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# Native Seed Provider & User Perspectives: Forward Contracts for Ecological Restoration

**Gord & Marge Thomson**  
**Thomson Farms**  
**Dinsmore, SK**

**Darcy Henderson**  
**Canadian Wildlife Service**  
**Saskatoon, SK**

# Outline

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- Contrasting Reclamation & Restoration
- Making “Agronomic Mountains” out of “Natural Molehills”
- Making case for Wild-Harvesting & Forward Contracts
- Case Study: Western Porcupine Grass

# Contrasts (Gradients)

## Practices

RECLAMATION  RESTORATION


## Sites

OPEN-PIT MINES & ROAD DITCHES  NATIONAL PARKS & NATIONAL WILDLIFE AREAS

## Professions

ENGINEERING  HORTICULTURE  
AGRONOMY  ECOLOGY  
FORESTRY

## Economics

HIGH \$ DISTURBANCE  
HIGH \$ COMMODITY  
HIGH \$ RECONTOUR  
LOW \$ REVEGETATION  LOW \$ DISTURBANCE  
LOW \$ COMMODITY  
LOW \$ RECONTOUR  
HIGH \$ REVEGETATION

# Contrasts (Gradients)

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RECLAMATION  RESTORATION

## Plant Materials

HIGH VOLUME  
UNIFORMITY



LOW VOLUME  
DIVERSITY

GUARANTEED  
PERFORMANCE OF  
PEDIGREED SEED  
>=CERTIFIED No.2



ASSURANCE  
ALIEN-FREE &  
HIGH VIABILITY  
COMMON SEED

 **AGRONOMIC  
INERTIA** 

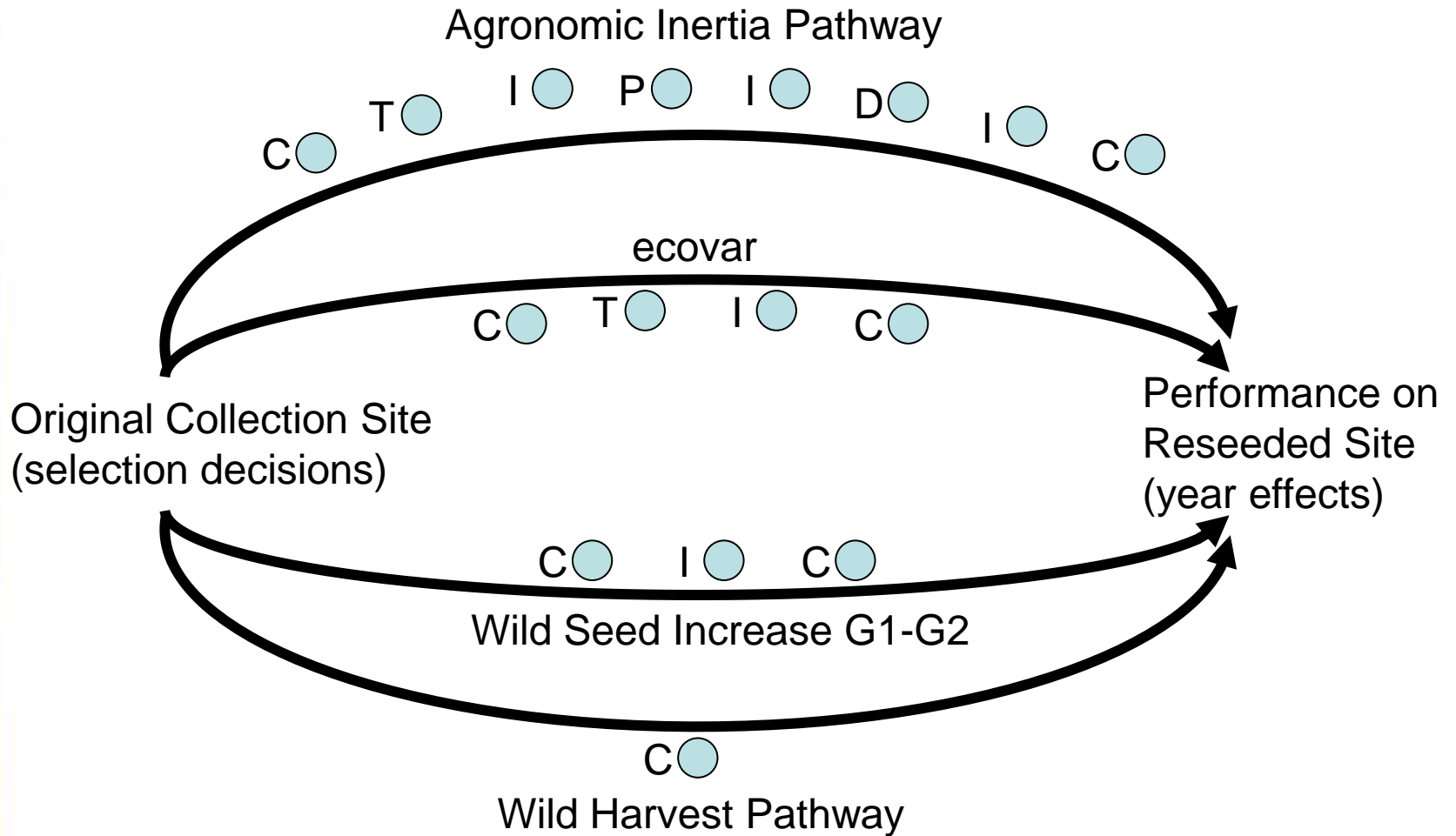


# Agronomic Inertia

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- Restoration user = small market, low volume & fluctuating demand.
- Economic/Business Model = expand market, increase supply, meet market demand, improve client loyalty & producer stability, & protect the public.
- BUT: Agronomic inertia ultimately loses diversity.
- AND: Agronomic solutions = much R&D time & \$.

# Seen Another Way





**LEGEND**

- Major Canadian Cities
- 🌿 National Wildlife Area
- 💧 Water
- ▭ Canadian Provincial Boundary
- ▭ US State Boundary

Map produced by Environment Canada Jan 2012.  
 Data from Environment Canada's Geospatial Data Repository.

**NORTHERN PRAIRIE NATIONAL WILDLIFE AREAS**

Environment Canada / Environnement Canada

0    90    180    270    Km    Scale 1:5,000,000

N

Datum: North American Datum 1983  
 Projection: Universal Transverse Mercator Projection, Zone 13  
 Disclaimer: This map is for illustrative purposes only and should not be used to define legal boundaries



# Species Selection

- Start with ecoregion & ecosite.
- Make list of desired mix.
- Determine commercial supplies available (cultivar-wild, certified-common, purity & viability).
- Forward contract for what is not available on the market.





# Western Porcupine Grass



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# Western Porcupine Grass



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# Western Porcupine Grass



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# Source Location

- Start with ecoregion & ecosite:
  - Adaptability
  - Suitability
- Distance-decay relationship:
  - Genetic context
  - Transportation costs
  - Weed risks



