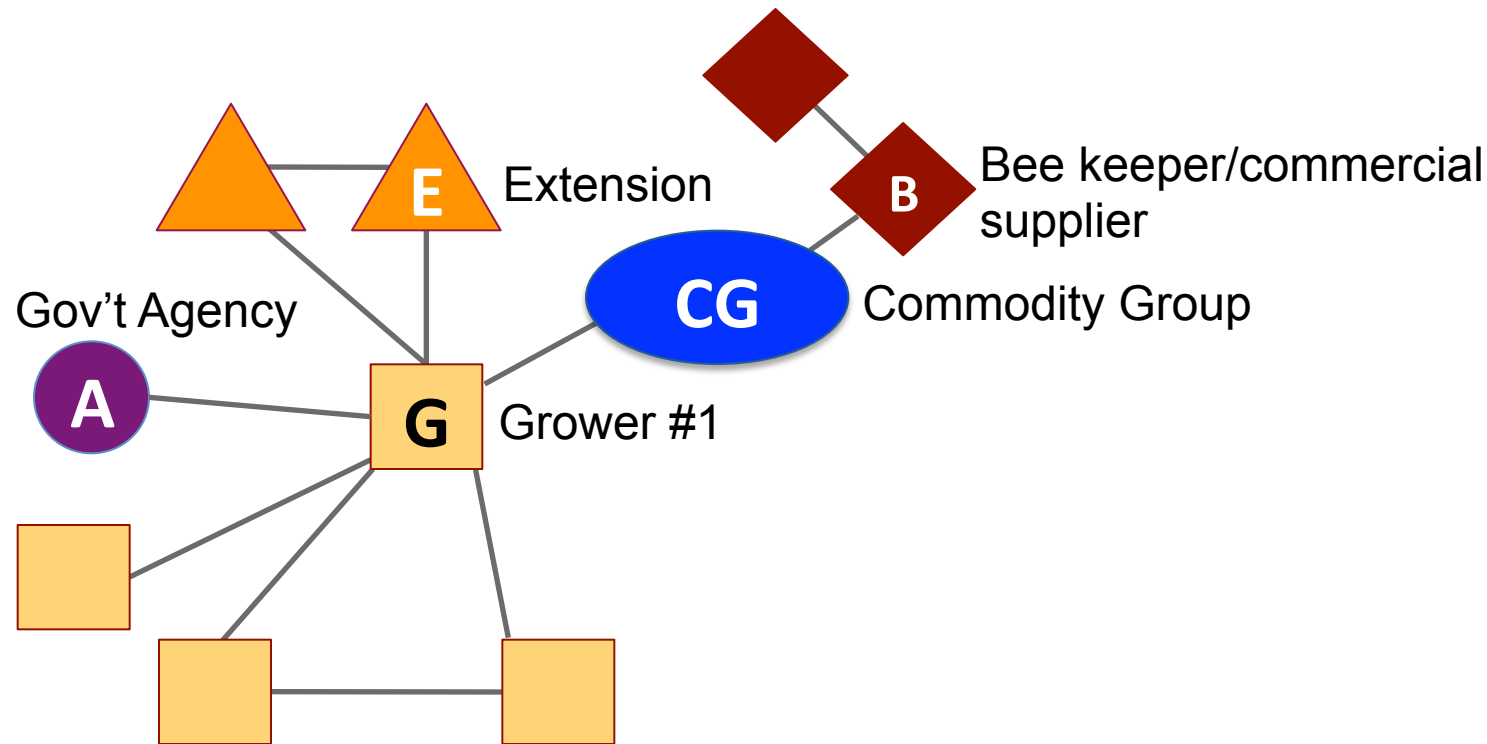
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