



Growing Wyoming

What can we produce with gardens?

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What do gardens do?

Previous research suggests that they:

- Almost certainly improve
 - social and emotional health (e.g., reduce stress)
 - built environment
 - health behaviors (e.g., vegetable consumption, activity)
- May improve physical health
- Provide some “ecosystem services,” including:
 - *Provisioning*: food and biodiversity (but how much?)
 - *Regulating*: water filtration and run-off management
 - *Cultural*: recreation, education, heritage preservation

What do gardens do in Wyoming?

Our research projects ask:

1. How and why do community-based organizations in Wind River Indian Reservation (WRIR) and Laramie support food gardening?
2. How much food do Laramie gardens yield?
3. What are health impacts of food gardening with WRIR families?
4. What are health impacts of food gardening for people managing multiple chronic diseases in Laramie?

What do gardens do in Wyoming?

Our research projects ask:

1. How and why do community-based organizations in Wind River Indian Reservation (WRIR) and Laramie support food gardening?

Food Dignity case studies (2011-2016) with partners:

- Blue Mountain Associates (WRIR)
- Feeding Laramie Valley (Laramie)
- University of Wyoming

What do gardens do in Wyoming?

Our research projects ask:

2. How much food do Laramie gardens yield?

Team GROW within Food Dignity (2012-2015) with

- Feeding Laramie Valley
- Laramie gardener-researchers
- University of Wyoming

Food Gardeners' productivity in Laramie, Wyoming: more than a hobby

Shannon Conk and Christine M. Porter
University of Wyoming

Currently slated to be published in the *American Journal of Public Health* (epub ahead of print) in March 2016

anyone beyond those

Embargo ends on March 17th

What do gardens do in Wyoming?

Our research projects ask:

3. What are health impacts of food gardening with WRIR families?

Growing Resilience pilot (2013) and randomized controlled trial (2016-2020) with partners:

- Blue Mountain Associates
- Eastern Shoshone Tribal Health
- Northern Arapaho Tribal Health
- University of Wyoming

Growing Resilience: an RCT on the health impact of gardens with Wind River Indian Reservation
“Specific Aims” of the project, Christine M. Porter as principal investigator, 2016-2020
(exactly as submitted to NIH as part of our successful funding application for www.growingresilience.org)

This Growing Resilience (GR) research project leverages assets of land, family, culture and community health organizations to develop and evaluate home food gardens as a family-based health promotion intervention to reduce disparities suffered by Native Americans in nearly every measure of health. This novel research builds on three sets of tribal and public health assets and imperative needs.

One, observational studies and our GR pilot study suggest that gardens yield multiple health benefits, including improved nutrition and food security, reduced stress, increased physical activity, stronger social ties, and

What do gardens do in Wyoming?

Our research projects ask:

4. What are health impacts of food gardening for people managing multiple chronic diseases in Laramie?

Gardens for Health & Healing pilot I (2013) and pilot II (2016-2018) with partners:

- Feeding Laramie Valley
- University of Wyoming

What do gardens do in Wyoming?

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5. So what?

1. Gardens to grow people and community

Blue Mountain Associates in Wind River Indian Reservation &
Feeding Laramie Valley in Albany County

Partners in the **Food Dignity** action research project case studies

How and why do BMA and FLV support food gardening?

Feeding Laramie Valley

Action Resources International (ARI/FLV)

Laramie and Albany County, Wyoming



Feeding Laramie Valley



Feeding Laramie Valley

Credit: Reece Owens, FLV



Feeding Laramie Valley



Credit: Jim Sutter, BMA

Blue Mountain Associates

Wind River Indian Reservation, Wyoming

Credit: Reece Owens, FLV



Blue Mountain Associates



Blue Mountain Associates



Credit: Jim Sutter, BMA

Wind River Reservation Farmers Market

Purpose: To promote healthy living through the sale of locally grown produce, agriculturally related products, and crafts to residents of the Wind River Reservation and surrounding areas, as well as provide a place for local vendors to sell their goods.

