

The Colorado Plateau Seed Market: A Shift Towards Natives?



Ashley L. Camhi, Arizona State University

Colorado Plateau Native Plant Program

2016 Annual Meeting

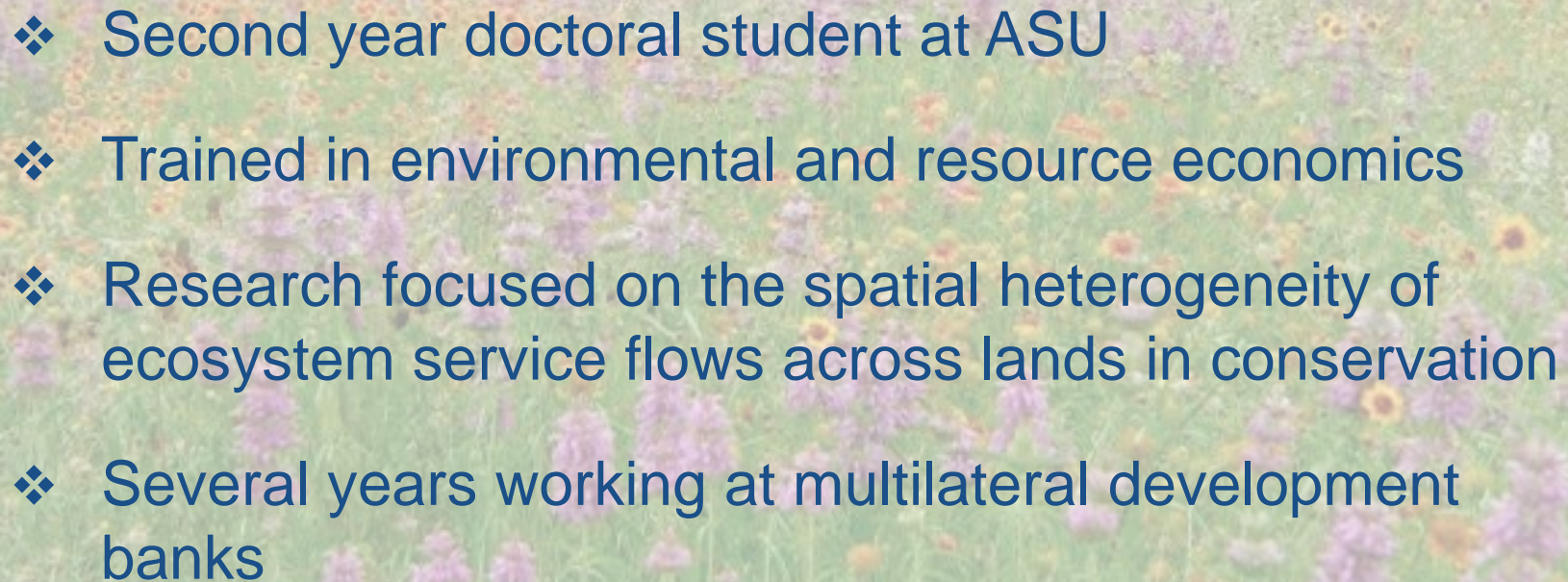
March 22-23, 2016

Page, Arizona





My Background

- 
- ❖ Second year doctoral student at ASU
 - ❖ Trained in environmental and resource economics
 - ❖ Research focused on the spatial heterogeneity of ecosystem service flows across lands in conservation
 - ❖ Several years working at multilateral development banks



United States Seed Market

- ❖ In 1997, the total value of the commercial U.S. seed market was \$5.7 billion, roughly 20% of the world market in seed
- ❖ The U.S. seed market is the largest seed market worldwide
- ❖ Over the past 3 decades, the U.S. seed industry has been marked by transition. As recently as 1970, most seed firms were independent.
- ❖ During the 1970s, most small seed firms vanished, as mergers and acquisitions created a new seed industry structure dominated by large companies with primary investments in related sectors. Mergers and acquisitions, along with increased private sector R&D expenditures, continued to grow through the 1990s.