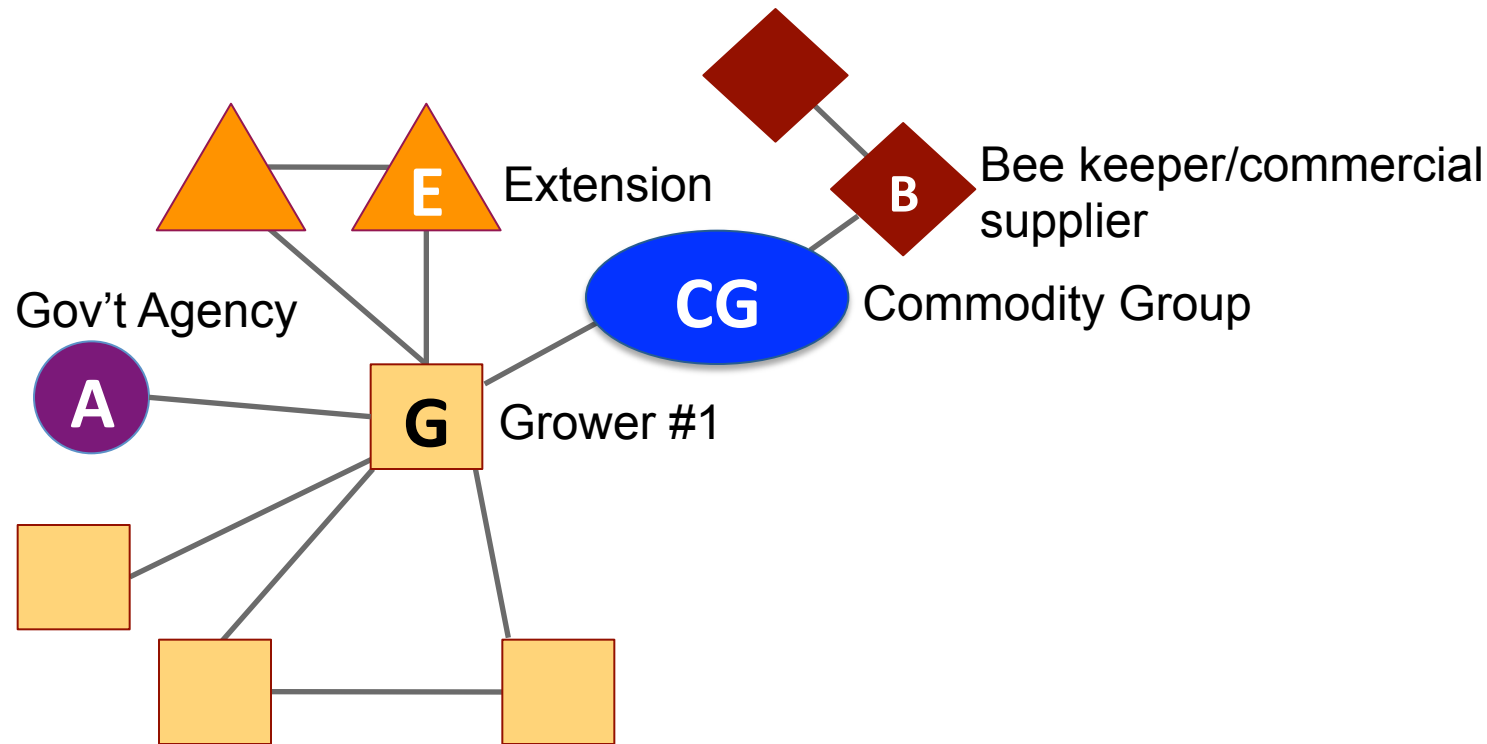