# Thomson Farms



# Thomson Farms



# Thomson Farms



# Thomson Farms





# Thomson Farms



# Thomson Farms



# Thomson Farms



# Thomson Farms



# Certificate of Seed Analysis

## SEED SAMPLE (25 g)

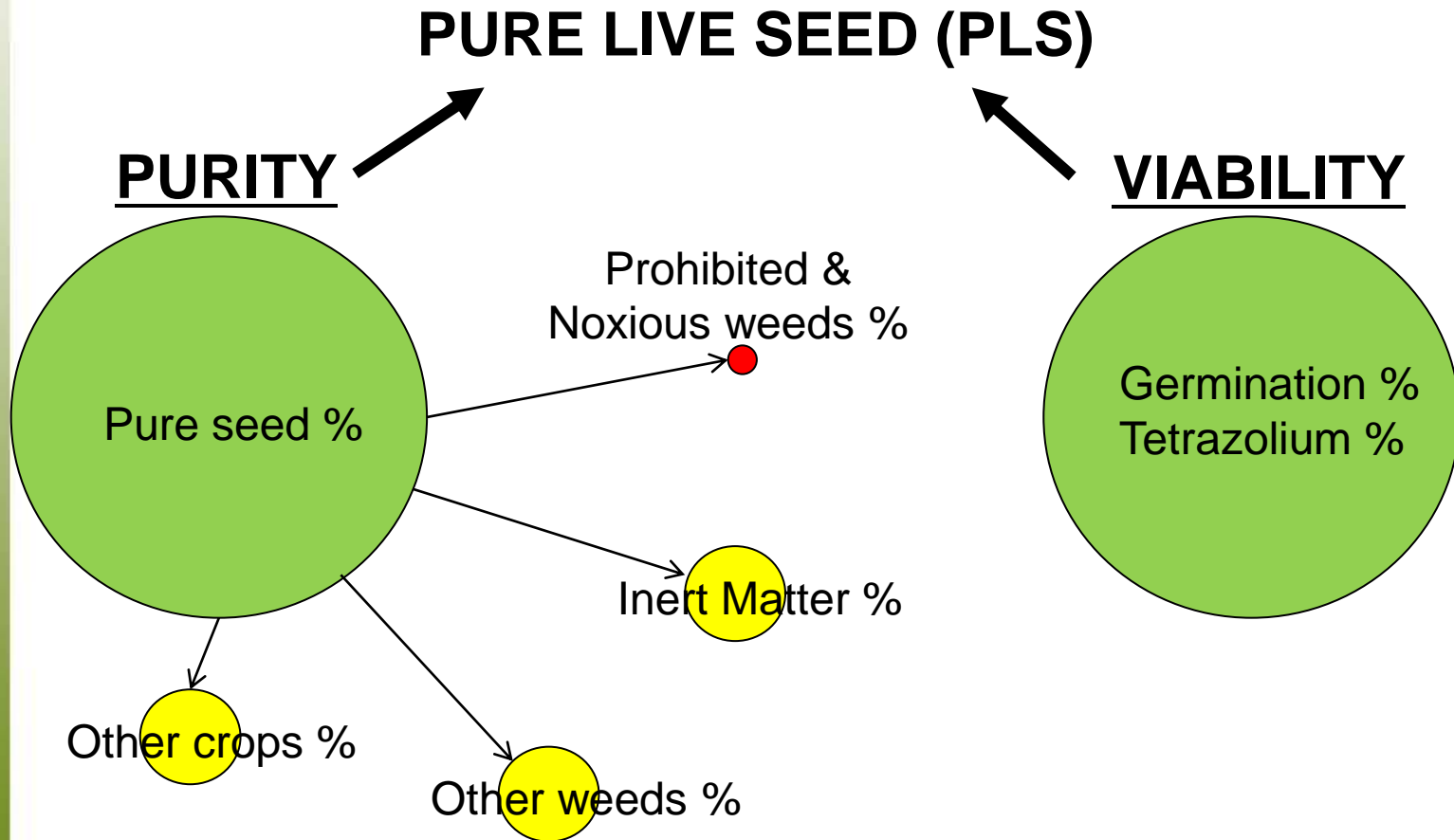
### PURITY

- Pure seed of target crop %
- Other crops %
  - registered varieties (#/sample)
- Weeds %
  - prohibited (#/sample)
  - noxious 1&2 (#/sample)
  - other weeds (#/sample)
- Inert matter %

### VIABILITY

- Germination %
- Tetrazolium %

# Certificate of Seed Analysis



# Certificate of Seed Analysis

|   |       |                            |
|---|-------|----------------------------|
| Pure seed ( <i>Western Porcupine Grass</i> )  | = 85% |                            |
| Other crops                                   | = 5%  |                            |
| - <i>Crested wheatgrass</i> (12)              |       |                            |
| - <i>Yellow sweet clover</i> (5)              |       |                            |
| Weeds   | = 7%  | <b>PLS</b><br><b>= 49%</b> |
| - prohibited (0)                              |       |                            |
| - noxious (1) <i>sow thistle, stinkweed</i>   |       |                            |
| - other weeds (6) <i>horseweed, goldenrod</i> |       |                            |
| Inert matter                                  | = 3%  |                            |
| Tetrazolium                                   | = 58% |                            |

# Certificate of Seed Analysis

|  |       |
|--|-------|
| Pure seed ( <i>Western Porcupine Grass</i> )   | = 60% |
| Other crops  | = 5%  |
| - <i>Slender wheatgrass</i> (25)   |       |
| - <i>Northern wheatgrass</i> (45)  |       |
| Weeds  | = 5%  |
| - prohibited (0)   |       |
| - noxious (1) <i>wild oat</i>  |       |