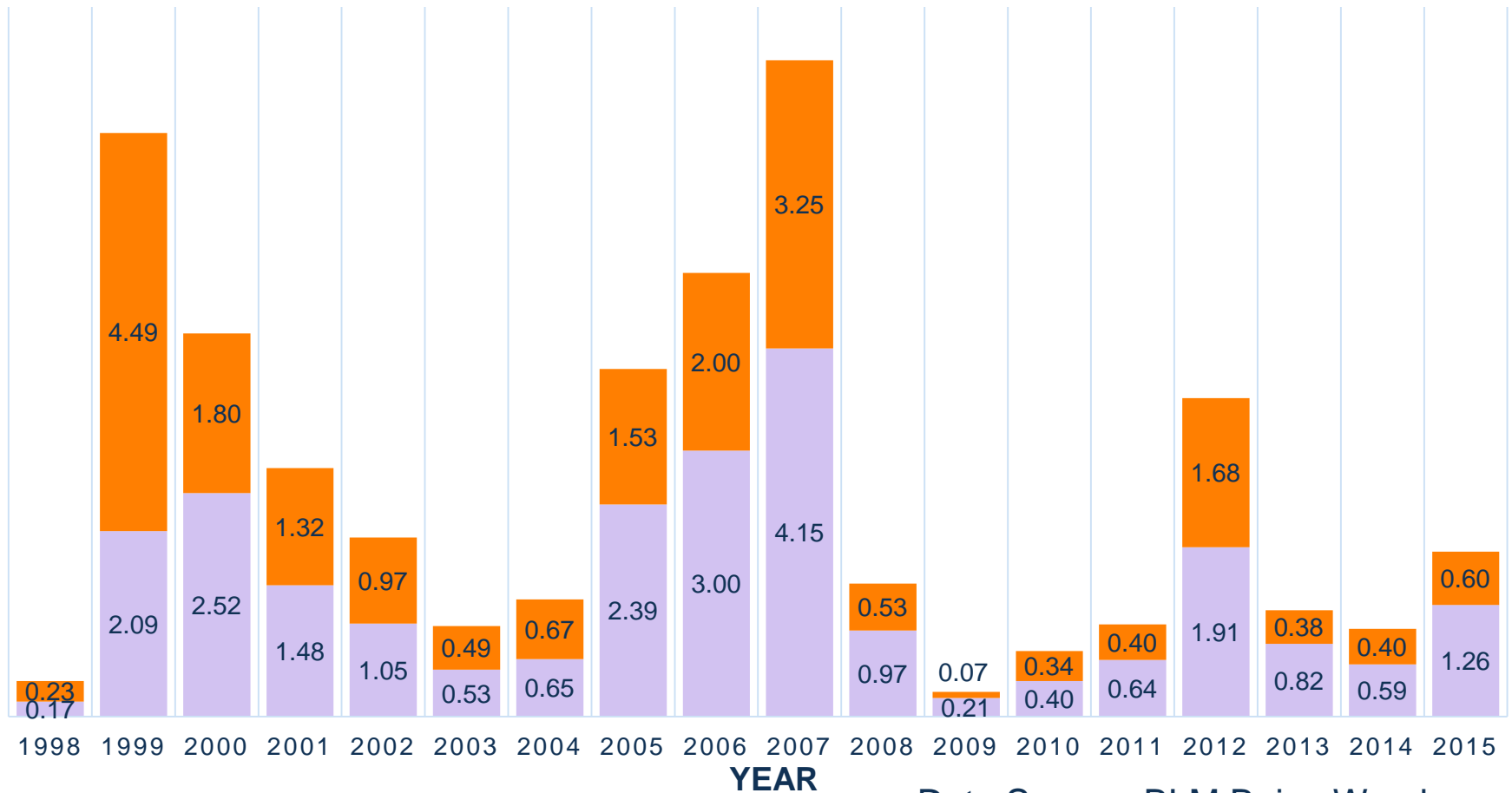
Restoration Seed Market

- ❖ Since the release of the Department of the Interior's National Seed Strategy in 2015, there has been upward momentum to increase the amount of native seed species used for restoration purposes on BLM land and # sources per species
- ❖ The restoration seed market differs greatly in size and scale from the crop seed market
- ❖ Example: do not see the same type of conglomeration in the restoration market as in the crop seed market
- ❖ Restoration market there are still several companies

BLM National Seed Buy Quantities

Native Non-Native

MILLIONS OF POUNDS



Data Source: BLM Boise Warehouse



Data Sources

- ❖ Bureau of Land Management's seed buys from fiscal years 1998 through 2015
- ❖ Great Basin Research Center's seed buys from fiscal years 2001 through 2014
- ❖ Great Basin Research Center's seed invoices from 2005-2015 for native and non-native seeds for restoration in the Colorado Plateau
- ❖ This analysis excludes any restoration done for oil and gas concessions on BLM land



Missing Data

- ❖ Annual budget for BLM seed purchases
- ❖ Seed requests to Boise Warehouse for years other than 2014 and 2015
- ❖ Side buys done by field offices on Colorado Plateau
- ❖ Seed quantities used for restoration on oil and gas land
- ❖ Costs of production from seed suppliers