Knowledge networks describe connections within a community of practice

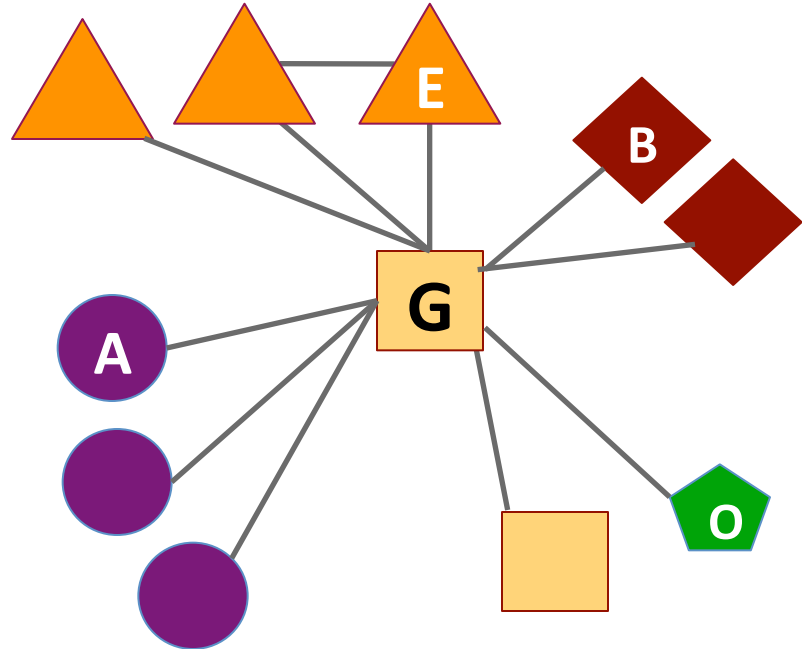


Knowledge networks:

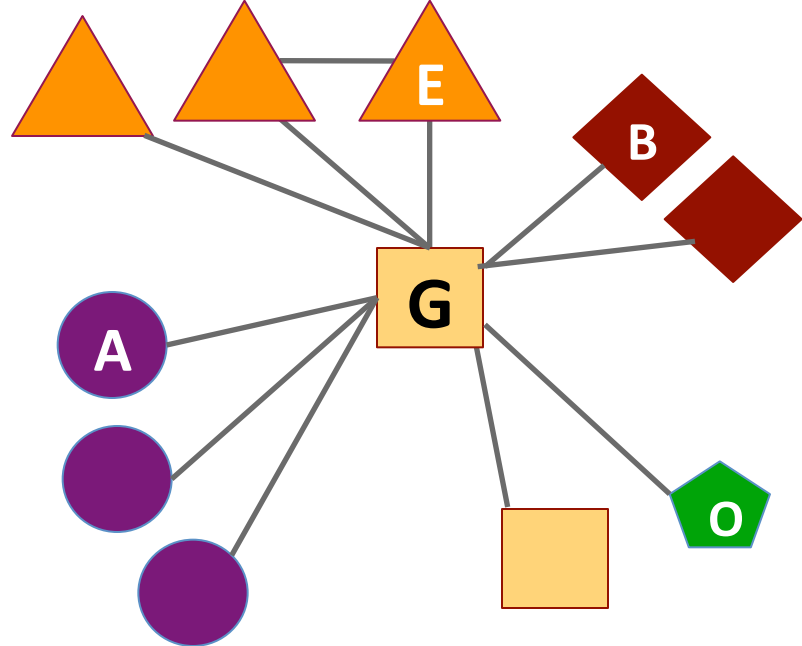
- Share information
- Build partnerships & trust
- Support changes in perceptions & practices



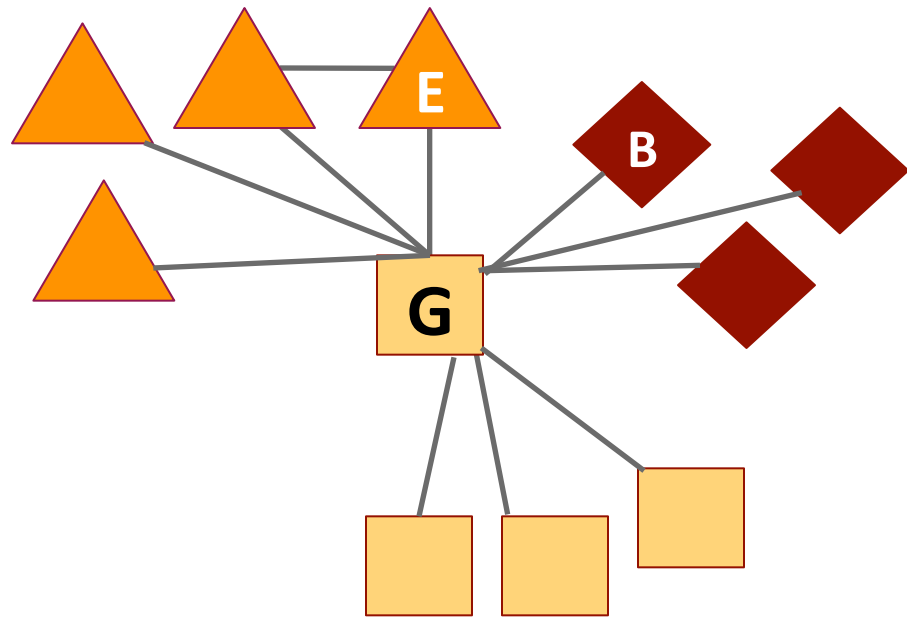
MI growers (n = 115)



