

# Oil Concentration Monitoring

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# In-Line Sensors

**ProSpectra**  
600-1100 nm; 1024 channels



**Polytec**  
850-1650 nm; 400 channels



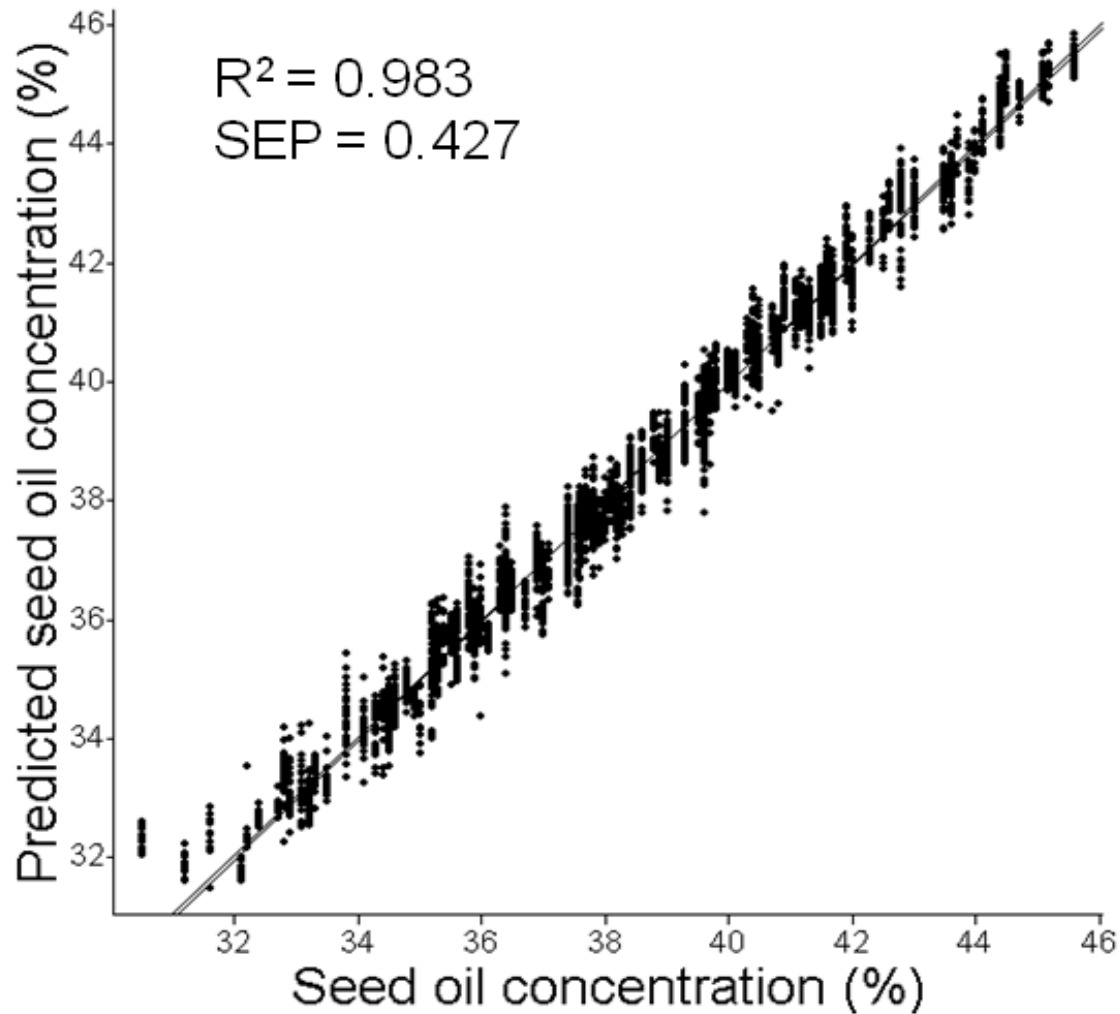
# Percent Oil Concentration

Location	Year	N	Mean
<b>Spring Canola</b>			
Froid, MT	2006	5	31.4 ± 0.7
Froid, MT	2007	12	33.0 ± 0.4
Ralston, WA	2010	24	34.8 ± 1.4
Echo, OR	2009	20	34.8 ± 0.8
Ralston, WA	2009	15	35.6 ± 2.0
Froid, MT	2008	12	36.4 ± 1.3
Froid, MT	2010	11	37.1 ± 1.3
Adams, OR	2010	20	39.0 ± 1.5
Froid, MT	2005	11	40.4 ± 1.6
<b>Winter Canola</b>			
Bridgeport I, WA	2009	8	36.6 ± 1.0
Bridgeport II, WA	2009	35	39.5 ± 2.0
Okanogan, WA	2010	8	39.5 ± 1.9
Okanogan, WA	2009	12	42.0 ± 2.3
Bridgeport, WA	2010	29	42.8 ± 1.2