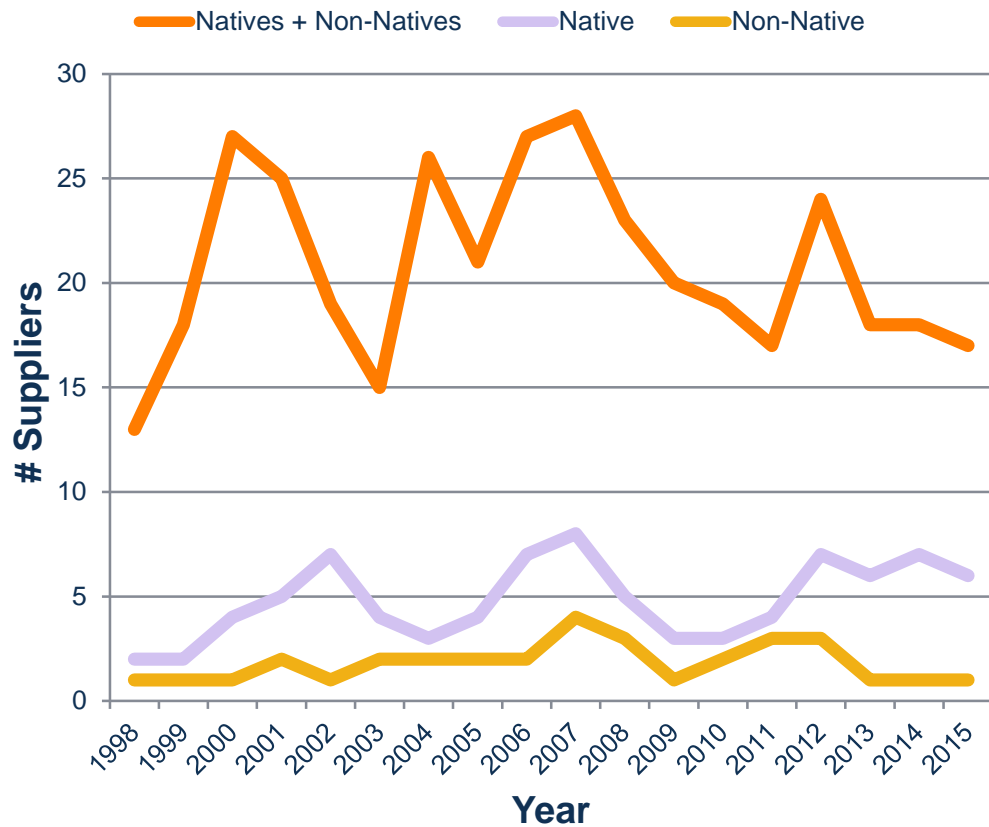


Market Structure (Supply): Company Size

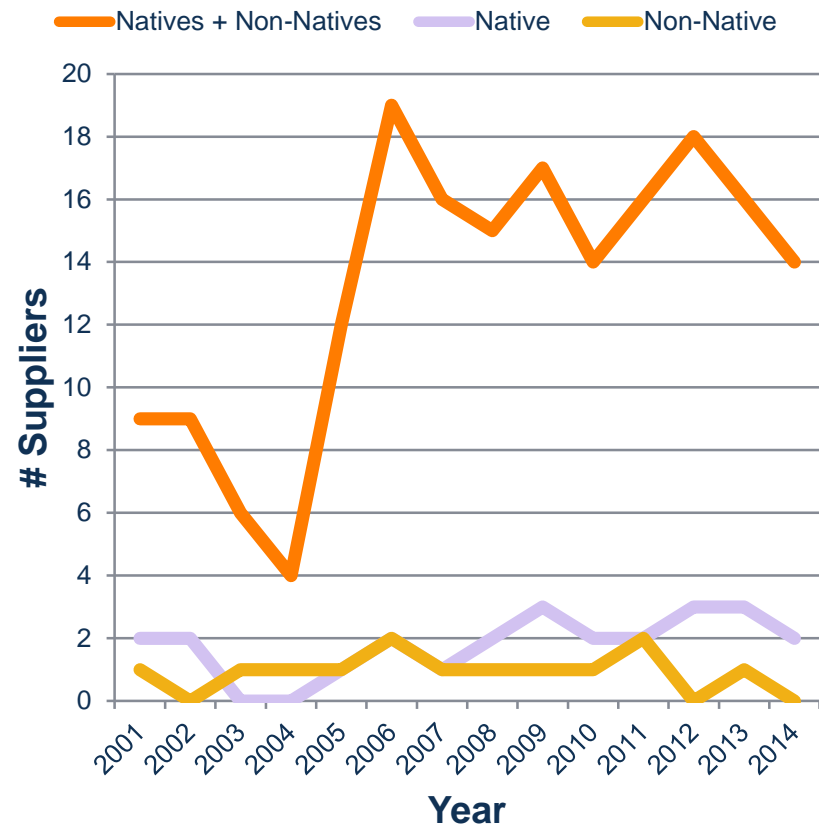
- ❖ Preliminary results suggest that about half of the suppliers are large companies, about half are small companies, and there are few seed wholesalers
- ❖ All small companies relative to companies such as Monsanto
- ❖ Result = Not able to manipulate market
- ❖ Exist few large companies that are selling industry seed
- ❖ Exist few small companies selling niche seed
- ❖ Most companies sell both native and non-native seed