Locations: The market will be held on a rotating basis in 3 reservation communities

- Ft. Washakie-post office parking lot
- Arapahoe-Great Plains Hall parking lot
- Ethete-Blue Sky Hall parking lot

Using gardens to grow people and community by:

- Building physical infrastructure (e.g., shared equipment, garden at schools, homes, parks).
- Building civic infrastructure (e.g., wider and/or deeper social networks; leadership).
- Creating opportunities to share, give & receive food, knowledge, ideas, encouragement, skills, seeds, ideas... and more.
- Remembering, respecting, renewing, sharing, & reviving culture and spirit.

2. Grow your own “groceries”

Team GROW

How much food do Laramie gardens yield?

Food Gardeners' Productivity in Laramie, Wyoming: More Than a Hobby

Shannon J. Conk, MS, and Christine M. Porter, PhD

Method: 31 Laramie gardeners, with range of expertise and demographics, weighed every harvest.

Results: The average 253ft² plot (2012-14) yielded enough to supply an adult with the daily USDA-recommended amount of vegetables for nine months & gardeners shared 30% of it.

So?

- Support gardening as a diverse and distributed agriculture...
- that provides diverse and distributed benefits (including health, community infrastructure, cultural resilience and enrichment, and biodiversity).

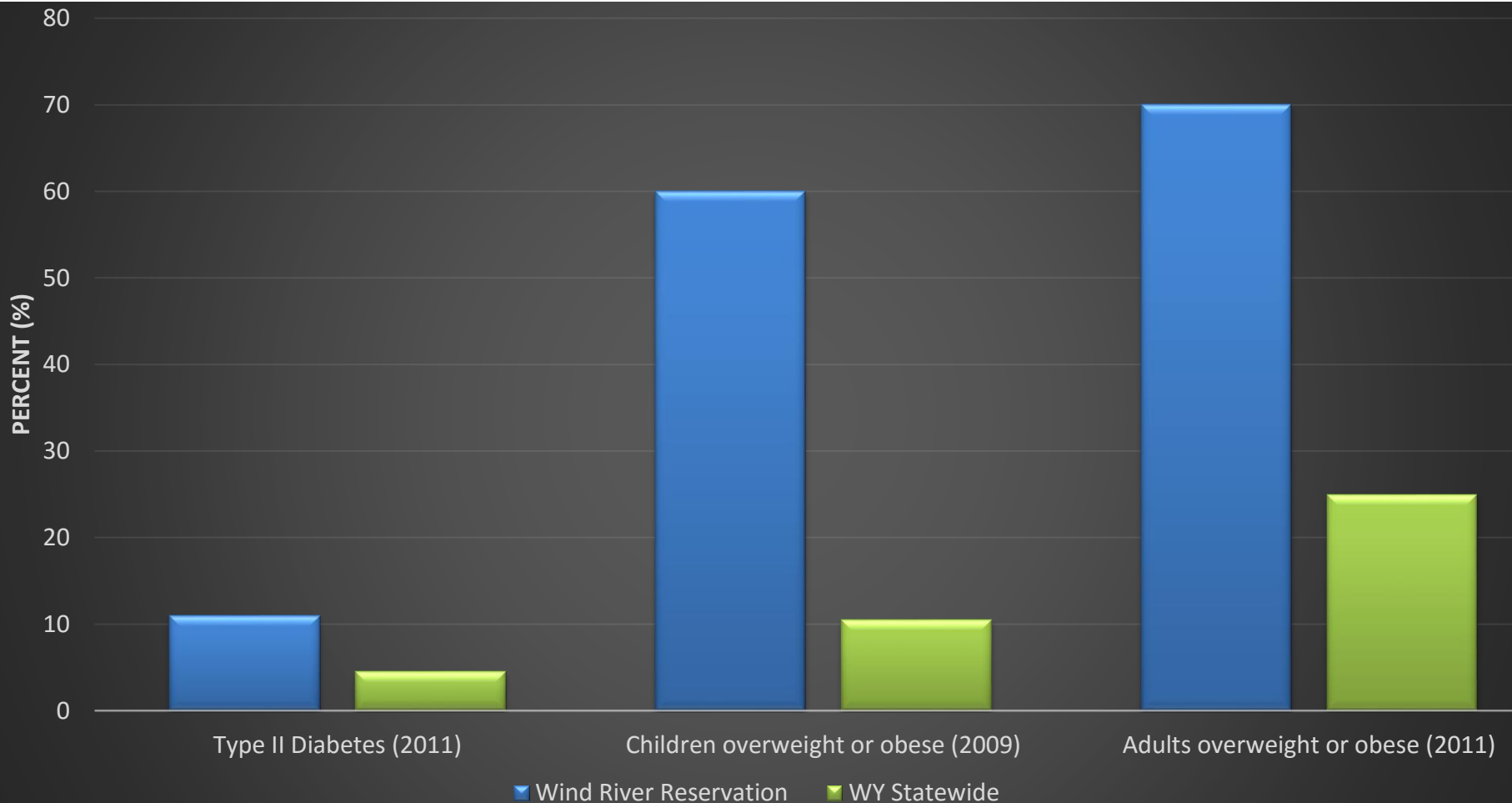
3. Measuring the health impacts of home food gardening