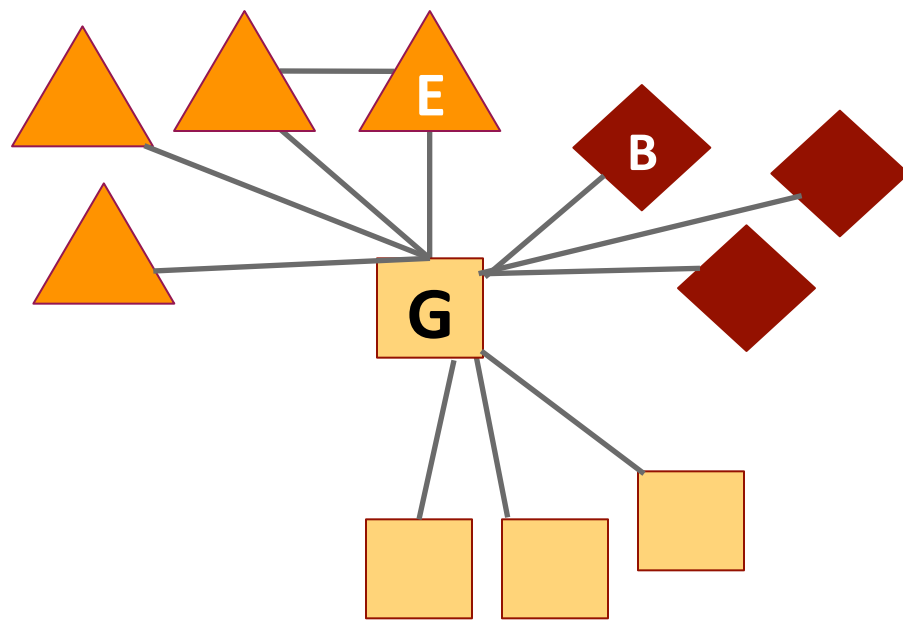
MI growers (n = 115)



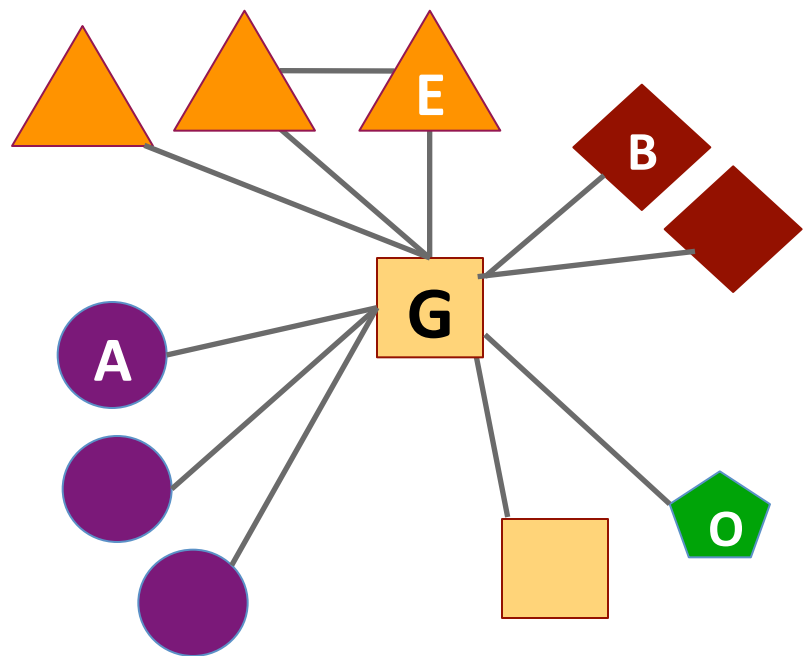
PA growers (n = 105)



PA growers (n = 105)