Market Structure: Suppliers of Seed Types

Boise Warehouse

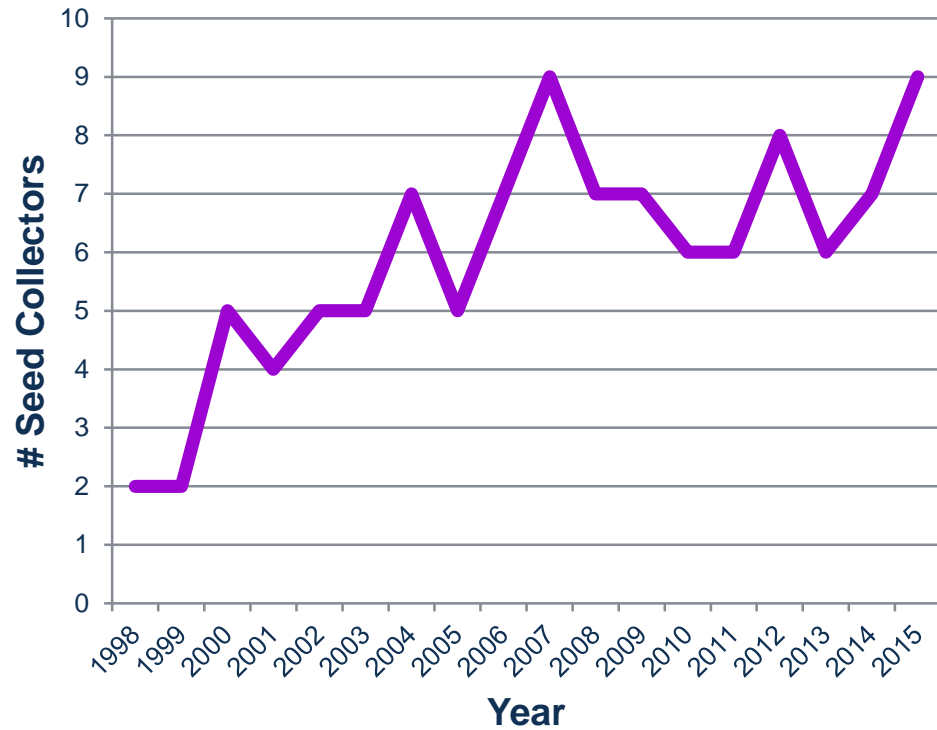


GBRC

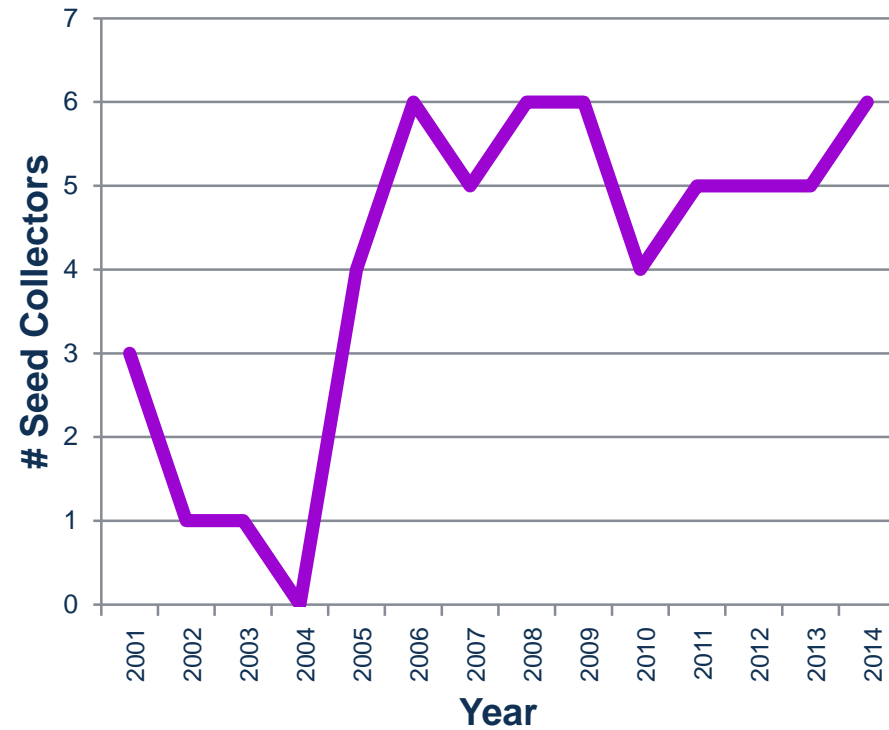


Market Structure: # of Seed Collectors per Year

Boise Warehouse



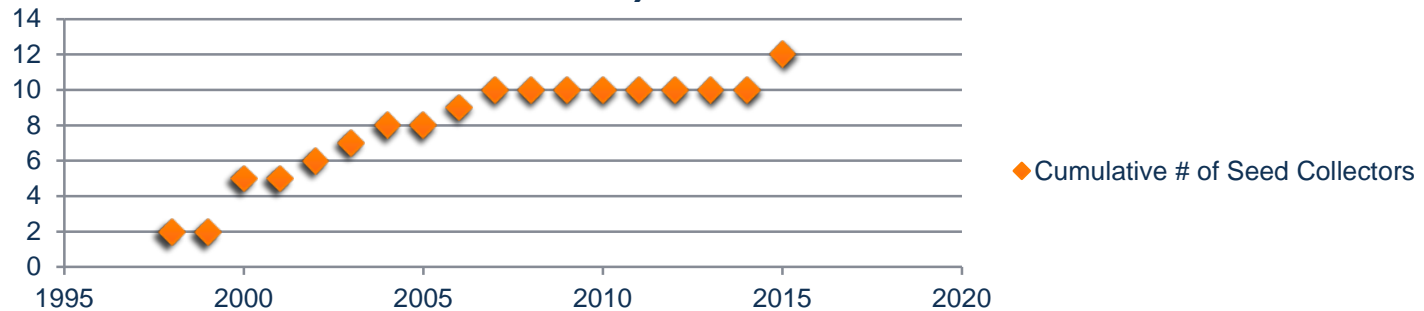
GBRC



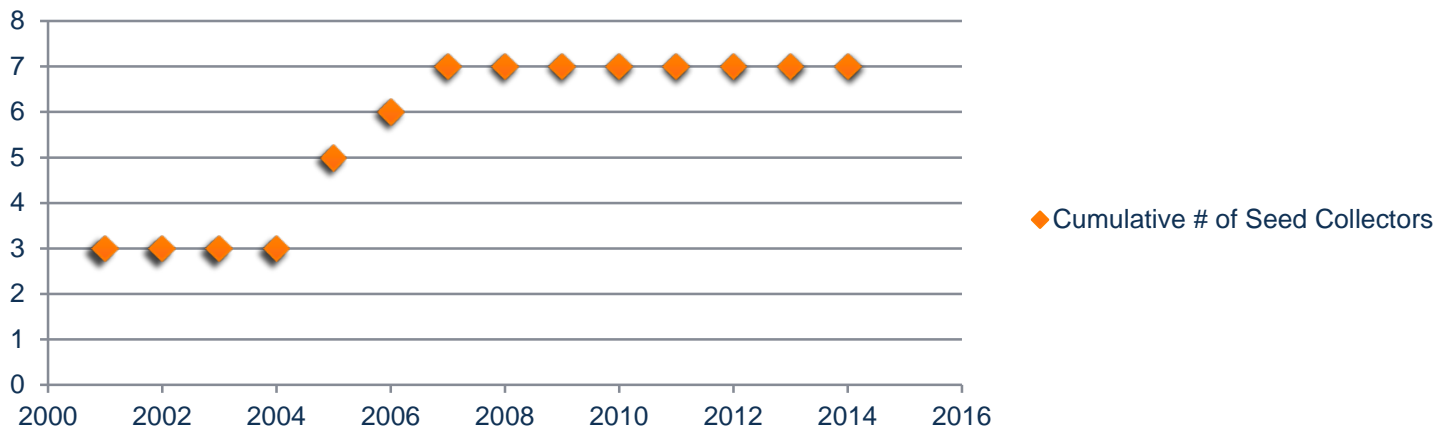
Seed collectors: Companies and farms that collect seed

Seed Collectors Entering the Market

Cumulative # of Seed Collectors (Boise Warehouse)