| - other weeds (190) <i>wild vetch, Hooker's oatgrass, snowberry, nodding brome, golden-bean, rough fescue, green needle grass, Juncus spp., Poa spp., Polygonum spp., goat's beard</i> |       |
| Inert matter   | = 30% |
| Tetrazolium  | = 90% |

**PLS**  
**= 54%**





# Certificate of Seed Analysis

|  |       |
|--|-------|
| Pure seed ( <i>Western Porcupine Grass</i> )                     | = 78% |
| Other crops  | = 13% |
| - <i>Northern wheatgrass</i> (n/a)                               |       |
| Weeds  | = 4%  |
| - prohibited (0)   |       |
| - noxious (0)  |       |
| - other weeds (n/a) <i>Hooker's oatgrass, green needle grass</i> |       |
| Inert matter   | = 5%  |
| Tetrazolium  | = 93% |

**PLS**  
**= 73%**

# Lessons Learned - User

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- Guaranteeing a price and delivery date 8-14 months prior to planting allows time for planning and budget inputs.
- Gives time to adequately prepare the recipient site, and do additional seed analysis tests.
- Lowers purchase price and improves outcome to use seed with 'beneficial' impurities.
- Eases mind and reduces stress.

# Lessons Learned - Provider

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- Guaranteeing a price and delivery date 4-6 months prior to harvest allows time for planning and budgeting inputs.
- Gives time to custom-harvest sites mutually agreed upon by user and provider.
- Get paid for everything on the seed certificate (impurities + crop), when impurities are natives.
- Eases mind and reduces stress.

# More information:

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Thomson Farms: Native grass harvesting/cleaning

**Gord & Marge Thomson**

Box 52, Dinsmore SK, S0L 0T0

306-846-4722; [gordthomson@sasktel.net](mailto:gordthomson@sasktel.net)

Canadian Wildlife Service

**Darcy Henderson**

115 Perimeter Road, Saskatoon SK, S7N 0X4

306-975-4291; [darcy.henderson@ec.gc.ca](mailto:darcy.henderson@ec.gc.ca)