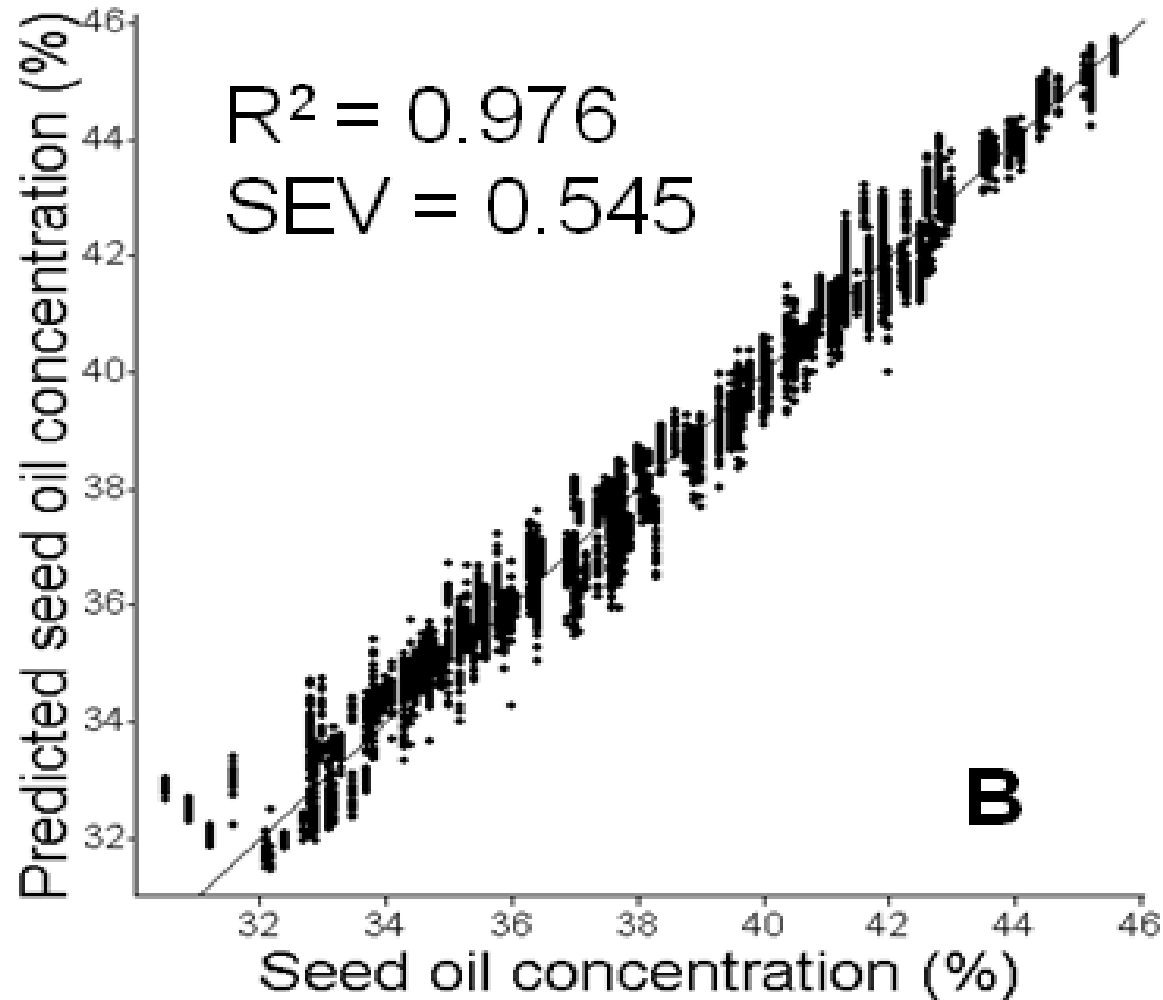
Testing



# Calibration

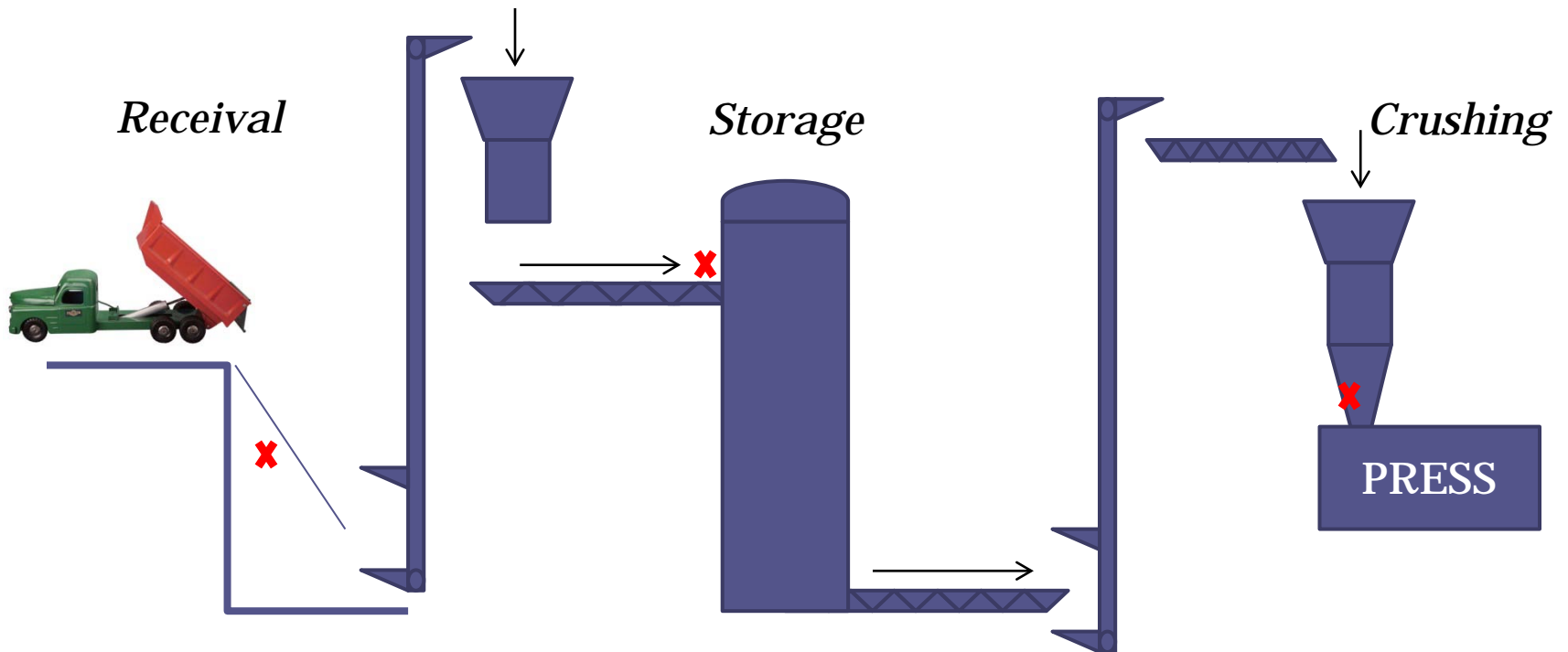


# Validation



# Monitoring Points

## **CRUSHING PLANT**



# Monitoring at the Press

**Extraction Efficiency =**

**Oil Extraction Rate**

**÷**

**Seed Flow Rate × Seed Oil Concentration**



# Points

- **In-line NIR reflectance sensors can provide accurate information about variability in grain quality at a high measurement rate.**
- **Ability to be installed in a crushing plant would potentially improve operating efficiency and increase profitability.**
- **Growers might capture price premiums when mounted on a combine harvester.**