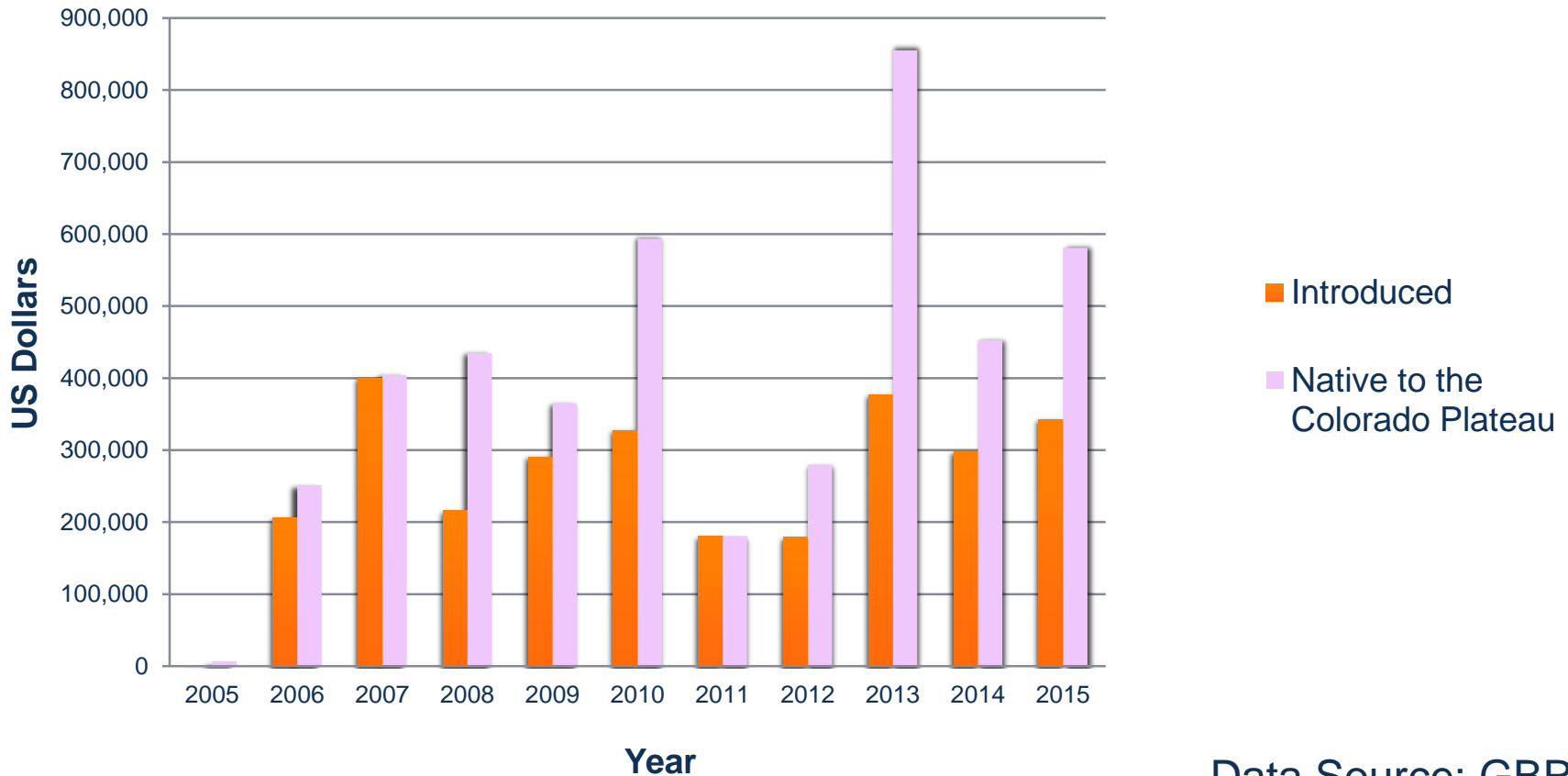


Cumulative # of Seed Collectors (GBRC)