Growing Resilience

What are health impacts of food gardening with WRIR families?

- Background – health disparities and desire for more gardens
- Pilot projects and results
- *Growing Resilience: an RCT on the health impact of gardens with Wind River Indian Reservation*
 - Research design
 - Baseline results from first wave of participating families

Background: Health disparities between WRIR and Wyoming



¹ ARDD. (2011). "Reducing Diabetes Disparities in American Indian Communities (Wind River Reservation)." Retrieved 11/21/14, from http://ardd.sph.umich.edu/eastern_shoshone_tribe.html.

² Smith, B.W., Wiggins, K., Tooley, E., Christopher, P., and Bernard, J. (2008) "The brief resilience scale: assessing the ability to bounce back." International journal of behavioral medicine. 15(3): 194-200

³ Robert Wood Johnson Foundation (2014) "The State of Obesity in Wyoming." Retrieved 3/1/16 from <http://stateofobesity.org/states/wy/>

Background: Why measure health impacts of gardens?

1. Documented desire to garden in Wind River Indian Reservation (WRIR) but need for support
2. Previous research: Team GROW results (gardens matter for food), anecdotes and observational research suggesting gardens improve improved health
3. Designed and funded a pilot RCT on health impacts of home food gardens



Pilot project results in WRIR and Albany County

Quantitative trends:

- Better BMI outcomes
- Increased hand strength
- Improved emotional health

Qualitative trends:

- Reduction in medication use (anti-depressants, blood pressure, painkillers and glucose regulation)
- Deepened and widened social networks
- Improved emotional health
- Improved access to and/or interest in fruits and vegetables

“Who would have thought I would fall in love with bok choi?”

Takeaway Points from Pilot

- Successful gardens are a necessity, not a research question
- Data collection methods
 - Survey dramatically shortened with mixed modes of administration
 - Added a full blood draw
 - Collect information about medications and supplements
 - Family-based interventions must include children
- Doing it right
 - Listen and learn
 - Plan for success
 - “It’s all about community”
 - Community-driven research
 - Community-wide vision