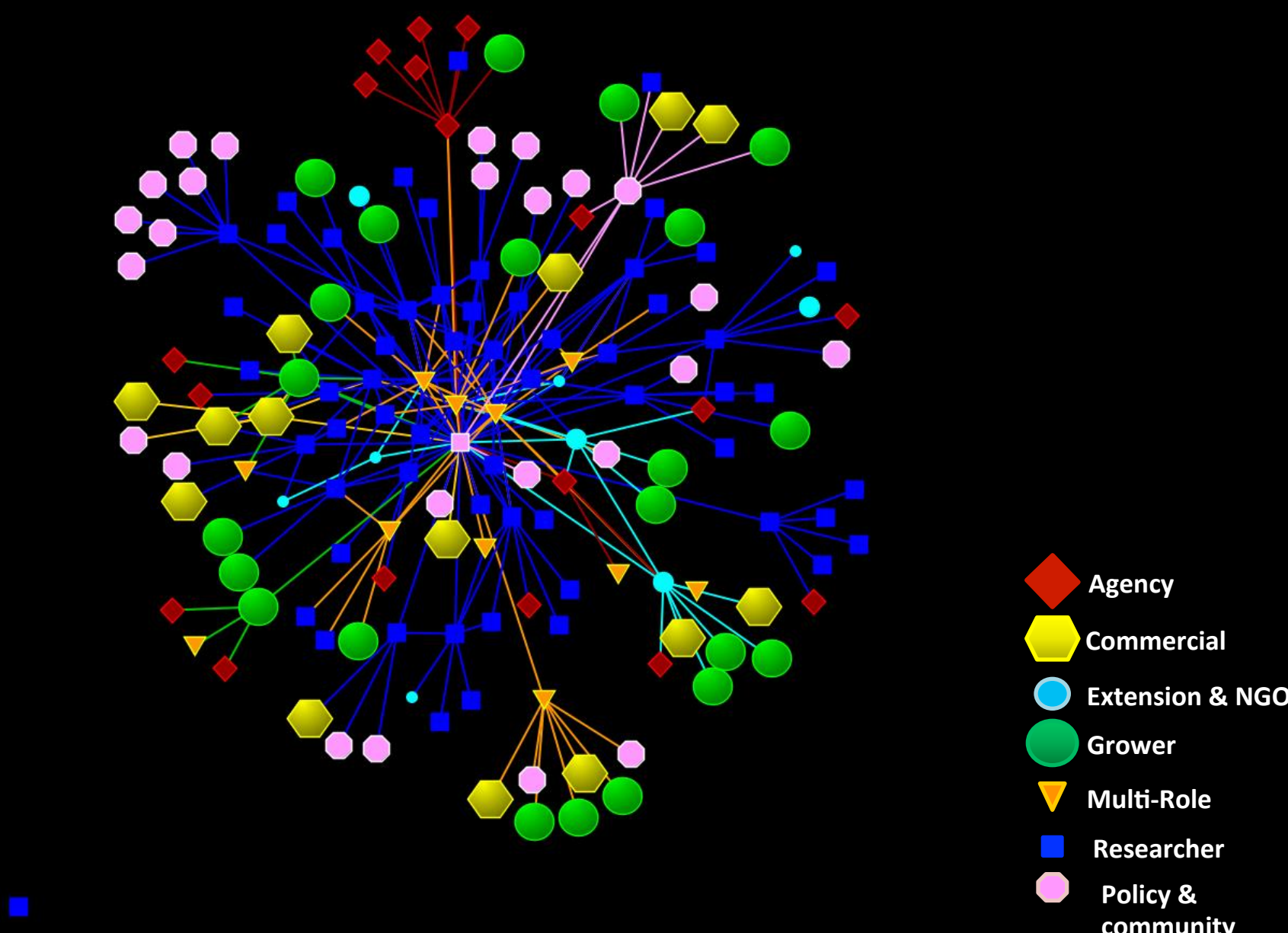


MI growers (n = 115)

