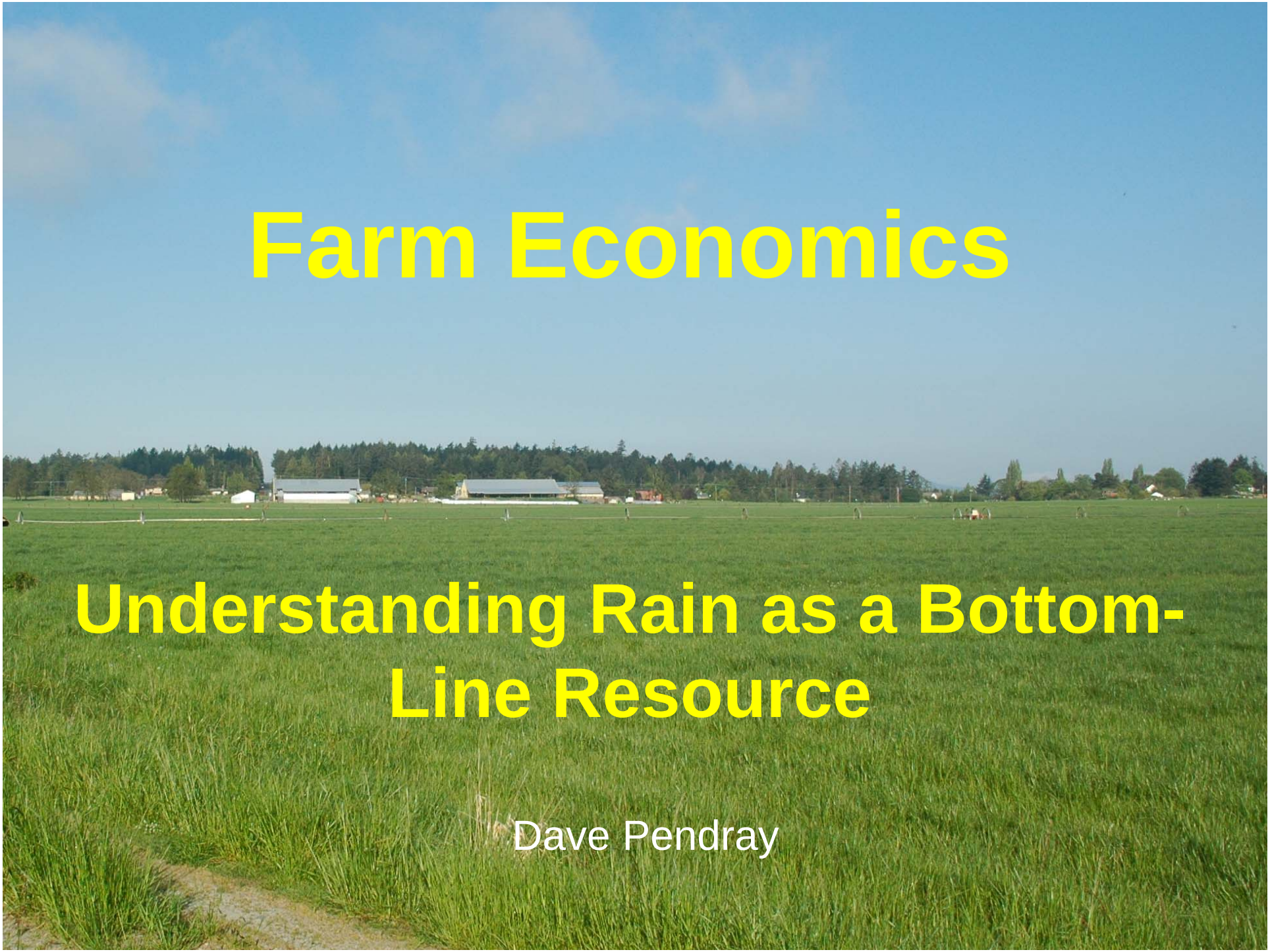

Farm Economics

Understanding Rain as a Bottom-Line Resource

Dave Pendray

Background:
The Pendray Farm

- Founded in 1916
- Adjacent to Victoria International Airport in North Saanich
- 225 acres planted for forage
- 625 head of dairy cattle

Why did we begin harvesting rainwater?

- Wells on the property did not reliably yield enough water to sustain year-round operations
- An existing dugout provided some rainwater collection and storage when we purchased the property
- Municipal water was not available

How we Developed the System

- Expanded the existing dugout to 18 million gallons
- Added drain tile under fields gradually over several years, to capture water into the dugout
- Added pump stations to collect water from fields that do not naturally drain into the dugout

The System Today

- 50 acres of catchment area (fields with underdrains that connect to the dugout
- 20-25 million gallons of rainwater harvested in an average year
- $0.5 million estimated cost to build the system
- $25-30 thousand per year estimated operating cost

Dugout and pump intake

Pump intake

Second dugout under development

Economics - How much does our rainwater cost?

- Capital cost of dugouts, tile installation, pumps and pipes is about $0.5 million
- Operating cost is about $25-30 thousand per year
- The system provides up to 60 million gallons per year for irrigation
- Based on a ten year life cycle of the equipment, the cost of the water is about $0.001- 0.002 per gallon (about 1/3 of the cost of municipal water for agriculture)

Conclusion: Why Rainwater is Good Value for Agriculture

- Long-term cost is comparable with, or less than municipal water
- Provides a reliable alternative to groundwater
- In combination with other sources, rainwater harvesting reduces the risk of drought-related crop failure
- Cost stability: The price of rainwater is not determined by an external agency