Annual Seed Cost

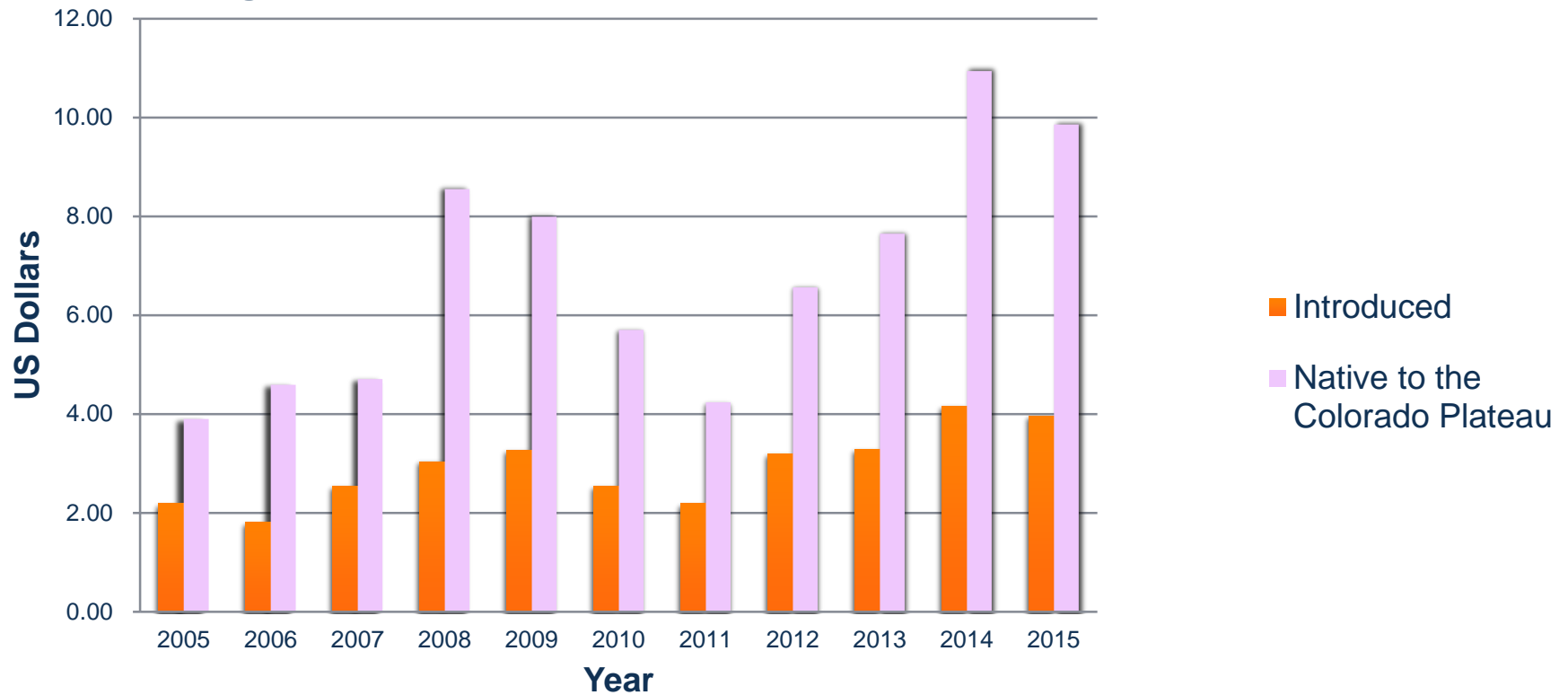
Colorado Plateau Annual Seed Costs



Data Source: GBRC WRI

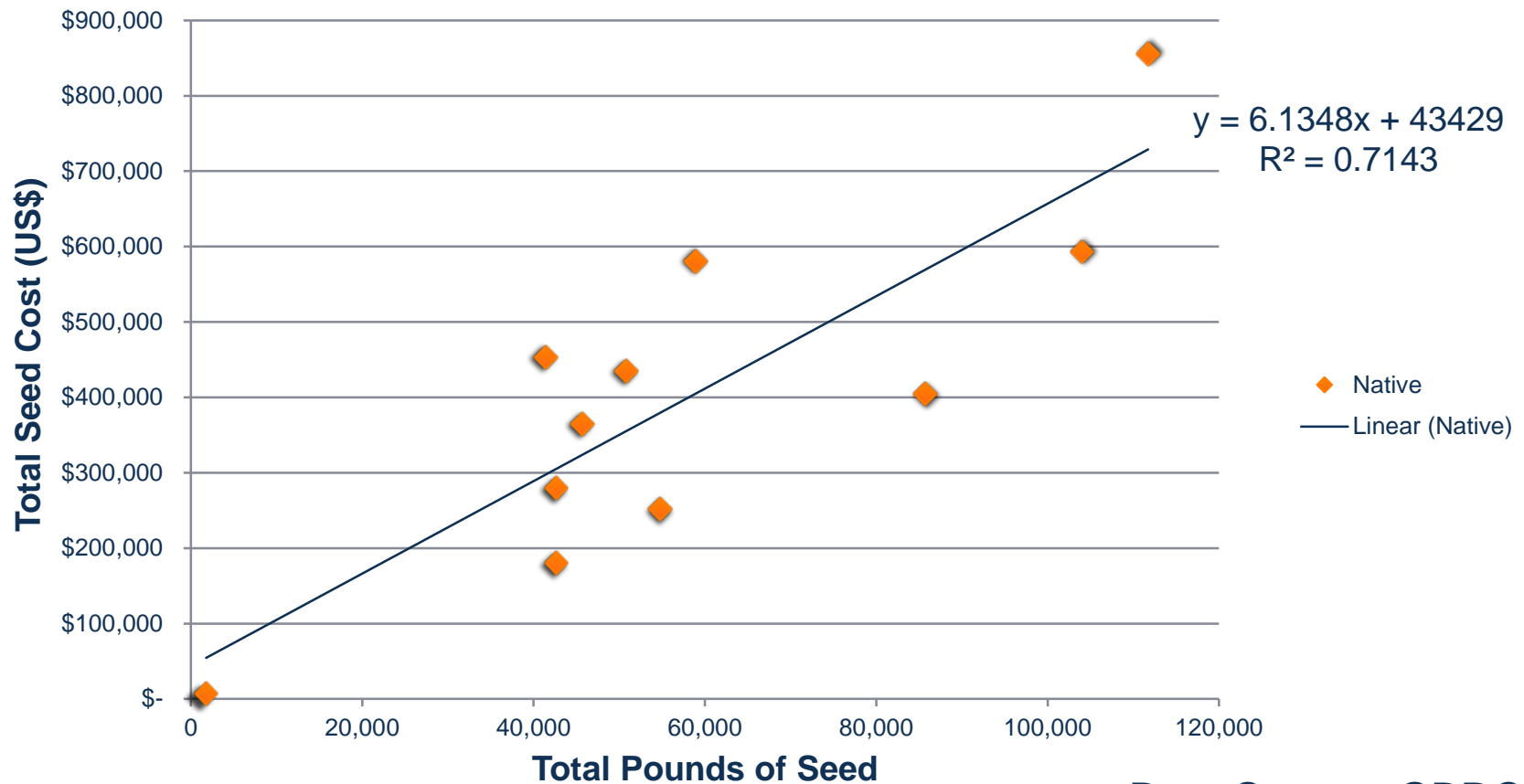
Average Seed Cost

Average Cost Per Pound of Seed on the Colorado Plateau



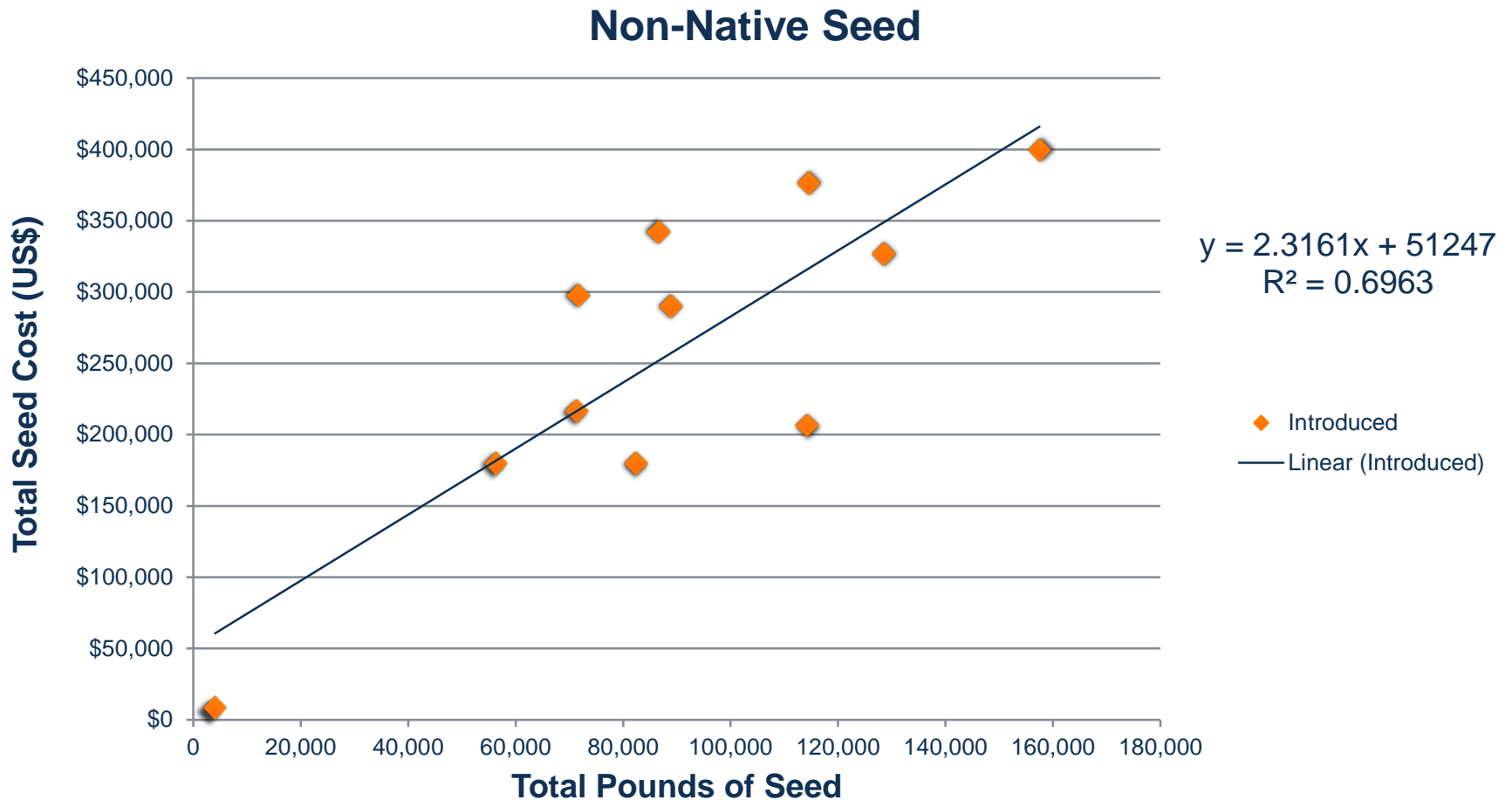
Price vs. Quantity of Native Seed

Native Seed



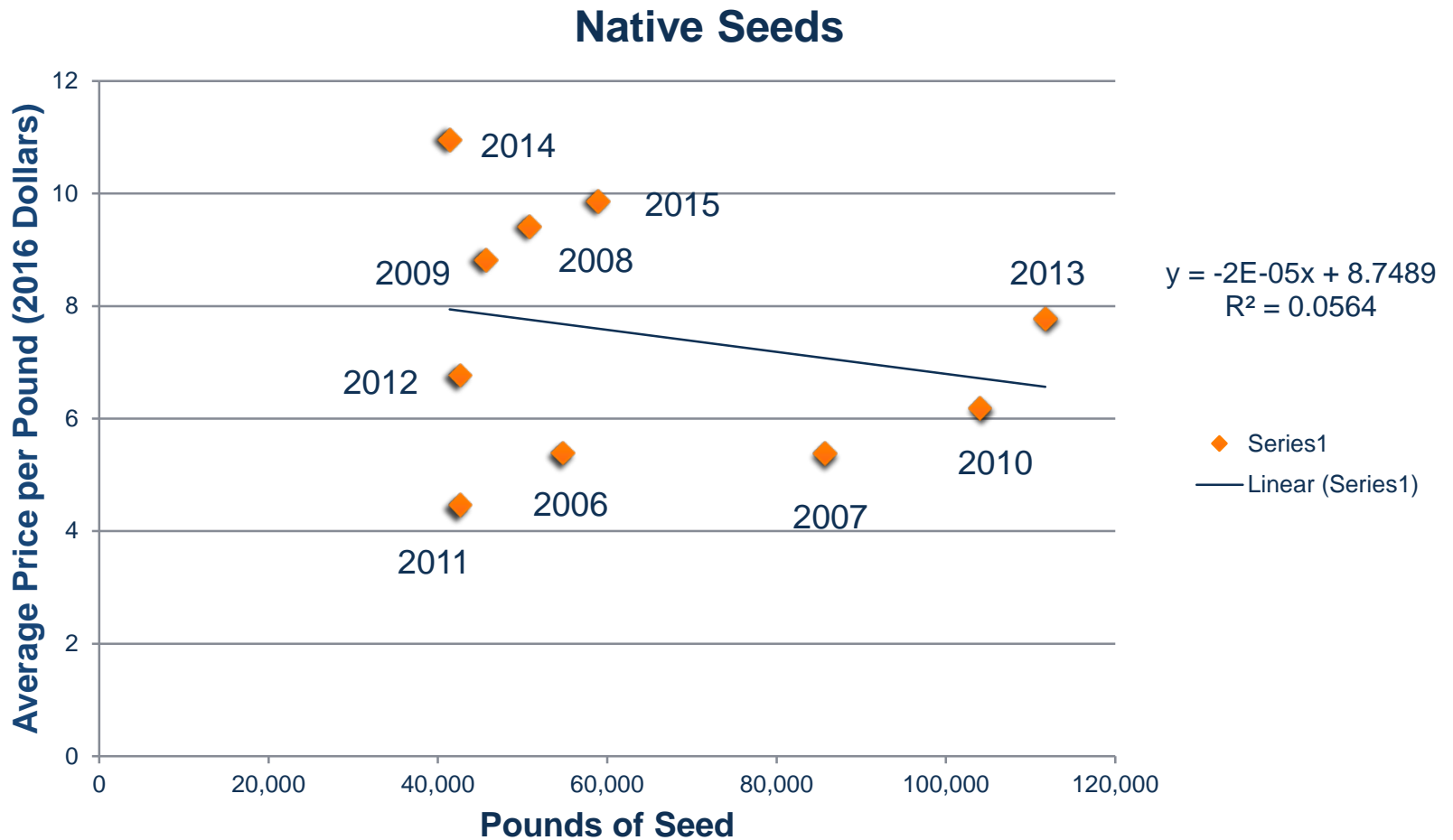
Data Source: GBRC WRI

Price vs. Quantity of Non-Native Seed



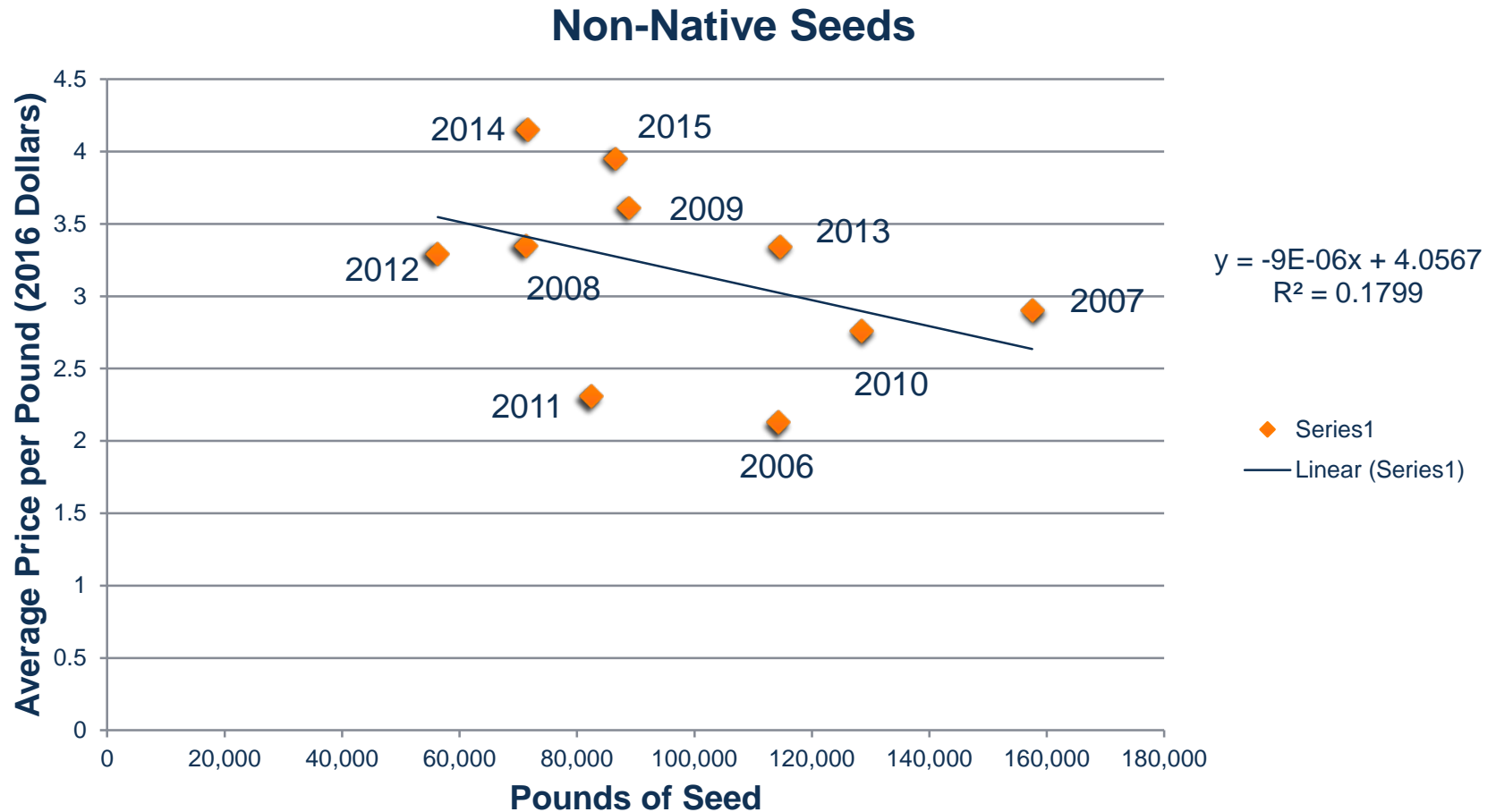
Data Source: GBRC WRI

“Demand” Curve for Native Seeds



Data Source: GBRC WRI

“Demand” Curve for Non-Native Seeds





On the Right Path

- ❖ For 2017 the BLM is requesting \$5.0 million to aggressively implement the National Seed Strategy, which will increase the native seed inventory and supply through 1,500 seed collections (only wildland collections