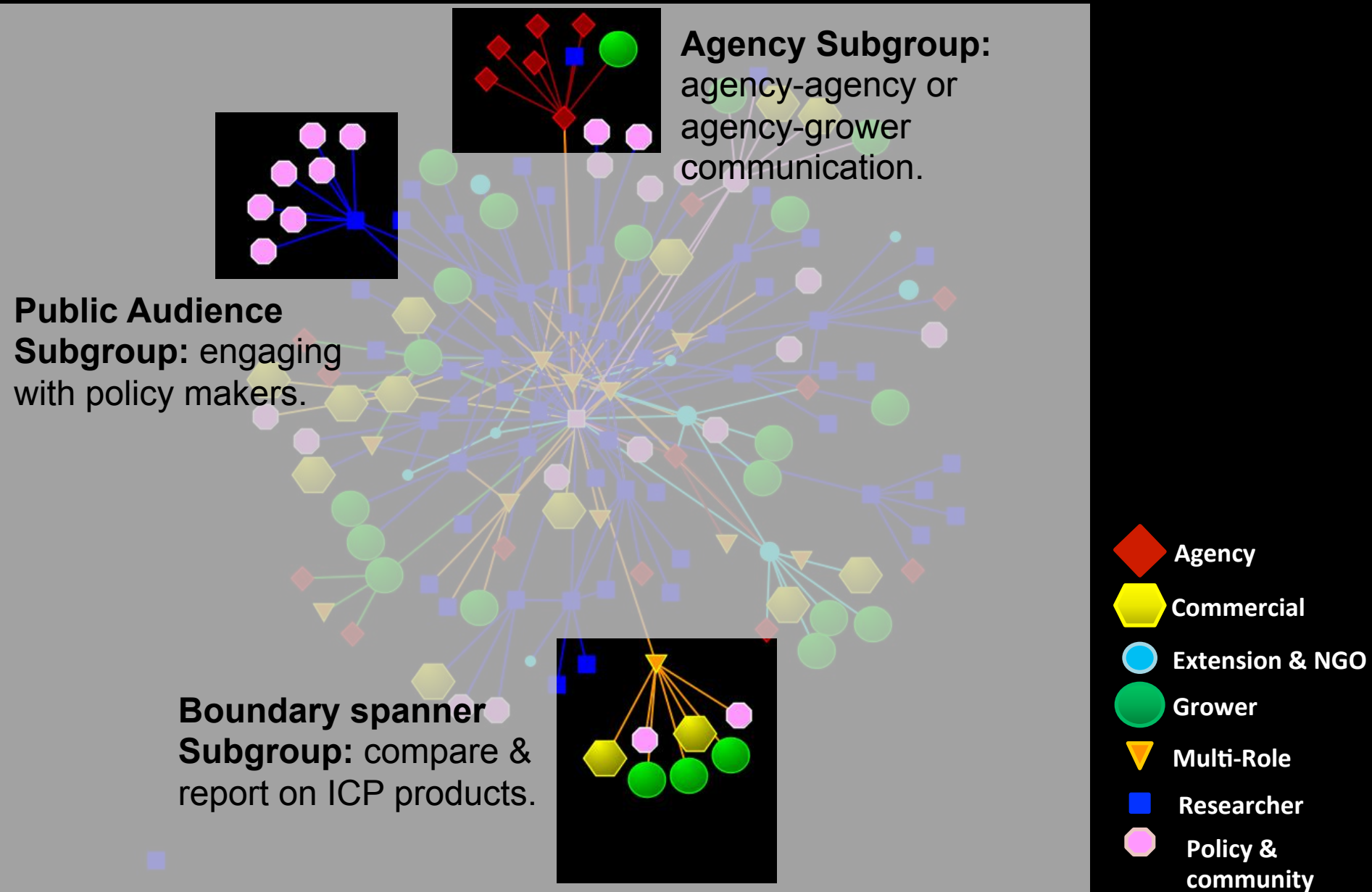


	MI	PA
Extension	26%	35%
Beekeepers & suppliers	19%	30%
Government agencies	26%	>5%
Growers	16%	25%