Growing Resilience RCT with WRIR



photo credit: Jim Sutter, BMA

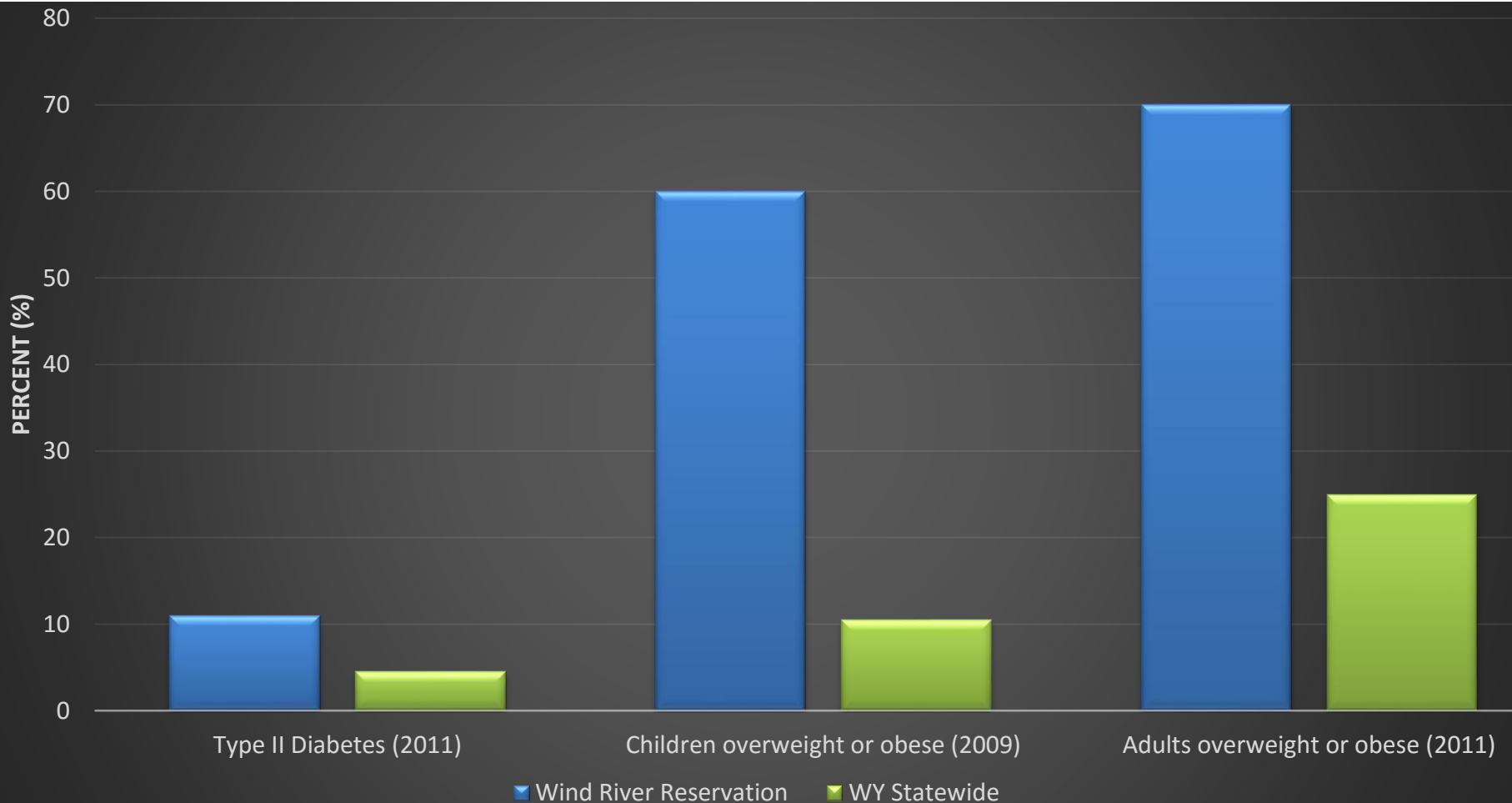


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photo credit: Kathleen Thomas

- Funded by NIH, \$2.5 million, from 2016 to 2020
- Support new food gardens for 100 Wind River families
- Randomized to garden or to delayed-intervention control
- Adult BMI is primary outcome

Background: Health disparities between WRIR and Wyoming



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So what?

Without support and collaborations there would be nothing.

Life in the WRIR:

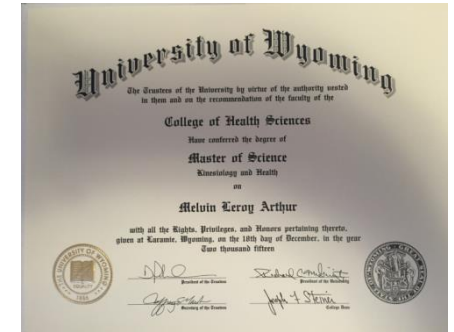
- Something new to my community
- Outcomes of last five years
- Home gardening is now a thing in WRIR
- On the road to making sustainability a goal

Farmer's Market:

- Tribal Farmers Market
- Mini-grants

My education:

- Master of Science Degree



And so much more!

- Re-connecting to traditional values
- Healing historical trauma
- Food sovereignty for future generations



What can Wyoming produce with gardens?

What *don't* gardens do?

- Produce grain and oil crops at a nutritionally meaningful scale.
- Supply all fruits and vegetables, particularly for those without the interest or ability to preserve harvests.
- Meet food needs of people who do not have both the interest in and ability to garden.

What do gardens do?

- Improve individual and community well-being.
- Produce meaningful amounts of food.
- Increase control over food, turning consumers into producers.
- Provide foundations for community and community food system building.
- Theoretically, build resilience through geographic distribution and biodiversity, replicative production, and distributed skill development.
- What else?

Gratitude

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