count towards supply not collections intended for use in research evaluation); engage youth to become the next generation of land stewards by training them to locate and harvest native seed; clean and store native seed in long-term conservation seed banks; identify areas for important native plants to ensure field reserves of target species; and engage federal procurement officers and native seed producers to analyze procurement procedures and facilitate improved Federal access to native seed markets.



Policy Options

1. Subsidize suppliers such as done in crop seed market
 - ❖ Which ones??
 - ❖ All, small growers, only native suppliers...
2. Guarantee certain amount of native seed purchased annually
 - ❖ Increase in new companies producing native seed
 - ❖ Increased competition
 - ❖ Companies may drop out of the market if BLM is not driving their demand



Policy Options

3. Set strict limits on the amount of native seed purchased per year
 - ❖ Increase the cap every year
 - ❖ E.g. 5% increase in the amount of natives purchased annually
 - ❖ You need to shift demand before you can see a change in supply
 - ❖ Work together with other federal agencies that have the same mandate

4. Work with a range of suppliers (large and small companies) to understand what prevents them from making this type of shift
 - ❖ Adaptive management → will need to adjust depending on market response



Questions

Thank you to:

Adrienne Pilmanis, BLM

Troy Wood, USGS

Brad Butterfield, NAU

Charles Perrings, ASU

Andrea Kramer, Chicago Botanical Gardens

Nora Talkington, NAU/Chicago Botanical Gardens

Ricardo Galvan, BLM Boise Regional Seed Warehouse

Kevin Gunnell, GBRC