ICP Team Network



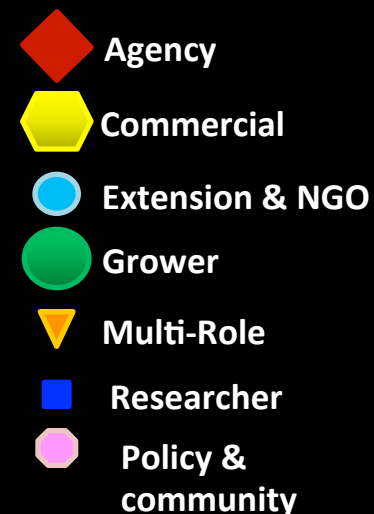
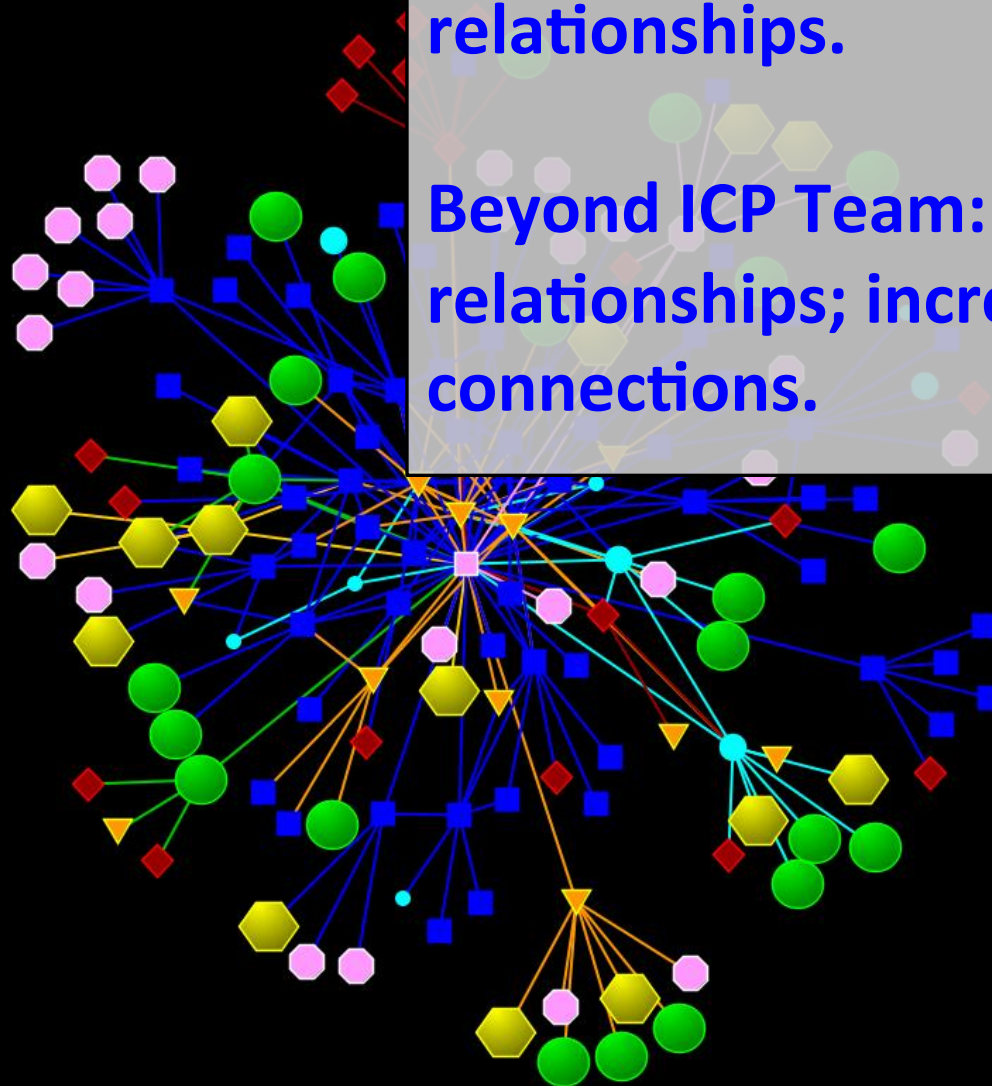
ICP Team Network



ICP Team Network

Within ICP Team: use network characteristics to leverage relationships.

Beyond ICP Team: leverage relationships; increase network connections.





Thanks!

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USDA Specialty Crop Research Initiative, Coordinated Agricultural Project
Developing Sustainable Pollination Strategies for U.S. Specialty Crops (Award 2012-51181-20105)